PSEG LONG ISLAND

We make things work for you.

Utility 2.0 Long Range Plan Update Document

Prepared for Long Island Power Authority

October 6, 2014

Contents

Section 1 – Executive Summary

1.1 Introduction

On July 1, 2014, in accordance with Public Authorities Law Section 1020-f(ee) and the Amended and Restated Operations Services Agreement dated December 31, 2013, PSEG Long Island submitted a Utility 2.0 Long Range Plan ("the July 1 Plan") for consideration by the Long Island Power Authority ("the Authority") and review by the New York State Department of Public Service ("DPS"). The Plan proposes a number of investments in direct load control demand response, energy efficiency, distributed generation, advanced metering infrastructure, and other initiatives to enhance the customer experience, contribute to clean energy policy goals, and cost-effectively defer the need for power resources and, in some cases, transmission and distribution infrastructure.

This inaugural Utility 2.0 Plan provides a foundation for further modernizing PSEG Long Island's service territory, saving energy, and improving the environment. It is one of several current plans and proceedings at the local and State level to create opportunities for customers to invest in enhanced technology and participate in the markets for energy resources. PSEG Long Island will revisit the Utility 2.0 Plan annually, and, as these proceedings develop, will align our customers with New York's energy and environmental policy as appropriate.

1.2 Utility 2.0 Plan Update

This update document modifies the original Utility 2.0 Plan filed on July 1, and unless otherwise stated the remainder of the original plan remains intact. This update takes into consideration stakeholder feedback solicited through a technical conference, a number of public hearings, and public comments submitted to DPS. It further reflects collaborative discussions held with the Authority and DPS to refine analysis and enhance the July 1 Plan. Stakeholder comments on this update document will be incorporated into a final Revised Plan to be presented to the Authority's Board of Trustees in December. This document includes:

- Portfolio revisions for better alignment with the goals of the Authority and the State
- Further details on program design, updated estimates of program costs and benefits, including expected carbon emissions savings
- Updated cost effectiveness tests including avoided costs of capacity, energy, and where applicable avoided transmission and distribution infrastructure
- A revised compensation plan to optimize the value of the program for customers by utilizing the Authority's low-cost capital and establishing performance-based incentives

Stakeholder feedback was generally supportive of the programs included in our July 1 Plan. Some comments, however, asked that our vision be better articulated and more clearly aligned with State energy and environmental goals. Below, in Section 2, we describe how Utility 2.0 fits into other energy and regulatory proceedings underway in New York and Long Island. However, the overall focus of our program has not deviated from a focus on investments to reduce electricity demand and defer generation, transmission, and distribution infrastructure costs borne by all our customers.

Several commentators noted that Utility 2.0 program goals should be bigger. As such, PSEG Long Island has expanded the Utility 2.0 Plan where appropriate to set higher savings goals and create opportunities for additional resource deployment. The revised programs are shown below in Table 1.1 and are described fully in Section 3. The overall Plan investment has expanded from the $215 million over four years and 185 MW of savings proposed in the July 1 Plan to $345 million over four years for 250 MW of

savings, due to higher goals for several of the programs and addition of some new offerings. Some notable changes include:

- The demand savings goal for the Direct Load Control program has been expanded, reflecting a commitment to achieve higher customer participation in the program.
- An opportunity for additional load and infrastructure relief in the Rockaways is proposed, in addition to the assistance program for multi-family buildings and government facilities.
- The Residential Home Energy Management program has been doubled to offer more customers information on their energy use and strategies for reducing their bills.
- The Advanced Metering Initiative has been expanded to provide more customers with technology that provides real time energy use and cost data.
- New initiatives are proposed, including support for electric vehicle charging infrastructure, demonstration of battery storage technology as part of a microgrid, and utility-scale solar PV.

PSEG Long Island Utility 2.0 Long Range Plan
2015 - 2018

Program	Description	Annual Demand Savings (MW)	Annual Energy Savings (MWh)	Total Investment[1] ($M)	CO_2 Reduction[2] (T)
Direct Load Control Program Modernization and Expansion	Enhance existing direct load control program with modern technology and increase customer participation. PSEG Long Island would procure a contractor to deliver load control capability from central air conditioning and pool pumps. Incentives will be allowed to promote participation.	125	3,386	$106	27,472
Residential Home Energy Management	Provide targeted home energy reports and guidance to customers to reduce demand for 500,000 residential customers.	20	50,000	$16	121,702
Advanced Metering Initiative	Deploy advanced metering to ~50,000 customers including large commercial and industrial customers and customers with billing complications and/or difficult meter locations.	20	60,000	$25	1,352,228
Far Rockaway - Infrastructure Deferment	Seek load relief to serve as an alternative to address emerging needs in the Far Rockaway load pocket. Includes market-based solicitation for distributed resources and demand-side management.	25	N/A	$76	N/A
Far Rockaway - Universal Access	Energy efficiency enhancements for low-income multi-family housing, public facilities, and other customers on the Rockaways.	2	8,800	$5	114,237
Targeted Solar PV Expansion - Utility Scale	PSEG Long Island would invest in utility scale solar PV projects (over 200 kW in size) and enter into a long term Power Purchase Agreement with the Authority to provide energy, capacity, and renewable energy credits from such solar systems. Program will offer premium incentives for peak capacity and/or quantifiable locational benefits.	20	66,666	N/A	1,352,228
Targeted Solar PV Expansion - Customer Sited	Provide incentives to commercial net metered solar PV, targeting Long Island customers unable to access existing incentives.	10	23,529	$15	477,253
Combined Heat & Power	Provide incentives for commercial CHP installations, targeting Long Island customers unable to access existing incentives.	5	39,000	$6	632,849
Geothermal Heating and Cooling	Expand rebates for geothermal heating and cooling systems.	5	7,820	$10	126,894
Targeted Energy Conservation Program for Hospitals	Design and offer energy efficiency retrofit program tailored for hospital customers. Priority to facilities that may provide load relief to defer infrastructure investments.	5	28,000	$30	454,353
South Fork Infrastructure Deferment - Guaranteed Capacity Relief	Required capacity relief component to South Fork plan. Could include mix of energy efficiency, direct load control, and distributed generation.	13	N/A	$40	2,848
South Fork Infrastructure Deferment - Battery Storage and Microgrid	PSEG Long Island would own and operate a battery storage system on the South Fork. When coupled with the anticipated installation of one or more large solar arrays, this system will demonstrate important components of a future micro grid. PSEG Long Island will apply for NY Rising grant to reduce the cost and partner with the Clean Coalition to evaluate its effectiveness.	N/A	N/A	$15	N/A
South Fork Infrastructure Deferment - Supply Resources	South Fork Infrastructure Deferment includes solar PV and peaking generation. Bids are now under review by the Authority.	N/A	N/A	N/A	N/A
Electric Vehicles Charging Infrastructure	Offer electric vehicle charging stations and smart charging equipment to workplaces that commit a target number of employees to electric vehicles.	N/A	N/A	$1	N/A
	GRAND TOTAL	250	287,201	$345	4,662,065

Notes:
1. Total savings and investment figures are preliminary and rounded. Actual figures will be determined following request for proposals to provide services.
2. CO2 Reduction estimated using average emissions rate of LMS 6000 Oil-fired peaker.

