New Jersey Energy Coalition
Energy Master Plan Comments

On behalf of the New Jersey Energy Coalition (Coalition) thank you for the opportunity to provide comments on the Draft 2019 Energy Master Plan (EMP). The Coalition is a broad-based advocacy group whose membership includes a comprehensive cross-section of energy, labor, trade, academic, and civic communities.

The Coalition thanks the State of New Jersey for putting forth an ambitious Draft EMP with a multitude of ideas. With a plan like this, it is important to ensure that utilities, energy companies, and consumers are all part of the conversation as the State continues to plan for an energy future for 2030 and beyond.

The Draft EMP addresses multiple areas of energy production, generation, and states, "New Jersey is embarking on a significant transition in its energy system, including aggressively pursuing energy efficiency and conservation measures, modernizing the gird, decentralizing electricity production, decarbonizing the energy system, and adding significant load to the grid through electrification efforts."[1] With these goals a change in regulatory framework may be warranted to ensure recovery of investments and expenses utilized to advance the EMP agenda, on a utility-by-utility basis. At the end of the day, the responsibility to ensure safe, reliable and affordable service, is the core fundamental priority of regulation.
The following are areas of suggestion for the State and the EMP committee focus on;

1. The reduction of energy consumption and emissions from the transportation sector in a reliable way;
2. The growth of Distributed Energy Resources (DERs) and Renewable Energy technologies;
3. The importance of fuel diversity;
4. The key concepts of reliability, resiliency and redundancy.

1. **<u>The reduction of energy consumption and emissions from the transportation sector in a reliable way.</u>**

a) *<u>Electrification of the Transportation Sector</u>*

Electric vehicles (EVs) will continue to grow in both popularity and use in New Jersey. In recent years, the State has developed programs to increase the popularity of EVs, including initiatives for charging units and tax rebates. Programs like these must be continued and expanded in order for EV use to increase. The State has a goal of having 330,000 zero emission vehicles on the road by 2025.[2] To move towards this goal, the State should evaluate incentive structures and programs for individuals to purchase them,

[1] New Jersey Draft Energy Master Plan, 10 June 2019, New Jersey Draft Energy Master Plan: Policy Vision 2050 https://nj.gov/emp/pdf/Draft%202019%20EMP%20Final.pdf.
[2] "Governor Murphy Announces State Interagency Electric Vehicle Partnership", https://www.nj.gov/governor/news/news/562019/approved/20190603b.shtml.

while being mindful of the impact on ratepayers. Further, adequate charging infrastructure must be available in order to reduce range anxiety to show EV ownership is a serious option. The State must be a leader in the field by transforming its fleet of vehicles to EVs.

Ownership of EV infrastructure must include utilities. As a general matter, utilities play a critical role in building, owning, investing, and maintaining the energy infrastructure necessary to support the electrification of the transportation sector. The role of the electric utilities is key to deploy this infrastructure in a way that sustains system efficiency and maintains reliability of the energy grid, while also yielding shared value for all stakeholders.

There are a few topics that are not fully addressed in the Draft Energy Master plan when it comes to EVs;

1) Innovative rate making is needed to encourage EV charging off peak and to better utilize the existing assets on the grid. Combined with renewable sources of generation and optimal utility placement of charging infrastructure, significant EV penetration can be achieved with minimal impact on increasing generation capacity.
2) There will be a need for an increased amount of charging stations within New Jersey. Residents want to have peace of mind while traveling, without having range anxiety.
3) Funding for the Transportation Trust Fund must be addressed, so electric vehicle owners are paying their fair share of the infrastructure without purchasing gas.
4) The ability to use EVs as resiliency mechanisms for Energy Storage. EVs can be used as storage facilities for energy which will help during times of peak load, but the State should establish tariffs for research and development to accomplish this task.

b) *Energy Efficiency*

Energy Efficiency has proven to be a cornerstone of New Jersey's energy and environment platform. To achieve the goals of 2% and .75%[3] reduction in energy use by electric and natural gas use respectively, new products, regulatory treatment and data collection mechanisms will be needed. Advance Meter Infrastructure (AMI) will be the lynch pin for energy efficiency to be successful. If utilities are given the ability to implement and run their own energy efficiency programs, there may be better outcomes reducing energy demand. The New Jersey State Budget and Procurement Process has frustrated contractors, utilities, and most importantly, customers for many years. Direct interaction with end users will significantly increase energy efficiency and reduce peak demand. Having the OCE provide strategy, program approval, governance and oversight would help NJ achieve the targets established in the Clean Energy Act.

