

In The Matter Of:
BPU MASTER PLAN

October 10, 2018

JH Buehrer & Associates

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2019 ENERGY MASTER PLAN
STAKEHOLDERS MEETING

BOARD: GRACE STROM POWER, Lead, BPU
SARAH BLUHM GIBSON, BPU
MICHAEL HORNSBY, BPU

DATE: OCTOBER 10, 2018

TIME: 4:00 P.M.

PLACE: RUTGERS UNIVERSITY
CAMDEN CAMPUS CENTER
326 Penn Street
Camden, New Jersey 08102

BY: Laura P. Ream, Court Reporter

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1 MS. POWER: Good afternoon,
2 everyone. My name is Grace Power, and I
3 want to welcome you today to our 7th and
4 final stakeholder meeting, at least for
5 the initial stakeholder process, for the
6 2019 Energy Master Plan. On behalf of the
7 Board of Public Utilities and President
8 Joe Fiordaliso I want to welcome you here
9 today.

10 Let me give you a brief overview
11 of the Energy Master Plan process. On May
12 23rd of this year the governor signed an
13 Executive Order 28, and it directs the BPU
14 to spearhead the creation of a new Energy
15 Master Plan that will be due in June of
16 next year. The central task of this plan
17 is to develop a blueprint to fully convert
18 the state's energy to clean energy by
19 2050, with also specific goals for how to
20 get to 2030 and, you know, steps along the
21 way.

22 This is a brief timeline of the
23 Energy Master Plan process. Once the
24 executive order was signed in May we
25 kicked off an intergovernmental working

1 group that comprises -- it's comprised of
2 a number of departments, which I'll show
3 you shortly. We've held a number of
4 stakeholder meetings, like I mentioned, in
5 September and now into October, and now
6 the committee is going to be -- the
7 committee's working groups will be getting
8 to work actually putting those draft plans
9 together. We will come back to the public
10 in spring and put out these plans for
11 public input and additional public
12 comment, and finally in June of next year
13 we are going to deliver the plan to the
14 governor.

15 As I mentioned, this has truly
16 been an interdepartmental process, and we
17 have on our working groups folks from the
18 Department of Community Affairs, the EDA,
19 DEP, Health, Human Services,
20 Transportation, Labor and Workforce
21 Development, Treasury, and Transit.

22 This is, as I mentioned, our final
23 meeting, so thank you all for joining us
24 again. We are accepting comments until
25 this Friday at 5:00 p.m. For those of you

1 who have not gone on our website, in
2 September we held five public stakeholder
3 meetings, and at each of those there was a
4 specific theme based on the working group
5 that was holding the meeting. And we put
6 out a series of 20-plus questions for each
7 one of those working groups that really
8 hopefully shows you the direction that
9 we're looking at and the specific areas
10 where we're looking for feedback.

11 You know, I'm glad to have you all
12 here, but I just want to emphasize that
13 your comments will be part of the public
14 record that you submit in writing. They
15 will be read by the committees and they
16 will really help inform the process.

17 I did want to recognize -- one of
18 our commissioners is here, Diane Solomon.
19 So thank you for joining us tonight.

20 So with that I think we're going
21 to get to our speaker list. We're asking
22 everyone to keep their remarks to about
23 ten minutes. Again, if you could hit the
24 highlights for the folks in the room and
25 be respectful of everyone's time, and we,

1 again, are very interested in reading your
2 full comments that you submit to us by the
3 end of the week. So thank you.

4 MS. SARAH BLUHM GIBSON: And first
5 up we have Joe Shea from PSEG.

6 MR. JOSEPH SHEA: Good afternoon.
7 My name is Joe Shea, and I am an Associate
8 General Regulatory Counsel at PSEG
9 Services Company.

10 Thank you for the opportunity to
11 speak briefly at this public stakeholder
12 meeting. PSE&G applauds the Board for
13 scheduling additional stakeholder meetings
14 to meet public demand and for adding the
15 additional locations of Camden and Newark
16 to provide for more diverse viewpoints.

17 PSE&G has a long history of
18 partnership with Camden dating back more
19 than a hundred years with the partnership
20 centered around the goals of the new
21 Energy Master Plan. PSE&G is proud to
22 partner in Camden's ongoing economic
23 development as the city welcomes new
24 businesses and organizations.

25 PSE&G's \$55 million investment in

1 electric and gas upgrades is well under
2 way. We recently completed projects to
3 provide additional capacity to support the
4 energy needs at the Rutgers School of
5 Nursing, Subaru headquarters and training
6 center, Holtec International, American
7 Water headquarters, and the Riverside
8 Drive parking garage. We also have
9 several projects in process at
10 Rowan-Rutgers health sciences building,
11 Camden County office center, Cooper
12 Partners Tower and One Cooper Residential.

13 Expansion of the Locust Street
14 substation is complete. The new circuits
15 will support the waterfront development
16 here in Camden. The reinforcement of
17 Camden's gas system is complete with
18 48,000 feet of old main having been
19 replaced. Additional replacement work is
20 planned under the second phase of PSE&G's
21 Gas System Modernization Program, which
22 the Board approved earlier this year.

23 PSE&G continues working closely
24 with Cooper Hospital on its cogeneration
25 project including providing \$2 million in

1 energy efficiency funding. The necessary
2 gas and electric upgrades have been
3 completed and the project is on schedule
4 to be begin operation in the first quarter
5 of 2019.

6 PSE&G's Audubon gas district was
7 instrumental in providing support to the
8 Camden County municipal utilities'
9 authority biogas project to ensure in this
10 environmentally friendly endeavor got off
11 the ground.

12 PSE&G's solar loan program has
13 provided loan funding for the clean and
14 solar systems at Campbell's Soup
15 headquarters and Holtec International.
16 The Campbell's solar system is the largest
17 in the city and will generate about 5,000
18 megawatt hours per year, enough to power
19 about 700 homes.

20 In addition, PSEG will provide
21 five -- a five-plug electric vehicle
22 charging system for use by Campbell's
23 employees through PSE&G's electric vehicle
24 workplace charging program. That program
25 has provided 135 chargers to 23 New Jersey

1 hospitals, colleges, and businesses.

2 In total PSE&G has invested more
3 than \$180 million over the past several
4 years in Camden and Burlington counties
5 through programs that are designed to help
6 improve energy efficiency and increase the
7 amount of solar power in the state, both
8 goals of the new Energy Master Plan.

9 This including the following
10 programs all approved by the BPU: PSE&G's
11 hospital energy efficiency program; a
12 residential multi-family energy efficiency
13 program; a multi-family smart thermostat
14 pilot program, which provides smart
15 thermostats to multi-family residences and
16 low-income customers so that they can
17 better control their energy consumption
18 and reduce energy bills; its smart
19 thermostat rebate program; and its solar
20 for all program; and its aforementioned
21 solar loan program.

22 Lastly, the PSEG foundation
23 provided significant funding for energy
24 efficiency initiatives for the food trust
25 and Cooper's Ferry partnership. PSEG

1 believes despite this successful
2 partnership with the City of Camden and
3 the surrounding area that more could be
4 done and more should be done. That is why
5 it recently filed its clean energy future
6 program with the BPU.

7 This filing calls for a
8 significant expansion in the company's
9 energy efficiency programs with specific
10 emphasis on low-income customers. For
11 example, the clean energy future's
12 residential income eligible energy
13 efficiency subprogram would serve
14 customers whose household income is less
15 than 400 percent of the federal poverty
16 level. This program would provide free
17 direct installation of energy efficiency
18 technologies and weatherization services
19 to qualifying PSE&G customers with limited
20 income.

21 This program would generate energy
22 savings for low-income customers through
23 an in-home energy audit and the direct
24 installation of a wide range of energy
25 efficiency measures such as efficient

1 lighting, efficient refrigerators, HVAC,
2 weatherization upgrades, and similar
3 programs.

4 It would also provide for
5 installation of health and safety measures
6 as appropriate, and may also include
7 actions to address building shell issues
8 that prevent the installation of energy
9 efficiency measures such as moisture mold
10 remediation, roof repairs, electrical
11 repairs, lead and asbestos remediation.
12 These are important energy bill-lowering
13 actions that we need to extend to all of
14 our state's residents, particularly in the
15 environmental justice communities.

16 The clean energy future filing
17 also contains a proposal to jump start the
18 electric vehicle industry in New Jersey
19 consistent with the new Energy Master
20 Plan. Electric vehicles offer tremendous
21 promise to help improve the environment by
22 reducing greenhouse gas emissions and
23 other air pollutants.

24 One non-profit trade and research
25 group estimated that every electrically

1 fueled mile driven in New Jersey is at
2 least 70 percent cleaner than an average
3 mile that is fueled by gasoline. The
4 increased electric vehicle adoption
5 resulting from this program would remove
6 approximately 16 million net tons of CO2
7 emissions through 2035. The emissions
8 savings are equivalent to removing up to
9 65,000 cars from New Jersey roads for one
10 year.

