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2019 ENERGY MASTER PLAN  
STAKEHOLDERS MEETING  
SUSTAINABLE AND RESILIENT INFRASTRUCTURE

BOARD: CYNTHIA HOLLAND, Lead, BPU  
JOSEPH DeLOSA, BPU  
ZAINAB NAWAZ, BPU  
STACY PETERSON, BPU  
JAMES GIULIANO, BPU  
DAVID BROWN, BPU  
MEGAN LUPO, BPU  
BEN WITHERELL, BPU  
JOE COSTA, BPU  
MARCO VALDIVIA, BPU  
CHRISTINE SHCELL, DEP  
ATHENA SARAFIDES, DEP  
MONIKA ATHWAL, EDA  
MAGGIE PETERS, EDA  
MATTA SESTRICH, EDA  
DIANA BUTCAVAGE, EDA  
BRENDAN McCLUSKEY, DOH

DATE: SEPTEMBER 28, 2018

TIME: 10:00 A.M.

PLACE: MERCER COUNTY COMMUNITY COLLEGE  
THE CONFERENCE ROOM  
1200 Old Trenton Road  
West Windsor, New Jersey

BY: Laura P. Ream, Court Reporter

J.H. BUEHRER & ASSOCIATES  
884 Breezy Oaks Drive  
Toms River, New Jersey 08753  
(732) 295-1975

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1 MS. CYNTHIA HOLLAND: Good  
2 morning, everyone. For those of you who  
3 don't know me, my name is Grace Power. I'm  
4 the Chief of Staff at the BPU. Welcome  
5 today to our fifth, no longer final,  
6 stakeholder meeting of the Energy Master  
7 Plan Committee. Welcome on behalf of  
8 President Fiordaliso and Governor Murphy.  
9 I'm excited to be here today to introduce  
10 the Sustainable and Resilient  
11 Infrastructure Committee.

12 As many of you know by now, the  
13 Executive Order 28 was signed by the  
14 governor in May along with the clean energy  
15 legislation, the nuclear legislation, at  
16 which time he tasked the BPU to spearhead  
17 an Energy Master Plan Committee that will  
18 deliver a new 2019 Energy Master Plan, and  
19 that is what we have been hard at work  
20 doing.

21 Ultimately our task is to develop  
22 a blueprint for the full conversion of the  
23 state to 100 percent clean energy by 2050.  
24 So we have a big task ahead of us, but  
25 we're excited to take all of your input to

1 get us there.

2 Brief timeline, again the  
3 executive order was signed in May. The  
4 interagency Energy Master Plan Committee  
5 kicked off in June. We've been holding our  
6 first set of stakeholder meetings this  
7 month with two additional meetings that  
8 were just announced in October, the 4th and  
9 11th [sic]. I believe we have copies of  
10 that notice here. The information is also  
11 available on our website.

12 We heard you all tell us that we  
13 needed some additional hearings, so we  
14 scheduled them. Some people were prepared  
15 to congratulate me on surviving the first  
16 five hearings, but two more to go.

17 After that point the committees  
18 are going to be working to put together a  
19 draft that will be released late winter,  
20 early spring for public comment with a  
21 final plan to be delivered to the governor  
22 in June.

23 The departments, many of whom are  
24 represented here today, that are involved  
25 in the EMP process, of course, the BPU

1 staff, DCA, EDA, DEP, Health, Human  
2 Services, DOT, Labor and Workforce  
3 Development, Treasury and Transit.

4 With that I am going to turn it  
5 over to Cynthia Holland, who is the  
6 director of the BPU's Division of Federal  
7 and Regional Policy. Thank you.

8 MS. CYNTHIA HOLLAND: I'm not sure  
9 which side I'm supposed to click, so you're  
10 going to have to work with me for a second.  
11 But I want to thank everyone for being here  
12 today. This is no longer our final  
13 stakeholder meetings, so you do have two  
14 more opportunities to have your voice heard  
15 before our October 12th deadline for  
16 comments.

17 I did want to take a brief moment  
18 to introduce to you the Sustainable and  
19 Resilient Infrastructure Committee. I have  
20 several of my colleagues sitting here  
21 today.

22 Do you guys want to go down the  
23 line and introduce yourselves briefly?

24 As you know, I'm Cynthia Holland.  
25 This is my colleague.

1 MS. MEGAN LUPO: I'm Megan Lupo  
2 from counsel's office.

3 MS. ZAINAB NAWAZ: Zainab Nawaz,  
4 BPU staff.

5 MS. CHRISTINE SCHELL: Christine  
6 Schell, Department of Environmental  
7 Protection

8 MR. BRENDAN McCLUSKEY: Brendan  
9 McCluskey, Department of Health

10 MS. DIANA BUTCAVAGE: Diana  
11 Butcavage, Economic Development Authority.

12 MS. ATHENA SARAFIDES: Athena  
13 Sarafides, New Jersey Department of  
14 Environmental Protection.

15 MS. CYNTHIA HOLLAND: And we do  
16 have other colleagues sitting in the  
17 office. So I appreciate your attendance.  
18 And so let's see if I can do this.

19 Our next two stakeholder meetings,  
20 as Grace mentioned, are October 4th and  
21 October 10th. The October 4th meeting is  
22 going to be in the evening at Seton Hall,  
23 and the notices, as Grace mentioned, are in  
24 the front. We also have another one on  
25 October 10th at Camden.

1                   And, finally, just a reminder that  
2                   if you haven't submitted your comments  
3                   already, there is the final comment  
4                   deadline on October 12th at 5:00 p.m., so  
5                   we welcome your comments.

6                   And now just before we get started  
7                   just simple housekeeping for speaking. We  
8                   do have a long list of parties that have  
9                   interest in speaking to here today. I will  
10                  do my best to announce your name, so  
11                  please, you know, have some sympathy for  
12                  me.

13                  And when you come to the  
14                  microphone -- sympathy not only for me, but  
15                  also for our lovely court reporter. Please  
16                  restate your name and, if appropriate and  
17                  necessary, please spell it slowly for our  
18                  court reporter and state your affiliation  
19                  before you make your comments.

20                  Also, in the interest of moving  
21                  this hearing along, it's a Friday  
22                  afternoon, and I know that there are many  
23                  people who want time to speak today, we  
24                  would like to hold you to no more than ten  
25                  minutes, so we will be timing you. And as



1           appropriate, we will be breaking at certain  
2           periods. So if you no longer want to  
3           speak, please inform the BPU staff at  
4           check-in, or if you are late arriving,  
5           please just make sure that you do check in,  
6           although you probably wouldn't have heard  
7           that if you're late arriving. But anyway,  
8           so please just help us out. And we do have  
9           the two microphones for you to speak, and  
10          without further ado, let's get started.

11                        So first on our list today we  
12          have -- so I'll call two names, so we can  
13          have one speaking and one on deck, because  
14          I liked that format. So we'll have  
15          Lawrence Furman and Anthony Megaro. So do  
16          I have these gentlemen in the room? Going  
17          once, going twice?

18                                (No response.)

19                        Michael Egenton? And then after  
20          Michael Egenton, our speaker from the NJ  
21          State Chamber of Commerce, I have Steven  
22          Westoven from New Jersey Natural Gas.

23                                MS. LAURA HAHN: I'm here on  
24          behalf of Michael Egenton. Unfortunately  
25          he couldn't make it last minute. My name

1 is Laura, L-A-U-R-A, Hahn, H-A-H-N, and I  
2 am the director of permit relations at the  
3 New Jersey Chamber of Commerce. Would you  
4 like the copies right now?

5 MS. CYNTHIA HOLLAND: You can  
6 leave them there. That's great. Thank  
7 you,

8 MS. HAHN: So thank you for  
9 allowing us the opportunity to provide  
10 input on the Energy Master Plan.

11 Since 1911 the State Chamber has  
12 been recognized as the independent voice of  
13 business in New Jersey. With a broad-based  
14 membership ranging from the Fortune 500  
15 companies to small proprietorships,  
16 representing every corner of the state and  
17 every industry, our members provide jobs  
18 for over a million people in New Jersey.  
19 We continue to work toward streamlining the  
20 regulatory process while striving to  
21 maintain the economic vitality of our  
22 members and the quality of life that makes  
23 New Jersey unique.

24 Energy is the lifeblood of the  
25 economy. Reliable, safe, reasonably-priced

1 and environmentally sound energy supply is  
2 essential for New Jersey's economic  
3 progress. The State Chamber supports a  
4 balanced approach toward achieving the EMP  
5 goals that doesn't depend or rely on one  
6 method, one technology, one fuel source, or  
7 overburden one segment of the economy or  
8 group of energy consumers.

9 The reliability and resilience of  
10 our energy, along with our transportation  
11 systems, are key to our businesses and  
12 their operations in the state. We support  
13 continued efforts in strengthening,  
14 modernizing, and updating our aging power  
15 grid. We recognize the need for such  
16 investments, and like any other long-term  
17 solution, the management and financing of  
18 such investments require thoughtful, but  
19 structured, more predictable deliberation.

20 I want to take the opportunity to  
21 highlight some of the specific energy  
22 sectors our organization believes must be  
23 "on the table" as the State of New Jersey  
24 prepares for the energy needs of the  
25 business community and residents in the

1 outlying years.

2 In-state generation. The State  
3 Chamber recognizes that electric  
4 transmission resources are essential to  
5 maintain the reliability, efficiency, and  
6 safety of the electric system.

7 Transmission additions and upgrades are  
8 also elements of a balanced approach to  
9 meeting the needs of energy consumers.

10 The ability to move power  
11 throughout the state and the region and to  
12 resolve congestion on the system that  
13 affects reliability and increases costs  
14 remains an important goal. New  
15 transmission construction also is an  
16 economic driver in its own right that will  
17 create jobs directly and through associated  
18 economic activity.

19 That is why the State Chamber has  
20 actively supported projects like the  
21 Susquehanna-Roseland transmission upgrade  
22 because it so critical to the future  
23 success of our economy and the energy needs  
24 of our citizens.

25 Natural gas. New Jersey must

1 continue to cultivate a natural  
2 gas-friendly environment. Natural gas is  
3 economically efficient and is a clean,  
4 safe, and reliable source of energy. Our  
5 natural gas infrastructure is vital for a  
6 strong economy and the reliability of the  
7 state's power grid.

8           When it comes to affordability,  
9 natural gas is a proven reliable fuel  
10 source that can actually lower costs for  
11 families and businesses.

12           Additionally, Natural gas is  
13 improving air quality in our state.  
14 Natural gas produces nearly a third less  
15 carbon dioxide than coal and almost half  
16 less than oil when burned. Natural gas  
17 also emits little to no sulfur and runs  
18 more efficiently than other fuels.

19           Solar and wind. While there are  
20 no assurances that the State can rely on  
21 the availability of both solar and wind,  
22 the State needs to enhance our base-load  
23 capacity as a guaranteed backup,  
24 particularly in the event of another super  
25 storm.

1           The State Chamber supports solar  
2           development at sites such as landfills,  
3           brown fields, warehouses, and government  
4           facilities that provide potential for  
5           larger installations, improve economies of  
6           scale, and that would return unproductive  
7           or underutilized sites to societal use.

8           While we recognize that New Jersey  
9           has great offshore wind potential, we ask  
10          that the Board of Public Utilities (BPU)  
11          continue their due diligence process to  
12          safeguard the interests of ratepayers,  
13          making sure that we avoid any undue  
14          economic burdens. We would further suggest  
15          that the State engage our local and  
16          regional chambers of commerce, particularly  
17          the ones along New Jersey's coastal areas,  
18          when such projects are under consideration.

19          Energy efficiency. The State  
20          Chamber recognizes the importance of energy  
21          efficiency to achieving business and  
22          environmental goals. For businesses, using  
23          energy more efficiently saves, money,  
24          reduces operating costs, increases  
25          competitiveness, and promotes job retention

1 and creation.

2 The State Chamber would welcome  
3 development of additional efficiency  
4 programs aimed at commercial and industrial  
5 customers that could help deliver the  
6 benefits we mentioned.

7 We also encourage State and local  
8 government to lead by example and pursue  
9 efforts to reduce energy demand in  
10 government buildings.

11 Lastly, fuel cell technology.  
12 Fuel cells eliminate pollution -- the only  
13 byproduct is water. Because fuel cells  
14 have no moving parts and do not involve  
15 combustion, this technology has the  
16 potential to achieve great efficiency. The  
17 State Chamber encourages the State to work  
18 with and support the research of New  
19 Jersey's academic institutions to pursue  
20 making fuel cell technology another viable  
21 option to our energy demands.

22 The State Chamber appreciates the  
23 opportunity to provide input and  
24 respectfully requests that our views be  
25 given proper consideration.

1 MS. CYNTHIA HOLLAND: Thank you.  
2 Mr. Westhoven, and on deck I have Mr. Kim  
3 Ghee.

4 MR. STEPHEN WESTHOVEN: Good  
5 morning. My name is Steve Westhoven, I'm  
6 the President and Chief Operating Officer  
7 of New Jersey Resources and Principal  
8 Subsidiary of New Jersey Natural Gas.

9 I'd like to thank Director Cynthia  
10 Holland and the Board of Public Utilities,  
11 members of Governor Murphy's Energy Master  
12 Plan Committee for the opportunity to speak  
13 here today.

14 New Jersey Resources is a  
15 diversified energy provider with a strong  
16 long-term commitment to sustainable  
17 business practices. We are a major  
18 investor in New Jersey's solar energy  
19 market and a leading solar provider in the  
20 state. And for almost a decade our  
21 principal subsidiary, New Jersey Natural  
22 Gas has successfully deployed energy  
23 efficiency solutions to reduce energy  
24 demand and help our customers lower their  
25 energy costs, lower their emissions, and



1 protect the environment.

2 My primary purpose in testifying  
3 before today's committee is discuss our  
4 ability as a natural gas utility and a  
5 lifeline service provider to ensure that  
6 our customers have reliable heat when they  
7 need it most, on the coldest days of the  
8 year.

9 The state's natural gas utilities  
10 have a regulatory obligation to procure  
11 natural gas supply in the associated  
12 delivery capacity to provide safe and  
13 reliable service. The fact is natural gas  
14 utilities in New Jersey are facing  
15 increasing challenges during the winter  
16 season to meet these obligations for their  
17 current and growing number of customers who  
18 rely on natural gas to heat their homes and  
19 support their businesses.

20 Our primary challenge is the  
21 inability to require additional capacity  
22 for the existing interstate pipelines.  
23 Without additional capacity we simply  
24 cannot access enough supply to meet our  
25 growing customer needs and provide a safety

1 reserve, as responsible planning would  
2 dictate.

3 Our natural gas utility currently  
4 depends on two pipelines for nearly 90  
5 percent of our supply capacity.  
6 Destruction of supply on either one of  
7 these pipelines in the winter heating  
8 season would jeopardize the health and  
9 safety of potentially hundreds of thousands  
10 of New Jersey's residents.

11 We have an obligation to ensure  
12 reliable heat in the winter, so it is with  
13 urgency that I am coming before you today  
14 to raise awareness about these  
15 time-sensitive statewide issues. I'm here  
16 to convey extraordinary importance to  
17 addressing this projected shortage, the  
18 reliability risks associated with the lack  
19 of pipeline diversity, and the need to  
20 propose solutions in New Jersey's next  
21 Energy Master Plan.

22 While we fully support and are  
23 actively participating in the efforts to  
24 achieve a clean energy future in the state,  
25 reliable service must be ensured to our

1 customers along the way.

2 According to the U.S. Energy  
3 Information Administration about 3/4 of  
4 households in New Jersey use natural gas as  
5 their primary home heating fuel. The  
6 benefits of natural gas are clear, it's  
7 affordable, up to four times less than the  
8 cost of electric heat. It's clean, it  
9 produces less than half of the greenhouse  
10 gas emissions from other fossil fuels, and  
11 it's reliable, a benefit that is  
12 increasingly at risk in New Jersey today.

13 There's been a growing demand for  
14 natural gas for decades, but the resources  
15 necessary to bring additional supply to New  
16 Jersey to meet this rising demand have not  
17 been met. While mandated and aggressive  
18 energy efficiency measures will help offset  
19 a portion of the anticipated demand,  
20 additional capacity will be essential to  
21 address the remaining natural gas supply  
22 and reliability gaps, particularly as we  
23 transition to more renewables in the clean  
24 energy economy.

25 Importantly, I want to be clear

1 and make the distinction if these projected  
2 natural gas shortages are not inclusive of  
3 New Jersey's power sector, which will only  
4 exacerbate the challenges we face during  
5 the transition to renewable energy.

6 Existing supply and resiliency  
7 concerns stem from the fact that the  
8 interstate pipeline companies serving New  
9 Jersey are fully subscribed, which means  
10 natural gas utilities can not purchase  
11 additional from capacity to meet demand.  
12 This is a regional problem impacting other  
13 states, including New York.

14 Without additional supply  
15 infrastructure our company and the other  
16 natural gas utilities in the state estimate  
17 there's a shortage -- estimate a shortage  
18 of natural gas to meet our coldest-day  
19 demand needs. Without greater  
20 diversification of our supply  
21 infrastructure the risks of a major  
22 disruptive outage affecting service to our  
23 customers continues to loom.

24 Our utilities are currently  
25 tapping into safety reserves to meet this

1 growing demand, which is not sustainable or  
2 consistent with the prudent planning  
3 process that the natural gas utilities  
4 undertake to ensure reliable service to our  
5 customers.

6 Based on forecasts in 2021 our  
7 company may not have access to sufficient  
8 supply service customers. We must urgently  
9 work together to find a supply solution to  
10 increase the capacity and resiliency.

11 The suggestion that New Jersey has  
12 enough natural gas capacity is incorrect.  
13 While it is the position of some advocates  
14 to prohibit all fossil fuel infrastructure  
15 investments, these policies could  
16 compromise safety and reliability and put  
17 our citizens at risks. They will also  
18 undermine the efforts to obtain the public  
19 support needed to meet our clean energy  
20 goals.

21 In April 2016 there was a pipeline  
22 incident that caused a natural gas supply  
23 disruption to New Jersey and other states  
24 in the northeast. The emergency repairs  
25 and inspections that were necessary to

1 restore this pipeline back to service took  
2 several months. Let me repeat that time  
3 frame. It took months, not weeks, to  
4 restore natural gas service.

5 New Jersey Natural Gas experienced  
6 a 64-percent reduction in pipeline  
7 deliveries on that day. If this had  
8 occurred on a cold day in the winter, over  
9 250,000 house holds could have lost gas  
10 supply. Statewide, millions of people  
11 would have been impacted.

12 The solution to address this risk  
13 is to incorporate diverse natural gas  
14 supplies and interconnections to multiple  
15 sources as a priority to build natural gas  
16 system resilience. This supply diversity  
17 would help New Jersey to prepare for  
18 potential loss of supply from an interstate  
19 pipeline disruption while protecting  
20 customers from an outage.

21 Since Superstorm Sandy New Jersey  
22 has taken extraordinary efforts to  
23 strengthen our resiliency against  
24 catastrophic natural disaster such as  
25 flooding. We have raised homes and

1 businesses, and under leadership at the  
2 Board of Public Utilities we have  
3 aggressively hardened our in-state pipeline  
4 delivery systems against future storms. We  
5 need to do the same for interstate pipeline  
6 network.

7 We need to diversify supply access  
8 so if supply is disrupted on one pipeline  
9 system, there are alternatives to ensure  
10 that we can heat our customers' homes,  
11 hospitals, schools, and businesses. If  
12 prudent planning is not done by the natural  
13 gas utilities in the state, the public will  
14 and should question what went wrong. We  
15 will all be held accountable.

16 New Jersey Natural Gas is working  
17 closely with the BPU on these preparedness  
18 issues and we recommend again with urgency  
19 that they're reflected in the updated New  
20 Jersey Energy Master Plan. As the state  
21 defines the future role of natural gas and  
22 its resilience and sustainable  
23 infrastructure and its clean energy bills,  
24 the ability to access adequate supply to  
25 heat people's homes and meet our

1 obligations to essential service providers,  
2 such as hospitals, during the coldest days  
3 of the years must be a high priority. Our  
4 customers must be our highest priority.  
5 Natural gas will continue to be a key  
6 element in helping the state transition to  
7 a clean energy economy in 2050.

8 As New Jersey looks to a clean  
9 energy future, natural gas will also  
10 continue to play an essentially role in the  
11 power sector, balancing the intermittent  
12 output of renewables to maintain grid  
13 reliability as we add more solar, wind, and  
14 new technologies to the mix.

15 The low cost of natural gas keeps  
16 our customers' rates affordable while  
17 accelerating investments in renewables,  
18 such as solar and wind. Natural gas also  
19 provides measurable air quality benefits by  
20 displacing coal and other fossil fuels,  
21 such as oil, which have higher emissions.

22 In closing, as we transform our  
23 energy sector, we must not compromise on  
24 the needs of our customers who depend on us  
25 to provide affordable, reliable service.



1 The BPU stakeholder process to inform New  
2 Jersey's Energy Master Plan has provided us  
3 the opportunity to bring these important  
4 customer issues hopefully to the forefront  
5 of this planning process.

6 I appreciate the opportunity to  
7 participate in today's proceeding and share  
8 our view on New Jersey's energy future.  
9 Thank you.

10 MS. CYNTHIA HOLLAND: Thank you.

11 Mr. Ghee, and on deck we have  
12 Nanette Lockwood.

13 MR. KIM GHEE: Thank you,  
14 Ms. Holland. We submitted written  
15 comments, and hopefully to reserve some  
16 time for other speakers, we'll reserve that  
17 time. Thank you.

18 MS. CYNTHIA HOLLAND: Thank you.

19 Ms. Lockwood? And then I have on  
20 deck Mr. Paul Heitmann from Business  
21 Innovation.

22 MR. EVAN BERGER: Thank you so  
23 much. As you can guess, my name is not  
24 Nanette Lockwood. Rather, I'm Evan Berger.  
25 I work with Ingersoll Rand, and I also work

1 with CALMAC. And I was here, I spoke on  
2 Monday. I'm really thrilled to be back and  
3 talk before this panel as well because it's  
4 really exciting to see what all you folks  
5 are doing here in New Jersey as regards,  
6 not only the Energy Master Plan, but also  
7 the governor's very ambitious and also, we  
8 believe, 100 percent achievable goals, not  
9 only in 100 percent real energy, but very  
10 aggressive energy storage mandates that you  
11 guys have put together with the state  
12 legislature.

13 So a little bit of background  
14 about us at CALMAC. So we were purchased  
15 last year by Ingersoll Rand, by the Trane  
16 company. So Ingersoll Rand is a large  
17 diversified multinational conglomerate in  
18 the industrial space.

19 And CALMAC has always been a New  
20 Jersey-owned-and-operated business. We  
21 were founded in 1947 in Englewood. We have  
22 been operating out of Fairlawn, New Jersey,  
23 been manufacturing there. We've created  
24 what we think -- we work in a thermal  
25 energy storage space, so ice storage, and

1 we have manufactured over one gigawatt of  
2 ice storage here in New Jersey that has  
3 been deployed across 60 countries, 4,000  
4 projects globally worldwide.

5 Some of our marquee projects  
6 include Rockefeller Center, we just did a  
7 second project there, about 2 megawatts in  
8 total. Just finished a project up at  
9 LaGuardia Airport. The University of  
10 Arizona has 30-megawatts hours of our  
11 equipment. So a lot of stuff made here  
12 and, you know, in place across the entire  
13 country and globe.

14 So in terms of the subject at hand  
15 I wanted to talk a little bit about thermal  
16 storage and how that plays into resiliency  
17 and a stronger and more sustainable grid.

18 So what we do in the thermal  
19 energy storage space is not that different  
20 from battery storage, and battery storage  
21 is getting a lot of very well deserved  
22 press, and we hope that we also can play a  
23 part in this thing as it grows. Jaydice  
24 (ph) is laughing, and that's actually  
25 what -- Tesla is getting a lot of great

1 appreciation, and I believe well deserved,  
2 and we've been here a long time.

3 So as far as batteries are  
4 concerned, what they really can do that we  
5 can't is they can provide power for lights  
6 and computers and other plug loads, whereas  
7 we really operate solely 100 percent for  
8 cooling. However, cooling is 40 percent of  
9 the grid's peak load during the hottest  
10 weekday hours when the grid itself, both  
11 here in New Jersey, and the PJM connection  
12 peaks out as a whole.

13 So when you're designing your  
14 power grid to the highest intervals of true  
15 consumption, you are really basing it off  
16 of HVAC, off of air-conditioning load, and  
17 that's what we really hone in on and  
18 reduce.

19 And in addition to being able to  
20 do that we're a whole lot less expensive  
21 than electric batteries because whereas  
22 they are storing energy in the form of  
23 lithium or lead with the -- you know, with  
24 lithium as their means of storage, we're  
25 using plain old regular tap water, which is

1 a whole lot cheaper. So we are able to  
2 store the same amount of kilowatts for a  
3 longer duration, our typical duration is  
4 about eight to ten hours, at about a third  
5 of the price. And our tanks last about 40  
6 years on average.

7 So for the tank construction we  
8 have an aluminum jack on the outside. Most  
9 of the tanks is high-density polyethylene,  
10 which is the same material used in a  
11 natural gas pipeline. Those are rated for  
12 a 50-year life, and we've been able to have  
13 projects in -- from the early '70s, I  
14 should say, that have been in complete and  
15 full operation day in, day out since then  
16 without having to be replaced.