For energy efficiency to be fully effective, AMI will require a communication system between the customers and the utility will need to be built. Real time communication is needed in order for a customer to know where and when their energy is being used or

[3] *The Clean Energy Act.* P.L.2018, c.17.

wasted, and the corrective actions they can immediately implement. AMI will not just help reduce emission and energy efficiency programs but will help reduce truck rolls.

All utilities need to be involved in the creation and implementation of energy efficiency programs. Not only is energy efficiency important to electric and gas companies, but it is also important to water utilities. Pumping energy is one of the top three costs for water utilities. Maintaining a robust pump replacement program that drives energy efficiency in these units is extremely important. A coordinated water-energy investment program that would allow for peak load shaving and load shedding is a critical consideration. This is an area that the Board of Public Utilities could focus on if they were to transfer energy efficiency programs to the utilities – they could spend more time and money on programs in the water sector.

2) The growth of Renewable Energy Technologies and Distributed Energy Resources (DERs)

Renewable energy technology development and implementation will be needed to reach the goals of the EMP. Distributed Energy Resources will play a vital role in reaching the State's goals. New Jersey has learned from such disasters as Super Storm Sandy the importance of grid investment and system reliability. One of the ways to ensure reliability is to use Distributed Energy Resources (DERs).

a) Renewable Energy Technologies

In order for New Jersey to reach its 100% carbon neutral goal, there will need to be more investment and development of renewables. Currently, New Jersey meets its renewable portfolio standards by paying for renewable energy credits (REC) from other states that produce a larger amount of renewable energy. While it is important for New Jersey to begin to create more of its own renewable energy, it is also important to perform a cost benefit analysis. Is the cost of subsidizing these technologies going to make our grid more reliable and resilient?

The current total installed photovoltaic capacity is approximately 2,800MW[4] with another 640 MW in the development pipeline.[5] To keep pace with the goals and with the current project pipeline, additional investments and development are needed. One way the State can get closer to the Draft EMP's goals is by allowing utilities to participate in the Community Solar Pilot program. The utility is in the best position to identify the optimal interconnection sites for Community Solar, and the Clean Energy Act specifically authorized utility ownership of these community solar facilities.

Offshore wind is another booming industry in New Jersey, particularly southern New Jersey, which will serve as a guide map for progressing from the initial 1,100MW of installation, to the goal of 3,500MW by 2030.[6] One of the best ways New Jersey can help the industry prepare for this new investment is to create a workforce development

[4] "Solar Spotlight-New Jersey", *SEIA*, https://www.seia.org/sites/default/files/2019-06/Factsheet_New%20Jersey_3.pdf.
[5] http://njcleanenergy.com/renewable-energy/project-activity-reports/project-activity-reports
[6] NJ Exec. Order No. 8 (January 31, 2019).

training grant. A grant program would help unions be able to train their people and have a skilled labor force.

Offshore wind will face different challenges along the state's coast which are completely different from anywhere else in the country; such as hurricanes and nor'easters. This means that storage technology, transmission infrastructure, and backup systems to support and supply electricity to the grid are needed.

Renewable Natural Gas (RNG) should be part of New Jersey's energy future and is a direct example of the ideas that embody the environmental cause of reduce, reuse, and recycle. RNG is produced at our landfills from our waste products decomposing which can be reused in the form of natural gas to produce cleaner electricity, heat homes, food production, and even provide fuel to Compressed Natural Gas (CNG) vehicles. Similarly, Hydrogen produced from unutilized renewable energy can play a significant role in helping reduce GHG and fully utilize the generation of Renewable Energy from Wind and Solar.

With the massive push of renewable energy sources in the Draft EMP, we need to emphasize these are subsidies by rate payers through various RECs. Currently, Low Income, Moderate Income (LIMI), environmental, and social justice communities pay a significantly higher portion of their income to pay for their energy and they are paying a higher percentage of their income to support renewable energy sector. Emphasis needs to be placed on the idea that these technologies are being funded for by subsidies entitled Renewable Energy Credits (RECs). With the idea of shifting the energy efficiency to the utilities societal benefits charges (SBC) funds could then be shifted to support renewables and technological advancements in the industry or even reduced to put more money back in the pockets of the people of New Jersey.