Table 1.1 Program Summary Table

Some details should be noted here. First, PSEG Long Island has eliminated the Incremental Energy Efficiency Expansion program originally proposed in the July 1 Plan. Also, some savings and cost entries are marked "N/A" in Table 1.1. In the case of the Far Rockaway Infrastructure Deferment, South Fork Infrastructure Deferment programs, and the Electric Vehicle Charging Infrastructure, this indicates that

PSEG Long Island requires more information to determine the savings and/or costs. Requests for Proposals ("RFP") for these programs will provide the necessary data. In the case of the South Fork Infrastructure Deferment – Supply Resources, the information has been received through RFP and those bids are under review by the Authority.

We also received comments regarding the financing of the programs, noting that the Authority's tax exempt debt financing structure could potentially be more cost-effective. In the July 1 Plan, PSEG Long Island had proposed using its own capital to invest in Utility 2.0 programs, which is consistent with the Amended and Restated OSA. Further, since PSEG Long Island and the Authority are scheduled to file a rate case in February 2015, we proposed to recover these investments starting in 2016, in conjunction with that base rate proceeding. We proposed two options for investment recovery – a Performance Driven model similar to traditional utility rates but with performance-based incentives, and a Savings Driven model that shares program net benefits between PSEG Long Island and the Authority.

The Authority has since stated that it can provide capital for the Utility 2.0 programs, and has the ability to defer cost recovery until after the current rate freeze and then amortize recovery of the program costs over an extended period. Such an approach could achieve PSEG Long Island's goal to minimize customer rate impacts. Therefore, for several of these programs, we propose to leverage the Authority's low cost capital. For situations where the Authority's capital is utilized, based on discussions with several key stakeholders, we outline in Section 4 of this document an incentive-based compensation mechanism for the first year's funding for two programs. This incentive approach is similar to the shared savings investment recovery model proposed in the July 1 Plan. This proposed mechanism is an interim step toward valuing distributed energy resource by their resulting avoided costs. Incentive mechanisms for other programs are expected to be developed later for consistency with the statewide Reforming the Energy Vision ("REV") proceeding.

As noted later in this document, there may be certain programs where PSEG Long Island may propose to use its own capital in the future based on the nature and risk profile of the investment and evolution of the market. Two examples in this proposal are battery storage and certain solar PV projects. We also remain open to funding other proposed projects and, cumulatively, are willing to invest up to a total of $200 million over the four year period if mutual agreement on terms and conditions is reached.

Also, while some stakeholders urged us to implement these programs as soon as possible, others suggested that we defer any investments until after the REV proceeding conclude, expected later in 2015. In this filing we propose a staged approach, including modest development funding to complete cost analysis and conduct RFP's for several initiatives, while starting the first year's funding for direct load control (one of the more cost-effective solutions), the investments in the Rockaways focused on multi-family housing and government facilities, the energy audits for energy efficient investments at hospitals and the residential home energy management program. Costs for these activities represent less than 10% of the cost of the overall proposal. After information from these efforts are completed, we would present refined cost estimates validated by RFP's and other market information, and seek budgetary approval from the Authority as appropriate for the remaining programs.

Finally, PSEG Long Island has updated the cost effectiveness tests used to evaluate the Utility 2.0 Plan. In the July 1 Plan, two cost effectiveness proposals were included, one that valued capacity based on a Benchmark Study and one that valued capacity based on the New York Independent System Operator's ("NYISO") cost of installed capacity ("ICAP"). The cost effectiveness screening has been updated and uses the ICAP costs as proxy for avoided capacity. PSEG Long Island includes results of the Program Administrator Cost ("PAC"), Total Resource Cost ("TRC") tests and the Rate Impact Model ("RIM") tests. We continue to prefer the PAC test for primary evaluation of program cost effectiveness. The PAC test

evaluates the present value of program benefits (i.e., avoided costs of capacity, energy, and, where applicable, avoided transmission and distribution infrastructure) against costs borne by PSEG Long Island and the Authority. The PAC test is identical to the Utility Cost Test ("UCT"), as both consider the costs to the utility of procuring energy savings compared to energy supply. More detail on cost effectiveness screening is included in Appendix A.

1.3 Utility 2.0 Goals

This Utility 2.0 Plan helps to achieve the Authority's and New York State's goals to invest in more customer-oriented solutions that reduce peak demand for electricity, and improve the efficiency and resiliency of the grid at an affordable cost. In the past few years, changes in the Long Island economy have changed the characteristics of our customers and their electricity demand. Peak demand has been growing even as round-the-clock energy use has stayed relatively flat, resulting in a need for investment in infrastructure that is critical for reliable operations but needed for few operating hours. The programs in this Utility 2.0 Plan are designed to improve the system's load factor by reducing peak demand and providing our customers' with information and resources to optimize their use of electricity.

Our focus on peak demand is consistent with the Authority's existing program goals. Existing energy efficiency and renewable energy programs target reductions in peak as a strategy to meet growing load. They also make progress towards the Authority's clean energy and environmental goals, including additional support for energy efficiency and renewable energy, and carbon emissions reductions. Utility 2.0 expands the available offerings of support for energy efficiency and renewable energy, contributing to those goals.

Containing customer bills is a priority goal of the Authority and PSEG Long Island. Utility 2.0 contributes to this goal directly by avoiding capacity and energy costs that would be borne by all of our customers. PSEG Long Island will subject each program to cost effectiveness tests, as described herein, so as to ensure that each program develops "no regrets" activities and each dollar invested in clean energy produces an excess of benefits for all customers. Flexibility in program design will allow for cost effective investments to be targeted to locations in need of load relief, where applicable.

Another way to help customers manage their bills is to empower them with the data, knowledge, and resources to understand and manage their use of electricity. Utility 2.0 includes proposals to provide customers with technology solutions that will improve the visibility of energy use. For residential customers, this will come through energy benchmarking and usage information; for larger customers through real-time demand and cost information. In both cases, the result is an educated and informed electricity customer with enhanced capabilities to value their use of electricity. In time, these customers may provide services back to the grid. Also, the improved technology benefits PSEG Long Island, improves billing and settlement practices, and provides better real-time visibility to manage system operations and planning.

Section 2 – Long Term Vision

2.1 Introduction

The PSEG Long Island Utility 2.0 Plan is part of a broader effort to build on existing clean energy initiatives in New York and secure adequate resources to meet customer needs with sustainable market-based options. This effort includes enhanced planning processes being developed by PSEG Long Island, and State-level initiatives including the ongoing REV proceeding.

2.2 LIPA Planning & Initiatives

2.2.1 Annual Updates to the Long Term Plan

The transition to a broader market for distributed energy resources may take several years. PSEG Long Island will use the annual Utility 2.0 Plan as a process to adapt to the evolving REV regulatory framework and to continue to advocate for a utility role to provide universal access for customers, with a focus on certain segments including hospitals, schools, municipalities, multi-family housing, nursing homes and other customers.

2.2.2 Operating and Capital Budgets

PSEG Long Island is in the process of preparing capital and operating budgets for 2015. The Utility 2.0 Plan is being coordinated with those budget submissions. Funding for the majority of Utility 2.0 programs are proposed to be included in the 2015 Operating Budget; costs for the Advanced Metering Initiative ("AMI") are proposed to be included in the 2015 capital budget. We recommend that the Authority defer 2015 costs and further recommend that all program costs be amortized by the Authority to mitigate any potential impact on customers in the short term.

In future capital spending analysis, where possible, PSEG Long Island will target programs in areas that are expected to require transmission or distribution infrastructure upgrades, and if successful, this could lead to reductions in capital spending for traditional utility investments along with reductions in new electric generation.

2.2.3 Customer Rates

Cost recovery for the program expenditures that are part of this Plan are being proposed to be incorporated into the upcoming rate case to be filed in February 2015. Additional programs that PSEG Long Island may propose in 2015 may also be considered in the rate case. We expect that the rate case will include a mechanism to recover those costs through rates. Moreover, rate design reforms addressed in the REV proceeding, if applicable to Long Island, may be addressed in the rate case.

