Participating Organizations
Alliance for a Living Ocean
American Littoral Society
Arthur Kill Coalition
Asbury Park Fishing Club
Atlantic Highlands Arts Council
Bayshore Regional Watershed Council
Bayshore Saltwater Flyrodders
Belford Seafood Co-op
Belmar Fishing Club
Beneath The Sea
Bergen Save the Watershed Action Network
Berkeley Shores Homeowners Civic Association
Cape May Environmental Commission
Central Jersey Anglers
Citizens Conservation Council of Ocean County
Clean Air Campaign, NY
Clean Water Action
Coalition Against Toxics
Coalition for Peace & Justice/Unplug Salem
Coastal Jersey Parrot Head Club
Communication Workers of America, Local 1075
Concerned Businesses of COA
Concerned Citizens of Bensonhurst
Concerned Citizens of COA
Concerned Citizens of Montauk
Eastern Monmouth Chamber of Commerce
Environment NJ
Fishermen's Conservation Association, NJ Chapter
Fishermen's Conservation Association, NY Chapter
Fishermen's Dock Cooperative, Pt. Pleasant
Food and Water Watch, NJ
Friends of Island Beach State Park
Friends of Liberty State Park, NJ
Friends of the Boardwalk, NY
Garden Club of Allenhurst
Garden Club of Bay Head and Mantoloking/Seaweeders
Garden Club of Brielle/Bayberry
Garden Club of Englewood
Garden Club of Fair Haven
Garden Club of Long Beach Island
Garden Club of RFD Middletown
Garden Club of Morristown
Garden Club of Navesink
Garden Club of New Jersey
Garden Club of New Vernon
Garden Club of Oceanport
Garden Club of Princeton
Garden Club of Ridgewood
Garden Club of Rumson
Garden Club of Sea Girt/Holly
Garden Club of Short Hills
Garden Club of Shrewsbury
Garden Club of Spring Lake
Garden Club of Terra Nova
Garden Club of Washington Valley
Great Egg Harbor Watershed Association
Green Party of Monmouth County
Green Party of New Jersey
Highlands Business Partnership
Hudson River Fishermen's Association
Jersey Shore Captains Association
Jersey Shore Parrot Head Club
Jersey Shore Partnership
Junior League of Monmouth County
Keyport Environmental Commission
Kiwanis Club of Shadow Lake Village
Leonardo Party & Pleasure Boat Association
Mantoloking Environmental Commission
Marine Trades Association of NJ
Monmouth Conservation Foundation
Monmouth County Association of Realtors
Monmouth County Audubon Society
National Coalition for Marine Conservation
Natural Resources Protective Association, NY
NJ Beach Buggy Association
NJ Environmental Lobby
NJ Friends of Clearwater
NJ Marine Education Association
Nottingham Hunting & Fishing Club, NJ
NYC Sea Gypsies
NY Marine Education Association
NY/NJ Baykeeper
Ocean Wreck Divers, NJ
PaddleOut.org
Picatinny Saltwater Sportsmen Club
Raritan Riverkeeper
Religious on Water
Rotary Club of Point Pleasant
Rotary District #7540—Interact
Saltwater Anglers of Bergen County
Sandy Hook Bay Anglers
Save Barnegat Bay
Save the Bay, NJ
SEAS Monmouth
Shark Research Institute
Shark River Cleanup Coalition
Shark River Surf Anglers
Sierra Club, NJ Shore Chapter
Sisters of Charity, Maris Stella
South Monmouth Board of Realtors
Staten Island Tuna Club
Strathmere Fishing & Environmental Club
Sunrise Rod & Gun Club
Surfers' Environmental Alliance
Surfrider Foundation, Jersey Shore Chapter
Surfrider Foundation, South Jersey Chapter
TACK I, MA
Unitarian Universalist Congregation/Monm. Cnty.
United Boatmen of NY/NJ
Viking Village
WATERSPIRIT
Women's Club of Brick Township
Women's Club of Keyport
Women's Club of Long Branch
Women's Club of Merchantville
Women's Club of Spring Lake
Zen Society, NJ

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Clean Ocean Action www.CleanOceanAction.org

18 Hartshorne Drive, Suite 2
Highlands, NJ 07732-0505
T (732) 872 - 0111
F (732) 872 - 8041
Info@CleanOceanAction.org
Tax ID: 22-2897204

Ocean Advocacy Since 1984

October 12, 2018

EMP Committee Chair
Board of Public Utilities
44 S Clinton Ave
Trenton, New Jersey 08625

Submitted Electronically

RE: Comments of Clean Ocean Action to the New Jersey Board of Public Utilities on New Jersey's 2019 Energy Master Plan.

Dear Commissioner Power:

Clean Ocean Action welcomes the opportunity to comment on the New Jersey Board of Public Utilities' ("BPU") initial development of the 2019 Energy Master Plan ("EMP"). The following comments are rooted in the mission of our organization, "to improve the degraded water quality of the waters off the New Jersey/New York Coast."

The impacts of climate change to the coast and ocean are disastrous and mandate bold action to reduce fossil fuel consumption. The effects of climate change are real, occurring now, and are more pressing than previously though. The most recent, report issued by the Intergovernmental Panel on Climate Change ("IPCC") which considered the impacts of 1.5 degree Celsius illustrates the importance of reducing greenhouse gas emissions. The report, written and edited by 91 scientists from 40 countries who analyzed more than 6,000 scientific studies, found that we are on pace to hit the 1.5 degree Celsius mark by 2030.[1] Currently, we're already seeing its effects in the forms of the fastest decline in Arctic sea ice in 1,500 years, more than 8 inches of sea level rise since 1880, and more damaging extreme weather due to climate change.[2] The .5 degree difference will have drastic effects. The report notes that marine fisheries would face double the declines, maize harvests would decrease by double, insects and pollinators would see their range decrease threefold, and sea level would rise would increase.[3]

For these reasons, Clean Ocean Action is encouraged by Governor Murphy's leadership in combating climate change with his commitment to 100% renewable energy by 2050. With this goal, the development of a new EMP offers a real opportunity to implement an energy future that could make New Jersey a national leader in green energy. To this end, all sources of renewable energy, must be embraced, but there must be real prioritization and implementation of the most environmentally beneficial and economically sound sources.

[1] Intergovernmental Panel on Climate Change, Global Warming of 1.5 Degree Celsius – Summary for Policymakers. Available at http://report.ipcc.ch/sr15/pdf/sr15_spm_final.pdf
[2] *Id.*
[3] *Id.*

While the ocean holds promise for contributory renewable energy, the ocean is already in peril from climate change. Ocean warming, ocean acidification, sea level rise, and ice melt are changing the very chemistry of the sea. Over development, particularly along the coast, loss of wetlands (from sea level rise and development) chemical and biological pollution, saltwater intrusion, sedimentation, and many other issues have pushed marine resources to the brink. Adding additional industrialization and development along the coastal fringe will undermine what remains of this fragile ecosystem.

Yet even in this weakened state, the ocean and coast still provide remarkable biodiversity and resources where sustains New Jersey's economy through tourism and fishing both recreational and commercial.

Thus, the ocean deserves that we do all that is possible to reduce and minimize actions that will undermine ocean and coastal health.

Clean Ocean Action urges that the EMP pursue the following approach:

1) Aggressive implementation of efforts to reduce energy needs first through energy efficiency and conservation measures, which is the greenest energy of all.
2) Equitable or greater increases in renewable land based sources which are more economically competitive, environmentally sound, manageable, and promote sustained job growth.
3) At the same time, expedite the understanding and effects of the entire scope of onshore and offshore impacts of ocean based when energy. This is essential to ensure that offshore renewable energy does not come at the expense of, or harm to, marine resources. Moreover, the BPU must conduct a cost analysis of offshore wind, as well as a comparison of that cost to other renewables as well as energy efficiency.

The following comments focus on providing the BPU with recommendations to help ensure that the pathway for achieving the objectives of 50% renewable energy by 2030, and 100% renewable energy by 2050, foster economic growth and job creation, focus on the most cost effective methods of achieving the goal, and do not come at the expense of our oceans and marine life. Our comments specifically address:

- The importance of assuring aggressive procurement of energy efficiency, the greenest and most cost-effective energy resource, and the means in which the state can achieve significant improvements in efficiency.
- The need to establish actions for equitable or greater development of land based and offshore renewable energy.
- The importance of ensuring both public involvement and robust comprehensive environmental analysis in developing any offshore wind resources.
- The need to impose a moratorium on any new fossil fuel development.

I. Prioritize Implementing Strong Energy Efficiency and Conservation Programs.

The first priority in transitioning to a fossil-free-future is robust, swift, and aggressive implementation of energy efficiency and conservation programs, which will not only reduce use of fossil fuels, but save

consumers significant dollars while generating thousands of good paying long term jobs. To effectively combat climate change, global energy usage *must be used at least 3% more productively annually* in order keep the planet from warming more than 2 degrees Celsius over pre-industrial levels.[4] While the 3% requirement is necessary the state can, and must, do better.