b) Distributed Energy Resources

DERs have the ability to help reduce the amount of electricity that is produced at larger centralized generating plants making the generation process less environmentally damaging, and also helping to make the grid more reliable. In order for the grid to be resilient and reliable while transitioning to an electrified transportation sector and an energy future run by intermittent renewable technologies, there should be a focus on energy and battery storage. In an August 6th article published by Utility Dive, a study showed that "utility supply storage remained the largest market segment at 394.8 MWh and saw double digit growth, year over year."[7] The report also states that investor owned utilities were responsible for 64.3% of utility scale storage deployment in 2018.[8] It is clear that utilities and energy companies are willing and able to provide storage solutions when they have the adequate means of investment. Storage must be a top priority for the State in order to achieve the rest of their ambitious clean energy goals. From previous

[7] Mai, H. (2019, August 6). US Energy Storage Market Grows Nearly 45%, Interconnects Over 760 MWh in 2018: SEPA. *Utility Dive.* https://www.utilitydive.com/news/us-energy-storage-market-grows-by-nearly-45-interconnects-over-760-mwh-in/560297.

[8] *Ibid.*

state reports, we know that microgrids are a viable option, but these reports also show that technology, feasibility, and finances must be better aligned for all parties.

3) <u>The importance of fuel diversity.</u>

a) <u>Natural Gas</u>

Energy is an investment for the entirety of our society, and just like any investment portfolio, an energy portfolio for New Jersey must have an all-in approach. As the draft EMP states, in 2018, the state's electricity was generated through a combination of natural gas (51.6%) and nuclear (42.5%), with renewable generation approaching 5%.[9] This approach warrants the State's continued support so we can continue to support economic development and the resiliency of the grid.

The use of natural gas will not impede New Jersey's ability to meet the goals of 100% clean energy by 2050 and achieve an 80% reduction of 2006 Greenhouse Gas Emissions (GHG) as mandated by the Global Warming Response Act (GWRA).[10] Natural gas has helped wean New Jersey electric production off of coal.

The Draft EMP suggests that New Jersey needs to "implement ways to minimize reliance on natural gas as the state transitions to a clean energy economy…" and questions "the necessity or financial prudency of future gas infrastructure projects in light of a presumptive decrease in demand of natural gas possible stranded assets within the next three decades…"[11] This document suggests that continued reliance upon natural gas as part of New Jersey's energy portfolio will impede the State's ability to achieve its 2050 carbon reduction goals. However, this finding is inconsistent with the findings of the New Jersey Department of Environmental Protection (NJDEP), National Academies of Science, National Renewable Energy Laboratory (NREL), International Energy Agency (IEA), Intergovernmental Panel on Climate Change (IPCC)[12], and numerous other scientific organizations, all of which consider natural gas to be an important component to the decarbonization of the energy system by 2050.[13] The vast majority of energy modeling experts find that natural gas, an abundant low-carbon fuel, and carbon capture, utilization, and storage, will be essential components of a diverse low-carbon energy mix to ensure flexibility and to support renewable deployment on a wide scale. it is critical that the State maintain an energy portfolio capable to meet the demands as it

[9] New Jersey Draft Energy Master Plan,10 June 2019, New Jersey Draft Energy Master Plan: Policy Vision 2050 https://nj.gov/emp/pdf/Draft%202019%20EMP%20Final.pdf.
[10] Global Warming Response Act (GWRA), 2007. ftp://www.njleg.state.nj.us/20062007/A3500/3301_R2.HTM
[11] New Jersey Draft Energy Master Plan, 10 June 2019, New Jersey Draft Energy Master Plan: Policy Vision 2050 https://nj.gov/emp/pdf/Draft%202019%20EMP%20Final.pdf.
[12] https://www.ipcc.ch/pdf/special-reports/sr15/sr15_draft.pdf An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty
[13] National Renewable Energy Laboratory (NREL), 2017a, Electrification and Decarbonization: Exploring U.S. Energy Use and Greenhouse Gas Emissions in Scenarios with Widespread Electrification and Power Sector Decarbonization, Technical Report, NREL/TP-8214, July 2017

moves forward with this plan. New Jersey needs to make sure its residents are not left in the cold or in the dark should another Superstorm Sandy or Nor'easter occur.

The availability of natural gas has already reduced New Jersey's Greenhouse Gas (GHG) emissions significantly and should be considered a necessary component of the State's efforts to decarbonize its energy system to achieve EO28's directive to transition the energy system to 100% clean energy by 2050. Natural gas continues to play a vital role in New Jersey's efforts to decarbonize its energy system at the lowest cost and with the least disruption to families and businesses. Investment in natural gas infrastructure will secure New Jersey's access to affordable natural gas supplies that provide inherent flexibility and reliability to electricity generation capability during the build-out of a low-carbon energy system that will rely on renewables and natural gas. Today, rapid-start, highly flexible natural gas combined cycle (also referred to as "dual-cycle") electric generation is the only high density, low-GHG energy source available at the necessary scale to "smooth" the variable output from offshore wind farms and solar installations, which are proposed to be the predominant source of electricity in New Jersey by 2050. In the short-term, low-GHG natural gas generation will be a synergistic partner during the build-out of offshore wind and solar.