17 So in terms of what -- how the  
18 tanks work and providing resiliency and  
19 sustainability for the grid the number one  
20 benefit of energy storage across all  
21 sectors, all types, no matter how it is  
22 that you're storing the dispatch from the  
23 energy, the number one value to the grid is  
24 being able to integrate intermittent  
25 renewable resources. The sun signs when it

1 does, the wind blows when it does, but when  
2 you don't have that, you don't have a firm  
3 power source.

4 So if we want to get to those by  
5 100 percent 2050 goals that the governor  
6 has so adamantly outlined, there's no  
7 possible way to do it without a tremendous  
8 amount of energy storage on the grid. And  
9 not all of that can be the very expensive,  
10 very materials-intensive lithium and lead  
11 batteries that we currently see.

12 So I think thermal storage, and  
13 many states have already taken this into  
14 consideration, I'm sure New Jersey will as  
15 well, recognize that this is not going to  
16 be just one solution, but a whole suite of  
17 solutions including thermal and some  
18 others.

19 In addition to the benefits from  
20 simply integrating that renewable energy,  
21 another big thing that we do is we reduce  
22 those peak loads not just for individual  
23 facilities -- for the Rutgers University  
24 campuses, we've got some storage there, or  
25 Perth Amboy school district. So we're

1 helping to reduce their peak loads during  
2 those hot summer afternoon hours when the  
3 grid peaks up. But that also had has a  
4 grid-wide affect as well.

5 So one of the reasons why we're so  
6 popular with Con Edison utility in New York  
7 City is that we are reducing their peak  
8 load by 20 or more megawatts during the  
9 highest peak hours of their grid as a  
10 whole.

11 And so when it comes to  
12 incentivizing or accelerating market  
13 adoption, we've gone good business here in  
14 New Jersey, but it hasn't been the kind of  
15 business that we have done in places like  
16 Florida, Texas, to a lesser extent  
17 California, and to a greater extent New  
18 York City. And the reason why is that the  
19 incentive structure, the support from  
20 government, unfortunately, has not been  
21 here in the recent past. Very -- I would  
22 say modest incentives, modest rebates or  
23 programs have been extremely beneficial in  
24 terms of making us cost neutral with  
25 typical, regular cooling. And in the case

1 of New York and Florida, have driven us to  
2 make many megawatts of load reduction in  
3 the pockets where they're most valued.

4 So when it comes to designing a  
5 program and designing a way to accelerate  
6 and incentivize these programs, or these  
7 technologies like ours, what I would  
8 suggest to you folks in the committee is  
9 you want to have them easily understandable  
10 by the public because most of the projects  
11 that we do are with hospitals,  
12 universities, schools, customers that  
13 freely admit that they're not the most  
14 energy savvy out there. That's not their  
15 mission, that's not what they're trying to  
16 achieve. They serve their customers and  
17 folks who come, you know, and stay in their  
18 beds and sit in their classrooms. They're  
19 not energy monitors.

20 So it's important to have rebates  
21 or incentives that they can calculate  
22 themselves, just, you know, pull out their  
23 iPhone or their calculator and figure it  
24 out. That's so important.

25 The second thing is to design it



1 most effectively. Incentives do really  
2 need to be front-loaded because individuals  
3 and companies put a very high discount rate  
4 on -- you know, on any out-year benefits.  
5 So we found that if incentives are given  
6 out over a ten- or 12-year period, people  
7 don't really consider two -- you know, in  
8 year two, year three, year five and beyond,  
9 they don't consider those at all. They  
10 discount them by 10, 20, 30 percent, they  
11 discount them down to zero.

12 And the last thing is that I would  
13 really recommend -- we like non-wires  
14 alternatives programs. Those are very  
15 good, particularly when you have a real  
16 acute need. But the problem with those is  
17 they're sporadically available.

18 What I would recommend is having  
19 either a schedule for when incentives are  
20 available or just have them available on an  
21 ongoing bases so that your institutions,  
22 your schools, your hospitals don't have to  
23 be chasing RFPs, they don't have to wait  
24 for incentives. They can make the capital  
25 decisions on their own bonding situations

1 or their own time lines without having to,  
2 you know, work through that. Because when  
3 you have these sporadically available RFPs,  
4 what ends up happening is only the  
5 wealthiest and most capable companies with  
6 the most sophisticated teams can go after  
7 them, and our everyday customer miss out on  
8 them.

9 So we're going to be delivering  
10 more comprehensive testimony or some  
11 comments to you. But thank you very much  
12 for your time and I really appreciate the  
13 opportunity to participate in some  
14 small-deed democracy. So thank you very  
15 much. Take care.

16 MS. CYNTHIA HOLLAND: Thank you.  
17 Our next speaker is Paul Heitmann from  
18 Business Innovation, and then on deck I  
19 have Michael Renna from South Jersey  
20 Industries.

21 MR. PAUL HEITMANN: Okay. Thank  
22 you. It's Businovation.

23 MS. CYNTHIA HOLLAND: Oh, sorry.

24 MR. PAUL HEITMANN: No, you  
25 pronounced it the way it's spelled.

1 MS. CYNTHIA HOLLAND: Oh, okay.

2 MR. PAUL HEITMANN: But  
3 Businnovation, which is my company,  
4 consulting company, and I've been doing  
5 this for a while. I was on the original  
6 Energy Master Plan sessions where I  
7 optimistically suggested electric  
8 transportation should be part of it ten  
9 years ago.

10 Just a little bit of kind of my  
11 background. Businnovation has served with  
12 IEEE to develop standards in several of  
13 these areas, notably the interconnection  
14 standard for allowing the utilities to  
15 connect to this distributed energy, IEEE  
16 1547.

17 And I also chaired the  
18 trans-active energy work group for IEEE,  
19 which is a development standard. I also am  
20 currently working on the town center DER  
21 program for Middletown, one of 13 microgrid  
22 awards for feasibility study. We're  
23 working with Leidos on that.

24 And I participated in SEPA, Smart  
25 Electric Power Alliance, on their microgrid

1 and trans-active energy work groups. So I  
2 think you see where my comments are going.  
3 Going to talk a little bit about  
4 trans-active energy and how they can work  
5 together. It's a different model of doing  
6 this.

7 So I'd like to start more at a  
8 philosophical level, and I will submit  
9 written comments with links to relative  
10 data and backup for all of this.

11 So philosophically four points I  
12 want to make is resilience and community  
13 self-sufficiency go hand in hand. That's a  
14 principal we forget a lot of times, that  
15 communities want to be self-sufficient,  
16 they want to do things to make sure they're  
17 resilient and recover from storms. They  
18 don't want to just be relying on other  
19 people helping after a disaster.

20 Middletown's a perfect example of that.  
21 We're very proactive in getting ready for  
22 Sandy, too, with their microgrid.

23 But to do that you've really got  
24 to empower communities, their aggregators,  
25 and the prosumer even, to make the

1 investment in this distributed energy that  
2 will work and interact with the grid and  
3 not just be shunned for marginally used,  
4 such as solar is now in many cases.

5 Ultimately everybody want to get  
6 away from government subsidies. Not  
7 everybody, but most people, want to move to  
8 a market-driven system that pulls in the  
9 assets that can help. So distributed  
10 energy, self-sufficiency in communities is  
11 important.

12 Second point, altered efficiency  
13 is the new energy world order right now.  
14 We see altered efficiency in transportation  
15 with Uber and Lyft, altered efficiency with  
16 Airbnb in the housing area and other  
17 industries. They're all moving to altered  
18 efficiency.

19 They're adopting things like a  
20 block chain to strip out all intermediate  
21 processes that cause a lot of friction and  
22 waste, and it really is all about altered  
23 efficiency, and it starts with unlocking  
24 energy data that's available for innovators  
25 to use and promote solutions. So one of

1 the blocks that we'll talk about later is  
2 the ability to get energy data from the  
3 utilities.

4 There's an initiative underway in  
5 Washington, D.C., their counsel called  
6 DERA, the DER Authority, looking at  
7 actually establishing an agency to be a  
8 steward for that data. So it's not so hard  
9 to get when people want to use it to  
10 integrate. It's all part of making things  
11 ultra efficient in both energy production,  
12 local clean energy production, and  
13 responsive power distribution operation.  
14 So the utilities can really improve their  
15 distribution system to match where this  
16 needs to go.

17 Energy justice. I propose  
18 everybody's familiar with that term in  
19 terms of supporting low-income subsidies,  
20 the provider of last-resort obligations but  
21 I would suggest it extends to really be  
22 mandating a fair and more transparent  
23 risk-reward sharing. Right now nobody  
24 really can see into the process. Rate  
25 cases give you a partial glimpse, but for

1 the most part people don't understand how  
2 they can participate, nor are they  
3 encouraged. But if you move to a more  
4 transparent system where risk and reward is  
5 shared, it's not just risk is offset and  
6 reward is, you know, accumulated, which  
7 largely what the current system does. Then  
8 we move to that more efficient system on a  
9 level playing field.

10 And then, lastly, the fourth main  
11 part is smart cities. There's a lot of  
12 communication that's needed and lacking  
13 between silos. The perfect example is  
14 electric transportation, which is a  
15 phenomenal asset in the grid side. And I  
16 think this Energy Master Plan is finally  
17 realizing that synergy, and I see it's a  
18 major thread, and I hope we can really  
19 accelerate that and unlock the value of  
20 electric transportation. That's part of  
21 this distributed energy system.

22 So the last two -- or the two  
23 specific areas, as I mentioned among  
24 microgrid and the trans-active energy  
25 community, and we're doing this microgrid

1 study in Middletown. So first of all,  
2 microgrids are fast emerging as a viable  
3 decentralized alternative or augmentation  
4 to traditional central source, power  
5 source, and controlled electric power  
6 delivery.

7 And the reason is because the  
8 costs for small renewable generation -- I  
9 think previous testimony talked about the  
10 cost for these batteries and distributed  
11 energy is dramatically dropping and still  
12 dropping. So all of a sudden you've got  
13 the availability and the ability for people  
14 to buy this. Let's make it work in a very  
15 synergistic way because they're to buy it  
16 anyway, it's going to be there to deal  
17 with.

18 Computing and communication power  
19 are continuing to advance. And along with  
20 all of that together, rapid movement in  
21 artificial intelligence. These are the  
22 trends that IEEE are seeing, and they're  
23 coming faster than you can imagine. So  
24 let's set it up and harness that and  
25 reinforce the efficiency gains that we've



1 mandated.

2           It really is all about  
3 efficiencies and along with fairness and  
4 justice and resilience. And communities  
5 are recognizing that true resilience and  
6 fiduciary responsibility demands a stronger  
7 local stake and participation in the  
8 process.

9           So that is the opportunity that we  
10 have. And I really applaud the community  
11 solar program as an opportunity to say,  
12 hey, as a community we can do something  
13 different. The barriers are lower, let's  
14 see if it makes sense and the economics  
15 work.

16           Lastly, the utilities themselves  
17 recognize the value of distributed energy.  
18 Other states where utilities can own and  
19 operate some generation, down south, Duke  
20 Energy, for example, in their ten-year  
21 integrated resource plan they have  
22 microgrids. So it's almost -- there is the  
23 implied efficiency right there in an area  
24 that it's allowed to happen.

25           So I strongly support microgrids.

1 The barriers that are in place for  
2 microgrids are pretty much all wrapped  
3 around existing utility franchise  
4 protection, and that causes a lot of what I  
5 call preemptive frictions. I think many  
6 people have experienced those in different  
7 ways, but we'll just wrap it up under  
8 preemptive.

9 So limited data access is one, and  
10 a force to aggressive capex proposals to  
11 further the business model. So those two  
12 things, a perfect example of what DERA,  
13 this DER Authority, is all about. Their  
14 major mission is to be a steward of the  
15 data, for energy data, and unlocking that,  
16 and also giving an opportunity for, in that  
17 case, anything over \$25 million to  
18 automatically route through for  
19 consideration of a non-wires alternative.  
20 So I would propose look at this DER  
21 legislation, I know a lot of people have  
22 seen that already, as a way to accelerate  
23 that.

24 And, lastly, on trans-active  
25 energy this is an area that fundamentally

1 changes the way the grid is operated and  
2 energy is consumed into more of a  
3 partnership or participation at the edge.  
4 So think in terms of somebody goes out and  
5 invests in an asset, puts it locally to  
6 their town or their premise and they've got  
7 the opportunity to put that asset as a  
8 service into the grid and get paid for it,  
9 and it's a valuable service. And a lot of  
10 these are being advanced at the DOE level  
11 and SEPA themselves is moving that.

12 Block chain is a real foundational  
13 part of this that is enabling this, as I  
14 said, stripping out a lot of the  
15 inefficiencies, and then also ensuring the  
16 security and integrity of the data. And  
17 then the other technologies that are  
18 coming, let's explore, at least,  
19 opportunity for trans-active energy in a  
20 regulatory sandbox, or two or five, and get  
21 some data and see how it works.

22 So that's my suggestion. And I  
23 appreciate the time for listening, and I  
24 definitely will follow this up with written  
25 comments, and if anybody wants to talk over

1 coffee about some of those topics, come and  
2 get me and we will. Thank you.

3 MS. CYNTHIA HOLLAND: Thank you.

4 Mr. Renna, and on deck we have  
5 Derek Phelps from FuelCell Energy.

6 MR. MICHAEL RENNA: Good morning.  
7 My name is Mike Renna. I am the president  
8 and chief executive officers for South  
9 Jersey Industries. Our principal  
10 subsidiaries, South Jersey Gas and  
11 Elizabethtown Gas, serve nearly 675,000  
12 customers in New Jersey.

13 SJI is committed to helping the  
14 state achieve its 2050 energy goals, and we  
15 believe only a bold and comprehensive plan,  
16 one committed to driving down and keeping  
17 down energy costs, to promoting a diverse  
18 portfolio of energy sources, with an  
19 emphasis on renewables, energy efficiency,  
20 and conservation, one that leverages  
21 emerging technologies and transportation  
22 and production, all while protecting and  
23 modernizing our critical infrastructure,  
24 will allow New Jersey to reach its 2050  
25 goal.

1                   Safety remains SJI's top priority.  
2           Maintaining a sustainable, resilient gas  
3           infrastructure system is a responsibility I  
4           do not take lightly. The impacts from  
5           Superstorm Sandy almost seven years ago are  
6           not and should not be forgotten. Sadly,  
7           along with recent storm events highlight  
8           the critical importance of maintaining and  
9           upgrading pipeline infrastructure.

10                   SJI has worked diligently with  
11           the New Jersey Board of Public Utilities to  
12           strengthen, improve, and modernize our  
13           natural gas infrastructure. At South  
14           Jersey Gas our storm hardening and  
15           replacement program brought high-pressure  
16           mains to our barrier islands, making our  
17           system far more resilient to the effects of  
18           coastal weather events.

19                   Under our cornerstone accelerated  
20           infrastructure program South Jersey Gas has  
21           replaced nearly 850 miles of aging  
22           infrastructure and is on track to replace  
23           all of our remaining bear steal and cast  
24           iron in our distribution systems by 2021.  
25           At Elizabethtown Gas we are equally

1 committed to modernizing our infrastructure  
2 and protecting the safety and reliability  
3 of our system.

4 Since 2009 ETG has replaced 425  
5 miles of aging infrastructure, but with a  
6 remaining inventory of roughly 600 miles  
7 reinforcing the remainder of ETG's natural  
8 gas infrastructure is our top priority.

9 We also strongly support expanding  
10 the critical infrastructure that supplies  
11 New Jersey with a clean and cost-effective  
12 natural gas. Access to abundant and  
13 inexpensive supplies is critically  
14 important to the affordability and  
15 competitiveness of our state and to  
16 building out the wind and solar  
17 infrastructure essential to achieving  
18 Governor Murphy's 2050 goal without putting  
19 an untenable financial burden on New  
20 Jersey's residents.

21 Over the past decade there has  
22 been rapid and sustained growth in the  
23 protection of natural gas, much within  
24 close proximity to New Jersey. Delivery  
25 restraints, however, have prevented New

1 Jersey ratepayers to take full advantage of  
2 this abundant resource. Investment in  
3 additional infrastructure will afford New  
4 Jersey homes and businesses with access to  
5 some of the cheapest natural gas in the  
6 world. In fact, recent studies indicate  
7 New Jersey could have saved roughly \$300  
8 million during the two-week period of  
9 extreme cold we experienced this past  
10 January had this infrastructure been in  
11 place.

12 Increased access to affordable or  
13 nearby gas will also ensure that New Jersey  
14 ratepayers continue to benefit from the  
15 head room it creates for investment in  
16 critical infrastructure modernization  
17 programs like the one I've discussed  
18 earlier.

19 Carbon-free electricity by 2050 is  
20 a goal we all support. Clean and  
21 affordable natural gas delivered through a  
22 modern and expanded infrastructure can and  
23 will provide the economic bridge as we work  
24 toward fully dependable and resilient  
25 solar, wind, and storage technologies.

1           SJI remains committed to  
2           partnering with the committee and the state  
3           to help deliver on the promise of the  
4           governor's 2050 plan. Again, thank you for  
5           the opportunity to provide comments and for  
6           allowing SJI to be a part of New Jersey's  
7           energy future.

8           MS. CYNTHIA HOLLAND: Thank you.  
9           Mr. Phelps, and on deck we have Ryan Grech  
10          from Pinelands Preservation Alliance.

11          MR. DEREK PHELPS: Good morning.  
12          My name is Derek Phelps. I'm with FuelCell  
13          Energy, I'm director of market and project  
14          development at FuelCell Energy. Our  
15          company is in our 50th year of operation  
16          headquartered in Danbury Connecticut with  
17          our manufacturing facility located in  
18          Torrington Connecticut.

19          We've previously provided  
20          testimony and comments at the first  
21          stakeholder meeting related to the  
22          inclusion of fuel cells as a clean energy  
23          resource and earlier to the Board of Public  
24          Utilities concerning our products, value  
25          proposition, and contributions to grid



1           resiliency and the reduction of greenhouse  
2           gases. I will not repeat those comments  
3           here, but instead offer a brief synopsis of  
4           more fulsome testimony that we will file in  
5           writing prior to the October 12th deadline.

6                         With respect to the topic of  
7           today's session, sustainable and resilient  
8           infrastructure, FCE respectfully suggests  
9           that fuel cells offer unique benefits that  
10          contribute to resiliency and infrastructure  
11          that are not achievable via more  
12          traditional intermittent clean energy  
13          resources. We believe that the most secure  
14          power is distributed generation, more  
15          generated -- power generated near where it  
16          is consumed that does not need to be  
17          transmitted over long distances.

18                        With respect to the benefits of  
19          resiliency, fuel cells have a proven record  
20          of providing reliable, consistent energy  
21          for sites in need of high-quality primary  
22          power such as data centers, hospitals,  
23          university campuses, military bases, and  
24          other critical users often displacing  
25          older, inefficient diesel backup

1 generators. With their islanding  
2 capability fuel cells are on the back bone  
3 of microgrids and their installations have  
4 seamlessly transitioned to microgrid mode  
5 when the grid has gone dark.

6 We have such microgrids operating  
7 in many places. One example is the  
8 municipality in Woodbridge Connecticut,  
9 where the fuel cell feeds the grid during  
10 normal operation, but during the grid  
11 outage we'll deliver power via underground  
12 feeders to police, fire, town hall, the  
13 high school, and other critical municipal  
14 facilities irrespective of weather  
15 conditions.

16 We have many fuel cells at  
17 universities, including one at the  
18 University of Bridgeport, which serves as  
19 an emergency evacuation shelter for New  
20 York City due to its fuel cell based  
21 microgrid.

22 FCE is currently constructing a  
23 7.4 megawatt fuel cell project at a  
24 U.S. Navy submarine base, which will ensure  
25 the delivery of reliable, around-the-clock

1 power at critical services, helping the  
2 Navy to adapt to the dynamic energy  
3 security challenges of the 21st century and  
4 making it less likely to be the subject of  
5 a future BRAC determination, BRAC being  
6 base rate alignment and closure, an  
7 important criteria related to a BRAC review  
8 that occurred with the submarine base just  
9 a few years ago. And we're effectively  
10 correcting that for them.

11 FCE is currently constructing a  
12 seven -- excuse me, fuel cells also  
13 contribute to local infrastructure  
14 development as fuel cell projects support  
15 the expansion of infrastructure to  
16 underserved areas, bringing in gas lines  
17 that can then displace resources that  
18 create more criteria pollutants and  
19 greenhouse gas emissions such as home  
20 heating oil and backup diesel generators.

21 Fuel cells can also obviate the  
22 need for more expensive infrastructure  
23 investments. One example is the recent  
24 award of an approximately 40 megawatt award  
25 of fuel cell projects on Long Island Sound.

1 LIPA was faced with a need for clean energy  
2 in a heavily constrained area with little  
3 available real estate by strategically  
4 selecting three fuel cell projects  
5 totalling 40 megawatts to connect the  
6 targeted substations LIPA was able to avoid  
7 \$78 million in transmission upgrades that  
8 would have otherwise been required to bring  
9 the necessary power to the local area.  
10 These projects were awarded via a feed-in  
11 tariff with a power purchase agreement,  
12 thus resulting in zero capital outlay by  
13 the utility.

14 Although compact quite,  
15 unobtrusive, and easy to sight, our  
16 installed fuel cell are robust industrial  
17 power plants with an average reliability  
18 rate in excess of 95 percent. That  
19 provides steady, reliable power through  
20 hurricanes, earthquakes, blizzards and the  
21 California wildfires. Few clean energy  
22 resources can claim such robustness of  
23 reliability.

24 With respect to siting concerns  
25 FCE respectfully suggests that New Jersey

1 study Connecticut's siting model, which  
2 places exclusive jurisdiction for siting of  
3 all energy and telecommunications  
4 infrastructure in one statewide agency,  
5 known as the Connecticut Siting Council,  
6 whose members are appointed by a diverse  
7 range of stakeholders.

8 This single agency is then able to  
9 balance infrastructure needs and  
10 environmental justice concerns while  
11 avoiding typical NV and -- here's another  
12 acronym for you, BANAA, build absolutely  
13 nothing anywhere anytime.

14 Outcomes. I used to run the  
15 siting council. Full disclosure, I ran it  
16 for about ten years, and I'm a huge  
17 defender of that model and I saw how it  
18 works very effectively and very challenging  
19 siting scenarios

20 Finally, FCE respectfully suggests  
21 that it is most cost effective for  
22 ratepayers to turn the benefits of new  
23 infrastructure in the pursuit of these  
24 important policy goals when such projects  
25 deliver the multifaceted value proposition

1 of fuel cells, improved resiliency,  
2 reliability, cleaner air, tax revenue,  
3 often significant tax revenue, and ease of  
4 siting, all in a cost effective manner.

5 With respect to the integrity of  
6 the grid we also wish to underscore that  
7 given their distributed status,  
8 around-the-clock security monitoring,  
9 compact design nature, and the absence of  
10 internal combustion activity, fuel cells  
11 are inherently more secure than most any  
12 other mode of power generation available,  
13 particularly relevant to the amount of  
14 power generated per area of development.

15 Thank you for your time and for  
16 your consideration. FuelCell comments --  
17 we look forward to contributing to New  
18 Jersey's pathway to clean energy and being  
19 a part of New Jersey's Clean Energy Master  
20 Plan. Thank you.

21 MS. CYNTHIA HOLLAND: Thank you.  
22 We have Mr. Grech from Pinelands  
23 Preservation Alliance and Barbara  
24 Blumenthal from New Jersey Conservation  
25 Foundation.

1 MS. RYAN GRECH: Good morning. My  
2 name Ryan Grech, that's G-R-E-C-H. I'm  
3 with Pinelands Preservation Alliance.  
4 Thank you for the opportunity to speak  
5 today. PBA is a non-profit dedicated to  
6 preserving the resources of the New Jersey  
7 pinelands.

8 The new Energy Master Plan should  
9 be used to discourage new fossil fuel  
10 infrastructure, especially when such new  
11 infrastructure is proposed to be built  
12 along new paths and in disregard of  
13 regional and local environmental  
14 protections such as those embodied in the  
15 Pinelands Comprehensive Management Plan.

16 In the pinelands we have been  
17 fighting two wholly unnecessary natural gas  
18 pipelines, one proposed by South Jersey Gas  
19 and one by New Jersey Natural Gas. In each  
20 case the rationale given has shifted over  
21 the years in controversy, but remains  
22 unpersuasive. In each case the utility  
23 insisted on routes that cross protected  
24 areas of the pinelands. In each case the  
25 pinelands commission, under intense

1 political pressure, twisted regulations  
2 that were clearly intended to prevent this  
3 type of infrastructure from crossing these  
4 protected areas to get from one side of the  
5 pinelands to the other. And in each case  
6 the utilities and the Board of Public  
7 Utilities used the old Energy Master Plan  
8 as a crutch for improving the development.

9 While the intervening years show  
10 there is no need for these developments  
11 BPU's standard for approving and making  
12 ratepayers pay for these pipelines are so  
13 lax and undemanding and the economic  
14 incentives given to the utilities so  
15 antiquated, that the companies are still  
16 pursuing these projects.

17 The most pernicious rationale we  
18 hear over and over again is the need for  
19 reliability and resiliency. We have seen  
20 that these concepts are endlessly abused  
21 and applied by government and industry  
22 without regard to any rigorous technical  
23 analysis and testing in the approval  
24 process. Superstorm Sandy is invoked to  
25 justify pipelines that such storms do not



1 and could not affect. Real discussion  
2 takes place in secret and is never  
3 subjected to independent scrutiny.

4 No genuine considerations of  
5 alternative approaches is considered  
6 because the decision to build is made first  
7 and the analysis shaped after the fact.  
8 The human health and safety risks of these  
9 developments are consistently disregarded  
10 by BPU and other agencies despite the  
11 evidence in the news.

