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SUMMARY OF PRELIMINARY REMARKS OF
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2019 Energy Master Plan
Reducing Energy Consumption Stakeholder Meeting
State House Annex, Committee Room 6
131-137 West State Street, Trenton, New Jersey 08625
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GENERAL COMMENTS

- Under the recently enacted clean energy legislation New Jersey utilities must achieve enumerated annual reductions in customer use of electricity and gas in the state within the next five years. The legislation has also specified that the Board of Public Utilities ("Board") may adopt an emissions portfolio standard applicable to electric power suppliers in the state with the goal of achieving a reduction in emissions.

- As the Board and New Jersey utilities endeavor to meet these mandates, the cost of these measures must be at the forefront of the decision-making process. We must be able to fully understand how and whether technologies and programs implemented with the purpose of energy reduction will add an unexpected financial burden to ratepayers despite any savings which results from lower electric and gas usage.

- Ratepayers' contributions toward the important goal of reducing energy consumption and emissions cannot be viewed as limitless. A full analysis of

the potential ratepayer costs versus ratepayer benefits should be a considerable driving factor in this process.

COMMENTS ON SPECIFIC DISUCSSION POINTS

General

1. **What energy efficiency, peak demand reduction, and demand response programs and systems will assist in helping keep energy affordable for all customer classes, especially as technology advances in areas such as electric vehicles or heating and cooling, which will potentially increase electric energy usage?**

    - Various types of energy efficiency ("EE") measures (most notably air-conditioning related measures) will lower overall energy usage, while demand response programs can be used to reduce peak load and place downward pressure on rates. Further, appropriate rate structures are needed that capture the incremental costs of serving any new load attributable to electric vehicles and electric heating and to help ensure that this incremental electric load is directed to off-peak hours in order to avoid adding to peak load and burdening other ratepayers with the associated costs. This will also help place downward pressure on electric rates.

2. **With the coming requirement that all commercial buildings over 25,000 sq. ft. be benchmarked through EPA's Portfolio Manager, what programs should be created to help with benchmarking and reduction strategies?**

    - Programs that help customers to track, document, and analyze total site energy use, energy use by source/type, and variables that tend to correlate with energy use will be helpful in this regard. For commercial properties, the variables generally include occupancy, hours of operation, and weather. For industrial properties, it is helpful to track production and weather. Other variables may be related to energy use as well. Better documentation can be used to support deeper energy savings through programs like strategic energy management ("SEM").

- In addition, to facilitate access to technical expertise in these areas, the state should issue a request for qualifications to develop and post a list of companies/experts that can be engaged by buildings/property managers in this area. If the workforce needs to be further developed in these areas, the state should engage with educational institutions to create and market the appropriate certification or degree programs.

3. What are the key non-energy benefits ("NEB") associated with energy efficiency? How can their value best be considered in cost-benefit analyses?

- The state should first identify all of its relevant policies and goals. The policies and goals may include improving resiliency, helping low-income customers, managing water use, addressing climate change, economic development and jobs, etc. Insofar as any EE programs are funded by utility rates, cost benefit analyses should focus on the cost-effectiveness of such programs from the perspective of other public utility ratepayers.

- In general, the NEBs with the most value or impact vary depending on the type of customer, as well as by measure. Residential homeowners may place the highest value on property value increases and improved thermal comfort. For low-income customers, health-related benefits and reductions in missed work days are significant. Commercial and industrial customers may find costs associated with reductions in production, operations, maintenance, and absenteeism most valuable. However, insofar as any EE programs are funded by utility rates, cost benefit analyses should focus on the cost-effectiveness of such programs from the perspective of other public utility ratepayers.

- Inputs for some of these NEBs may be readily available, while others may need to be developed.

4. What should the role of ratepayer funded programs, whether state or utility run, be in achieving reduction strategies?

- Ratepayer-funded programs led by the NJ Clean Energy Program ("CEP") should play a leading and vital role in supporting energy reduction strategies associated with electric

and natural gas utility service. Ratepayer-funded programs should coordinate and integrate building measures (including energy efficiency, renewable energy, and storage) to provide comprehensive energy efficiency solutions for customers. Ratepayer-funded programs can also have customized/targeted programs to address utility system constraints, mitigate capacity peaks, improve grid utilization, and avoid transmission and distribution system infrastructure costs.