11 Our filing also contains an
12 electric school bus component through
13 which the company proposes to provide
14 grants to public school districts to cover
15 the cost of purchasing electric school
16 buses as well as deployment of the
17 make-ready charging infrastructure and
18 financial incentives towards charging
19 equipment. We proposed a grant up to
20 \$300,000 per bus for up to 102 electric
21 buses. The company will target school
22 districts across the socioeconomic
23 spectrum to participate in this
24 initiative, particularly urban districts
25 to ensure the benefits of this program

1 extend to low-income school children.
2 Recipient school districts could then take
3 the money otherwise allocated for buses
4 and reinvest it where it is needed most,
5 educating children.

6 By promoting the electrification
7 of medium- and heavy-duty vehicles
8 including school buses, PSE&G will help to
9 improve air quality by reducing diesel
10 emissions in New Jersey. Diesel exhaust
11 exposure is linked to numerous serious
12 negative health effects, including asthma,
13 respiratory problems, lung cancer and
14 premature mortality.

15 The United States EPA believes
16 that diesel exhaust is among the
17 substances that pose the greatest health
18 to humans. In New Jersey, where 96
19 percent of the diesel particulate matter
20 in outdoor air comes from mobile sources,
21 such as passenger vehicles, trucks, buses
22 and heavy equipment, electrification
23 solutions can help to address the
24 worrisome risk from diesel emissions.

25 This is an environmental justice

1 issue as the state's urban areas, their
2 residents and their children bear the
3 brunt of these harmful emissions. The
4 electrification of our state's vehicles is
5 crucial to solving this problem.

6 PSEG applauds the administration
7 and the BPU for addressing these crucial
8 issues in the new Energy Master Plan and
9 through other actions such as the new
10 Clean Energy law. PSEG is ready to assist
11 the state in meeting its goals and
12 partnering further with the city and
13 county of Camden as well as surrounding
14 neighborhoods to further environmental
15 justice and to improve the quality of life
16 for all resident of the state.

17 Thank you for the opportunity to
18 appear today and to provide these
19 comments.

20 MS. SARAH BLUHM GIBSON: Jocelyn
21 Sawyer?

22 (No response.)

23 Lyle Rawlings -- oh, you're deck.
24 Lyle Rawlings is not here.

25 MS. JOCELYN SAWYER: Yes. Hello

1 my name is Jocelyn Sawyer. I am with Food
2 and Water Watch New Jersey. I'm also here
3 representing the Gloucester County Food
4 and Water Watch group, a local group of
5 folks, who unfortunately weren't able to
6 make it to the meeting. But I'm
7 delivering some statements on behalf of
8 that group as well. Thank you for the
9 opportunity to speak and also for
10 scheduling these additional meetings,
11 having a chance for residents of South
12 Jersey to come forward.

13 The goal of setting New Jersey on
14 a path to 100 percent clean energy is
15 absolutely a step that we applaud, and we
16 urge you actually to accelerate the goal
17 to 100 percent clean energy by 2035
18 because that is what, according to climate
19 signs is absolutely necessary in order to
20 avert the worst impacts of climate change.

21 The report by the
22 intergovernmental panel of climate change
23 that just came out this week outlines that
24 unfortunately if we are waiting until 2050
25 to be really achieving these goals, we

1 risk a 2 or even 3 degree celsius of
2 global warming above pre-industrial
3 temperatures, which would be just the
4 cost -- the social costs, economic costs,
5 public health costs would be unimaginable,
6 and we can't risk that.

7 New Jersey can be a leader in
8 energy, and we have the opportunity, the
9 great steps we're making here, and with
10 the new plan, to true put us on the path
11 to clean energy.

12 And so we urge you to include in
13 this plan a moratorium on new fossil fuel
14 infrastructure in order to put us on the
15 path to clean energy as fast as we can.
16 We can't be continuing to build out
17 pipelines, increasing our reliance on
18 natural gas that does contribute to
19 climate change, and instead to stay
20 focused on these goals. So that's the
21 main message that I wanted to deliver
22 here.

23 I also, as we are in Camden,
24 wanted to add to urge you to consider
25 energy sources that truly are clean, that

1 don't leave communities such as Camden and
2 other low-income and primarily
3 people-of-color communities with the
4 burdens, the public health burdens, that
5 the energy sources aren't truly clean
6 cause.

7 And so we call for clean energy
8 from wind, from solar, and not continuing
9 to rely on biogas and on burning methane
10 that -- excuse me -- that leaves
11 communities with these public health
12 burdens.

13 And so thank you again for the
14 chance to speak and for being here.

15 MS. SARAH BLUHM GIBSON: Lyle
16 Rawlings?

17 (No response.)

18 Matt Polsky?

19 (No response.)

20 Taylor McFarland?

21 (No response.)

22 Brian Lestini?

23 MR. BRIAN LESTINI: Good
24 afternoon. My name is Brian Lestini. I'm
25 from Moorestown, New Jersey. Those from

1 North Jersey, that's Moorestown, not
2 Morristown. First, I'd like to sincerely
3 thank the Board of Public Utilities,
4 Commissioner Solomon and the other
5 commissioners, for holding this important
6 series of hearings on updates to the
7 Energy Master Plan, which, as you noted
8 earlier, is targeted to really set the
9 vision for Governor Murphy's goal of 100
10 percent clean energy by 2050.

11 In particular I want to thank the
12 Board for increasing the number of these
13 hearings and extending them to us in South
14 Jersey. And mainly I'd like to thank and
15 commend the Board for the energized and
16 spirited enthusiasm with which it is
17 embracing its responsibility and its
18 pivotal role in making New Jersey a leader
19 in transitioning to a clean energy climate
20 and leading the way to ensure that New
21 Jersey is doing our part to combat the
22 growing crisis of climate change. I'd
23 also like to thank Governor Murphy, first
24 Lady Murphy, and staff for providing the
25 vision that we desperately need to achieve

1 these same goals.

2 I'm a taxpayer, a doctor, a
3 scientist, and a father of two small
4 children. I've dedicated my life to
5 serving the public health. I'm an active
6 volunteer with a number of groups,
7 including I'm a lay leader of the St.
8 Matthew Lutheran Church here in
9 Moorestown. Today I'm providing testimony
10 on my own behalf as a private citizen.

11 I believe that in New Jersey we
12 are faced with a moral, ethical, and
13 economic imperative to swiftly and justly
14 transition off of fossil fuel dependence.
15 The current revisions to the Energy Master
16 Plan will be historic and setting us on
17 the right path to achieve such a
18 transition, and as such it's vital that
19 you, and by extension all of us, get these
20 revisions right.

21 I'd like to focus my comments on
22 three particular points: Number one,
23 clean energy should be defined as class 1
24 renewable sources and should not include
25 natural gas. As a fossil fuel with

1 greenhouse gas potency, approximately 30
2 times the carbon dioxide natural gas
3 clearly does not meet our immediate need
4 to dramatically reduce emissions
5 contributing to climate change.

6 With the issuance of the
7 intergovernmental panel on climate change
8 report this week, it's clear that
9 utilization of natural gas, even as a
10 transitional fuel, is incompatible with
11 our ability to stave off the worst effects
12 of climate change within the next 20
13 years, effects that will have severe
14 impacts on my children's generation and
15 beyond.

16 Additionally, the admitted
17 pollution from natural gas infrastructure,
18 such as compressor stations and gas-fired
19 plants raise an immediate public health
20 threat for our communities, in particular
21 vulnerable populations, such as the
22 elderly and children, who suffer from
23 dramatically increased rates of
24 pollution-related conditions, such as
25 asthma and other respiratory diseases.

1 The real potential for
2 contamination and explosions from
3 transmission pipelines threatens the
4 safety of life and property, the drinking
5 water supplied for millions of New
6 Jerseyans, including that of myself and my
7 family, and our most fragile and complex
8 eco systems.

9 Importantly, the EMP should take
10 steps to ensure that retiring nuclear
11 plants are not converted to gas-fired
12 plants, but rather are replaced by sources
13 of class 1 renewables. Furthermore, the
14 EMP should identify regulatory changes
15 that will prohibit approval of projects
16 such as increased natural gas
17 infrastructure that run counter to the
18 goals set forth in the Global Warming
19 Response Act.

20 New Jersey has already enacted
21 landmark legislation requiring 50 percent
22 renewable energy by 2030, and the EMP
23 should put us on the path to 100 percent
24 renewable energy by, at the latest, 2050.

25 Two, the EMP to provide clear

1 provisions to enable rapid and complete
2 electrification of our automobile ports
3 and public transportation sectors.

4 Rigorous clean car standards that reduce
5 emissions are vitally important, and New
6 Jersey must remain a leader in resisting
7 federal rollbacks of such standards.

