October 12, 2018

TO: Aida Camacho, Secretary
New Jersey Board of Public Utilities
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Trenton, New Jersey 08625

FROM: Ed Potosnak, Executive Director
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RE: Final Comments on the 2019 State Energy Master Plan

The **New Jersey League of Conservation Voters** would like to thank the BPU for undergoing this extensive Energy Master Plan public input process, and meeting the call for more hearings during off work hours in additional areas around the state to diversify input. We are proud to have worked extensively with the Administration and Legislature on the Clean Energy Bill, and were honored to stand with BPU President Fiordaliso as the Energy Master Plan (EMP) Executive Order was signed by Governor Murphy.

During this EMP process, we have prepared a few recommendations that should serve as the guiding forces behind the BPU's work. These recommendations are organized by EMP hearing, in order in which they were held. More detailed comments can be found in a similar arrangement, in Appendices A-E. There may be some cross-over in information between EMP hearing topics. With the recent IPCC Report detailing the urgent need for aggressive action to combat climate change, the Energy Master Plan has never mattered more.

**Therefore, and first, Clean and Renewable Power:**

- First, the EMP should be designed accordingly to put New Jersey on a path to realize the economy of the future and ensure responsible development of our renewable energy resources to achieve 100% clean renewable energy by 2050.
- Second, the EMP should set interim emissions targets for every five years between 2023 and 2050 by sector - electricity generation, transportation, residential and commercial sectors – to provide a pathway to achieve Global Warming Response Act goals by 2050
- Third, there is no need to incorporate "transitional fuels" into a definition of clean energy because transitional fuels such as coal, natural gas, and petroleum products produce emissions, and must be replaced at some point by clean sources.
- Fourth, while we strongly support swiftly transitioning to clean renewable energy, we need to do so responsibly and equitably with specific siting and environmental justice

concerns adhered to and should develop policies to guarantee pollution reductions in environmental justice communities in the near-term.

- Lastly, to reduce uncertainty in the energy market and reflected in utility bill costs, the BPU in collaboration with state agencies, should determine pathways to reach 2050 goals utilizing state-of-the-art modeling and analysis of the regional grid out to 2050.

**Second, Reducing Energy Consumption:**

- Efficiency provides the single largest, and most cost-effective, opportunity to cut global warming pollution while cleaning the air, creating jobs and saving businesses and consumers money.
- First, the EMP needs to evaluate stronger energy efficiency standards and encourage utilities to meet these more stringent levels to realize the good local employment opportunities created in the energy efficiency sector.
- Second, the EMP needs to encourage decoupling to break the conventional link between revenue and sales.
- Third, the EMP needs to guide the BPU to set a goal for energy efficiency delivered to low-income customers.
- Lastly, we recommend the BPU consider forming a stakeholder advisory board similar to Massachusetts and Rhode Island.

**Third, Clean and Reliable Transportation:**

- In New Jersey, transportation is the largest greenhouse gas emitting sector – nearly 50%, therefore, it is essential that the EMP discusses empirically identified best management practices to reduce air pollution, especially in environmental justice communities.
- First, the State should do everything in its power to prevent CAFÉ Standards from being dismantled.
- Second, Electric Vehicles and Charging Infrastructure Investment is key to realizing NJ's Global Warming Response Act goals.
    - Address three primary barriers:
        - Affordability
        - Range Anxiety and Infrastructure
        - Education
- Third, the electrification of public transportation, specifically within Environmental Justice communities should be prioritized, with a focus on electric school buses and clean ports.
- Lastly, transit-oriented development and smart urban planning should be emphasized.

**Fourth, Building a Modern Grid:**

- As we, PJM, continue to integrate more distributed energy resources, the grid is going to continuously become more decentralized.
- First, the EMP should outline collaborate methods for increased ISO coordination.
- Second, future energy forecasting and load shape analyses that encourage demand response educational programs.
- Lastly, structural infrastructure investments should be encouraged to ensure that our infrastructure is modern and able to efficiently manage electricity.