12 In the case of the two pinelands  
13 pipelines experts with no financial  
14 interest in the outcome have demonstrated  
15 that there is no actual need for more  
16 capacity in these locations, and that even  
17 if you want to believed there was, there  
18 are alternatives that are cheaper, more  
19 effective, less dangerous to the public,  
20 and outside the pinelands conservation  
21 zones. And the hundreds of millions of  
22 dollars that the utilities want ratepayers  
23 to invest in unneeded natural gas pipelines  
24 will inevitably discourage investment in  
25 the renewable energy infrastructure we

1           need.

2                         We look to the new Energy Master  
3 Plan to set a new course and to make clear  
4 that the easy habits and assumptions of the  
5 past, habits and assumptions that haven't  
6 made sense for many years now, are truly  
7 being replaced with the commitment to  
8 reduce, not to expand, our dependence on  
9 fossil fuel systems in favor of new  
10 renewable energy systems. Again, thank you  
11 for the opportunity.

12                         MS. CYNTHIA HOLLAND: Thank you,  
13 Ms. Grech.

14                         Barbara Blumenthal, New Jersey  
15 Conservation Foundation, and on deck I have  
16 Joe Accardo, PSE&G.

17                         MS. BARBARA BLUMENTHAL: Good  
18 morning. My name is Barbara Blumenthal. I  
19 serve as the research director for the New  
20 Jersey Conservation Foundation.

21                         I'd like to talk about some common  
22 misconceptions about natural gas and the  
23 role of natural gas currently and in our  
24 future. The first one is that we need more  
25 pipeline capacity, and I want to address

1 some comments that were made by our  
2 colleague from New Jersey Natural Gas  
3 earlier today.

4 With the kind of facts and  
5 analysis that we've been using over the  
6 last three years as we have looked  
7 carefully at a number of pipeline projects  
8 in this state, we issued a report this week  
9 that summarizes three years worth of  
10 research in one handy place. So I want to  
11 refer to some of the data that underlies  
12 this perspective.

13 So I want you to understand how we  
14 did the research. We used international  
15 gas consultants, the best ones in the  
16 country that we could find that have been  
17 doing this work for 30 years, who work for  
18 the industry. They're not -- they don't  
19 work for environmental groups normally.  
20 This is something new for them. They  
21 analyze pipeline capacity for people who  
22 are buying and selling pipelines.

23 And so the kind of data sources  
24 they look at, they have data on every  
25 contract on every pipeline that exists.

1 They have data on scheduled deliveries  
2 every day. So you schedule a day ahead,  
3 and then you can revise your schedules, but  
4 they have all those transactions, every  
5 scheduled delivery on every pipeline. And  
6 then they actually have data on actual  
7 deliveries.

8 And looking at these data sets  
9 really tells an interesting story. Three  
10 years ago we were surprised when we looked  
11 at New Jersey Natural Gas and the contracts  
12 that they have. Of course, the most  
13 interesting period to look at pipeline  
14 capacity is in the winter because that's  
15 the only time they're full, where our  
16 pipelines in New Jersey have a 46 percent  
17 load factor, which means on average they're  
18 about half utilized throughout the year.  
19 It matters in the winter. That's when they  
20 are at their highest utilization rate.

21 So back in January of 2015 New  
22 Jersey Natural Gas has most of its firm  
23 contracts on Texas Eastern. It's a major  
24 pipeline. But in the middle of the polar  
25 vortex, when somebody would need gas the

1 most, they actually sold off 87.8 percent  
2 of all of their capacity in the market.  
3 That says something about whether there is  
4 excess capacity on a system, when you are  
5 trying to deliver in a record cold spell  
6 natural gas to residences and commercial  
7 buildings, that you are somehow able to  
8 forego 87.8 percent of your contracted  
9 capacity.

10 Another way of looking at this is  
11 regulated utilities are required to tell  
12 regulators what their needs are and whether  
13 they have enough capacity. Rate Counsel  
14 has weighed in very strongly on some of  
15 these same questions using a different gas  
16 consultant, who is also nationally  
17 recognized. And they made it clear that  
18 these same regulated utilities who will  
19 tell us a story about needing more  
20 pipelines and reliability at the same time  
21 have told their regulators that they don't.

22 I'll give you another piece of  
23 information that we were surprised about.  
24 From 2011 until 2018 New Jersey has about  
25 five billion cubic feet of pipeline

1 capacity available to it for customers in  
2 New Jersey. That's the capacity that  
3 people would be able to contract for if  
4 they wanted it. There's about five  
5 billion. Three billion was added. There  
6 was new development between 2011 and 2018  
7 adding 3 cubic feet of new capacity to the  
8 system.

9 There has been a massive build-out  
10 of pipeline capacity coming from the  
11 Marcellus Shale region to various locations  
12 around the eastern seaboard and to the  
13 south. And that is part of the story of  
14 why sort of in the middle of this somebody  
15 decided that they wanted to build Penn  
16 East, a proposed Penn East pipeline, but it  
17 turns out that by now we have more capacity  
18 than we need.

19 We've looked at -- one way of  
20 answering that question again is to look at  
21 this past winter. We called it the bomb  
22 cyclone, so yet another massive cold spell.  
23 This one was even more severe than the  
24 polar vortex, it lasted longer.

25 And during this period we looked

1 at very carefully at the Transco  
2 pipeline -- it's actually the biggest  
3 pipeline artery going through the middle of  
4 New Jersey -- to see what happened on those  
5 cold winter days, what happened on the  
6 Transco pipeline.

7 There's five -- in this zone that  
8 we looked at, so it's not the same number  
9 as New Jersey only, but there is a zone 5  
10 and six that we're part of, there's five  
11 billion cubic feet contracted on Transco.  
12 And when we looked at deliveries, they  
13 delivered 5.3 billion cubic feet. So how  
14 do you do that? They contracted the  
15 maximum physical capacity available, and  
16 yet they delivered 5.3.

17 So what happened is Transco became  
18 bidirectional in the last couple of years,  
19 and this analysis shows that they can now  
20 deliver 7 billion cubic feet of capacity  
21 because it's become bidirectional. And  
22 there was 1.7 billion cubic feet unutilized  
23 even during those -- on the coldest days in  
24 that prolonged cold spell. 1.7 billion  
25 cubic feet was not utilized. Was available

1 for customers in New Jersey, not utilized.

2 The Atlantic Sunrise pipeline was  
3 completed since then, adding another  
4 1.3 billion, so that adds up to exactly  
5 3 billion of excess capacity now, today,  
6 just on one pipeline, Transco.

7 So if you wanted to see more  
8 details, we have data -- we'd like to talk  
9 about data. We'd like to share these very  
10 wonky graphs, low-duration curves, all the  
11 data and we'd be happy to share it with  
12 anybody.

13 Then we get on to a somewhat  
14 different topic, is what does this have to  
15 do with the Energy Master Plan and our  
16 clean energy agenda, so that's a few  
17 misconceptions around that as well.

18 One misconception is that  
19 gas-fired generation is the only way to  
20 manage variable resources. As we get to 30  
21 or 50 or 70 percent renewable energy, we  
22 must need more gas in order to manage that.  
23 Well, it turns out there's no new modeling  
24 being done in California, Hawaii,  
25 Minnesota, and other states, very



1 sophisticated modeling of the electric  
2 grid, to ask the question about  
3 reliability. How can you manage high  
4 levels of variable resources and maintain  
5 electric grid reliability.

6 And what they show is you can get  
7 to 90 percent or even 100 percent emissions  
8 free. It means very little natural gas or  
9 no natural gas and maintain a reliable  
10 electric grid. So this is -- it's a  
11 misconception.

12 There's new evidence in modeling  
13 that supports a different way of looking at  
14 how are we going to achieve this. And you  
15 achieve it largely through flexible load,  
16 transmission, and storage. Those are the  
17 ingredients, and they begin to replace  
18 natural gas as the balancing force in the  
19 electric grid.

20 Another misconception is that  
21 somehow natural gas has to be part of a  
22 low-cost future, and that's really the  
23 exciting thing about these modeling  
24 results, is it shows that the low cost  
25 future is a package of renewable resources,

1 which sometimes are more expensive. We  
2 just looked at a natural gas plan today and  
3 a renewable. You might notice that  
4 renewables can, depending on where you are,  
5 are sometimes more expensive, but the  
6 package of renewable resources, flexible  
7 load, storage, transmission, is a lower  
8 cost pathway to 2050 than one that's based  
9 heavily on natural gas

10 So I'll stop there. And if you  
11 want to see our report, it's available  
12 online. Thank you.

13 MS. CYNTHIA HOLLAND: Thank you.  
14 We are still accepting comments through  
15 October 12th.

16 I have Joe Accardo from PSE&G and  
17 Charles Fox on deck from bloom energy.

18 MS. DANIELLE LOPEZ: Good morning,  
19 everyone. My name is Danielle Lopez. I'm  
20 assistant general regulatory counsel for  
21 PSE&G. I'm going to be pitch hitting for  
22 Joe Accardo today.

23 Good morning to the BPU staff and  
24 all the other staff that's here and present  
25 on this panel. We thank you for the

1 opportunity to provide initial thoughts.  
2 We thank you for the opportunity to speak  
3 here regarding sustainable and resilient  
4 infrastructure.

5 PSE&G has a long history of  
6 partnership with the state, aligning its  
7 interests with those of New Jersey.  
8 Significantly, and with respect to  
9 sustainable and resilient infrastructure,  
10 this partnership has been critical.

11 As prior EMPs have found, the  
12 generation and delivery of reliable and  
13 safe energy is a key element of a healthy  
14 economy. When the utility industry's  
15 substantial financial contributions to the  
16 state's economy are coupled with the  
17 company's critical mission of managing and  
18 maintaining utilities' infrastructure, it  
19 becomes readily apparent why stable -- and  
20 why utility companies are critical for the  
21 existence of all businesses and residents  
22 in New Jersey.

23 PSE&G looks forward to continuing  
24 and building upon the work of prior EMPs  
25 that had ensured that New Jersey remains

1 properly focused on infrastructure  
2 investment to ensure energy resiliency,  
3 emergency preparedness, and response both  
4 today and tomorrow.

5 Infrastructure investments that  
6 enhance the reliability and resiliency of  
7 the electric and gas systems have  
8 benefitted all customers and create jobs.

9 In our service territory alone we are  
10 seeing the value and importance of  
11 infrastructure resiliency in promoting  
12 tremendous urban renewal from Camden to  
13 Newark to Jersey City, just to name a few.

14 PSE&G supports the state's goals  
15 of making energy accessible, reliable, and  
16 affordable, maintaining a balanced  
17 portfolio of clean generation resources  
18 delivering the economic and environmental  
19 benefits of energy efficiency in supporting  
20 new energy technologies and renewable  
21 energy investments.

22 The back bone to all of those  
23 goals and objectives is a sustainable and  
24 resilient infrastructure. PSE&G is already  
25 emersed in the task of addressing the need

1           for more resiliency in the electric and gas  
2           network, those Energy Strong and  
3           modernization programs as well as its  
4           transmission replacement program.

5                         In many areas of our service  
6           territory our assets have successfully  
7           withstood the test of time and lasted  
8           nearly a century. However, resiliency has  
9           become a more significant issue over time.  
10          We must now navigate dramatic weather  
11          shifts from temperatures of 50 to 60  
12          degrees to near zero temperatures in less  
13          than a day, bomb cyclones, ice storms,  
14          heightened national security concerns, and  
15          a greater customer appreciation and desire  
16          for enabling and relying on renewable  
17          energy.

18                        All of these imperatives require  
19          that resiliency of utility systems is a top  
20          priority when crafting long-range planning  
21          as well as EMPs. According to the U.S.  
22          Department of Energy between 2003 and 2012  
23          weather events caused nearly 680 power  
24          outages, each affecting at least 50,000  
25          customers. With more than 154 million

1 electric utility customers in the United  
2 States severe weather events are a concern  
3 for every utility company that services  
4 them.

5 To illustrate the scope of the  
6 problem on the ground here in New Jersey,  
7 Superstorm Sandy downed 9,441 utility  
8 poles, left more than 100 transmission  
9 lines out of service and damaged or flooded  
10 more than 4,000 transformers statewide  
11 leaving 2.8 million electric customers  
12 without power after the peak of the storm.

13 The lessons learned include that  
14 in today's digital age customers demand  
15 reliable power. Ultimately our goal has to  
16 be ensuring the lights work and that there  
17 is heat in the winter, air-conditioning in  
18 the summer, and that the proper flow of  
19 water and sewer systems are maintained.  
20 Meeting these goals not only benefits all  
21 citizens of New Jersey, but it has provided  
22 thousands of jobs to bolster the state's  
23 economy.

24 On the natural gas side the first  
25 phase of PSE&G's Energy Strong program has

1           hardened five meter and regulating stations  
2           and two peak shaving plants against storm  
3           surge, and flooding and 240 miles of gas  
4           mains, and over 21,000 services against  
5           water infiltration.

6                         The second phase of Energy Strong,  
7           in addition to continuing to harden our  
8           metering and regulation stations, proposes  
9           projects that will improve the resiliency  
10          of the gas distribution system against the  
11          flag curtailments by interstate pipelines.  
12          These resiliency improvements are designed  
13          to reduce the potential interruption of  
14          service to PSE&G's firm customers,  
15          particularly in the winter season -- winter  
16          heat season when a loss of gas supply would  
17          be most detrimental.

18                        PSE&G is also pursuing efforts to  
19          proactively modernize its gas systems to  
20          promote a safe, clean and reliable natural  
21          gas system well into the future. Cast iron  
22          and unprotected gas steel pipes represent  
23          less than 25 percent of PSE&G's  
24          infrastructure, but they account for more  
25          than 65 percent of the distribution systems

1 methane gas leaks each year.

2 The company's Gas System  
3 Modernization Program, also known as GSMP,  
4 addresses the issue head on. During the  
5 course of the first phase of the GSMP the  
6 company is making improvements to older  
7 infrastructure that served to reduce  
8 greenhouse gas emissions by the equivalent  
9 of 23,500 tons of CO2 a year.

10 As PSE&G moves into the second  
11 phase of this program, our objective  
12 remains to provide customers and the  
13 communities we serve with continuing  
14 environmental benefits to the magnitude of  
15 31,000 cubic tons per year reduction in gas  
16 house -- greenhouse gas emissions.

17 On the electric side when the  
18 first phase of PSE&G's Energy Strong  
19 program is completed later this year,  
20 490,000 of PSE&G's 2 million customers who  
21 lost power during Superstorm Sandy won't  
22 lose power again due to flooding.

23 By way of example, the program  
24 built in a new elevated station that did  
25 not flood during severe weather events of



1           May 27, 2018, while the old neighboring  
2           station flooded at its lower elevation.

3                         In addition to continuing its  
4           efforts to raise critical electrical  
5           equipment in flood-prone areas, by phase II  
6           of the Energy Strong program the company  
7           proposes modernizing aging electric  
8           stations, installing stronger poles and  
9           wires to reduce wind and tree damage,  
10          install circuit reclosures and redundancies  
11          and employ advanced technology to quicken  
12          restoration.

13                        Our experience demonstrates that  
14          it is possible to power the economy,  
15          provide good jobs for people, deliver  
16          reliable and resilient energy, and protect  
17          the environment at the same time, yet we  
18          recognize there is much to do. Our  
19          customers depend on our energy more than  
20          ever at a time of unprecedented and  
21          intensifying changes in technology and  
22          climate. And we understand and appreciate  
23          that the status quo is not an option.

24                        We also understand that while we  
25          continue to work on improving and

1 modernizing our delivery system, we must  
2 also be mindful of the need to improve and  
3 harden the transmission system.

4 In fact, just last month U.S.  
5 Energy Department's National Renewable  
6 Energy Laboratory presented a new steam  
7 study finding considerable economic and  
8 engineering value in fortifying these  
9 connections to better distribute power  
10 resources around the country. The study  
11 highlighted the relationship between  
12 transmission resiliency and meeting  
13 renewable energy goals.

14 PSE&G looks forward to continue  
15 discussing these issues in the electric  
16 transmission and distribution systems as  
17 they become critical to enabling New  
18 Jersey's renewable goals.

19 Finally, and somewhat related, we  
20 understand that microgrid investments  
21 energy storage in certain applications  
22 played a complimentary role in protecting  
23 critical facilities. That said,  
24 investments that make existing electric and  
25 gas transmission and distribution systems

1 more resilient have and should remain the  
2 priority as they benefit the greatest  
3 number of residents in the most cost  
4 effective manner. Thank you for your time.

5 MS. CYNTHIA HOLLAND: Thank you.  
6 Mr. Fox from Bloom Energy, and then after  
7 your remarks we'll take a short five-minute  
8 break.

9 MR. CHARLIE FOX: Good morning.  
10 My name is Charlie Fox. I'm the director  
11 of regulatory affairs and business  
12 development for Bloom Energy on the east  
13 coast.

14 I want to first thank you for the  
15 opportunity to speak today. I think this  
16 is a great forum and sometimes difficult to  
17 get messaging across, so we do appreciate  
18 the opportunity. I'll keep my comments  
19 relatively brief today, and we'll be  
20 submitting much more detailed comments by  
21 the 12th.

22 The first point I'd like to make  
23 is that the topic of this hearing,  
24 sustainable and resilient infrastructure,  
25 is fundamentally different than any other

1           topic as part of the master plan process.  
2           And it has to do with the fact that New  
3           Jersey really can't afford to wait until  
4           2030 or 2050 to focus on resiliency and  
5           customer resiliency in particular.

6                         New Jersey residents have never --  
7           and businesses have never been more reliant  
8           on an uninterrupted supply of electricity  
9           than they are now, and that reliance is  
10          growing every day. Every aspect of our  
11          life, every aspect of our personal and  
12          public safety is depending on reliable  
13          supply of electricity.

14                        At the same time weather-related  
15          outages in the United States are up  
16          80 percent over the last 15 years and 90  
17          percent of the electric outages in the  
18          United States are a function of failures in  
19          the distribution system. I'd like to  
20          describe some of the things Bloom Energy is  
21          doing about that with its customers in  
22          other states, in states other than New  
23          Jersey, very briefly.

24                        We build -- microgrids are a main  
25          focus of what the company does. We built a

1 microgrid in Hartford, Connecticut  
2 recently, known as the Parkville  
3 neighborhood. It covers an elementary  
4 school, gas station, senior center, and  
5 isolates that neighborhood from outage of  
6 the electric grid and has ridden through  
7 multiple outages over the last three years  
8 since it was installed.

9 We recently installed a microgrid  
10 for a very large technology company based  
11 in Cupertino, California. It's an  
12 extremely large building, larger than the  
13 Pentagon, and it's designed to operate  
14 indefinitely if the electric grid goes  
15 down. It's powered by Bloom fuel cells, a  
16 combination of Bloom fuel cells, solar, and  
17 storage. They operate together by  
18 base-load power and then the solar and  
19 storage are able to ramp up and down to  
20 compensate for when the sun is shining and  
21 when the sun isn't shining and the  
22 variations in the customer's load.

23 Recently we did a similar project  
24 with Con Edison in Brooklyn, a very  
25 interesting scenario there. You may have

1 heard of the Brooklyn Queens Demand  
2 Management Initiative. What happened is  
3 that the load in Brooklyn was growing so  
4 rapidly Con Edison couldn't keep up. It  
5 needed to keep the lights on in Brooklyn  
6 this past summer and proposed a bill  
7 that -- a very large transmission line and  
8 substation that would have ratepayers cost  
9 \$1.2 billion.

10 Instead, they worked with the  
11 State of New York and put together a  
12 program that targeted reliable distributed  
13 energy resources into that neighborhood.  
14 Bloom was very proud to play a large role  
15 in that. We ultimately installed seven  
16 different fuel cell projects this past  
17 summer. We had the effect of avoiding  
18 brownouts and blackouts in Brooklyn. There  
19 were multiple -- I believe over 20 events  
20 called this summer that most likely would  
21 have gone the other way

22 The key thing there is that they  
23 used a combination of efficiency and  
24 distributed energy resources, including  
25 storage, solar and fuel cells to avoid a

1 billion dollars in customer cost. So  
2 that's a resiliency effort that had the  
3 effect of keeping the lights on, reducing  
4 CO2, every one of the measures that they  
5 instituted reduced CO2. Reduced, in our  
6 case, just like solar we're a non-emitting  
7 technology for local forms of air  
8 pollution, and did all that at a ratepayer  
9 savings -- not cost, but a savings of \$1  
10 billion.

11 The one that I'm most proud of in  
12 that group is a project and a place called  
13 Marcus Garvey houses. And what it is is a  
14 low-income housing development, and we were  
15 able to put in a combination of fuel cell,  
16 solar, and storage in a microgrid format.  
17 And that was one of the projects that  
18 helped get common entry through the summer  
19 this year.

20 I bring it up because we have a  
21 very different experience in New Jersey.  
22 In New Jersey our story is a story of  
23 technology, selection, and deselection.  
24 And I want to talk through a little bit of  
25 some of those selections, and I'll come

1 back to this. But the key thing is the  
2 project that I mentioned in Brooklyn and  
3 combines solar and storage and a full fuel,  
4 is currently prohibited in the State of New  
5 Jersey. And we know this because we have  
6 specific projects that we're trying to  
7 invest in right now, millions of dollars,  
8 private investment that we raised around  
9 the world and are trying to spend in New  
10 Jersey and are unable to do so.

11 And according to the electric  
12 distribution companies the reason is is  
13 because it's contrary to board policy. So  
14 we want to really focus on the sort of what  
15 I see as a three-part or four-part  
16 technology selection and deselection.

17 Selection came in the form, in our  
18 view, of the previous master plan. The  
19 Christie administration had a specific  
20 technology selection where they selected  
21 1,500 megawatts of combined heat and power.  
22 And the critical thing to understand is  
23 that Bloom is not a combined heat and power  
24 technology and purposefully not a combined  
25 heat and power technology. We're focused



1 on those customers that don't have a  
2 matching thermal load and the most  
3 efficient way that those customers can  
4 generate power.

5 We think it's really important to  
6 recognize that most critical the vast  
7 majority of customers don't have a matching  
8 thermal load, and matching thermal loads  
9 don't correspond with critical facilities.  
10 And so when you limit your distributed  
11 generation programs to customers that have  
12 a matching thermal load, you're effectively  
13 excluding many critical facilities, many  
14 that are important for purposes of public  
15 safety and, you know, could be from a data  
16 center to a telecommunications hub, and on  
17 and on and on.

18 So that was the selection we hope  
19 will be ultimately changed. We prefer to  
20 see a non-selective approach that is purely  
21 performance based. We don't think any  
22 incentive should be provided to anyone who  
23 doesn't first prove that they can perform  
24 and that they can achieve the Board's  
25 objectives. That's another issue with the

1 current incentive program, it pays people  
2 up front and then there's very little  
3 verification after the fact.

4 So the first issue where we see a  
5 deselection is the combination of  
6 technologies behind the single customer  
7 meter, which is something that the leading  
8 companies around the world are doing right  
9 now to isolate themselves from outages in  
10 the electric grid.

11 A very simple solution, you don't  
12 need to wait for the Master Plan you don't  
13 need to wait for 2030 or 2050. We could  
14 all get together -- we will be there any  
15 day or night if the Board would be willing  
16 to call together the EDCs and try to find a  
17 way to work it out without having to go  
18 through a Rule 1990 process. We'd like to  
19 find ways to do this in the least bandwidth  
20 intensive manner possible

21 The second example is the  
22 explorative energy. The current situation  
23 for us in New Jersey is that a 42.5 percent  
24 efficient combustion generator that  
25 produces local air pollution and is less

1 reliable than our technology, and I think  
2 that's a proven fact, is allowed to export  
3 power to the electric utility. Whereas, a  
4 60 percent non-combustion generator that  
5 does not produce any local forms of air  
6 pollution and is more reliable is prevented  
7 from exporting to a local utility and they  
8 will not even take our electricity for  
9 free.

10 It's remarkable, and I've been  
11 told by board staff that this is a function  
12 of federal law; however, I note that's not  
13 the case in New York and it's not the case  
14 in Connecticut, and if it was an issue of  
15 federal -- that just wouldn't be.

16 And then, lastly, incentives. You  
17 know, I think, again, we focus here on  
18 proven performance. We think that the idea  
19 of doing cost benefit analyses that take a  
20 lot of time and a lot of time to conduct is  
21 a mistake, and instead we ought to conduct  
22 a reverse auction, state its policies up  
23 front, put very high performance  
24 requirements in, and then force project  
25 developers to bid in a way where the lowest

1 bid wins. And that way you're going to  
2 elicit more value for the Board's dollar.

3 As it stands right now we're doing  
4 a projects, without naming a customer, very  
5 large telecommunications companies, where  
6 we supply primary power for the AT&T -- oh,  
7 excuse me. That's the large company, for  
8 a -- switching stations. And in some  
9 states they're grid islanding, table the  
10 outage of the electric grid, and in New  
11 Jersey they're grid parallel. And the  
12 reason is because the economic model is  
13 different where there's incentives in one  
14 state and not in the other.

15 So I'd really like to see a big  
16 focus on resiliency in the Energy Master  
17 Plan. I very much appreciate the  
18 opportunity to talk today, and I think most  
19 importantly, please don't wait until 2030  
20 or 2050 to focus on this issue. Thank you.

21 MS. CYNTHIA HOLLAND: Thank you.  
22 I think maybe a five-minute break, if  
23 everyone wants just an opportunity -- you  
24 probably want an opportunity to rest your  
25 fingers. So we'll be back in five minutes.

1 I've got that as approximately 11:36.

2 (Off the record.)

