2019 NEW JERSEY
ENERGY MASTER PLAN
ROCKLAND ELECTRIC COMPANY'S
RESPONSE TO QUESTIONS

September 16, 2019

Executive Summary

Rockland Electric Company ("RECO" or the "Company") supports the State's efforts to develop the strategic vision for New Jersey's clean energy future in the 2019 Energy Master Plan ("EMP"). The draft 2019 EMP and its seven strategies reflect the ambitious action and significant undertaking needed by all sectors and stakeholders, including utilities, state agencies, local governments and third-party developers, to work together toward achieving the State's clean energy goals, and in particular the transition to 100 percent clean energy by 2050. RECO applauds the holistic approach taken in the EMP which will support development of a roadmap to achieve the Governor's goals and encourages the NJBPU and the Governor to support the electric utilities' efforts to achieve these goals.

RECO encourages implementation of New Jersey's clean energy goals in a realistic timeframe and in a manner that brings the greatest benefits to all customer classes, while also being mindful to minimize the bill impact to all customers. Recognizing that utility involvement will be key in achieving the State's goals, the Company welcomes the opportunity to play a central role and believes these goals are most achievable within the appropriate regulatory framework and program support.

The utility industry is undergoing a fundamental transformation. The power grid originally based on one-way electric flow is evolving into a more complex, smart, two-way electric grid with the goal of a cleaner and more resilient energy system. RECO embraces this transformative period in the industry and is prepared to respond to changing customer desires, advances in technology, and ambitious policy goals to bring about the change envisioned in the EMP initiatives.

To meet the changing environment and support the modern energy landscape, utilities will be required to undertake a variety of foundational investments and adapt to new and evolving business models. Utility ownership of clean energy assets, including electric vehicle ("EV") infrastructure and energy storage, leverages the expertise of the utility to interconnect these assets into the distribution system in locations where they will provide benefits to all customers, thereby having a positive impact on the affordability of energy to all customers. Likewise, New Jersey Board of Public Utilities' ("NJBPU") support for a utility's ability to implement non-wires solutions, pilot projects, and rate design, where appropriate, will further achievement of the Governor's clean energy goals. Critical to the utility's role in the transformation and its ability to provide safe, reliable and affordable service to all of its customers is the requirement that utilities have a revenue decoupling mechanism ("RDM") in place and receive appropriate cost recovery and incentives, along with earning a rate of return.

RECO's responses to the questions in the Draft EMP identify a number of ways in which the Company can partner with the State, the NJBPU, and other stakeholders to work toward the Governor's goals. In addition, utility-run energy efficiency and other clean energy programs with the correct regulatory structure in place should be developed to include harder to reach customers, such as low-income customers and those customers in Environmental Justice areas, all while being mindful of the bill impacts to all customers.

Moreover, a holistic approach lends itself to an evaluation of the impact on New Jersey's economy, and specifically the job market. As the energy industry transforms, so do the skill sets needed by employees to operate the grid, install and manage distributed energy resources ("DER"), and construct energy-efficient, electrified buildings. Industry sectors and job occupations, with the right incentives and directions, need not stagnate by 2050, but instead undergo an evolution that paces their development with the advances in the clean energy initiatives. To meet these changes, partnership among utilities, stakeholders, State and federal research labs, the NJBPU and in-state universities and technical schools could foster an increase in the skill set thereby leading to job growth for New Jersey residents.

At a high-level, RECO's responses are guided by the following principles:

Transforming the Energy Industry and Evolving the Electric Utility

Utilities are uniquely positioned to play an important role and be an effective partner in transforming the energy landscape. Allowing utilities to evolve the current business model in support of increased integration of new technologies such as DER will help lower costs of deployment. Utility ownership is a model that may help bridge the transition, enable the market, and manage the cost impact to consumers. Utilities have a comprehensive understanding of the needs of the electric grid and the opportunities for deploying clean energy technology in a manner and in locations that maximize the benefits to all customers and smooth the transition to New Jersey's clean energy future. The benefits of utility-owned clean energy assets may be a way to mitigate the cost of clean energy technology deployment.

The evolving utility business model will include approaches to meet the needs of the modern grid thereby providing benefits to all customers, all while allowing for the utility's provision of safe, reliable and affordable service. For example, in addition to utility ownership of clean energy assets, non-wires solutions ("NWS") and pilot projects are initiatives that play a role in the transformed energy landscape. NWS offer an opportunity to potentially defer traditional "wires" investments, resulting in benefits for customers, while maintaining system reliability and resiliency. NWS may leverage DER, demand side alternatives, energy efficiency ("EE") or a portfolio thereof to provide beneficial non-traditional solutions when applicable and appropriate from both a technical and cost beneficial perspective.

Pilot projects are intended to demonstrate new business models (*i.e.*, new revenue stream opportunities for third-parties and the electric utilities) and potentially new technologies. For many DER technologies to be cost effective and beneficial, they must take advantage of multiple value streams. Pilot projects provide the forum to test hypotheses for determining and optimizing those value streams. In that regard, the projects will inform decision makers about the development of transformational models and functionalities, measure customer response to programs and prices associated with clean energy markets, and determine the most effective implementation of DER.

In addition, utilities are particularly well-suited to spur the development of EVs in several ways, including utility ownership of EV charging infrastructure, customer outreach and education, and developing innovative rate design to encourage both EV adoption and EV charging at beneficial times. Utility ownership of publicly available fast chargers can be an effective strategy for deploying such chargers until the necessary levels of EV are adopted that will support public charging as a viable business model. Further, utility ownership will increase the number of chargers thereby reducing range anxiety of potential EV buyers eliminating the "chicken-or-egg" problem of public charging availability. In addition, utility investment in public charging infrastructure can support placement of public chargers in locations such as low- and moderate-income communities where private investment may not be economical.

Support a modern, and resilient grid

Meeting the State's goals will require a transformation of New Jersey's electricity system, progressing to a system that is information-rich, facilitates customer engagement and choice, seamlessly integrates DERs, and encourages clean energy resources and improved EE. The transition to this future electricity system will be enabled by improvements in energy, information, communications, and grid control technologies. To meet the changing environment and support the modern energy landscape, utilities will be required to undertake a variety of foundational investments and adapt to new and evolving business models. Foundational investments include the modernization of utility infrastructure including Advanced Metering Infrastructure ("AMI"), distribution communications technologies and smart sensors, as well as an enhanced and granular forward-looking planning process. AMI provides a foundation of information and communications capabilities that will enable the utility's customers to become informed and engaged energy consumers. RECO has deployed AMI throughout its territory and along with its parent, Orange and Rockland Utilities, Inc. ("O&R"), continues to make these investments.

Create a regulatory structure that enables the transformed energy industry, encourages investments, and smooths customer bill impacts

Critical to a successful transformation of the energy industry in New Jersey is the decoupling of utilities' revenues from sales of electricity, cost recovery for foundational investments, including a return on such costs, and other appropriate incentives. Without an RDM a disincentive exists for utilities to make the needed investments in EE or DER programs due to the misalignment that is created when reduced sales of electricity diminish the utilities ability to recover the cost of providing safe and reliable service to their customers. An RDM can be used to remove the disincentive a utility has in promoting programs such as energy efficiency and the interconnection of clean energy resources by removing the linkage between sales and revenues. Moreover, critical to the energy industry transformation is the need to support the long-term fiscal strength of the utility.

The Draft EMP lays out an ambitious strategy requiring utility investments that will improve the reliability, resiliency, efficiency, and automation of the electric delivery system. Such investments should be recovered through an Infrastructure Investment Program ("IIP") or a

similar mechanism that provide for forward looking investments and strategies, and should be borne by all customers, as these investments benefit all customers. NJBPU approval of investments through an IIP or similar mechanism will provide utilities with the confidence needed to move forward with these investments with an understanding that they are made with the support of the NJBPU. Without such a mechanism, utilities would be forced to file rate cases as often as annually to recover these costs. In addition, prior to undertaking a non-wires solution or pilot project, the proper funding and cost recovery, including an appropriate rate of return, must be in place.

Valuation and Deployment of DERs and Clean Energy Resources

DERs and other clean energy resources have the potential to deliver significant benefits to New Jersey's energy consumers. However, with the growth of distributed resources, the potential exists for a misalignment to develop between the cost of providing service to customers and rates which are charged to most customers on a volumetric basis. As such, it is important that rates should reflect the fair value of the services customers receive from the utility for grid connection and customers should receive fair value for any service they provide to the utility and the grid. To encourage the deployment of DER in locations that maximize benefits to the electric delivery system and therefore all customers, these resources should be compensated for the value they provide. Current compensation for DER pursuant to the net metering rate structure creates a cost-shift to customers without DER. Therefore, developing rate designs that consider all of the above will minimize or eliminate increases to customer bills as well as cost-shifts to customers that do not deploy DER.

Engage customers in energy use and meet customers' expectations

Encouraging effective and appropriate customer behavior while supporting the electric utility's provision of safe and reliable service is a backbone of the actions needed to achieve the Clean Energy Act's goals.

RECO strongly believes that utility run energy efficiency programs with the correct regulatory structure must be in place in order for New Jersey to achieve a minimum level of the energy efficiency currently envisioned. Utilities should be able to offer programs for various market segments to achieve Clean Energy Act reduction targets. The Office of Clean Energy can support these efforts by developing policies; pursuing research and development; and developing and enforcing, higher codes and standards. As described above, a revenue decoupling mechanism is an essential component of a robust energy efficiency portfolio and, in conjunction with achievable performance incentives and an allowed rate of return on the investment, will drive the development of successful energy efficiency programs that align with the State's ambitious energy efficiency goals.

Engaging customers in their energy usage can result in lower customer bills while providing benefits to the grid. As described above, AMI plays a critical role in providing the necessary granular data to customers needed for greater control of their energy usage and bills which can also lower customer costs through reductions in peak demand. More granular data and effective

rate design will encourage customers to be active partners with utilities and third-parties, such as DER providers and energy efficiency companies, to achieve the State's goals.

Moreover, appropriate rate design is critical to supporting the modern grid. Effective rate designs can aid customers to make economically-efficient decisions regarding their energy options, including adoption of technologies that allow customers to optimize their energy consumption, leading to a more efficient use of the energy grid. In addition, coupling EV charger deployment and EV adoption in general with rate designs that encourage charging at times that benefit the grid, and thereby all customers, while also managing the customer's bill is important to achieve the goals to electrify the transportation sector and lower emissions.

Further, tightening building efficiency standards will lay a critical foundation from which local energy planning should start. Results from energy efficiency actions will be more effective when starting with an efficient building. Adding DERs to an efficient building creates increased benefits for the building owner, tenants, community-at-large, and the utility. Working with the local utility, building owners can leverage available energy efficiency programs. NJBPU support for utility-run energy efficiency programs will allow utilities to develop programs to meet the needs of its particular service territory demographics.

Finally, utility-run energy efficiency, peak demand reduction, and demand response programs can be developed to assist in maintaining energy affordability for all customer classes, including low income customers. Customers' familiarity with their utilities should facilitate increased program participation and provide for cost-effective achievement of state targets due to lower implementation costs. Utilities also understand the needs of customers and can design programs to meet those needs. This has been demonstrated by RECO's implementation of a direct install program for its low-income customer segment in place of the State-run Comfort Partner's program.

A clear vision for how the state plans to work toward the Governor's goals will help all stakeholders identify their roles and opportunities to contribute. RECO looks forward to playing an active role in the transformation of the energy industry envisioned in the EMP and applauds the State for viewing the Governor's goals in their totality and encourages a holistic, technology-neutral approach when reviewing all resources needed to achieve these goals that includes an analysis of realistic timeframes and the customer bill impact required to achieve the goals.

Introduction

By Notice issued August 21, 2019, the New Jersey Board of Public Utilities ("NJBPU" or the "Board"), requested comments on the Draft 2019 Energy Master Plan ("EMP") dated June 10, 2019. In addition to soliciting general comments on the Draft EMP, the Notice requested feedback on 28 separate questions. Rockland Electric Company ("RECO" or the "Company") sets forth below its responses to these questions.

Strategy 1: Reduce Energy Consumption and Emissions from the Transportation Sector

Question 1: In considering the policy mechanisms suggested in Strategy 1, how should the state seek to implement the policies to reduce transportation-related emissions? What policy mechanisms have we missed?

As the Draft EMP correctly notes, there is tremendous potential for growth of electric vehicles ("EVs") in New Jersey. When considering all available federal, state and local EV initiatives and rebates, EVs have the potential to approach cost parity with traditional internal combustion engine ("ICE") vehicles while providing substantial benefits to society, such as reduced carbon emissions.

Recognizing the potential for EV growth, New Jersey still faces near-term hurdles in achieving the electrification of the transportation sector. Utilities are particularly well-suited to address these hurdles and spur the development of EVs in several ways, including customer outreach and education, utility ownership of EV charging infrastructure, and providing appropriate rate design, all while partnering in other State initiatives. Utility ownership has been recognized as playing an important role in EV adoption. All of the top five states with the highest EV market share (*i.e.*, California,[1] Washington, Oregon, Hawaii and Vermont) permit some form of utility ownership of EV chargers. These states understand the need for utility involvement in the EV charging landscape in order to increase the adoption of EVs within the state. More publicly available chargers will lead to less range anxiety from both prospective and current EV owners. As barriers to charging are lowered through innovative public policy and partnerships with the State's electric distribution companies ("EDCs"), adoption rates of EVs can be increased substantially.

Education and Outreach

[1] In California, the California Public Utilities Commission has approved utility involvement in the EV charging landscape. *See* Clean Energy and Pollution Reduction Act of 2015, SB-350 § 547 (2015). https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201520160SB350. The utilities are deploying a combination of models, including make ready (Southern California Edison) and utility ownership of EV chargers (San Diego Gas and Electric).

One of the existing and near-term barriers to EV adoption is low customer awareness. Utilities are uniquely positioned to drive adoption of EVs through community outreach and education activities. RECO is positioned to be its customers trusted energy advisor for energy efficiency ("EE") recommendations, and the Company wants to extend that connection to include EV information. Understanding a customer's needs and providing them with viable products to meet those needs is essential to a successful customer engagement program. Utilities can provide educational information on EV-related topics including smart energy usage, EVs best suited for their life style, and publicly accessible charging locations to eliminate range anxiety. It is also important to educate customers on the benefits of owning an EV, so they can evaluate and understand the total cost of EV ownership as compared to an ICE vehicle. These early efforts would directly support the EMP's goal of deployment of 330,000 light-duty EVs on the road by 2025.

RECO can leverage the efforts of its corporate parent, Orange and Rockland Utilities, Inc. ("O&R"), to extend many of the education and outreach efforts conducted in New York, such as holding outreach events and developing educational material about the benefits of owning an EV, to New Jersey customers. O&R has developed customer education materials and regularly conducts outreach events to further promote EVs (*e.g.,* Ride and Drive events). This educational material is updated to keep up with the rapid growth of EV technology. Further, O&R has developed online EV engagement tools which are available to both O&R and RECO customers on the Company's website under the O&R Customer Energy Marketplace[2]. These tools are intended to improve the customer's experience by providing informed recommendations to promote EV awareness leveraging the utility's role as a trusted energy advisor. In addition, customers can purchase electric vehicle supply equipment ("EVSE"), such as Level 2 charging equipment, on the Marketplace. These tools can be further enhanced for RECO customers in the future by pairing EVSE purchases with rate offerings and rebates.

The NJBPU can enable utility efforts to support the electrification of the transportation sector by providing funding to develop new or leverage existing outreach and education programs, as well as funding for rebates and the approval of rates designed to encourage EV purchases and advantageous charging. Utility programs should complement those at the State level and consider the specific demographics of the utility's customer base.

Utilities should play an important role in future initiatives in New Jersey, and may be particularly effective in:

- Designing and conducting individual utility engagement activities with local governments and municipalities;
- Continuing to work with regional groups, associations, and governments to advance EV initiatives and infrastructure awareness; and
- Continuing to support the identification and implementation of EV demonstration and pilot projects.

[2] https://www.myorustore.com/

Utility Ownership of EV Charging Infrastructure

A key driver for the adoption of EVs is the availability of public charging infrastructure.[3] Utilities can play a central role in the deployment of public charging infrastructure by leveraging their experience deploying capital-intensive assets on the grid, their knowledge of the electric grid, and their customers' interests and expectations. In addition, the benefits of utility ownership of EV charging infrastructure can be increased by targeted marketing efforts, identifying ideal host sites, and undertaking ongoing charger operations and maintenance. Importantly, utility investment in public charging infrastructure can also support placement of public chargers in locations such as low- and moderate-income ("LMI") communities where private investment may not be economical.