- Additionally, the state should initiate an evaluation process conducted by an independent evaluator to study the benefits relative to the costs for each EE program funded by ratepayers. As stated earlier, any such EE programs are funded by utility rates, there should be an analysis of the cost-effectiveness and value of such programs taking into account the interests of ratepayers as a whole.

- Regarding utility versus state-run programs, the utilities have had difficulty demonstrating that their programs provide incremental benefits on top of benefits provided by the CEP, particularly when program participants receive incentives from both the state and the utility for the same measure. Utility efforts should be channeled into areas that do not overlap with the CEP, to prevent further free ridership problems. Also, a statewide free-ridership study should be conducted to determine the level of participation and savings the CEP would have achieved absent the utility programs. Such a study will provide critical inputs to help assess where utility efforts have been most successful and cost effective.

5. What type of educational outreach is needed to advance energy efficiency throughout New Jersey?

- In order to identify what type of outreach would be most effective, the CEP administrator should conduct a new process evaluation study and identify the effectiveness of the current marketing activities and areas for improvements.

- Such research will likely demonstrate that several types of efforts to inform, improve, and advance educational outreach are needed, including:

i. Substantial improvements to how the state and utilities leverage/integrate data to inform targeting and segmentation;

ii. More person-to-person, community level campaigns, including expanded engagement of local partners;

iii. Continued efforts to improve energy data collection and management, across and between the utilities and state; and

iv. Customer education on home automation and energy controls.

- The scale of marketing and customer outreach budgets is a key factor influencing program participants, in addition to the types of educational outreach. Rate Counsel noted in its comment regarding the recent Comprehensive Resources Analysis ("CRA") that the current marketing funding for the CEP is insufficient for attracting an acceptable level of program participants. The funding proposed for marketing in the CRA was only about 1 percent of the total CEP budget, substantially lower than the range identified in the industry. Rate Counsel recommended the Office of Clean Energy ("OCE") allocate funds for marketing sufficient to reach roughly 3 percent of the total CEP budget.

Technology

6. **What advances in technology should be considered as part of a strategy to reduce energy consumption? What technologies could complement and advance existing energy efficiency efforts?**

- The following emerging technologies might have some energy efficiency and demand response roles:

i. Net zero energy buildings;

ii. Deep energy retrofit;

iii. Load control technologies including smart thermostats to control end-use load;

iv. Thermal storages such as ice energy storage, chilled water tank, hot water tank;

v. Batteries including electric vehicle batteries.

7. What are the intermediate timeframes and pathways to these new or enhanced technologies and energy efficiency and demand response systems?

- To the extent that they are cost-effective, the State can consider incorporating the following technologies and practices in its future energy efficiency programs:

i. Net zero energy homes and office buildings. A study in Vermont found that net zero energy and net zero ready buildings are a smart investment when compared to code compliant buildings. See: https://zeroenergyproject.org/2016/01/25/zero-energy-homes-and-office-buildings-cost-less-to-own-even-without-incentives-and-rebates/.

ii. Heat pumps for homes and businesses that currently have electric resistance heating. These types of heat pump applications have been shown to be cost-effective elsewhere in some applications. One example of heat pump studies is Rhode Island Office of Energy Resource's "Renewable Thermal Market Development Strategy" report, available at http://www.energy.ri.gov/reports-publications/past-projects/ri-renewable-thermal-market-development-strategy.php For a program example, see Massachusetts Clean Energy Center's HeatSmart program at: http://www.masscec.com/heatsmart-mass.

iii. Electric and thermal storage systems (e.g., ice energy, chilled water tank, hot water tank) and load control technologies.

- The state should keep an eye on the following technologies and practices as the costs are changing rapidly.

    i. Deep energy retrofit measures. See New York's investigation into a new approach to deep energy retrofits through its RetrofitNY program at: http://energiesprong.eu/country/new-york/.

    ii. Heat pumps for homes with natural gas heating systems.

8. How do we best utilize data analytics for energy efficiency?

- There are a number of potential ways data analytics can be used to improve energy efficiency programs. However, such programs might not be cost-effective at this juncture and require further study and development.

    i. Targeting/segmentation: Data analytics allow program administrators to identify and engage potential customers easily with the use of customer-specific data.

    ii. Engaging customers: data analytics may facilitate customer engagement by providing valuable information on energy use for customers.

    iii. Informing Program Design: Data analytics has the potential to help program administrators optimize EE programs throughout the year and address issues prior to the start of the next program years. Some examples of program performance indicates that data analytics can track an individual EE measure, specific EE contractor, zip code, or building type.

    iv. Evaluating program performance: Data analytics has the potential for use in evaluating the performance of energy efficiency programs in a timely manner and can reduce the need and the costs for on-site visits and measurement. It can also

evaluate more projects and more programs with marginal incremental costs. Data analytics may also be used to refine, calibrate, and assess the accuracy of deemed savings values in the New Jersey Savings Protocols in a timely manner.