In the United States, 97.5 quads of energy are consumed annually according to the Lawrence Livermore National Laboratory, of which 66.4 are wasted through inefficiency.[5] The potential reductions which can be achieved through more efficient use of this massive amount of wasted energy is the primary reason that energy efficiency has been called by many as the *first renewable resource*. The study estimates that of the 66.4 quads of wasted energy, 44.4 quads are wasted in electric production and consumption.[6] The study breaks down the 44.4 quads into specific segments. The largest amount wasted is on the electric generation side, with 24.9 quads wasted annually.[7] The other 19.5 quads are wasted on the consumer side.[8] Specifically, 3.83 are wasted in residential usage, 3.16 in commercial usage, and 12.5 in industrial usage.[9]

A. New Jersey Has The Ability, and Responsibility, To Improve Its Underperforming Energy Efficiency Program.

Since the passage of the Energy Master Plan Statute in 1977, energy efficiency has been highlighted as a priority in every EMP. However, New Jersey is significantly lagging behind in energy efficiency investment and action. In the 2018 Efficiency State Scorecard prepared by the American Council for an Energy Efficiency Economy, New Jersey was ranked 18th in terms of overall energy efficiency, a five spot jump from the previous year.[10] For the 2018 scorecard, New Jersey score 21.5 points out of a possible 50, 4 points more than it earned in 2017.[11] This progress is encouraging; however the state still lags behind what is needed. NJ must improve and must also work to become a national leader in energy efficiency. One of the main components in New Jersey's increase was the adoption of the Energy Efficiency Resource Standard (EERS), and benchmarking requirements. The legislation requires saving targets of 2% and 0.75% of sales for electricity and natural gas. However this was not enough to break the top ten, with signs showing the EERS is not ambitious enough. Moreover, though electric savings edged upwards in 2017, they remained below the national average.[12] Furthermore, despite the overall score increased, New Jersey saw decreases in the areas of building energy efficiency policies and state

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[4] Lovins, *How Big is the Energy Efficient Resource,* Rocky Mountain Institute. Environ. Res. Lett. (Sept. 18, 2018).
[5] Lawrence Livermore National Laboratory, *Estimated U.S. Energy Consumption in 2016*. Available at https://flowcharts.llnl.gov/content/assets/images/energy/us/Energy_US_2016.png
[6] *Id.*
[7] *Id.*
[8] *Id.*
[9] *Id.*
[10] American Council for an Energy-Efficient Economy, State Energy Efficiency Scorecard 2017. Available at http://aceee.org/state-policy/scorecard
[11] *Id.*
[12] *Id.*

government initiatives. As for appliance standards, there was no change with the state receiving zero points in the category for the second straight year.

Thus, it is clear that New Jersey's existing energy efficiency program has failed to capture the most environmentally and economically beneficial energy source. Unlike other resources, energy efficiency has no negative environmental impacts. Therefore Clean Ocean Action urges the BPU to set a goal of moving into the top ten in the annual scorecard by 2020, specifically by looking to engage in appliance standard policies, increasing building efficiency policies, and providing state funding through government initiatives.

B. Energy Efficiency Is Consistently the Most Cost Effective Means of Greenhouse Gas Reductions

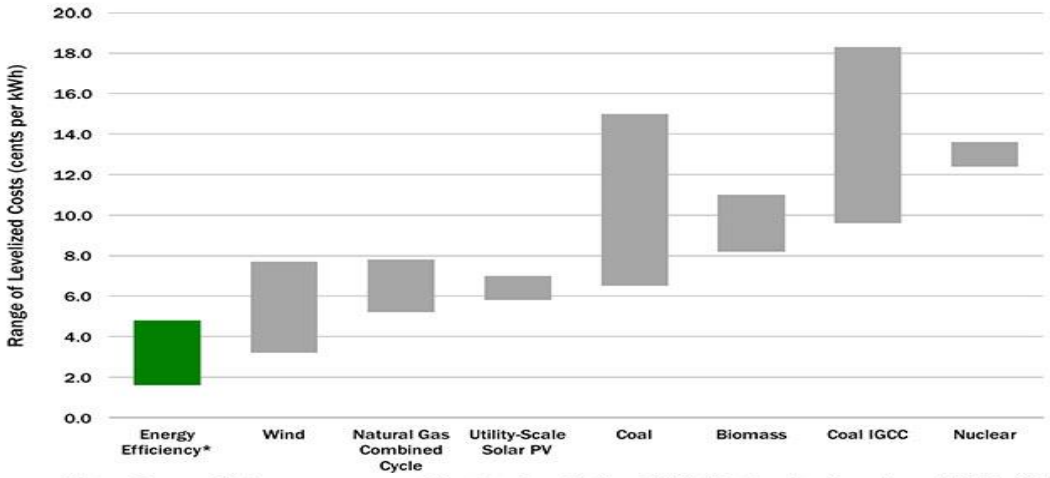
Currently, New Jersey has the 12th highest electricity rates in the nation and the highest in the PMJ Interconnect.[13] Energy efficiency programs have proven to be the most cost effective means of both lowering rates and reducing carbon emissions. The Lawrence Berkeley National Laboratory analyzed the cost of energy efficiency programs implemented between 2009 and 2015 throughout the United States, and established that energy efficiency programs funded by utility customers are the most cost effective programs for energy reduction.[14] The report calculated the cost of saving a Kwh of electricity, including the administration cost of overseeing energy efficiency programs, to determine that the national "portfolio" of all programs and related activities between 2009 and 2015.[15] The report concluded that the national average cost of implementing energy efficiency programs was $0.025/kWh in 2016 dollars.[16] These costs are substantially less than the cost of meeting electricity needs with new power plants as illustrated below. Note – the wind resource cost used below is **onshore based wind**, offshore was not included in the study.

[13] U.S. Energy Information Administration, *State Electricity Profiles* (January 2018). Available at https://www.eia.gov/electricity/state/

[14] *See,* The Cost of Saving Electricity Through Energy Efficiency Programs Funded by Utility Customers: 2009 – 2015. Energy Analysis and Environmental Impact Division of Lawrence Berkeley National Laboratory. (June 2018). Available at http://eta-publications.lbl.gov/sites/default/files/cose_final_report_20180619_1.pdf

[15] *Id.*

[16] *Id.*



*Notes: Energy efficiency program portfolio data from Molina 2014; All other data from Lazard 2015. High-end range of coal includes 90% carbon capture and compression.

[17]

C. Energy Efficiency Will Create Sustainable Job Growth.

Not only does energy efficiency provide the most cost effective means of energy reduction, but it also produces economic development and job growth. Nationally, energy efficiency in 2016 accounted for 1.9 million U.S. jobs.[18] Energy efficiency is the number one job creator in the clean energy economy, accounting for three of every four American clean energy jobs.[19] Importantly, the jobs created through energy efficiency are not limited to shovel-ready construction jobs, which boost employment for a limited window, such as new energy generating infrastructure. Energy efficiency creates long term and skilled jobs. The jobs range from local heating, ventilation, air conditioning companies, manufacture workers, appliance factories, advance building materials, insulation installers, and weatherization companies.[20] 38,378 New Jersey residents worked in energy efficiency related jobs in 2016. Not coincidentally, the states with the highest energy efficiency employment numbers boost the most aggressive state energy efficiency policies.[21]

Beyond job creation, energy efficiency also stimulates economic development through reduced consumer energy bills. Cost savings for consumers from energy efficiency will manifest into additional

[17] Source: Energy efficiency program portfolio data from Molina, The Best Value for America's Energy Dollar: A National Review of the Cost of Utility Energy Efficiency Programs (Washington, DC: ACEEE, 2014) http://aceee.org/research-report/u1402. All other data from Lazard 2015. https:// www.lazard.com/media/2390/lazards-levelized-cost-of-energyanalysis-90.pdf. High-end range of coal includes 90% carbon capture and compression

[18] Energy Efficiency Jobs in America – *A Comprehensive Analysis of Energy Efficiency Employed Across All 50 States.* (Dec. 2016). Available at https://www.e2.org/wp-content/uploads/2016/12/EnergyEfficiencyJobsInAmerica_FINAL.pdf

[19] *Id.*

[20] *Id.*

[21] *Id.*

spending, creating more economic development and job creation.[22] Therefore pursuing an aggressive energy efficiency agenda will not only reduce energy consumption, but foster economic development. New Jersey has already seen the benefits energy efficiency can provide in terms of jobs, but the state can achieve much more through increased state policies requiring energy efficiency to be implemented.