While there are currently more than 640 public charging points (or plugs) at more than 250 locations in New Jersey, the State should continue to be proactive in its approach to deployment of publicly available chargers. However, studies suggest that private investment in public charging infrastructure, particularly for direct current fast charging ("DCFC"), is not cost-effective due to the limited number of EVs on the road today combined with high capital and operating costs.[4] As a result, utility ownership has emerged as a cost-effective strategy for deploying publicly available DCFC stations. RECO can deploy DCFC stations along major travel corridors and align with O&R's deployment plan to support a strong regional charging network infrastructure, which will assist in promoting electrification of the transportation segment.

Utility ownership may also enhance other components of an EV strategy, including marketing, identifying ideal host sites, pricing and programs, and ongoing operations and maintenance. Further, utility ownership will allow the utility to collect usage and charging data to help it identify more efficient ways to enable electrification of the transportation sector. Utility ownership and operation of charging stations also reduces the risk of stranded assets because of the utility's ability to maintain infrastructure to ensure the reliability of the charging stations, like they do for other assets across their territory.[5]

Lastly, RECO believes that partnerships, such as New Jersey's Partnership to Plug-In, are important statewide initiatives. Through the Partnership to Plug-In, utilities can provide valuable

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[3] Studies have found correlations between DCFC and EV sales. Mark Singer, Nat'l Renewable Energy Lab., Consumer Views on Plug-in Electric Vehicles – National Benchmark Report (Jan. 2016) pp. 18, 20; CalETC, Evaluating Methods to Encourage Plug-in Electric Vehicle Adoption: A Review of Reports on PEV Incentive Effectiveness for California Utilities p. 23. Prepared by Plug In America (Oct. 2016), available at https://pluginamerica.org/wp-content/uploads/2016/11/PEV-Incentive-Review-October-2016.pdf; Kansas City Power and Light executives believe that an extensive investment in public charging eliminated range anxiety in its service territory and led to an increased adoption of EVs. See Garrett Fitzgerald and Chris Nelder.

[4] Overcoming Barriers to Expanding Fast Charging Infrastructure in the Midcontinent Region, Great Plains Institute (July 2019), available at https://scripts.betterenergy.org/reports/GPI_DCFC_Analysis_July_2019.pdf

[5] Matthew Goetz, James Bradbury, and Kathryn Zyla, Georgetown Climate Center, *Utility Investment in Electric Vehicle Charging Infrastructure: Key Regulatory Considerations* (November 2017) pp. 10-11. https://www.georgetownclimate.org/files/report/GCC-MJBA_Utility-Investment-in-EV-Charging-Infrastructure.pdf

assistance in the determination of critical and strategic locations for installing charging infrastructure.

Public Charging Incentives

In addition to utility ownership of public charging infrastructure, the State may also consider alternative options to encourage the deployment of public DCFC stations until EV adoption rises to a level sufficient to make private investment cost-effective. One approach that the State may consider is that taken in New York's DCFC incentive program.[6] The EVSE Proceeding calls for each utility to provide an annual per-plug incentive in support of the development of public DCFC stations. The program was developed jointly by the New York electric utilities, New York Power Authority, New York State Department of Environmental Conservation, New York State Department of Transportation, New York State Energy Research and Development Authority, and the New York State Thruway Authority. The program provides a limited incentive to increase the number of DCFC stations while preserving the overall goal of an appropriate cost-based rate design, which includes demand charges. Such a program will add DCFC stations and encourage sufficient development to alleviate the range and charging anxiety of EV owners and drivers. A similar approach may assist New Jersey in meeting its goals for EV adoption and environmental goals before the market for public charging becomes viable.

Electric Vehicle Time-of-Use ("TOU") Rates

EVs may quickly become a major contributor to flexible load on the grid. Depending on the vehicle type, a single EV may represent between 1.4kW and 20kW of load, or 500 to 4,350kWh per year, of energy consumption. In order to understand the overall impact that EVs have on the electric system and infrastructure, utilities need to understand EV penetrations and forecasts. O&R has incorporated the EV load and EV-related system needs into its bottom-up planning and forecasting methodologies. In 2016, the expected contributions of EV load to the system peak forecast was less than 1 MW over the next five-year period. RECO and O&R's combined current system peak load forecast projects EVs contributing 5 MW over the next five-year period, which clearly illustrates the growth potential of EVs and the increasing trend that is beginning to take place.

The implementation of rate design enhancements (*e.g.*, TOU rates) will play a vital role in supporting customers' adoption of EVs, with a corresponding decline in transportation-related emissions. TOU, or time-of-day ("TOD") rates, are an effective tool for influencing customer behavior. By charging lower rates when costs to operate the grid are less, utilities are well-positioned to encourage or discourage consumption of electricity in response to grid needs. EVs represent an opportunity for utilities to grow electricity consumption, but they could also create problems if charging takes place at times with the grid is already near capacity. TOU rate structures for EV owners can encourage responsible charging at off-peak times reducing both the EV owner's costs and the costs to all customers associated with meeting peak demand. An

[6] Case 18-E-0138*, Proceeding on Motion of the Commission Regarding Electric Vehicle Supply Equipment,* Consensus Proposal to Encourage Statewide Deployment of Direct Current Fast Charging Facilities for Electric Vehicles (filed November 20, 2018). ("EVSE Proceeding")

appealing TOU rate structure is an added benefit to customers who are exploring total ownership costs.

Currently, RECO's voluntary TOD service class applicable to residential customers with an approved electric storage heater is used for the customer's entire water heating requirement. The Company has had inquiries from customers with plug-in electric vehicles ("PEVs") who wish to take service under a TOD residential rate structure. Currently, there is no such residential rate structure. Therefore, in its current rate case,[7] the Company has proposed to extend the availability of TOD rates to all residential customers, including those customers with PEVs.

Direct Customer Incentives/Rebates

The Company supports the encouragement of EV adoption through incentives for charging stations installation and the purchase of EVs. In developing an EV strategy, the State and NJBPU should continue to monitor and leverage incentives and other financial support from state agencies and other governmental entities in order to minimize the customer's utility bill impact to support EV adoption.

In order to promote EV adoption within New York State, O&R administers a rebate for new EV customers that install a residential Level 2 charger. This rebate was developed because more than 80 percent of EV owners charge their EVs at home.[8] A component of the rebate program is a customer's voluntary sharing of their specific EV-charging usage data (leveraging AMI data) with the utility which can be used by the utility to develop additional programs to further support the State's EV goals.

Medium-Duty and Heavy-Duty Vehicles

Although there are fewer medium- and heavy-duty vehicles than light-duty vehicles, the average emissions from medium- and heavy-duty vehicles are significantly more on a per vehicle basis. Consequently, efforts to electrify these vehicles can have a disproportionately large effect on carbon reductions from the transportation sector. Applications like buses, delivery service fleets, and refuse collection trucks are prime candidates for electrification and can provide immediate reductions in carbon emissions. Utilities can support these efforts by leveraging the current entitlement provisions in their tariffs to provide adequate incentives to encourage a business' deployment of EV chargers and support its change over to an EV fleet.

Question 2: The state seeks to "lead by example" in the electrification of its fleet. What case studies, cities, states, etc. should New Jersey look to and learn from as it rolls out clean light-duty vehicles and buses?

[7] *I/M/O the Verified Petition of Rockland Electric Company for Approval of Changes in Electric Rates, Its Tariff for Electric Services, and Its Depreciation Rates, and for Other Relief*, BPU Dkt. No. ER19050552 ("2019 RECO Rate Case").

[8] Office of Energy Efficiency & Renewable Energy, *Electric Vehicles – Charging at Home*, accessed September 2019 at https://www.energy.gov/eere/electricvehicles/charging-home

Numerous cities and states around the country and around the world have taken initial steps to electrify fleet vehicles such as public transportation and vocational vehicles. RECO includes examples of actions taken by various states and municipalities to electrify their fleet; however, New Jersey will need to review each approach to determine which, if any, will support achievement of the State's goals within the boundaries envisioned. For example, O&R has begun implementation of a DCFC Incentive Rate and has conducted community outreach and education events as part of its efforts to grow adoption of EVs in its service territory.

Specific to light-duty vehicles, many public fleets are in the process of transitioning to EVs, particularly for those vehicles identified to be replaced due to regular attrition. States such as New York are taking aggressive steps to enable a clean fleet. New York City will add 2,000 EVs to its municipal vehicle fleet by 2025, which would make it the largest EV fleet of any US city.[9] In December 2017, the City of Sacramento, California updated its fleet sustainability policy[10] to require that 50 percent of all light-duty passenger vehicles purchased must be zero-emission vehicles ("ZEVs") by the end of the 2018 fiscal year. The Fleet Management Division initiated the change, which also states that 50 percent of all vehicles purchased by 2018[11] must run on some type of alternative fuel. As of April 2019, Sacramento's City Fleet consisted of approximately 50 percent alternative fuel vehicles.[12] In addition, the State of Colorado has adopted numerous policies[13] designed to support the EV market; these policies include permitting utility ownership of charging stations, creating a tax credit of $5,000 per EV, and creating an infrastructure grant fund using federal funds to support the installation of EV charging in public locations, workplaces and multifamily housing.

Electrification goals from other local governments[14] are shown in the table below.

Local Government	Goal	Context
Denver	200 EVs by 2020	10% of light-duty vehicles
Los Angeles	50% of new vehicles will be EVs	228 vehicles
Austin	330 EVs by 2020	16% of light-duty vehicles
San Francisco	All new passenger vehicles must be ZEVs. All passenger vehicles must be ZEVs by 2022.	300 Passenger vehicles must be EVs by 2022

[9] City of New York, *NYC Clean Fleet* (December 2015). http://www.nyc.gov/html/dcas/downloads/pdf/fleet/NYC_clean_fleet_plan.pdf

[10] https://www.government-fleet.com/279078/sacramento-ups-zev-mandate-to-50

[11] Government Fleet, Achieving Clean Fleet Goals (January 2019). https://www.government-fleet.com/322404/achieving-clean-fleet-goals

[12] City of :Sacramento, *City ZEV Fleet*, https://www.cityofsacramento.org/Public-Works/Electric-Vehicle-Initiatives/City-ZEV-Fleet

[13] Frontier Group, CoPRIG Foundation, Southwest Energy Efficiency Project, *Growing Greener* (August 2019). http://www.swenergy.org/Data/Sites/1/media/aaa-documents-2019/press-releases/boulder-growing-greener.pdf

[14] As of January 2018. Southwest Energy Efficiency Project, *Electrifying Transportation: Boulder County's Clean Future* (January 2018). http://www.swenergy.org/Data/Sites/1/media/documents/publications/documents/electrifying_transportation_boulder_countys_clean_future_final_2.2.18.pdf

Atlanta	20% by 2020	600 vehicles
Seattle	30% of all light-duty vehicles by 2020	670 vehicles
Portland	180 EVs by 2020	30% of 'eligible' vehicles by 2020

Washington Governor Inslee accelerated the State's EV adoption in public and private fleets, through that State's Electric Vehicle Fleets Initiative, by increasing the percentage of all new state passenger vehicle purchases to be EVs from 20 to 50 percent by 2020.[15] To support this initiative, beginning in 2019, the Governor directed all state agencies "to purchase EVs in applicable vehicle categories unless they can prove that an EV option in the market place does not meet the operational needs of the agency. In addition, when submitting a Fleet Acquisition Plan, agencies must demonstrate that they have sufficient EV charging to support their current and future EV purchases."[16] The State leveraged existing funding already allocated for vehicle replacement and supplemented this with monies from the Volkswagen settlement fund, where needed. Cities across Washington State are also participating in the effort. The City of Seattle has acquired 90 municipal EVs. Seattle purchases EVs as replacements for vehicles at end-of-life when a cost-effective, EV market-ready vehicle is available that matches the planned operations for that vehicle. Cost effective is defined as a total cost of ownership within 10 percent of the cost of a gasoline or hybrid vehicle. For instance, Seattle will replace all government sedans with zero-emission battery electric vehicles where the range is adequate to perform the required job and charging infrastructure is available. Annual reporting of progress towards goals is required.

Procurement of EVs can leverage economies of scale with multi-jurisdictional participation. Alameda County in California led a project to purchase 90 EVs and charging installations for ten local city and county fleets. The project used a single bid process for the aggregated procurement, which was successful in attracting bids from local vendors while reducing administrative costs for participants. The EVs purchased under the Alameda County procurement are projected to save $500,000 in fuel costs and reduce fleet carbon dioxide emissions by 1.5 million pounds over the next five years.[17]

Momentum for electric buses ("E-buses") is building both locally and globally. Currently, there are approximately 300 E-buses in the US. According to Bloomberg New Energy Finance, about 35 percent of the 1.6 million municipal buses worldwide on the road in 2025 will be electric.[18] While China still accounts for most of the market, interest and sales in other countries around the

[15] State of Washington, *Washington State Electric Vehicle Fleets Initiative* (January 2019). https://www.governor.wa.gov/sites/default/files/WashingtonStateEVFleetsInitiative_Jan2019update.pdf
[16] Ibid
[17] EV Smart Fleets, *Capturing the Federal EV Tax Credit for Public Fleets* (April 2017). https://www.georgetownclimate.org/files/report/Capturing-the-Federal-EV-Tax-Credit-for-Public-Fleets%20-%20Case%20Study.pdf
[18] Bloomberg New Energy Finance, *Electric Vehicle Outlook 2019* (June 2019). https://about.bnef.com/electric-vehicle-outlook/

world are increasing as well. Most of the E-buses on the road today are in municipal public transit fleets. The US fleet of E-buses is expected to grow significantly (to 5,000) by 2025 because of targeted initiatives by states and cities such as New Jersey, California, New York City and Seattle. The main barriers for E-bus adoption remains the upfront cost of charging infrastructure and equipment. American cities are starting to incorporate E-buses into their fleets. For example, the Metropolitan Transportation Agency in New York City has 10 fully electric buses with 15 more E-buses currently on the way[19]. The Port Authority of New York and New Jersey is adding 18 new all-electric buses to its three major airports, followed by a plan to replace all 36 current diesel regular shuttle buses over the next 2 to 3 years.[20]

Below is a list of cities/transit agencies that have purchased or plan to purchase E-buses.[21]

City or County (Transit Agency)	# of E-Buses	Delivery Date (Manufacturer)
Stockton, CA (SJRTD)	17	2017 (Proterra)
Los Angeles, CA (LADOT)	95	2015 - 2017 (Byd)
Northern Los Angeles County, CA (Antelope Valley Transit Authority)	112	2018 (35 from New Flyer, unknown numbers from Proterra and BYD)
Los Angeles, CA (L.A. Airports Authority)	20	April 2018 (BYD)
San Gabriel and Pomona Valleys, CA (Foothill Transit)	15	2017 (Proterra)
Boulder, CO	1	Summer 2018 (unknown)
Washington, DC (WMATA)	14	April 2018 (Proterra)
Chicago, IL (CTA)	20	2019-2020 (Proterra)
New York, NY (NYC Transit Authority)	10	Date unknown (5 from Proterra, 5 from New Flyer)
Dallas, TX (DART)	7	July 2018 (Proterra)
Columbus, OH (COTA)	10	2019 or 2020 (Proterra)
San Francisco, CA (SF Metropolitan Transit Authority)	9	Fall 2018 (various manufacturers)
St Louis, MO	2	Late 2020 (Gillig)

[19] Environmental and Energy Study Institute, Battery Electric Buses: Benefits Outweigh Costs (October 2018). https://www.eesi.org/files/FactSheet_Electric_Bus_Benefits_Outweigh_Costs_1018.pdf
[20] Metropolitan Airport News, *Port Authority Rolls Out New Electric Buses at New York Airports* (December 28, 2018). https://metroairportnews.com/port-authority-rolls-out-new-electric-buses-at-new-york-airports/
[21] See note 17.

Anchorage, AK (MOAPTD)	1	January 2018 (Proterra)
Hoboken, NJ (Columbia University shuttle system)	6	2018 (New Flyer)
Seattle, WA (King County Metro Transit)	20	2018, 2019 (Proterra, BYD, and New Flyer)
Louisville, KY (River City Transit Authority)	15	2017 (Proterra)
Madison, WI (Metro Transit)	3	2019 (unknown)
Indianapolis, IN (IndyGo)	21	2018 (unknown)
Philadelphia (Southeastern Pennsylvania Transportation Authority)	25	2019 (Proterra)
Rhode Island Public Transit Authority (RIPTA)	3	2018 (Proterra)

The New York City Department of Sanitation is scheduled to begin a pilot of an electric refuse truck in late 2019 or early 2020. In addition, utilities such as Georgia Power have begun offering EV fleet management and planning as a service to its customers. These are just a few of the many efforts that are ongoing in cities and states across the country.

