Jersey Central Power & Light
A FirstEnergy Company

300 Madison Avenue
P. 0. Box 1911
Morristown, NJ 07962-1911

October 12, 2018

VIA ELECTRONIC MAIL

Aida Camacho-Welch, Secretary
New Jersey Board of Public
Utilities 44 South Clinton Avenue
Third Floor, Suite 314
P.O. Box 350
Trenton, New Jersey 08625-0350
emp.comments@bpu.nj.gov

Re: New Jersey Energy Master Plan

Dear Energy Master Plan Committee,

Jersey Central Power & Light Company ("JCP&L" or the "Company") is pleased to submit comments on the five areas[1] identified by the New Jersey Board of Public Utilities ("BPU" or the "Board") and other state agencies (hereinafter, referred to as the "EMP Committee"), which will be used to develop the 2019 New Jersey Energy Master Plan ("EMP").[2]

JCP&L thanks the EMP Committee for the opportunity to provide comments. The Company supports emerging technologies and investment in electric distribution infrastructure to meet expected future customer expectations, and storm-related challenges as well as to enhance long- term distribution system safety, reliability, and resiliency and support economic growth in New Jersey.

Please find below JCP&L's specific comments on relevant items within the above-mentioned five areas identified by the EMP Committee. JCP&L hopes the EMP Committee finds these comments helpful in developing the EMP.

[1] The EMP Committee identified the following five working groups to provide analysis and recommendations to support the development of the EMP: (i) Clean and Renewable Power; (ii) Sustainable and Resilient Infrastructure; (iii) Reducing Energy Consumption; (iv) Clean and Reliable Transportation; and (v) Building a Modem Grid.

[2] On May 23, 2018, Governor Murphy signed Executive Order No. 28 directing the BPU and other state agencies to develop the 2019 EMP that achieves the goal of 100 percent clean energy by 2050. The new EMP is to be completed by June 2019.

1. Clean and Renewable Power

A. Solar

The Company believes that a sensible and realistic plan for increasing renewable generation, particularly utility solar, is important from a policy perspective, and it should leverage the role Electric Distribution Companies ("EDCs") could play in development of solar projects in New Jersey. Regulated utility solar is a way to promote renewables cost-effectively and socialize the cost. The EDCs, in many cases can best develop, build, own, safely operate and maintain one or more large projects interconnected with the grid where all customers would pay a tariff rate. EDCs have the engineering expertise and are the most knowledgeable of the distribution system intricacies in order to optimize the locational net benefit of solar resources.

B. Storage

The Company supports the ability for utilities to own and operate energy storage. Energy storage technologies include pumped-hydro, compressed-air energy storage, flywheels, and battery energy storage systems, which can be used for many applications, including energy management, backup power and load leveling as well as frequency regulation, voltage support, grid stabilization, reliability and resiliency.

The Company believes that deployment of energy storage should be done in a safe, secure, reliable and cost-effective manner that recognizes the benefits of the storage device, including reliability benefits. Before an energy storage system is connected to a circuit, its impact on service quality, safety, and reliability must be analyzed. Where an energy storage technology is cost-effective and installed by an EDC to support distribution operations, the EDC should receive full and timely cost recovery of its deployment. Regulations and standards should: recognize the flexibility of the various types of energy storage technologies; enable utilization of energy storage solutions, regardless of whether they support generation, transmission, distribution or demand-side operations; and enable the provision of multiple services while maintaining safety, security and reliability.

Renewable generation systems could benefit from energy storage solutions by firming their generation. Offshore wind is a specific example that the State recently set a deployment goal of 3,500 MW. In order to support the goal of a 100 percent clean energy by 2050 with intermittent sources included, energy storage will be a very important component. Over-reliance on intermittent resources will necessitate significant infrastructure investment to maintain grid stability which will reduce the overall cost effectiveness of the EMP and can result in reliability degradation.

Additionally, the BPU should establish the measures to be evaluated to determine net economic benefit of offshore wind development in the State. The Company encourages that key assumptions of cost-benefit analysis be substantiated with the appropriate detail to allow the Board to complete their review and ensure just and reasonable electric rates for customers.

JCP&L also encourages the BPU to ensure that the proposed "All-in Cost" approach include all costs for construction, operation, maintenance, inter-connection, grid upgrades and future plant decommissioning. Staff should ensure that rate impacts are mitigated to the extent possible through regulation or a market-based mechanism.

JCP&L notes that in addition to new energy generation and storage technologies, existing technologies can and should be a part of the State's energy planning for transitioning to clean energy goals. Precluding existing technologies from study or incentive structures could lead to higher overall transition costs for State energy consumers. For example, JCP&L operates (and jointly owns with PSE&G) the 420-MW Yard's Creek pumped-hydro storage facility in Blairstown/Hardwick. Understanding where and when the application of pumped-hydro storage like Yard's Creek may be useful to the State's transitions should be considered in both the EMP report and an ongoing basis as the State implements policies to incent or develop grid-connected storage.