D. Energy Efficiency Can Provide Benefits to Utilities.

Furthermore, energy efficiency is not only beneficial to the ratepayer, but also has numerous benefits for utilities, as well as the electric grid. These benefits include (1) production capacity cost savings, (2) production energy cost savings, (3) avoided cost of compliance with existing and future environmental regulations, (4) transmission capacity cost savings, (5) distribution capacity savings, (7) avoided line losses, and (8) minimizing reserve requirements.[23] According to the Regulatory Assistance Program, energy efficiency has been underutilized in part due to a lack of understanding by both utilities, and regulators, of the full benefits programs can offer.[24]

E. Efforts to Increase the State's Energy Efficiency and Conservation.

As a result of the benefits energy efficiency can provide, and the clear room New Jersey has for improving growth in this market, Clean Ocean Action urges the BPU to aggressively implement energy efficiency and conservation programs. At a minimum the following must be implemented in parallel with any renewable energy generation to facilitate increased energy efficiency and conservation within the state.

1. <u>Focus on Alleviating Consumer Barriers to Energy Efficiency.</u>

Studies have indicated that energy savings on the consumer side are typically achieved through three categories of action.[25] One, simple changes in routines and habits, such as unplugging appliances when not in use, shorter showers, etc.[26] Second, infrequent low-cost energy changes, such as replacing incandescent bulbs with CFLs and other small scale undertakings.[27] Third, consumer investments in energy-efficient appliances, housing materials, smart devices, and other energy saving products.[28] These means of energy savings should theoretically entice consumers, since there is an inherent benefit in seeking out energy efficiency in residential, commercial and industrial settings – increased savings on

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[22] Bell*, Understanding the True Benefits of Both Energy Efficiency and Job Creation*. American Council for an Energy Efficient Economy. Community Development Investment Review.(March 2014) Available at https://www.frbsf.org/community-development/files/cdir_vol10issue1-Understanding-the-True-Benefits-of-Energy-Efficiency-and-Job-Creation.pdf

[23] Jim Lazar, *Recognizing the Full Value of Energy Efficiency*, Regulatory Assistance Project. (Sept. 2013). Available at https://aceee.org/files/pdf/conferences/eer/2013/4B-Lazar.pdf

[24] *Id.*

[25] Karen Ehrhardt-Martinez*, Changing Habits, Lifestyles and Choices: The Behaviors that Drive Feedback-Induced Energy Savings*, Renewable and Sustinable Energy Institute. Univ. Co. (Aug. 2012).

[26] *Id.*

[27] *Id.*

[28] *Id.*

energy bills. However, there are two key barriers blocking these actions from creating effective savings. First consumers are unable to effectively understand potential energy savings, which limits their ability to make the meaningful changes in habits, appliance choices and home improvements which yield savings and emission reductions. Second, even if consumers can understand and isolate areas of improvement, the initial high price points of more efficient appliances have proven to block consumer purchases despite proven overall net benefits.

i. Combatting Consumer Lack of Information

The first challenge, consumer inability to understand and pinpoint energy savings, has been understood for years as a flaw in the energy system.[29] An analogy, best illustrates the paradox. The American energy system is a grocery store without individual prices, where the consumer is presented with one total bill highlighting the total cost of all items purchased.[30] In such a scenario, the consumer, without any insight into the mechanics of the industry, would have to guess the price of each item in the bundle without clear indicators. This system is problematic because without a clear understanding of where savings are located, consumers will be unable to make meaningful behavioral changes or investments in energy efficiency, despite the proven net benefit of utility savings. Moreover, this "invisibility" of modern energy consumption impedes the creation of societal norms of appropriate levels of consumption. Consumers are unable to comparatively evaluate their consumption on an item by item basis with others to establish norms of energy usage.[31] If consumers are unaware of which habits and appliances are responsible for the bulk of their consumption, they are equally unaware of energy consumed by others.[32] Thus, without a frame of reference to create comparative determinations of energy consumption, inciting change is complicated.[33]

There have been significant improvements aimed at combatting the invisibility of the American electric system such as demand response and smart meter programs. The problem however remains that consumers are predominantly unaware of these programs.[34] When consumers were asked whether they have heard of programs that help you to optimize your electricity consumption, 28% indicated they had heard of them and know what they are. 38% had heard of them but did not know what they are. 34% responded that they had never heard of them. Moreover, of the 66% which answered that they had heard of these programs, only 9% responded that they had enrolled in a program. Even among consumers who have heard of electricity management programs, the majority—58%— still responded that they do not know if their utility or state offers such program. Therefore the State must invest in

[29] *Id.*

[30] Kempton, W. and L. Montgomery, *Folk Quantification of Energy. Energy* -- The International Journal (July 2010) p. 817-827

[31] *Id.*

[32] Cialdini RB, Trost MR. *Social influence: social norms, conformity and compliance*. In: Gilbert DT, Fiske ST, Lindzey G, editors. The handbook of social psychology. 4th ed.. New York, US: McGraw-Hill. (Jan. 1998) p. 151–152

[33] *Id.*

[34] Guthridge, *Understanding Consumers Preferences in Energy Efficiency: End-Consumer Observatory on Electricity Management.* Accenture (2010).

awareness campaigns to ensure consumers are thoroughly knowledgeable about available programs, and the effects are can have on their energy bill.

Therefore, one of the first, and most effective means the state can promote energy efficiency, is by strengthening consumer awareness of (1) the potential savings through home energy audits, and (2) existing state policies and utility programs they are eligible for.

Oregon, ranked seventh by ACEEE for energy efficiency has seen extreme savings, in part due to increased consumer awareness. Previous mistakes in forecasting generational needs and over development of power plants cost the Pacific Northwest and the state billions. As a result Oregon has become a leader in efficiency, forecasting with conservation as the priority over unnecessary generation. The Energy Trust of Oregon (ETO), Oregon's statutorily created energy efficiency non-profit has seen success through home energy audits and tailored consumer energy saving evaluations. ETO offers a robust consumer education program, helping consumers identify consumption-heavy appliances, habits, and uses in their home, business, or industry. ETO offers Energy Saver Kits, which are tailored to consumer habits and homes to create personalized energy savings. Eligibility simply requires being an Oregon resident and customer of an Investor Owned Utility. If eligible, ETO will send you LED lights and high-performance showerheads. Moreover, ETO also offers a Home Energy Review, which evaluates consumers' homes to identify possible energy efficiency savings and upgrades. The Home Energy Review also estimates potential savings, in an attempt to overcome the invisibility of electric consumption on an appliance basis.

ii. Combatting Initial High Price Points.

The second major consumer deterrent in energy efficiency is the initial higher price points of energy efficient appliances. This problem is even more problematic when coupled with consumer lack of education. The inability to know what appliances drain the most resources leaves consumers without a clear understanding of where the most cost-effective savings are is even more problematic since energy efficient appliances are generally more expensive than non-efficient appliances. Consumers face what is called temporal discounting, where consumers perceive things as less valuable or significant if the perceived benefit is further away in time.[35] Studies show this is even true when the long-term benefit seriously outweighs the minimal immediate saving.[36] While the money spent upfront will yield savings over time, studies show that consumers, even if aware of this abstractly, will opt for spending less money at the purchase.[37] Moreover, without an understanding of how much savings could be achieved, the higher initial price point becomes a bigger deterrent.[38]

[35] T.S. Critchfield, S.H. Kollins, *Temporal Discounting: Basic Research and the Analysis of Socially Important Behavior*, J Appl. Behav. Anal., 34 (2001), p. 101–122

[36] Elisha R. Frederiks, Karen Stenner, Elizabeth V. Hobman, *Household Energy Use: Applying Behavioral Economics to Understand Consumer Decision-Making and Behavior*, Renewable and Sustinable Energy Reviews, Vol. 41. (Jan 2015). P. 1387

[37] *Id.*

[38] *Id.*

To combat this, the utilization of the Societal Benefit Charge, should be facilitated. A stable Social Benefit Charge model has been proven to one of the most effective means of energy efficiency by providing a stable program design and generally fixed funding. From 2009 to 2015, the revenue from the NJ Societal Benefit Charge ranged from a low of 77.6 million in 2011, and a high of 910.3 million in 2014.[39] Depending on the utility, the charge represented between 3.54% ($48.56) and 5.39% ($58.43) of the annual bill of the average electric residential ratepayer as of April 2016 and between 3.07% ($37.73) and 5.17% ($44.54).[40] However, during this period, the state transferred from funds derived from the SBC to the general funds, $422,401,700. If the state is serious in its commitment to invest in both energy efficiency and clean energy, it must stop utilizing the funds generated for these programs for budget balancing purposes. Energy efficiency programs are long term investments and thus require multi-year, sustainable funding to see required returns and this is not possible when funds are diverted. Moreover, the funds collected by the Societal Benefit Charge, are taken from ratepayers for specific statutory purposes, and those funds should be directed to energy conservation and efficiency, to ensure the citizens directly benefit from their investment.