In some cases, E-buses have achieved a lower total cost of ownership ("TCO") as compared to their diesel and CNG-fueled buses. The TCO is expected to improve further as upfront vehicle costs continue to decline due to the decrease in battery cost and operational efficiencies from increased vehicle production. Also, financing mechanisms like Proterra, Inc.'s (one of the leading E-bus manufacturing companies) battery leasing program, which allows customers to purchase the vehicle while leasing the battery from Proterra, may make E-buses more accessible by lowering vehicle upfront costs.

Question 3: Over what timeline should the state seek to rollover its light-duty (passenger) fleet to EV? Over what timeline should the state rollover its bus fleet? Please also consider incremental milestones.

Owners of vehicle fleets are in a unique position to drive adoption of EVs because of their ability to fund the purchase of new vehicles through regular vehicle procurements. Fleet owners including states and local governments in addition to corporations and businesses may also be well-positioned to work with utilities to finance the development of EV charging infrastructure needed to operate the fleet. In addition, government and business owners of fleet vehicles are better positioned to realize the benefits of EVs such as lower total cost of ownership, lower maintenance and fuel costs and lower carbon emissions. It is important to understand the total cost of EVs while planning for replacement of future fleet vehicles.

The State can seek a leadership role in the rollover of its light-duty fleet by replacing its vehicles with EVs only. However, many considerations go into the development of an appropriate and realistic timeline. In determining the timeline to rollover its light-duty fleet vehicle fleet, the State may want to consider the speed at which it would like to establish itself as a leader in fleet electrification, the time required to build-out appropriately sited EV charging infrastructure, and the age of its current fleet vehicles. The Company has heard municipalities voice their concern for replacing existing vehicles with EVs prior to the end of the current vehicle's useful life. These concerns may be addressed by the State through incentives or other compensation offered by State agencies or the utility. For example, the State could offer decreased financing options through state agencies or may work with vehicle manufacturers to acquire preferred pricing. Other considerations that play into the development of a timeline are the extent of adequate charging equipment. By working with utilities to deploy adequate charging infrastructure, such as utility ownership of chargers, New Jersey will be better-positioned to meet its EV goals.

Question 4: How can the state work with the private sector to increase publicly-accessible EV charging infrastructure?

The location of EVSE deployments is essential because poorly chosen locations could yield low returns and have a negative impact on EV adoption. The Company supports utility ownership of EVSE so that the utility can lead in navigating through the challenges of a developing EV market in its service territory. Considerations, such as the type of charger (*i.e.*, Level 2 or DCFC) and its location (*e.g.*, workplace, commercial, multi-family, or other) must be carefully evaluated in order to produce benefits for both EV users and other customers.

The Company recognizes that the cost to the private sector of infrastructure implementation or upgrades can be an impediment to the deployment of EV charging infrastructure. Utilities, the NJBPU, and private sector stakeholders should work together through opportunities such as the Partnership to Plug-In, to determine how to lower barriers to private sector investment.

Publicly available DCFC stations will comprise an important portion of the EV charging portfolio. However, the business model for private investment in publicly available DCFC stations is not yet viable because of the limited number of EVs currently on the road combined with high capital and operating costs. The Company, through its parent O&R, has experience in administering an incentive program designed to lessen the risk of developing public DCFC stations in its New York territory while preserving rate design necessary to recover the costs of providing electric service without shifting costs to other customers.

Incentives for DCFC infrastructure that partially defray the high cost of operating public charging stations, until such time as the number of EVs allows public charging stations to be economically viable, can help to bridge the gap and eliminate the "chicken-and-egg" problem that has hindered both EV adoption and development of public charging infrastructure. New Jersey may look at similar incentives to reduce the burden on third-party vendors (in the short term) until higher amounts of EVs in the market allows private sector deployment of DCFC stations to become economical.

Question 5: How can the state work with the private sector to advance the technology for medium- and heavy-duty vehicles and incentivize private sector adoption of alternative fuel vehicles?

Medium- and heavy-duty vehicles contribute more to carbon emissions than light duty vehicles on a per-vehicle basis and are excellent candidates for electrification if they return to a fleet base daily for charging.

It is important for the State to work with various vendors and utilities to understand the use cases for medium-duty vehicles to enable affordable electrification. Local governments have implemented programs to encourage the deployment of medium-duty PEVs. In particular, the Houston Galveston Area Council, to reduce local air pollution from the freight industry, is implementing a pilot project to deploy 30 all-electric delivery trucks in partnership with United Parcel Service and Workhorse (a manufacturer of electrically powered delivery and utility vehicles). The vehicles travel, on average, 49 miles per trip with about two stops every mile. To date, the pilot has found that the fleet's average efficiency of energy use is significantly higher for the all-electric fleet than its conventional diesel counterpart.

Since fleet owners are required to invest in often significantly higher priced vehicles as well as costly charging infrastructure, incentives can be important for mitigating the high cost of switching to EVs. Incentives such as per vehicle rebates, charging infrastructure rebates, utility rate-basing of service upgrades, as well as tax and other incentives can have an important effect on how quickly fleet owners transition their vehicles to electric. Utility ownership of EV charging infrastructure or a "make-ready" program could also help lower barriers to adoption by taking on some of the upfront costs.

New Jersey should also look at a program that is similar to New York State Energy Research and Development Authority's ("NYSERDA") New York Truck Voucher Incentive Program,[22] through which the state provides incentives for all electric trucks and buses from Class 3 to Class 8.

Electrification of heavy-duty vehicles is also increasing but at a slower pace. One of the biggest barriers to advancing heavy-duty electrification is insufficient vehicle range. There is also a significant deficit in PEV range compared to ICE vehicle range. In addition, the infrastructure necessary to charge long-range PEVs quickly is not yet commercially available.

Finally, electrification of buses and garbage trucks have the potential to positively impact communities in which they operate by reducing noise and carbon emissions.

Question 6: What policy mechanisms should the state develop to reduce greenhouse gas emissions at its ports?

[22] New York State Energy Research and Development Authority, *NY Truck Voucher Incentive Program*, https://www.nyserda.ny.gov/All-Programs/Programs/NY-Truck-Voucher-Incentive-Program

Policies to enable the reduction of greenhouse gas ("GHG") emissions at ports must be part of the overall strategy of the EMP and the Global Warming Response Act ("GWRA").[23] Such an overall approach will help result in the most cost-effective approaches to GHG reduction as well as meeting the Governor's goals. Minimizing the bill impact to customers while achieving the GWRA's goals must be a priority.

Strategy 2: Accelerate Deployment of Renewable Energy and Distributed Energy Resources

Question 7: New Jersey is currently targeting the installation of 3,500 MW of offshore wind generation by 2030, but there is likely room for much more growth. Can New Jersey achieve more? Why or why not, and if so, how much is feasible? What concerns and barriers must we address in developing this resource?

The Company supports New Jersey's clean energy goals and encourages their implementation in a manner that brings the greatest benefits to all customer classes, including LMI customers, while also minimizing the cost impact to all customers. A holistic approach to reviewing all resources needed to achieve these goals should include a technology neutral approach, where appropriate, as well as an analysis of realistic timeframes and the customer bill impact required to achieve the goals.

The NJBPU must assess the costs and benefits of offshore wind ("OSW") and allow adequate time to learn from these initial solicitations and to develop the projects that support the 3500 MW goal. OSW is an enormous and costly undertaking that can provide benefits to the State, but additional goals should not be added until the projects supporting this initial goal are operational and provide lessons learned. As the OSW industry in the State matures, the incentives needed for deployment may decrease significantly. Setting additional goals under the current incentive regime risks over-incenting OSW to the detriment of other fledgling renewable technologies (and to the financial detriment of ratepayers). Although the State is currently incenting certain renewable technologies, these policies must be reviewed every few years and incentives adjusted as appropriate. Many technologies will develop in the next decade that presently are not market ready. The State should develop policies that are technology neutral with the ultimate goal of an all-inclusive clean energy environment and economy.

Efficient build out of the transmission system is vital to maximizing the effectiveness of OSW. Common offshore transmission infrastructure where multiple wind farms can connect to the same on-shore landing points in a way that provides for redundancy will be the most efficient, operationally flexible solution for customers in terms of feasibility, system integration, and environmental benefit; building a lead line for each successive OSW will drive up costs and slow down implementation. It is vital that New Jersey work with the transmission-owning utilities and PJM to identify efficient offtake locations and transmission upgrades to maximize economic

[23] L.2019, c. 197.

power transfer. Once identified, local transmission owners should build and own interconnection facilities, while offshore components and greenfield on-shore facilities should be open to competition by all qualified firms. The Company believes offshore grid costs are better shared through transmission rates than through the Offshore Wind Renewable Energy Certificate ("OREC"). However, cost allocation for transmission expansion must be done carefully and in line with beneficiary pays precedent.

The State should allow for flexibility in the portfolio of clean energy technologies used to meet the State's goals. Energy efficiency should be used to reduce energy requirements in the near-term, thereby moderating the total amount of new clean energy required to meet the 2030 and 2050 goals. Interim goals should be set for the amount of clean energy to be deployed during the transition years, allowing for a portfolio mixture that is reliable and cost beneficial, regardless of the technology mix. A cost-benefit analysis should be developed and conducted on the portfolio to steer the development and use of cost-effective, beneficial clean technologies. Whatever portfolio mix is developed, however, the technologies chosen must contribute to the reliability of the electricity system.

Question 8: How should New Jersey address the solar and NJ Class I cost cap established in the Clean Energy Act?

RECO supports the State's clean energy goals and recommends the State and NJBPU prioritize minimizing the cost impact to customers for programs and incentives developed to work toward achieving these goals. This includes limiting the customer bill impact of the Class I Renewable Portfolio Standard ("RPS") program to the cost cap established in the Clean Energy Act.

The Clean Energy Act establishes that the cost to customers for the Class I RPS program shall not exceed nine percent (and subsequently seven percent) of the total paid for electricity by all customers. To minimize the cost impact to customers for the Class I RPS program and truly reflect the bill impact to customers, the "total paid for electricity" used to calculate the cost cap should be valued as the cost of electricity supply plus the cost of delivery charges reflected on customer's bills. It should not include the Societal Benefits Charge, Zero Emission Certificate ("ZEC") charge, OREC charge, Solar Renewable Energy Credit ("SREC"), Regional Greenhouse Gas Initiative charge, or other similar surcharges that New Jersey customers are paying to support clean energy programs. If these charges are included in the calculation of the "total paid for electricity," then the nine or seven percent cost cap will be calculated off a higher dollar amount, resulting in higher customer bills. This is counter to the intent of the cost cap to limit the bill increases.

For example, adding the ZEC charge to the cost cap is over and above the amount of revenue received by the nuclear units from selling their energy into the market. Likewise, inclusion of the OREC charge in the cost cap will include the cost of decommissioning and other costs that are above the revenues received by the projects.

Moreover, the State and the NJBPU should manage the customer bill impact resulting from the EMP and the Clean Energy Act in a holistic manner. Specifically, the State should prioritize the SREC transition principle to "provide the maximum benefit to ratepayers at the lowest cost" for *all* clean energy funding and incentives. As a first step, the final EMP should adopt the recommendation above as to how to calculate the cost cap in an effort to lower the cost increase to customers' bills. The final EMP must also recognize that customers will experience increasing bill impacts beyond the cost cap (which is limited to the impact to customers of the Class I RPS program) as a result of clean energy programs that support energy storage and EV deployment, OSW, building sector electrification, energy efficiency, and demand response ("DR") programs, as well as the impact of net metering credits to non-participating customers. A holistic approach to assessing the overall bill impact to all customers will assist the State in identifying whether there is an inappropriate cost shift occurring between customers participating in clean energy programs and those that do not.

Question 9: Does the allowance in the current RPS on the use of unbundled Renewable Energy Certificates (RECs) interfere with state efforts to incentivize in-state renewable energy power generation?

The Draft EMP identifies a number of renewable energy goals for New Jersey including establishing a 50 percent RPS by 2030, establishing in-state Class I renewable energy goals and milestones, and exploration of regulatory authority to achieve 100 percent clean energy by 2050. Regarding establishing an in-state Class I goal, the Company strongly encourages the State to consider the impact of achieving this goal within the boundaries of the cost cap established in the Clean Energy Act. Further, the final EMP should be mindful of the bill impact to customers resulting from all renewable energy goals and programs set forth in the EMP and Clean Energy Act.

There are potential customer cost impacts to consider that are specific to the in-state Class I goals and milestones proposal in the Draft EMP. Currently, the RPS program requires energy generated within or delivered into the PJM region to qualify for Class I or Class II RECs,[24] connection to New Jersey's distribution system to qualify for SRECs,[25] and connection to the transmission system in New Jersey to qualify for ORECs, which are a component of Class I requirements.[26] Limiting eligibility for some or all RECs to in-state resources could reduce the supply of resources needed to meet increasing RPS requirements and drive up the costs for customers, making it difficult to remain within the cost cap established by the Clean Energy Act (see the discussion of the cost cap in response to Question 8).

[24] NJAC §14:8-2.7
[25] NJAC §14:8-2.2
[26] NJAC §14:8-6.2

Instead of establishing an in-state carve out or requirement under the RPS program, the State should adopt policies to encourage the cost-effective development of renewables that, in turn, could participate in the RPS program. One such option is to provide a portfolio approach, incorporating a variety of business models to develop renewables in the state, including utility ownership. The benefits of utility-owned clean energy assets may be a way to mitigate the cost of clean energy deployment. Utilities are well-positioned to understand the needs of the electric grid and the beneficial locations for integration of clean energy technology. Utilities, either alone or working with third-party providers, can leverage their knowledge of the electric grid for a smooth transition to clean technology deployment. Also, allowing utility ownership uses the expertise of the utility to interconnect clean energy assets into the distribution system in locations where it will provide benefits to all customers, thereby having a positive impact on the affordability of energy to all customers.

In addition, the State should review all incentives and costs paid by customers for renewable generation, whether as part of the RPS or other programs. Requiring customers to pay for both in-state clean energy resources and out-of-state generation to meet Class I RPS requirements puts a burden on customers. The State should balance *all* costs paid by customers into clean energy programs and consider containment approaches, such as establishing a cap for all clean energy programs, regardless of whether the costs are for in-state or out-of-state resources, or periodic review of bill impacts to customers for all programs. This may require the State to be flexible with its targets and goals and adjust accordingly if the cost for customers to fund all programs continues to become a larger part of their monthly energy bill.

Question 10: Which policy mechanisms do you recommend the state implement to lower the cost of capital for in-state renewable energy power generation?

The State can play an active role in lowering the cost of capital for in-state renewable energy generation, thereby balancing achievement of the Governor's goal of 50 percent renewable energy by 2030 with minimizing the bill impact to all customers, including low-income customers. By leveraging the strengths of all parties, the State can set policies that lower the costs of deploying renewable energy resources. For example, utilities can play an important role in increasing clean energy resource integration. State support for a transformed utility business model will allow for a holistic approach that incorporates maintaining grid resiliency and reliability while encouraging renewable energy resource integration where it provides benefits and minimizes the bill impacts to all customers. Exploring and developing policies that increase regulatory certainty on the deployment of these resources can decrease the project's risk, consequently lowering the cost of capital for other parties.

RECO proposes the following policies to lower the cost of capital for renewable energy generation:

Utility Business Model

Allowing the utility to transform its current business model in support of increased integration of renewable energy resources will help lower costs of deployment.

- Utility Ownership: Utility ownership is a model that may help bridge the transition, enable the market, and manage the cost impact on consumers. As discussed in RECO's response to Question 9, utilities are well-positioned to understand the needs of the electric grid and the beneficial locations for integration of clean energy technology. Utilities, either alone or working with third-party providers, can leverage their existing knowledge of the electric grid for a smooth transition to clean technology deployment. The benefits of utility-owned clean energy assets may be a way to mitigate the cost of clean energy technology deployment. Also, allowing utility ownership uses the expertise of the utility to interconnect clean energy assets into the distribution system in locations where it will provide benefits to all customers, thereby having a positive impact on the affordability of energy to all customers. Further, utility ownership of large-scale renewables provides a number of other benefits including increasing market opportunity for third parties that develop these projects to transfer ownership and retain environmental attributes within the State over the life of the project to the benefit of New Jersey customers.
- Develop policies for distribution system benefit: Encouraging deployment of renewable resources in areas that provide value to the distribution system can be accomplished by appropriate rate design. Time, demand, and locational based rates can be designed to encourage both load and renewable resources to locate in areas or change behavior (*e.g.,* by shifting load to contribute to peak reduction) where it is more beneficial for the grid and thereby all customers. This in turn can lower the cost to deploy and maintain these resources.
- Encourage Pilot Projects: Pilot projects demonstrate new business models (*e.g.,* new revenue stream opportunities for third parties and the electric utilities) and potentially new technologies by providing a forum to: (1) test hypotheses for optimizing those value streams; and (2) inform decision makers about the development of transformational models and functionalities, measure customer response to programs and prices associated with clean energy markets, and determine the most effective implementation of distributed energy resources ("DERs"). Further, as pilots, these projects are intended to test new technologies and approaches to assess value, explore options, and stimulate innovation before committing to full-scale implementation. Therefore, pilot projects should also be designed to deliver observable results and actionable information within a reasonable timeframe.