2. Reducing Energy Consumption

A. Program Administration

On May 23, 2018, Governor Phil Murphy signed into law P.L. 2018, c. 17 (C.34:lA-85 et seq.) ("Act"), requiring *inter alia,* the establishment of EDC and gas public utilities owned energy efficiency ("EE") programs. The Office of Clean Energy ("OCE") will need to play a critical new role supporting New Jersey's performance of the Act and achievement of legislated targets, including coordination of successful planning and integrated forecasting, program design, tracking, reporting and assessment of energy savings from a range of sources referenced in the Act. Those sources of energy savings include programs managed by OCE, EDCs, gas public utilities, or other independent initiatives, codes and standards, benchmarking efforts, state and federal energy savings efforts and others.

The OCE today is charged with a range of functions, including administering the New Jersey Clean Energy Programs, as well as overseeing the activities of a diverse entities including utilities and program administrators, regarding renewable energy, education and outreach efforts, and other issues.

Going forward, the Board should review the scope of OCE activities to determine the proper role of the OCE to best support the requirements of the Act.

Given the utilities' responsibility for results articulated in the Act, the utilities will need to plan and administer their own programs. The potential for customer confusion, program competition and market inefficiencies are significant risks to the extent OCE programs continue.

To the extent the OCE continues to administer programs, there needs to be clear delineation of responsibilities between the utilities and the OCE for administration of programs, as well as responsibilities for savings under Quantitative Performance Indicators ("QPIs") established by the Board. Such clarity would be needed to avoid duplication of efforts and potential for market confusion.

Additionally, New Jersey needs an evaluation framework to support both the utility, OCE, and other efforts. Given the requirements for studies and performance of utilities articulated in the Act, the utilities will each need support from independent evaluators. Neighboring states (e.g., PA and MD) have established evaluation models for independent utility evaluators, complimented by a statewide evaluator reporting to the Commissions. The Company recommends that the Board should adopt a similar structure in New Jersey.

The Board should retain a statewide evaluator to serve as a technical advisor to the OCE and to perform or inform OCE's planning and tracking work previously described. The evaluator should perform or oversee an integrated tracking and reporting process, as well as monitor and verify data collection for the full range of sources contributing toward the targets, including performance of the OCE, independent efforts, impacts from other sources referenced in the Act and the utilities EE and peak demand programs. The statewide evaluator will also evaluate each administrator's (including the utilities) plans, reports, evaluation activities and plan results on an annual basis and the entire EE program. This evaluation will include an analysis of plan and program impacts (energy and demand response savings) and cost-effectiveness, report results and provide recommendations for plan and program improvements.

B. Savings and Performance Metrics

The 2 percent target is extremely ambitious and will require well-coordinated contributions from a wide range of resources. The Act offers an expansive list of activities that should contribute toward energy reduction targets, not all of which have yet been clearly defined. What "counts" toward the energy reduction target is broadly defined in the Act, and EDC and gas public utility EE program savings will only be a portion of that accounting. While EE programs will play a central role delivering, evaluating and reporting savings, support from the Board (through the OCE and appropriate Orders) will be required to provide the authority to collect the data and information sufficient to capture impacts for all measures that should contribute to savings targets, such as building code changes, savings associated with

Portfolio Manager benchmarking efforts, independently managed State or New Jersey Clean Energy Program ("NJCEP") efforts, and from energy savings with voltage optimization.

To enable reporting at the utility level as required in the Act, any independent initiatives, including any continuing NJCEP's efforts must include specific performance metrics and savings targets directly contributing to achievement of utility savings targets.

While New Jersey protocols for evaluation of savings can be reviewed and used for traditional program measures, they have significant limitations for evaluation of many measures referenced in the Act, such as building code upgrades, benchmarking (such as savings from the Environmental Protection Agency's Portfolio Manager tool), behavior programs, market assessments of customer actions, and other sources of energy savings. At the same time, energy efficiency goals should recognize the impact of beneficial electrification, including electric vehicle adoption which could result in an overall net increase in electrical energy consumption.

As described above, an evaluation framework will support estimating and reporting the savings toward targets, as well as the uncertainty associated with the estimates.

C. Full and Timely Cost Recovery

It is important that the EMP enable regulatory and ratemaking mechanisms to address full and timely recovery of all costs, including lost revenues, as customers take advantage of EE and Renewable Energy ("RE") programs. The EMP also should enable appropriate rate design and/or financial incentives for utility participation and support of EE and RE programs to foster greater alignment with the EE and RE goals of the EMP and the Act, including full and timely recovery of EE and RE program costs, lost revenues, and performance incentives. The BPU should further explore shared savings opportunities to encourage innovation, efficiency in program design and to capture market opportunities to monetize benefits.