Currently, under development, the "next-generation" of natural gas electricity generators will capture CO2 at negative cost, virtually eliminating carbon emissions from natural gas electricity generation. These highly-efficient natural gas plants, supplied by a geographically dispersed transmission network, will improve the resiliency of New Jersey's electric grid, which is increasingly vulnerable to the impacts of climate change.

Investments in natural gas infrastructure do not lead to "carbon lock-in" nor do they commit New Jersey to the use of natural gas in lieu of renewables, such as offshore wind and solar. Offshore wind and on-shore solar energy facilities are "must run" units with very low operating costs that are always dispatched before natural gas combined cycle units in PJM's economic dispatch system[14]. When the wind or solar energy is not sufficient to produce an adequate supply of electricity, natural gas with Carbon Capture Utilization and Storage (CCUS) will serve as a highly-flexible, zero-carbon energy source to provide reliable electricity generation that complements and enhances the ramp up of renewable energy. Current modeling shows that when the clean energy build-out is complete and the 2050 mandate is met, natural gas still will provide a significant portion of all nation-wide energy needs even in the fully developed clean energy economy of 2050. [15] NREL's evaluation of multiple pathways to reduce economy-wide GHG emissions to achieve an 80% reduction by 2050 found that flexible grid-scale dual-cycle generation at levels between 22%-50% of the total generating portfolio is the most

[14] PJM Interconnect, LLC, How PJM Schedules Generation to Meet Demand https://learn.pjm.com/three-priorities/keeping-the-lights-on/how-pjm-schedulesgeneration-to-meet-demand.aspx.
[15] U.S. Energy Use and Greenhouse Gas Emissions in Scenarios with Widespread Electrification and Power Sector Decarbonization, Technical Report, NREL/TP-8214, July 2017.

realistic and cost-effective pathway.[16] Of the many challenges ahead for New Jersey in meeting its energy and GHG emission goals, two looms above all else;

1) Finding new generation capacity to offset the possible closure of its nuclear fleet;
2) New electric generating capacity to power ZEV automobiles;

Natural gas is an integral component of securing the required generating capacity to support the nuclear fleet and to demand projected replacement of a significant portion of the automobile fleet with zero emission vehicles. New Jersey's investment in natural gas will not irreversibly commit New Jersey to greater reliance on a fossil-energy system nor will it displace other important investments in renewables. Rather, investment in natural gas will secure access to affordable, nearby natural gas supplies which are a vital part of a diverse energy portfolio providing the people of New Jersey with a highly-flexible, low carbon hedge that complement and enhance the migration toward renewable energy.

b) Nuclear Power

Nuclear power provides about 42.5% of New Jersey's electricity, provides help to the capacity market, and contributes to our State's carbon free energy production.[17] In 2018, the Oyster Creek Nuclear Power Plant (Oyster Creek) in Ocean County shut down permanently, closing the nation's oldest nuclear power plant and removing 477 MW[18] of carbon-free net electricity generation capacity from New Jersey's grid. Since coming online in 1969, Oyster Creek supplied approximately 11% of New Jersey's electrical needs.[19] Within the next 25 years, New Jersey's remaining nuclear plants, the 2,275 MW Salem Nuclear Power Plant and the 1,268 MW Hope Creek Nuclear Power Plant, may be closed and decommissioned.[20] This will cause great stress on New Jersey's energy system if both were to shut down before there was sufficient energy technologies to replace their generation. Benefits provided by nuclear power within the state include reliability, availability, and resiliency. If New Jersey were to lose nuclear energy it would be losing its top producers of carbon free electricity.