8 However, in order to meet our
9 goals, as defined in the Global Warming
10 Response Act, we must go beyond merely
11 reducing emissions and convert to
12 transportation electrification that is
13 powered by class 1 renewable energy as
14 quickly as possible.

15 We should be working toward a goal
16 of at least 330,000 electric vehicles on
17 the road by 2023. In conjunction with the
18 legislature and governor the EMP should
19 help ensure that the price of electric
20 vehicle is within reach of all consumers,
21 including those of low- to moderate-income
22 incomes and enable appropriate and
23 educational campaigns and monetary
24 incentives to drive uptake.

25 The EMP must provide a means to

1 increase investment in a robust healthy
2 charging infrastructure, including
3 accessibility for both rural areas and
4 environmental justice communities, ports,
5 municipalities, the New Jersey Transit
6 system, and other entities such as school
7 districts to be incentivized to pursue
8 clean electrification through monetary
9 incentives such as grant programs as well
10 as educational campaigns.

11 Three, the EMP should empower
12 cooperation between the state private
13 entities and municipalities to most
14 effectively implement clean energy
15 planning, provide a rigorous road map for
16 growing our clean energy workforce,
17 embrace technological innovation as an
18 economic driver, and ensure all
19 communities have the opportunity to
20 benefit from the resulting economic
21 growth.

22 Success, particularly in South
23 Jersey, will be critically reliant on
24 affording strong relationships with
25 municipalities and private entities to

1 ensure sharing a voice in planning,
2 zoning, and decision-making.

3 Policies should encourage
4 municipalities to embrace clean energy
5 development, including educational
6 campaigns and effective aggregated
7 renewable power purchase agreement
8 systems, monetary incentives such as grant
9 programs, and reductions in bureaucratic
10 processes.

11 Workforce development, skills
12 retraining, and incentivizing investment
13 will be critical including deliberate
14 incentives to invest in workers and
15 capital projects in disproportionately
16 impacted communities.

17 The EMP should encourage that
18 clean energy become a key pillar in
19 Governor Murphy's innovation economy,
20 leveraging New Jersey's world class
21 academic centers, private institutions,
22 and technological corporations to develop
23 and manufacture the enabling technologies
24 that will be required to support the
25 upcoming exponential growth in global

1 nation and international clean energy
2 sectors.

3 These technologies will span the
4 range from energy efficiency to smart
5 infrastructure to energy storage and even
6 possibly carbon capture. New Jersey is
7 poised to take a leadership role in
8 spurring such innovation, and the EMP must
9 ensure we capitalize on that growth
10 opportunity.

11 It's beyond a doubt that the vast
12 preponderance of scientific evidence
13 codified in the IPCC report this week
14 indicates that anthropogenic climate
15 change is the key defining risk of our
16 generation.

17 The report generated by 91 authors
18 and review editors from over 40 countries,
19 including over 6,000 references clearly
20 demonstrates that already we have
21 increased global temperatures by
22 approximately 1 degree celsius above
23 pre-industrial levels, the effects of
24 which are already being seen. The report
25 further indicates we are on track to see

1 mean temperatures exceed 1.5 degrees with
2 extreme effects being anticipated by as
3 early as 2040, well within our lifetimes.

4 As a father and physician, I am
5 dismayed to think that the unprecedented
6 impacts on the public health and the
7 billions of dollars in economic damage
8 that this reality will have on my
9 children's generation and beyond.

10 However, I am also hopeful as the
11 solutions to these problems are at hand
12 and with the actions being taken by
13 Governor Murphy and this work through the
14 EMP can become an alternate reality.

15 I again thank the Board and urge
16 you to continue New Jersey on a path
17 toward leadership by implementing a
18 rigorous definition of clean and renewable
19 energy, enabling rapid and complete
20 electrification of the transportation
21 sector and capitalizing on the profound
22 opportunities of a swift and just
23 transition to a clean energy economy.

24 This EMP revision represents our best
25 opportunity to get it right, and we are

1 counting on you. Thank you very much.

2 MS. SARAH BLUHM GIBSON: Thank
3 you.

4 George Hay?

5 MR. GEORGE HAY: I'll be
6 submitting written comments later, so this
7 is a bit off the top of my head. But I'm
8 a retired former California electric
9 resource planner with Pacific class in
10 electric there.

11 In more recent years I've been
12 looking at community energy integrated
13 systems, kind of applying what utilities
14 used to do with the grid regional level
15 down to more the community level, and have
16 been looking at the city of Ocean City in
17 that regards at one point, and the
18 specific issue of how offshore winds, say,
19 would match up with local community power

20 And I'd like to second the comment
21 about natural gas makes a great fuel for a
22 peaking unit that might back up wind,
23 those sorts of things. But right now the
24 trend in New Jersey is replacing the old
25 fossil peaking standby units that hardly

1 operate with combined cycles that want to
2 operate base load, and it doesn't really
3 make a whole lot of sense.

4 But one of the systems integration
5 issues that I bring up a lot is that if
6 3,000 megawatts of offshore wind is built,
7 that's going to need transmission capacity
8 to get it to market, it's going to need
9 back-up capacity load following. It's a
10 systems engineering overall design issue
11 of a regional machine, if you will.

12 And if they build pipelines to
13 Beesley's Point and to Oyster Creek and
14 put several-thousand megawatts of base
15 load gas-fired capacity at those points,
16 it's going to make bringing the offshore
17 wind more expensive and there will be a
18 competition for those wires, around 2,000
19 in California.

20 That issue occurred when there was
21 a rapid run of new gas-fired plants that
22 went, and later when they began looking at
23 building regional wind farms, it became a
24 real issue of competition for those
25 transmission lines.

1 So it's -- I really do think if
2 the goal is ultimately to build 100
3 percent renewables by 2050, that really
4 needs to be looked at closely, technically
5 at the systems engineering integration
6 level of how do all these different
7 central and distributed transmission and
8 distribution and demand site management,
9 energy efficiency, electric vehicles,
10 distributed solar, cogeneration things at
11 one end, customer choice aggregation.

12 You know, what is the customer of
13 the future going to look at that's being
14 served and how does that marry up with the
15 local distribution companies, the PJM, and
16 all the central station power producers at
17 that 2050 date?

18 When you really get -- I'm really
19 more of a research background than
20 planning, but, I mean, consistent with 100
21 percent renewables I'm not a particular
22 fan of nuclear, but the hydrogen economy
23 used to be based on nuclear generating the
24 hydrogen, or you can go with wind with its
25 intermittency, and that can be a

1 re-powering of the gas pipeline systems.

2 A lot of technical challenges to
3 it, but you now have a gas that isn't a
4 carbon source that can be distributed
5 locally as an alternative to pure
6 electrification of everything on the grid.

7 But I just -- I really hope
8 there's an effort to look technically at
9 what the system will look like in 2050 and
10 making sure all of these different pieces
11 tie together in ways that make sense as
12 opposed to being designed by political
13 committees, where each special interest
14 sort of advocates their special piece of
15 the system, but is it going to end up with
16 a car that doesn't work because all the
17 pieces weren't put together right because
18 there was never any central design for the
19 car?

20 I'll try to get my comments down
21 on paper. This was sort of a last-second
22 thought. But I am retired. I just really
23 love the Energy Master Plan concept of
24 trying to look strategically out in the
25 future and trying to figure out how to

1 make it work.

2 I do think there's perhaps a
3 missing research component to this of
4 forums to have technical economic
5 discussions about the future, maybe aside
6 from the winners and losers, but more of a
7 what makes technical sense and what are
8 issues that need to be researched in the
9 systems engineering level.

10 You know, but the vision I tend to
11 think that if it was a hypothesis that
12 needed to be tested is the regional
13 offshore wind-type farms with some type of
14 regional energy storage capacity, be it
15 micro gender, pumped hydro or whatever,
16 the interconnected PJM grid, and then
17 local microgrid systems around
18 communities. And it really is a reverse
19 of how the electric industry was created
20 in the first place.

21 In the early days it was all
22 community energies' systems. Vineland's
23 the only one really left in New Jersey of
24 a municipal electric grid. But Atlantic
25 Electric was the integrate of those,

1 Philadelphia Electric, Baltimore Electric,
2 they ultimately topped out geographically.

3 In California all of them were
4 aggregated because we ended up with --
5 Pacific Gas and Electric was all of
6 Northern California as a 30,000 megawatt
7 system because it grew up later in time;
8 it wasn't as geographically restrained.
9 But what is it going to look like in the
10 future, what are those community energy
11 systems going to look like technically and
12 how will they interface with the grid.

13 Thank you for the opportunity to
14 share.

15 MS. SARAH BLUHM GIBSON: Thank
16 you.

17 Larry Furman?

18 (No response.)

19 Jonathan Cloud?

20 (No response.)