D. Performance Incentives and Penalties

The National Action Plan for EE addressed the important role that utility incentive mechanisms should play in comprehensive EE policies in its publication, *Aligning Utility Incentives with Investment in Energy Efficiency.*[3] Policy regarding the incentives of EE programs from a utility perspective typically addresses three main areas: (i) program cost recovery; (ii) lost revenue recovery; and (iii) performance incentives such as shared savings. The first two areas relate to removing potential negative impacts to utilities associated with EE programs, while the last focuses on incenting utility performance to exceed established

[3] See http://www.epa.gov/cleanenergy/documents/suca/incentives.pdf

targets. Many jurisdictions recognize the need to include a utility incentive component to support Energy Efficiency Conservation ("EEC") & Demand Response ("DR") programs and make them a more attractive investment for utility management.

Further, it is important that the Board have discretion in the assessment of any penalties to ensure that utilities are not penalized for factors determined beyond their control. As an example, to the extent savings from non-utility programs or initiatives are underperforming, no utility penalties should apply.

3. Clean and Reliable Transportation

Plug-in electric vehicles ("PEVs") include all battery electric vehicles ("BEVs"), plug-in hybrid vehicles ("PHEVs") and extended range electric vehicles ("EREVs"). Electric vehicle supply equipment ("EVSE") is part of the fixed infrastructure that supplies the electric energy for recharging electric vehicles. This equipment also is known as electric vehicle charging stations, electric recharging points and onboard direct current ("DC") battery charging points. This equipment constitutes components of transportation electrification.

JCP&L supports moving forward with transportation electrification in New Jersey. It is important that there is EDC engagement from the beginning of the process, as opposed to when electrification has reached a critical mass. EDCs are well positioned to develop public electric infrastructure, particularly in early market transportation development phases. To promote this development, policymakers should consider the advantages and benefits for EDCs to identify locations and install the infrastructure required to support electric vehicle ("EV") operation, including ownership of EV charging stations, while allowing for full and timely cost recovery.

EDCs are in the business of owning, operating and maintaining long-lived infrastructure. EDCs can best plan and manage regular maintenance to avoid long EV service equipment downtime, optimize EV charging retail rates, and plan for long-term infrastructure roll-outs. EDCs also can identify EV charging station sites in optimal locations across the service territory, considering low- income and disadvantaged neighborhoods, travel corridors - which can help induce tourism - and optimal placement for grid interconnections.

When EDCs have the opportunity to receive full and timely cost recovery, planning and installation of public infrastructure is more likely to be at the optimum level to enable greater EV adoption and achieve maximum deployment, along with the accompanying environmental benefits. Early involvement will enable utilities to better understand electric charging behavior at different customer service locations, which will assist in future distribution system planning, establishing new rate mechanisms, and evaluating future managed charging initiatives.

EDCs support of electric vehicles, related charging infrastructure and the efficient use of electricity will yield tremendous environmental benefits by reducing emissions from gasoline through greater reliance on clean electricity sources.[4]

A well-planned build-out of electric vehicle infrastructure will foster economic development and support the economic and environmental benefits of PEVs for New Jersey, the industry and the state's utilities and their customers

4. <u>Building a Modern Grid</u>

In the March 2018 Storm Investigation Order, the Board directed three of the EDC's to submit a plan and cost benefit analysis for the implementation of Advance Metering Infrastructure ("AMI"). This directive indicated that the EDC's plans should focus on the use and benefits of AMI for the purpose of reducing customer outages and outage durations during a major storm event. JCP&L is preparing to submit a plan and cost benefit analysis for the implementation of an AMI system. These plans are due to be submitted to the Board at the end of January 2019 and information gleaned may be useful in assessing the role of AMI in a modem grid.

The installation of an AMI system takes a large up-front capital commitment by the EDC to develop and implement the technology solution for this foundation to a modem grid. That commitment in turn requires regulatory certainty in recovery of the costs associated with such a technological transformation. That certainty in regulatory recovery has not been demonstrated and proceeding with such an endeavor has been at the risk of the EDC.

Pennsylvania provides an instructive model for judging the costs, ensuring their recovery and beginning to measure the benefits of an AMI deployment. The four FirstEnergy utilities in Pennsylvania are implementing a state mandated AMI deployment plan that will provide smart meters and related infrastructure to the more than two million Pennsylvania customers, with cost recovery on a full and current basis through a reconcilable, annually adjusted Rider applicable to all customers. The total costs for this Pennsylvania Public Utility Commission-approved Smart Meter Deployment Plan were estimated at $1.26B over 20 years, while the estimated operational savings (mostly from reduced meter reading costs) were $417 million. Other benefits such as societal benefits were not considered in the plan.