Advocate for Market Revenues

Active State support for policies that facilitate renewable energy assets, including paired assets such as solar plus storage, to participate unencumbered in various markets (*e.g.,* wholesale market opportunities) and earn additional revenues could further help reduce the cost to deploy the assets. The opportunity to participate in wholesale markets will be vital to the long-term viability of clean resources at scale. While the State does not have direct control over federally regulated markets, its engagement with FERC and PJM can greatly influence policy

development to facilitate equal opportunity for state sponsored clean resources. Please see RECO's response to Question 11 for more detail.

Financing Options

Reducing the cost of a project by using financing vehicles supported by third-party investments would minimize the bill impact to customers.

- Green Bank: The Draft EMP states that New Jersey should explore the establishment of a Green Bank to "leverage public dollars to grow private sector investment and provide low-cost financing, and develop financial protocols to support New Jersey's clean energy economy and the goals of the EMP."[27] There are a number of policies New Jersey can adopt to allow Green Bank funds to be used to the benefit of New Jersey consumers, including:
    - Transparency: The investment of public funds to the private sector must be done in a transparent manner. If established, the Green Bank should be subject to frequent reporting to apprise regulators, stakeholders, and the public as to allocation of funds, status of projects, and achievements. In addition, New Jersey should establish review processes for proposed investments and hold the Green Bank accountable for their spending, *e.g.*, meeting targets, progress toward State clean energy goals, and benefits to New Jersey residents.
    - Risk: While the purpose of the Green Bank will be to grow private sector investment in the clean energy economy, the establishment of the Green Bank must avoid overly risky and imprudent transactions.
    - Funds: New Jersey should put in place parameters for the establishment of a fund for the Green Bank. A Green Bank should be funded by third-party investments and not by ratepayers.
- Green Bonds: RECO supports the use of Green Bonds to fund individual projects or to fund a Green Bank to encourage widespread third-party investor support for a clean New Jersey economy. There are currently investor funds that support clean initiatives, and New Jersey can tap this source of funding.

Reduce "Soft Costs"

The State can establish policies and practices that ease the permitting process for clean energy resources such as solar and storage, thereby decreasing the project's soft costs. Setting uniform standards and best practices that municipalities can adopt will foster certainty that may translate into lower upfront project costs.

Avoid policies that further increase customer costs

RECO recommends against the State pursuing the below policies to lower the cost of capital, particularly due to implementation and customer bill impact.

[27] New Jersey Draft EMP pp. 12.

- Utility Power Purchase Agreements: Long-term utility power purchase agreements ("PPAs") will result in increased costs and risks to customers and utilities. Specifically, PPAs lock utility customers into contracts that can result in significantly higher costs than if customers were paying for that energy at current market value.
- On-Bill Financing ("OBF"): RECO opposes the imposition of on-bill financing for renewable resource assets, third-party services, or other non-utility services on the customer's utility bill. In particular, placing charges for lease or purchase payments on a utility bill gives rise to significant policy and implementation issues. The cost of these systems may be significant in relation to the customer's bill and/or the credits received from the DER. Under current rules,[28] the cost of a DER or another renewable energy asset is not a charge on a customer's bill for which a utility can terminate service for non-payment. Given this, new rules would need to be developed that require utilities to track customer payments that ultimately will be paid to the third-party provider. These rules are separate and apart from tracking payment for the charges to provide energy service to the customer. The impact on a utility's financial statements must be considered as well as any cash flow impact. This results in additional workload and costs for the utilities who would be required to notify the third party that the customer has moved; provide two-way monthly communications for charges and amounts collected; establish the method of communication, such as via electronic data interchange, that must be determined and protocols developed; develop the rules under which a utility can drop a customer from OBF; and establish a method for the transfer of cash collected each month to the third party. Other considerations include whether there is a cap on the monthly amount that can be charged by a third party and whether there is a limit on the type of assets which can participate in this program.

Question 11: What policy, legislative, or regulatory mechanisms can New Jersey develop to ensure that it can most cost-effectively pursue a 100% carbon neutral power sector?

The most significant obstacles to achieving a 100 percent carbon neutral power sector[29] are the cost impacts on customers associated with the deployment of new clean energy technologies, the need for additional State policies and financial mechanisms to mitigate that cost impact, and the need to safeguard the reliability of the grid in this transformative period. All of these concerns must be considered when developing appropriate policy, legislative, or regulatory mechanisms.

[28] NJAC §14:3–3A.2 Discontinuance for nonpayment. b) A utility may discontinue service for nonpayment only of charges for the actual utility commodity itself, that is, for electricity, gas, water, wastewater service, or telephone service. A utility shall not discontinue service for nonpayment of charges for optional services, as defined at N.J.A.C. 14:4-1.1, or for repairs, merchandise, installation of conservation measures, or other non-tariff services contracted for between the customer and the utility, nor shall the utility threaten discontinuance for any of these reasons.

[29] The EMP (p. 23) defines carbon neutral to include solar, OSW, biogas, nuclear; also as the removal of carbon or balancing emissions with removal.

There are numerous policies and legislative or regulatory mechanisms that New Jersey can pursue to help meet the Governor's goal of a 100 percent carbon neutral, or clean energy, power sector by 2050. By taking a holistic approach to achieving this goal, the State can monitor the overall cost impact of the initiatives to minimize the bill impacts on all customers. As a guiding principle, the State should set policies that are technology neutral and encourage all clean resources. This in turn may encourage the development of new clean energy technologies that will produce a portfolio of resources to meet the clean energy goals. Some of the initiatives that can play an important role in meeting the Governor's goal are: a) pilot projects; b) interconnection standards updates; c) financing options; d) non-wires solutions; e) compensation that supports DER for the value it provides to a clean energy landscape; g) utility as the primary provider of EE services; and g) storage benefits and additional revenue streams.

a) Pilot Projects: The State should allow pilot or demonstration projects through which utilities partner with third parties to deploy and test a variety of technologies targeting renewable energy and operational goals. As discussed in the response to Question 10, these partnerships will help develop new business models that will allow for the deployment of innovative technologies and renewable energy in a cost-effective manner. Pilot projects could include utility incentives to deploy non-traditional EE and renewable investments to encourage such partnerships with third parties to test new revenue streams, increase investments in clean energy assets, and to encourage the adoption of clean technology by customers. In addition, rate design should be reviewed, revised, and tested to provide customers with proper price signals that will allow them to respond appropriately to energy efficient technologies.

b) Interconnection Process: To determine what updates are needed to the current interconnection processes, a working group could be established that meets on a regular schedule and consists of utility-only meetings and utility/industry/NJBPU meetings. These meetings should be overseen by a consultant hired by the NJBPU to manage the group and assure all viewpoints are fairly assessed and accommodated. Areas of focus would include both policy and technical standards. Such a process could address concerns faced by both the utilities and the developer community. These forums would allow developers and other industry participants to raise concerns that are outside of the utility's control, such as siting and permitting concerns. This also would help utilities develop and share best practices that address the needs of developers in a timely manner in order to achieve the goals set forth by the NJBPU.

c) Financing options: The expansion of available financing for DERs and other clean energy resources may contribute to meeting the Governor's goals by supporting a variety of projects that create jobs in the clean energy sector. As discussed in the response to Question 10, the State could establish a Green Bank, funded without additional ratepayer subsidies, to support initiatives such as EE, solar, and storage. This type of financial support is different than an incentive, which is targeted at deployment of a particular technology or program. Rather, a Green Bank could provide the financing support for many different types of clean technology, including hybrid deployments such as solar plus storage. The Green Bank should be funded using third-party resources such as Green Bonds.

d) Non-Wires Solutions: Non-wires solutions ("NWS") offer an opportunity to defer traditional "wires" investments, resulting in benefits for customers while maintaining system reliability and resiliency. NWS leverage DERs to provide beneficial, non-traditional solutions. Potential NWS opportunities can be identified during the planning process and should be evaluated using a framework that is common at a high level to all electric distribution companies ("EDCs") to verify NWS suitability; this might include project size, type, timeline, and cost. Applying suitability criteria will help identify whether NWS (such as DR, energy storage, EE, other DER) or a portfolio consisting of a combination of solutions can defer traditional infrastructure investments. By using a longer planning period (both RECO and O&R use a ten-year planning outlook), EDCs may be able to identify, solicit, and evaluate NWS well in advance of the required need date in order to increase the number of potential NWS projects.

   Any potential NWS should be compared and appropriately evaluated with respect to the traditional solution using a standardized cost-benefit framework. Development of an appropriate cost-benefit framework is critical to a successful NWS program. In particular, the methodology and components of the framework must describe agreed upon costs and benefits and include a methodology for the calculation of the individual benefits and costs as well as how to apply the necessary cost-effectiveness tests. Any cost-benefit analysis should consider the overall societal benefit (*e.g.*, carbon benefit) of a project along with utility and customer bill impacts. Please see RECO's response to Question 19 for more detail.

e) Compensation for DER Value: Providing compensation for the value that a particular DER provides to the distribution system and to the State/PJM is a multi-faceted analysis that looks at the value based on the location of the DER and the energy, capacity, and other services provided. All of these different streams must be analyzed together to value the generation and other attributes provided appropriately. By taking a technology-agnostic approach to compensation and focusing on the value provided, the State will encourage deployment of all resources on a level-playing field, which can equate to a more cost-effective deployment.

f) Utility-Run Energy Efficiency: Utilities are uniquely positioned to administer EE programs, as they are viewed by their customers as trusted energy advisors. Utility-run EE, peak demand reduction, and DR programs offer the potential to keep energy affordable for all customers. Pairing AMI data with software data analytics and behavioral programs can provide for more customized actionable recommendations to customers. Moreover, utilities with affiliates that offer EE programs in other states can leverage those programs and lessons learned to implement New Jersey EE programs faster and benefit from the ability to drive down costs as a result of such experience. Synergies between similar programs in two states may shorten the ramp-up period and allow the utility to customize a new program based upon the demographics of its service territory.

There are three regulatory components required to implement a successful utility-run EE program: (1) the ability for the utility to appropriately recover the direct cost of the program; (2) the decoupling of revenue and sales which removes the disincentive for implementing EE programs, allowing for fixed costs to continue to be recovered; and (3) a utility earnings opportunity for EE performance and investment. Please see RECO's responses to Questions 12 and 13 for additional detail.

Without proper funding to support and execute the many actions required to transform the utility and assist in meeting the State's new energy goals, utilities risk significant earnings loss. Also essential to a successful and robust EE portfolio is recovery of utility program costs through base rates and earning the utility's rate of return on all utility investments. This establishes a level playing field for deploying such investments as compared to infrastructure investments. Such comparable treatment encourages and facilitates the integration of EE as part of the utility's core business.

g) Storage Benefits and Additional Revenue Streams: Facilitating the development of energy storage will serve to maximize carbon neutral sources of energy on a locational and temporal basis by making solar, wind, and other intermittent renewable sources of energy dispatchable. The State should pursue policies that facilitate these paired assets to participate unencumbered in various markets, including wholesale market opportunities, to earn additional revenues that could further help reduce the cost to deploy the DER assets. The opportunity to participate in wholesale markets will be vital to the long-term viability of clean energy resources at scale. While the State does not have direct control over federally regulated markets, its engagement with FERC and PJM can greatly influence policy development to facilitate equal opportunity for state-sponsored clean energy resources.

A major challenge to incorporating state-sponsored resources is the application of the minimum offer price rule in PJM. As currently contemplated, supply resources which receive a material subsidy would not be eligible for PJM capacity market revenues. The State needs to consider how the structure of its incentive programs impact eligibility for PJM revenues, otherwise New Jersey ratepayers may be double paying for capacity.

Another means by which New Jersey can influence wholesale opportunity is by directly pricing carbon. Such policy has the double benefit of rewarding low carbon resources while also establishing a glide path to eventual entry of renewables without state subsidy.

Achieving the Governor's goal will take a portfolio approach of solutions, all of which must be analyzed together to determine the total bill impact to the customer. When developing this portfolio, the cost cap legislated by the Clean Energy Act must be strictly adhered to so that a clean energy environment can be achieved in the most cost-effective manner. To do otherwise would put unnecessary pressure on ratepayers, particularly LMI, as well as businesses that produce the clean energy jobs needed to support the goals.

Strategy 3: Maximize Energy Efficiency and Conservation and Reduce Peak Demand

Question 12: New Jersey is currently targeting annual energy efficiency gains of 2% in the electricity sector and 0.75% in the gas sector. Do you recommend that New Jersey be more aggressive in approaching its energy efficiency goals? Why or why not, how much annually is feasible, and how long of a ramp up period is needed?

The Company does not recommend that New Jersey be more aggressive in approaching its EE goals. Rather, New Jersey should wait and evaluate the results of utility-run programs before increasing the targets and setting new goals. A ramp-up period of up to three years may be needed before these programs are fully functioning. Therefore, evaluation should occur only after the programs have been fully functioning for two to three years. According to the U.S. Department of Energy ("DOE"), these evaluations "identify opportunities to make continuous improvements in programs in order to effectively and efficiently manage public investments."[30]

Flexibility of goals and targets is needed during the ramp-up and transition phase in order to assess performance properly and allow for inevitable program modifications. A target rate of two percent is achievable over time. EE contractors will need to ramp-up staffing, participants will need to be recruited, solicitations will need to be produced and offered, and complex contracting arrangements will need to be finalized. For example, in New York, annual EE targets for utility-sponsored programs started at 0.5 percent of sales; because this goal was not attained in the first year, annual goals were combined into a three-year goal. Performance was assessed at the end of the three-year period to allow programs to mature. Likewise, in New Jersey, utilities should be allowed the flexibility to propose targets that achieve the two percent goal within five years.

Further, utility-run EE programs with the correct regulatory structure must be in place in order for New Jersey to achieve a minimum level of the EE currently envisioned. The American Council for an Energy-Efficient Economy ("ACEEE") has stated that a successful utility EE framework should include: "recovery of energy efficiency program direct costs; removal of throughput incentives (profits linked to increased energy sales) through decoupling or similar mechanisms that allow recovery of lost contributions to fixed costs; and creation of earnings opportunities for efficiency investments and performance."[31] RECO supports this framework.

Decoupling

Experience across the country, including in Massachusetts and New York, demonstrates that decoupling utility revenues and sales volume results in the removal of the disincentive to pursue

[30] Office of Energy Efficiency & Renewable Energy, Program Evaluation, accessed September 2019 at https://www.energy.gov/eere/analysis/program-evaluation

[31] Maggie Molina and Marty Kushler, ACEEE, *Policies Matter: Creating a Foundation for an Energy-Efficient Utility of the Future*, at 8 (June 2015) accessed at https://aceee.org/sites/default/files/policies-matter.pdf

the implementation of EE programs. According to the ACEEE's most recent *State Energy Efficiency Scorecard*, the top 10 states with the highest ranked EE policy and program efforts all have electric decoupling policies in place.[32] To be clear, a decoupling mechanism is not an incentive. Without this type of mechanism, utilities risk significant earnings loss and, unless adjusted, do not recover the revenue necessary to provide safe and reliable service. An RDM is an essential component of a robust EE portfolio and will drive the development of successful EE programs that align with the State's ambitious EE goals.

Performance Incentives

Reasonably achievable performance incentives should also be established to provide utilities with a positive incentive for implementing successful EE programs. Optimal Energy Inc.'s ("Optimal") proposed performance incentive[33] is unnecessarily complex and does not provide the positive incentive to drive program performance. For example in this proposal, a utility must significantly exceed its energy target in conjunction with other qualitative metrics in order to earn an incentive and may be penalized for performance of anything less than 100 percent percent of its target. RECO's parent, O&R, has experience implementing EE programs in its New York service territory. During the initial ramp up phase of its EE programs *(i.e.*, 2009 to 2011), O&R did not achieve 100 percent of its target. However, incentives were paid for performance between 80 and 100 percent, with penalties imposed for performance of less than 70 percent. In 2011, the NYPSC eliminated penalties and performance incentives are now positive only. This type of performance mechanism provides realistic opportunities that are a necessary key to unlock the type of change New Jersey is seeking.