- To the extent that AMI has been implemented in a service area, the potential for using AMI data for data analytics should be investigated. Once the Rockland Electric Pilot is completed and evaluated, future petitions for AMI roll-out should address how the AMI data can be used to better coordinate and target efficiency services. Any deployment of AMI must be proven to be cost effective from the perspective of ratepayers and encourage competition among potential vendors who may access the data.

9. What is the role of block chain, IoT, big data, 5G, and other specific technologies in energy efficiency?

- IoT and big data are important elements of data analytics for energy efficiency programs. At this juncture in the development of these technologies, Rate Counsel does not have any specific comments as to how block chain and 5G networks can be used for energy efficiency programs. However, any adoption of these technologies should be guided by long-standing public utility policy considerations, such as reasonableness, prudency, affordability, cost-effectiveness, grid security, customer privacy and other factors.

- The State should ensure that data security and customer privacy issues are investigated and addressed up front.

<u>State Policy</u>

10. How can the state play a strong role in reducing its energy consumption?

- The State can also help reduce energy consumption by supporting implementation of an integrated and coordinated suite of policies that

reduce energy consumption statewide and implementing energy reducing measures in state-owned and -operated buildings. The polices and measures could include:

i. Adopting advanced building codes and appliance standards. In the area of building codes, the State can implement more stringent energy building codes or a "stretch" code which allows communities to adopt more stringent building codes than statewide mandated building codes.

ii. Providing technical assistance and grants for communities that commit to reducing municipal energy use (including use by buildings, water and wastewater facilities, etc.) by a set target over a set time period.

iii. Providing technical assistance for communities to accelerate adoption of clean heating and renewable technologies.

11. Which strategies should be state-led, and which ones should be advanced by the private sector? What other players are important leaders in energy efficiency?

- The State's overall policy and strategy construct should be developed through a governmental process. With respect to the private sector, the State's efforts should endeavor to address market barriers (e.g. access to capital, split incentives for rental buildings, information asymmetries, etc.) and other considerations, such as the utility service issues of low-income utility customers. A far as it is feasible, private contractors should take the lead in this area.

- To capture the efficiencies of the private sector, the state should issue requests for proposals ("RFP") to engage the private sector in particular initiatives or efforts.

12. Should the state require energy efficiency in particular projects receiving state incentives?

- State incentives should be tiered to provide greater rewards to projects that address energy efficiency first and motivate participants to achieve deeper savings. For example, CHP and micro-grid project incentives should be tied to maximizing end-use EE savings.

13. Should the state play a role in encouraging pilots of different "next generation" buildings? How could the state foster the implementation of net zero or passive buildings projects? How could that impact and restructure redevelopment efforts?

- The state can consider establishing a pilot program to formally recognize and applaud local builders and architects who develop the next-generation of high-performance buildings such as net zero energy buildings, DOE's Zero Energy Ready Home, Passive House, and the 2030 Challenge.

14. What Treasury design standards or procurement policies should be updated to reflect and encourage energy efficiency in state building designs or protocols?

- If design standards or procurement policies do not currently consider energy use and source as criteria in procurement decisions, they should be updated to do so. If updates are needed, creating an open, multi-agency forum or working group could help exchange best practices for integrating energy efficiency into procurement. Also, the International Standards Organization (e.g., through ISO 20400) can provide guidance on implementing sustainable and energy efficient procurement policies.

Codes and Standards

15. What portion of the overall energy savings in the transportation, heating, processing, and cooling and electricity markets should be

achieved through advanced and enhanced building energy codes and appliance standards systems?

- To answer this question, the State needs to conduct two types of studies. One of the studies is a savings potential study for codes and standards. Another study is a scenario analysis, in which the State can identify various feasible paths to reaching the state's key clean energy goals. These goals include Governor Murphy's 100 percent clean energy goal and the Global Warming Response Act's 80 percent greenhouse gas emissions reduction by 2050.

16. How should each sector—residential, commercial, and industrial—be considered in terms of codes and standards updates towards reduced energy consumption? In terms of energy efficiency, are certain sectors more adaptable or important than others?