Numerous other states have seen massive success through their versions of Public Benefit Charges (PBF). Oregon, which does not allow for manipulation of funding from its program, has established one of the most effective models of PBF in the nation.[41] In 2000, Oregon signed into law Senate Bill 1149, which requires Oregon's two largest investor-owned utilities (Portland General Electric and Pacific Power) to collect a 3% "public purpose charge" from their customers.[42] The law also created the Energy Trust of Oregon, an independent non-profit responsible for establishing a stable and consistent effort to promote energy efficiency, renewable energy, and market transformation programs.[43] SB 1149 mandates that the first 10% of the fund goes to Education Service Districts for energy audits and subsequent energy efficiency measures.[44] Of the remaining funds, 56.7% must be allocated towards energy efficiency programs, 17.1% must be used for promoting renewable energy, and the remaining funds are used to support low-income housing energy assistance and K-12 school energy-conservation efforts.[45] The money is not allowed to be used for any other purpose.[46] After the success of SB 1149, Oregon later signed Senate Bill 383 into law, which allows PGE and Pacific Power to fund beyond the 3% public purpose charge to acquire all available cost-effective energy efficiency as determined by the Energy Trust of Oregon.[47]

According to Energy Trust of Oregon's Annual Report, the money raised from the public purpose charge for 2015 was $144.4 million.[48] The electric efficiency improvements completed in 2015 saved 54.1

[39] *Id.*
[40] *Id.*
[41] OR. REV. STAT. §575.612 (2000)
[42] *Id.*
[43] *Id.*
[44] *Id.*
[45] *Id.*
[46] *Id.*
[47] OR. REV. STAT. §757.689 (2007)
[48] See, e.g., Energy Trust of Oregon, Energy Trust of Oregon Annual Report, Apr. 2015, at 7.

megawatts of electricity, while gas efficiency saved 6.5 million therms.[49] These savings accounted for 280,000 tons of carbon dioxide kept out of the atmosphere.[50] Moreover, Energy Trust incentives supported rapid market adoption of LED lights, helping residential, commercial and industrial customers select and install nearly 3 million LEDs in 2015.[51] Furthermore, new incentives adopted in 2015 were aimed at keeping pace with technological advances, such as programs for smart thermostats and advanced power strips which automatically turn off when device is not in use.[52] Pilot programs initiated in 2015 helped install 500 smart thermostats and 750 advanced power strips.[53]

Overall, since the passing of SB 383, the Energy Trust of Oregon has yielded a total of 548 MW of electric savings, and 45.3 million therms of natural gas.[54] These savings have kept over 17.4 million tons of carbon dioxide out of the atmosphere. These programs can also be economically stimulating, as the ETO has added $3.9 billion to the local economy, including $1.2 billion in wages, $223 million in small business income, and employment equivalent to 3,200 fulltime jobs lasting a decade.[55]

Furthermore, ETO remains poised to continue to benefit Oregon and curb greenhouse gas emissions. The Energy Trust of Oregon Strategic Plan for 2015-2019, outlines industrious state progress in combatting climate change through energy efficiency.[56] The Strategic Plan calls for saving 240 average megawatts of electricity and 24 million annual therms of natural gas. Moreover, they are making strong progress on meeting these goals.[57] In the first year of the 2015-2019 Strategic Plan, Energy Trust made strong progress toward five-year goals, achieving 23 percent of the electric goal and, 27 percent of the gas goal.[58]

It is important to note that these savings achieved by Oregon were done in a state with an estimated population of a little over four million. This is in comparison to New Jersey, which has an estimated population of nine million; more than double that of Oregon. Therefore the savings achievable by New Jersey are substantially higher than those in Oregon. Moreover, Oregon has drastically cheaper electricity rates than New Jersey. Thus, there is a stronger need for energy efficiency to save consumers money in the state.

Another model of combatting initial high consumer price points has been to incentivize Federal Energy Star Products. Energy Star is a means of communicating to consumers that a product is energy efficient and environmentally friendly.[59] EPA reports that about three-fourths of U.S. households report the

[49] *Id.*
[50] *Id.*
[51] *Id.* at 3
[52] *Id.* at 8
[53] *Id*. at 9
[54] *Id.*
[55] *Id.*
[56] *Id.*
[57] *Id.*
[58] *Id.*
[59] *See,* U.S. EPA, History of ENERGY STAR. Available at http:// www.energystar.gov/index.cfm?c=about.ab_history

ENERGY STAR label as influential in their purchasing decisions.[60] The labeling program led Americans to purchase more than 300 million ENERGY STAR certified products in 2015, with cumulative energy cost savings of $246 billion since 1992. The program has prevented more than 1.8 billion metric tons of greenhouse gas emissions over the past two decades.[61]

Many states have enacted ordinances encouraging or requiring that appliances in new construction or new buildings be certified as Energy Star.[62] For instance, Colorado offers a mortgage discount for qualified Energy Star Homes which must be 15 – 30% more efficient than typical new homes.[63] Furthermore, some states specifically provide incentives through rebates for Energy Star appliances for low income homeowners, thus allowing those who would be most deterred from the higher price point, the ability to seek energy efficient products. One example is New York's Assisted Home Performance with Energy Star which provides grants to low-income homeowners in 1-4 family buildings for up to 50% of costs for energy efficient improvements.[64] New York also offers a similar program for non-low income homes, but through the form of a 10% discount and additional low-interest financing options for homeowners to improve the energy efficiency of their homes.[65] Currently, 15 states have rebate programs for Energy Star certified appliances.[66] Alternatively, Texas offers a sales tax holiday over Memorial Day weekend where the states 6.25% sales tax does not apply to Energy Star appliances.[67]

New Jersey should look to the effective programs around the nation in moving forward in developing its energy efficiency programing.

iii. Actions Items for Alleviating Barriers.

Clean Ocean Action urges the BPU to:

(1) Increase the amount of home energy audits by providing for greater customer awareness and adoption of energy efficiency, though targeted outreach, and by leveraging utility – customer

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[60] *National Awareness of ENERGY STAR for 2016: Analysis of 2016 CEE Household Survey, EPA Office of Air and Radiation*, Climate Protection Partnerships Division (2017). Available at http://energystar.gov/awareness.

[61] https://www.energystar.gov/index.cfm?c=about.ab_index%20

[62] See EPA, *State and Local Governments Leveraging ENERGY STAR* (2010). Available at http://www.energystar.gov/ia/business/government/State_Local_Govts_Leveraging_ES.pd

[63] *See,* Stephen Ponce-Pore, *The Colorado ENERGY STAR Mortgage,* Bank of Colorado. Available at https://www.energy.gov/sites/prod/files/2014/05/f15/bank_of_colorado_presentation_120309.pdf

[64] *See*, NYSERDA, *Assisted Home Performance with ENERGY STAR.* Available at https://www.nyserda.ny.gov/All-Programs/Programs/Assisted-Home-Performance-with-ENERGY-STAR

[65] *See,* NYSERDA, *Home Performance with ENERGY STAR.* Available at http://www.nyserda.ny.gov/Energy-Efficiency-and-Renewable-Programs/Residential/Energy-Efficiency-Programs/~/link.aspx?_id=84D3699DD2164B998E47BEE1B5F04B9C&_z=z

[66] See, NC Clean Energy Technology Center, *Database of State Incentives for Renewables and Energy Efficiency.* Available at http://www.dsireusa.org/

[67] Diance Cowen, *Memorial Day Weekend Sales Tax Holiday is About Saving Water, Energy,* Huston Chronical (May 2018). Available at https://www.houstonchronicle.com/sports/outdoors/article/Memorial-Day-weekend-sales-tax-holiday-is-about-12941840.php

relations, and mandating information on energy efficiency programing be placed on consumer bills.

(2) Ensure stable and consistent funding for energy efficiency programs outside of the funds generated from the Societal Benefits Charge.

(3) Utilize funding for energy efficiency to offer rebates and incentives for energy efficient appliances.

(4) Remove any barriers for energy audits.

(5) Evaluate the effects of shadow billing on consumer adoption of energy efficiency.

(6) Target residential, commercial, and industrial consumers equally with energy efficiency outreach.

(7) Adopt regulations such as Oregon, allowing investor owned utilities to charge higher than the 3.8% rate to acquire all available cost-effective energy efficiency as determined by the newly created third party operator.

(8) Petition the legislature to ensure the funds collected from the Societal Benefits Charge are specifically earmarked for energy efficiency programs, and not subject to transfers to the general fund.