The NYPSC highlighted the importance of these modifications when it found that:

> "[a]ligning financial incentives with policy goals is the best way to assure the furtherance of [New York's energy efficiency] goals. Where possible, markets and positive financial incentives - rather than direct regulatory mandates with negative consequences - should be the primary drivers of the countless implementation actions, decisions, and initiatives needed to transform the industry. We therefore determine that the direction of rate regulation is towards aligning financial incentives with REV [Reforming the Energy Vision] objectives by combining discrete reforms to conventional ratemaking with new earning opportunities that better align the utility and consumer economic welfare interests."[34]

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[32] Weston Berg, Seth Nowak, Grace Relf, Shruti Vaidyanathan, Eric Junga, Marianne DiMascio, and Emma Cooper, ACEEE, *The 2018 State Energy Efficiency Scorecard*, (October 2018) accessed at https://aceee.org/sites/default/files/publications/researchreports/u1808.pdf

[33] Optimal Energy, *Energy Efficiency Potential in New Jersey*, Prepared for New Jersey Board of Public Utilities (May 2019). https://s3.amazonaws.com/CandI/NJ+EE+Potential+Report+-+FINAL+with+App+A-H+-+5.24.19.pdf. ("Optimal Study")

[34] Case 14-M-0101, Order Adopting a Ratemaking and Utility Revenue Model Policy Framework, issued and effective May 19, 2016

As a result of this policy direction, New York State is well on its way to reducing energy needs by 185 TBtu through 2025, reducing GHG emissions by 40 percent below 1990 levels in 2030, and sourcing 50 percent of the State's electricity from renewable resources by 2030.

Further, performance incentives should be separate and distinct from recovery and decoupling mechanisms. In the example provided by Optimal,[35] the maximum performance incentives would be far less than the lost revenue experienced from the achievement of 125 percent of the goal without an RDM, effectively disincentivizing the utility from achieving the goal. By keeping each metric separate, the disincentive utilities have is removed and utilities are provided a positive indicator for their performance.

Cost Recovery

The Optimal Study does not accurately reflect the value of earning a return on EE investments. New Jersey has recognized the need for earning a return on EE investment in order to establish a level playing field with infrastructure investments. Such comparable treatment encourages and facilitates the integration of EE as part of the utility's core business. In addition, by amortizing the costs of an EE portfolio over the assets' lives, it allows customers to contribute to EE program costs consistent with the benefits they receive. This approach eliminates the shifting of EE costs between current customers and future customers and reduces the customer bill impact in any given year. In contrast, expensing these costs in the year they are incurred will result in a significant bill increase for customers as program spending ramps up.

State policy should incorporate EE as part of utilities' core business. Utilities should be allowed to invest and recover the costs of EE and DR programs just as they would in the case of traditional capital investments. Allowing utilities to decouple the linkage between sales and revenue removes the disincentive of implementing EE programs. In addition, allowing utilities to earn on the investment will fully engage utilities to encourage customers to participate in EE and DR programs and implement new and innovative technologies to help meet the State's ambitious energy goals.

Foundational Support

Leveraging AMI will support the development and design of EE and other programs that will move the State towards its goals and develop the appropriate long-term EE targets. Data analytics using AMI data will support the design of robust and effective EE and DR programs as programs can better target how and when customers use energy and the real-time price impact of shifting usage. AMI provides a foundation of information and communications capabilities that will enable the Company's customers to become informed and engaged energy consumers leading to individual customer bill savings and peak reduction that produces savings for all customers. Moreover, AMI enables the design of innovative behavioral and technology-based EE initiatives.

[35] Optimal Energy, *Energy Efficiency Potential in New Jersey*, Prepared for New Jersey Board of Public Utilities (May 2019). https://s3.amazonaws.com/CandI/NJ+EE+Potential+Report+-+FINAL+with+App+A-H+-+5.24.19.pdf

Question 13: What are the strengths and weaknesses of the utility-run energy efficiency programs, third-party supplier-run energy efficiency programs, and state-run programs that NJBPU should consider?

Utility-run Energy Efficiency Programs are Successful

Because of the relationship utilities have with their customers, utilities are in the best position to implement EE programs. Utilities are intimately familiar with their customer base and have been involved in the communities they serve for many years. Utility efforts to engage customers and reduce energy consumption and peak demand through tailored and cross-market EE messages are often very successful because of the ongoing relationship that utilities have with their customers. Specifically, utilities should be able to offer programs for various market segments to achieve Clean Energy Act reduction targets. The Office of Clean Energy can support these efforts by developing policies; pursuing research and development; and developing and enforcing, higher codes and standards. With the correct regulatory framework in place, utility-run programs are very effective.

Utilities can design programs that target harder to reach customers located in their service territories and thereby achieve energy reductions. For example, RECO's Low Income Direct Install program has treated over 80 percent of RECO's Universal Service Fund customers. To capitalize on the potential of utility-run EE programs, the State must clearly define the role of such programs and design a state program that complements these efforts.

In general, utility-run programs are cost-effective and benefit all customers because every dollar invested provides for more than one dollar of avoided cost benefits. Some low-income programs may not have the same result but may be the most cost effective program in that sector. For example, based on a cost-benefit analysis conducted by the Rutgers Center for Energy, Economic & Environmental Policy ("CEEEP"), RECO's Low Income Direct Install program operates at a lower $/MWh than the State-run Comfort Partners program.[36] Moreover, utilities should have the flexibility to implement programs based on program experience and lessons learned in other jurisdictions to deliver cost effective solutions and realize synergy savings by offering similar programs where similar customer demographics exist.

Utilities can leverage grid investments to design effective programs. Providing granular usage and other customer data gathered from AMI meters will empower all customers to better understand their usage and make changes that will have a meaningful impact on their utility bills, while contributing to the statewide benefits that result from decreased usage and peak load. Pairing AMI data with software data analytics and behavioral programs can provide for more customized actionable recommendations to customers.

[36] *See* RECO 2017 Low Income program filing, supra, at Exhibit H, Cost-Benefit Study Rutgers Center for Energy Efficiency ("CEEEP") Program Cost-Benefits January 17, 2017 at p. 4.

EE can play a crucial role in reducing system peak and deferring infrastructure investments through utility run programs, such as non-wires solutions. The result is a cost-effective solution to defer infrastructure investment while implementing an effective solution for the Company and its customers. Utilities can effectively employ EE as a resource integrated into planning processes to allow for maximizing savings from EE programs in constrained areas in need of transmission and/or distribution infrastructure upgrades. For more details on non-wires solutions, please see the Company's response to Question 19.

Finally, utility-run programs allow for a more equitable allocation of funding. Amounts collected from a utility's customers are used to assist customers in their own neighborhoods and service territory, as demonstrated above by RECO's Low Income Direct Install program. State-run programs, such as those run by Office of Clean Energy, do not always result in equitable treatment of customers in all service territories. This is particularly important for low-income and other hard-to-reach customers.

Utilities Need Effective Partners

Utility-run EE, peak demand reduction, and DR programs offer the potential to keep energy affordable for all customers and are often very successful when paired with the appropriate private sector support in the development of unique solutions to meet customers' needs. The Company recognizes the importance of trade allies/contractors that support the Company's efforts and successfully promote EE programs to its customers. Trade ally efforts include educating customers on how a high efficiency upgrade will save money in the long-term, or the inclusion by electrical lighting vendors of EE rebates into their initial proposals to customers to provide a competitive price.

The support and engagement of organizations that support sustainable EE and DR programs is essential in the successful implementation of utility EE programs. The Company is a member of both the Association of Energy Services Professionals, a member-based association dedicated to improving the delivery and implementation of EE, demand-side management, and DR programs, and the Peak Load Management Alliance, a community of experts and practitioners dedicated to sharing knowledge focusing on DR and demand reduction programs. In addition, the Company has leveraged the research of the Electric Power Research Institute to assist in providing energy solutions for data centers and large commercial and industrial ("C&I") facilities.

Leveraging Existing Affiliate Energy Efficiency Programs

Utilities with affiliates that offer EE programs in other states can leverage those successful programs and/or lessons learned to implement New Jersey EE programs faster and benefit from the ability to drive down costs as a result of such experience. Synergies between similar programs in two states may shorten the ramp-up period and allow the utility to customize a new program based upon the demographics of its service territory as compared to that in its other state(s). For example, RECO's corporate parent, O&R, has been implementing comprehensive EE programs in New York since 2009. Over 33,000 customers have participated in these programs. In 2018, these programs reduced energy by 173,000 MWh and 128,000 Dth, and peak demand by 38 MW. These savings are equivalent to reducing carbon emissions by 500,000 tons

and taking over 106,000 cars off the road. O&R currently offers a variety of EE programs, each targeted to a different segment of its customer base: a) residential; b) small business; and c) commercial and industrial ("C&I").

The programs can range in offerings from direct rebates to customers, to direct install programs that offer financial support for EE measures undertaken, to behavioral programs and energy audits. Understanding the customer base is key to developing a suite of EE programs that will meet the needs of all customers. O&R's programs currently include:

a) The residential program offers rebates to customers who purchase ENERGY STAR® appliances upgrades, as well as arranging for the recycling of refrigerators, freezers and room air conditioners. By offering products from O&R's Efficient Products Program through O&R's Marketplace, customers can apply for instant rebates at checkout, as opposed to filling out a rebate application and waiting four to six weeks for a rebate check.

b) To target small businesses, O&R offers a free on-site audit resulting in an easy to understand audit report that contains recommendations specific to that customer's needs and a simple payback timeline for the recommended investment.

c) The C&I program provides prescriptive and custom rebates to encourage C&I customers to identify energy saving opportunities, develop a building performance improvement plan, and implement cost-effective retrofit upgrade projects. The program includes rebates for high efficiency lighting and controls, HVAC measures and variable speed drives, along with rebates for custom efficiency projects.

d) Behavioral programs further engage customers to manage their energy use. Engaging more customers on a personalized level reinforces the energy savings impact by modifying energy behaviors and provides customers with the ability to better manage their overall energy use.

e) Upstream lighting programs provide point of sale rebates for light-emitting diode ("LED") bulbs at the retail level. Distributors, retailers and the utility can engage in co-branding efforts to promote efficient LED lighting and introduce incentives to buy down the cost of LED lighting at the point of purchase.

Recovery and Decoupling

Critical to a successful utility-run EE program is recovery of utility costs through base rates and earning a rate of return on all utility investments, as discussed in detail in RECO's response to Question 12. In addition, providing for the ability to earn a return on EE investment that creates a level playing field with infrastructure investments. Such comparable treatment encourages and facilitates the integration of EE as part of the utility's core business. Moreover, by amortizing the costs of an EE portfolio over the asset life, it allows customers to contribute to EE program costs according to the benefits they receive. This approach eliminates the shifting of EE costs between current customers and future customers and reduces the customer bill impact in any

given year. In contrast, expensing these costs in the year they are incurred will result in a significant bill increase for customers as program spending ramps up.

An RDM is an approach that can be used to remove the disincentive a utility has in promoting programs such as EE by removing the linkage between sales and revenues. Without an RDM, utilities risk significant earnings loss and unless adjusted, do not recover the revenue necessary to meet customer needs.

State policy should encourage and promote the incorporation of EE as part of utilities' core business. Utilities should be allowed to invest and recover the costs of EE and DR programs just as they would in the case of traditional capital investments. Allowing utilities to decouple the linkage between sales and revenues removes the disincentive of implementing EE programs. In addition, allowing utilities to earn on EE investments will spur utilities to encourage customers to participate in EE and DR programs and implement new and innovative technologies to help meet the State's ambitious energy goals.

As discussed, utilities have a strong understanding of their service territory and customers. Nevertheless, a statewide effort can include other parties. Office of Clean Energy programs should complement, and not compete with, programs offered by utilities; be cost-effective; enable benefits for all customers; and should be informed by stakeholder input. In New York, utilities and NYSERDA have competed for the same customers, which caused customer confusion and increased costs to ratepayers as marketing dollars are expended by both entities in order to gain participation. While New York has begun to address the issue so that NYSERDA no longer offers rebates for efficient lighting technologies allowing utility programs to target that end-use, overlap in program offerings still exists. The utilities and NYSERDA continue to discuss ways to address the issue.

Question 14: How can the state ensure equitable access to and benefit from energy efficiency programs for all residents?

The State can work to ensure equitable access to, and benefits for, all residents through the strengths of utility-run EE, peak demand reduction, and DR programs. First, as discussed above in the Company's response to Question 13, utilities are uniquely positioned to develop and administer energy efficiency programs that deliver results as programs can be more effectively designed for harder to reach customers and thereby achieve energy reductions. As also demonstrated above, utility-run EE programs are cost-effective and can be designed to leverage experience from other jurisdictions as well as grid investments, such as AMI, to design effective programs.

Utility-run programs allow for a more equitable allocation of funding. Funds collected from a utility's customers are used to provide services in their own neighborhoods and service territory, as demonstrated above by RECO's Low Income Direct Install program. State-run programs,

such as those run by Office of Clean Energy, do not always result in equitable treatment of customers in all service territories. This is particularly important for low-income and other hard-to-reach customers.

Question 15: Which states or cities have successfully implemented stronger-than-average building and energy codes? How should New Jersey seek to strengthen its building and energy codes, and over what timeline?

RECO supports the policy in the Draft EMP to encourage EV-ready building codes for new multi-unit dwelling and commercial construction. While recognizing the potential for EV growth, New Jersey still faces some near-term hurdles in achieving the electrification of the transportation sector. Updating building codes for EV-ready facilities is a move in the right direction. Utilities are particularly well-suited to work with building owners and developers to spur the development of EVs. Utilities can support the deployment EV charging infrastructure through utility ownership, provide appropriate rate design to encourage use of EVs at beneficial times, and offer customer outreach and education as a trusted energy advisor. Allowing utility ownership of EV charging infrastructure will hasten the deployment of such equipment, thereby shortening the timeline to increasing the electrification of transportation. Furthermore, building codes for new construction should also include building management systems and automated mandatory demand response facilitation.

In addition, the State can work with subject matter experts and utilities to support municipalities, first responders, and other local stakeholder to efficiently, effectively, and responsibly accommodate DERs in their communities. For example, New York, through NYSERDA, has issued a Battery Energy Storage System Guidebook[37] to educate local municipalities on energy storage, provide model law and permits to support the permitting of energy storage, and highlight critical safety aspects of energy storage. Regarding safety, collaboration between the asset owner, local first responders, and other stakeholders (*e.g.*, the local utility) is critical to define roles and responsibilities and develop an emergency response plan. In addition, NYSERDA is conducting local outreach and education for municipalities, including fire departments and rescue squads.

While RECO has included examples of actions taken by various states and municipalities to adopt stronger than average building and energy codes, New Jersey will need to review each approach to determine which, if any, will support achievement of the State's goals within the boundaries envisioned. Many cities have started the process by adopting policies for municipal buildings first. After demonstrating energy improvements in these buildings, the policies are then extended to private buildings. The leading cities in building policies are Austin, Texas and

[37] NYSERDA, *New York Battery Energy Storage System Guidebook* (September 2019), at https://www.nyserda.ny.gov/All-Programs/Programs/Clean-Energy-Siting/Battery-Energy-Storage-Guidebook. A similar guidebook is available for solar systems and can be found at https://www.nyserda.ny.gov/All-Programs/Programs/Clean-Energy-Siting/Solar-Guidebook.

Boston, Massachusetts.[38] Austin established stringent energy codes and adopted solar-ready regulations for new residential construction. It is one of only a few cities to require performance testing for both residential and commercial code compliance. For new and reconstructed state buildings, the State of Texas requires state government departments to compare the cost of using conventional design practices to the costs of using energy alternatives (*e.g.*, solar, biomass, wind) and determine the economic feasibility for a variety of building functions (*e.g.*, space heating and cooling, water heating, electrical loads, and interior lighting). If the use of alternative energy devices for a particular function is economically feasible, the use of these devices must be included in construction plans. State-funded projects must adhere to the EE standards found in ASHRAE Standard 90.1-2013, *Energy Standard for Buildings Except Low-Rise Residential Buildings*.[39] Likewise, Boston implements stringent energy code compliance and enforcement strategies. The city partners with Mass Save, an EE initiative jointly sponsored by Massachusetts gas and electric utilities and EE service providers, to provide and fund training programs for energy code officials, builders, and contractors. At the state level, Massachusetts established a Lead by Example program that requires all state construction to meet the Massachusetts LEED Plus Standard, which requires energy performance that is 20 percent above the State building energy code.[40]

Along with incentives such as tax abatement, permit fee reductions or waivers, grants, and rebates, cities also offer nonfinancial incentives to encourage developers and builders to construct buildings that exceed code minimums and meet additional certifications such as Leadership in Energy and Environmental Design ("LEED").[41] Accelerating the permitting process is one example. With little to no financial investment, jurisdictions can motivate builders by moving up their projects in the permitting and plan review process queue, which can otherwise take up to 18 months. Density bonuses are another common nonfinancial incentive. Several cities allow builders to construct buildings that exceed zoning restrictions on size or height if they meet more stringent efficiency requirements.