2.2.4 Integrated Resource Plan

PSEG Long Island intends to prepare an Integrated Resource Plan ("IRP") with an anticipated completion date of December 31, 2015. It is intended that the programs contained in this Utility 2.0 Plan will be used as inputs to the IRP to determine the most cost effective mix of resources to meet forecasted customer energy and demand requirements. Other inputs will include existing energy efficiency and renewable

programs, potential peaking units and other supply resources, and at least one combined cycle generating unit. The IRP will also reflect REV reforms to resource planning, where applicable.

2.2.5 Recent Requests for Proposals for Supply

Since 2011, the Authority has supported 50 MW of utility-scale solar PV, as well as an additional 50 MW of customer-sited solar currently in construction, 100 MW selected for future construction, 20 MW renewable energy offering under review, and proposals received in response to a 280 MW Renewable RFP now in the process of being evaluated. The Utility 2.0 program would complement these offerings to solar PV and battery storage, as explained below in Section 3. The programs will continue our position as the center for deployment of solar PV in New York.

2.2.6 Existing Energy Efficiency and Renewable Energy Programs

Existing energy efficiency and renewable programs will continue in parallel with this Utility 2.0 Plan. Such programs include energy efficient products such as LED lamps and high efficiency refrigerators for residential customers, home energy audits and upgrades, the Cool Homes program, rebates for commercial customers that install energy efficient equipment, and solar PV rebates. In July 2015, we anticipate filing an updated Utility 2.0 plan that will incorporate these efficiency and renewable programs, as proposed in the rate case filing, along with demand response, direct load control, smart meters, combined heat and power, battery storage and electric vehicles to form a comprehensive plan for 2016 and beyond. The combination of all of these activities should go a long way towards reaching the objective stated in the 2014 Draft State Energy Plan to reduce total CO_2 emissions 80% by 2050. This consolidation of programs will also move Long Island closer to the REV ideal of integrating clean energy programs for purposes of resource planning.

2.3 State-Level Policy and Proceedings

2.3.1 Renewable Portfolio Standard ("RPS") and Energy Efficiency Portfolio Standard ("EEPS")

The Authority has an RPS that is designed to support the New York State RPS goal of 30% renewable energy by 2015. As described above, the Authority has a number of programs and incentives for solar PV, as well as wind and other renewables. In addition, the Authority's progress in achieving its energy efficiency goal of 520 MW reduction in system coincident peak demand by 2018 contributes to the State's EEPS goal of 15% reduction in energy usage by 2015. The Utility 2.0 Plan adds demand response, renewable energy, and energy efficiency incremental to the Authority's existing programs and initiatives. As the Public Service Commission ("PSC") appears to be considering additional responsibilities for utilities to manage renewable procurements and energy efficiency programs, the Utility 2.0 Plan continues the practice of utility-managed programs in PSEG Long Island's service territory.

2.3.2 2014 Draft State Energy Plan

The 2014 Draft State Energy Plan ("Draft Plan") describes a vision for New York that includes enhanced customer control over their energy use and, ultimately, their bills. PSEG Long Island has aligned the Utility 2.0 Plan with the Draft Plan by including programs that help to achieve the State's objectives. As noted above, the Plan adds energy efficiency and renewable energy resources, and reduces emissions of CO_2. Also, at page 33 of the Draft Plan it encourages the "DPS to consider the potential for distribution utilities to coordinate and/or aggregate customer-based demand control options, and receive a rate of

return on utility capital invested in customer side efficiency improvements and distributed generation." The proposed AMI initiative would provide large customers with tools to see real-time energy use and facilitate opportunities such as demand response and peak pricing tariffs. For smaller customers, our proposed Residential Home Energy Management program provides information to increase customers' awareness of their energy end use and strategies for improvement. Consistent with the Draft Plan's recommendation, PSEG Long Island has incorporated such investments into this Utility 2.0 Plan.

2.3.3 REV Transition and Implementation Planning

While PSEG Long Island is not subject to the general jurisdiction of the PSC, it intends to work with the Authority and DPS to comply with the direction of the final determinations in the REV proceeding, consistent with the statutes and contractual agreements in place. REV seeks to reform the utility regulatory environment and to incorporate distributed energy resources into utilities' resource planning processes. Since the REV proceeding is ongoing, the Plan represents our best attempt to meet its objectives. PSEG Long Island has been active in the REV proceeding, most recently submitting comments on the August 22 Staff Straw Proposal. As the PSC adopts specific policy recommendations, we will update the Utility 2.0 Plan through our annual process to incorporate best practices that fit for PSEG Long Island. Our Utility 2.0 Plan is a first step toward several of the DPS's critical path objectives for REV, including:

- Increasing the distributed energy resources ("DER") asset base in the state. The Utility 2.0 Plan expands the use of DLC, energy efficiency, distributed renewable generation, and other DER across our service territory. The programs have been designed to complement existing incentives available for DER, reaching new customers and markets. This way there will not be overlap with existing opportunities and customers will benefit from realize maximum potential capacity savings.
- Builds customer and market confidence in the expanded role of DERs. The programs are designed to expand customer enrollment in programs in the short term. This will be accelerated by cross marketing programs. For example, the Residential Home Energy Management program will provide participants energy end use management options available, including marketing materials for programs to reduce energy end use.
- Begins the development Distribution Service Platform Provider ("DSP") capabilities. Though the DSP remains conceptual, it's been described as a single point of entry for market-based demand-side and distributed energy resources. PSEG Long Island will serve this function for our customers, including identifying resource needs through planning processes, considering options including DER, and evaluating the least cost solution. The Utility 2.0 Plan further develops PSEG Long Island's ability to offer demand side management programs by expanding offerings and entering into new markets.

In addition, the REV Track 1 Straw Proposal describes a process and schedule for New York's investor owned utilities to implement reforms. The format and content of these implementation plans remains under development through the proceeding. While PSEG Long Island supports the goals of the REV, some procedures and schedule for PSEG Long Island to move forward and implement reforms will differ from the investor owned utilities. PSEG Long Island suggests that integrating its existing Utility 2.0 filing schedule and associated rate case and capital budgeting efforts with the REV process is the most effective and appropriate method to move forward. PSEG Long Island anticipates including the essential elements of REV (including the Energy Transition and Implementation Plan, Proposal for Interim Actions, and Distributed System Implementation Plan) in the upcoming 2015 budget, three-year rate filing in February 2015, future annual Utility 2.0 filings, tariff processes, and/or other procedures or filings to accomplish similar or identical goals.

Section 3 – Updated Utility 2.0 Programs

3.1 Direct Load Control Program Modernization and Expansion

PSEG Long Island's existing direct load control ("DLC") program uses a one-way pager signal to remotely cycle (i.e., switch off) air conditioning units and pool pumps. The program delivered 35 MW in 2013 and 29 MW in 2014, both on peak demand days when the system is most stressed to maintain reliability and energy prices are at their highest. The equipment used in the DLC program has exceeded its useful life and is expected to experience a higher failure rate. Additionally, the communication network which supports the program is slowly eroding as the pager technology gives way to broadband and cellular technologies. Equipment will need to be replaced in the near term to ensure that the load reductions are achieved.

PSEG Long Island proposes to replace the existing capacity and expand the direct load control program capability with modern technology to provide up to 125 MW of peak demand reduction to the Authority (about 2% of peak demand), including replacing the existing 35 MW demonstrated in 2013 and adding an incremental 90 MW to the program capability. Existing participants would have their equipment replaced and would also be marketed any additional technology control that may be offered.