2. Create an Independent Third Party Energy Efficiency Program Administrator.

The benefits of Oregon and the ETO not only show the benefits of a robust and earmarked PBF, but also illustrate how effective third party oversight and implementation of energy efficiency can be. New Jersey currently has the government, through the Office of Clean Energy ("OCE") oversee this process, and there is discussion of allowing the utilities to take over that role.

Clean Ocean Action is highly opposed to allowing utilities to control energy efficiency programs. Investor Owned Utilities are governed by the underlying goal of producing profits to shareholders. Moreover, other regulatory mechanisms such as the throughput method effectively act to disincentive efforts to invest in energy efficiency by investor owned utilities. Furthermore, previously utilities were required to administer and implement energy efficiency programs, however because of the extreme ineffectiveness; the program administration was given over to the OCE in 2007.

Therefore, Clean Ocean Action insists that the state not repeat previous mistake by allowing utilities to oversee energy efficiency programs, and compel the BPU to evaluate the benefits of switching to a third-party administrator.

3. Adopt Regulations Which Treat Energy Efficiency as a Generation Side Resource.

4.

Clean Ocean Action urges the BPU to adopt regulations treating energy efficiency as a generation side energy resource. Energy efficiency, just like traditional generation resources can be utilized to meet projected demand growth and meet load requirements; therefore it must be included in any utility planning for forecasted demand. While New Jersey does have its Comprehensive Resource Assessment (CRA) process, which accounts for system needs and costs, it does not go far enough in

solidifying energy efficiency as an energy resource. The CRA process is only used to determine the funding and content of energy efficiency programs under the NJ Clean Energy Program. It does not factor in to resource planning for utilities.

In their Energy Efficiency – Best Program Practices, the EPA considered making energy efficiency a resource as one of the most crucial aspects of an effective program.[68] The adoption of regulations treating energy efficient as a resource is vital to ensuring utility forecasting is driven with the best interests of consumers as well as aligned with the renewable energy goals set by the state.

Some states, such as Oregon, have specifically designated energy efficiency as a resource in its planning process. Therefore, when utilities are filing plans with the Oregon Public Utility Commission for demand needs, energy efficiency is viewed as a resource along with all other generation side development, such as power plant construction. Under Oregon Public Utility Commission Order 89-507, utilities are requires to undertake a cost-effective planning technique, which requires the utility to consider both supply and demand side aspects in meeting forecasted demand.[69] Even more promising is under PUC Order 89-507, Oregon requires, utilities to conduct a conservation potential study for its utility service territory, to identify potential savings through conservation methods in order to offset needed generation development.[70] Finally, the Oregon process also places a significant emphasis on risk assessment. Unlike any other state, Oregon, requires that that "risk and uncertainty must be considered" in resource planning. [71] Risk is defined as a measure of possible negative outcomes associated with the resource plan.[72] Uncertainty is defined as the measure of the quality of information about a specific event or outcome which the plan assumes in assessing options to meet service loads.[73] The Oregon PUC requires that utilities take the identified risks, their probabilities of occurrence, and the likelihood of negative outcomes into their choice of preferred resource plan, while still mandating utilities to pursue the most cost-effective option available.[74]

An analysis of Portland General Electric's (PGE) IRP for the past years illustrates the success Oregon has had in considering energy efficiency as a resource. PGE is Oregon's largest utility. In Order No. 14-415, the Oregon PUC directed PGE to acquire 114MWa of cost-effective energy efficiency by 2017. Since this order, PGE has released its 2016 Integrated Resource Plan. In the plan, PGE had to consider energy efficiency as a resource among other generation side resources. As a result, energy efficiency was found to be the most beneficial and was outlined being the first means of meeting all projected load growth.[75] The plan notes that thus far PGE has recognized that energy efficiency has reduced its load growth by

[68] U.S. Environmental Protection Agency, Energy Efficiency Best Practices. Available at https://www.epa.gov/sites/production/files/2015-08/documents/napee_chap6.pdf
[69] Public Utility Commission of Oregon. Order No. 89-507. Docket No. UM 180. April 20, 1989
[70] Public Utility Commission of Oregon. Order No. 07-002. Docket No. UM 1056. January 8, 2007.
[71] Public Utility Commission of Oregon. Order No. 07-002. Docket No. UM 1056. January 8, 2007.
[72] *Id.*
[73] *Id.*
[74] *Id.*
[75] *Id.*

1.5% per year.[76] The plan also highlights that efficient capacity holds the highest portfolio score as a result of both its low reference cost and cumulative CO2 savings.[77] From 2017 through 2020 PGE's plan calls for implementing an additional 135 MWh of energy efficiency on top of what the PUC has already ordered, with continued growth in later years.[78] Oregon's IRP lead PGE to conclude that in all 23 portfolios assessed, energy efficiency is the preferred and lowest cost resource available.[79]

Therefore, it is critical that the BPU adopt regulations establishing energy efficiency and other demand-side management programs as an energy resource. The BPU must quickly evaluate the means of establishing this change, and engage in rulemaking if required.

5. Focus Heavily on Implementing Peak Reduction and Load Shifting Programs

The BPU must focus heavily on peak load reduction programs to reduce need for new peak generation or frequent ramping up of generation. By effectively targeting peak demand the state can defer costs in new generation and transmission, and avoid ramping up peaking power plants. This will result in decreased emissions, consumer savings, and transmission congestion.

Studies indicate that peak demand charges may account for a significant portion of monthly electric bills across the United States.[80] A report by the Advance Energy Economy found that in 2015, 10% of the country's electric system is built to meet demand in just 1% of a year's hours.[81] Moreover, meeting this demand generally is achieved by using the costliest and dirtiest forms of generation.[82] Navigant analyzed Demand Response (DR) programs in Massachusetts and Illinois to determine the savings DR focused on peak reduction can achieve.[83] They concluded that at a minimum, every dollar spent on reducing peak demand will save consumers between $2-3.[84] Moreover, the study concluded that the value of effective demand response on peak demand actually increases as peak declines.[85] This is because the electric grid is so vastly overbuilt that decreasing peaks can actually add value to demand response programs.[86]

An analysis conducted by consulting firm E3 for the California Public Utility Commission, focused on the effect Permanent Load Shifting (PLS) technologies, such as batteries, thermal storage, and process shifting can have on reducing the cost of power, reducing emissions, and deferring new generation

[76] Portland General Electric, Integrated Resource Plan. (Nov. 2016) p. 27
[77] *Id.*
[78] *Id.* at 28
[79] *Id.* 32
[80] Dr. James L. Hoff, *Reducing Peak Energy Demand: Hidden Benefit of Cool Roofs*, TEGNOS Research (November 2014). Available at https://duro-last.com/media/marketing/dl_university/presentations/peak_demand_webinar.pdf
[81] Advance Energy Economy, Peak Demand Reduction Strategy. Prepared by Navigant Consulting, available at https://info.aee.net/hubfs/PDF/aee-peak-demand-reduction-strategy.pdf
[82] *Id.*
[83] *Id.*
[84] *Id.*
[85] *Id.*
[86] *Id.*

capacity. E3 performed a case study, studying 8,760 hourly PLS system impacts, customer load data, retail electric rates, and avoided cost data. E3 found that the overall lifecycle value of grid benefits of PLS technologies over a 15 year project lifetime ranged from $500 to $2,500 per peak Kw reduction. The variance depended on the number of hours the PLS system can shift load and when the load shifting occurred.

In 2012, PSEG developed six natural gas-fire peaking turbines by PSEG at its Kearny Generating Station in order to meet peak summer demand. Currently PSEG has 17 existing natural gas peaking plants in Connecticut and New Jersey.[87] PJM estimates that grid connected capacity across New Jersey's four main utilities is 16,550 MW, meaning that the state currently relies on out-of-state resources to meet peak demand.[88] Moving forward, plant retirements would imply the need for new capacity or additional PJM imports to meet peak.[89] Targeted investment into peak demand reduction can combat the need for increased generation, or PJM imports to meet projected peak demand by lowering the overall need. Demand Response programs have proven successful in reducing overall demand.

Not only will efforts to reduce peak demand defer costs of new generation, but will also help alleviate high locational marginal pricing. Load pockets, within which LMPs are often higher due to congestion in transmission, are common in New Jersey, especially in the eastern portion of the State.[90] Transmission constraints can limit the amount of energy that can be transferred into an area, requiring dispatch of more expensive generation. This results in higher LMPs in such areas, including many portions of New Jersey.

Therefore Clean Ocean Action calls for: (1) the implementation of pilot projects focused on evaluating the effects peak reduction and load shifting technologies, (2) the effect these programs and policies can have on reducing demand within the state, and (3) requirements that peak reduction and load shifting programs and policies must be considered as alternatives to any new generation proposal.