Costs aside, when AMI meters are deployed along with other smart grid technologies (such as distribution automation or integrated volt/var control), together they possibly could provide an opportunity to realize synergies from a modem grid system that can be developed to: (i) enhance system reliability; (ii) reduce operating costs over the long term; (iii) provide notification on the status of a customer's service (iv) enhance non-operational benefits to

[4] EPRI Reports on Recent Generation Trends for Electric Transportation 3002010974

customers and society such as the enablement of time varying rates; (v) provide customers with information to better manage their electricity consumption; (vi) provide more detailed usage information to the retail electric suppliers enabling development of price products to residential and smaller commercial & industrial customers in the unregulated market; (vii) align metered quantities for all retail customers with wholesale pricing intervals thus improving accuracy and allocation of costs in the marketplace; and (viii) advance environmental benefits from the reduction in vehicle CO_2 emissions. Whether in New Jersey, these potential benefits outweigh the costs to customers of AMI and other modem grid technologies remains an open issue. Moreover, the answer may be different for different New Jersey EDCs.

In combination with smart grid, it is essential to create a solid distribution infrastructure platform. This includes circuit ties, reconductoring, advanced reclosers, SCADA, a secure communication network, and advanced distribution management systems ("ADMS"). As increasing levels of distributed energy resources ("DER") become clustered on a circuit, this will lead to overloads, high voltage conditions and system protection miscoordinations. Engineering solutions to these issues, however, can be costly. In addition, EDCs have the expertise, knowledge and motivation to safely and reliably plan and manage the distribution system, including the anticipated increase in DER, to benefit customers.

The modem grid will require these types of investments in the existing distribution system for equipment noted above. It also will require the creation of an ADMS software platform. The ADMS will enable the benefits of distribution automation, automated meter infrastructure and integrated volt var controls. These will help enhance service reliability for customers.

5. <u>Sustainable and Resilient Infrastructure</u>

The EMP plans to investigate the pathways forward to ensure that New Jersey has secure, modern and resilient infrastructure. Doing so requires analyzing existing infrastructure as well as planning for new, updated infrastructure and technologies for the transition to 100 percent clean energy. There are many pathways forward to ensure New Jersey has secure, modern and resilient infrastructure, one of which is to selectively evaluate and potentially deploy microgrids to support resiliency for New Jersey communities. The following points discuss issues and guiding principles for microgrids.

- The overriding purpose of a microgrid should be viewed in terms of resiliency, which is the ability to provide service continuity to customers during extreme events/emergencies. To the extent the microgrid can provide ancillary benefits, they should be considered as enhancers, or positive criteria, however, the stated goal of the ability to ride through, or recover quickly from major storms, (Hurricanes Sandy

and Irene as referenced in the Town Center Distributed Energy Resource discussion), should take center stage.

- Use or construction of overhead infrastructure (EDC or privately-owned) constitutes a risk toward the goal of resiliency. Selective underground infrastructure (existing or planned) better supports the goal of resiliency provided flooding issues have been evaluated and mitigated.

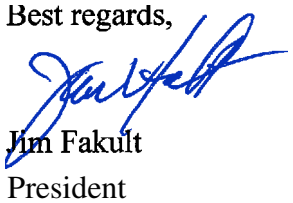
- A microgrid area should be well-defined and support specific critical infrastructure and community assistance services.
- Development of a microgrid must support or be neutral for the reliability of non-micro grid customers. All proceeds from the sale into the wholesale market of generation produced by the distributed energy resources owned by the EDC company within the microgrid shall be credited to customers net of costs.

- EDCs should be engaged in the implementation process and own or not be precluded from owning the generation assets associated within a microgrid construct. In a microgrid configuration, such an ownership structure optimizes financial and operational efficiency for the utility and its customers and would promote streamlined microgrid operation. The EDC is in the best position to maintain and operate the microgrid. In addition, any microgrid construct that involves the use of EDC assets in any way must be owned and operated exclusively by the EDC. This is essential to maintain visibility and control of all distribution grid operations to ensure safety for the public and for EDC employees.

- Reliability and/or resiliency of electric service to other customers not participating in the microgrid are not adversely impacted by the design or operation of the microgrid. Public policy considerations and ratemaking principles do not support cross-customer subsidization, where costs are shifted cost from participants to non-participants.

The Company appreciates the opportunity to provide these comments and hopes to continue to work with and be helpful to the EMP Committee as it works toward further development of New Jersey's 2019 EMP. If there are any questions, please contact me.

Best regards,



Jim Fakult
President
JCP&L