**Fifth, and Lastly, Sustainable and Resilient Infrastructure:**

- First, the EMP needs to identify policies and guidance to preserve the integrity of our energy systems in the face the anticipated and unanticipated impacts of climate change.
- Second, we cannot achieve a 100% clean energy future if we continue to invest in unneeded fossil fuel projects.
- Third, the EMP needs to consider criteria such as climate change impacts, the social cost of carbon, contributions to attaining any new interim goals, achieving the 2050 GWRA limits in all major investments of public monies, including public energy infrastructure and economic development investments, development and redevelopment of state facilities, and Executive Order 215 Reviews to ensure that we are moving productively and efficiently toward our clean energy economy
- Fourth, as we ramp up investment in clean energy infrastructure, we need to ensure that the good local employment opportunities are accessible to everyone, especially if major investments are happening near low-moderate income, and environmental justice communities through workforce development programs.
- Lastly, the administration and legislature should do everything in its power to support, facilitate, and provide funding for the Gateway Project between New York City and New Jersey.

New Jersey League of Conservation Voters looks forward to continuing to work with the BPU, DEP, legislature, and administration to ensure New Jersey takes bold, innovative action, realize our clean energy economy of the future, and serve as a leader for the world to follow.

# APPENDICIES

## APPENDIX A

**EMP: Clean and Renewable Power**

**Clean renewable power is the key to realizing our clean energy future and economy, and the EMP should be designed accordingly to put New Jersey on a path to realize this economy of the future and ensure responsible development of our renewable energy resources**. In fact, according to market trends, investing in renewable energy is both a prudent economic choice that protects our wallets, and is a prudent choice to protect our climate, communities, and families. The EMP will serve as the foundation for this transformation. As illustrated by a study conducted by the University of Texas – Austin, renewables are quickly emerging as the cheapest source of levelized electricity throughout the country.

**The Energy Master Plan (EMP) should set interim emissions targets for every five years between 2023 and 2050 by sector - electricity generation, transportation, residential and commercial sectors – to provide a pathway to achieve Global Warming Response Act goals by 2050** (statewide reduction of emissions by 80% from 2006 levels). The EMP should develop a comprehensive blueprint to achieve these interim targets and require bi-annual monitoring and reporting. These monitoring and reporting components are crucial to achieve our near-term goals and inform long term projecting. We need to ensure that we are consistently taking steps that move us closer to achieving our GWRA goals and RPS goals.

By defining interim targets, statewide and by sector, policymakers would set effective boundaries on how quickly transitional fuels will be phased out. The state will not need to pick winners and losers and can generally rely on market forces to sort out which fuels decline at what rates. Therefore, clean energy should be defined as Class I Renewable Energy, like solar and wind. **There is no need to incorporate "transitional fuels" into a definition of clean energy because transitional fuels such as coal, natural gas, and petroleum products produce emissions, and must be replaced at some point by clean sources**. New Jersey has already enacted landmark legislation requiring 50% renewable energy by 2030, and the EMP should put the state on a pathway to achieve 100% renewable energy by 2050. We should not rely on transitional fuels to cover any emerging energy needs, and a recent study conducted by the Conservation Foundation highlights the fact that we don't need any additional natural gas capacity as we have enough already to manage our future projected demand.

While we discuss a just transition to a clean energy future, New Jersey is facing a multitude of proposed fossil fuel projects, including gas-fired plants and pipelines, that are not consistent with our collective, shared vision for the future. In addition to defining interim targets for Class I energy production, the EMP should identify regulatory changes needed for regulators to deny

approval of new oil and gas projects that threaten reaching statewide emissions reductions required under the Global Warming Response Act.