Strategy 4: Reduce Energy Consumption and Emissions from the Building Sector

[38] David Ribeiro, Stefen Samarripas, Kate Tanabe, Hannah Bastian, Emma Cooper, Ariel Drehobl, Shruti Vaidyanathan, Alexander Jarrah, and Mary Shoemaker, ACEEE, *The 2019 City Clean Energy Scorecard* (July 2019), accessed at https://aceee.org/sites/default/files/publications/researchreports/u1904.pdf

[39] U.S. Department of Energy, Building Energy Codes Program, Texas, accessed September 2019 at www.energycodes.gov/adoption/states/texas

[40] Massachusetts Department of Energy Resources, Leading by Example Initiatives, accessed September 2019 at www.mass.gov/service-details/leading-by-example-initiatives

[41] David Ribeiro, Stefen Samarripas, Kate Tanabe, Hannah Bastian, Emma Cooper, Ariel Drehobl, Shruti Vaidyanathan, Alexander Jarrah, and Mary Shoemaker, ACEEE, *The 2019 City Clean Energy Scorecard* (July 2019), accessed at https://aceee.org/sites/default/files/publications/researchreports/u1904.pdf

Question 16: What policy, legislative, or regulatory mechanisms can New Jersey develop to successfully transition the building industry to develop net zero carbon construction? Over what timeline should the building industry seek to make this transition? What incremental goals and milestones should it set?

RECO supports the state's effort to transition to building electrification and the incorporation of new technology. The State should coordinate with local municipalities and the New Jersey Department of Community Affairs to drive EE building codes, requirements and standards further than where they are today. Building codes that require a greater use of EE measures will allow for an easier and potentially faster transition to building electrification. This also supports a more effective deployment of electrification technologies, as well as the effective use of energy resources. Enhanced EE building codes would allow for new construction residential and commercial buildings to start contributing to energy savings beyond existing levels immediately.

RECO agrees with Goal 4.2.1 of the Draft EMP to incentivize the transition to electrified heat pumps, hot water heaters and other appliances, but urges the NJBPU to work with the EDCs to develop a program that is equitable to all ratepayers. To do so, the State should immediately partner with the utilities to identify new construction opportunities to eliminate lost energy saving opportunities in new and renovated commercial buildings. By offering new construction and remodeling incentives, this approach, when paired with enhanced building codes, captures otherwise lost opportunities as it encourages EE from the building's inception. While utility incentives and rebates are one avenue to promote the type of change in electrification that New Jersey is seeking, the NJBPU should look to other State funding or financing programs as a means to further bridge the transition.

During the early stages of a transition to electrifying the building sector, the State will need to develop detailed codes and standards to implement the required technologies. This approach is three-fold: 1) it provides clear direction to the market and industry by encouraging opportunities for greater economies of scale and encourages manufacturers and distributors to actively stock the equipment; 2) it supports the cost effective implementation of electrification, as these technologies are more cost effective when installed as part of new construction or major retrofit to replace equipment that is already at the end of its useful life; and 3) it encourages industry to gain confidence, job training and experience in the associated technologies. For these reasons, as well as everything noted above, without codes and standards that support the EMP, RECO does not believe New Jersey will reach penetrations of net zero carbon construction sufficient to meet the goals.

Today and in the future, many alternatives will exist for building owners; however, there are risks that must be understood and managed. New Jersey can look to other states that already have taken steps to implement new technology safely. For example, New York, through NYSERDA, has issued a Battery Energy Storage System Guidebook[42] to educate local

[42] NYSERDA, *New York Battery Energy Storage System Guidebook* (September 2019), at https://www.nyserda.ny.gov/All-Programs/Programs/Clean-Energy-Siting/Battery-Energy-Storage-Guidebook. A

municipalities on energy storage, provide model law and permits to support the permitting of energy storage, and highlight critical safety aspects of energy storage. Any roadmap developed through the interagency task force[43] proposed by the Draft EMP which would explore the transition to electrification must include education, outreach, and awareness plans and incorporate comprehensive industry compliance utilizing the most up to date codes and standards, as well as the effective use of incentives. The State can work with subject matter experts to support municipalities, first responders, and other local stakeholders to efficiently, effectively, and responsibly accommodate DERs in their communities.

Further, RECO supports working with the NJBPU to develop EV and DR readiness programs as outlined in Goal 4.1.3 of the Draft EMP. RECO believes this can be effective through incorporation of these technologies into building design so that the individual(s) responsible for managing new buildings can respond to price signals and better manage energy use.

Question 17: What barriers exist that could hinder successful implementation of new net zero carbon construction?

Affordability will be an initial barrier for both providers and customers. The financing costs, as well as the responsibility for funding incentives, are barriers that must be addressed to implement net zero carbon construction successfully. Green bonds and other financial support are ways that the State can support net zero carbon construction. New Jersey should support the involvement by the banking and other financial industries to provide beneficial rates for green construction.

Another barrier to implementation is the electric system reinforcement and upgrades to the customer's service that may be required to implement certain net zero carbon technologies into new construction. For example, a high penetration of electric heating installations has the potential to impact load growth significantly in certain areas calling for distribution system reinforcement and upgrades. As noted in many sections of the EMP, achievement of the Governor's goals will require support of many State agencies and stakeholders. It is important that the EDCs be a key stakeholder in the "interagency task force" that would establish a roadmap for the transition because the EDCs forecast load growth in their respective territories and may support innovative solutions generated by these constraints particularly through NWS. The impact of electric heating adoption will depend on the use and type of supplemental heat. Winter peak demand in 2050 could increase beyond the current summer peak demand if policy mandates adoption of air-source heat pumps ("ASHPs"). The reinforcement and distribution service upgrades that would be required could result in material increases to customer bills.

In addition to affordability and electrical system upgrades, successful implementation of new net zero carbon construction will rely on continued efforts to align New Jersey's building codes with EMP goals. For decades, building energy codes have served as one of the most effective policy

similar guidebook for solar systems can be found at: https://www.nyserda.ny.gov/All-Programs/Programs/Clean-Energy-Siting/Solar-Guidebook.

[43] Draft 2019 New Jersey Energy Master Plan Policy Vision to 2050 pp. 72

tools for advancing the EE of our nation's building stock.[44] The State should immediately work with municipalities to review and revise the building codes as described in Question 16 response.

Given that much of the emissions derive from transportation and the building sectors, third parties from industries other than the energy sector must be involved in supporting a clean energy environment and economy.

Question 18: What policy, legislative, or regulatory mechanisms can New Jersey develop to incentivize and accelerate the transition from oil, propane, and natural gas heating systems to electrified heating systems? Please consider appropriate mechanisms for residential, commercial and industrial buildings. Over what timeline is this achievable? Please also consider incremental milestones for the different fuels and technologies.

New Jersey should consider the following in the transition to electrified heating systems: a) outreach and education; b) upfront cost reduction and incentive rate designs; and c) cold weather air- and ground-sourced heat pump pilots.

a) Outreach and Education: Electric heating is a viable heating solution in New Jersey and is growing in market share. However, the complexity of electric heating adoption will vary with building types and may not be economical in all situations. A transition to electric heating may take decades given the current state of heating economics, building turnover, and equipment lifecycles. Communication, outreach, and education will be important to increasing the adoption rate. The utility can serve an important role in encouraging participation in electrification of heating with a focus on customer and contractor awareness.

b) Upfront Cost Reduction and Incentive Rate Design: Utility rebates and tariffs combined with State rebates and financing can reduce upfront costs and make the implementation of heat pumps more economical. In New York, a proceeding is underway to implement a Geothermal Three-Part Rate. This three-part rate for delivery charges, consisting of a fixed charge, demand charge, and a usage charge, will be available to residential customers that use geothermal technology. These types of rates for electric heating will encourage adoption of such systems.

c) Air- and Ground-Sourced Heat Pump Pilots: Individual building based pilots can test oil to electric conversions while exploring various ownership and business models, particularly in natural gas restricted areas. Community based pilots can test air- and ground-sourced heat pumps for LMI communities, as well as new innovative business models for utility cost recovery.

Critical to a transition to electrified heating systems is consideration of the impacts on both customers and utility distribution systems and infrastructure.

- System and Infrastructure Concerns: System impacts of electric heating adoption will depend on the use and type of supplemental heat. For example, winter peak demand in

[44] Ibid

2050 could increase beyond the current summer peak demand if adoption of ASHPs is mandated. To meet this challenge and support the electrification of the building sector, utilities will be required to undertake a variety of foundational investments in transmission and distribution infrastructure.

- Customer Bill Impact: Near-term utility implications are expected to be minimal, but significant long-term electric heating penetration with electric resistance backup would require system reinforcement and distribution service upgrades. These ultimately result in potential increases to customer bills.

Developing a transition plan to electrify the building sector fully will be complex. A stakeholder task force should be developed to consider the alternatives and establish achievable, realistic timelines and strategies.

Strategy 5: Modernize the Grid and Utility Infrastructure

Question 19: How should New Jersey approach the modernization of the current utility model (e.g., decoupling or performance incentives, rate design, smart grid technology, demand response)?

Meeting the Governor's goals will require a transformation of New Jersey's electricity system, progressing to a system that is information-rich, facilitates customer engagement and choice, seamlessly integrates DER, and encourages clean energy resources and EE. The transition to this future electricity system will be enabled by improvements in energy, information, communications, and grid control technologies. Modernization of the current utility model will require a variety of changes in many facets of the utility environment – from the manner in which a utility operates its distribution system to provide safe and reliable service, to the manner in which a utility earns its revenues, to the legislative and regulatory landscape in which the electric utility operates. RECO applauds the state for viewing the Governor's goals in their totality and encourages the NJBPU and the Governor to support the electric utilities' efforts to achieve the Clean Energy Act's goals while not cannibalizing their revenues and thereby making it increasingly difficult for the utilities to continue to provide safe and reliable service.

Pursuant to the Clean Energy Act and the Draft EMP, utilities are pursuing programs that will encourage greater deployment of EE and DERs. The inevitable consequence of these actions will be reduced utility revenues. Utilities should be incentivized to pursue the objectives of the State's clean energy goals without adversely affecting their earnings and ability to raise capital. The administrative burden on both the utilities and the NJBPU will be increased without an appropriate revenue recovery mechanism. Utilities will be forced to file rate cases more frequently in order to retain adequate coverage of their expenses and to provide a safe and reliable grid. Performance incentives are an option to encourage and support the utility's achievement of state goals that benefit all residents. However, such incentives are not a

replacement for a necessary RDM that will remove the linkage between sales and revenue in order to support and execute upon the many actions that will be required to fuel this transformation and assist in meeting the state's new energy goals.

To meet the changing environment and support the modern energy landscape, utilities will be required to undertake a variety of foundational investments and adapt to new and evolving business models. Foundational investments include the modernization of the utility infrastructure including AMI, distribution communications technologies, and smart sensors, as well as an updated, increased forward-looking planning process. The timeline to achieve this transformation must be reasonable and depends on the starting point of each utility. RECO, along with its parent, O&R, has made some of these investments and continues to make investments. Important to this transformation is the ability for timely cost recovery of the EDC's investments. To meet its customers' needs, encourage customer behavior that provides benefits to the electric grid while minimizing customers' bills, and support the deployment of DERs and other clean energy resources, the EDCs must transform their current business models to a model that supports more customer engagement and increased third-party interactions with the utility. The following provides a more detailed discussion of foundational investments and associated supporting processes, as well as business models that EDCs may employ to meet the changing needs of their customers and the clean energy environment.

Revenue Decoupling Mechanism and Cost Recovery

A utility's promotion of EE, renewable technologies, and distributed generation results in reductions of delivery revenues, particularly under a rate construct where most fixed and demand costs are collected on a volumetric basis. Utilities can risk significant earnings loss by promoting these types of programs and unless adjusted, will not recover the revenue necessary to meet customer needs. An RDM is an approach that can be used to remove the disincentive a utility has in promoting programs such as EE and the interconnection and/or operation of DER by removing the linkage between sales and revenues.

Correctly adjusting for reduced sales resulting from the implementation of EE programs and the large penetration, interconnection, and operation of DER removes the disincentive for utilities to pursue these programs in the first instance. To be clear, an RDM does not provide an incentive. Without an RDM, utilities risk significant earnings loss and unless adjusted, do not recover the revenue necessary to meet customer needs.

In addition, providing for the ability to earn a return on EE investment creates a level playing field with infrastructure investments. Such comparable treatment encourages and facilitates the integration of EE as part of the utility's core business. Moreover, by amortizing the costs of an EE portfolio over the asset life, it allows customers to contribute to EE program costs according to the benefits they receive. This approach eliminates the shifting of EE costs between current customers and future customers and reduces the customer bill impact in any given year. In contrast, expensing these costs in the year they are incurred will result in a significant bill increase for customers as program spending ramps up.

Planning and Forecasting

An enhanced and granular forecasting and planning process is crucial to the achievement of the Governor's goals. The forecasting and planning process must account for the growth of DER and other load modifiers on the electric delivery system. A granular approach must be taken which addresses the interconnection and operation of these resources at all levels of the electric delivery system, which is particularly important to analyze at a granular level from a substation and circuit basis. As the penetration of DER and other load modifiers increases, utilities must implement new methods and approaches that provide more granular and location-based information about how load and load modifiers will evolve and impact local system reliability and local system investment requirements.

Through work that O&R is performing in New York as part of the State's Reforming the Energy Vision ("REV") proceeding, RECO is already employing a significantly modified and enhanced forecasting and planning process that incorporates the attributes discussed above and provides for a longer ten-year planning horizon. RECO expects this new ten-year planning horizon will assist in facilitating the consideration of NWS opportunities and other alternative solutions by allowing the Company to identify potential opportunities further in advance of the need, providing more time for developers to develop and propose solutions, and provide the Company additional time to evaluate and implement such solutions. For future load-growth based system expansion projects, the Company will potentially be able to implement solutions far enough in advance to mitigate associated operating risk prior to critical need timeframes, while preserving adequate timing for possible traditional infrastructure solution commitment dates. The Company expects that both the more granular understanding of load modifiers and the implementation of a ten-year planning horizon will benefit the Company's process for identifying grid values through price signals. RECO will work toward a future state that allows for the determination and improvement of forecasting sensitivity analysis for load modifier growth levels. This will advise appropriate risk scenarios to be used in the Company's planning processes, ultimately enabling a more effective probabilistic planning process.

Smart Grid Technology

Foundational investments are the cornerstone of a transformed and modern utility infrastructure. Grid modernization and the optimization of operating scenarios aim to find an appropriate balance in the consideration of reliability, availability, efficiency, cost and the optimal dispatch of localized DERs. In order to enable these optimal scenarios, the grid must first be modernized to capture all the necessary data points and have extensive and targeted command and control of actionable devices through robust communications. Utilities must continue to make investments necessary to improve the reliability, resiliency, efficiency, and automation of the electric delivery system. They also must facilitate the continued evolution and progression of critical systems, equipment, sensors, and monitoring and control ("M&C") capabilities to further integrate and advance DERs and expand the EDCs' capabilities as a main facilitator of this new operating and market transformation. These efforts center on modernizing and strengthening the electric

delivery system and infrastructure, enhancing M&C capabilities, and making the necessary changes to processes and organizational structures. Foundational investments in information technology, advanced systems, technologies, and communications infrastructure will be a staple in facilitating this transformation.

Grid modernization investments will be required and necessary to build adaptability; increase grid-edge monitoring; improve the reliability, operating flexibility, and efficiency of the electric delivery system; and automate the electric delivery system. Investments required include at a minimum:

- The sensors, data, and communications networks that enable enhanced visibility and understanding of the behavior of the electric delivery system;
- The underlying systems, data management, and analytics that facilitate situational awareness, asset management, contingency and risk analysis, outage management and restoration; and
- The technologies and equipment that promote greater customer engagement regarding energy usage and alternatives.

As the penetration of DER increases across the Company's service territory, the requirements, opportunities, impacts, and challenges generated by DERs will continue to expand. There will be an increased and ongoing need for situational awareness and control which will require systems and applications to acquire data and produce actionable information in a near real-time environment. Establishing the appropriate level of visibility, monitoring, and control is critical to realizing optimization of the grid and gaining the highest value from interconnected DERs.

Further, near real-time monitoring of DERs will be essential for the Company to understand DER performance, impacts and capabilities on the system, both to make near real-time operational decisions and for near-term and long-term forecasting and probabilistic planning. As the amount of available and key information expands, the need for a system that will aggregate, analyze, validate, and display targeted and actionable data to the operator will become a necessity. Information will have to move among systems on a common information model as it becomes increasingly integrated with data sources, historical measurements, and advanced applications.