3 MS. CYNTHIA HOLLAND: I'd like to  
4 get started. We do have several more  
5 speakers interested in commenting.

6 I'd like to acknowledge  
7 Commissioner Solomon. Thank you for  
8 joining us today.

9 COMMISSIONER SOLOMON: Yes.

10 MS. CYNTHIA HOLLAND: So our next  
11 speaker is Henry Gajda from the New Jersey  
12 League of Conservation Voters, and on deck  
13 we have Nancy Griffeth.

14 Oh, he might be outside? Or  
15 actually, Ms. Griffeth, do you want to go?  
16 Are you ready?

17 MS. NANCY GRIFFETH: Well, I  
18 wanted to wait for him. Whatever.

19 MS. CYNTHIA HOLLAND: Whatever  
20 you're comfortable with.

21 MR. HENRY GAJDA: Is it my turn  
22 now?

23 MS. CYNTHIA HOLLAND: Yes. Thank  
24 you

25 MR. HENRY GAJDA: My name is Henry

1           Gajda, G-A-J-D-A, and I'm with the New  
2           Jersey League of Conservation Voters.  
3           Thank you for the opportunity to comment at  
4           this fifth Energy Master Plan hearing and  
5           the New Jersey League of Conservation  
6           Voters have a rapport with the governor and  
7           the administration in passing the clean  
8           renewable energy bill and setting our stake  
9           on behalf to realize 100 percent clean  
10          renewable energy in New Jersey by 2050.

11                   The EMP process needs to identify  
12          policies and guidance to preserve the  
13          integrity of our energy systems in the face  
14          of anticipated and unanticipated impacts of  
15          climate change, more specifically the EMP  
16          should call for all the infrastructure  
17          upgrades and investments to be evaluated  
18          and designed to address existing system  
19          vulnerabilities and (inaudible) with the  
20          least number of hazards present to build  
21          the most resilient energy systems possible.  
22          For example, using updated flood zone  
23          analyses that protect future flood mapping  
24          and discourage building insensitive,  
25          low-lying, flood-prone, and other measured

1 high-risk areas.

2           Moreover, we can not achieve 100  
3 percent of a renewable future if we  
4 continue to invest in unneeded fossil fuel  
5 projects. It will completely derail all --  
6 our progress in meeting our  
7 emission-reduction targets outlining the  
8 Global Warming Response Act.

9           This is further highlighted in the  
10 conservation foundation's recent  
11 application, which indicates that we have a  
12 natural gas capacity available to meet our  
13 current and future needs, and we don't need  
14 to spend billions of dollars on wasteful  
15 fossil fuel infrastructure projects

16           Therefore, the EMP should consider  
17 criteria, such as climate change impacts  
18 with social cost of carbon contributions to  
19 attaining new -- any new interim goals  
20 achieving the 2050 Global Warming Response  
21 Act, one that's in all major investments of  
22 public monies, including public energy  
23 infrastructure and economic development  
24 investment, development and redevelopment  
25 of state facilities, and then also

1 Executive Order 215 reviews to ensure that  
2 we are ultimately moving productively and  
3 efficiently toward our clean energy economy

4 And then to further facilitate  
5 this process moving forward and looking at  
6 our state's larger systems, state agencies  
7 are essential ultimately to achieve Global  
8 Warming Response Act goals and achieving  
9 our clean energy bill goals.

10 And EMP should explore all avenues  
11 of how our state agencies can improve and  
12 expand their synergies to effectively and  
13 responsibly allocate revenues to  
14 prioritize -- to priorities that put us on  
15 a path to achieve these goals.

16 In addition, as we ramp up  
17 investment in clean energy infrastructure,  
18 we need to ensure that the good local  
19 employment opportunities are accessible to  
20 everyone, especially if major investments  
21 are happening near low- and moderate-income  
22 and environmental justice communities.

23 Workforce development programs are  
24 essential to build a reliable, productive,  
25 competitive, and qualified labor force, and



1 the EMP should consider ways through public  
2 and private investment and collaboration to  
3 organize labor to design programs which  
4 ensure historically underrepresented  
5 communities are involved in transforming  
6 the infrastructure of the our state,  
7 similar to what has been done in Illinois  
8 with the future energy jobs there.

9 As wind developments spurs along  
10 our coast or community solar emergence --  
11 emerges in our urban areas, we need to  
12 ensure that the community members of  
13 Atlantic City, of Newark, and other areas,  
14 which are particularly economically  
15 stressed are included in this process to  
16 manufacture and assemble such distributed  
17 energy resources.

18 Lastly, and yet quite importantly,  
19 just to push a little plug, the  
20 administration and legislature should do  
21 everything in their power to support,  
22 facilitate, and provide funding for the  
23 gateway project between New York City and  
24 New Jersey. It's arguably one of the most  
25 important infrastructure projects for this

1 region and in the country for decades.

2 Thank you for your time.

3 MS. CYNTHIA HOLLAND: Thank you.

4 Ms. Griffeth, thank you. And on  
5 deck I have Imelda Foley from the  
6 University of Delaware.

7 MS. NANCY GRIFFETH: Okay. I'm  
8 Nancy Griffeth from the Environmental  
9 Justice Task Force from Unitarian  
10 Universalists Faith Action, and we're also  
11 partners in Jersey Renews.

12 First, I'd like to applaud the BPU  
13 for agreeing to two additional sessions. I  
14 know this is onerous and, in fact, you're  
15 going to have to travel and it's going to  
16 be late in the day. Well, I have to travel  
17 to these. I do sympathize, and listening  
18 to hour after hour of testimony I know has  
19 got to be difficult.

20 And I'd also like to applaud  
21 your -- the fact that you have -- well, our  
22 primary concern is environmental justice  
23 and in the final questions to each set of  
24 discussion points you've included questions  
25 involving environmental justice.

1           Okay. Now, after working on the  
2           environmental justice issues for a while  
3           I've come to realize that one of the  
4           hardest things about dealing with these  
5           issues is understanding how the  
6           circumstances of someone's life that's --  
7           when those circumstances are very different  
8           from your own, how they interact with the  
9           kinds of things that we try to do to save  
10          the environment.

11                 And what I want to talk about  
12          today, it's a small thing, a small example,  
13          but just an example where there may be some  
14          problems that we don't really anticipate,  
15          and this is the issue of smart thermostats.  
16          And this is part of advanced metering  
17          infrastructure, which can be used to better  
18          manage the grid, and so fits into the  
19          resiliency and sustainability efforts that  
20          we might make.

21                 But I have three concerns with  
22          smart thermostats: One is cost, a second  
23          is consumer decision making, and the third  
24          is security.

25                 So as to cost, now I did some

1           Googling and so on before preparing this  
2           and came up with the fact that PSE&G offers  
3           a \$150 rebate for smart thermostats, which  
4           after some study -- we have a programmable  
5           thermostat at home, but not a smart  
6           thermostat, which includes wireless  
7           capability, and I believe allows the power  
8           company to get data from you and even  
9           manipulate the thermostat.

10                   And so I spent some time trying to  
11           understand smart thermostats on Consumer  
12           Reports and then looking at manuals, and  
13           the cost -- well, first, the cost of --  
14           that would leave -- the \$150 rebate would  
15           leave only about \$100 on recommended smart  
16           thermostats. So that only is -- and only  
17           to me, and I don't know if it's only to a  
18           lower-income person. So that's one issue.

19                   Another issue is, as I mentioned,  
20           is consumer decision making. And as I  
21           said -- so I started out looking up on  
22           Consumer Reports to understand what their  
23           recommendations are on these smart  
24           thermostats. I found out things like not  
25           all smart thermostats can work with all

1 home wiring systems, they require wifi,  
2 some of them actually require an iPhone,  
3 all of them require a smart phone, some  
4 only work with Apple equipment

5 So, again, we're talking the  
6 rebate covers a significant part of the  
7 cost of the thermostat; it doesn't cover  
8 the cost of associated devices. And even  
9 the knowledge that you need those devices  
10 to fully utilize the smart thermostat may  
11 be hard to come by.

12 So an earlier presenter mentioned  
13 that consumers -- I think in this case  
14 larger consumers like hospitals,  
15 businesses, really don't like to have to go  
16 through a complicated decision-making  
17 process when they're purchasing things.  
18 Well, you know, not all of us do. I mean,  
19 it's time and energy, nobody wants to go  
20 through that. And that's certainly the  
21 case for lower-income customers as well.

22 And then the last issue is  
23 security, which as a computer scientist, I  
24 have to get into this, or a retired  
25 computer scientist. So the smart

1 thermostat -- well, actually, there's  
2 another thing I wanted to mention, which  
3 relates to this. Energy is providing smart  
4 thermostats free in New Orleans, and they  
5 will give a \$20.00 discount on bills to  
6 customers that allow them to manipulate  
7 their thermostat.

8           So that brings in the security  
9 issue, which is that -- that punches a hole  
10 in the home fire wall. So now somebody has  
11 access to your home to a device in your  
12 home. And if there's an exploit, that can  
13 take control of that thermostat or even  
14 your home network -- then the interesting  
15 thing is in the energy situation where  
16 they're buying everybody's -- the same  
17 thermostat presumably, one exploit can  
18 attack everybody's home.

19           Now, for security you always  
20 evaluate what are the threats first before  
21 you try to figure out what security  
22 measures you want to take because basically  
23 you want to make the cost of an exploit  
24 higher than the cost of anything that can  
25 be gained. So that means that home

1 security doesn't have to be as stringent as  
2 bank security.

3 But if you're talking about one  
4 exploit that can damage all of the houses  
5 in a state, let's say, that could be very  
6 high value to somebody that, say, wants to  
7 disrupt a company or that wants to disrupt  
8 the government, that wants to damage the  
9 credibility of a company or of the  
10 government. So that exploit could be a  
11 very -- even likeable.

12 So thank you for listening.  
13 That's all I have to say today.

14 MS. CYNTHIA HOLLAND: Thank you.  
15 Imelda Foley?

16 (No response.)

17 All right. We have Patty Cronheim  
18 from Rethink Energy New Jersey, and on deck  
19 we have Ron Cascone.

20 MS. PATTY CRONHEIM: Good morning.  
21 I can still say good morning. My name is  
22 Patty Cronheim, and I'm the outreach  
23 coordinator for Rethink Energy New Jersey,  
24 and I want to thank you for the opportunity  
25 to speak with you today. You've already

1 heard from one of my colleagues, Barb  
2 Blumenthal, and you will be hearing from  
3 Bob Gilbert a little later.

4 Today I'd like to speak with you  
5 about infrastructure integrity issues.  
6 Just a little background, Rethink Energy  
7 New Jersey fully supports 100 percent  
8 renewables by 2050.

9 But speaking about infrastructure  
10 integrity issues specifically, I'd like to  
11 focus on the potential safety risks for New  
12 Jersey's -- to New Jersey's transmission  
13 pipelines from an overstressing by proposed  
14 new gas infrastructure. Sadly, we're all  
15 too far aware of a tragedy that occurs when  
16 even small distribution pipelines fail, let  
17 alone much larger transmission lines.

18 Recently I had the opportunity to  
19 be among a small group of advocates who  
20 attend a week-long pipeline safety  
21 engineering course in Houston. And this  
22 was a pilot program because PHAMSA, the  
23 Pipeline Hazardous Materials Safety  
24 Administration, wanted the public to have  
25 more information, access to more



1 information. This training helped me  
2 better understand and address the basic  
3 questions that the people and communities  
4 that I work with are always asking me. And  
5 the number one question, aside from health  
6 issues, is is it safe.

7 So currently New Jersey's being  
8 inundated with new interstate pipeline  
9 infrastructure. New Jersey has seven  
10 proposed new pipelines and the equivalent  
11 of five new proposed compression stations  
12 within a 50-mile radius in central New  
13 Jersey, just about where we are right now,  
14 and this would change the safety dynamics  
15 of our existing pipeline system.

16 This new infrastructure would  
17 increase the volume of gas, and in some  
18 cases operating pressures and velocities to  
19 our existing system. We'd be pushing  
20 basically more gas faster, sometimes  
21 hotter, through lines. This could lead to  
22 increased corrosion rates as well as well  
23 failures, and accidents in our states have  
24 shown this is sometimes the cause.

25 We are especially concerned

1 because pipelines are most vulnerable to  
2 accidents in the first five years and as  
3 they age. Unfortunately, New Jersey has  
4 the perfect storm, we have new proposed  
5 pipelines and we have many older, aging  
6 transmission pipelines. And these  
7 interstate pipelines are not built to New  
8 Jersey's higher safety standards to begin  
9 with.

10 New Jersey is the most densely  
11 populated state in the nation, and we  
12 understand the higher safety standards for  
13 pipelines are essential, so since 2009 we  
14 have higher safety standards for our  
15 interstate lines.

16 We agree that this is important,  
17 and that's why we support a recently  
18 introduced assembly and senate concurrent  
19 resolution that urges the federal  
20 government to require that all interstate  
21 gas pipelines constructed in New Jersey are  
22 built, operated, and maintained to New  
23 Jersey's higher class or safety  
24 regulations, something which they are not.

25 While the Pipeline Hazardous

1 Material Safety Administration I'm going to  
2 call it PHAMSA from now on, is responsible  
3 for providing a pipeline safety net for  
4 these large lines, there are big holes in  
5 that net. PHAMSA only oversees pipelines  
6 and compression safety after they're built,  
7 they don't evaluate if it's safe to build  
8 them in the first place.

9 And for seven years, since the  
10 massive San Bruno accident in California  
11 PHAMSA and industry have been dragging  
12 their heels on the safety rule updates that  
13 were mandated by Congress and the  
14 Department of Transportation. No part of  
15 the real rulemaking has been completed and  
16 it's facing more delays.

17 While in the meantime significant  
18 pipeline accidents have been on the rise --  
19 and this is from PHAMSA data, and sometimes  
20 a lot of times industry will cite that this  
21 is from excavation and external forces.  
22 Well, I just want to say that PHAMSA  
23 records show that only 20 percent of  
24 pipeline accidents are through some  
25 external course of some pipes, 80 percent

1 is from corrosion, material failure,  
2 operator error, and equipment failure. And  
3 the rate of these accidents is about 20 a  
4 month.

5 Post-accident investigations have  
6 also brought to light that pipeline  
7 operators often lack records of their  
8 inservice pipeline corrosion status  
9 maintenance and testing history.

10 But despite this poor industry  
11 safety history PHAMSA is open to docket to  
12 consider industry-recommended loosening of  
13 the class location safety requirements for  
14 existing pipelines, something that would  
15 put New Jersey at higher risk. There's a  
16 Monday deadline, comment deadline, for this  
17 if the BPU wants to get involved. I know  
18 there's some legislators who will be  
19 commenting.

20 Given the lack of federal  
21 oversight, especially for proposed  
22 infrastructure, New Jersey needs to step in  
23 and take a hard look at pipeline safety  
24 issues. Because an answer to the question,  
25 when people ask me is it safe, I can point

1 to risk factors, I can point to accidents  
2 in other states with similar conditions  
3 that what we're facing here

4 But the truth is that I don't  
5 know, PHAMSA doesn't know, the State of New  
6 Jersey doesn't know, and in many cases the  
7 operators themselves don't know the full  
8 condition of what's in the ground and if  
9 their new plans are truly safe. It's not  
10 knowing that's the problem.

11 After the tragic accident in  
12 Massachusetts this month the Massachusetts  
13 legislature ordered a study of the safety  
14 impacts on new major gas infrastructure on  
15 existing transmission pipelines. New  
16 Jersey should proactively conduct a similar  
17 study and not wait for a devastating  
18 accident to prompt an investigation here.

19 We need to be proactive and not  
20 this currently only looking at problems  
21 after they happen. New Jersey needs to  
22 require complete and transparent safety  
23 analysis that would look at the potential  
24 impact proposed pipelines would have on  
25 existing pipelines. That review would

1 include pipeline wall and weld corrosion  
2 analysis and new operating gas velocity  
3 risk analysis and compression risk  
4 analysis.

5 The people of New Jersey have the  
6 right to know the answer to that question.  
7 They have the right to know and feel secure  
8 about what's under their feet.

9 Needless to say natural gas is not  
10 only a dirty fossil fuel, but also a  
11 potentially very dangerous one. We need to  
12 be decreasing our dependence on natural gas  
13 and moving towards much safer and cleaner  
14 sources of energy like wind and solar.

15 Safety is one of the many reasons  
16 why Rethink Energy New Jersey fully  
17 supports New Jersey's transition to 100  
18 percent clean renewable energy. Thank you.  
19 And I'm available if anyone ever wants to  
20 talk safety issues or put our heads  
21 together and talk about what's going on,  
22 I'm happy to discuss that with you. Thank  
23 you.

24 MS. CYNTHIA HOLLAND: Thank you.  
25 Mr. Cascone, and on deck we have Jivahn

1 Moradian.

2 MR. RON CASCONI: Okay. With the  
3 chair's permission I'm going to be speaking  
4 seated for obvious reasons, spinal cord  
5 injuries.

6 Okay. So I'm Ron Cascone,  
7 C-A-S-C-O-N-E, with Nexant, I'm a principal  
8 with Nexant, N-E-X-A-N-T. This is my  
9 second time speaking and accompanying  
10 earlier a colleague at another meeting. We  
11 intend to put in comments for all of the  
12 areas of the final five.

13 Standalone resilient energy  
14 infrastructure, including electric power  
15 grid, natural gas supply, and distribution  
16 system and the logistics of renewable  
17 liquid fuels and gaseous fuels and feed  
18 stocks, which has not been discussed very  
19 much here, but a gap is closely related to  
20 the other four work areas of the EMP  
21 initiative, particularly building a modern  
22 grid and cleaner renewable power. We  
23 have -- we're in our comments distributed  
24 generation, we talked about that,  
25 complimenting the electric grid and gas

1 distribution systems, fuel cells and  
2 hardening of the infrastructure.

3 In distributed generation energy  
4 storage and -- energy storage are key  
5 features of the grid that is modern and  
6 resilient. These systems have to be secure  
7 against sabotage as well as natural  
8 disasters, and that's been suggested here.

9 Not much to introduce here. I  
10 agree with all that's been said about  
11 microgrids being -- supporting critical  
12 facilities like hospitals, pumping  
13 stations, supermarkets, emission critical  
14 system such as cell towers and solar farms.

15 Complimenting the electric grid  
16 and gas distribution systems, I think I  
17 have something new to insert into this  
18 conversation. No one has mentioned the  
19 idea of peak shaving when it comes to  
20 capacity on the gas grid. This is a common  
21 technology that's used all over the country  
22 to reduce the size and the volume and make  
23 more secure the gas distribution system.

24 What that means is you use small  
25 scale L&G technology, not the stuff that's



1 delivered in huge tanks from continent to  
2 continent to create a tank full of L&G,  
3 which then can be re-vaporized to the peak  
4 demands and reduce the infrastructure of  
5 pipelines that are required.

6 Now, the interesting thing here is  
7 the national labs have developed a  
8 technology where you take 500 to -- 200 to  
9 1,500 PSI pipeline pressure, which is let  
10 out everywhere at the city gate to about  
11 1,500 PSI. They utilize that pressure  
12 drop, which is generally burned across the  
13 valve, just wasted, and you run that gas  
14 through an expander, and that gives you  
15 about 25 percent of that gas as a liquid.  
16 You put that liquid in a tank and you can  
17 use it for peak shaving, and/or you can  
18 distribute it to transportation systems  
19 like garbage trucks and buses, and so on,  
20 CNG, LNG, and other ways. And you can  
21 substitute it for LPG, which is another  
22 liquid hydro for industrial/commercial use.  
23 This is established common commercialized  
24 technology, it's not black art.

25 The other issue is fuel cells, and

1 I completely agree that fuel -- I was  
2 completely happy with what Bloom Energy had  
3 to say. The trouble with fuel cells is  
4 that people are focused on PEMFCs, which  
5 are the type of fuel cells people are  
6 proposing for and -- which need hydrogen,  
7 which is a very pure hydrogen. And I am a  
8 hydrogen economy energy denier. It's never  
9 going to happen, in my opinion.

10 But solid oxide fuel cells and  
11 multi-carbon fuel cells -- so oxide's the  
12 type that Bloom was talking about and has  
13 commercialized, and multi-carbon is the  
14 type that the other folks spoke about from  
15 Connecticut. And those are also  
16 commercialized, obviously. And they can  
17 burn hydrocarbons. They don't have to be  
18 fossil hydrocarbons, they can be renewable  
19 hydrocarbons.

20 Right now in this world and in  
21 Germany 8,000 facilities are producing bio  
22 gas, which is used either as synthetic  
23 natural gas by cleaning -- taking out the  
24 CO2 that's in it, or is used to fuel waste  
25 energy facilities generating electricity.

1           Korea has similar installations,  
2           7,000, and many other countries in the  
3           world. So this is commercial technology.  
4           Countries that are interested in greening  
5           their energy are doing this. New Jersey  
6           should make room for this in its energy  
7           plan.

8           And, finally, when we talk about  
9           hardening, and I'm not introducing any new  
10          ideas here except that I support the idea  
11          of burying power grids -- power lines, and  
12          I also suggest that the state get together  
13          with cyber security, with federal  
14          authorities, international agencies,  
15          private industries and other states in this  
16          issue of cyber security, which is really a  
17          scary, scary issue.

18          So I think that the suggestions,  
19          the EMP guidelines should rely on market  
20          data. The market should -- it should be  
21          market driven and should develop good data  
22          on the existing and future markets for the  
23          different forms of energy that we've  
24          discussed here, and should evaluate  
25          technologies based on what is practical and

1 not look at -- should not base an energy  
2 plan on heroic assumptions about  
3 development of technologies that aren't yet  
4 developed. Thank you very much.

5 MS. CYNTHIA HOLLAND: Thank you.  
6 Jivahn Moradian from the Princeton Student  
7 Climate Initiative and Markian Melnyk from  
8 Atlantic Grid Development on deck.

9 MR. JIVAHN MORADIAN: Thank you  
10 very much. I think I can say good  
11 afternoon at this point.

12 First of all, I'd like to thank  
13 everyone on the Board of Public Utilities  
14 for organizing this event. I think this is  
15 something that's a constituent of a  
16 democratic society and should be done more  
17 often. So my name is Jivahn Moradian. I  
18 am a college student here representing the  
19 Princeton Student Climate Initiative. Rest  
20 assured I will be brief.

21 I'm here because I help moderate  
22 the discussion of coastal resilience at the  
23 New Jersey Climate Future Summit, which  
24 took place about few weeks ago. And I just  
25 want to share some of the considerations

1 our stakeholders were considering. The  
2 stakeholders who were at that focus group  
3 represented a very wide range of fields  
4 from consulting, to Department of  
5 Environmental Protection, to the Rate  
6 Counsel, and I felt that a lot of these  
7 concerns that were brought up do apply to  
8 the topic of sustainable and resilient  
9 infrastructure as well.

10 So the first theme that was  
11 brought up, just as an overall situation is  
12 no one solution fits all. In the situation  
13 we were discussing solution to preventing  
14 sea level rise and diminishing the impact  
15 of flooding, and we were debating between  
16 hard solutions versus nature-based  
17 solutions

18 And one of the consensus was that  
19 there's not one set solution that will work  
20 in every situation; however, hybrid  
21 approaches are often a good way of  
22 maximizing the positives of both factors.

23 One thing that was brought up,  
24 though, is it's important to bring up  
25 long-term solutions and not do BandAid

1 patch-ups. So that's just one thing I  
2 think is important to take into  
3 consideration for this master plan, which  
4 is already the case by the fact that we're  
5 looking ahead to 2050 as opposed to 2020.

6 Second big issue was funding. So  
7 evidently funding any large-scale  
8 infrastructure project is a major  
9 challenge. The stakeholders at our group  
10 were debating some of the different ways  
11 that can be funded. So evidently  
12 government funding has its disadvantages  
13 because of like bureaucratic systems;  
14 however, sometimes it can be more  
15 appropriate.

16 One thing that was brought up is  
17 that the private sector is a very good  
18 candidate for bringing in solutions, it's  
19 just important to make sure that incentives  
20 are aligned with the local communities and  
21 with the state at large.

22 Third option -- well, third main  
23 consideration is education. A very  
24 interesting point that was brought up was  
25 that funding infrastructure projects need

1 to be coordinated with education and  
2 awareness programs with local communities  
3 because people are likely to respond better  
4 be more receptive to change if they know  
5 what's going on and where their money is  
6 going towards. If people know what  
7 projects we're working on, why we're  
8 choosing them, and how they're going to  
9 benefit in the long run, they're going to  
10 be more receptive to the entire process. So  
11 we just recommend that in the entire system  
12 you continue what you're doing here and  
13 just making sure that everyone in the state  
14 remains informed of what's going on.

15 And the final thing that we were  
16 discussing were vulnerable groups, in that  
17 often the people who are most often  
18 affected by climate change, by  
19 infrastructure projects, the one who are in  
20 most need of the most help are not the ones  
21 that have a voice at the table.

22 So, for example, urban areas tend  
23 to attract a lot more development, a lot  
24 more investment simply due to the  
25 population density. Similarly vulnerable

1 communities, low-income families are less  
2 likely able to attend events like this  
3 simply because they can't afford the time  
4 and the date.

5 So just as a final note, and I  
6 would like to say, that it's also important  
7 that in addition to thinking about who is  
8 here and what is being said, we also need  
9 to think about who isn't here and what  
10 isn't being said. Thank you very much for  
11 your time.