In an effort to avail ourselves and our customers of the best solution that the marketplace has to offer, our approach would intend to issue a broad RFP for direct control solutions. In doing this, our approach would be to look for a primary contractor (or contractors) who would serve as a turnkey provider of direct load control capacity. We would seek a contractor to provide at least ten years of control capability. The technologies offered would be at the discretion of the proposers and aggregation of multiple technologies would be acceptable provided the contractor provides one single interface for PSEG Long Island to operate through. Technologies proposed would need to address level of commercialization, proven demonstration, capability to provide accurate reporting of actual load curtailed, customer interfaces, and basis for how actual impacts would be measured and reported. Similarly, the use of incentives, and the level of incentives (if any) would be proposed by the contractor(s) as they believed necessary in order to provide the associated level of curtailment.

Our targeted level of penetration includes 20% of residential customers with central air conditioning. This is on the higher side of traditional industry averages, so we believe that having the RFP require bids for increasing levels of actual controllable load would give us the transparency and flexibility to implement the program that best supports the customers' interest. Specifically, our current plan would be to request prices from each RFP respondent for 75 MW, 100 MW, 125 MW and 150 MW of directly controllable load. This should provide us a gauge as to the marketplace's estimation of levels of controllable load, and should provide us both a minimum position if our goal of 125 MW is deemed as either unachievable or prohibitively expensive by the marketplace and the opportunity to achieve a maximum higher than our goal if the marketplace can deliver it cost effectively. We would use a base target of annual program activation of approximately 27 to 45 hours (i.e., 6 to 11 days, for an average of 4 hours a day), however we would also ask respondents to provide premiums necessary for an additional 45 hours of annual capability.

Lastly, we would want respondents to the RFP to elaborate on tangential customer efficiency and load management benefits that may be supported by current state-of-the art direct load control technology. To the extent that there are other synergistic effects (e.g., individualized customer consumption reporting and

peer ranking, equipment diagnostic reporting, etc.) which can be achieved through the technology we would look to leverage those to the maximum extent possible.

In addition to enrolling customers across the service area, PSEG Long Island would seek to target DLC where incremental load relief would defer costly distribution projects. This would represent additional benefits of the program. Conceptually, we could deploy DLC where load reduction, peak load characteristics, number of times DLC measures will be needed annually, and likely reliability impact and duration of the deferment provide sufficient capability. This concept would be a step to directly integrate distributed resources into our system planning responsibilities.

Subsequent to the initial filing, PSEG Long Island has updated this program with a higher savings goal. We expect that the higher participation rates needed to reach these goals will require a greater cost.

Direct Load Control Program Modernization & Expansion Illustrative Summary				
MW Target	Technology	Metrics	Customers	Participation Rate**
88MW	Residential CAC	1.1kW/customer	80,000	20%
12MW	Small Business CAC	1.3kW/customer	9,000	9%
25MW	Pool Pumps	0.65kW/pool	40,000	25%
Total Savings: 125 MW / 3,386 MWh		Total Cost: $106 M		PAC B/C Ratio: 1.9

*These figures are illustrative, preliminary, and rounded. More detailed information on costs, benefits, and economic screening are provided in Appendix A.

**This rate is the targeted participation rate of the customers who are eligible rather than total residential customers. For example, residential customer CAC would target the 400,000 customers with CAC, and for the 88 MW load reduction we would need approximately 20% of these customers to participate.

3.2 Residential Home Energy Management

This proposed behavioral energy efficiency program would provide energy use benchmarking data to customers via six mailings per year. PSEG Long Island proposes to issue an RFP seeking a turn-key provider for this program. The provider will send reports to enrolled customers to enhance the visibility of their consumption data and improve management of their energy use. The mailing may include historic use of the customer and benchmarks based on home square footage, types of appliances and equipment in the home, and other attributes. It would also include suggestions for managing energy end use and marketing for applicable programs.

We propose revising this program to double enrollment to 500,000 residential customers by 2018. The expansion is recommended to further align this program with goals of the REV proceeding, including

enabling broad market participation and providing customers with information to build awareness, interest, and confidence in DER.

Residential Home Energy Management Illustrative Summary			
Year	**Cumulative Number of Customers****	**Demand Savings**	**Energy Savings**
2015	50,000*** (2 reports each)	0	0
2016	300,000 (6 reports each)	12 MW	30,000 MWh
2017	500,000 (6 reports each)	20 MW	50,000 MWh
2018	500,000 (6 reports each)	20 MW	50,000 MWh
Total Savings: 20MW / 50,000 MWh		Total Cost: $16M	PAC B/C Ratio: 1.0

*These figures are illustrative, preliminary, and rounded. More detailed information on costs, benefits, and economic screening are provided in Appendix A.

3.3 Advanced Metering Initiative

In our July 1 filing, PSEG Long Island recommended that the Authority expand its AMI investments in a phased approach to get to approximately 25,000 smart meters installed. In addition, we recommended expanding the AMI communication network to cover the entire service area. This will provide ready infrastructure to expand new smart meter installations on a selective basis based upon pre-determined criteria. The AMI initiative adds customer capabilities to manage load and enables several utility capabilities including improved meter reading, improved billing and settlement processes, accurate near real-time information for enhanced distribution system planning, and enhanced customer load information for benefit of developing further offerings, such as demand response.

Originally our concept was to provide meters for industrial and large commercial customers in Rate Class 285, as well some other customers. This update expands the meter deployment to include commercial customers in Rate Class 281. We propose to install smart meters for the 25,000 largest Rate 281 customers with peak demands below 145 kW. The expansion aligns with goals of the REV proceeding of making energy usage data available to customers to assist them in managing energy use.

Summary of AMI Deployment	
AMI Deployment	**Benefits**
6,000 Rate 285 customers (Large C&I, > 145 kW)	• Improve load management tools and capabilities at customer level, with better and faster data • Improve utility program offerings such as demand response programs with enhanced understanding of customer load and usage pattern
25,000 Rate 281 customers (C&I with peak demand, < 145kW)	
6,000 accounts with chronic long-term estimates	• Access difficult to reach customer meter locations. Improvement in the "read rate" performance by an estimate average of 0.75% - 1%. • Improve customer satisfaction with accurate data (scheduled monthly reads)
7,500 net-metered customers	• Offer enhanced functionalities for improved monitoring and controls • Improve distribution network planning and power quality with accurate and near-real time information
3,950 retail choice customers	• Provide accurate load settlements for retail-choice customers • Improve accounting of energy sales and energy consumption at the customer levels
155 ReCharge NY customers	• Provide accurate load settlements for NYPA program customers • Improve accounting of energy sales and energy consumption at the customer levels

Advanced Metering Initiative Illustrative Summary		
Total Savings:	Total Cost:	PAC B/C Ratio:
20 MW / 60,000 MWh	$25M	1.4

*These figures are illustrative, preliminary, and rounded. More detailed information on costs, benefits, and economic screening are provided in Appendix A.

3.4 Far Rockaway – Infrastructure Deferment

The update expands on the original proposal for the Rockaways. The area of focus has been expanded to address an emerging resource need in the Far Rockaway load pocket as a result of revised reliability standards from the North American Electric Reliability Corporation ("NERC"). The total load in the Southwest Nassau area is forecasted to be approximately 315 MW by year 2019 and is supplied by local generation at Far Rockaway along with three 138kV transmission circuits emanating from Barrett and East Garden City. PSEG Long Island forecasts a need for transmission reinforcement between East Garden City and Valley Stream in 2019, or the addition of approximately 150 MW of generation in the area. However, proposals received in response to the New Generation, Energy Storage, and Demand Response Resources ("GSDR") RFP may satisfy some or all of this need.