Advanced Metering Infrastructure

AMI will deliver operational benefits and drive improvements in the convenience, speed, and quality of the services that a utility provides to its customers. AMI provides a foundation of information and communications capabilities that will enable the utility's customers to become informed and engaged energy consumers. Operating in concert with an advanced web portal, AMI will provide customers with the information and controls necessary to help them manage their energy usage, control costs, and improve the environment. Specifically, AMI infrastructure (meters and communication network) enables bi-directional energy measurement and retrieval of measurement data from the DER device and associated equipment. The granularity of usage data and the speed by which that data is made available is an AMI capability that will help integrate DERs into the utility's system and operation.

Rate Design

Appropriate rate design is critical to supporting the modern grid and the long-term fiscal strength of the utility. Effective rate designs can result in customers making economically-efficient decisions regarding their energy options, including adoption of technologies that allow customers to optimize their energy consumption, leading to a more efficient use of the energy grid. Successful rate design is part of a utility's overall strategy to help customers manage their bills as well as the impact of their activities on the grid and peak management. Encouraging effective and appropriate customer behavior while supporting the electric utility's provision of safe and reliable service is a backbone of the actions needed to achieve the Clean Energy Act's goals.

Rate design must be guided by overall principles that appropriately incentivize customers to assist in the management of the grid while also managing their own energy usage and bills. In addition, appropriate rate design must include an analysis of the impact on non-participating customers. Importantly, customers should pay for the fair value of the services they receive from the utility for grid connection and they should receive fair value for any service they provide to the utility and the grid. Under the current net metering rate design, customers avoid paying for all or a portion of their use of the distribution system, resulting in a cost shift between participating and non-participating customers. Development of a rate structure whereby customers pay for the fair value of their system use must be transparent and both easy to understand and administer. An appropriate rate structure will aid a customer to make decisions that encourage actions that provide economic benefits to the customer and the utility, and thereby other customers. One example is a rate structure that will encourage achievement of long-term goals such as peak management.

In addition, rate structures should be easily understood and provide relative stability to customers over a period of time, even if the underlying rates are dynamic. Further, availability of rates to all customers, including low-income customers and those located in environmental justice areas, will provide additional tools for the proactive management of their energy usage and utility bills. RECO has proposed, in its most recent rate case,[45] to extend its current voluntary TOD rates applicable to residential customers with an approved electric storage heater[46] to all customers.

Rates designed to encourage price-responsive behavior can advance policy goals that benefit both the grid and all customers. For example, rate design can encourage EV charging during appropriate times during the day and load cycle that benefits both the customer and the distribution system, leverage price-responsive home automation technology to encourage customers' enthusiasm for proactive energy management and technology that will result in energy saving actions, and encourage customer behavior that reduces the pressure during the grid's peak load periods.

New rate structures and proposals that are developed as voluntary rates should be included in the utility's tariff as an additional rate offering and do not need to be part of a pilot program as they

[45] 2019 RECO Rate Case
[46] The approved electric storage heater must be used for the customer's entire water heating requirement.

would be available to all applicable customers. Such voluntary rates offer customers options to be a proactive consumer in the management of their energy usage and, depending on the rate, to be a partner with the utility in peak management. RECO's proposed extension of its TOD rates to all residential customers is one such proposal. Moreover, utilities continue to evaluate new rate structures in their normal course of business, and not always as a pilot proposal. For example, RECO proposed changes to its lighting service class to include more LED fixtures in its current rate case. This was done to encourage more energy efficient lighting and to recognize customers migration to this technology. This proposed change is one more tool that encourages customers to manage their energy usage and is not in response to State mandated changes. Utilities are proactively working to assist customers in the management of their usage and bills, while also encouraging customers to take actions that complement the utility's activities for peak management.

Pilot Programs and Projects

Pilot projects are intended to demonstrate new business models (*i.e.*, new revenue stream opportunities for third-parties and the electric utilities) and potentially new technologies. For many DER technologies to be cost effective and beneficial, they must take advantage of multiple value streams. Pilot projects provide the forum to test hypotheses for optimizing those value streams. In that regard, the projects will inform decision makers about the development of transformational models and functionalities, measure customer response to programs and prices associated with clean energy markets, and determine the most effective implementation of DERs. Further, as pilots, these projects are intended to test new technologies and approaches to assess value, explore options, and stimulate innovation before committing to full-scale implementation. Therefore, pilot projects should also be designed to deliver observable results and actionable information within a reasonable timeframe with the ability to share lessons learned among all of the utilities. Importantly, prior to undertaking a pilot project, the proper cost recovery and funding must be in place.

Demand Response

Appropriately designed DR programs can allow customers to assist in the reduction of the distribution system's peak periods thereby lowering the customer's bill while providing benefits to both the grid and all customers. Utility-run DR programs can be tailored to meet the needs of the electric delivery system and offer savings to customers, based on the service territory demographics. For example, residential programs can offer eligible customers benefits, such as lower bills and incentive payments, through a controllable device in the customer's home. Pairing DR programs with AMI metering is particularly advantageous, providing both the utility and the customer with granular interval data that can be used in future program development while enabling the customer to make more informed decisions regarding their energy usage,

Locational Value of DER

To encourage the deployment of DER in locations that provide benefits to the electric delivery system and therefore all customers, these resources should be compensated for the value they provide. Such a compensation mechanism must be designed so that customers adopting DER pay for their use of the electric grid. All these considerations will minimize or eliminate increases to customer bills and cost-shifts to customers that do not deploy DER.

Non-Wires Solutions

EDCs should identify approaches, best practices and opportunities for making NWS standard practice in electric delivery infrastructure planning, investment and operations. NWS offer an opportunity to defer traditional "wires" investments, resulting in benefits for customers, while maintaining system reliability and resiliency. NWS may leverage DERs, demand side alternatives, EE or a portfolio thereof to provide beneficial non-traditional solutions when applicable and appropriate from both a technical and cost beneficial perspective. Potential NWS opportunities can be identified during the planning process. EDCs should evaluate them using a framework that is common at a high level to all EDCs to verify NWS suitability which may include project size, type, timeline, and cost. Applying such suitability criteria will help identify whether NWS, such as DR, energy storage, EE, other DER, or a portfolio consisting of a combination of solutions, can defer traditional infrastructure investments. By employing a longer planning period (both RECO and O&R use a ten-year planning outlook), EDCs may be able to identify, solicit and evaluate NWS well in advance of the required need date.

Any potential NWS should be compared and appropriately evaluated with respect to the traditional solution by means of a standardized cost-benefit analysis framework. Development of an appropriate cost-benefit framework is critical to a successful NWS program. In particular, the methodology and components of the framework must describe agreed upon costs and benefits and include a methodology for the calculation of the individual benefits and costs as well as how to apply the necessary cost-effectiveness tests. Any cost-benefit analysis should consider the overall societal benefit (*e.g.*, carbon benefit) of a project, as well as utility and customer bill impacts.

Appropriate tests should reflect inputs that provide benefits to customers and / or utilities and can be monetized. Other important issues that must be addressed include data collection requirements and methods to assess investment benefits. The NJBPU and the utilities should work together to understand the types of data points that should be included in a cost-benefit analysis and draft an appropriate and workable framework. In addition to passing a cost-benefit analysis, NWS should seek to maximize customer bill savings and minimize customer bill impacts. In addition to the cost-benefit analysis, utilities need the flexibility to evaluate the implementation an NWS investment for its prudency within the Company's prioritization of its investments.

Utilities that implement NWS should receive appropriate cost recovery and incentives for amounts invested in an NWS. Utilities must be confident that spending on an NWS will be recoverable prior to undertaking the project. A mechanism similar to the Infrastructure Investment Program ("IIP") could be used for identifying NWS investments. Project costs

associated with an NWS, including a return on such costs, should be recovered over an appropriate period (*e.g.*, ten years). With respect to these types of investments, a more forward-looking process is needed to ensure investment strategy, prudence review and recovery of costs.

Utilities should be entitled to an incentive mechanism that encourages them to implement NWS in a cost-effective manner that minimizes the bill impacts to customers while maximizing the benefits to the grid. An appropriate incentive may be based on a share of the difference in the net costs and benefits of an NWS project, as compared with the net costs and benefits of the traditional solution that would otherwise be built.

Question 20: How should NJBPU consider planning and paying for upgrades to the electricity distribution system, including Distributed Energy Resource (DER) connections; EV charging; and utilities' recuperation of cost?

The transformation of the electric delivery system that supports the bi-directional flow of power requires the EDCs to transform its infrastructure into a more complex, smart, two-way electric grid with the goal of establishing a cleaner and more resilient energy system. To accomplish this, the EDCs must make foundational investments to modernize and strengthen the grid and provide customers with the information and opportunities to make better business and usage decisions. Such investments that improve the reliability, resiliency, efficiency, and automation of the electric delivery system should be itemized as capital expenditures, recovered through an IIP or other modifications to the ratemaking process that provide for forward looking investments and strategies, and should be borne by all customers, as these investments benefit all customers. NJBPU approval and recovery of investments in an IIP or similar mechanism will provide utilities with the confidence needed to move forward with these expenditures.

Grid modernization technology and equipment that facilitate customer options regarding energy usage and alternatives provide increased visibility and understanding of the behavior of the grid that benefits all customers and as such the costs should be borne by all customers. Operational and maintenance costs of any grid modernization asset should be part of a more forward-looking process, and recovered from all customers as these costs support the benefits from these investments on an ongoing basis. In the same way, costs that result in a direct benefit to a specific customer, such as for voltage VAR optimization, or class of customers should be borne by only those that benefit. In addition, DER interconnection costs should be borne by the developer and/or owner.

As discussed in RECO's response to Question 19, NWS offer an opportunity to potentially defer traditional "wires" investments, resulting in benefits for customers, while maintaining system reliability and resiliency. Utilities that implement NWS should receive appropriate cost recovery and incentives for amounts invested in an NWS. Utilities must be confident that spending on an NWS will be recoverable prior to undertaking the project. A mechanism similar to the IIP could be used for identifying NWS investments. Project costs associated with an NWS, including a return on such costs, should be recovered over an appropriate period (*e.g.*, ten years).

As discussed in response to Question 4, utility deployment and ownership of publicly available EV fast chargers will help launch the market. The costs incurred by utilities to upgrade grid infrastructure, as well as the costs of the chargers themselves, should be recovered along with earning its rate of return. Similar to the investments described in the preceding paragraphs, these EV-related investments could be approved via an IIP or similar forward-looking mechanism. Likewise, the costs for utility deployment of storage assets should be included in an IIP mechanism that provides for appropriate cost recovery and earning. This is in keeping with the policy that the cost of investments that benefit all customers should be borne by all customers. In line with this principle, costs for interconnection of chargers, storage, or other clean energy assets that benefit a particular customer, or class of customers, should be borne by that customer.

Question 21: What regulations and legislation do other states use for evaluating transmission upgrades that New Jersey should consider modeling?

Expansion of the transmission system will be critical to the State achieving its clean energy goals. Policies that expedite siting and construction timelines should be pursued.

RECO believes the State has a major role to play in planning for transmission expansion to meet its public policy goals, including offshore wind. The best way to achieve cost effective solutions for customers is through centralized coordination among the State, PJM and the transmission owners. Local utilities know their systems best and can help identify cost effective solutions that balance local and regional needs. New York's public policy process,[47] though not perfect, could serve as a starting point for New Jersey.

The NYPSC in coordination with NYISO has successfully concluded two public policy transmission solicitations, through a FERC compliant Order 1000 process. In this process, the State works through NYISO and its stakeholders to identify transmission needs in support of public policy initiatives. NYISO then runs a solicitation for solutions using PSC approved evaluation criteria. PJM also has a process to incorporate public policy transmission projects authorized by one or more state governmental entities, *i.e.*, the PJM State Agreement Approach. In PJM's process the state is empowered to identify the need and run the solicitation on their own.

As New Jersey works to develop methods and procedures to determine public policy transmission needs and solutions, it should include three key elements. First, the process should include robust stakeholder input on needs and solutions. Second, the evaluation criteria for each solicitation should be specific to the policy objective driving the transmission need. Third, in the application of evaluation criteria for needs and solutions, the State should work directly with PJM and transmission owners to evaluate the technical feasibility and reliability impacts of any proposed projects.

Question 22: What best practices should New Jersey consider and which pitfalls should the state avoid regarding data ownership and privacy as it pertains to Advanced Metering Infrastructure?

Best practices include developing standards for the type and granularity of customer data that will be made available, as well as improvements in both the ease of access to customer data and the overall customer digital experience. These practices and standards should apply to all data, regardless of the method of collecting or generating it.[48] Access to customer energy data provides a number of benefits such as improving customer energy literacy, empowering customers to make better energy choices, facilitating tailored DER products and services, and providing data that informs New Jersey on the impacts of clean energy policies and other initiatives. Acknowledging these benefits, it is also of paramount importance that the state prioritize customer privacy and data security. Working with the NJBPU, the utilities can establish standards for the type and granularity of data that will be made available and that improve access to customer data, both customer-specific data and aggregated data, and system data that strikes the right balance between advancing clean energy objectives and maintaining customer privacy and data and operational security.

AMI provides granular and near-real time customer energy data and system data. Customer energy data includes customer energy usage data, customer-sited generation data, account information, and load profile information. Data can be provided in two forms: (1) customer-specific, and (2) aggregated. Authorized access to customer data can help third-party clean energy providers tailor their products and services, as well as better inform business prospecting. In addition, aggregated data can provide the level of detail needed to make informed decisions for other purposes, such as Community Energy Planning.

System data includes data such as load, voltage, power quality, capacity, equipment and operating detail. DER information such as location, operating characteristics, and reliability are also system data. System data can be collected at various levels including the feeder, substation, and system level and can vary in frequency and granularity across the service territory. Availability of system data to third parties may assist in facilitating market participation and DER deployment by signaling where DER products and services can provide the greatest value to customers and the grid, aiding in the development of DER business cases, and guiding investment decisions of third parties and customers.

Establishing data sharing and privacy rules should be a priority of the NJBPU in the near term. These rules, once developed, should be memorialized in NJBPU orders or regulations.

Customer Data

- Customer Specific Information: Customer consent to the dissemination of customer-specific information to third parties is essential to maintaining customers' trust. For

[48] Customer data collected from both AMI and non-AMI meters must be subject to the same standards and privacy rules.

example, RECO offers Green Button Download ("GBD") and Green Button Connect ("GBC") to its customers; both of which provide customers with a user-friendly method to share their customer-specific data with third parties. GBD enables the customer to obtain and analyze up to 13 months of energy usage data in a simple spreadsheet which can be shared by the customer with third parties enabling them to tailor their energy savings solutions based on the customer's needs or preferences. GBC is a national data sharing standard that allows customers to authorize registered third parties to access the customer's energy data through an automated process in machine-readable format. It provides a reliable protocol for customer authorization, data transfer, data formatting, and data exchange. Data processed according to GBC standards does not include any Personally Identifiable Information.

- Third-Party Access: To help manage the risks associated with third-party access to customer data, all parties using or accessing utility systems must be required to sign a Data Security Agreement ("DSA"), an agreement between the utility and third party that governs the exchange of customer data. The DSA includes an attestation that the third party has received the customer's consent to access the data, as well as notice requirements in the event of a data security incident. The self-attestation, included with the DSA, is designed to identify expeditiously any material gaps in current best practice cybersecurity controls.

- Aggregated Data and Data Sets: Policies and standards applicable to aggregated customer data should be developed to maintain the anonymity of customer-specific data.[49] Understanding the needs of third-party providers and developers, weighed against the appropriate data privacy standards, can inform this process so that useful datasets are made available. Statewide privacy standards will allow developers working in multiple service territories to receive common datasets while providing rules that utilities can develop processes around. For example, New York has implemented a 15/15 privacy standard that applies to the aggregation of residential customer data and a 6/40 privacy standard to the aggregation of commercial customer data. The 15/15 standard requires the aggregation group to have at least fifteen accounts where no single account represents fifteen percent or more of the total load for the group. The 6/40 standard is applied in a similar manner.

System Data

RECO supports providing DER providers with system data and more specifically, information resulting from, and in context with, the utility planning processes performed by utility distribution planners. Specifically, RECO recommends that the NJBPU adopt policies that provide utilities with the ability to share insights with DER providers, instead of raw data or data without context. By providing the sharing of insights, concerns of data security and sensitivity can be more appropriately managed. In addition, individual data points and raw data streams

[49] Utilities currently provide data to third parties through a variety of methods, including Electronic Data Interchange.

regarding a utility's distribution system are generally not self-explanatory. For example, if the system is not in normal configuration due to either scheduled or emergency outages, the load may appear distorted during these times at the circuit or bank level to a third party unaware of these conditions. The data will have to be scrubbed to "normalize" these conditions or at a minimum should be "flagged."