12 MS. CYNTHIA HOLLAND: Would you  
13 mind spelling your name?

14 MR. JIVAHN MORADIAN: Yeah,  
15 J-I-V-A-H-N, M-O-R-A-D-I-A-N.

16 MS. CYNTHIA HOLLAND: And just as  
17 a practice point, if everyone wouldn't mind  
18 just clarifying what their names are and  
19 their affiliations when they come to speak,  
20 to make the record clear

21 And also, thank you, Mr. Melnyk.  
22 And on deck we have Tom Gilbert.

23 MR. MARKIAN MELNYK: Yeah. Hi.  
24 Good afternoon. Markian Melnyk,  
25 M-A-R-K-I-A-N, M-E-L-N-Y-K. And I'm with



1 Atlantic Grid Development. We develop  
2 electric transmission to support off short  
3 wind energy, so my comments here will be  
4 focused on transmission today. We  
5 submitted written comments, so I'll just  
6 hit on a few highlights.

7 I think it's really helpful when  
8 you talk about transmission, to step back a  
9 bit and make sure that we are  
10 distinguishing between a network which is,  
11 I think, what most of us think about when  
12 we talk about transmission, and radio  
13 transmissions, which is just a single line  
14 from a generator to a point on the grid.

15 And it's an important distinction  
16 because when you talk about networks, you  
17 get something that serves multiple users,  
18 something that's -- serves them over a long  
19 period of time. The representative from  
20 public service mentioned that some of their  
21 facilities are in service now for a hundred  
22 years and they've served multiple users  
23 over that time. And most importantly it's  
24 about providing open access, just like road  
25 networks or railroad networks provide open

1 access to all users. The transmission grid  
2 does that and so it supports competition.

3 On the other side radio  
4 transmission is single-user focus, it is  
5 controlled by that single user, and so it's  
6 closed access and so it end up restricting  
7 competition. And when we talk about  
8 transmission, I think network transmission  
9 ought to be the focus. It by far it serves  
10 ratepayers much better. And this isn't  
11 just a comment on offshore wind, but it  
12 applies to what we're doing in offshore  
13 wind.

14 So this is a discussion about the  
15 Energy Master Plan. It's right that we  
16 should be talking about planning. Planning  
17 helps us avoid mistakes. In the end  
18 planning is a lot cheaper and more  
19 effective than building things with  
20 ratepayer money that we tend not need or  
21 are not suited for the long term.

22 When we think about planning,  
23 there are a lot of drivers. And that's  
24 transmission planning speak for there are a  
25 lot of jobs that you expect a network to

1 do. We want resiliency, we want market  
2 efficiency, lower prices throughout the  
3 state.

4 We need to figure out how to  
5 replace these old transmission lines that  
6 are reaching the end of their lives. Do we  
7 rephrase them with exactly what was there  
8 are, or do we resign the circuit so that  
9 they do more for us. And we have to  
10 accommodate new technology. There was a  
11 lot of talk today and in previous sessions  
12 about microgrids, storage, controllable  
13 loads. The way we address those new  
14 technologies can be helped or hindered by  
15 what we do with the transmission system.

16 And, lastly, there is renewables  
17 developed, right. So how do we achieve  
18 this goal of much, much more renewable  
19 penetration on the grid serving New  
20 Jersey's load. The transmission network is  
21 going to be a key enabler of all of those  
22 things, so planning it effectively will  
23 matter.

24 Now, the Board of Public Utilities  
25 usually is not in that role of planning

1 transmission. That is usually something  
2 that's done on a regional level by PJM.  
3 It's federally controlled. So the Board  
4 needs to consider how will they go about  
5 doing that.

6           There are some institutions in the  
7 state -- Rutgers and Princeton both have  
8 energy institutes that have quite a bit of  
9 experience modeling things like the grid  
10 interaction with storage and other  
11 technologies, and PJM has a process where  
12 it will work with the state to plan  
13 transmission to address the state-specific  
14 policy goals. And so I recommend that the  
15 plan think about how to access those  
16 resources within the state and regionally  
17 to come up with a good plan for the state  
18 for transmission.

19           And, lastly, I want to talk about  
20 the alternative to plan, which is an  
21 uncoordinated approach, you know, just take  
22 the hands off and let things happen the way  
23 they will happen.

24           I've been to several of hearings  
25 about offshore wind in New Jersey and I've

1 heard wind developers argue that they  
2 should control the development of  
3 generation and the transmission that's  
4 needed to deliver that power, that they'll  
5 do the best job optimizing that system.

6 But we've put in place a process  
7 where there's competition among wind  
8 developers to produce energy for the state,  
9 and that's a smart thing to get competition  
10 to drive down the cost. But that very  
11 competition between them means that they do  
12 not coordinate or collaborate, and so they  
13 can't plan effectively the transmission  
14 that's needed.

15 If we really want to get to a 21st  
16 century grid for the state, we have to step  
17 back and plan first. The alternative is  
18 going to give us a lot of wasted  
19 inefficiency. And we're at the close of  
20 September. It's interesting to look back.  
21 Fifty years ago almost to this day the  
22 first nuclear plants at Artificial Island  
23 were starting construction, and so they  
24 were built back all the way in southern New  
25 Jersey, right, in a very rural area. The

1 utilities in the state at that time got  
2 together and planned a transmission network  
3 to move that large amount of new power to  
4 the north because, as is today, that's  
5 where most of the load is in the state.

6 So we have an example 50 years ago  
7 of utilities working together cooperatively  
8 with the state to put in place a large new  
9 generated resource with a transmission plan  
10 designed to support that. And we're at the  
11 threshold of doing that again in the state,  
12 a large now clean energy resource. It also  
13 needs a clear plan for the transmission  
14 that will be the foundation for that  
15 resource, helping it to be efficient for  
16 the ratepayers.

17 It's not a small decision. If we  
18 look at what 3,500 megawatts of new  
19 offshore wind energy would require, that is  
20 about \$2 billion worth of transmission will  
21 be part of that investment. So planning it  
22 right is really key to efficient solution  
23 for the ratepayers. Thank you.

24 MS. CYNTHIA HOLLAND: Thank you.

25 I have Tom Gilbert, and then on

1 deck Mark Bellin from GTP Partners.

2 MR. TOM GILBERT: Good afternoon.  
3 My name is Tom Gilbert. I'm the campaign  
4 director for New Jersey Conservation  
5 Foundation and for Rethink Energy New  
6 Jersey.

7 First, we would like to applaud  
8 the governor and the Board for setting a  
9 goal of 100 percent clean energy by 2050.  
10 This is exactly the kind of visionary  
11 leadership that's necessary to respond to  
12 the enormous threat of climate change and  
13 also to propel New Jersey to the front of  
14 the pack for a prosperous clean energy  
15 economy.

16 We like to stress that 100 percent  
17 clean energy should be defined as 100  
18 percent renewable energy, and the voters of  
19 New Jersey strongly agree. A recent  
20 Fairleigh Dickinson University poll of over  
21 700 registered voters found that 3 out of 4  
22 support 100 percent renewable energy by  
23 2050; 66 percent do not think natural gas  
24 is clean; and 75 percent think the state  
25 should invest in renewables rather than

1 more fossil fuels and pipelines.

2 We need an Energy Master Plan that  
3 ensures we make the right investments in  
4 renewable energy infrastructure and that  
5 discourages the wrong investments in  
6 unneeded fossil fuel infrastructure, such  
7 as the proposed Penn East pipeline, as one  
8 example.

9 These would result in stranded  
10 assets, saddle ratepayers with unnecessary  
11 costs, and further our dependence on  
12 natural gas. And let's be clear, natural  
13 gas is the primary source of emissions from  
14 the electric residential, and commercial  
15 sectors in New Jersey, accounting for 37  
16 percent of statewide emissions. In 2015  
17 natural gas resulted in 41 million metric  
18 tons of CO<sub>2</sub>.

19 Under the Global Warming Response  
20 Act New Jersey must reduce emissions across  
21 all sectors 80 percent by 2050. And it  
22 will be impossible to reach this goal if  
23 the spate of newly proposed pipelines and  
24 gas-fired plants are constructed, as we  
25 need deep decarbonization in the electric



1 sector in order to meet those targets, and  
2 that means less gas, not more.

3 The Energy Master Plan should  
4 identify interim targets by sector every  
5 five years that would put the state on a  
6 trajectory to achieve the 2050 targets and  
7 develop a comprehensive plan to achieve  
8 those targets.

9 A 2017 report by Rutgers in the  
10 Georgetown Climate Center identified the  
11 need for a 75 percent reduction in  
12 emissions from 2012 levels. So we still  
13 have a very long way to go, and we are,  
14 frankly, not on target to reach those  
15 goals.

16 The Rutgers Georgetown report  
17 identified a range of policy options that  
18 should be considered, and we urge that the  
19 final Energy Master Plan should identify  
20 the policies that need to be implemented by  
21 the numerous state agencies that review  
22 energy infrastructure projects, including  
23 the Board and the DEP, to ensure that they  
24 use their full authority to meet the 2050  
25 and interim targets.

1                   We simply can't achieve a 100  
2                   percent clean energy future by solely  
3                   focusing on growing renewables, storage,  
4                   and efficiency, although they are surely  
5                   keys to success. We must also ensure that  
6                   unnneeded fossil fuel infrastructure  
7                   projects that will impede meeting the  
8                   emission targets do not derail our  
9                   progress.

10                   Transitioning to 100 percent  
11                   renewable energy is not only achievable and  
12                   affordable, but it's absolutely essential  
13                   if we are to meet the Global Warming  
14                   Response Act targets.

15                   Furthermore, it will reduce costs,  
16                   create tens of thousands of good local jobs  
17                   and better protect the health and safety of  
18                   our communities. Thank you for your work  
19                   to put us on the path to a clean energy  
20                   future.

21                   MS. CYNTHIA HOLLAND: Thank you.  
22                   I have next Mark Bellin GTB Partners.  
23                   Going once?

24                   (No response.)

25                   Elizabeth Keddy for Suez North

1 America? Elizabeth Keddy?

2 (No response.)

3 We have a list of speakers that  
4 registered in advance. So we have Evan  
5 Bixby, Pine Gate Renewables?

6 (No response.)

7 Evelyn Liebman, AARP New Jersey?

8 (No response.)

9 Kevin Hernandez, Scott Madden,  
10 Incorporated?

11 (No response.)

12 Water Wilson, Clinton Development  
13 Partners?

14 (No response.)

15 David Weinstein, Archer Law?

16 (No response.)

17 Alexa Henao, Sun Run?

18 (No response.)

19 George Hay, IRESN? Sorry if I'm  
20 mispronouncing.

21 (No response.)

22 We have pre-registration. If they  
23 identify themselves as a speaker, I'm  
24 calling their name, if you didn't have an  
25 opportunity to come forward.

1 Katherine Hamilton, Advanced  
2 Energy Management Alliance.

3 MS. KATHERINE HAMILTON: Hi. My  
4 name is Katherine Hamilton, it's Katherine  
5 with a K. And I'm the executive director  
6 of Advanced Energy Management Alliance.  
7 Thank you to the governor's office and the  
8 bureau -- Board of Public Utilities and to  
9 the committee for taking this testimony and  
10 to really talking about sustainable and  
11 resilient infrastructure as part of the  
12 EMP.

13 AMA is a trade association whose  
14 members include national distributed energy  
15 resource companies as well as some of the  
16 nation's largest demand response in  
17 distributed energy consumers.

18 Our members support the inclusion  
19 of distributed energy resources, which I'm  
20 going to call DERs, to achieve electricity  
21 choices, cost savings for consumers,  
22 contribute to reliability and resilience,  
23 and provide sustainable solutions for a  
24 modern electric grid.

25 We recognize that leadership in

1 New Jersey has significantly driven the  
2 growth of distributed energy resources,  
3 particularly solar energy demand response,  
4 and we think that with the appropriate  
5 public policies DER including customer  
6 sited solar, energy storage demand  
7 response, advanced energy management, and  
8 other distributed resources and services  
9 can and should play a significant role in  
10 the EMP.

11 We're also convinced that the  
12 inclusion of DERs in the EMP in  
13 accompanying programs will enable 100  
14 percent clean energy by 2050 while growing  
15 the clean energy economy and jobs with  
16 resilient and affordable resources that use  
17 advanced technologies that are available  
18 today to reduce carbon and benefit all  
19 citizens of New Jersey.

20 A key element in determining the  
21 appropriate technologies and applications  
22 that increase resilience specifically is to  
23 define the term. We filed numerous  
24 comments with the Federal and Energy  
25 Regulatory Commission defining resilience.



1           constitute sustainable resources. Demand  
2           response and advanced energy management  
3           that can be enhanced with energy storage  
4           reduce load on the grid. Roof tops along  
5           microgrids that use a variety of technology  
6           including combined heat and power, for  
7           example, provide zero emission generation.

8                         The combination of these  
9           technologies and applications allow  
10          consumer-sited assets to provide flexible  
11          resource to the grid equal, if not  
12          superior, in many ways to supply side  
13          generation.

14                        AEA members aggregate hundreds of  
15          customers currently with PJMs emergency,  
16          pre-emergence demand response programs, and  
17          as a result, the electricity customers of  
18          New Jersey receive millions of dollars a  
19          year for participating and supporting the  
20          grid.

21                        Our members find that customers  
22          are eager to participate in new programs  
23          that will help them serve the grid while  
24          also generating revenue for their own  
25          operations. Most of our members are either

1 already doing business in New Jersey or are  
2 poised to begin such efforts based on  
3 previous experience with RECs and on public  
4 policies considered under consideration  
5 now.

6           Allowing access to DERs with  
7 consumers and opening up the market in New  
8 Jersey for customer choice will create jobs  
9 in the state and will allow all consumers  
10 to benefit from these choices, while  
11 reducing the overall consumption of  
12 electricity for every consumer.

13           So we recommend that New Jersey  
14 consider the five following policies in the  
15 EMP and any other rated state programs:

16           No. 1, allow DERs to compete for  
17 replacement power. New Jersey shall allow  
18 DERs to compete in all source procurements  
19 including as non-wires alternatives with  
20 large central infrastructure based projects  
21 such as transmission utilities scale  
22 generation.

23           No. 2, execute on the storage  
24 target, the 600 megawatts by 2021 and 2,000  
25 megawatts by 2030, customer-sited energy



1 storage shall be fully included in any of  
2 those programs and incentives.

3 No. 3, improve RTO market design.  
4 We expect that FERC will very shortly issue  
5 an order, a national order, for DER that we  
6 hope will require each independent system  
7 operator to develop a participation model  
8 for DER resources. We encourage the state  
9 to work closely with PJM on such an order.

10 No. 4, reform the utility  
11 rate-making process. Incentivize New  
12 Jersey utilities to embrace a 21st century  
13 grid, providing a new rate-making framework  
14 to encourage actions that will support the  
15 deployment of DERs, a performance-based  
16 approach to be used to streamline  
17 interconnection procedures, collect and  
18 release system and consumer data,  
19 incorporate DERs into capital planning  
20 processes.

21 And, finally, No. 5, implement  
22 utility peak shaving demand response  
23 programs. These programs can be funded  
24 through societal benefits charge and  
25 designed for the benefits to optimally

1           outweigh the costs, such as hitting the  
2           system peaks effectively. PJM has  
3           emergency demand response programs that  
4           protect the grid in case of emergency, and  
5           New Jersey can implement its own programs  
6           to focus on reducing costs to customers.  
7           All of these programs will give certainty  
8           to customers and investors in order to  
9           track investment in innovative technologies  
10          and applications for New Jersey.

11                        AMA appreciates the opportunity to  
12          present testimony for consideration by the  
13          New Jersey administration as the governor  
14          develops the Energy Master Plan. Please  
15          consider us a resource as you identify  
16          specific policies and technology solutions  
17          for deployment of DERs across New Jersey.

18                        We feel certain that reliability,  
19          efficiency, cost effectiveness and emission  
20          profile of DERs can provide benefits to all  
21          consumers while growing jobs and  
22          stimulating the economy. Thank you again  
23          for the opportunity.

24                        MS. CYNTHIA HOLLAND: Thank you.  
25          All right. If you hear your name called

1 and you pre-registered, please come  
2 forward. Tom Lynch, KDC Solar? Tomorrow  
3 Lynch?

4 (No response.)

5 Bernadette McPherson, Millennium  
6 Strategies?

7 (No response.)

8 Andrew Hendry, NJUA. And then on  
9 deck we'll have Ami Morita from New Jersey  
10 Rate Counsel.

11 MR. ANDREW HENDRY: I'll be very  
12 brief. Good afternoon. I'm Andrew Hendry.  
13 That's H-E-N-D-R-Y, and I'm the president  
14 of the New Jersey Utilities Association.  
15 Our association represents all the  
16 investor-owned or private sector utility  
17 companies serving the state across all the  
18 various utility sectors, electric, natural  
19 gas, water, and waste water.

20 You've already heard from a number  
21 of our members a couple of times, I think,  
22 so I'll be submitting written testimony  
23 that's much more detailed, and I'll make  
24 just a couple of very brief points.

25 In recent years the utility

1 industry in this state as a whole has been  
2 making about \$6 billion a year in capital  
3 investment in the state in large part to  
4 make infrastructure smarter, more resilient  
5 and more reliable, terms you've heard a lot  
6 today.

7 Compare that amount, by the way,  
8 to the \$2 billion a year roughly that the  
9 Transportation Trust Fund expends on  
10 transportation infrastructure in the state  
11 and you get a sense of the magnitude that  
12 the work that the utility industry does and  
13 it's important for our economy and for the  
14 functioning of our state.

15 Of course, most relevant to the  
16 EMP is investment and energy  
17 infrastructure. There our companies that  
18 have been making and will continue to  
19 make -- to enhance, again, reliability and  
20 resiliency in the face of severe weather,  
21 to accommodate and increase the plan of  
22 renewable energy and distributed  
23 generation, and there is potential costs  
24 obviously there as well, and to replace, as  
25 it has been mentioned, aging infrastructure

1 and more stronger and smarter  
2 infrastructure

3 I was going to give you some  
4 examples of what our companies have been  
5 doing, but you've heard plenty of those  
6 today, so I won't repeat them.

7 The state will look forward  
8 obviously in the new EMP to a future with  
9 more renewable energy, more robust energy  
10 and efficiency programs. By the way, the  
11 utility industry is going to play a key  
12 role in leading that energy efficiency  
13 effort under the new clean energy law that  
14 was signed into law earlier this year and  
15 with more distributed generation.

16 But at the same time we're likely  
17 to face a future with more and more severe  
18 weather and greater demands on the system  
19 and thus a greater need for capital  
20 improvements and support for capital  
21 improvements that we've been seeing from  
22 the state.

23 And so, accordingly, we urge you  
24 to have the EMP explicitly recognize that  
25 regardless of the portion of the New

1 Jersey's load that's served by renewables  
2 or when we hit 100 percent and all of the  
3 factors that are considered in the EMP,  
4 that the state continue through the EMP to  
5 support utility reliability and resiliency  
6 capital investment, and hand in hand with  
7 that recognize the need for regulatory and  
8 rate-making mechanisms that minimize  
9 disincentives and enhance incentives to  
10 those kind of investments.

11 A great example of incentivizing  
12 utility infrastructure and investment to  
13 the Board's adoption earlier this year of  
14 regulations to establish the new five-year  
15 infrastructure improvement program, or IMP,  
16 which was an excellent step forward and  
17 kudos to the Board and to the commissioners  
18 for adopting that. The accelerated  
19 recovery mechanisms like that help to  
20 encourage investment while at the same time  
21 the IFP and the longer capital plans  
22 allowed through the IEEP will help to cut  
23 down on inefficiencies that were present in  
24 the system earlier.

25 However, at the core of our

1 rate-making system is -- the last speaker  
2 touched on, a system that ties revenue to  
3 the number of kilowatt hours sold, the  
4 number of therms sold. There's still an  
5 inherent disincentive to the deployment of  
6 IME to renewables and energy efficiency  
7 programs, and we think the EMP should  
8 recognize that this conflict does exist, it  
9 can have a dampening effect on capital  
10 investment, and that the EMP should  
11 encourage continued exploration of  
12 alternative models for revenue recovery  
13 including what's being done in other states  
14 around the country.

15 On a related note, you've already  
16 had a hearing on transportation, but I feel  
17 like I can't leave a discussion on  
18 infrastructure without pointing out the  
19 utilities really can play a critical role  
20 in the deployment of charging  
21 infrastructure for EVs and CNG-fueled  
22 vehicles.

23 We feel the EMP should recognize  
24 the important role the utilities can and  
25 will play in this area, and we feel that

1 all options need to be on the table when it  
2 comes to construction and ownership of  
3 charging infrastructure, and that's the  
4 best way to ensure that infrastructure will  
5 be deployed where it's needed most, not  
6 necessarily where it's more economic.

7 On one final note we encourage you  
8 to recognize through the EMP the deployment  
9 of renewable energy and the use of cleaner  
10 burning cost-effective natural gas for  
11 generation and for heating are not mutually  
12 exclusive. It is certain that natural gas  
13 will continue to be a necessary compliment  
14 to intermittent renewable energy sources  
15 for many, many years to come in the state.

16 And, accordingly, we do encourage  
17 you to provide that the EMP contain a clear  
18 message that every natural gas transmission  
19 project, whether interstate or intrastate,  
20 should be judged individually based on its  
21 own merits.

22 Some of the comments that were  
23 made today, from my perspective, reinforce  
24 the need to have an individual project by  
25 project perspective and body. In EMP, as



1           there were mischaracterizations, I would  
2           argue, made. The purpose of a couple of  
3           the interstate pipelines that the Board has  
4           reviewed as being driven by utilities  
5           having an interest in developing more  
6           capacity, whereas one of the projects  
7           mentioned was to create additional  
8           resiliency and source diversification.  
9           Another is to convert a whole plant to a  
10          far cleaner burning natural gas-fired plant  
11          and to provide an additional fee to the  
12          southern area of the state that only has a  
13          single feed serving it now.

14                   And I do appreciate that a prior  
15          speaker mentioned PHAMSA and the class that  
16          PHAMSA provided. It's my hope that that  
17          class gets reiterated, their public  
18          position that pipelines are, in fact, the  
19          safest form of energy transmission in the  
20          country.

21                   So with that, thank you very much  
22          for your time. We'll be submitting more  
23          detailed comments, and thank you for your  
24          patience and efforts.

25                   MS. CYNTHIA HOLLAND: Thank you.

1 Ami Morita from New Jersey Rate Counsel,  
2 and on deck we have Sam Weinstein from the  
3 Princeton Public Affairs Group.

4 MS. AMI MORITA: Good afternoon.  
5 My name is Ami, A-M-I, last name is  
6 M-O-R-I-T-A, and I'm from the New Jersey  
7 Division of Rate Counsel.

8 Our office represents the  
9 interests of the utility ratepayers in  
10 public utility matters involving central  
11 services such as electric, natural gas,  
12 water, waste water, and telecommunications.

13 As stated in previous EMP  
14 stakeholder meetings, Rate Counsel's  
15 overarching goal is to help New Jersey  
16 utilities provide reliable service at  
17 reasonable rates for residential,  
18 commercial, and industrial customers

19 Our comments today are more  
20 general in nature. We will provide more  
21 detailed comments on October 12th.

22 Generally, EMP's goal for 100 percent  
23 renewable energy before January 2050 is  
24 laudable. However, the state cannot afford  
25 to do every project that may further the

1 state goals.

2 To keep the utility rates  
3 affordable for consumers New Jersey needs  
4 to develop and implement a deliberative and  
5 strategic process that keeps cost  
6 effectiveness in mind as we work towards  
7 the state's 2050 goals, since New Jersey  
8 ratepayers and taxpayers will ultimately  
9 bear the cost of this transformative  
10 process.

11 Turning to PJM and wholesale  
12 market issues, the state must be aware of  
13 the federal wholesale market as it  
14 implements any program. The cost of  
15 transmission continues to increase at  
16 significant levels increasing costs to  
17 ratepayers. Affordability remains a key  
18 element of the Board's statutory mandate,  
19 and the cost emanating from the federal  
20 market must be considered.

21 Additionally, PJM and FERC are in  
22 the process of making major changes to the  
23 PJM capacity market, the energy market and  
24 possibly how all generation is compensated.  
25 These changes will have the cost and

1 implementation implications to New Jersey,  
2 and the state must continue to monitor  
3 these developments and be prepared to be  
4 flexible as it implements its EMP agenda.

5 As a member of PJM, it is the  
6 position of Rate Counsel that costs for  
7 grid upgrades should be allocated fairly  
8 among the beneficiaries of the upgrade and  
9 operating of the grid. Any cost for a  
10 project built in New Jersey by providing  
11 benefits to an entity in New York ISO  
12 should be borne by the beneficiaries of the  
13 project, regardless of their geographical  
14 location.

15 With respect to state policy as a  
16 whole, New Jersey has already was allowed  
17 its electric distribution companies, or the  
18 EDCs, to modernize and reinforce its  
19 distribution system. Most notably multiple  
20 EDCs have implemented distribution  
21 automation and other modern technologies to  
22 improve system reliability during major  
23 weather events and under normal weather  
24 conditions. Billions of dollars have  
25 already been approved and spent to achieve

1 better outcomes, and if or when these  
2 improvement are tested, they will certainly  
3 put us in a better position.

4 In addition, New Jersey has  
5 adopted new vegetation management rules  
6 that help improve the resiliency and  
7 reliability of the distribution system  
8 without the need of drastic changes to  
9 existing infrastructure. In this sense the  
10 existing regulatory regime is well equipped  
11 to meet the state's 2030 and 2050 goals,  
12 and we believe New Jersey regulatory  
13 paradigm such as decoupling are not  
14 necessary to ensure reliability,  
15 resiliency, or sustainability.