Since New Jersey is a de-regulated state, there is no risk to ratepayers from stranded assets such as gas generation plants. The state can reduce the risk of losses to investors by providing clear and consistent signals to developers of fossil fuel assets. One type of stranded asset that ratepayers will be at risk is natural gas pipelines. It is expected that by 2030 there could be a significant reduction in gas consumption in New Jersey, which could affect the utilization rate of several interstate pipelines and distribution pipelines. Assuming that the costs to maintain these lines does not change, those costs will be spread over a shrinking pool of customers, creating much higher charges for consumers of natural gas. To protect New Jersey customers, it is absolutely essential to project future gas consumption and refrain from building additional infrastructure that will become underutilized as demand for gas shifts and to ensure that our investments are in-line with the GWRA goals. We should not be putting ratepayers on the hook for costs from unwise infrastructure investments.

In addition, while we strongly support swiftly transitioning to clean renewable energy, **we need to do so responsibly and equitably**. The EMP should consider the siting mechanisms and policies of proposed fossil fuel projects, specifically in environmental justice and communities of color. The EMP should develop policies to guarantee pollution reductions in environmental justice communities in the near-term. Any energy policy development should abate impacts on environmental justice communities and communities of color and provide greater access to renewables and energy efficiency through community solar and weatherization initiatives and ensure affordability for low-moderate income households. We are happy to work with you to define affordability and low-moderate income.

Lastly, **to reduce uncertainty in the energy market and utility bill costs, the state should determine pathways to reach 2050 goals utilizing state-of-the-art modeling and analysis of the regional grid out to 2050.** This was recently done in other states such as Minnesota and Hawaii, to identify the mix of clean energy resources needed over time to achieve a reliable grid, deep de-carbonization and low-cost pathways. The EMP should provide a cost-effective pathway to achieve 100% renewable energy while capitalizing on the tremendous opportunities to generate good local jobs and spur economic development in New Jersey through renewable energy projects and investments in energy efficiency and electrification.

## APPENDIX B

**EMP: Reducing Energy Consumption**


**Efficiency provides the single largest, and most cost-effective, opportunity to cut global warming pollution** while cleaning the air, creating jobs and saving businesses and consumers money. However, regulatory barriers discourage utilities from investing in energy efficiency even though it costs at least 50 percent less and carries less risk than building power plants, transmission wires or pipelines. In 2017, U.S. electric power sector generated about 34% of the total U.S. energy-related CO2 emissions and buildings accounts for about 76% of electricity use and 40% of all U. S. primary energy use and associated greenhouse gas emissions.

**This is a prime opportunity for improved efficiency.** By 2030, building energy use could be cut more than 20% using technologies known to be cost effective today and by more than 35% if research goals are met. There are vast good local employment opportunities in energy efficiency, and as of now, over 33,000 people work in energy efficiency comprising 13% of construction jobs and 25% of all energy related jobs. Therefore, making more aggressive energy efficiency standards will increase good local job opportunities for all.

However, in pursuing aggressive energy efficiency targets, a major market barrier exists: Utilities are not incentivized to improve EE because it can go against their bottom line. **Decoupling** turns traditional rate market on its head by breaking the link between energy sales and revenue. It presents a win-win opportunity for both parties. Decoupling keeps revenue steady, reduces financial risk and capital costs for the utility and keeps customer's energy costs in check, with considerable benefits for low-income households because money they aren't spending on energy is money directly back in their pockets without the need for public financial assistance to help pay for electricity. Some low-income households are spending nearly 20% of their income on utility bills.

Low-income households are demonstrated to have less efficient appliances and systems within their homes, and decoupling offers exciting opportunities to promote utility-run energy efficiency programs like insulating homes and offering rebates for purchase of energy-efficient appliances or more efficient light bulbs. Programs should target lower-income households because energy efficiency is a powerful way to make utility bills more affordable, improve the comfort of their homes, and reduce the amount other customers spend to fund bill assistance programs.

However, low-income customers face numerous barriers to participation in efficiency programs. This makes well-designed, specifically targeted efficiency programs for low-income customers a crucial topic to consider during this process.