The benefits of nuclear energy include:

- Electric rates – without nuclear could see an increase of $400 million a year.[21]
- Environmental and health benefits equal to $530 million a year.[22]

[16] National Renewable Energy Laboratory (NREL), 2017a, Electrification and Decarbonization: Exploring U.S. Energy Use and Greenhouse Gas Emissions in Scenarios with Widespread Electrification and Power Sector Decarbonization, Technical Report, NREL/TP-8214, July 2017.
[17] New Jersey Draft Energy Master Plan, 10 June 2019, New Jersey Draft Energy Master Plan: Policy Vision 2050 https://nj.gov/emp/pdf/Draft%202019%20EMP%20Final.pdf.
[18] Nuclear & Uranium, "Monthly Nuclear Utility Generation", *EIA*, https://www.eia.gov/nuclear/generation/index.html.
[19] *Ibid.*
[20] *Ibid.*
[21] http://njneedsnuclear.com/
[22] *Ibid.*

- New Jersey GDP maintains the $820 million a year. [23]
- New Jersey keeps 6,100 jobs. [24]

4) <u>The key concepts of reliability, resiliency, and redundancy.</u>

With the push for the electrification of the transportation and building sectors, the ideas of reliability, resiliency and redundancy will need to be emphasized. We must invest in reliability, resiliency, and redundancy for the future. The BPU currently has an investment rule regarding these three initiatives. The rule includes many ways of attaining a reliable, resilient, and redundant energy system, including the deployment of cybersecurity, which needs to be further addressed in the Draft EMP.

Recent cyberattacks have crippled critical infrastructure in Ukraine.[25] With the growing threats to the electric grid, investments must be allowed that ensure reliability and build resiliency. All fuel sources, delivery mechanisms, and reliability measures, must be evaluated and investment be made.

Redundancy systems like the Southern Reliability Link could provide back up to other fuel sources going off line. LNG facilities would help deal with peak demand days as well as ensure available fuel source in an emergency event. Transmission buildout would also add to the resiliency and reliability of the grid to be able to move energy where needed working with PJM. Storage and town center microgrids would benefit the three pillars here but with them comes the needed appropriate rate structures and work with the BPU to explore utility management and/or ownership of these assets.

<u>Conclusion</u>

The goals for 2030 and 2050 are ambitious, but can be reached with a calculated approach that includes all stakeholders. At the end of the day, utilities have a mandate to ensure the grid is working and the fuel to provide energy to the grid is available. Stranded assets need to be addressed because this plan could impact utilities and energy companies negatively. Taking a comprehensive look at regulatory structure that includes cost recovery, ensuring an adequate return on equity, negotiating new tariffs if needed, and planning properly for storage, DERs and microgrids, will all help New Jersey attain the goals in the Draft EMP.

Areas important to consider:

1) Energy Costs: At present, natural gas is abundant, inexpensive and domestically sourced, making it an attractive energy source for residential and commercial customers. Limiting access to any one energy source will only serve to drive up energy costs by forcing residents and businesses to purchase energy from sources whose market prices have been volatile. We support New Jersey's clean energy goals and encourages their implementation in a manner that brings the greatest

[23] *Ibid.*
[24] *Ibid.*
[25] "Ukraine power cut 'was cyber-attack'". *BBC News,* 11 Jan. 2019. https://www.bbc.com/news/technology-38573074.

benefits to all customer classes, including low and moderate income (LMI) and environmental justice (EJ) communities, while also being mindful to minimize the cost impact to all customers. The artificial elimination of an abundant and affordable energy source will only serve to limit consumer choice, drive up costs, and stagnate economic growth within New Jersey.

2) Consumer Choice: New Jersey residents and businesses have benefited from a robust mix of energy choices that includes traditional sources and renewable sources. A diversity of consumer choice has increased energy affordability and has led to economic growth. In particular, the demand for natural gas is at an all-time high. With the growth of solar and off shore wind New Jersey is able to have a better diversified energy portfolio.

3) Economic Development: New Jersey's economic development policy includes an emphasis on attracting new industrial and high-tech businesses to open, or re-locate to our State. Affordability is a major factor for these company's decision of where to locate. Attracting industry to our state will be increasingly difficult if State policy eliminates energy options. The installation, maintenance, and repair of infrastructure supports scores of jobs across the state. An impact on one sector of the energy industry impacts the whole energy industry and have direct impacts on economic growth.

4) Fuel Diversity: Fuel diversity needs to be addressed in the EMP and an all-in approach is needed because of the emphasis for electric generation needed for the added electric load to the grid. Reliability and resiliency will be crucial, having all sources available will increase reliability but also help in times of black sky events. Natural gas has helped wean New Jersey off the biggest polluter, coal. With the issues of intermittence from renewables, baseload entities will need to be available to ensure reliability of the grid. Nuclear energy accounts for about 90% of New Jersey carbon free electricity. Natural gas and Nuclear combined account for about 95% of the electricity produced in the State.

5) Infrastructure Investments: Infrastructure upgrades to the transmission and distribution systems will be needed.

We believe attaining the goals in the Draft EMP are possible, as long as New Jersey considers all aspects of the energy sector, the economy and the ratepayers when making their plans.