16 Now I would like to turn to the  
17 advanced meter infrastructure. While the  
18 utility and others tout the benefits of  
19 AMI, none of them have been able to  
20 demonstrate to date the broad scale  
21 deployment of AMI produces more benefits  
22 than cost. Indeed, an industry journal  
23 recently reported that regulators in  
24 Kentucky, Massachusetts, and North Carolina  
25 have rejected the implementation of AMI

1 meters because of poorly structured  
2 business case.

3 In rejecting AMI programs the  
4 commissions in those states made clear that  
5 viable AMI programs should show that AMI  
6 meters are, one, needed; two, reasonable  
7 cost options; and, three, taking full  
8 advantage of smart meters advanced  
9 capabilities.

10 In New Jersey the Board approved a  
11 Rockland Electric AMI pilot program a  
12 little over a year ago, and under the  
13 program Rockland Electric is currently  
14 installing AMI meters to residential and  
15 commercial buildings for all 70,000 of its  
16 customers.

17 After the program is up and  
18 running the company may seek recovery of  
19 the costs in a base rate case to provide an  
20 opportunity for the Board to ensure that  
21 the costs are prudent and there are  
22 benefits for ratepayers.

23 While that pilot is being  
24 conducted the Board placed a moratorium on  
25 new AMI applications. Rate Counsel is very

1 interested to learn how the Rockland  
2 Electric pilot turns out and what it shows  
3 about the benefits and costs of AMI.

4 Rate Counsel strongly believes  
5 that any AMI program approved in the state  
6 must demonstrate that it's cost effective  
7 before being deployed since ratepayers  
8 are -- ultimately bear the cost of  
9 implementation.

10 In addition, concerns as to who  
11 ultimately owns the data compiled by the  
12 AMI meters and how the privacy of the  
13 customers will be protected must be  
14 addressed.

15 Finally, the transmission of the  
16 state's infrastructure to be more secure,  
17 resilient and modern may result in stranded  
18 costs. For example, replacing of the  
19 utility meters may increase stranded costs  
20 because the existing meters that the AMI  
21 will be replacing will no longer be used.

22 Rate Counsel, therefore, applauds  
23 the Board for its deliberate and mindful  
24 rollout of AMI. By implementing a small  
25 scale AMI pilot program first we can learn

1 from the successes and mistakes that  
2 determine whether AMI should be implemented  
3 elsewhere in the state.

4 Cyber security. Another  
5 consideration for secure and modern  
6 resilient infrastructure is cyber security  
7 concerns. Increased automation and  
8 communication of the electric grid creates  
9 opportunities for cyber security breaches.  
10 The state should provide a forum for the  
11 sharing of best practices and information  
12 so that entities can address cyber security  
13 issues prior to the implementation of more  
14 advanced technologies.

15 And then workforce development.  
16 The position posed at the board staff in  
17 connection with jobs primarily is based on  
18 utility staffing issues. We agree that it  
19 is essential to have recruitment and  
20 training programs to ensure continued  
21 adequate staffing.

22 However, when considering job  
23 impact of programs, it is also important to  
24 consider the impossible negative job impact  
25 if utility rates become unaffordable.



1 Losses of jobs because businesses cannot  
2 afford to stay and operate in New Jersey  
3 will have a dampening effect on New  
4 Jersey's economy.

5 Without question there are  
6 positive benefits to many of the policies  
7 under consideration, but this must be  
8 balanced against the corresponding negative  
9 impact that uncontrolled spending will have  
10 on the state's employment opportunities.

11 And then last topic, environmental  
12 justice. As the state grapples with the  
13 EMP mandates the impact on disadvantaged  
14 communities must be considered. Benefits  
15 should be applied fairly and cost  
16 measurements must be at the forefront of  
17 decision-making process. We must continue  
18 to have -- how will the cost of new  
19 technologies impact customers' bills,  
20 especially for low-income people.

21 Rate Counsel continues to advocate  
22 for the least cost, most-effective  
23 alternatives. Rate Counsel also maintains  
24 that traditional rate-making costs  
25 allocation, where the ratepayers that cause

1 the utility to incur costs, should  
2 ultimately be responsible for paying for  
3 that cost, should guide implementation of  
4 these policies. In that way the impact on  
5 disadvantaged communities and all  
6 ratepayers can be fairly balanced. Thank  
7 you.

8 MS. CYNTHIA HOLLAND: Thank you.  
9 I believe we have 15 more minutes, so Sam  
10 Weinstein?

11 (No response.)

12 Brian Vayda, Public Power  
13 Association New Jersey.

14 (No response.)

15 Jaci Trzaska from Rutgers  
16 University?

17 (No response.)

18 We had Julia Bovey?

19 (No response.)

20 All right. Then we'll call Gerald  
21 Foley, and on deck we have Jim Benton, and  
22 I believe at that point we'll probably take  
23 a short break.

24 MR. GEAROID FOLEY: Good  
25 afternoon. I'm Gearoid Foley. I'm with

1 the Department of Energy's CHP technical  
2 assistance partnership, and I appreciate  
3 the opportunity to speak to you today. I  
4 will keep this brief. We had submitted  
5 written comments. I'm going to just cite a  
6 couple of excerpts from that and just  
7 address some of the questions that were  
8 posed for this session.

9 Combined heat and power  
10 technologies hold enormous potential to  
11 improve the nation's energy security and  
12 resiliency and reduced greenhouse gas  
13 emissions. CHP supports a move to a  
14 cleaner energy economy and the creation of  
15 green jobs.

16 The Department of Energy has long  
17 challenged CHP technologies to harness the  
18 full power of CHP to help the nation meet  
19 its energy goals.

20 CHP, as part of a community-based  
21 hybrid microgrid, including renewables and  
22 battery storage, represents a  
23 cost-effective means of providing resilient  
24 base load power and thermal energy for the  
25 local community, including critical

1 infrastructure in an accessible way for  
2 all.

3 The advancement of combined heat  
4 and power is part of the U.S. Department of  
5 Energy's Office of Energy Efficiency and  
6 Renewable Energy's mission to create  
7 sustained American leadership in the  
8 transition to a strong and prosperous  
9 American power by domestic, affordable, and  
10 secured energy.

11 And I'll -- they're citing from  
12 the written comments, I think they're  
13 relevant to the proceedings, and I'm just  
14 going to address a couple of issues related  
15 to sustainable and resilient  
16 infrastructure.

17 So combined heat and power, CHP,  
18 is a non-warrant (ph) alternative that  
19 we've heard mentioned a couple of times  
20 today, and it's a non-warrant (ph)  
21 alternative that provides affordable,  
22 resilient, and clean energy.

23 So in relation to the first point  
24 in the discussion items as well as a number  
25 of these in the general section, CHP is

1 part of a microgrid, is an alternative to  
2 investing in the infrastructure, in the  
3 existing infrastructure, or even updating  
4 or replacing existing infrastructure. It  
5 also provides an inherent resiliency, the  
6 regulatory assistance project, RAP, which  
7 is a very good organization, a useful  
8 organization, as we go through the process

9 As stated in the past, that it is  
10 just simply not feasible from an economic  
11 point certainly and perhaps a technical  
12 perspective as well to fix the grid. To  
13 achieve the sustainability that we're  
14 looking for in the future, you must do it  
15 locally at the point of use. And that's  
16 where, again, combined heat and power,  
17 distributed energy, distributed energy  
18 resources, hybrid microgrids all play an  
19 important role as we move forward.

20 Another issue that has been raised  
21 is the issue of stranded assets. Here  
22 again combined heat and power, I think,  
23 provides a good answer as we move forward  
24 towards 100 percent renewable future, but  
25 understanding that, as a number of speakers

1 have said, there are steps that need to be  
2 taken between here and there.

3 Combined heat and power provides  
4 the most efficient use of fossil fuel at a  
5 location, it's resilient, and it is  
6 typically -- has about a -- it's about a  
7 15-, 20-year investment horizon. Most of  
8 these projects are built around 15-year  
9 type investments from a  
10 return-on-investment perspective the last  
11 20, 25 years.

12 So it is an interim step, it  
13 doesn't become a stranded asset because I  
14 think we can get to use that asset  
15 successfully as we move towards 100 percent  
16 renewables and retire that asset without  
17 actually having costs.

18 And just, finally, on workforce  
19 development, you know, New Jersey has  
20 historically been a center of engineering  
21 in the broad region in the country. This  
22 is certainly an area, as New Jersey takes  
23 leadership in moving forward, where I think  
24 we have a lot to gain, and one of those  
25 areas is certainly bolstering and

1 attracting the engineering community to  
2 deal with the issues that New Jersey is  
3 kind of heading towards dealing with,  
4 integration of distributed energy resources  
5 throughout the grid, resiliency, all of  
6 these issues. You know, that's an area  
7 that I would certainly recommend we look  
8 at, helping the industry develop a center  
9 of excellence here in New Jersey. Thank  
10 you.

11 MS. CYNTHIA HOLLAND: Mr. Benton?

12 MR. JIM BENTON: Good afternoon.  
13 My name is Jim Benton. I am the executive  
14 director of the New Jersey Petroleum  
15 Council. We are located in Trenton, New  
16 Jersey. It's a division of the American  
17 Petroleum Institute with a long history of  
18 representing the petroleum and natural gas  
19 industry here in the state.

20 We are a comprehensive association  
21 engaged in all facets of energy right here  
22 in New Jersey including refining  
23 transportation, research development, and  
24 of course, marketing of all types of fuels.

25 We appreciate this opportunity to

1 offer our perspectives at there pivotal  
2 time in the effort to advance America's  
3 energy leadership and issues that impact  
4 New Jersey. We firmly believe that success  
5 in meeting the demand for improved living  
6 standards and meet forecasted population  
7 growth in New Jersey will be the  
8 development of sound energy policy.

9 Governor Murphy stated if we don't  
10 get the economy right, we do not get New  
11 Jersey right. To that end we would add  
12 simply if we don't get energy policy right,  
13 we won't get the successful state economy  
14 that we all hope for. So let's see what we  
15 can do to put our heads together and join  
16 in the constructive dialogue to get this  
17 job done.

18 Energy from all sources will be  
19 required to contribute to realize a secure  
20 energy future for New Jersey residents.  
21 Our businesses assure our contributions to  
22 America's energy growth. The cornerstone  
23 of any successful energy strategy will be  
24 the responsible diversification of our  
25 natural energy supplies. This will allow



1 consumer demand and marketplace choices to  
2 integrate alternatives and new fuels into  
3 the energy landscape without governmental  
4 subsidies and mandates that jeopardize the  
5 future of larger, sufficient secure  
6 supplies.

7 Commercial and industrial  
8 ratepayers consume 64 percent of the  
9 electricity in New Jersey and have a very  
10 distinct invested development in the  
11 state's energy policy. Its implications on  
12 competitiveness and any subsequent  
13 ratepayer impact are key.

14 So let's take a look and begin  
15 with some fundamental facts regarding the  
16 presence of the energy industry here in New  
17 Jersey. We are ranked 47th in terms of  
18 geographic size, yet we are 13th in total  
19 energy use. New Jersey has three operating  
20 nuclear power plants, two fully operational  
21 oil refineries, and over 3,600 retail  
22 gasoline stations. Overall, our energy  
23 industry employs more than 30,000 people  
24 here in New Jersey.

25 In northern New Jersey between New

1 York and New Jersey there are over 40  
2 million barrels of refined product storage  
3 capacity making it one of largest petroleum  
4 product hubs in the United States according  
5 to the energy information administration.

6 New Jersey refineries located  
7 along the Delaware River are part of the  
8 nation's largest petroleum product hub on  
9 the east coast. The refinery in Linden,  
10 New Jersey, is the largest on the east  
11 coast.

12 New Jersey is home to a  
13 sophisticated network of liquid pipelines.  
14 One liquid pipeline runs from the Gulf  
15 Coast in the northern terminus in Linden,  
16 New Jersey. New Jersey is currently home  
17 to an extensive network or natural gas  
18 pipelines and is presently planning for new  
19 and sophisticated gas pipelines to help  
20 support our effort to meet new and  
21 increasing demand for natural gas  
22 throughout the state.

23 Ongoing initiatives to build newer  
24 and more resilient grid while protecting  
25 ratepayers from higher costs are underway.

1           And we recognize the existence of an  
2           abundant, affordable domestic natural gas  
3           region in nearby Pennsylvania and in the  
4           Marcellus Shale region, giving New Jersey a  
5           distinct stiff competitive advantage to be  
6           among the most affordable energy supplies  
7           in the world.

8                         New Jersey presently has over  
9           3,600 service stations throughout the  
10          state, and on an average day it dispenses  
11          almost 11 million gallons of motor fuel to  
12          those who reside, work, travel to and from  
13          New Jersey. It's important to recognize  
14          that those products continue to involve and  
15          improve.

16                        New Jersey presently recognizes  
17          adherence to a federal motor fuel standard  
18          that follows a federal recipe that reduces  
19          mobile source emissions in what is the  
20          cleanest-burning gasoline permitted under  
21          federal law. Diesel fuel has similarly  
22          undergone a major transmission by removing  
23          almost 90 percent of sulfur. In summary,  
24          these products are continuing to change and  
25          improve.

1                   Similarly, energy demand will  
2                   continue to grow in the coming decades and  
3                   New Jersey energy policy should continue to  
4                   anticipate that very clear and certain  
5                   development. A comprehensive  
6                   all-of-the-above energy strategy includes  
7                   investment in energy sources such as  
8                   natural gas compressed or liquified,  
9                   improving and expanding the use of  
10                  biofuels, the challenges of investment and  
11                  solar and wind technology, the continuing  
12                  expansion of cogeneration, the fulfillment  
13                  of a promise, the continuing delivery of  
14                  nuclear energy, and improved vehicle  
15                  technology.

16                  PJM, in written testimony before  
17                  the Senate, stated that the production and  
18                  delivery of electricity in the state is as  
19                  reliable today as it has been in its  
20                  history and will continue to be so in the  
21                  future. A fuel mix is more diverse than it  
22                  has ever been historically. We wish to  
23                  continue to promote that innovation and  
24                  flexibility in our New Jersey energy policy  
25                  that advocates for competition in free

1 market rather than subsidies and mandates.

2 As PJM also observed, the  
3 electricity industry and wholesale power  
4 markets are evolving. However, as a state  
5 within PJM, New Jersey need not address  
6 these challenges alone or in a vacuum.

7 On the other side of the equation  
8 energy also mixes with our environment.  
9 Energy emissions have peaked and have begun  
10 to decline even as demand for energy grows.  
11 New Jersey has one of the cleanest power  
12 sectors in the country, ranked 46th in the  
13 lowest CO2 emission, 47th lowest in SO2  
14 emissions, 47th lowest in NOX emissions,  
15 and the 8th highest in retail energy costs.

16 New Jersey is already meeting  
17 emission targets for 2020 under the state's  
18 Global Warming Response Act, and our CO2  
19 emissions are lower than 7 out of the 9  
20 RGGI states trailing only Vermont, which  
21 doesn't have a power sector, and New  
22 Hampshire, which is nowhere near the  
23 intensity of population or business  
24 development here in our state.

25 In summary, the New Jersey

1           Petroleum Council looks forward to working  
2           with state policy leaders in the  
3           development of a public policy framework to  
4           ensure our future energy security. We, as  
5           a state, need to promote better  
6           understanding of the energy challenges that  
7           we face in the future, and we will work to  
8           position New Jersey in order to enhance our  
9           energy supplies and remain on the cutting  
10          edge of advanced technologies.

11                         We commend the Murphy  
12          administration and the Board of Public  
13          Utilities for providing us the opportunity  
14          to help shape a master plan that is  
15          balanced in its approach, responsible for  
16          recognizing the needs of our New Jersey  
17          citizens, the manufacturing and industrial  
18          sectors, and depend on a secure and  
19          reliable energy policy to live and prosper.  
20          Thank you.

21                         MS. CYNTHIA HOLLAND: Thank you.  
22          Recognizing it's about one o'clock now,  
23          folks may want to grab something short to  
24          eat. I'd like to propose a 30-minute  
25          break. I'm going to keep it to 30 minutes.

1           I will say we have about 20  
2 persons on the pre-registered list of  
3 speakers and about 11 names on index cards  
4 for folks that have registered today, so  
5 that's approximately 30 speakers. So we do  
6 want to keep this moving along. So even if  
7 we can just keep it to 30 minutes, I'd  
8 appreciate it. So approximately 1:30.  
9 Thank you.

10           (A lunch recess was taken from  
11 1:05 to 1:36 p.m.)

12           MS. CYNTHIA HOLLAND: Thank you  
13 for coming back from lunch. We're going to  
14 get back started again in just a few  
15 moments, so I'm going to call some names.  
16 If there are any folks in the hallway that  
17 are interested in speaking, if you could  
18 just alert them. We have asked BPU staff  
19 to let people know that we're getting back  
20 started again.

21           I will provide an opportunity for  
22 further comments at the end if a name was  
23 called and somebody wasn't present, so  
24 just, you know, if your name was called and  
25 you missed it, you'll have another

1 opportunity to speak at the very end.

2 MS. CYNTHIA HOLLAND: Gaylord  
3 Olson, Seasonal Storage Technologies.  
4 Okay. Thank you.

5 MR. GAYLORD OLSON: Hello. Good  
6 afternoon. My name is Gaylord Olson,  
7 O-L-S-O-N. I'm not representing any  
8 specific organization, and these opinions  
9 are pretty much just my own. I have spoken  
10 here before, so I apologize if this seems  
11 too repetitive.

12 But there are probably a number of  
13 new people in the audience. And so at any  
14 rate I've been looking into -- some ideas  
15 related to large scale energy storage and  
16 renewable sources of electricity. And in  
17 my opinion worldwide we have the choice of,  
18 I think, only six forms of electricity  
19 generation that are totally able to  
20 eliminate fossil fuels, and that could be  
21 possibly cost effective in large scale.

22 And I'll just give you the list  
23 sort of in order of what I think are the  
24 likely ones to come into play. Some of  
25 these we already have, some not so much in



1           this country.

2                         But No. 1 on my list is wind  
3 power. And we're well on our way to having  
4 fairly large scale offshore wind farms off  
5 our shore, all along the Atlantic actually,  
6 other states up and down the coast. And so  
7 if you look at wind maps, you will see that  
8 that is a very good resource, also around  
9 the Great Lakes.

10                        So my No. 2 on the list is solar.  
11 Of course, we have a lot of that already  
12 and more on the way.

13                        No. 3 on my list is  
14 hydroelectricity. Not so much large scale  
15 here in New Jersey, but other places not  
16 too far away.

17                        No. 4 on my list is nuclear power,  
18 which is somewhat controversial. Some  
19 people say, no, we want to get rid of all  
20 of it and not have any of it come back.  
21 But on the other hand, there are people  
22 researching safer, less expensive, smaller  
23 scale nuclear generation methods, and they  
24 may be successful. We should give that a  
25 chance as to be another significant

1 continuing large-scale electricity  
2 generation method without fossil fuels.

3 No. 5 on my list is biomass, and  
4 that is another controversial issue. Some  
5 people say no way, never because it's not  
6 renewable enough. On the other hand, it is  
7 coming into use on a very large scale at  
8 the largest electricity power plant in the  
9 United Kingdom, supplied England and  
10 Scotland. If you want to look it up, the  
11 name is Drax, D-R-A-X, the Drax Power  
12 Station, along the east coast of England.

13 They're converting massive  
14 coal-fired power plants into biomass with  
15 wind pellets. And as to whether or not  
16 it's fully sustainable in terms of  
17 long-term carbon emissions, that needs to  
18 be looked at carefully. But there are ways  
19 to have biomass production where you're  
20 pretty much guaranteed that over a short  
21 period of time, like seven years, there  
22 will be no net emissions of carbon dioxide.

23 Basically this would be like a  
24 eucalyptus forest in Brazil where they  
25 harvest the trees every seven years. So

1 every seven years the carbon dioxide that's  
2 emitted is equivalent to the same amount of  
3 carbon dioxide -- or carbon atoms that get  
4 back into the trees.

5 So the last item on my list goes  
6 by the name of geothermal, but I'm talking  
7 about very deep earth geothermal, sometimes  
8 called hot rocks, where the rocks are hot  
9 enough to generate steam immediately, and  
10 you can run steam turbines.

11 Now, that's -- in pretty  
12 significant use in California, Nevada,  
13 Idaho, western states, and people at  
14 Princeton University and Cornell are  
15 looking into the economical ways of doing  
16 very deep drilling to have the same  
17 capability most anywhere in the world. So  
18 we'll see if that becomes successful or  
19 not. But it is already fairly widely used  
20 in different countries.

21 If we want to look further into  
22 the future, I suppose in the year 3000 we  
23 might have fusion power and hydrogen, and  
24 those kind of things, but that's beyond my  
25 pay grade to speculate about.

1           Also, I should mention many of the  
2 things that I'm going to comment about here  
3 are already on the Internet, and if you  
4 want to read it, it's a short article on  
5 the New Jersey Sierra Club website. It's  
6 on page 13 of the latest news letter that  
7 the Sierra Club puts out every three  
8 months. So it's -- it happens to be the  
9 bottom of page 13. And my e-mail is  
10 address is there. So if you have  
11 disagreements or complaints, by all means  
12 send them to me. I'd be happy to read  
13 them.

14           I'll make just a few comments  
15 about some of these items and then come  
16 back to the issue of -- and also talk about  
17 large-scale energy storage. Actually,  
18 maybe I'll talk about that right now.

19           Most people when they hear the  
20 term "energy storage," they immediately  
21 think about batteries. Yes, that works  
22 fine for automobiles, for cell phones, et  
23 cetera. It does not work well at all for  
24 very economical utility scale, large  
25 storage.

1           The only possible way to do that  
2           currently is pumped hydroelectricity. And  
3           I mentioned that before at previous  
4           meetings here, but I'm pretty sure you'll  
5           find that that is the case.

6           I'll just give you a quick little  
7           arithmetic lesson about that, or exercise,  
8           I should say. And if anybody wants to  
9           follow along with this, they can do it on  
10          their smart phone, just go to Wikipedia.  
11          And we want to compare a couple of methods  
12          of energy storage.

13          So one method is to look at the  
14          batteries that are being put into the  
15          plug-in electric vehicles. The most widely  
16          used electric vehicle today is the Nissan  
17          Leaf, and there have been about 300,000 of  
18          them put into use in our -- mostly on the  
19          road today. Each of those automobiles has  
20          a 20 kilowatt hour energy usable battery  
21          capacity for its traction battery. So 20  
22          kilowatt hours. Multiply that by 300,000  
23          and you have a total energy of 6,000  
24          megawatt hours. Pretty large energy in all  
25          those batteries.

1                   Now, if you look at what is  
2                   currently the single largest pumped hydro  
3                   energy storage facility in the United  
4                   States, it happens to be in Virginia, it's  
5                   called Bath County pumped hydro. It's also  
6                   in Wikipedia, you can look it up. Their  
7                   energy storage capacity is not 600 hours  
8                   megawatt hours, it's 24,000 megawatt hours,  
9                   in just that one facility.

10                   There are dozens of those around  
11                   the country and even many more dozens  
12                   around the world. So, as you can see,  
13                   there is almost no way that battery can  
14                   compete in any situation within the next  
15                   foreseeable number of years.

16                   The only thing holding back pumped  
17                   hydro as a much better and cost-effective  
18                   way to get energy storage is the  
19                   environmental and regulatory constraints.  
20                   It takes about eight to ten years to get  
21                   all of the approvals, local, state,  
22                   federal, to get a pumped hydro system from  
23                   the conception to actual operation. That's  
24                   way too long. Investors cannot tolerate  
25                   that length of time.

1           So if any of you have a chance to  
2 do something to shorten the length of time  
3 between conception and use, that would be a  
4 tremendous help to get that massive energy  
5 storage put into use. And that would allow  
6 for solar and wind and storage to be the  
7 total source of electricity in the year  
8 2050. I'm very optimistic that could  
9 happen. Thanks for listening.

10           MS. CYNTHIA HOLLAND: Thank you.  
11 Diane Slifer, PJM Power Providers, and on  
12 deck we have Dave Pringle.

13           Just a reminder please state your  
14 name and spell it for the court reporter.  
15 I apologize.

16           MS. DIANE SLIFER: Diane Slifer,  
17 S-L-I-F-E-R. Thank you to the EMP  
18 committee for allowing me to speak today.  
19 I'm Diane Slifer. I'm here today on behalf  
20 of the PJM Power Providers group known as  
21 P3.

22           P3 is a non-profit organization  
23 made up of power providers whose mission is  
24 to promote properly designed and  
25 well-functioning competitive wholesale

1 electricity markets in the 13-state and  
2 Washington, D.C., region served by PJM  
3 interconnection. Combined P3 members own  
4 more than 84,000 megawatts of generation  
5 assets in PJM, produce enough power to  
6 supply over 20 million homes, and employ  
7 over 40,000 people.

8 P3, like this committee, is  
9 concerned and committed to a sustainable  
10 and resilient infrastructure, the title of  
11 today's meeting. As this committee is  
12 aware, New Jersey is not an island on its  
13 own. Rather, New Jersey is part of the  
14 largest electric grid in the country, a  
15 grid that is benchmarked and looked to by  
16 other companies, PJM. New Jersey is a  
17 state within PJM and does not need to  
18 address challenges alone or in a vacuum.  
19 Further, PJM is overseen by FERC, the  
20 Federal Energy Regulatory Commission.

21 Currently PJM markets are working  
22 well. Power prices are at historic lows,  
23 reliability is high, air emissions have  
24 been reduced, and the generation mix is  
25 diverse. Sulphur dioxide, nitrogen oxides,



1 and carbon dioxide emissions from power  
2 plants in PJM have dropped quickly in the  
3 last decade as more efficient generating  
4 facilities, many of which are in New  
5 Jersey, have replaced older, less efficient  
6 ones.