Should the GSDR RFP not result in deferral of the projected transmission reinforcement, PSEG Long Island proposes to issue an RFP which would look for the marketplace to deliver 25 MW of guaranteed capacity relief within the Far Rockaway load pocket. Our intent is to commence a process similar to Consolidated Edison Company of New York's Brooklyn/Queens Demand Management Program. Given the magnitude of expected reductions and the basis of the need for the reinforcement, effective load relief will not eliminate the need for the transmission reinforcement but would defer it beyond 2019.

The RFP would seek to encourage innovative solutions which we would hope included partnering and the leveraging of other efforts and resource deployments occurring in the area. The RFP would not limit potential solutions beyond certain base requirements of not being duplicative of the proposed universal access program (see below), being on the demand side of the grid, be commercially proven, and be measurable and verifiable. Our RFP process would be integrated with our other proposals to ensure that awards are coordinated and no efforts are duplicative.

It is not possible to set forth a representative result of what technologies and savings may result from the award of the proposed RFP (and potentially as segment of the Direct Load Control RFP) at this juncture. Our approach in evaluating the responses to the RFP would be to use a PAC testing approach whereby the "base" case would be the installation of the transmission reinforcement in 2019.

Far Rockaway – Infrastructure Deferment **Illustrative Summary**		
Total Savings: 25 MW / N/A MWh	Total Cost: $76M	PAC B/C Ratio: N/A

*These figures are illustrative, preliminary, and rounded. More detailed information on costs, benefits, and economic screening are provided in Appendix A.

3.5 Far Rockaway – Universal Access

PSEG Long Island proposes to address universal access to programs by offering a program specifically targeted to the New York City Housing Authority ("NYCHA"), New York City Department of Citywide Administrative Services ("DCAS"), and multi-family housing buildings within the Rockaways. Our program approach includes an appliance replacement program in which participants would receive lighting and eligible energy efficient appliances including room AC units and refrigerators. New appliances would be Energy Star certified to adhere to modern efficiency standards. Outdated models would be collected to ensure the program results in energy savings rather than additions. The program would also include direct install of efficient lighting for residential building common areas. We propose to move forward with these programs to ensure they are implemented regardless of the results of the proposed Rockaways RFP. We have eliminated the solar PV component of the original program, which we expect would be incorporated into other proposed offerings.

Far Rockaway – Universal Access Illustrative Summary		
Total Savings: 2 MW / 8,800 MWh	Total Cost: $5M	PAC B/C Ratio: 1.5

*These figures are illustrative, preliminary, and rounded. More detailed information on costs, benefits, and economic screening are provided in Appendix A.

3.6 Targeted Solar PV Expansion – Utility Scale

PSEG is prepared to invest its own capital in utility scale solar PV projects and earn a rate of return. We have experience developing such projects in New Jersey as part of the Solar4All program. The program design would target solar installations that contribute a greater share of their output during peak load conditions in the summer months between the hours of 2:00 – 8:00 pm. This could be accomplished by facing the arrays towards the west, or by adding battery storage. In addition, PSEG Long Island could consider focusing on development areas such as landfills and brownfields. Another factor for consideration would be potential for capital expense deferral where projects may provide load relief in an area of need. We will work with the Authority on the design of the program.

Targeted Solar PV Expansion – Utility Scale Illustrative Summary		
Total Savings: 20MW / 66,666 MWh	Total Cost: N/A	PAC B/C Ratio: N/A

*These figures are illustrative, preliminary, and rounded. More detailed information on costs, benefits, and economic screening are provided in Appendix A

3.7 Targeted Solar PV Expansion – Customer Sited

PSEG Long Island believes potential remains to support behind-the-meter solar PV projects hosted by commercial customers. PSEG Long Island proposes a program targeting behind-the-meter solar PV projects greater than 200kW, but less than 2,000 kW. Solar PV projects within this size range and located in NYISO's Zone K are not currently eligible for incentives offered by the New York State Energy Research & Development Authority ("NYSERDA"), or the Authority. We envision an incentive design similar to the NYSERDA NY-Sun Competitive PV Program. Successful applicants would receive an up-front payment along with two performance payments in order to encourage the installation of high performing systems. Qualified applicants would be competitively selected based on the incentive bid received. PSEG Long Island customers could participate in the program directly or serve as hosts for project owners. We also propose providing a premium value for peak capacity to west-facing systems.

Targeted Solar PV Expansion – Customer Sited Illustrative Summary		
Total Savings: 10 MW / 23,529 MWh	Total Cost: $15 M	PAC B/C Ratio: 3.4

*These figures are illustrative, preliminary, and rounded. More detailed information on costs, benefits, and economic screening are provided in Appendix A.

3.8 Combined Heat & Power ("CHP")

PSEG Long Island recommends incentives to install CHP for systems of 1.3MW or below. Systems of this size on Long Island are excluded from the existing CHP programs offered by NYSERDA. A capacity incentive based upon the installed capacity of generator and a production incentive proportional to the actual energy savings produced by the system could support certain projects. The capacity incentive could be paid in installments based on a project achieving certain milestones (i.e., signing contracts, beginning construction, commercial operation). The production incentive could be available during the first 18 months of operation. The actual incentive structure would be determined through further information gathering and analysis.

In selecting potential projects, we would consider the nature of the facility and if it is critical to the health, safety or security of the service area and its residents. Examples could include nursing homes, public safety facilities (e.g., police, fire, hospital, emergency management), water and wastewater utilities, and communication facilities.

Combined Heat & Power Illustrative Summary			
Project Size (kW)	**Number of Projects**	**Demand Savings (MW)**	**Energy Savings (MWh)**
100	3	0.30	2,340
200	3	0.60	4,680
400	4	1.60	12,480
750	2	1.50	11,700
1,000	1	1.00	7,800
Total	**13**	**5.00**	**39,000**
Total Savings: 5MW / 39,000 MWh		Total Cost: $5M	PAC B/C Ratio: 10.2

*These figures are illustrative, preliminary, and rounded. More detailed information on costs, benefits, and economic screening are provided in Appendix A.

3.9 Geothermal Heating and Cooling

PSEG Long Island recommends expanding the existing incentive program to develop geothermal heat pumps in excess of existing program goals. Geothermal heating and cooling serves to lower peak in the

summer, displaces costly and emission-intensive oil in the winter, and improves the overall system load factor. This proposal would include increasing the residential rebate to approximately 8% - 10% of the net costs (i.e. after tax credits) and increasing the commercial rebate to a rebate of $900 or $1,200 per ton depending on the efficiency of the project. This would reduce customers' operating expenses by approximately 35% - 40%, depending upon the baseline heating fuel and condition of existing equipment.

Along with the rebate, PSEG Long Island would provide customer education and marketing programs to geothermal contractors. This will highlight the benefits of geothermal heating and cooling, including the energy savings.

Geothermal Heating and Cooling Illustrative Summary				
Type of Customers	Target Quantity	Average Rebate	Average kW Savings	Targeted MW Savings
Residential	1,500-2500	$2,250	1.5kW	2.3-3.7MW
Commercial	200-400	$9,000	4.0kW	0.8-1.6MW
Total Savings: 5 MW / 7,820 MWh		Total Cost: $10M		PAC B/C Ratio: 2.1

*These figures are illustrative, preliminary, and rounded. More detailed information on costs, benefits, and economic screening are provided in Appendix A.