6. Target Building Codes to Improve Efficiency.

Buildings consume more than 40% of the total energy used in the United States, making them an essential target for energy savings. Mandatory building energy codes are one way to ensure a minimum level of energy efficiency for new residential and commercial buildings.[91]

[87] New Jersey Business, *PSEG Brings New Generation Online to Move to Better Meet Peak Demands*. (Oct. 2012). Available at http://www.njbiz.com/article/20121022/NJBIZ01/121029967/pseg-brings-new-generation-online-in-move-to-better-meet-peak-demands

[88] Monitoring Analytics, *2017 Quarterly state of the market report for PJM: January through June, August 2017*. Available: http://www.monitoringanalytics.com/reports/PJM State of the Market/2017/2017q2-som-pjm.pdf

[89] *Id.*

[90] *Id.*

[91] Weston Berg, Seth Nowak, Meegan Kelly, Shruti Vaidyanathan, et al, *2016 State Energy Efficiency Scorecard, American Council for an Energy Efficient Economy*, (2016). Available at http://www.oregon4biz.com/assets/e-lib/BizEnviro/Economy/StEnergyEfficiency16.pdf

Not only are states largely in control of implementing energy efficiency through building codes but implementation through codes is highly cost effective.[92] The United States Department of Energy (U.S. DOE) has even identified building codes as one of the most cost-effective energy efficiency investments.[93] Moreover, the U.S. DOE notes that incremental construction costs to implement recent building energy codes are also cost effective.[94] The DOE found that for residential buildings the incremental costs are about $1,152 to $2,718 per house, while the incremental cost for commercial buildings primarily ranges from $0.53/ft² to $5.38/ft², resulting in net life-cycle-cost savings.[95]

While the state has recently made strides in regards to building codes, there is still ample room for improvement. New Jersey currently mandates residential construction to comply with the amended version of the 2015 IECC, and commercial buildings to comply with the ASHRAE 90.1-2013. Moreover, A3723 requires the NJ Board of Public Utilities to develop "quantitative performance indicators" through a public rulemaking that establishes targets and takes into account each utility's support for the development and implementation of building code changes.

Currently, the major benchmark for green building standards in the United States today is the U.S. Green Building Council's Leadership in Energy and Environmental Design ("LEED") program. Several states, including California, Washington, and Connecticut, mandate that all state government buildings meet LEED criteria, and over seventy local governments, most notably Boston, Chicago, and New York City, have implemented green building requirements for municipal government buildings.[96] Currently, New Jersey requires new government buildings larger than 15,000 square feet constructed for the sole use of state entities to achieve US Green Building Council LEED Silver certification, or a comparable numeric rating from another accredited sustainable building certification program. According to the U.S. Department of Energy, the energy cost savings resulting from updating these codes are estimated to be $195 million annually by 2030.[97] This must be expanded to all government buildings, and the standard should be upgraded to gold.

Heavily focusing on building codes was a primary factor in launching California and Massachusetts to the top of the American Council for an Energy Efficient Economy's most recent state rankings.[98] ACEEE focused on California Assembly Bill 802, which promotes building benchmarking, enables access to whole-building data, and requires the California Energy Commission and the California Public Utilities Commission to reassess baselines for energy efficiency measures.[99] Moreover ACEEE praised

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[92] U.S. Department of Energy, *How Building Energy Codes Can Support State Climate and Energy Planning.* Available at https://www.energy.gov/sites/prod/files/2016/02/f29/Pathways%20Codes_draft_2-4-16-webpost-fornow.pdf

[93] *Id.*

[94] *Id.*

[95] *Id.*

[96] Alexandra B. Klass, *State Standards for Nationwide Products Revisited: Federalism, Green Building Codes and Appliance Efficiency Standards*, 34 Harv. Envtl. L Rev. 335, 334 (2010).

[97] U.S. Department of Energy, *New Jersey Determination Letter*, (May 31, 2013). Available at https://www.energycodes.gov/sites/default/files/documents/NewJerseyDOEDeterminationLetter05312013.pdf

[98] Robert Walton, *Building Codes, Utility Mandates, Propel California – Massachusetts to top of Energy Efficiency Ranks*, Utility Dive. (Oct. 12. 2016). Available at http://www.utilitydive.com/news/building-codes-utility-mandates-propel-california-massachusetts-to-top-ef/428051/

[99] Weston Berg, Seth Nowak, Meegan Kelly, Shruti Vaidyanathan, Mary Shoemaker, Anna Chittum, Marianne DiMascio, and Chetana Kallakuri, *2016 State Energy Efficiency Scorecoard, American Council for an Energy Efficient Economy*, 52 (2016)

California's requirement of updating building codes every three years. In terms of Massachusetts the report highlighted the states adoption of the newest International Energy Conservation Code and American Society of Heating, Refrigeration, and Air Conditioning Engineers standards as part of the state's newest building energy codes.[100] However, while the report focused on the progress of many states it noted that overall states need to adopt updated and more stringent building energy codes, as well as improve code compliance.[101]

Again, New Jersey should look to the leadership of other states to incorporate more stringent building code regulations. Clean Ocean Action compels the BPU to (1) require building codes be updated every three years to keep up with increases in design and technological advances, (2) increase the requirement for government buildings to account for all governmental properties, and (3) raise the standard for government buildings to be certified LEED Gold or its equivalent.

F. Conclusion – RE Energy Efficiency.

Energy efficiency and conservation programs offer the most benefits to the state, consumers, and even utilities, while having no negative environmental impacts. Energy efficiency has proven to be the most cost effective means of lower demand, reducing greenhouse gas emissions, and complying with renewable portfolio standards. While the state has seen improvements under Governor Murphy, there is still massive potential in energy efficiency. If the state is serious in its commitment to meeting both the new Renewable Portfolio Standard, as well as the emission reduction requirements under the Global Warming Reduction Act, energy efficiency needs to not only be prioritized in the EMP, but implemented. Clean Ocean Action urges BPU to prioritize energy efficiency in the EMP, as to be evidenced by actions and findings. Previous EMP's have only paid lip service to the most essential and economical energy source.

II. Renewable Energy Development

As the state aggressively targets reductions through energy efficiency and conservation, renewable energy should also be implemented in tandem, with robust meaningful public engagement and environmental review. Further, all sources of renewable energy must be embraced, but there is a need to prioritize the most economically viable and environmentally sound and beneficial sources first. Therefore there must be an equitable or greater implementation of land based renewables which are more cost effective. Clean Ocean Action urges for a minimum of a two-to-one ratio of onshore to offshore renewable generation to ensure the ocean is not over-industrialized as we move to reduce carbon consumption.

A. Large Scale Solar Development

An analysis by Lazard concluded that solar energy is among the lowest cost for any power, second only to wind, on a levelized basis, without accounting for subsidies.[102] Currently, only 5% of New Jersey's

[100] Id. at 10
[101] Id.
[102] Lazard, *Lazard's Levelized Cost of Energy Analysis - Version 10.0.,* Available at https://www.lazard.com/media/438038/levelizedcost-of-energy-v100.pdf,

total net electricity generation is produced by renewable energy supplies. New Jersey has been a leader in rooftop solar, and must build on this success, while increasing focus on other options such as grid connected and utility scale solar. Studies have shown that grid connected solar is cheaper than rooftop on a Khw basis.

To date, the state's has installed nearly 91,000 solar photovoltaic facilities with a total installed capacity of 2,444 MW.[103] This capacity breaks down to 1,900 MW from residential and business rooftops and 544 MW from larger utility scale generation.[104] Average residential rooftop installation of 0.5 MW is much smaller in capacity and size compared to a grid supplied installation. The grid supplied installations in New Jersey range from 2 MW to 20 MW.[105]

Forecasts from senior market strategists at PJM indicate that a "significant chunk" of new renewable energy generation in the PJM Interconnection will come from corporate power purchase agreements (PPAs) and direct merchant generation.[106] The BPU should focus on incentivizing large and utility scale renewable energy projects by utilizing power purchase agreements and direct merchant generation to facilitate increased investment in large scale solar development.