7 Specifically, as PJM reported in  
8 the March 2018 Emission Rates Report, the  
9 PJM system average of carbon dioxide  
10 emissions from 2013 to 2017 have dropped  
11 from 1,112 pounds per megawatt hour in 2013  
12 to 948 in 2017. This is a 15 percent  
13 decrease.

14 Similarly, sulphur dioxide  
15 emission rates have dropped from 2.20 to  
16 0.79 pounds per megawatt hour, which is a  
17 65 percent drop in those same four years.  
18 And nitrogen oxides dropped from 0.95 to  
19 0.66 pounds per megawatt hour, a 31 percent  
20 drop.

21 This trend in reduction in  
22 emissions is likely to continue as coal  
23 plants continue to retire. These emission  
24 reductions in PJM are a powerful  
25 illustration about achieving environmental

1 goals in a competitive regional electricity  
2 market.

3 As New Jersey begins to draft and  
4 implement its new Energy Master Plan, P3  
5 urges New Jersey to pursue its clean energy  
6 goals consistent within the market  
7 structure and not look at these goals  
8 within a vacuum. New Jersey can pursue its  
9 energy goals through the currently existing  
10 market base construct rather than the state  
11 dictating which resources should be  
12 favored.

13 New Jersey has to decide what it  
14 wants. Does it want to participate in a  
15 competitive market with market-based  
16 solutions with the benefits of a  
17 sustainable resilient infrastructure, or  
18 does New Jersey want to pick the resources  
19 it favors and get back into the generation  
20 business and risk increased costs to New  
21 Jersey ratepayers, a concern also expressed  
22 today by the New Jersey Rate Counsel.

23 As New Jersey is reviewing a new  
24 Energy Master Plan, it has an opportunity  
25 to either learn from the past or repeat a

1 mistake. As the committee knows, the  
2 Long-Term Capacity Agreement Pilot Program,  
3 known as LCAPP, passed in New Jersey seven  
4 years ago. Seven years later we see that  
5 LCAPP was unnecessary and was deemed  
6 unconstitutional.

7 Fortunately New Jersey was  
8 prevented from making a large mistake in  
9 this instance. As the facts show, the  
10 market price was much lower than the  
11 would-be LCAPP subsidy would have been.  
12 This is evident in looking at just one of  
13 three plants that were part of the LCAPP  
14 plan and looking at just the one year of  
15 the 15 years committed.

16 The contract price of the capacity  
17 approved for New Jersey for CPB Shore,  
18 which was one of the three new natural gas  
19 plants chosen in 2011 for a subsidy, in  
20 2018 it would have been \$303.45 per  
21 megawatt as compared to the market clearing  
22 price that actually took place in EMAC as  
23 \$120.00 per megawatt day, almost triple the  
24 difference.

25 If the New Jersey capacity

1 contracts had not been judicially  
2 invalidated to the unconstitutionality of  
3 the LCAPP, New Jersey ratepayers would have  
4 paid \$48.5 million more this year than the  
5 market price for the 725 megawatts of  
6 capacity associated with that facility.

7 In this case New Jersey made the  
8 choice to pay nearly \$50 million more for  
9 725 megawatts than the market price in just  
10 2018 for just this single year. And  
11 looking at six years, total capacity  
12 premium for New Jersey ratepayers would  
13 have been -- the New Jersey ratepayers  
14 would have been obliged to pay, for just  
15 this one plan again, from delivery year  
16 2016 to delivery year 2021 over \$231  
17 million. Again, this is just an example of  
18 one plan out of three that were in the  
19 LCAPP plan.

20 This is a very stark example of  
21 how competitive markets had a vastly  
22 different price outcome than the state  
23 picking from resources through a subsidy  
24 program. This example shows what happens  
25 when programs go outside of the market.

1 This leads to inefficient and costly  
2 results with the ratepayers bearing the  
3 burden of the increased costs.

4 P3 urges the EMP committee to not  
5 rush into another energy plan mistake such  
6 as LCAPP. P3 believes that New Jersey has  
7 a unique opportunity to thoughtfully draft  
8 its new Energy Master Plan and can take the  
9 time to fully understand the market  
10 dynamics that are occurring in today's  
11 markets. Be aware of the wholesale market,  
12 as noted by the New Jersey Rate Counsel  
13 today. Appreciate the efforts that are  
14 currently underway at PJM and FERC. Have a  
15 deliberative and strategic process, as  
16 requested today by the New Jersey Rate  
17 Counsel, and develop thoughtful, informed,  
18 and sound energy policy for the Garden  
19 State.

20 Again, as I highlighted earlier,  
21 emission rates in PJM for CO2 SOX and NOX  
22 are a powerful illustration that  
23 environmental goals can be achieved in a  
24 competitive regional electricity market.  
25 Thank you for this opportunity to speak

1 today.

2 MS. CYNTHIA HOLLAND: Thank you.  
3 David Pringle, and on deck we have Thomas  
4 Jams or Jams Thomas.

5 MR. DAVID PRINGLE: Thank you.  
6 I'm here today, David Pringle. I'm here  
7 representing Clean Water Action, which is a  
8 national environmental group with over  
9 100,000 members here in New Jersey.

10 Governor Murphy's vision and  
11 action to get to 100 percent clean energy  
12 by 2050 will restore New Jersey as the  
13 national leader on these kinds of issues.  
14 And it's not just under the climate,  
15 dealing with the climate crisis, but it's  
16 critical to public health, private  
17 property, economic growth, and jobs.

18 While Hurricane Sandy was  
19 catastrophic in so many ways it was not as  
20 catastrophic as it could have been if it  
21 was in the dead of winter or in the middle  
22 of the summer when energy use is much  
23 higher than when Sandy did this, and it  
24 would have been even more life threatening.  
25 Like the Jersey Shore Newark was faced --

1 Jersey City and Hoboken was faced with  
2 tremendous destruction of homes, many feet  
3 of water, loss of power, raw sewage. But  
4 it's Ironbound residents in Newark were  
5 also exposed to many toxics from chemical  
6 sewage plants overwhelmed by the surge  
7 waters that ended up in neighborhoods and  
8 homes making people sick.

9 There needs to be better emergency  
10 plans for these hazardous facilities, many  
11 of which lost power and were understaffed  
12 during the crisis. We have seen this more  
13 recently with Hurricane Florence, coal  
14 plants shut down, workers trapped, nearby  
15 coal hatch and lagoons overflowed.

16 We saw it with, thankfully now, as  
17 of last week Oyster Creek has shut down,  
18 but Sandy came awfully close to devastating  
19 consequences down there too, coming within  
20 a couple feet of electricity pumps.

21 If we are to create a more  
22 sustainable and more resilient energy  
23 infrastructure, we need to plan for the  
24 extremely hazardous situations mentioned  
25 earlier and take steps to address them.

1 I'm just going to highlight seven steps.

2 There are many more.

3 No. 1, we need to be getting power  
4 back quickly to all neighborhoods  
5 regardless of color, income, and geography.  
6 Newark residents were without power in some  
7 cases much longer than the Jersey Shore,  
8 which got a lot -- obviously a lot of  
9 attention.

10 No. 2, having independent  
11 microgrids that allow complexes,  
12 institutions, and neighborhoods to stay  
13 online and with power regardless of a  
14 system being damaged.

15 No. 3, getting back online faster  
16 with emergency power systems for  
17 prioritizing -- and in prioritizing the  
18 most vulnerable, the elderly, the ill, and  
19 disabled.

20 Having neighbor-to-neighbor  
21 check-in systems and broadcasts over alert  
22 systems via text message and other means  
23 about status of power, where to get  
24 services, power, and shelter, especially,  
25 again, for the most vulnerable.



1           Ensuring that we have the  
2 authority to take renewable energy systems  
3 off the grid and put into local and onsite  
4 uses back-up power when larger systems are  
5 down.

6           No. 6, taking steps to minimize  
7 the use of gas and diesel-powered  
8 generation -- generators, which are unsafe,  
9 contribute to greenhouse gases and other  
10 co-pollutants as well as being obviously  
11 difficult to assess during power outages  
12 when pumping stations do not work anyway.

13           And, finally, we need to obviously  
14 really emphasize more decentralized  
15 renewable energy and demand energy  
16 efficiency, demand response, conservation,  
17 and policies not by building more fossil  
18 fuel infrastructure as the pipelines are  
19 being proposed. New Jersey gas reliability  
20 line, the South Jersey Gas line, Penn East,  
21 as well as power plants like in the  
22 Meadowlands, Messanetcong (ph), Woodbridge,  
23 and the like compressor stations.

24           We need to be investing in clean  
25 energy and reducing demand to create

1           redundancy in fossil fuels and nuclear  
2           power, and related to nuclear power as  
3           previously testified we have limited funds.  
4           Not only is the next generation nukes not  
5           viable, we need to phase out as renewables  
6           ramp up the existing ones. They shouldn't  
7           be getting a penny more of the public  
8           subsidy than they truly need to operate,  
9           and only then again if we need the power  
10          and we should ratchet -- as we're  
11          ratcheting up, we ought to be ratcheting  
12          those down.

13                        And related to that, and in my  
14                        final comment, I'm pleased that they  
15                        announced earlier this week that two  
16                        additional hearings in Newark and Camden at  
17                        better times and places for environmental  
18                        justice communities, but do have two  
19                        concerns around that.

20                        The first is there's a conflict  
21                        that they are both -- the time and date are  
22                        the same time as the first two of the three  
23                        zero-emission credit hearings and -- but in  
24                        different locations. So that's  
25                        unfortunate.

1           And second is I hope that notice  
2 needs to be proactive, not just reactive.  
3 I hope the Board is being very aggressive  
4 in getting the word out about these  
5 hearings. There's been very little -- it  
6 was announced Wednesday, so the first  
7 hearing is only a week away.

8           You know, a critical component of  
9 environmental justice is getting buy-in,  
10 but you don't get buy-in by being reactive,  
11 you have to be proactive. So I hope you're  
12 already in contact with several  
13 environmental justice groups, the DEP  
14 advisory counsel, environmental justice  
15 EJAC, the Ironbound community corporation,  
16 New Jersey Environmental Justice Alliance,  
17 the Newark Environmental Coalition --  
18 Commission, Camden groups, all the related  
19 city governments, and not just alerting  
20 them, but working with them to aggressively  
21 getting out the word. So with that thank  
22 you very much, and here's to the next  
23 hearing.

24           MS. CYNTHIA HOLLAND: Thank you.  
25 Thomas Jams, Jams Thomas? Going once?

1 (No response.)

2 All right. Armando Tamargo?

3 (No response.)

4 Vipin Parmar?

5 (No response.)

6 Victor Plsar?

7 (No response.)

8 Then I'm going to turn to Shahab  
9 Kuran (ph) for your remarks. Did he leave?  
10 Okay.

11 Brian Rubio?

12 (No response.)

13 Nicole Sitaraman?

14 (No response.)

15 Joe Spano?

16 (No response.)

17 Ryan Storke?

18 (No response.)

19 All right. Jamie Zaccaria for  
20 Sierra Club.

21 MS. JAMIE ZACCARIA: Hello. I'm  
22 Jamie Zaccaria, J-A-M-I-E, Z-A-C-C-A-R-I-A,  
23 speaking on behalf of New Jersey Sierra  
24 Club. And I know you've heard from most of  
25 these meetings, so today I'll try to keep

1 the comments specifically to infrastructure

2 But I just want to reinforce the  
3 fact that we have a bold goal of 100  
4 percent renewable and to get to that goal  
5 we're going to have to make bold decisions  
6 and bold moves, and we believe that the  
7 most important one of those is to put a  
8 moratorium on all new natural gas projects,  
9 specifically gas-fired power plants.

10 We have a lot of natural gas  
11 already. And I think that we have too  
12 much, in fact, and if that wasn't the case,  
13 there wouldn't be so many projects proposed  
14 that are meant to serve outside of the  
15 state. So if we really want to be serious  
16 about getting to our goal of 100 percent  
17 renewable, we need to be focused on  
18 building that and not let natural gas get  
19 in the way.

20 We have five new proposed power  
21 plants, especially one in the Meadowlands.  
22 We have over seven gas pipelines, and if we  
23 focus all our energy on this, we won't be  
24 able to actually move forward with the  
25 renewable energy goals that Governor Murphy

1 has committed to.

2 This also comes with updating the  
3 grid, implementing programs for energy  
4 efficient technology, distributive  
5 generation and microgrids. We need to  
6 update the grid so that the next time a  
7 storm comes we have stored energy and power  
8 outages aren't as necessary.

9 Even modest amounts of storage can  
10 help us get to very high levels of  
11 renewable energy, so by updating the grid  
12 to increase storage it will help us reach  
13 our goals for renewable energy.

14 And we do think that when it comes  
15 to gas lines and whatnot, we do need to do  
16 some work for resiliency of placing --  
17 replacing existing (inaudible) for local  
18 distribution of gas and oil, older  
19 vulnerable electric lines.

20 One thing we feel that should be  
21 focused on is putting these lines  
22 underground. We think utility companies  
23 are making more money when the lines are  
24 not under ground, that this causes power  
25 outages, which is bad for the people of New

1 Jersey, and we hope the BPU can further  
2 enforce and encourage those lines to be put  
3 underground, where they can be less likely  
4 to create a power outage and harm the grid.

5 We also stress the importance of  
6 not putting new infrastructure in flood  
7 zones because sea levels are rising and  
8 storms are getting worse. We need to use  
9 the most up-to-date science to predict  
10 which areas they are going to be most at  
11 risk for, and be sure that we're not  
12 putting any type of energy infrastructure  
13 in those areas.

14 We also must move forward on  
15 programs to help residents in commercial  
16 properties to receive funding for  
17 resiliency projects, for example,  
18 property-assessed clean energy, or PACE,  
19 legislation. To principal will place a  
20 funding mechanism for our homeowners to  
21 finance projects such as solar and  
22 renewable energy, storm water, and to make  
23 their homes more flood resistant. It  
24 allows people to use green building  
25 techniques, energy efficiency, and can make

1 communities overall more resilient and  
2 sustainable and get low-cost loans to repay  
3 their (inaudible) on their property.

4 We have to make sure that the  
5 renewable energy that we're going for is  
6 available, feasible to people of all walks  
7 of life and all types of communities. This  
8 includes community solar and making it so  
9 that the renewable energy is in a  
10 house-by-house basis that it becomes a  
11 major part of our grid and our state as a  
12 whole.

13 And in conclusion, building a more  
14 sustainable and resilient infrastructure  
15 will not only help to reduce greenhouse  
16 gasses, but also improve our economy and  
17 create green jobs. We can prevent  
18 pollution, reduce greenhouse gases, and to  
19 create a more resilient state, but we have  
20 to start right now. We must be prepared  
21 for the next storm with a stronger grid and  
22 energy that isn't toxic and creating more  
23 greenhouse gases. That's why we're asking  
24 that we take serious efforts to curb the  
25 amount of fossil fuel projects approved and



1           instead focus on clean renewable energy,  
2           and that does not include natural gas.  
3           Thank you.

4                       MS. CYNTHIA HOLLAND:   Thank you.

5                       Mario Giovanni?

6                       (No response.)

7                       Sally Gellert?

8                       (No response.)

9                       Jennifer Fabriano?

10                      (No response.)

11                      Dean Evans?

12                      (No response.)

13                      Christopher Ercoli?

14                      (No response.)

15                      Then I'll call you, Mr. Rawlings,  
16           Lyle Rawlings, and then on deck we'll have  
17           Evan Berger from CALMAC.

18                      MR. LYLE RAWLINGS:   Hello,  
19           everyone.   And thanks to the Energy Master  
20           Plan team for sitting through these  
21           interminable stakeholder meetings, and I'm  
22           pleased for me, but sorry for you that you  
23           have to have two more of those to go.

24                      My name, again, is Lyle Rawlings.  
25           I'm the president and CEO of Advanced Solar

1 Products, and more to the point for today  
2 I'm the president and founder of the  
3 Mid-Atlantic Solar Energy Industries  
4 Association.

5 MSEIA has been around for 21 years  
6 advocating for a solar energy policy, and  
7 we have three simple goals for public  
8 policy: One, grow solar as much as is  
9 practicable; secondly, do so at the least  
10 possible cost to ratepayers and delivering  
11 the greatest possible public good; and,  
12 third, maintain a very diverse market that  
13 includes plenty of opportunity for local  
14 companies to create local jobs.

15 Infrastructure is a vital issue to  
16 solar energy. Infrastructure affects our  
17 businesses every day. And when we look to  
18 the future of 50 percent renewable  
19 electricity by 2030, which is in law, and  
20 100 percent by 2050, which is executive  
21 order form, that is a daunting future.  
22 It's a very complex and difficult thing to  
23 do. But we're actually affected by  
24 infrastructure today.

25 For instance, and we submitted the

1           comments for this stakeholder meeting as  
2           well as a PowerPoint presentation in which  
3           you'll see a map of Atlantic City Electric  
4           territory in which circuits are closed to  
5           solar or circuits are severely restricted  
6           in terms of allowing more solar to be  
7           developed.

8                         And if you look at that map, which  
9           is available on their website, it looks  
10          like a cancer spreading across their entire  
11          territory. There's also a close-up of a  
12          typical town where the entire town is  
13          completely closed to further solar now.

14                        This is an issue which is severely  
15          impacting the solar industry and the  
16          further development of solar right now. My  
17          company, for instance, has several projects  
18          under development in Atlantic City  
19          territory, and over half of all the  
20          projects we are developing have been denied  
21          interconnection recently.

22                        Now, part of this is due to  
23          antiquated standards, which I helped write  
24          all the way back in the year 2000 and 2001,  
25          when solar was just a little baby just

1 getting started in the world. And solar  
2 energy was looked at with great suspicion  
3 by utility companies. Now it's all over  
4 the grid, and we still have those old  
5 standards in place that severely restrict  
6 the percentage of load in the substation  
7 that can be allowed.

8 We can allow much, much higher  
9 percentages of load in the substations, and  
10 as a matter of fact another thing holding  
11 some projects back is a prohibition against  
12 having reverse flow through a substation.  
13 Meaning there's more distributed energy on  
14 the other side of that substation than  
15 there is load, so you're actually  
16 back-feeding through a whole substation.  
17 Now, utilities don't like that, but we're  
18 not going to have a solar energy future if  
19 they don't grow to like it.

20 In California, where they have a  
21 little bit more penetration of solar than  
22 we do, substations are back-fed all the  
23 time. And in Germany, where they're even  
24 ahead of California, entire states in  
25 Germany produce more solar power than the

1 total power being used in that state, and  
2 they're exporting power from a whole state  
3 to France, as an example.

4 Furthermore, there are  
5 technologies available that can aid  
6 utilities in connecting more solar into the  
7 grid. For instance, every single  
8 commercial solar inverter has a capability  
9 built into it that's not used. It's called  
10 dynamic power factor control, and this can  
11 help control voltage on the utility grid.  
12 That can help mitigate any problems solar  
13 can cause.

14 For instance, if a cloud comes  
15 over and there's a sudden drop in output,  
16 we can control how the voltage responds  
17 that to that with this inbuilt capability  
18 and inverters that's free because it's  
19 already there, all we have to do is program  
20 it in. Utilities like ACE are not allowing  
21 that capability to be used to mitigate the  
22 effects of more solar on the grid.

23 So we have immediate issues like  
24 that that are vexing that could be taken  
25 care of at extremely low costs, as some of

1           them are free, as I just mentioned. And if  
2           we're going to continue, we're at a  
3           stopping point right now at ACE and we're  
4           getting there in JCP&L and PSE&G. We can  
5           clear those barriers out of the way  
6           regulatorily.

7                         Now, onto the long term, and  
8           that's where it really gets interesting.  
9           Because if we talk about what are the  
10          infrastructure needs for renewable energy  
11          future, first of all, we've got to figure  
12          out what renewable energy are we talking  
13          about. Are we talking about wind, are we  
14          talking about solar, biomass? How much of  
15          that is going to be distributed generation  
16          that has to be connected on the  
17          distribution system, how much of it is  
18          going to be connected directly to the  
19          transmission system. Without knowing that  
20          we don't know anything about what the  
21          infrastructure changes need to be.

22                        Furthermore, we then need to  
23          figure out what are the measures to handle  
24          the intermittent renewables, solar and  
25          wind. Solar and wind are the resources we

1 have in New Jersey. We've got to look at  
2 the magnitude of those resources, but we  
3 pretty much know it's solar and wind.  
4 Those are intermittent resources, and we  
5 all know that poses a problem, and people  
6 immediately think batteries to go over  
7 those intermittencies. But that's not the  
8 only tool in our tool box. There are  
9 several other tools we can use to handle  
10 the intermittent and handle whatever that  
11 mix of renewals is.

12 And, of course, there's cost.  
13 Renewable energy is going to cost more. I  
14 see that the PJM person just left,  
15 unfortunately, but we do have a cost issue.  
16 Renewable energy costs more than fossil  
17 fuels. Competitive markets don't cut it  
18 because they don't value the cost of  
19 pollution. So government has to do it.  
20 That's why government has to pick winners.  
21 But that cost is substantial, and so in  
22 considering the infrastructure changes that  
23 we need to plan for, we have to talk in  
24 terms of minimizing costs.

25 You put all of that together, all

1 of those factors, it's a very, very complex  
2 structure that we have to deal with. And  
3 the point I'm getting to is that if you  
4 make year-by-year decisions, you can easily  
5 end up going down a very wrong path and  
6 wake up five years later or ten years later  
7 and say whoops we built the wrong  
8 infrastructure.

9 So we need a comprehensive full  
10 study that takes all of those factors into  
11 account and models the system. Now, this  
12 is being done. It's done a lot in Germany  
13 and it's starting to be done in the U.S.

14 A brilliant study was just  
15 completed for Minnesota for the Department  
16 of Commerce called the Minnesota Solar  
17 Pathways study. It was done by Clean Power  
18 Research and Dr. Mark Perez. We submitted  
19 a pre-publication PowerPoint with our  
20 comments and used, with permission from  
21 Dr. Perez.

22 But surprises come out. One of  
23 the surprises was that we could reach a  
24 very low cost, but not really totally  
25 reliant on batteries. The first thing that



1           came out of this study was build more solar  
2           than you really need on an annual basis,  
3           but curtail it in the middle of the day.  
4           It turns out that curtailment is cheaper  
5           than building everything you need with  
6           batteries. So batteries was a secondary.

7                         Another surprise was that in  
8           Minnesota to get to 100 percent renewables  
9           by 2050 using just solar and wind, they  
10          could get the price down to 5.6 cents per  
11          kilowatt hour premium over wholesale by  
12          utilizing this mix of many, many different  
13          resources, including curtailment. But if  
14          they mixed in just 5 percent natural gas,  
15          they could get that cost town to 3.6 cents,  
16          a dramatic drop in cost for just a small  
17          amount of natural gas.

18                        I think I'll probably end it  
19          there, since I think we're probably out of  
20          time. But with careful study and  
21          comprehensive study we can come up with an  
22          optimum. New Jersey is not going to be the  
23          same as Minnesota. Minnesota has wide-open  
24          spaces, and they can build 100-megawatt or  
25          200-megawatt plants. So they're going to

1 be more on the transmission side

2 And we're going to be more  
3 expensive because it's more expensive to  
4 build here and we're going to have more  
5 distributed generation than centralized  
6 generation. So the results are going to be  
7 different for us, but we won't know until  
8 we have such a comprehensive study. That  
9 will do for now. Thank you.

10 MS. CYNTHIA HOLLAND: Thank you.

11 Is Evan Berger here?

12 (No response.)

13 Well, thank you everyone for being  
14 so diligent about keeping to your time.  
15 There is further opportunity for comment,  
16 so if you didn't have an opportunity to say  
17 everything here, you can please put it in  
18 writing and submit by October 12th, and we  
19 do have the additional stakeholder  
20 meetings.

21 I'll call through this list, and  
22 then I do still have some of your names,  
23 those of you who registered today.

24 Susan Dorward?

25 (No response.)

1 Duncan Campbell?

2 (No response.)

3 Bruce Burcat?

4 (No response.)

5 Clarke Bruno

6 (No response.)

7 Okay. Robert DeDomenico? That's  
8 you? Okay. And Doug Davis on deck.

9 MR. ROBERT DeDOMENICO: Good  
10 morning, Ms. Holland, and other members of  
11 the task force. I brought a little show  
12 and tell. I'll explain that later. I'm  
13 Robert DeDomenico, D E, capital  
14 D-O-M-E-N-I-C-O.

15 I'm here today because what I have  
16 to speak about speaks to resilient  
17 infrastructure, energy efficiency, and  
18 transportation. And I wanted to speak at  
19 all three of those, I only managed two out  
20 of three. So that ain't bad, so they say.

21 Before I get into why I'm here,  
22 just to reiterate a little background on  
23 me, I've got a little over three years in  
24 nuclear power, 25 years in commercial  
25 nuclear power, including licensed control

1 room operation at Salem 1 and 2. Now, I  
2 don't speak on behalf of PSE&G. I'm here  
3 on behalf of Cargo Fish for which I'm  
4 founder.

5 Prior to commercial experience I  
6 was a submarine reactor operator in the  
7 Navy. In the U.S. Navy you're an  
8 electronics technician when you're a  
9 reactor operator.

10 Now, I joined the Navy because I  
11 dropped out of college, so I guess I didn't  
12 have focus. But one of the reasons I  
13 joined the Navy, honestly, was because I  
14 believed that the world isn't as good as it  
15 can be unless everybody really contributes  
16 their best. I thought the discipline would  
17 do me good, and it was the best path I  
18 could take from there.