Cybersecurity

Utility investments in cybersecurity, including in IT systems and experienced personnel, will continue be necessary as cybersecurity is an essential responsibility and priority of the utilities. Cybersecurity best practices need to be essential components of a utilities' cybersecurity program. A common and comprehensive approach to managing cybersecurity risks in the evolving modern grid environment must focus on people, processes, and technology and is crucial to maintain security. Implementation of an industry-approved risk management methodology and alignment of control implementations with recognized and accepted industry standards, *e.g*., National Institute of Standards and Technology standards, are essential. The cybersecurity industry continues to evolve, as does technology. Cyber insurance is also considered essential, with the question being how much cyber insurance coverage is sufficient.

Strategy 6: Support Community Energy Planning and Action in Low- and Moderate-Income and Environmental Justice Communities

Question 23: How can NJBPU continue to engage with communities to support local energy planning?

Education and consistent and ongoing communication efforts with communities are necessary to support local energy planning. Tightening building efficiency standards will lay a critical foundation from which local energy planning should start. These efforts will require engagement from the NJBPU, utilities, statewide and local community organizations, and local elected and regulatory officials.

As part of the overall statewide message, the NJBPU can work with statewide organizations to educate local community planners to understand the benefits of the Clean Energy Act and the importance of reducing "soft costs" by streamlining local processes, such as permitting, fire safety standards, and siting. In addition, the State can work with subject matter experts to support municipalities, first responders, and other local stakeholders to efficiently, effectively, and responsibly accommodate DERs in their communities. For example, New York, through

NYSERDA, has issued a Battery Energy Storage System Guidebook[50] to educate local municipalities on energy storage, provide model law and permits to support the permitting of energy storage, and highlight critical safety aspects of energy storage. Setting standards and assisting communities to understand the dynamics of DERs can translate into lower soft costs which in turn can lower the project's overall costs.

Moreover, the NJBPU should work with appropriate state and local agencies to develop tighter efficiency standards for buildings. Communities will be starting from a more advantageous point if their building stock meets higher efficiency standards. Adding DERs to an efficient building produces increased benefits for the building owner, tenants, community-at-large, and the utility. Working with the local utility, building owners can leverage available EE programs. NJBPU support for utility-run EE programs will allow utilities to develop programs to meet the needs of its particular service territory demographics.

In addition, the NJBPU should support efforts by the utilities to analyze and understand the local zoning and planning codes and work with municipalities to educate them on best practices and work to update them to reflect newer technology. The Company has learned through its corporate parent, O&R, that community engagement is a crucial part of deploying DERs successfully. Engagement from the utilities can include education about the role and benefits of DER technologies such as energy storage, as well as the risks and safety measures, prior to planning the development of energy storage installations in a community. The local regulatory bodies will play a key role in the deployment of DER technologies and it is important the utilities are seen as a trusted partner to understand their issues and address any concerns they might have. The NJBPU should also work with the utility and municipalities to explore processes so that the latest safety rules and regulations are being met by the developer of any DER assets.

The NJBPU can also support a utility's efforts to assist communities in the management of their electricity usage. Specifically, in its current rate proceeding, RECO proposed changes to its lighting service class to include more LED fixtures. This was done to encourage customer adoption of more energy efficient lighting. This proposed change is one more tool that encourages customers to reduce their energy usage and is not in response to mandated changes by the State. Utilities are proactively working to assist customers in the management of their usage and bills, while also encouraging customers to take actions that complement the utility's activities for peak management.

To help support a community's energy needs, the NJBPU should also provide flexibility for the development of utility clean energy programs including EE, DR, EV charging infrastructure development, and deployment of DERs. Utilities understand their customer base and grid needs. Community planners can work with their local utility to identify the utility programs that support the community's goals. Moreover, utility investment in infrastructure, such as EV chargers, can support a community's planning efforts. The NJBPU should also support and encourage the

[50] NYSERDA, *New York Battery Energy Storage System Guidebook* (September 2019), at https://www.nyserda.ny.gov/All-Programs/Programs/Clean-Energy-Siting/Battery-Energy-Storage-Guidebook. A similar guidebook for solar systems can be found at: https://www.nyserda.ny.gov/All-Programs/Programs/Clean-Energy-Siting/Solar-Guidebook.

utilities to engage municipalities and local community organizations to conduct outreach and education on these investments.

The State should also consider ways to encourage training and hiring of New Jersey residents for the clean energy future, which will require new and/or different skill sets and a deeper understanding of clean technologies. Encouraging local hiring practices, hosting seminars, developing specialized training certifications and standardized higher education programs, and establishing an innovation center are some of the ways that the State could promote the development of new high paying careers for New Jersey residents. Partnership among utilities, stakeholders, State and federal research labs, the NJBPU and in-state universities and technical schools could foster an increase in the skill set thereby leading to job growth for New Jersey residents.

Question 24: How can New Jersey ensure that LMI households and environmental justice communities benefit from the goals and policies established in the Energy Master Plan?

In order that LMI households and environmental justice communities benefit from the State's goals and policies under the EMP, the NJBPU can establish predefined set-asides for LMI households and environmental justice communities for participation in various programs, such as Community Solar. Similarly, any incentives provided by the State could require a minimum amount of participation from these impacted customer bases as a condition of receiving the incentive. In developing any goals or policies, the State must consider both their benefits and costs. The costs to achieve the goals and policies established in the EMP must be undertaken in a way that minimizes the bill impacts on all customers, and in particular low-income customers, who spend a higher proportion of their income on utility costs.

As previously discussed in RECO's response to Question 13, the final EMP should also provide for utility-run EE, peak demand reduction, and DR programs that can assist in maintaining energy affordability for all customer classes. Customers' familiarity with their utilities should facilitate increased program participation and provide for cost-effective achievement of state targets due to lower implementation costs. Utilities also understand the needs of customers and can design programs to meet those needs. This has been demonstrated by RECO's implementation of a direct install program, designed to meet the needs of its low-income customers, in place of the State-run Comfort Partners program.[51] RECO's program is more cost-effective than the State-run Comfort Partners program.[52] Specifically, the cost-benefit analysis of RECO's Low Income Audit and Direct Install programs, conducted by the Rutgers CEEEP,

[51] See the Company's August 9, 2017 filing In *IMO Verified Petition of Rockland Electric Company for Approval of an Energy Efficiency Stimulus Program and Associated Rate Recovery,* BPU Docket No. ER17080869 ("RECO 2017 Low Income program filing")

[52]RECO's Low-Income Direct Install Program reduced usage by approximately 1,523 kWh per participant in 2016 as compared to an average of 1,161 kWh per participant, or 30 percent more, than the State-run Comfort Partners program over the 2009-2014 period.[52]

concluded that the costs of these programs were 30 to 70 percent lower than the Comfort Partners program.[53] RECO's program has reached more than 80 percent of its Universal Service Fund customer population at a lower $/MWh than the Comfort Partners program.[54]

Utilities also understand the best locations on the distribution system to locate clean energy technologies as they are responsible for the safe and reliable operation of the distribution grid. Utilities can prioritize the deployment of clean energy technologies to improve the operation of the grid to the benefit of all customers, for example on areas of the grid needing capacity relief and/or potentially deferring more costly grid investments.

In addition, investments in utility infrastructure will benefit all customers. For example, the rollout of AMI will produce benefits for both customers and the grid. Customers will have more granular level usage data, which can be used by the customer to change its energy consumption possibly leading to lower bills. Customers can also share such data with third parties wishing to deliver services or technologies that may lower the customer's bill or provide the customer with the opportunity to enjoy renewable technologies in support of the Clean Energy goals. For utilities, access to this data can aid in developing and tailoring programs to meet the needs of all customers, including LMI customer groups. Similarly, increasing granularity of data can help third parties analyze the needs of low-income customers and environmental justice communities when designing and developing projects.

Question 25: What best practices utilized in other states or municipalities should New Jersey consider to support Community Energy Planning?

Community Energy Planning should include working with the local utility to leverage existing utility-run programs while at the same time providing the utility with an understanding of the community's goals and objectives. Utilities can use their role as a trusted energy advisor to be one of the stakeholders that participate with the community in developing its energy plans.

Some best practices that New Jersey can examine include strengthening connections between visions and goals, using a systematic prioritization of implementation actions, identifying sustainable funding sources, tracking progress of implementation, and making updates to the plan as needed.[55] These recommendations are consistent with guidance provided in the DOE's *Guide to Community Energy Planning*[56] and the National Renewable Energy Laboratory's *Community Greening: How to Develop a Strategic Energy Plan*.[57]

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[53] See RECO 2017 Low Income program filing, supra, at Exhibit H, Cost-Benefit Study Rutgers Center for Energy Efficiency ("CEEEP") Program Cost-Benefits January 17, 2017 at p. 4.
[54] See RECO 2017 Low Income program filing
[55] [55]Eric Mackres and Borna Kazerooni, ACEEE, *Local Energy Planning in Practice: A Review of Recent Experiences (March 2012), accessed at* https://aceee.org/sites/default/files/publications/researchreports/e123.pdf
[56] U.S. Department of Energy, *Guide to Community Energy Strategic Planning* (March 2013), accessed at https://www.energy.gov/sites/prod/files/2014/05/f15/cesp_guide.pdf
[57] National Renewable Energy Laboratory, *Community Greening: How to Develop a Strategic Energy Plan* (February 2010), accessed at https://www.nrel.gov/docs/fy10osti/45652.pdf

Strategy 7: Expand the Clean Energy Innovation Economy

Question 26: What industry sectors or job occupations are expected to see growth? Which industry sectors and job occupations are expected to need job training support to ensure an appropriate workforce is available to meet the needs of a growing economy?

The transition to a modern grid with increasing integration of DERs and smart technology will require a workforce with the proper development and training to install, operate, and monitor these resources. Specifically, the utility workforce of the future will require new skillsets in addition to those currently needed to manage and operate the grid.

The coordination of new grid technologies will require utility personnel to analyze sensor inputs, coordinate load shifting, and monitor and control certain DERs that are impacting system operations. While many of these functions have the potential to be automated through an Advanced Data Management System, advanced skillsets will be needed to fulfill functions including the monitoring, dispatch, control and curtailment of large DERs. Utility employees will need to be able to understand and operate increasingly complex scenarios and dispatch solutions that mitigate system impacts using new grid technologies. In addition, the Company foresees the need to hire or develop personnel with the training and experience to integrate, operate and maintain energy storage assets, including an understanding of the dispatch of these assets to provide grid benefits.

It is necessary to begin expanding this workforce now in order to meet these future needs. Utilities should establish workforce development and training practices so that they have the resources required to monitor and operate these new assets on the system safely and reliably. Key positions will need to be added and/or developed as these emerging technologies will require the management of new interfaces between the utility and the new technologies. The costs of these required additional resources, including personnel, equipment, or training, must be recoverable by the utility.

The State can work with relevant stakeholders to develop training programs and courses for residents on these new and emerging technologies. This can include partnerships with technical or community colleges to develop courses focused on the skillsets needed to operate and maintain new grid technologies and clean energy resources. The State can also explore ways to make these courses accessible and affordable.

Question 27: What industry sectors or job occupations are expected to stagnate as we get closer to 2050 and beyond, and what retraining tools and strategies can the state use to support transferable skills to new industries?

The Governor's goals and the Clean Energy Act will create job opportunities in industries and fields that will require new skillsets. Industry sectors and job occupations, with the right incentives and directions, need not stagnate by 2050, but instead undergo an evolution that paces their development with the advances in the clean energy initiatives. The State should be proactive and start today to encourage development of programs and job training to prepare the

State's workforce to meet these needs. To prepare for a changing environment in energy and related industries, the State can increase its support and encourage education and job training / certification beginning at the high school level and continuing through community college, four-year universities, and technical schools. Assisting in the development of curriculum, such as STEAM (*i.e.*, science, technology, engineering, art, and mathematics), and partnering with industry leaders to develop such education and training will allow all schools to offer a clean energy education. Encouraging clean energy apprenticeships, with a focus on New Jersey residents, will provide real world experience. As new technologies develop, the State should play an active role in monitoring the changing environment and work with the appropriate educational institutions to update curriculum as needed.

Question 28: What are best practices, financial tools, and financial infrastructure that New Jersey should consider in supporting the clean energy economy, attracting private investment, and enabling clean energy opportunities to become more affordable for all?

Adopt Multiple Business Models

New Jersey should provide opportunities for all market participants to leverage their strengths to support and grow the clean energy economy, attract private investment, and enable clean energy opportunities to be more affordable for New Jersey consumers. By harnessing the strengths of all market participants and adopting a portfolio approach to developing the clean energy economy, New Jersey will make greater strides in achieving its ambitious clean energy goals in a cost-effective manner. This avoids relying on a single market sector or business model to achieve the State's goals and reduces the risk of being unable to achieve them.

As part of this portfolio approach, the final EMP should include utility ownership of utility scale renewables as one of the business models needed to achieve the State's goals. Utilities are well-positioned to understand the needs of the electric grid and the beneficial locations for integration of clean energy technology. Utilities, either alone or working with third-party providers, can leverage their existing knowledge of the electric grid for a smooth transition to clean technology deployment. The benefits of utility-owned clean energy assets may be a way to mitigate the cost of clean energy technology deployment. Also, allowing utility ownership uses the expertise of the utility to interconnect clean energy assets into the distribution system in locations where they will provide benefits to all customers, thereby having a positive impact on the affordability of energy to all customers. Further, utility ownership of utility scale renewables provides other benefits including increasing market opportunity for third parties that develop these projects to transfer ownership.

The Draft EMP should also encourage a framework for utilities to pursue NWS. NWS offer an opportunity to defer traditional "wires" investments, while maintaining system reliability and resiliency, and leverage DER to provide beneficial, non-traditional solutions. Potential NWS opportunities can be identified during the planning process and should be evaluated using a framework that is common at a high level to all EDCs to verify NWS suitability which may include project size, type, timeline, and cost. As a result, utilities will be providing another

market opportunity to third parties through NWS request for proposals. Please see RECO's response to Question 19 for a more detailed discussion of NWS.

Utilize Competition

New Jersey should also encourage competition and establish incentives through competitive mechanisms. This will help the State balance developer interests in having long-term financial certainty as to revenue streams with consumers' interest in lower costs. New Jersey is currently pursuing the development of a program that reflects both of these principles with the replacement of the current SREC program. Going forward, the State should avoid developing incentive programs that result in customers paying higher-than-market prices. Rather, a program should be developed to provide the appropriate incentives to achieve the State's clean energy policy goals while minimizing the bill impacts to all customers, particularly low-income customers. In addition, specific to the Class I RPS program, the State needs to procure competitive pricing while also remaining within the cost cap established by the Clean Energy Act.

Similarly, New Jersey will need to avoid feed-in tariff mechanisms and mandatory, long-term contracts. Long-term contracts can result in higher costs being paid by customers, locking them into a price that does not reflect the changing market and potentially lower costs. Further, long-term contracts may not encourage the most beneficial locations for such assets resulting in over-compensation of some assets when compared to the actual benefits they provide to the distribution system.

Green Bank

As noted by the Draft EMP, New Jersey should explore the establishment of a Green Bank to "leverage public dollars to grow private sector investment and provide low-cost financing, and develop financial protocols to support New Jersey's clean energy economy and the goals of the EMP."[58] This is one way to encourage private investment in the New Jersey's clean energy economy and support deployment of renewable resources and other DERs. As discussed in RECO's response to Question 10, there are a number of policies New Jersey can adopt so that funds for the Green Bank are used to the benefit of the State's consumers. These include:

- Transparency: The investment of public funds to the private sector must be done in a transparent manner. If established, the Green Bank should be subject to frequent reporting to apprise regulators, stakeholders, and the public as to allocation of funds, status of projects, and achievements. In addition, New Jersey should establish review processes for proposed investments and hold the Green Bank accountable for their spending, *i.e.* meeting targets, progress toward state clean energy goals, and benefits to New Jersey residents.
- Risk: While the purpose of the Green Bank will be to grow private sector investment in the clean energy economy, the establishment of the Green Bank must avoid overly risky or imprudent transactions.
- Funds: New Jersey should develop parameters for Green Bank funding. The Company recommends the Green Bank be funded via third-party investment and not with ratepayer

[58] New Jersey Draft EMP at 12.

funds. Specifically, RECO supports the use of Green Bonds to fund individual projects or to fund a Green Bank to encourage widespread third-party investor support for a clean New Jersey economy. There are currently investor funds that support clean initiatives, and New Jersey can tap this source of funding.