One means to fund large scale solar, was seen in Minnesota. Minnesota in an effort to increase large scale renewable energy development created the "Green Tariff Program" as a pilot project. While this project was mostly for wind, the policy can work for solar. The pilot allows Xcel Energy to assign 50 MWs of the 200 MW Odell Wind Farm for individual use through a PPA.[107] This is the first step in Minnesota's "green tariff" is to allow individuals or businesses conscious of their energy use to selectively buy from renewable project's power generation. *Though similar to Minnesota's community solar*, this program has some distinct advantages for both individuals and larger business purchasers. A major advantage to this program is a higher level of flexibility in service length through PPAs. Xcel can sell power either on a month-to-month rate or through 5 or 10 year contracts. Another advantage of this program is renewable energy certificates for buyers. This is particularly beneficial to corporations looking to support renewable energy and sustainability, as having RECs provides clear proof of this commitment. The initial plan allows a purchaser to agree to up to 10% of the total energy available under the Renewable Connect agreements. Although community solar allows for up to 40%, the total size of the community solar projects is less than 1 MW, so businesses are required to buy multiple plans to offset their use.[108] Under the green tariff, companies can match more of their needs, especially if the size the projects increase in the future. Green tariffs cater to customers' preference for a more direct financial

[103] New Jersey Board of Public Utilities, New Jersey Clean Energy Program, Solar Activity Reports, New Jersey Solar Installations, as of March 31, 2018.
[104] *Id.*
[105] *Id.*
[106] Gheorghiu, *PJM Renewables Future Includes Significant Chunk of Corporate Procurement, Analyst Says*. Utility Dive. (Oct. 1, 2018). Available at https://www.utilitydive.com/news/pjm-renewables-future-includes-significant-chunk-of-corporate-procurement/533411/
[107] Jossi, *New Xcel program sells renewable energy directly to businesses and homeowners*, Northern Energy News, February 8, 2017
[108] *Id.*

connection to renewable energy projects, ideally within the same service territory or grid distribution area. Moreover, green tariffs have also provided greater flexibility and lower transmission costs.[109] Seeing the benefits of flexible PPA's through green tariff initiatives, Washington, Nevada, Colorado, New Mexico, Virginia, and North Carolina have developed their own green tariffs.

In New Jersey, because of the population density and the highly developed nature of the state, there is potential for creation of large scale solar projects by utilizing developed spaces such as parking lots, malls, large buildings, and others. The BPU should look to explore new novel locations for solar siting. The NJDEP Solar Siting Analysis concluded that the preferred areas for solar siting should be on existing impervious surfaces common in urban developed landscapes. Parking lots clearly meet this definition and would also be vital as the state moves to develop a statewide electric vehicle charging system.

Furthermore, Clean Ocean Action urges for clear and transparent rulemaking process as the state continues to adopt a community solar program. Community solar will enable increased solar generation by allowing those who were previously unable to engage in opportunities to access rooftop solar to be included. This project will enable renters, those with unsuitable roofs, and those who cannot afford the initial capital cost to engage in the solar industry.

Therefore, Clean Ocean Action calls for the BPU to: (1) adopt regulations such as Minnesota's Green Tariff allowing large industrial and commercial consumers to purchase assigned portions of utility owned renewable with flexible contract terms and rates, thereby enhancing funding options for large scale solar. (2) Develop incentives and siting requirements to facilitate solar DER in parking lots in conjunction with Electric Vehicle charging stations. (3) Speedy, but thoughtful creation of a community solar project aimed at increasing solar capacity.

A. Develop a New Pricing Model for Distributed Energy Resources.

New Jersey must also continue to build on its residential solar success. To foster increases in Distributed Energy Resources (DER), Clean Ocean Action urges the BPU to develop a new value for solar DER resources. Both utilities and customers can benefit from accurate valuation of DER, and this will lead to increase adoption. First, utilities will be able to make smarter and more calculated investments.[110] A locational based valuation of DER will allow utilities to optimize investments through a better understanding of the benefits of specific DER projects.[111] Second, customer adoption of DER is driven by both policy and technology innovation, as technological advances increase, policy must follow.[112]

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[109] Letha Tawney, Priya Barua, Celina Bonugli*, Emerging Green Tariffs in U.S. Regulated Electricity Markets*. World Resource Institute. (Feb. 2018). Available at https://wriorg.s3.amazonaws.com/s3fs-public/emerging-green-tariffs-in-us-regulated-electricity-markets_0.pdf?_ga=2.251244806.1017531618.1539288913-1999858973.1539288913

[110] Steve Fine, Pail De Martini, Samir Succar, Matt Robison, *The Value of Distributed Energy: It's All About Location, Location, Location*, (September 2015). Available at https://www.icf.com/resources/white-papers/2015/value-in-distributed-energy

[111] *Id.*

[112] *Id.*

Numerous other states are charging ahead in revaluing DER, and New Jersey must follow. Two prime examples are New York and Minnesota

New York has developed the "Value Stack" tariff. The Value Stack tariff shall be based on monetary crediting for net hourly injections.[113] Excess credits will be eligible for carry-over to subsequent billing and annual periods, subject to further stipulations as detailed in the Discussion Section.[114] Projects eligible for the Value Stack tariff will receive compensation for a term of 25-years from their in-service date. The long range compensation helps consumers determine payback viability, which is crucial in cost-benefit analysis when debating rooftop solar. Projects under the Value Stack tariff must be equipped with utility metering capable of recording net hourly consumption and injection.[115] Under the Value Stack, the price of Solar DER will have four separate components.[116] (1) Energy Value, based on the Day Ahead hourly zonal LBMP on a per KWh basis (inclusive of losses).[117] (2) Capacity Value, based on retail capacity rates for intermittent technologies based on performance during the peak hour in the previous year.[118] (3) Environmental Value, based on the higher of the latest Clean Energy Standard Tier 1 REC procurement price or the Social Cost of Carbon.[119] And, (4) Demand Reduction Value and Locational System Relief Value.[120]

Minnesota has done something similar with their Value of Solar Tariff (VOST). The VOST method adds up multiple value streams for distributed solar such as energy, capacity, and environmental benefits, to create a single purchasing rate that separates a solar customer's consumption from their generation.[121] Once the calculation methodology was developed, Minnesota investor-owned utilities could use it to replace net metering, at their option.[122] The price of the VOST was set through calculating the value of energy and its delivery, generation capacity, transmission capacity, transmission and distribution line losses, and environmental value. The idea is that by separating generation and consumer consumption, the VOST will disentangle the issue of losing revenue from solar by replacing the previous net metering rate, with a more holistic purchase rate which reflects the actual value of solar, above and beyond electric generation.

New Jersey should move away from the old net metering system, slowly, and develop a new more encompassing value of solar that reflects the actual price of DER solar by incorporating (1)

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[113] See. NYPSC CASES 15-E-0751 and 15-E-0082 pp. 13 - 14
[114] *Id.*
[115] *Id.*
[116] *Id.*
[117] *Id.*
[118] *Id.*
[119] *Id.*
[120] *Id.*
[121] Taylor, *The Minnesota Solar Experiment — Value of Solar: Part III*, Renewable Energy World, (December 2016). Available at https://www.renewableenergyworld.com/articles/2016/12/the-minnesota-solar-experiment-value-of-solar-part-iii.html
[122] *Id.*

environmental benefits, (2) benefits to the grid, (3) energy and capacity value, and (4) locational based value.

III. Offshore Wind Development

The ocean also holds promise for renewable energy, however, before development a transparent process, with robust meaningful citizen involvement must be underway, and a rigorous environmental review of the entire scope and magnitude of the proposed projects, support systems, and secondary impacts, both individually and cumulatively, must be undertaken. This would include the impacts to marine life, as well as to the coastal communities that will host the industrial facilities needed for the development of offshore wind. The long-term operation and maintenance requirements must also be evaluated and understood. Therefore, Clean Ocean Action again urges for an equitable or greater implementation of land based renewables with a minimum of a two-to-one ratio of onshore to offshore renewable generation to ensure the ocean is not over-industrialized as we move to reduce carbon consumption.

The U.S. Department of Energy specifically acknowledges that the effects of wind farms on marine animals and avian species are not fully understood.[123] Moreover studies from the effects of European development indicate there are effects during construction, operation, and maintenance of offshore wind facilities. The major offshore environmental concerns related to offshore wind farms are (1) increased noise levels, (2) risk of collisions, (3) changes to benthic and pelagic habitats, (4) alterations to food webs, (5) pollution from increased vessel traffic, (6) bird collisions, (7) impacts from electromagnetic fields, and (8) release of contaminants from seabed sediments.[124] The effects of offshore wind development are not isolated to coastal waters. Development on land will necessitate from any development off our coastline. Therefore it is critical that the onshore developments be thoroughly evaluated in any consideration of offshore wind construction. The main onshore impacts include (1) development of maintenance fleets, (2) onshore converter stations, and (3) inter-connection development.

All effects, both on an individual and cumulative level must be thoroughly analyzed before any offshore development is approved in state waters, or transmission lines are approved for federal projects.

A. Environmental Impacts Associated with Offshore Wind Development

Clean Ocean Action is eager to work with the BPU to develop a thorough understanding of the associated impacts with offshore wind development. Currently, Clean Ocean Action is in the process of developing a list of issues and concerns for the upcoming National Environmental Policy Act process for

[123] *Mid-Atlantic Wildlife Studies – Distribution and Abundance of Wildlife along the Eastern Seaboard.* Biodiversity Research Institute. Available at http://www.briloon.org/uploads/BRI_Documents/Wildlife_and_Renewable_Energy/FINAL%20DOE%20booklet%20092515.pdf

[124] Bailey, H., Brookes, K.L., and Thompson, P.M., *Assessing Environmental Impacts of Offshore Wind Farms: Lessons Learned and recommendations for the Future*, (2014). Aquatic Biosystems.

the BOEM process in the NY-NJ Bight. For this, and as we begins to understand these impacts, we have developed the following list of questions we seek, with the help of the BPU, to answer.