**Therefore, we recommend the EMP to guide the BPU to set a goal for energy efficiency delivered to low-income customers.** States have taken a variety of approaches to goal setting for low-income programs, including portfolio requirements, spending requirements, and portfolio savings carve-outs for low-income programs, similar to whats been done in Illinois or

Maine. To monitor this, we recommend the BPU convene a stakeholder group to ensure that programs are well-designed to meet the needs of low-moderate income customers. This ensures that the programs outlined, are monitored and evaluated to do as planned, with the input of relevant stakeholders.

**In addition,** a utility's energy efficiency program portfolio should pursue emerging technologies, providing technical support to upgrade building and appliance efficiency standards, delivering education and workforce training for installation and municipal building code enforcement, exploring pilot programs, working with key partners like local governments, and offering competitive solicitations for innovative technologies and programs.

Lastly, the BPU should commission a study to determine (1) the level of achievable, cost-effective efficiency beyond the 2% minimum, including savings from robust appliance standards and building codes (recognizing that new appliance standards would require legislation) and (ii) the maximum timeframe for achieving that level of savings (within 5 years). The board should also consider setting mWh and therm savings requirements for each 5-6 year planning period and require utility programs to align accordingly.

**Lastly, we recommend the BPU consider forming a stakeholder advisory board** similar to Massachusetts and Rhode Island, which include expert consultants, would support utilities' efforts to adopt best practices, help ensure transparency and provide independent validation of program performance.

## APPENDIX C

**EMP: Clean and Reliable Transportation**

**In New Jersey, transportation is the largest greenhouse gas emitting sector – nearly 50%, therefore, it is essential that the EMP discusses empirically identified best management practices to reduce air pollution, especially in environmental justice communities.**

**First, the State should do everything in its power to prevent CAFÉ Standards from being dismantled.** These standards are widely supported by the public, drive innovation, and have saved consumers nearly $1 trillion at the pump.

**Second, Electric Vehicles and Charging Infrastructure Investment is key to realizing NJ's Global Warming Response Act goals.** Adoption of electric vehicles in NJ is the most efficient and expedient way to clean our air and reduce carbon emissions as every electrically fueled mile is 69%-79% cleaner than a mile fueled with petroleum (based on existing generation resources).

The state should continue to work with the legislature to pass legislation that encourages electric vehicle market growth. According to NREL, a "large majority (66%) stated they expect to pay $30,000 or less for their next vehicle, and 42% expect to pay $20,000 or less. Although price is a barrier, 32% of current top selling, non-luxury PEV offerings fall within the respondents' reported expected price range, if they could all take advantage of the federal tax credit (IRS 2017). Expected purchase prices show little change from 2015 and 2016 results." Therefore, while overall trends show prices falling for EV's, especially as a variety of models are anticipated to enter onto the market by 2020, affordability needs to be addressed.

This is important to note as New Jersey needs 330,000 EV's on the road to meet its California ZEV program goals by 2025, so any personal vehicle policies considered should evaluate whether it moves the state closer to accomplishing these goals and not build additional barriers or encourage the purchase of high emissions vehicles. Policies similar to those in France, Sweden, and Norway, which impose higher fees or sales taxes on higher-emission vehicles to give rebates to cleaner vehicles should be considered. Cities across Europe and China restrict the use of high-polluting vehicles and give preferential access to electric vehicles, and more Mayors are working to ensure major portions of their cities are accessible only to zero-emission vehicles.

An additional barrier to market growth is the lack of available infrastructure to adequately support it. Range anxiety is a major inhibitor to growth, as 63% of car shoppers detail that not enough range and charging locations is a primary detractor, although EV's can manage 90% of all trips on a single overnight charge.

Increased investment in public EV charging infrastructure and a statewide plan to establish a functioning charging network at public rest stops to **reduce range anxiety is essential**. According to NREL, 26% of respondents, up from 18% in 2015, were aware of charging stations on the routes they regularly drove.