21 Lauren Boles?

22 MS. LAUREN BOLES: Good evening.

23 My name is Lauren Boles. I'm a state
24 director for the New Jersey Environmental
25 Justice Alliance. The alliance is

1 comprised of organizations and individuals
2 whose mission is to address and remove
3 disproportionate impacts, disproportionate
4 environmental impacts, in order to create
5 just and sustainable communities. We're
6 the only statewide organization that
7 focuses on environmental justice and whose
8 leadership and membership are
9 predominantly people of color.

10 We wholeheartedly appreciate you
11 adding these sessions for us to be able to
12 comment on the Energy Master Plan, and so
13 I appreciate this opportunity in order to
14 strongly support the integration and
15 prioritization of environmental justice
16 goals in the Energy Master Plan in
17 accordance with Governor Murphy's
18 Executive Order 28 on environmental
19 justice

20 So this Energy Master Plan, if not
21 the first, it will certainly be a
22 significant test of that executive order
23 on environmental justice, to see whether
24 we can actually include environmental
25 justice goals in the plans that governor

1 Murphy sets out.

2 So one of those that we want to
3 make sure that we are ensuring is that
4 significant investments in environmental
5 justice communities are energy efficiency
6 and renewable energy programs with a
7 special care to remove any of the barriers
8 that currently exist for environmental
9 justice communities to access those energy
10 renewable programs.

11 We want to make sure that
12 mitigation and -- there is mitigation of
13 the disproportionate impacts, and so that
14 we are hoping that this Energy Master Plan
15 will address some of the legacy promotion
16 that exists from the current energy
17 infrastructure.

18 Essentially, we also want to make
19 sure that there are job opportunities
20 addressed through this Energy Master Plan.
21 Many of the communities that we work with
22 have been left out of the energy market,
23 and so we are hoping that this is an
24 opportunity for those communities to be
25 included in that -- in the clean energy

1 market.

2 And, finally, you know, we offer
3 the opportunity to meet with you, discuss
4 environmental justice goals further, and
5 we certainly will submit comments by
6 Friday, but we hope that you will take us
7 up on the opportunity and we will be able
8 to speak with you further. Thank you.

9 MS. SARAH BLUHM GIBSON: Thank
10 you.

11 MS. GRACE POWER: I just wanted to
12 take the opportunity -- we have four of
13 our five working group chairs. I was
14 hoping you could just introduce yourself
15 briefly.

16 MS. SARAH BLUHM GIBSON: Sara
17 Bluhm Gibson. I am chairing the Energy
18 Reduction working group.

19 MR. MIKE HORNSBY: I am
20 Mike Hornsby. I'm chairing the Clean and
21 Reliable Transportation group.

22 MR. MICHAEL WINKA: Mike Winka,
23 Building a Modern Grid, mostly on the
24 distribution side.

25 MR. KENNETH SHEEHAN: And Ken

1 Sheehan on Clean and Renewable Energy.

2 MS. GRACE POWER: Thank you.

3 MS. SARAH BLUHM GIBSON: Sarah
4 Newell?

5 MS. SARAH NEWELL: Good afternoon.

6 My name is Sarah Newell, and I am
7 representing Green Peace, an interfaith
8 environmental organization based here in
9 New Jersey. We are proud to be a member
10 of the New Jersey Renews Coalition.

11 For my remarks today, I propose to
12 share a summary of Green Peace comments
13 from the previous EMP's hearings. We
14 write to you as faith leaders in our
15 cities and our state. We are coming
16 together to express our support to those
17 responsible for developing the Energy
18 Master Plan in New Jersey. We welcome the
19 state's strategic vision and we are
20 expecting to see this plan put into action
21 for a flourishing future for the health of
22 those on our planet.

23 I would like to read a statement
24 from a petition signed by 20 faith leaders
25 from the greater Newark area at an

1 electric vehicle blessing event held in
2 Newark on May 31st. At this event we had
3 the opportunity to share comments from
4 many faith backgrounds. We also have
5 another faith event coming up on the 29th
6 in October held in Paterson for an
7 electric vehicle blessing.

8 We say that breath is life.
9 However, too many children in our
10 communities suffer from asthma and too
11 many adults and elders from respiratory
12 diseases related to air pollution.
13 Newark, for example, suffers from its
14 proximity to major highways and streets
15 crowded with cars and buses, thousands of
16 truck -- trips daily to the ports in
17 Newark and Elizabeth. As a result,
18 studies have shown that 1 in 4 children
19 suffer from asthma, far higher than state
20 average, and this is wrong.

21 Our cities need safe and stable
22 climate. Pollution from vehicles also
23 contributes to climate change, whose
24 effects on urban communities suffering
25 from dangerously high heat during the

1 summer months. Downpours overflow to
2 combine storm and sewer systems, and
3 flooding during severe storms such as
4 Superstorm Sandy that exposed our
5 neighborhoods to toxic flood waters and
6 ruined our homes, and this is wrong.

7 Across the state air pollution
8 from vehicles causes more than 4 billion
9 annually in medical and climate
10 change-related damage. The areas hardest
11 hit by this damage are those in our
12 cities. Electrified transportation for
13 our communities can help to create safer,
14 healthier communities, green jobs and
15 environmental justice for our state.

16 We call on our state leaders to
17 dramatically accelerate the installation
18 of electric vehicle infrastructure across
19 our state through measures such as those
20 in bills S-2252 and S-2382, prioritizing
21 and reducing air pollution, creating jobs
22 in our cities and other areas of the state
23 most heavily affected by air pollution.

24 We want to see developed
25 legislation and plans to electrify

1 carbon -- handling equipment at other
2 sources of air pollution at the ports,
3 Newark and Elizabeth. We want to ensure
4 that legislation to promote electric
5 transport includes a focus on electrifying
6 New Jersey Transit buses and diesel for
7 our construction equipment used in our
8 cities. We want to ensure that electric
9 vehicle legislation includes state rebates
10 and subsidies such as bill 2382 does, and
11 to ensure that New Jersey households have
12 access to electric vehicles. For our
13 cities the electrification of
14 transportation is a matter of life and
15 death.

16 To our political leaders and to
17 our business leader, too, we say choose
18 life. We want to support and endorse
19 Governor Murphy's Energy Master Plan and
20 encourage all of us to consider what it
21 would look like to enter into a strategic
22 vision of a future that we're building
23 here in New Jersey. This plan sets
24 forward a new way to use the raw materials
25 of the earth and infuse them together for

1 a more flourishing society.

2 This week the intragovernmental
3 panel on climate change released an
4 extensive report written by 91 scientists
5 from 40 countries who analyzed over 6,000
6 scientific studies. This research states
7 that if we fail to keep a temperature
8 below to 1.5 degrees, we are in for some
9 significant and dangerous changes in our
10 world.

11 This sobering report provided the
12 hard-hitting truth that we must pursue
13 actions, such as our EMP to see renewable
14 energy in this state. By entering into
15 the EMP we are showing that we stand for
16 the transition for clean energy, we stand
17 for the opportunity of green jobs in our
18 state, we stand for cleaner air in our
19 intercity communities, and for a brighter
20 future for our families. We must
21 galvanize upon more opportunities to
22 exemplify our state leadership as we move
23 forward with the Energy Master Plan.

24 Our earth is a divine gift. It is
25 one that continually nourishes and

1 replenishes the souls of those who breath
2 in its sacredness and splendor and its
3 power. Our actions on earth should always
4 point towards a better future for all. We
5 must act with urgency upon transitioning
6 to totally renewable energy in the State
7 of New Jersey.

8 Green faith, on behalf of faith
9 community across the state, stand firmly
10 in support of the current administration's
11 commitment to 3,500 megawatts of offshore
12 wind development. We support the re-entry
13 into the Regional Greenhouse Gas
14 Initiative that will lead to 30 percent of
15 the revenues the state receives from RGGI
16 and be committed to investments for
17 environmental justice communities.

18 We are calling on the state to
19 divest its pension funds from investments
20 in the fossil fuel industry. We strongly
21 oppose the involvement of any fossil fuel
22 infrastructure in the state. Such
23 infrastructure is wrong, and we want to
24 see what comes after renewable energy by
25 2050.

1 To end, our Energy Master Plan is
2 important. It paves the way for our
3 Garden State. It sees a better world we
4 are building for our children, our
5 families, and our communities. We want to
6 move into clean energy and sustainable
7 lifestyles for all because we want to
8 protect life on earth. This is a moment
9 that we will remember. This is the year
10 that the turning point happened in New
11 Jersey. Thank you.

12 MR. MICHAEL HORNSBY: Thank you.

13 MS. SARAH BLUHM GIBSON: Has Lyle
14 Rawlings, Matt Polsky, Taylor McFarland,
15 Larry Furman, or Jonathan Cloud arrived?

16 (No response.)

17 Then that's it for the speakers
18 that I have right now, unless there's
19 anybody else who was interested in
20 speaking.

21 (No response.)