- What are the effects of construction to marine mammals and fisheries?
- How does the noise from developing offshore wind turbines affect marine life? How widespread are the effects? If there is displacement, how long does it last?
- What are the effects of sediment dispersal from dredging and construction on marine life and ecosystems?
- How will construction and operation effect migration patterns?
- What are the effects of maintenance? How often will maintenance be occurring? Will maintenance operations be conducted by helicopter or boat?
- Where will the maintenance fleet be located? How many boats or helicopters are needed? What are the onshore impacts to ports from maintenance fleets and navigation increases in the Bight?
- How will the artificial reef affect at the base of the turbines affect the surrounding ecosystem and food chain? What are the benefits and impacts associated with this phenomenon? Will these artificial reefs result in introduction of invasive species?
- What effects will the electromagnetic field from the underwater cables have on marine life, specifically sharks and rays which use electromagnetic fields to navigate and hunt for food?
- Will jack-up rigs be required for heavy and emergency maintenance, and if so what is their offshore and onshore impact?
- How often will maintenance be required? What is the likelihood of maintenance resulting in striking marine mammals?
- What are the onshore impacts to either expanding or creating new ports for development and maintenance? What are the secondary effects from development or expansion or ports?
- Where will the wind turbines be built and assembled? If in the New Jersey Coastal Zone, what are the impacts? If not, how will the materials be transported and will there be a need for development of infrastructure for transportation?

The public and the BPU must consider these questions as they begin moving forward with offshore wind development. It is crucial to understand and address the onshore and offshore impacts associated with development. Therefore, any consideration of offshore wind development must be accompanied by a mandatory cumulative environmental analysis at the state level, on top of the federal NEPA process. Clean Ocean Action is willing and eager to identify and evaluate these issues with the BPU.

IV. Impose a Moratorium on all New Fossil Fuel Infrastructure.

Finally, as the BPU develops the EMP, and New Jersey's overall pathway to reaching the state's new Renewable Portfolio Standard, a moratorium on all new and proposed fossil fuel infrastructure projects be implemented. Any new development of fossil fuel infrastructure would be both inconsistent with the

states aggressive Renewable Portfolio Standard, as well as the greenhouse gas emission reductions required under the Global Warming Reduction Act.

Moreover, the effects of climate change are already being felt, and will soon be extreme. Again, The IPCC report on Global Warming of 1.5 Degree Celsius, issued this week illustrates that at the current rate, the planet will reach the crucial threshold of 1.5 degrees Celsius above pre-industrial levels as early as 2030.[125] Moreover, the report noted that warming of 1.5 degree Celsius of warming will be much worse than the 1 degree Celsius we are currently experience.[126]. Currently the earth has warmed 1 degree Celsius on average compared to preindustrial times.[127] The IPPC report grimly shows that the effects of .5 degree increase will be drastically more catastrophic than staying at 1.5 degree warming. For this reason, the IPPC, called for transforming the world's economy at a speed and scale that has no documented historic precedent.[128] Specifically, the report called for lowering emissions from energy sector, and a complete decarburization of the sector by the mid-century.[129] New Jersey must follow this advice with a moratorium on fossil fuel infrastructure.

Therefore, as the state outlines its blueprint to achieving its renewable goals, it would be unconscionable to permit development of fossil fuel pipelines and power plants. The average expected operating life for a combined-cycle natural gas power plant is 25-30 years.[130] Thus, new power plants developed in New Jersey would continue to operate will into 2050, forcing New Jersey ratepayers to finance a project against the stated goals of the governor and the legislature. In February, Governor Murphy announced that "fracking should not have a role in the energy future of New Jersey" and that he would fight to "protect our residents from the risk of contaminated water and protect our environment" from fracking.[131] If the governor and the BPU are to uphold this, new natural gas infrastructure within the state cannot be allowed.

Moreover, most proposed fossil fuel projects within New Jersey are not needed to supply demand to New Jersey citizens. These projects will only harm New Jersey residents, by impacting air quality and contributing to the states greenhouse gas emissions while benefiting other states, such as New York. The BPU should not allow New York to outsource the negative externalities from its dependence on fossil fuel as our state transitions to a clean energy future. One key example is the North Bergen Liberty Generating Project (NBLGP). The NBLGP, proposed to be developed in the Meddowlands, would see all 1,200 MW of power generated delivered solely for New York City residents. This project could generate nearly 2.4 million metric tons of carbon dioxide significantly contributing to the states overall greenhouse gas emissions. Furthermore, the proposed location of the plant is in an area that is plagued

[125] Intergovernmental Panel on Climate Change, Global Warming of 1.5 Degree Celsius – Summary for Policymakers. Available at http://report.ipcc.ch/sr15/pdf/sr15_spm_final.pdf
[126] *Id.*
[127] *Id.*
[128] *Id.*
[129] *Id.*
[130] Sargent and Lundy LLC, *Combined Cycle Life Assessments*. Available at https://sargentlundy.com/wp-content/uploads/2017/05/Combined-Cycle-PowerPlant-LifeAssessment.pdf
[131] Danzis, David, *Murphy: New Jersey backs ban on fracking*, New Jersey Herald, (February, 2018).

by air quality issues. The North Bergen area has never met federal Clean Air Act standards for ground level ozone. Moreover, the plant would emit other harmful pollutants including ammonia and nitrogen oxide.

Similarly, the Transco Williams Northeast Supply Enhancement (NESE) would also only benefit New York residents at the expense of the health of New Jersey citizens and the state's environmental resources. The pipeline would destroy vital environmental habitat as 23 miles of offshore pipeline, 3.5 miles of pipeline development in Middlesex County, New Jersey, and a new compressor station in Somerset New Jersey are developed. The pipeline would cross six aquifers, one of which provides drinking water for three million New Jersey residents. Moreover, the compressor station will significantly contribute to air and noise pollution.

There have also been attempts to create Liquefied Natural Gas (LNG) export terminals in New Jersey. These must also be blocked.

Furthermore, while the proposed PennEast pipeline would also bring natural gas to New Jersey residents, it is currently being challenged as unlawful under the Natural Gas Act requirement of "public convenience and necessity." New Jersey Conservation Foundation and the Watershed Institute are currently challenging the Federal Energy Regulatory Committee's certification of need for the project. A study by Labryinth Consulting Group concluded that "existing interstate pipelines supply all of New Jersey's natural gas demands." The proposed PennEast project would deliver an additional 1 Bcf/d of natural gas to New Jersey, creating a 53% supply surplus above the current level of consumption. Not only is the project unnecessary, but the environmental consequences would be severe. A New study estimates that the current methane emission leak rate from the U.S. oil and gas system is 2.3 percent, well above the EPA inventory estimate of 1.4 percent. Therefore it is clear this project is unnecessary.[132] Therefore, this project is not only unnecessary, and against the intentions of Executive Order 28, but will also result in more methane leakage than previously thought.

Thus, based on the intent of the Governor and legislature, the mandates in the Renewable Portfolio Standard, requirements under the Global Warming Reduction Act, and recent findings by the IPCC, Clean Ocean Action calls for the BPU to impose a moratorium on all new fossil fuel infrastructure development within the state of New Jersey.

V. Conclusion

Drastic greenhouse gas emission reductions are essential to combat the devastating effects of climate change, and New Jersey is in a position to become a leader in clean energy. As the IPPC report noted, we may have as little as twelve years to meaningfully act on climate change to reach the target of limiting warming to 1.5 degree Celsius. Failure to do so could result in even more drastic climate effect. As the

[132] Assessment of methane emissions from the U.S. oil and gas supply chain
Ramón A. Alvarez, Daniel Zavala-Araiza, David R. Lyon, David T. Allen, Zachary R. Barkley, Adam R. Brandt, Kenneth J. D. Assessment of methane emissions from the U.S. oil and gas supply chain. Science 13 Jul 2018: Vol 361, Issue 6398, pp/ 185-188

report indicates letting temperatures rise will exact a huge toll on lives, natural systems, and the economy. These comments have outlined numerous action steps necessary for achieving a clean energy future and meeting the renewable energy objectives the state has adopted. Clean Ocean Action looks forward to continuing to work with the BPU on the creation of the Energy Master Plan, and moving the state into becoming a national leader in energy efficiency and carbon reductions.

Sincerely,

Peter Blair

Cindy Zipf.

Executive Director

Peter Blair, Esq.

Policy Attorney