To highlight this, according to the Department of Energy, there are just over 16,000 public electric vehicle charging points in the United States, offering about 44,000 individual outlets of varying charging speeds. By comparison, there are 120,000-150,000 gas stations nationwide, many of which have 10 or more pumps.

"The limited range of electric vehicles is still seen by many as the key barrier to the mass uptake of EVs. This could be addressed in one of two ways: either the actual range of the cars needs to be improved or through an abundance of public charging infrastructure which would give drivers the confidence that they could complete their journeys and top up their charge as and when it was needed. Even though cities can address the lack of public recharging infrastructure (Namdeo et al., 2014, Roelich et al., 2015), this has not been followed through by the cities which mentioned EVs in their mitigation strategy documents as demonstrated by the analysis

undertaken... Moreover, even in cities with significant EV charging infrastructure such as Newcastle (Namdeo et al., 2014), many EV drivers still believe that more public infrastructure is needed (Robinson et al., 2013). It was found that 30% of charge events took place at public charging infrastructure with 20% of EV drivers using public charging infrastructure as their primary means of charging. Yet, lack of public charging infrastructure was still quoted as one of the main barriers to the uptake of EV even by those drivers who extensively used public charging facilities. This suggests that cities may have to rethink the locations they choose for EV charging points and choose highly visible and strategic locations for the placement of new charging infrastructure."

**Influencing EV uptake is not only an infrastructure issue, but also a public outreach and engagement issue. Behaviors and perceptions need to change, which presents a third barrier. Public education is essential to catalyze market growth and dispel false perceptions.**

Moreover, and specifically regarding the charging ports/infrastructure, the EMP should evaluate mechanisms that encourage private investment in charging infrastructure that encourages customer choice and equipment choice and doesn't pick winners to ultimately build the most dynamic EV charging infrastructure market possible. Public and private investment should work collaboratively.

Continued, in 2017, in Europe, the next generation of charging ports offer 350 kilowatts of power, slashing charging times to 10 to 15 minutes depending on the car battery and range. Therefore, any plans for infrastructure needs to consider future technological change to ensure the most streamlined and efficient investment. And we do know that EV charging infrastructure is a smart investment.

According to a report by ChargEVC, which New Jersey LCV is a member, through a reduced cost of fueling and maintenance, putting two EVs into the garage of an average New Jersey household creates more than $1900 per year of additional disposable income through 2035. This results in a net savings of over $8.4B through 2035.

**Third, the electrification of public transportation, specifically within Environmental Justice communities should be prioritized.**

The EMP should provide guidelines and supply chain recommendations to transition New Jersey to a 100% clean, electric bus fleet as soon as possible. While at face value, electric buses are still more expensive than conventional buses, incorporating life cycle assessments that detail mechanical and operational costs, electric buses are much cheaper due to the reduce mechanical and fueling needs/repairs/improvements.

Electric school buses should be encouraged and supply chain recommendations should be made that prioritizes and provides grants to school districts, especially districts within environmental justice communities, and urban low-moderate income communities.

Furthermore, the EMP should recommend actions to take to electrify our ports. More specifically, these actions should look at how the Port Authority, DEP, EDA, and DOT can collaborate to address emissions reductions from heavy duty vehicles and port machinery. Directly transforming our heavy vehicle and public transportation methods will lead to immediate air pollution emissions reductions in environmental justice communities and communities of color.

**Lastly, transit-oriented development and smart urban planning should be emphasized.**

The EMP should encourage smart development practices that prioritize development in areas that increase density, instead of encouraging sprawl, specifically in communities where there are public transportation opportunities that provide alternatives to commute than to drive. More dense communities with "downtowns" encourage passive transportation methods such as walking or bike riding.

## APPENDIX D

**EMP: Building a Modern Grid**

Our grid has evolved from a centralized system into one that is more like a web. This evolution has been influenced by the transition from centralized energy resources like huge coal fired power plants to distributed energy resources like wind farms and solar energy. Running it smoothly requires new and advanced lines as well **as increased coordination among generators**, transmission and distribution system grid managers, and consumers.