22 MS. PATTY CRONHEIM: Good evening.
23 I'm -- or good afternoon. I'm Patty
24 Cronheim with Rethink Energy New Jersey.
25 And I just want to take this opportunity

1 to thank you for holding the Energy Master
2 Plan meetings -- or holding the two
3 additional stakeholder hearings and also
4 for the BPU's actions last week in
5 investigating safety on distribution
6 lines. We really appreciate that and hope
7 it will also extend to the larger
8 transmission lines and the impact of that
9 infrastructure on that. But mostly I just
10 wanted to say thank you for this, and we
11 look forward to working with you in the
12 future

13 MR. MICHAEL HORNSBY: Thanks.

14 MS. SARAH BLUHM GIBSON: I think
15 we're going to take a 15-minute break, and
16 if anybody else is interested in speaking,
17 just let us know. We'll reconvene in 15
18 minutes. Thank you.

19 (Off the record.)

20 MS. SARAH BLUHM GIBSON: All
21 right. Welcome back, everyone. We have a
22 new speaker who would like to address us
23 to anytime, Larry Furman.

24 MR. LARRY FURMAN: Hi. Thank you.
25 Thanks for extending this opportunity to

1 comment on the Master Plan. It is a
2 privilege to live in a state where the
3 ideas and opinions of people are sought by
4 the agents of this government of the
5 people, by the people, and for the people.

6 My name is Lawrence Furman. I
7 live in Manalapan. Back in 2012 when
8 Sandy hit, we were without power for eight
9 days. A friend of mine in the Highlands
10 lost her house. My daughter was at
11 Rutgers New Brunswick at the time, she
12 didn't lose power. We went up there to
13 charge our cell phones and get a hot cup
14 of coffee. And then we went to my dad's
15 house in Staten Island. He got power back
16 faster than we did. My friend Louise in
17 the Highlands couldn't go to her parents
18 because they live in the Highlands.

19 Now -- and this problem is as you
20 all -- and we all know, it's timely --
21 it's affecting people in Florida today.
22 It affected people in the Carolinas a few
23 weeks ago and it's probably going to
24 affect them again in a couple of hours.

25 So we have about 2500 public

1 schools K to 12 schools in the State of
2 New Jersey. Taxpayers pay the electric
3 bills and the infrastructure for those
4 schools. If we were to install a
5 50-kilowatt solar array on each of those
6 schools at a cost to the taxpayers of
7 about \$2.00 a watt, which is more than
8 utility price of solar these days, that
9 would be \$100,000 per school, 250 million
10 across the state. We would then have
11 power systems that don't burn fuel, don't
12 create waste, and do not rely -- do not
13 necessarily rely on the grid, so they can
14 be up when the grid is off.

15 Our public schools operate
16 primarily during daylight hours. So with
17 solar they'd have power when needed when
18 the weather is good. And if we were to
19 add 20 -- the equivalent of 20 Tesla power
20 wall batteries to each school, which would
21 cost around \$90,000 per school, then for
22 an investment of \$190,000 per school and
23 \$475 million across the state, we would
24 have schools with power day and night in
25 every community in New Jersey. And,

1 again, we would need to add a grid
2 disconnect circuit, which I'm guessing
3 would cost 250 to \$1,000 per school. So,
4 again, that's another 625,000 to 2-1/2
5 million, bringing the total to somewhere
6 around \$475 million to \$477, eight
7 million.

8 And with that we get -- where I
9 work now, SubCom, we have an emergency --
10 we have two emergency generators for our
11 New Jersey facility, they require diesel
12 fuel. They have contracts that specify
13 diesel fuel in the event of a regional
14 power failure, so they've offloaded or
15 outsourced the risk of not being able to
16 get fuel.

17 You can do that in a commercial
18 entity, but you can't -- what good is an
19 insurance payment to someone who needs
20 their medications refrigerated during an
21 emergency. So with this system we would
22 have emergency generation that is not
23 relying on anything other than the
24 sunlight before the storm to charge the
25 batteries and the sunlight after the storm

1 because you know after the storm when the
2 sun comes up and those solar modules start
3 kicking around electrons.

4 Now, this is \$477-and-a-half
5 million, but in settling for 225 million
6 the \$9.2 billion lawsuit Governor Christie
7 settled against Exxon, Governor Christie
8 essentially gave Exxon \$9 billion, and
9 this is \$5.31 for every dollar, I think.
10 And if we were to do this, the citizens of
11 New Jersey would derive benefits in
12 sustainable energy, sustainable
13 infrastructure, and emergency
14 preparedness. Thank you. That, if I may,
15 is part one. I have a part two.

16 Thank you again. New Jersey
17 Transit states that we have 1,001.8
18 directional route miles. I would hazard a
19 guess that that means 500 miles in one
20 direction and 500 miles in the other
21 direction, so if it's, you know, 500 miles
22 going north and east and another 500 miles
23 going south and west. Similarly the
24 turnpike is 122 miles long, the parkway is
25 172 miles long. Other divided highways

1 like Route 78, 80, 195 they probably add
2 another 100 to 150 miles.

3 So assuming we have -- assuming we
4 have 500 miles, and it may be a little
5 more and it may be a little less, but
6 let's assume we have 500 miles of railway
7 and another 400 miles for the parkway, the
8 turnpike, and other divided highways,
9 that's about 900 miles of right-of-way and
10 median linear miles across the state. If
11 we subtract 10 percent of that, we have
12 800 miles -- gotcha.

13 Solar modules are 6.4 feet by 3. 3
14 feet. We could easily mount 820 modules
15 along each of those 800 miles of railway
16 right-of-way and highway median. That
17 would give us 1640 to 3280 to 6560 modules
18 per linear mile of right-of-way or median.
19 And with 400-watt modules that's 328
20 kilowatts to 200 per linear mile or 262
21 megawatts along those 800 miles of
22 right-of-way or median. And a system 2
23 module stick would provide 525 megawatts
24 of capacity, which was about the main
25 plate capacity of Oyster Creek when it was

1 brought online 40 years ago. So I hope
2 you think about that. Thank you.

3 MR. MICHAEL HORNSBY: Thank you.

4 MS. GRACE POWER: We're sort of on
5 a break until anyone else joins us.

6 (Off the record.)

7 MS. GRACE POWER: We're going to
8 get restarted. Welcome.

9 MR. JONATHAN CLOUD: Oh, thank you
10 so much. We really appreciate you
11 sticking around for us.

12 MS. SARAH BLUHM GIBSON: Happy to
13 be here.

14 MR. JONATHAN CLOUD: My name is
15 Jonathan Cloud. I'm the executive
16 director of New Jersey PACE. Property
17 Assessed Clean Energy, or PACE, is the
18 innovative means of financing clean energy
19 and resiliency improvements in buildings.

20 We have submitted detailed
21 comments on PACE to the BPU presented in
22 earlier EMP sessions. The thing I want to
23 emphasize is the extraordinary value of
24 PACE for urban communities. New Jersey is
25 expecting legislation on PACE late this

1 year for commercial properties.

2 I'd like to list -- to first
3 summarize the key features of PACE for the
4 benefit of the public who may not be
5 familiar with it at all or understand the
6 opportunities that it offers their
7 community so that the audience understands
8 the potential for PACE to both transform
9 the energy use in a built-in environment
10 and to provide a sustainable growth engine
11 for the state and local economies.

12 PACE is a unique financing
13 mechanism that removes the barriers that
14 have stopped commercial property owners
15 from upgrading their buildings with energy
16 efficiency renewable energy and resiliency
17 measures. PACE saves commercial property
18 owners money on energy as soon as they
19 make the improvements, provides 100
20 percent of the hard and soft costs with no
21 upfront costs.

22 PACE allows you to pay for the
23 retrofits or new construction, the
24 upgrades beyond code over the use for life
25 of the improvements. Projects are

1 typically cash flow positive right from
2 the start as they are designed to have the
3 energy savings more than cover the annual
4 cost.

5 The result is more valuable and
6 more comfortable buildings that are more
7 competitive to rent or lease that save
8 energy and often water, and they
9 contribute to local jobs and economic
10 development. With commercial PACE it
11 becomes possible to really renew and
12 revitalize many downtown areas, suburban
13 office parks, strip malls, and other
14 frequently neglected areas. And community
15 and economic development groups should
16 jump on this opportunity to create local
17 jobs, get local vendors involved and get
18 the word out to property owners.

19 Commercial, by the way, means not
20 just office and retail, but also
21 industrial, agricultural, institutional
22 properties like schools, churches, and
23 hospitals and also multi-family
24 properties. If many or most eligible
25 properties were to implement PACE

1 projects, then this can have a significant
2 impact on the economy and on the
3 sustainability of our cities and towns.