3.10 Targeted Energy Conservation for Hospitals

PSEG Long Island would develop a program similar to a successful program offered by our New Jersey utility affiliate, PSE&G. The program provides investment grade audit, project management, cost sharing, and on-bill financing for energy efficiency projects at hospital facilities in New Jersey. By providing up-front funding, the program helps overcome a major barrier to investment by these customers. In 2015, PSEG Long Island would complete investment grade audits at hospital facilities to determine the extent of cost effective electric measures to be supported by the program. Results of the audits will ultimately determine the level of savings and program costs; our illustrative example is based on our expectations of market potential and the costs of representative projects developed by PSE&G.

Targeted Energy Conservation for Hospitals Illustrative Summary		
Total Savings: 5 MW / 28,000 MWh	Total Cost: $30 M	PAC B/C Ratio: 1.4

*These figures are illustrative, preliminary, and rounded. More detailed information on costs, benefits, and economic screening are provided in Appendix A.

3.11 South Fork Infrastructure Deferment – Guaranteed Capacity Relief

The South Fork plan includes several components of a plan to avoid a needed transmission investment, including solar PV, capacity relief, and peaking generation phased in over a period of years. In this Plan update, components of the South Fork plan have been disaggregated to clarify that they are on a stand-

alone, parallel path with other programs. The components of the South Fork Infrastructure Deferment must move forward to implementation to ensure timing of critical elements.

PSEG Long Island proposes to issue an RFP for a provider of at least 13 MW of guaranteed capacity relief to support the South Fork. Similar to the approach we have described above for the Rockaways, the RFP would allow for creative solutions from the marketplace with the limited requirements that the proposals include demand side measures (i.e., no solutions on the utility side of the meter will be entertained), that the savings be guaranteed for a specific duration or time, that the savings be measurable and verifiable, and that the savings be coincident with the time frames required in the RFP. Due to the size of the offering and the necessity for the full 13 MW to be delivered, the RFP would seek on overall contractor to provide the relief; however, such contractor would be able to aggregate different providers and technologies as necessary in order to meet the overall desired level of capacity relief. Additionally, the RFP process would be integrated with the results of the Direct Load Control RFP to ensure that awards are coordinated and no efforts are duplicative. To the extent that the Direct Load Control RFP yields load relief in the South Fork, this South Fork Capacity Relief RFP could seek less than 13 MW.

It is not possible to set forth a representative result of what technologies and savings may result from the award of the proposed RFP at this juncture. Our approach in evaluating the responses to the RFP would be to evaluate technical capabilities of the load relief and its costs in context of the broader South Fork plan.

South Fork Infrastructure Deferment – Guaranteed Capacity Relief **Illustrative Summary**		
Total Savings: 13MW / N/A MWh	Total Cost: $40 M	PAC B/C Ratio: N/A

*These figures are illustrative, preliminary, and rounded. More detailed information on costs, benefits, and economic screening are provided in Appendix A.

3.12 South Fork Infrastructure Deferment – Battery Storage and Microgrid

PSEG Long Island would develop, own, and operate a 5 MW / 25 MWh battery storage system to facilitate significant additions of renewables and to enhance power quality, grid reliability, and resilience across the vulnerable grid area in the East End of the South Fork. PSEG Long Island will partner with the Clean Coalition to optimize the battery location and functional configuration; and to help ensure $10 million of NY Prize support for the battery system. The Clean Coalition is a non-profit organization that has a long history of collaborating with the Authority and is highly experienced with Community Microgrids, as evidenced by its Hunters Point Community Microgrid Project being conducted in San Francisco in partnership with Pacific Gas & Electric.

PSEG Long Island would earn a regulated return on the net $15 million, depreciated over 10 years and paid in monthly installments by the Authority for ten years to cover the above cost plus rate of return. This proposed battery project will not conflict with proposals submitted to the Authority's 280 MW Renewable RFP. One significant difference is that the RFP required 12-hours of storage capability and PSEG Long Island is proposing a system with five hours of storage at a far lower cost. In other words, they provide different services. The use of a five-hour battery will provide a cost-effective approach for providing power quality, grid reliability, and resilience to a currently vulnerable grid area that is expected

to have significant additions of renewables. Further, such a battery configuration will match far better with existing battery technologies to allow a more timely deployment that provides an opportunity for PSEG Long Island and the Authority to try to understand the full operational capabilities of battery systems in a manner that will guide subsequent renewables integration and grid management optimization.

South Fork Infrastructure Deferment – Battery Storage and Microgrid Illustrative Summary		
Total Savings: 5 MW	Total Cost: $15 M	PAC B/C Ratio: N/A

*These figures are illustrative, preliminary, and rounded. More detailed information on costs, benefits, and economic screening are provided in Appendix A.

3.13 South Fork Infrastructure Deferment – Supply Resources

As described in the Utility 2.0 Plan submitted on July 1, PSEG Long Island has determined that a series of transmission reinforcements would be required on the South Fork of Long Island from 2017 – 2022. Approximately $97 million (2012$) in conventional infrastructure was identified as being required by 2017 with an additional $197 million through 2022 for a total of approximately $294 million. These costs consist primarily of new underground transmission cables and substation work. This capital reinforcement plan also requires continued reliance on the existing East End generation being available and able to provide its full capacity. However, these units are aging and becoming less reliable as time goes on, and they are less efficient and more polluting than modern generating units.

PSEG Long Island is now implementing a plan to defer the transmission through the use of a series of alternatives: the capacity relief RFP described above, 21.6 MW of solar PV procured through the Clean Solar Initiative II ("CSI II"), and energy storage options through the GSDR RFP. Although the results of CSI II and the GSDR RFP are under review, and the capacity relief RFP is still in development, PSEG Long Island believes these resources can defer the need for transmission and peaking capacity on the South Fork.

South Fork Infrastructure Deferment – Supply Resources Illustrative Summary		
Total Savings: N/A	Total Cost: N/A	PAC B/C Ratio: N/A

*These figures are illustrative, preliminary, and rounded. More detailed information on costs, benefits, and economic screening are provided in Appendix A.

3.14 Electric Vehicle Charging Infrastructure

This program would include support for workplace charging stations and smart charging equipment for business customers. Eligible employers would need to commit a targeted number of employees that own or lease electric vehicles and/or plug-in hybrid electric vehicles. The availability of chargers at the workplace would help consumers overcome the "range anxiety" of not having adequate vehicle charge for round trip commuting. At the same time, PSEG Long Island would benefit from charging data collected from the infrastructure to understand the impact of increased electric vehicle market penetration on our

infrastructure needs and ability to integrate data into system planning.

Our New Jersey affiliate, PSE&G, is successfully implementing a similar program in their service territory, which can be a model for this program. The data may also help PSEG Long Island develop an electric vehicle rate to encourage off-peak charging.

Electric Vehicle Charging Infrastructure Illustrative Summary		
Total Savings:	Total Cost:	PAC B/C Ratio:
N/A	$1M	N/A

*These figures are illustrative, preliminary, and rounded. More detailed information on costs, benefits, and economic screening are provided in Appendix A.

Section 4 – Incentive Compensation Mechanism

In the July 1 Plan, PSEG Long Island proposed one investment recovery model that provided for a return of and on its capital, consistent with the State Energy Plan, which supported utilities earning their cost of capital for customer-sited energy efficiency equipment and other DER, and the Amended and Restated OSA, which provided PSEG Long Island with the opportunity to invest its capital and earn a utility rate of return those positions. PSEG Long Island also proposed a model which shared savings based on program benefits.