- This is a broad, far-reaching question. Generally, energy reduction goals should be set for each utility current sector/class, much like the current CRA process. The achievement of customer sector goals might be aided by many small steps, with the goal of reducing electrical and natural gas usage in a cost-effective way. For example, in setting any incentives, the State can consider adopting new appliance standards for products not currently covered by federal appliance standards. California is a leading state in adopting its own standards; many other states have adopted California's new standards in turn. New Jersey might benefit from such an approach.

17. What type of zoning changes or incentives should be considered related to green infrastructure? How can these be achieved?

- Zoning changes and incentives should be considered to promote green infrastructure. This can be achieved through community forums where best practices can be shared. Also, communities should consider adopting policies that require builders to design homes and businesses with solar-ready roofs and EV-ready wiring.

18. What are some examples of existing or potential advanced building energy standards or metrics? (Examples include: net zero energy, Passive House, Living Building Challenge, etc.) How could these be implemented in New Jersey to accelerate greenhouse gas emissions reduction in new and existing residential and commercial buildings?

- See our response to question 13 above.

19. Are there barriers to implementing new energy efficiency codes for building inspectors? How can potential code updates be made less burdensome for inspectors in order to increase compliance and uniformity?

- Regular builder and contractor education and training can facilitate compliance.

Security

20. How can energy efficiency and peak demand reduction strategies assist in ensuring enhanced energy security, reliability, and resiliency in the energy markets?

- Energy efficiency and peak demand reduction strategies have the potential to improve reliability and resiliency by reducing strain on the electricity grid.

21. Should strategies across the transportation, residential, commercial, industrial, and electricity generation sectors vary based on differing security risks?

- To the extent that the electric grid and natural gas delivery systems are digitalized, including EE and RE resources, as well as end-use devices, utilities must establish strong cybersecurity measures to protect utility resources. Critical infrastructure and locations should be subject to even greater protective measures.

Economic Growth and Workforce Development

22. What new or expanded manufacturing could be developed related to energy efficiency?

- Rate Counsel does not have specific information as to what manufacturing could be developed or expanded related to energy efficiency in the State. However, with a skilled workforce and an established network of research and educational facilities our State is well positioned to take advantage of such opportunities

23. What associated jobs and training will be needed in the new clean energy economy (particularly regarding reducing energy consumption)?

- See the response to question 2.

24. What type of overall workforce training is needed in the energy efficiency industry, whether for maintaining systems, installation and inspection, or in other areas?

- The State needs workforce training on maintenance, installation, construction and inspection of various energy efficiency measures, including such emerging technologies as heat pumps, net zero energy buildings, deep energy retrofits, electric and thermal energy storage systems, and load control devices.

25. What type of educational outreach is needed to advance energy efficiency in the workplace?

- See the response to questions 2 and 5.

Environmental Justice

26. How can the state be responsive in helping keep clean energy affordable in communities that are disproportionately impacted by the effects of environmental degradation and climate change? How can the state play an active role in improving the condition of older building stock and encouraging energy conservation measures in communities that are disproportionately impacted by the effects of environmental degradation and climate change?

- The affordability of utility services is a key concern. The costs of EE and RE measures need to be considered in the context of affordability. Disadvantaged communities are likely to be affected by the impacts of climate change, such as extreme heat and cold events that can lead to serious health impacts. The State should conduct an assessment of climate vulnerability for persons with high energy burdens in different parts of the State, including assessments of housing stock. A working group should review the results of the assessment and develop policy recommendations. The siting of any new generation and other energy facilities needs to consider the aggregate "environmental load" of communities as well.

27. What efforts are most successful towards making clean energy and energy efficiency measures affordable and accessible to all?

- Programs should include design elements that address barriers to participation by hard-to-reach populations, such as multifamily and rental housing owners and residents, and small commercial entities. Where the primary barrier to participation is cost combined with access to capital, utility-backed on-bill financing can provide a solution. A tailored, coordinated approach can help ease barriers to implementing energy efficiency in multifamily properties. Furthermore, the burden placed by such programs on the utility bills of low-and middle-income customers – as well as commercial customers - must be considered as a policy matter.

28. How can the state play a role in ensuring that disproportionately impacted communities receive opportunities and benefits connected to the clean energy economy?

- The state should review, monitor, and report on the bill impacts of clean energy development over time, with particular emphasis on the disparate energy burdens of low-income households and disadvantaged communities.