4 First thing to notice about PACE
5 is that this financing is not tied to the
6 property owner, but rather to the
7 underlying property so it is automatically
8 transferred to the new owner if the
9 property is sold. This means that the
10 credit worthiness of the current owner is
11 less important than the asset value of the
12 property, which is the key factor in what
13 can be invested

14 It also means that the property
15 owner doesn't have to worry about whether
16 or not they might want to sell the
17 property before the improvements are fully
18 paid for because they are only paying for
19 the period they are actually using or
20 owning the property.

21 Basically then PACE financing
22 overcomes some of the major considerations
23 that may be preventing property owners
24 from making the kinds of improvements that
25 make long-term economic and environmental

1 sense. This is the goal of PACE
2 legislation because it's not just a
3 benefit to the private property owner,
4 it's also in the public interest to have
5 everyone make these improvements.

6 And PACE doesn't cost the
7 taxpayers or ratepayers of the state any
8 money. All of the costs of the
9 improvements are ultimately paid for by
10 the property owner who is benefitting from
11 energy savings, increased net operating
12 income, and a more valuable building.

13 Now, some kind of pays legislature
14 is now available in a majority of U.S.
15 states since its invention in California
16 in 2008. Most recently both Pennsylvania
17 and Delaware passed PACE bills and their
18 respective governor signed them into law,
19 bringing the number to 36 states plus the
20 District of Colombia.

21 New Jersey got PACE legislation in
22 2011, but unfortunately the existing
23 statute is missing key elements that would
24 allow its implementation in the Garden
25 State. We have been working with the

1 legislature for several years to draft
2 amending legislature which we hope to see
3 signed into law later this year.

4 Residential PACE is likely to come
5 along later. For various reasons
6 residential PACE is more complicated. As
7 I noted above, PACE allows properties
8 owners to make energy and resiliency
9 improvements with 100 percent long-term
10 financing with private sector lenders.
11 This financing is secured by a voluntary
12 special assessment collected by the
13 municipality. Special assessments are
14 widely used in New Jersey to finance
15 improvements such as sidewalks, sewers,
16 and libraries, just to mention a few

17 The key difference here is that
18 PACE is voluntary and is tailored to the
19 need of each individual commercial
20 property to make major improvements that
21 can pay off over terms of as much as 30
22 years.

23 Because PACE payments are attached
24 to the property itself and are not loans
25 to the property owner, they're considered

1 off balance sheet. This is important for
2 organizations that would otherwise have to
3 choose in their capital budgets between
4 investing in their business and making
5 improvements to their buildings.

6 Our brief to the EMP lays out the
7 future benefits for potential to PACE in
8 New Jersey and suggests that over the next
9 several years it can play an important
10 role in the transition to 100 percent
11 clean energy. PACE has the potential to
12 literally re-make and transform the built
13 environment around us. Major energy
14 efficiency retrofits can make our
15 buildings both more efficient and more
16 comfortable year round, saving money and
17 cutting carbon emissions.

18 It's estimated that 50 percent of
19 all the energy produced in the U.S. is
20 wasted. PACE energy efficiency projects
21 typically cut building usage by 30 percent
22 or more.

23 Most projects are cash flow from
24 the get-go. Fiscally (inaudible) property
25 owners will typically demand that their

1 ongoing savings always exceed their
2 ongoing costs. The good news is that with
3 PACE the property owners reap the
4 immediate ongoing cost savings by using
5 someone else's money. Meanwhile, the
6 investor is receiving an attractive rate
7 of return on investment that is highly
8 secure, being repaid through the town's
9 property tax collection mechanism.

10 There are very strong market
11 incentives, therefore, to the deployment
12 utilization of private capital that are
13 enabled by state PACE legislation that
14 allows municipalities to exercise a
15 government power at literally no cost to
16 the public to secure the improvement
17 models.

18 The estimated potential for
19 investing in existing buildings alone
20 exceeds \$130 billion in the state based on
21 an informal market assessment by New
22 Jersey PACE. One of the fastest new
23 applications for PACE is a new
24 construction, where the green elements in
25 the project may represent up to 30 percent

1 of the costs, thereby reducing the
2 requirements for equity or more costly
3 mezzanine financing.

4 PACE is expected to become a
5 standard component of a real estate
6 developer's capital stock. Consequently
7 PACE may prove to have as great an impact
8 on building performance as the historical
9 deployment of incentive through the New
10 Jersey Clean Energy program. PACE does
11 not compete with any of these incentives,
12 but rather provides a capital -- a
13 complimentary mechanism to facilitate the
14 uptake of both programs. Financing
15 whatever is not covered by subsidies or
16 other incentives simply removes another
17 barrier to property owner acceptance.

18 The benefits of PACE to the public
19 include carbon reduction, including the
20 building stock of the community and
21 economic development. For every
22 \$1 million of investment in pays
23 improvements 15 jobs are created.

24 PACE is voluntary for both the
25 municipality and the property owner.

1 There's no expense to taxpayers and
2 ratepayers. PACE of one of the few ways
3 of reliably financing energy efficiency
4 improvements over the useful life of these
5 improvements in a way that benefits
6 everyone involved in the process.

7 As noted, we are providing a full
8 set of comments to the EMP and happy to
9 provide comments and respond to any
10 questions. Thank you.

11 MS. SARAH BLUHM GIBSON: Thank
12 you.

13 MR. JONATHAN CLOUD: Any
14 questions?

15 MS. SARAH BLUHM GIBSON: No.

16 MR. JONATHAN CLOUD: No? Okay.
17 Thank you.

18 MR. MATTHEW POLSKY: I'm Matt
19 Polsky. I have no particular formal
20 affiliation today other than I'm a
21 long-time sustainability change agent in
22 state and local government, business
23 academia, environmental groups, and as a
24 citizen. I'm coming a long way today from
25 Warren County. I'm glad you decided to

1 wait for us. Can I ask who you guys are?
2 I've known you for years, but...

3 MS. GRACE POWER: I'm Grace Power.
4 I'm the chief of staff of the BPU and the
5 chair of the Energy Master Plan committee.

6 MS. SARAH BLUHM GIBSON: I'm Sarah
7 Bluhm Gibson, and I'm the chair of the
8 Reducing Energy consumption board.

9 MR. MATTHEW POLSKY: Back on
10 track. I need to ask one more question,
11 how much time do I have?

12 MR. MICHAEL HORNSBY: Ten minutes.
13 I'll flag you at 3, 2, 1.

14 MR. MATTHEW POLSKY: Okay.
15 Because I've got so much to say, I've got
16 40 years of observations to say, so
17 obviously I'm only going to get to a
18 portion and I understand you want the
19 comments by the end of the week?

20 MR. MICHAEL HORNSBY: Friday at
21 5:00.

22 MR. MATTHEW POLSKY: All right.
23 Let me get back to this. I will be
24 discussing climate change, a clear theme
25 within the state of direction of the EMP.

1 I will, though, be going way beyond just
2 its presence there to speak to you and
3 your audience, as slim as it might be
4 today, about this subject offering both
5 the cutting edge and the mundane. After
6 40 years this will likely be the last time
7 I speak at a public forum or to a state
8 body about a New Jersey issue.

9 You may have heard of the release
10 of the latest IPCC report earlier this
11 week. That report called Global Warning
12 1.5 Degree Celsius found that some of the
13 intense damage of droughts, floods,
14 everything that goes with that,
15 anticipated to occur at 2 degrees celsius
16 at pre-industrial levels will occur at
17 this lower concentration and earlier by
18 2040.

19 It mentions the term
20 transformation, saying avoiding the damage
21 will require transforming the world's
22 economy at a speed and scale that no one
23 documented -- that has no documented
24 historic precedent and requires
25 transforming the world economy within just

1 a few years. It's a very tall order.

2 I'll mention this term in my -- a
3 little bit later, but mostly I'll focus on
4 it in my written comments to you later.
5 But a major implication is that we're
6 going to have to extend our reach, the
7 required speed of getting there and
8 fundamentally question assumptions about
9 business as usual change, which usually
10 means seeking much smaller incremental
11 levels of change. We have to think very
12 differently about things if we're going to
13 have a chance.

14 The reports says levels of
15 greenhouse gas emissions would have to
16 drop to zero by 2050, which sounds like a
17 very close cousin to New Jersey's 100
18 percent renewable energy goal. While
19 affordability is always rightfully a big
20 concern in energy policy, the report
21 discusses magnitudes of carbon taxes that
22 are much higher than anyone has ever
23 conceived as one way to reach that goal.

24 So we may have to think what
25 affordability means, including weighing it

1 against damage to GNP and coming up with
2 more ways to mitigate and offset the pain
3 they would bring. It should also put any
4 criticism about the size of solar or wind
5 subsidies in perspective.

6 I have the unique experience of
7 having been involved with climate change
8 in New Jersey for 40, years, including 12
9 at DEP at the end of the Kean
10 administration, to the early McGreevey
11 administration. I was one of two staffers
12 trying from the inside to get the
13 department interested before almost anyone
14 in environmental circles cared about the
15 issue.