During feedback sessions after our July 1 Plan, the Authority noted that it has the investment capacity to finance these programs, and the option to defer cost recovery over an extended time period. PSEG Long Island believes it could be more cost-effective for customers to utilize the Authority's lower cost capital due to its tax exempt fully debt financed structure.

We have developed a proposal for an incentive-based mechanism (similar to our proposed shared savings model) for the Direct Load Control Program Modernization and Expansion and the Far Rockaway Universal Access programs, both expected to be implemented in early 2015. For example, the Direct Load Control program present value of benefits, including avoided capacity (i.e., NYISO ICAP) and peak energy, are determined to be $1,379/kW. This pre-determined value could be consistently used over the ten-year life of the program. PSEG Long Island proposes to share the present value of net benefits (i.e., total benefits less costs, including equipment, labor, marketing, customer incentives, lost revenues, and program administration costs) equally with its customers (i.e., a 50%-50% split). PSEG Long Island would earn its share on a proportionate annual basis consistent with the life of the project used for the net benefit calculation.

Since the value of avoided cost will be applied to the peak load reduction, there is an incentive for PSEG Long Island to obtain the maximum capacity savings per participant. In addition, because net benefits decrease when program costs rise, there is an added incentive to obtain load reductions at the lowest possible cost.

For the other proposed programs, an incentive compensation mechanism based on the REV Track II Order, expected to be completed in the summer of 2015, may be proposed. When seeking approval from the Authority's Board of Trustees for a Utility 2.0 program, PSEG Long Island will provide updated cost estimates and a proposed incentive mechanism to DPS and the Authority. PSEG Long Island will work with DPS and the Authority in their evaluation of programs and the appropriate incentive mechanism.

When seeking approval for a program, PSEG Long Island will present the Program Administrator Cost ("PAC") test, Total Resource Cost ("TRC") test, and Rate Impacts Model ("RIM") prior to implementation. Draft analysis is included in Appendix A, using the latest estimate costs for the updated Utility 2.0 Plan programs and NYISO ICAP prices. PSEG Long Islands favors using the PAC test (which is identical to the Utility Cost Test ("UCT") used elsewhere) to evaluate programs for several reasons:

- With the PAC test, the rebate is set at a level that is cost-effective for PSEG Long Island and the customer can decide whether or not to pay the incremental cost.
- The PAC test implicitly accounts for externalities because customers' willingness to pay is proportional to their perceived overall benefit, including environmental benefit, customer comfort, and customer convenience. While the TRC can be modified to include externalities, it can be difficult to quantify those benefits.

- The PAC test can limit rate impacts because it provides an incentive to achieve the same results with lower costs. The TRC considers customer incentives a pass-through cost with no effect on the benefits-to-cost ratio.
- All costs in the PAC test flow through electric rates. The test is analogous to supply-side resource acquisition where all costs flow through rates to customers. Our proposal to amortize costs over the expected life of equipment (i.e. eight to twelve years) would bring supply and demand side resources even closer into alignment.

Additionally, PSEG Long Island would continue to have the right to invest its capital in other clean energy investments, as described in the Amended and Restated OSA. Any proposed use of PSEG capital would be recovered through a traditional "cost of service" type rate. Investments could be founded on one or more of the following principles:

- PSEG taking risks the Authority would not otherwise take
- PSEG recovering investment and rate of return from participants, and not the Authority or ratepayers
- PSEG forging a pathway for other market participants to provide similar services
- Other situations as deemed appropriate by the parties

The South Fork battery storage program described above would be an appropriate use of PSEG capital in that the Authority is not willing to take ownership risk for battery storage, and PSEG would be developing a demonstration of storage that could be applied elsewhere and developed by a third party market participant.

The utility-scale component of the solar PV proposal would also be an appropriate use of PSEG capital. Again, in this case PSEG would be taking on ownership risk for the project whereas the Authority has traditionally supported utility-scale solar PV with power purchase agreements.

Section 5 – Approval Request and Next Steps

PSEG Long Island requests that the Authority approve the following elements of this Utility 2.0 Plan:

1. Approval of approximately $2.0 million in the 2015 Operating Budget for development costs to further research and develop full cost estimates for each of these programs, including through the issuance of RFPs and analysis of bids. (Highlighted in Table 5.1) Such amounts would be invested in 2015. PSEG Long Island will provide updated program and cost estimates to the DPS and the Authority over the course of 2015 and seek approval of certain programs at different points during 2015.

2. Approval of $13.3 million in the 2015 Operating Budget to implement certain programs (Highlighted in Table 5.1):
   - Direct Load Control Modernization & Expansion
   - Residential Home Energy Management
   - Far Rockaway – Universal Access
   - Targeted Energy Conservation for Hospitals. (2015 implementation would include investment grade audits for approximately 15-20 hospitals, which will identify energy efficiency upgrades to be submitted for approval to the Authority in 2015 for installation over the following three years.)

   PSEG Long Island will commit that these investments will be economic as indicated by exceeding 1.0 in the PAC and/or RIM test. PSEG Long Island will return in the third quarter of 2015 with firmed cost estimates for the next phases of these programs so they can be implemented expeditiously.

3. Approval of $3.1M in the 2015 Capital Budget for Advanced Metering Initiative (Highlighted in Table 5.1).

4. Agreement to defer collection of the above costs until 2016 and to then amortize costs over a multi-year period and included for recovery through rates to be proposed in the rate case to be filed in February 2015.

5. Approval of the shared savings incentive construct outlined herein the costs of which will be included for recovery through the rates to be proposed in the rate case to be filed in February 2015.

Utility 2.0 Plan - Proposed 2015 Budget			
Program	**Development Costs**	**Implementation Costs**	**2015 Total Budget**
Direct Load Control	$550,000	$10,523,000	$11,073,000
Far Rockaways - Universal Access	$220,000	$1,073,000	$1,293,000
Far Rockaways - Capacity Relief RFP	$270,000	$250,000	$520,000
Home Energy Mgmt	$270,000	$700,000	$970,000
Hospitals	$105,000	$1,000,000	$1,105,000
CHP	$105,000	$150,000	$255,000
Geothermal	$50,000	$948,000	$998,000
Electric Vehicles	$55,000	$200,000	$255,000
South Fork Infrastructure Deferment - Load Relief - Note 1	$270,000	$6,273,000	$6,543,000
South Fork Infrastructure Deferment - Battery/ Microgrid	$105,000	$0	$105,000
AMI	$0	$3,100,000	$3,100,000
Subtotal	**$2,000,000**	**$24,217,000**	**$26,217,000**
		Summary	
		Operating	Capital
		$15,296,000	$3,100,000

Table 5.1 – Utility 2.0 Plan Proposed and Requested Budget

Appendix A –Cost Effectiveness Tests

Revised	Net_kW	Net_kWh	Nom Benefits ($)	CapEx $	PA Ratio	Levelized Costs $/kW	Levelized Costs $/kWh	Lost Revenue	RIM Ratio	Incremental Costs	TRC Ratio	Measure Life (yrs)
DLC	125,405	3,385,935	$ 172,883,523	$ 89,203,790	1.9	$ 94.37	$ 3.50	$2,040,003	1.9	$0	1.9	10
RES HEM	20,000	50,000,000	$ 15,551,050	$ 15,071,090	1.0	$ 305.77	$ 0.12	$9,534,274	0.6	$0	1.0	3
Far Rockaway - Multi-housing	2,000	8,800,000	$ 7,369,230	$ 4,780,095	1.5	$ 317.08	$ 0.07	$5,132,323	0.7	$0	1.5	15
Geothermal	5,000	7,820,000	$ 19,483,104	$ 9,206,635	2.1	$ 154.08	$ 0.10	$74,698	2.1	$54,250,000	0.9	20
Combined Heat & Power (CHP)	5,000	39,000,000	$ 53,199,432	$ 5,235,071	10.2	$ 87.61	$ 0.01	$29,258,950	1.5	$67,206,000	2.2	20
Hospital (Chiller)	5,000	28,000,000	$ 41,003,630	$ 28,566,825	1.4	$ 478.09	$ 0.09	$21,006,425	0.8	$1,919,804	1.3	20
AMI (Large Commercial)	20,000	60,000,000	$ 32,598,481	$ 23,982,938	1.4	$ 280.81	$ 0.09	$16,084,974	0.8	$0	1.4	5
												5
Total Utility 2.0	182,405	197,005,935	342,088,452	176,046,444	1.9	$ 140.79	$ 0.14	$83,131,647	1.32	$ 123,375,804	1.1	