19 And now for the last eight and a  
20 half years -- and that was only a six-year  
21 hitch, by the way. I've spent eight and a  
22 half years developing what will be the  
23 world's next utility. And it's  
24 effectively -- you've heard the word de  
25 facto teleportation. And I remember I used

1           that word to get people's attention and I  
2           would hear a giggle.

3                       I've given presentations in New  
4           York City, Albany, Philadelphia, Long Beach  
5           at the International Urban Freight  
6           conference, Laval University in Quebec at  
7           the first International physical energy  
8           conference, where I was invited. They  
9           waived the fee so I would come. And the  
10          world geographic society and annual  
11          conference, I attended that remotely. I've  
12          been in many, many competitions.

13                      So more about what this  
14          infrastructure is. You've all used de  
15          facto teleportation. You've been to the  
16          second lane at the pharmacy and at the  
17          bank, and you've used a little capsule with  
18          a pneumatic shuttle so that you didn't have  
19          to get out of your car to go into the  
20          building. But we routinely drive a  
21          4,000-pound car to a convenience store to  
22          come home with an eight-pound gallon of  
23          milk.

24                      Now, let's compare that. The  
25          gross weight of the carrying vehicle is

1           4,000 pounds, the net weight of the payload  
2           is eight. I believe we put a lot of tax  
3           money into high occupancy vehicle lanes  
4           because it's a shame when a car's only got  
5           a driver. But a car can carry a couple of  
6           thousand pounds and they're routinely being  
7           used to carry payloads of a prescription  
8           from the drive-through pharmacy or a  
9           letter.

10                        I build a utility that instead of  
11           using pneumatics it's a small-diameter  
12           capillary, if you will, miniature slot car,  
13           only it's not a car, it's a truck. And  
14           it's self-driving.

15                        By the way, Obama, President  
16           Obama, former President Obama, had a goal,  
17           a million electric cars in America. How  
18           many electric cars did America have before  
19           that goal was even stated? Anybody?  
20           900,000. And they were all fully  
21           autonomous, and they're still here.  
22           They're called elevators. Every elevator  
23           in America is a fully automatic electric  
24           car, a very successful because it's in a  
25           smart road called a shaft.



1 big. It carries two gallons of milk, it's  
2 containerized parcel. It's going to change  
3 the world, and it can start in New Jersey.  
4 It's just 4 percent of my gross income  
5 since April of 2010. I'm here on vacation  
6 again. I do this on my own time and my own  
7 dime, and I can't get any backing. I  
8 haven't gotten any backing.

9 Now, I've seen people who beat me  
10 in competitions. I bumped into somebody --  
11 I bumped into him ten months after he was  
12 one of nine finalists and he got \$10,000.  
13 He made LED lights, and they were pretty  
14 unique. And I was standing in line for  
15 Shark Tank, and there was something else  
16 going on called the Ratcliff Hatcheries  
17 down at Salisbury, Maryland.

18 So I go to the auditorium when it  
19 spills out, and I see a young couple and I  
20 say, Hey, what's going on. And she says,  
21 well, there's two things, there's this  
22 Ratcliff Hatchery and there's Shark Tank.  
23 And she starts explaining Shark Tank.

24 I said, Oh, I know about Shark  
25 Tank, I'm here for that. She said, Oh,



1           what do you do. And I said, I design a new  
2           technology so you won't have to drive a  
3           4,000-pound car to go get an 8-pound gallon  
4           of milk.

5                         She said, Are you Robert  
6           DeDomenico, and started tugging at her  
7           fiance's arm, Eric, this is him, this is  
8           the guy. Eric Vanderveer (ph). I don't  
9           know if I pronounced it correctly. He  
10          said, You had the best idea in the  
11          competition. I said, You should have been  
12          the Judge. I liked them both immediately.  
13          And he won another 25,000 that day at the  
14          Ratcliff Hatchery.

15                        But except for the people from 22  
16          different countries on 6 continents around  
17          the world who helped propel me to 80  
18          percent of all votes of support in an MIT  
19          competition -- where the judges turned me  
20          down. They said you didn't explain how  
21          people would order their stuff. So that's  
22          an unsolved problem, so you lose.

23                        So forgive my sarcasm, but I'm  
24          trying to say I'm on to something good.  
25          There's a lot of stuff behind it that I

1 haven't shown you. But I solve really all  
2 technical problems. And I can move last  
3 mile free, which is the most expensive and  
4 most critical.

5 I give to one piece of imperial  
6 data. The miners in Chile six years, three  
7 months ago were trapped by a cave-in. It  
8 took 17 days just to reach them through a  
9 five and a quarter in bore, almost a half a  
10 mile vertical, and for the next 45 days 33  
11 souls survived because of that connection  
12 to the outside world.

13 Now, when events happen, how many  
14 of the underground utilities go totally out  
15 of service. They're the first one's back.  
16 A utility like this can delivered bottled  
17 water, which is clean, it can deliver food,  
18 and actually operates on solo energy, the  
19 hand crank, it could make these vehicles  
20 move.

21 So I've solved a lot of problems.  
22 I've used my background growing up on a  
23 farm, built my own bicycles when I was a  
24 kid. I built my own slot cars, my own  
25 railroad tracks. I've just always loved

1 transportation. I had a career in energy.  
2 I got an idea. I've working on it. I need  
3 your help. And I'm so happy that this  
4 Energy Master Plan has public hearings. I  
5 would have been here in 2011, had I known.  
6 And I look forward to seeing at a draft.

7 I am available for any questions  
8 and answers, Cargofish.com. On Linked In I  
9 have four articles, a new perspective on  
10 free distribution, a network is a bridge to  
11 everywhere, and a couple of hours. And I  
12 get a lot of good feedback. So anybody --  
13 I include everybody. I'll help you  
14 understand what I'm working on. I look  
15 forward to delivering it for the good of  
16 everybody in the country. And I know  
17 that's pretty much in line with your goals,  
18 so thank you very much.

19 MS. CYNTHIA HOLLAND: Thank you.

20 Doug Davis?

21 (No response.)

22 Jim Beddy?

23 (No response.)

24 David Steinberg? All right.

25 And then, Jeanne, you're on deck.

1 MR. DAVID STEINBERG: Thank you  
2 for giving me the opportunity to be able to  
3 share a few thoughts and a few ideas I have  
4 here. My name is David Steinberg,  
5 S-T-E-I-N-B-E-R-G, David Steinberg. I'm  
6 here as a citizen, although a member of  
7 several non-profit sustainable groups,  
8 sustainable Haddon Heights. I'm also a  
9 member of the green team, Tri-County  
10 Sustainability Alliance, a member of that  
11 as well, and the Greater Philadelphia  
12 Bicycle Coalition, Camden County chapter.  
13 I like trails. And also this has nothing  
14 to do with New Jersey, but I'm still part  
15 of it and it sparked my interest and part  
16 of the reason why I'm here, and that is  
17 Spring Garden Eco District over in  
18 Philadelphia.

19 And, by the way, I'm also a  
20 nominee for the 2018 Nobel Peace Prize.  
21 Really, that's true.

22 Why I'm here begins with a little  
23 story of my son, who at the time was about  
24 five years old, and he was registering for  
25 Kindergarten over in Haddon Heights, and

1 through the center of Haddon Heights is a  
2 railroad. There's also a bridge over the  
3 railroad, infrastructure. And on the way  
4 back from registration my wife took him,  
5 and he accidentally bumped his knee, bumped  
6 his leg, on the rusty bridge, rusty metal  
7 and concrete bridge.

8 Naturally, as a parent, I was very  
9 concerned, my wife was very concerned. I  
10 mean, you know, those of you who have kids,  
11 when a kid skins his knee, he's going to  
12 holler. It's concerning, and of course  
13 parents have to do something about.

14 My wife told me about the  
15 condition of the bridge. She said that  
16 bridge is horrible. I said what do you  
17 mean horrible. She said, well, go look at  
18 it. So it was only a few blocks away, and  
19 I went up and looked at it and, Oh, my God,  
20 it was worse than horrible. It probably  
21 has not been painted in 30-some years,  
22 maybe longer, and there was a lot of rust.  
23 It was right across the street from the  
24 school that my son had to cross a railroad  
25 where they go over the bridge to get that.

1           As a parent, I was very upset, and  
2           I decided -- I figured out, well, what do I  
3           do. So I wrote a letter to the mayor, to  
4           the school board, and to my congressman who  
5           incidentally, his daughter was a classmate  
6           of my son's. And they kept on saying that  
7           there's problems as far as dealing with the  
8           railroad. At that time it was ConRail,  
9           probably still is ConRail right now.

10           So with that I know that the BPU  
11           has jurisdiction over the short lines,  
12           those are the ones that are only located in  
13           New Jersey, and I'll get to that in just a  
14           moment as far as that is concerned. But  
15           I've got a couple of things I'd like to  
16           share with you in connection with that.

17           Can COLA regulations be made to  
18           encourage them to deed over any existing or  
19           abandoned local groups advocating building  
20           with rails -- with trails or rails to  
21           trails, in the case they're abandoned.

22           The reason why I'm suggesting that  
23           is because the single rail line that goes  
24           through my town, there were once two rail  
25           lines. There's space to build a trail

1 right away, which hasn't been used in 40 or  
2 50 years anyway.

3 Okay. In addition in Camden  
4 County they're currently working with a  
5 railroad and trying to get a trail through  
6 town. And in talking with the people that  
7 are doing the engineering with the county,  
8 et cetera, et cetera, there are a lot of  
9 odd shaped parcels that, after the trail is  
10 put in there that the railroad owns.

11 And I explored some of them and it  
12 looks like a possibly good location for  
13 maybe some community solar fields adjacent  
14 to the land that is not used by the trail.  
15 So this actually could be another amenity  
16 to each community that is a host for them.

17 Now, the EMP should explore ways  
18 to make these defunct areas more productive  
19 for the communities that they pass through.  
20 If we only look at infrastructure, the  
21 plans, the transmission lines, poles,  
22 wires, storage facility building, et  
23 cetera, et cetera, we're missing a vital  
24 piece of energy independence that we  
25 advocate.





1           they do is they hold seminars. They also  
2           have green house, which they raise  
3           products, and they're the first ones to  
4           raise -- first ones to actually raise and  
5           sell products.

6                         They were created in Camden,  
7           consumed in Camden. They have kids that  
8           come in to help out and they've created  
9           little bottles of hot sauce. I    tried  
10          them, they're delicious. A little hot, but  
11          that's what hot sauce is.

12                        So, in addition, I found out about  
13          a week ago in talking to one of the county  
14          engineers that CCMUA is coming up with some  
15          funding to help design a trail through  
16          Haddon Heights and Audubon, our adjacent  
17          community. This is in part the 32-mile  
18          trail going from Ben Franklin Bridge into  
19          Atlantic County.

20                        It passes through a lot of  
21          sections so this is among the sections that  
22          they've chosen. So over the next year or  
23          so they'll be working with that, and then  
24          they've got to try to get the funding, but  
25          at least they'll have the engineering

1 done. Thank you.

2 Okay. Regarding any flood plain  
3 development, I know talked about were. I  
4 didn't know if you have seen it or not, but  
5 there is a map put out by Google, which  
6 lists the sea rise estimated to be by year  
7 2100. I'd be glad to provide my written  
8 notes to you of the link to that. I've  
9 used that on several occasions

10 And taking a look at the Delaware  
11 River, the Raritan River, and other places  
12 in New Jersey it's eye opening, and it's  
13 certainly something that should be  
14 considered as far as any infrastructure is  
15 concerned.

16 Okay. Workforce development. Is  
17 it possible that any of these  
18 infrastructure improvements can also  
19 include a requirement for people in  
20 low-income communities to be able to  
21 participate with that. I don't know if  
22 that's possible or not, but I just like to  
23 put that out there. It can have a positive  
24 economic impact in Camden, Trenton, Newark,  
25 Paterson, Jersey City, and a whole bunch

1 much other towns along the way, and can  
2 help not only provide infrastructure  
3 improvements, but also economic and social  
4 benefits to residents along the way who  
5 don't often get opportunities to  
6 participate in that.

7 I'm going to suggest that there  
8 may be opportunities that you may be able  
9 to work out as far as fee structures for  
10 various types of solar. I'm not that  
11 familiar with wind, but I'm going to  
12 address it just for the solar, where you  
13 can have one fee set by the state so the  
14 town doesn't say, okay, it's a percentage  
15 of the cost, that's the fit, but some  
16 reasonable fee for both the utility  
17 approval as well as the municipal approval.  
18 And it can work out so that any  
19 contingencies are met for any -- and  
20 anything that goes over that particular  
21 time period.

22 And I'm also going to suggest and  
23 recommend that you consider 40 to 45-day  
24 period of time from the time that something  
25 is submitted for solar approval and the

1 time it's approved.

2 And one way to do this is to have  
3 a simultaneous approval with both the  
4 municipality as well as with the utility.  
5 The 45-day period would start on the second  
6 submission of the complete documents. Now,  
7 if it has to be resubmitted, that's another  
8 matter. That can be handled as well. But  
9 what this would do is be able to bring  
10 things a lot more in control.

11 About a year and a half ago I was  
12 working with a company called Solar City,  
13 and approval processes went anywhere from  
14 three to six months. And that meant that  
15 it's very difficult to tell homeowners that  
16 because of other delays beyond the  
17 preparation of the things that we at Solar  
18 City had done, were able to -- they were --  
19 when really it was other factors. So this  
20 is one way maybe simultaneous submissions  
21 could cut down the time period and we'll  
22 put a time limit on it as well.

23 There are some other ideas I have.  
24 I'll be glad to submit them to your  
25 organization as well. And I want to thank

1           you very much for the opportunity to be  
2           able to make a presentation. And, by the  
3           way, you can all applaud. I didn't hear  
4           any applause today.

5                        MS. CYNTHIA HOLLAND: Thank you so  
6           much for your time. Yes, we are still  
7           accepting comment through October 12th.  
8           Jeanne Fox.

9                        MS. JEANNE FOX: My name is Jeanne  
10          Fox, J-E-A-N-N-E, F-O-X, like the animal.  
11          So this segment was due -- you had a bunch  
12          of questions you asked for every section.  
13          And on this one I got to the first  
14          question, and I said that's a really good  
15          question. That question is what does  
16          modern grid look like in 2030 and 2050.  
17          And so last night I slept on it.

18                       And, obviously, it's got to be  
19          reliable, it's got to be resilient. I  
20          participated in the National Academy of  
21          Science panel on resiliency in the grid. I  
22          think the report came out a year and a half  
23          ago, and I told Jim Guiliani about it, so I  
24          think the Board is aware of that.

25                        There's a lot of research being

1 done on this. But also at lease cost, and  
2 especially for the BPU, but I suggest all  
3 of government, lease cost options for what  
4 we need to look at.

5 And also it has to be customer  
6 focused. Where are the customers going,  
7 not where are we or the utilities going to  
8 force them to go because this is a  
9 Democracy and we do have competition.

10 And, finally, obviously greenhouse  
11 gas emissions. They need to be cut down as  
12 much as possible, and the goal was by 2050  
13 we were going to have all clean energy, et  
14 cetera.

15 By 2030 climate change is going to  
16 really be hitting us hard. We've seen  
17 nothing -- that downpour last night,  
18 nothing. Because if we stop everything  
19 today, 20 years from now it's going -- it's  
20 getting worse and worse and worse. So God  
21 help your children and grandchildren and us  
22 old folks by then, but it's getting really  
23 bad.

24 So you've got climate change  
25 getting worse and worse and worse, more

1 precipitation in the northeast, more  
2 flooding in the northeast. We already have  
3 like 60 or 70 percent more than we had in  
4 the 1960s, unlike the rest of the country  
5 that's going to have dry spells continuing,  
6 forest fires.

7 And then also security that I  
8 mentioned before. Obviously the bad guys  
9 in the world will get worse or get better  
10 at what they do. Cyber terrorism, physical  
11 terrorism, et cetera, it will happen. It's  
12 happening, it's going to happen more. So a  
13 combination of those two things really need  
14 to drive where we are going for energy  
15 future.

16 I'll try to take the issues  
17 basically one by one for what I see for  
18 2030, 2050, and hopefully we can get to  
19 some of these places sooner

20 Nuclear power. Now, our nuclear  
21 power plants in New Jersey are -- there are  
22 extensions up in the 2040s, '43, '47, I  
23 think. So they may be gone for a while,  
24 but they might be replaced by other things,  
25 who knows. Offshore wind will be coming on

1 as base-load generation in the next ten  
2 years.

3 And we do need a diversity of  
4 renewable energy and technologies and that  
5 kind of thing for electricity supply, but  
6 I'm certain by 2050 the nuclear power  
7 plants in this state will be long gone, at  
8 least by five years, maybe longer than  
9 that. So clearly we need to have fossil  
10 fuel electricity and other energy supplies  
11 by 2050 and be well on our way to that by  
12 2030.

13 Offshore wind, I talked about that  
14 briefly before. I think by 2030 we're on  
15 our way to it being base-load generation.  
16 By 2050 it will be base-load generation.  
17 It will be replacing the nuclear power  
18 plants in that regard. And there's a lot  
19 of reasons for that, but I won't go into  
20 that now. I think most of you who are here  
21 understand it.

22 I mentioned before the back bone  
23 transmission line. I think that's one of  
24 the few infrastructures where there's a  
25 major transmission line that will be usable



1           in the future, in the indefinite future,  
2           because we will be growing offshore wind  
3           along our coast for the rest of my lifetime  
4           certainly, and it will be a major source of  
5           electricity, although certainly not the  
6           only one because we still need diversity.

7                         But other transmission lines  
8           should not happen routinely just because  
9           there is a need at this time. You really  
10          need to look at alternatives to  
11          transmission by non-wired terminus, but  
12          really any other transmission line going  
13          forward.

14                        First of all, is there a need.  
15          Secondly, is there an alternative way to  
16          meet that need through the different DERs,  
17          different technologies, and that kind of  
18          thing, or at least can you defer that. And  
19          has everybody has at least told the  
20          commissioners, ratepayers pay for that.  
21          And what might be a strain of cost, a  
22          transmission line might be used for now and  
23          the next five to ten years, or maybe in 15,  
24          20 years. It will be strain of cost. And  
25          if a utility -- an electric distribution

1 company owns it, ratepayers will be paying  
2 for that strain of cost, not the  
3 shareholders.

4 So I really urge you to have a  
5 review of any every transmission line as  
6 early as possible to see if there are  
7 alternatives to that transmission line.  
8 That is much more cost effective, factoring  
9 also in a strain of cost possibilities in  
10 the future.

11 I also note in the back bone  
12 transmission line, I mentioned it before, I  
13 think the power buoys that can happen out  
14 with the transmission line. The energy  
15 from the ocean can go straight into there.  
16 It's just an extra little benefit from  
17 offshore, and obviously we don't have  
18 siting problems when we have transmission  
19 lines up on the line -- on the main line.

20 Microgrids are huge. Microgrids  
21 will be much bigger. I'm suggesting by  
22 2030 we're going to have many  
23 municipalities, we're already working on  
24 this, and counties will have microgrids for  
25 their emergency management, their police

1 and fire, community center, and that kind  
2 of thing.

3 You're going to have a lot of  
4 commercial and industrial campuses as well  
5 as -- university and college campuses have  
6 microgrids because of climate change, and  
7 to some degree, like the defense  
8 department, because of security and some of  
9 the commercial industrial sites. And I  
10 think by 2050 they will clearly be  
11 commonplace because of, again, security  
12 reasons and also because of climate change  
13 and the frequent Sandy storms that will  
14 be -- not be 100-year storms, might be  
15 20-year storms, might be 5-year storms.  
16 And certainly by 2050 microgrids, I think,  
17 will have to be common place.

18 Also by then, maybe hopefully  
19 sooner, using thermal energy storage,  
20 geothermal for heating, ice for cooling.  
21 It's already been done in a lot of places.  
22 I know Stockton, I guess it's University  
23 now, has had their heating cooling done for  
24 the last 30-plus years by a system like  
25 that. It was put in, I think, in the '80s,

1 but it might have been sooner than that,  
2 and it's been quite successful. We haven't  
3 done that any place else in the state  
4 because there hasn't been an effort.

5 Hydrogen, certainly a very  
6 environmental thing to do, but fuel cells  
7 right now use regular gas. You also have  
8 hydrogen fuel cells. And clearly why you  
9 have some fuel cells that are effective,  
10 cost-effective, down to the gas -- hydrogen  
11 for them makes sense. Also, hydrogen in  
12 transportation -- and we'll talk about  
13 water here, certainly would be a safe  
14 alternative.

15 Transit hubs for buses and trains  
16 makes a heck of a lot of sense, not just  
17 for train transit systems, but also bus  
18 hubs, like in Camden and Newark and other  
19 places where it's at. Light rail like we  
20 have in Trenton and Camden, we need more of  
21 them. Obviously like Newark has a small  
22 one, but New Brunswick, with that horrible  
23 situation with the university. It makes a  
24 lot of sense.

25 Eliminating diesel fuel as soon as

1 possible. There's a test being done, I  
2 think at the first hearing, diesel fuel is  
3 just very health -- bad for people's  
4 health. It causes all kind of problems  
5 with particulate matters. And diesel fuel  
6 really needs to be a major issue.

7 DER will be easily a major topic.  
8 And the electric distribution companies  
9 need to change how they're operating, how  
10 they get funded. I think they'll be using  
11 DERs, or should be, for peak shaving as  
12 well as for dealing with demand response.

13 Energy efficiency, DCA and their  
14 appliance standards need to start doing  
15 energy efficiency. Appliance standards  
16 where we have smart appliances so the EDCs  
17 can control, not just air-conditioning  
18 cycling, but also control smart appliances.  
19 I see that by 2030. And we should be  
20 working on with -- for appliances.

21 Building codes. We have it by the  
22 '30s, if not sooner. Require that new  
23 homes be wired for EVs, not the meters and  
24 all that, but behind the meter, so that  
25 when somebody wants an EV, they can easily

1 have that put in.

2 And also roofs for building new  
3 homes and other commercial spaces, the  
4 roofs should be built so they can hook up  
5 solar PVs if they want to.

6 We need smart growth, walkable,  
7 bikable communities. New York City has one  
8 of the lowest use of carbon emissions  
9 because everybody takes transit or they  
10 walk. We need to do that. We still need  
11 to do that. We haven't. There's a huge --  
12 less need for transportation with smart  
13 growth.

14 And, finally, we need to avoid  
15 strain of cost as much as possible when  
16 we're doing things now. We've got to plan  
17 out this Energy Master Plan and have to  
18 avoid those strains of cost and factor them  
19 into the economics of it.

20 We have to consider the long-term  
21 impacts. So, for instance, the back-bone  
22 transmission line makes sense because it  
23 should be here for a long time. We have to  
24 consider non-wire alternatives for all  
25 transmission lines going forward to make

1       sure that there is, one, a need; and, two,  
2       no non-wires trans -- alternative is not  
3       available at last cost for that need.

4               And, finally, we need regulatory  
5       reform for the electric distribution  
6       companies. They should not be -- obviously  
7       we all know this, it should be right in  
8       line with what they sell.

9               Plus, there's people looking at  
10       this. I was at the Rocky Mountain  
11       Institute EE lab three weeks ago, broke  
12       down into groups. A lot of people are  
13       thinking about this. But, for instance,  
14       maybe you can return on operations so they  
15       improve on the infrastructure they already  
16       have, not just capital investments. There  
17       are people -- smart people in the world, we  
18       have to deal with it.

19               But bottom line, when it comes  
20       down to it, it has to be different, it has  
21       to be operated differently with two-way  
22       communications, et cetera. Climate change  
23       ain't stopping, and customers have to do  
24       what they want, and they want to be  
25       basically on their own. The grid system

1 will be changing the distribution so that  
2 it is really regulating our appliances, our  
3 heat, our cooling, et cetera. Thank you.

4 MS. CYNTHIA HOLLAND: Thank you.  
5 So that concludes my list of pre-registered  
6 speakers. Is there anyone here that hasn't  
7 registered that is still interested in  
8 speaking? Going once? Going twice?

9 (No response.)

10 All right. So with that then I'll  
11 just conclude today's stakeholder hearing.  
12 I really want to thank all of you for your  
13 participation. This is tremendously  
14 helpful to the EMP committee.

15 I want to thank the EMP committee  
16 members and work group committee members  
17 that are here today. I want to thank  
18 Commissioner Solomon for attending, and for  
19 all of you speakers for all of the time and  
20 effort you've put into this.

21 Please remember that we do have  
22 two more stakeholder meetings. If did not  
23 have the opportunity to say what you wanted  
24 to say or you know others, please spread  
25 that word and we will endeavor to do so as



1 well.

2 And, of course, we are accepting  
3 written comments. Please provide your  
4 written comments by October 12th. Thank  
5 you so much, and have a great afternoon.

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(The proceedings adjourned at 2:53 p.m.)

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C E R T I F I C A T E

STATE OF NEW JERSEY )

) ss.

COUNTY OF BURLINGTON)

I, LAURA P. REAM, a  
Shorthand (Stenotype) Reporter and  
Notary Public of the State of New  
Jersey, do hereby certify that the  
foregoing hearing, taken at the time and  
place aforesaid, is a true and correct  
transcription of said deposition.

I further certify that I am  
neither counsel for nor related to any  
party to said action, nor in any way  
interested in the result of outcome  
thereof.

IN WITNESS WHEREOF, I have  
hereunto set my hand this 12th day of  
October, 2018.

*Laura Ream*

\_\_\_\_\_

LAURA P. REAM

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