16 And once the DEP started some
17 non-ambitious initiatives, but weren't bad
18 for the time, I tried to get them to
19 stretch to do more. Those years provided
20 another set of experiences that need to be
21 passed on, especially as I see the decades
22 passing. I tend to say things that no one
23 else does, and I will be doing some of
24 that now. I will be publishing the first
25 of a series on climate change in New

1 Jersey later this week under the theme
2 what is being missed. I've been phasing
3 out of New Jersey things in order to study
4 sustainability transformation, which was
5 mentioned in the CBC report at the global
6 level for a Ph.D. So that series will
7 also be my final written contribution to
8 New Jersey.

9 Switching gears, I think it is
10 great that New Jersey is finally taking
11 climate change seriously, so I have to say
12 thank you for that. The Murphy
13 administration has several policy
14 initiatives on or directly related to it
15 including some with typically ambitious
16 goals. You, of all people, certainly know
17 this, so there's no reason to mention
18 them. And it is refreshing.

19 However, we must go much further.
20 What isn't being noticed at the several
21 climate change forums that I've gone to
22 over the years and even recently, that
23 while important information is always
24 presented, both the analyses, the
25 recommendations, and even the

1 perspectives, are invariably incomplete.
2 They tend to emphasize advocacy and
3 activism on things like voter
4 registration, protesting pipe lines,
5 supporting certain bills in the
6 legislature, advocating certain actions
7 universities can take, like this
8 investment for fossil fuel, they identify
9 bad-guy companies.

10 Now, certainly these are all
11 important, but they do not mention the
12 companies that have stepped up to support
13 staying in the Paris agreement, which can
14 set larger possibilities that we're
15 missing totally. They do not usually
16 offer any creative ideas, which students
17 of all people, really need to hear. They
18 do not say that it will be anything but
19 easy to tackle climate change, or that the
20 usually narrow paths provided will be far
21 from sufficient. Indeed, addressing
22 climate change will likely be the
23 challenge of this student generation, and
24 they need to be told this.

25 These conferences also reveal

1 mindset traps, mindset traps, that inhibit
2 transformational change such as we can do
3 either litigation or resiliency,
4 apparently not both. Now, this one has
5 gotten better in recent years, as we now
6 seem to realize we have to do both.
7 They're not mutually exclusive.

8 But another one that continues is
9 that there is no purpose or recognition of
10 a need to talk to conservatives, or Trump
11 voters, about addressing climate change.
12 I recognize this is very controversial,
13 and many people -- many people disagree
14 with me on this. But they are part of the
15 picture and they're again ignored or seen
16 as unchangeable deniers. So even though
17 we are saying that we need huge carbon
18 emissions overall, somehow we'll work
19 around the need for behavioral changes
20 from them as well to reduce carbon
21 emissions. We cannot afford to give them
22 a by, we have to figure it out.

23 Also, at these conferences no one
24 is saying the very blunt we don't know how
25 to get to 80 to 100 percent carbon

1 reductions. How are we going to figure it
2 out if we don't recognize the challenge.

3 Also no one is recognizing that
4 climate change as far as academics are a
5 wicked problem. According to Wikipedia a
6 wicked problem is a problem that is
7 difficult or impossible to solve because
8 of incomplete contradictory and changing
9 requirements that are often difficult to
10 recognize. The wicked part doesn't mean
11 it's evil, it means it is resistant to
12 revolution.

13 Some of the -- well, I'll mention
14 one. One of the wicked problems'
15 properties are that time is running out,
16 actually making it what's called a super
17 wicked problem, so we have to act quick.

18 Another reason -- okay. I'll give
19 you a second one, that climate change
20 qualifies as a wicked problem is because
21 it requires a great number of people to
22 change their mindsets and behaviors, it
23 requires tending to our longer-term
24 interest, which is not our strength. So
25 humility will be necessary and preferable

1 if the need for it is at least modeled at
2 conferences and elsewhere.

3 We're going to need more
4 comprehensiveness at least in part because
5 not all current policies, as good as they
6 seem, are going to work as planned. We're
7 going to need much more creativity and
8 innovation and awareness of when
9 conditions are naturally conducive.

10 We're going to need
11 intergenerational determination and to be
12 constant learners. This applies no matter
13 what sector we are in. Not something
14 we've ever been asked to do before. We'll
15 have to figure that one out, too. We just
16 can not leave audiences with the
17 impression that the materials covered in
18 any particular conference or event are
19 sufficient, most likely no one conference
20 ever could be by itself.

21 Okay. So here I have about 24
22 recommendations, and I'm out of time, so
23 let me give you one or two before I run
24 out of time. All right. Set an explicit
25 goal of zero emissions, greenhouse gas

1 emissions, by 2050 or soon afterwards.
2 Another recommendation, seek a green
3 economy on steroids. While the concept of
4 clean or green jobs is often heard at
5 these forums with their obvious benefits
6 for both the environment and the economy,
7 it is possible to take this much further
8 over time, nearly economy-wide. It can go
9 beyond solar, wind, efficiency, to nearly
10 every sector and involving most New Jersey
11 companies. This has never been done and
12 the topic of a much-extended green economy
13 almost never comes up and it is another
14 missed opportunity that we should jump on.

15 A report was issued by my class
16 earlier this year that covers much of the
17 ground for how this might be done in New
18 Jersey. One minute. Okay. No time to
19 discuss it here, but it does cover climate
20 change in part by encouraging New Jersey
21 companies to buy clean power and adopt
22 zero emission goals, which isn't as crazy
23 as it sounds, because it is already
24 starting to happen.

25 As I mentioned, a number of

1 companies have accepted the Paris
2 agreement. This report also covers a
3 number of topics rarely discussed in New
4 Jersey such as E-corps, social
5 entrepreneurship, quite a bit on the
6 potential of corporate social
7 responsibilities and the triple bottom
8 line, green design, regeneration,
9 ecosystem services, the circular economy.

10 It discusses a philosophy,
11 ecological modernization, which brings
12 together the economy and the environment
13 productively, totally different from the
14 adversarial nature of how the federal
15 government sees them.

16 I've sent this report to high
17 levels in state government, including the
18 president of the BPU and one of the other
19 commissioners, but to date I have not seen
20 an official response, which it should
21 still be considered within state
22 government and elsewhere. I have a few
23 copies of it with me today.

24 I think I'm probably out of time,
25 so let me --

1 MR. MICHAEL HORNSBY: Yes.

2 MR. MATTHEW POLSKY: So let me end
3 by saying thank you for the floor, for
4 hanging around for us because we did not
5 want to waste our trip. I hope you found
6 my remarks useful. Good luck with the
7 task.

8 I've always maintained the respect
9 for state government employees. I fought
10 for you guys when I was there, and I hope
11 there are pockets of quiet or not so quite
12 change agents within BPU and that you
13 recruit more of them. Thank you.

14 MR. MICHAEL HORNSBY: Thank you.

15 MS. SARAH BLUHM GIBSON: And feel
16 free to submit your 24 recommendations,
17 too.

18 MR. MATTHEW POLSKY: Excuse me?

19 MS. SARAH BLUHM GIBSON: Feel free
20 to submit your 24 recommendations.

21 MR. MATTHEW POLSKY: Okay. Feel
22 free to read them.

23 MS. SARAH BLUHM GIBSON: I think
24 we're back on a break.

25 (Off the record.)

1 MS. SARAH BLUHM GIBSON: If you
2 could let us know your name.

3 MR. ROBERT DeDOMENICO: My name is
4 Robert DeDomenico with Cargo Fish.

5 MS. GRACE POWER: Just so you
6 know, I'm Grace Power, the chair of the
7 Master Plan committee. Welcome. You
8 missed our opening remarks, but we're so
9 glad you made it tonight.

10 We have a few of our working group
11 chairs here, if you want to introduce
12 yourselves briefly. MS. SARAH BLUHM
13 GIBSON: Oh, sorry. Sarah Bluhm Gibson.
14 I'm chairing the Reducing Energy.

15 MR. ROBERT DeDOMENICO: Sarah, I
16 tried to make it to yours, but couldn't.

17 MS. SARAH BLUHM GIBSON: Yes. I
18 remember your name.

19 MR. MICHAEL HORNSBY: I'm Mike
20 Hornsby, and I'm heading up the Clean and
21 Reliable Transportation committee and more
22 importantly the keeper of the ten-minute
23 clock here.