Appendix B – Illustrative Implementation Schedule

No	Key Programs	Program Activities		2015				2016				2017				2018			
			Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	Support Data requests from DPS/LIPA for decision makin																		
2	DPS and LIPA Review																		
3	Approval and Go-ahead		17-Dec																
4	Direct Load Control Program	Program Design																	
		Develop RFP																	
		Vendor Selection & Finalize Scope of Work																	
		Geographic location priorities																	
		Program Marketing																	
		Installation and Integration																	
		M&V and Annual Report																	
5	Hospitals Program	Program Design																	
		Establish IGA Framework																	
		Marketing plans and Customer outreach																	
		Monitor progress and corrective actions																	
		M&V and Annual Report																	
6	Far Rockaways Universal Access Program	NYCHA/others																	
		Vendor Selection (DR and equip change outs)																	
		Program Marketing and coordination																	
		Installation and Tracking progress																	
		M&V and Annual Report																	
7	Targeted Solar PV Expansion - Utility Scale	PPA Negotiation with LIPA																	
		Contract Finalization																	
		Construction																	
		COD and Operation																	
		Reporting																	
8	PV Expansion - Customer Sites	Define Program and offerings																	
		Application Review and rebates approvals																	
		Track Program results & Modify as necessary																	
		M&V and Annual Report																	
8	Residential Home Energy Mgmt.	Program Design																	
		Develop RFP																	
		Vendor Selection & Finalize Scope of Work																	
		Customer selection/enrolment																	
		Customer mailings and surveys																	
		M&V and Annual Report																	
9	Geothermal Systems	Program Design																	
		Marketing Material and Web site design																	
		Informational seminars																	
		Application Review and rebates approvals																	
		Track Program results & Modify as necessary																	
		M&V and Annual Report																	
10	CHP	Program Design																	
		Marketing Material and Web site design																	
		Informational seminars																	
		Application Review and Approvals for Rebates																	
		Track Program results & Modify as necessary																	
		M&V and Annual Report																	
		Pre-planning/Program Development activities						Project/Program Management activities											

No	Key Programs	Program Activities		2015				2016				2017				2018			
			Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
11	AMI	Establish Program framework																	
		Vendor selections and design/engineering																	
		Program management																	
		In-service and integration																	
12	Far Rockaway Capacity Relief Program	Program Design																	
		Develop RFP																	
		Vendor Selection & Finalize Scope of Work																	
		Program management																	
		In-service and integration																	
		M&V and Annual Report																	
13	South Fork Infrastructure Deferment - Capacity Relief	Program Design																	
		Develop RFP																	
		Vendor Selection & Finalize Scope of Work																	
		Program management																	
		In-service and integration																	
		M&V and Annual Report																	
14	South Fork Infrastructure Deferment - Battery Microgrid	Program Design																	
		Apply for Grant and finalize arrangements with Clean Coalition																	
		Develop RFP																	
		Vendor Selection & Finalize Scope of Work																	
		Program management																	
		M&V and Annual Report																	
		Pre-planning/Program Development activities						Project/Program Management activities											

Appendix C – Pro Forma Program Budgets

Program	2015 Start-up Budget	2015 Implementation Budget	2015 Total Budget	2015 MW	2016 Budget	2016 MW	2017 Budget	2017 MW	2018 Budget	2018 MW	2019-2024 Budget	2019 MW	Total Program Budget	Total MW
DLC	$ 500,000	$ 10,523,000	$ 11,023,000	24.30	$ 18,517,500	42.70	$ 20,357,500	42.70	$ 12,157,500	15.30	$ 44,237,500.00	-	$ 106,293,000	125.0
Far Rockaways - Universal Access	$ 220,000	$ 1,073,000	$ 1,293,000	0.500	$ 3,750,000.00	1.50		-		-		-	$ 5,043,000	2.0
Far Rockaways - Capacity Relief RFP - Note 1	$ 270,000	$ 250,000	$ 520,000	-	$ 15,000,000	5.00	$ 30,000,000	10.00	$ 30,000,000	10.00	$ -	-	$ 75,520,000	25.0
Home Energy Mgmt - see Note 2	$ 270,000	$ 700,000	$ 970,000	-	$ 3,515,000	12.00	$ 5,690,000	20.00	$ 5,725,000	20.00	$ -	-	$ 15,900,000	20.0
Hospitals	$ 105,000	$ 1,000,000	$ 1,105,000	-	$ 11,345,000	2.00	$ 7,865,000	1.30	$ 9,823,000	1.70	$ -	-	$ 30,138,000	5.0
CHP	$ 105,000	$ 150,000	$ 255,000	-	$ 1,166,000	1.00	$ 2,051,000	2.00	$ 2,051,000	2.00	$ -	-	$ 5,523,000	5.0
Geothermal	$ 50,000	$ 948,000	$ 998,000	0.70	$ 2,025,000	1.00	$ 2,790,000	1.40	$ 3,900,000	1.90	$ -	-	$ 9,713,000	5.0
Electric Vehicles	$ 55,000	$ 200,000	$ 255,000	-	$ 250,000	-	$ 250,000	-	$ 250,000	-	$ -	-	$ 1,005,000	-
Targeted Solar PV Expansion Customer Sited	$ 50,000	$ -	$ 50,000		$ 5,000,000	3.30	$ 5,000,000	3.30	$ 5,000,000	3.30	$ -	-	$ 15,050,000	9.9
South Fork Infrastructure Deferment - Load Relief - Note 1	$ 270,000	$ 6,273,000	$ 6,543,000	2.00	$ 33,000,000	11.00	$ -		$ -		$ -	-	$ 39,543,000	13.0
South Fork Infrastructure Deferment - Battery/ Microgrid	$ 105,000	$ -	$ 105,000	-	$ 15,000,000	5.00	$ -	-		-	$ -	-	$ 15,105,000	5.0
AMI	$ -	$ 3,100,000	$ 3,100,000	1.73	$ 5,550,500	4.56	$ 5,550,500	4.56	$ 5,550,500	4.56	$ 5,550,500.00	4.56	$ 25,302,000	20.0
Subtotal	$ 2,000,000	$ 24,217,000	$ 26,217,000	29.23	$ 114,119,000	89.06	$ 79,554,000	85.26	$ 74,457,000	58.76	$ 49,788,000	4.56	$ 344,135,000	234.9

Note 1 - Far Rockaways Capacity Relief and SF Load Relief are similar efforts - if only one undertaken, Start-up cost would be approximately $420,000

Note 2 - Unlike the balance of the Portfolio programs, Residential Homer Energy Management only has a 1 year measure life so MW savings may not be added together year to after year to reflect a total achieved MW savings. Values stated are the amount of savings that will occur for the year.