**Understanding grid dynamics** is essential to future electricity growth, use forecasting and energy projecting. **"Load shape"** is the pattern of electricity demand governed by the seasons, time of day, infrastructure failures, security issues, weather emergencies, and climate change—all conditions that have the potential to stress the perfect balance between supply and demand necessary at all times to deliver power and avoid blackouts.

From this information, **demand response programs and public education initiatives** should encourage non-peak load time use. To explain, peak loads happen when everyone uses power at the same time, such as waking up in the morning to shower, cook breakfast, or do a load of laundry. This same process happens in the evening when people come home from work, cook dinner, turn on the television, and do housework. With the influence of electric vehicles

growing in society, charging and other power-intensive activities should be encouraged during non-peak hours, like overnight, to reduce grid stress and keep energy costs low by preventing "peakers" from coming online.

Infrastructure investment and improvement is also essential to maintain a reliable grid, it is important to continue strengthening the system of wires, transformers, and substations that move power around the country.

## APPENDIX E

**EMP: Sustainable and Resilient Infrastructure**

**This EMP process needs to identify policies and guidance to preserve the integrity of our energy systems in the face the anticipated and unanticipated impacts of climate change.**

More specifically the EMP should call for all new infrastructure upgrades and investments to be evaluated, designed to address existing system vulnerabilities and sited in areas with the least number of hazards present to build the most resilient energy systems possible. For example, using updated flood zone analyses that project future flood mapping and discourage building on sensitive, low lying, flood prone, or other measured high-risk areas.

In addition, on a high level, the EMP should encourage smart development practices that prioritize development in areas to promote mixed-use development, increase density, discourage sprawl, specifically in communities where there are public transportation opportunities available, including walkable/bikeable communities, and seek to prioritize protecting open space as they provide immense recreational, economic, and conservation values to our communities.

Moreover, **we cannot achieve a 100% clean energy future if we continue to invest** in unneeded fossil fuel projects. It will completely derail our progress in meeting our emission reduction targets outlined in the GWRA. This is highlighted in Conservation Foundation's recent publication, which indicates that we have the natural gas supply available to meet our current and future needs, and we don't need to spend billions of dollars on wasteful and dangerous fossil fuel infrastructure projects.

Therefore, **the EMP should consider criteria such as climate change impacts, the social cost of carbon, contributions to attaining any new interim goals**, achieving the 2050 GWRA limits in all major investments of public monies, including public energy infrastructure and economic development investments, development and redevelopment of state facilities, and Executive Order 215 Reviews to ensure that we are moving productively and efficiently toward our clean energy economy.

To further facilitate this process moving forward and looking at our states larger systems, state agencies are essential to achieving the GWRA goals, and achieving our clean energy bill goals, and the EMP should explore all avenues on how our state agencies can improve and expand their synergies to effectively and responsibly allocate revenues to priorities that puts us on a path to achieve these goals.

In addition, as we ramp up investment in clean energy infrastructure, we need to ensure that the good local employment opportunities are accessible to everyone, especially if major investments are happening near low-moderate income, and environmental justice communities. **Workforce development programs are essential** to build a reliable, productive, competitive and qualified labor force and the EMP should consider ways through public and private investment and collaboration with organized labor to design programs which ensure historically underrepresented communities are involved in transforming the infrastructure of our state, similarly to what has been done in Illinois with their Future Energy Jobs Act.

As wind development spurs along our coast or community solar emerges in our urban areas, we need to ensure that community members of Atlantic City, Newark, and other economically-stressed communities are included in the process to manufacture and assemble such distributed energy resources.

Lastly, yet quite importantly, the administration and legislature should do everything in its power to support, facilitate, and provide funding for **the Gateway Project** between New York City and New Jersey. It is arguable the most important infrastructure project for this region and country in decades.