24 MR. ROBERT DeDOMENICO: Big help.
25 We met at the resilient infrastructure.

1 MR. MICHAEL HORNSBY: Yes, we did.

2 MR. MIKE WINKA: Mike Winka,
3 Building a Modern Grid.

4 MR. KENNETH SHEEHAN: Ken Sheehan,
5 Clean and Renewable Energy.

6 MR. ROBERT DeDOMENICO: Thanks. I
7 think I remember seeing you.

8 MR. MICHAEL WINKA: We did talk.

9 MR. ROBERT DeDOMENICO: Ken, nice
10 to meet you too. The pleasure is mine.
11 Again, I apologize for being so late, but
12 I started the morning in Mannington and I
13 just finished taping for a radio program
14 in New York City, and that was two
15 o'clock, so I just got here as soon as I
16 could. I'll try to jump to it.

17 So, for the record, Robert
18 DeDomenico, D-e-D-O-M-E-N-I-C-O, and this
19 is the third meeting I've been able to
20 find time to attend and give comments. So
21 I want to try not to cover the exact same
22 things as I did before.

23 So for New Jersey's Energy Master
24 Plan I have some written statement that's
25 almost ready, and I'm want to try to

1 provide as much technical supporting
2 information as I can because when you look
3 at freight movement, actually the arterial
4 freight has really been optimized to a
5 great degree and the part of freight
6 movement that really is the low-hanging
7 fruit that leaves the most room for
8 improvement is the last mile.

9 Some of the things you'll here
10 people talk about in the industry, and
11 I've been chasing this for over eight
12 years is that -- they'll say things like
13 the first dollar will give (inaudible)
14 fast-moving consumer goods from China to a
15 distribution center in Allentown. The
16 next dollar will get it from that
17 distribution center to a retail store
18 loading dock. It costs another dollar to
19 get that same amount from that loading
20 dock to the shelf. But it costs the
21 consumer about \$3.00 in transportation
22 costs to come and get it at the retail
23 store.

24 And it really doesn't get better
25 on the money standpoint for the

1 transportation when you move to
2 E-commerce, which for a decade people have
3 been doing, rising 10, 15 percent a year
4 in E-commerce.

5 Lots of double parking, trucks in
6 New York City, you know, UPS vans and it
7 continues. There's no sign that this
8 growth is going to stop, and for UPS, you
9 know, when I have about 50 online
10 suppliers for the prototypes I've been
11 building gradually, increasing in
12 capability, and just about ready to
13 demonstrate, and you pay about \$6.50
14 for -- at least for a UPS package. The
15 first \$3.25 get it from Missouri or
16 wherever, to Vineland, and then the last
17 \$3.25 is to put it on a truck at 6:00 in
18 the morning at Vineland to drop it off at
19 my house at 3:00 in the afternoon, eight
20 miles away and nine hours later.

21 The most expensive is the last
22 mile, wide-laid knowledge. And so well
23 once we -- well, acknowledging that, okay,
24 but what to do about it. I think I
25 offered some comparisons, one other, how

1 much will it do for you.

2 If you observe any supermarket,
3 you'll see a ratio of about one loading
4 bay behind the supermarket for every 100
5 parking spots out front. And, likewise,
6 there are other issues such as for every
7 full truck that shows up with 20 or 25
8 tons of grocery fast-moving consumer
9 goods, one to 2,000 cars come and go out
10 the front because we shop for that little
11 at a time. The average grocery store take
12 is \$30.00, thirty-three nationwide, and
13 weighs about 20 pounds. The average
14 convenient store take is \$5.00 and weighs
15 about 2 pounds. Those are the averages.

16 A convenient store gallon of milk
17 weighs eight pounds, and plenty of people
18 buy it. The average is two because most
19 purchases weigh less than one, a cup of
20 coffee, pack of cigarettes. Many of those
21 purchases are bought intended to be
22 consumed on the road, but many of them are
23 resupplies of what you're out of at home.
24 And you drove a car, you know, two or
25 three miles to go and get -- oh, I'll get

1 a loaf of bread, a dozen eggs, and a
2 gallon of milk so I'm making use of a
3 trip, and you did it in a 4,000-pound car,
4 and the energy intensity is up in the
5 hundreds of thousands, millions of BTUs
6 per ton mile. And the reason is simple.
7 If you look at the horsepower of the car,
8 the motor is 100 to 150 horse, and the
9 payload is about 10 pounds.

10 I mean, the reason arterial
11 freight is so much cheaper and more energy
12 efficient is that for a ship on the ocean
13 there's one horsepower of engine for every
14 ten tons of shipment. Three quarters of
15 the ship is payload or more, some of the
16 bulk carriers. For a freight train --
17 everybody knows they're very efficient,
18 400 and some miles on a gallon of fuel.
19 The ocean is 100 BTU a ton mile. Rail is
20 about, in North America, 285 BTUs a ton
21 mile, is the recent performance. And a
22 train has about 2 horsepower per ton.

23 A tractor-trailer fully loaded is
24 about 12 horsepower per ton. That's 80
25 tons, you have 500 horse. That's typical.

1 But when you're using a car, you're using
2 100 horsepower capable and you're using 10
3 or 20 horsepower just steady state and,
4 you know, 30 to 60 miles an hour. And if
5 that payload is only 10 or 20 pounds or
6 even 40 or 50, there's where your losses
7 are.

8 And trying to overcome that with
9 drones is actually just a Ninja
10 application. Nothing uses more energy
11 than a helicopter that -- it takes about a
12 horsepower for every ten pounds to fly a
13 helicopter. And that's just to levitate.
14 If you want any margin of safety, you need
15 about one horsepower for every four
16 pounds. And every drone built adheres to
17 these ratios because they have to fly.
18 And they're a very energy-intensive way
19 that gets a lot of press coverage but is
20 never going to handle the everyday staples
21 of life. That's why you don't see
22 helicopters flying the spoil out a coal
23 mine or any mining operation anywhere.

24 So just in case I missed something
25 in my written statements I wanted to make

1 sure I came by and told you again as best
2 I can. Because I've poured a lot of work
3 into this because ever since noticing it
4 I've realized, wow, I'm on to something.
5 And I can't stop, even if I'm just one
6 person with a garage, a couple of helpers.
7 It doesn't matter. I've solved problems
8 before, interesting problems.

9 Funny story, so when I was in the
10 scheduling department at Salem -- and so
11 we had a forced outage in the summer and
12 the output of the unit comes to 2 output
13 breakers onto the main 500 kV yard, and
14 one of those breakers was unavailable
15 because of a bushing problem to the -- you
16 have to use a Synchroscope because when
17 you're closing ACE circuits together, you
18 have to close them in phase or you'll kill
19 people. Generators will flip on their
20 side out of phase closure. It's like an
21 explosion.

22 So you have to be able to have the
23 Synchroscope sensors on each side of any
24 breaker that you're going to close when
25 you're live to live. Well, that breaker

1 was unavailable. The only other output
2 breaker was also unavailable because there
3 was a problem with the phase bravo -- it's
4 a three-phase AC. There was a problem
5 with one of the pick-ups.

6 So we had an emergency temporary
7 change package to cut that over to Charlie
8 phase. And if Charlie phase was in sync,
9 we could -- and a generator came back in
10 time, we would have ready to synchronize
11 and we wouldn't hold up and -- you know,
12 we'd lose a million dollars an hour in
13 revenue when that plant is offline. And
14 that's before the penalties. This was in
15 July when power demand is high.

16 So the next bus down the line,
17 there was a line outage to the next part
18 of the distribution grid, and that line
19 was out of service, so that bus was just
20 tying just down to the next breaker. And
21 I said, hey, why don't we just drop that
22 next bus, it's really not being used,
23 close this breaker without any power on
24 either side of it. We don't have to do a
25 DCP. Your next breaker in line, there's

1 no problem with the sensing and the
2 Synchroscope works, and then we just do a
3 procedure change, start up, and when we
4 fire up the generator, we'll just
5 synchronize against the breaker.

6 Some of my colleagues laughed at
7 me because they're not used to outside the
8 box thinking. But when I get to Harlin
9 Hansen (ph), the manager in charge, he
10 said, wow, that's plan A, and we'll do
11 plan B if we need it. Let's keep prepping
12 just on case because there's a lot of
13 technical issues.

14 But I have the background for what
15 I'm bringing to the state, and I'm doing
16 it because it's a good thing and I know
17 that's what you're looking for, and I'm
18 happy to help. And so we can go a long
19 way towards saving, not just energy but
20 petroleum, and not by burning 3 kilowatts
21 per mile in a full-blown electric car,
22 although you need them when you move
23 people. But we can go a thousand miles on
24 a kilowatt hour just carrying the goods.
25 And there are two purchases per household

1 per day in America just between
2 convenience and grocery store.

3 So it really does add up to a lot,
4 and no matter what questions you have,
5 I'll help answer. If there's any kind of
6 ping for information, I'll respond, if
7 there's any necessary help on the draft
8 plan. So I'm glad you were still open
9 until 7:30. It's been a long day for me.
10 Thank you.

11 MS. GRACE POWER: Thank you for
12 coming.

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16 (The proceedings adjourned at 7:30 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 18th day of
October, 2018.

Laura P. Ream

LAURA P. REAM

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