



2020 Energy Efficiency and Renewable Plan

August 1, 2019

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Portfolio Budget and Target Summary

PSEG Long Island is a subsidiary of Public Service Enterprise Group Incorporated (PEG), a publicly traded diversified energy company with annual revenues of \$11 billion and operates the Long Island Power Authority's transmission and distribution system under a 12-year contract.

PSEG Long Island's Energy Efficiency programs make a wide array of incentives, rebates and programs available to PSEG Long Island residential and commercial customers to assist them in reducing their energy usage and thereby lowering their bills. PSEG Long Island has partnered with Lockheed Martin to deliver the energy efficiency programs to the public. Our proposed 2020 Energy Efficiency initiative consists of four programs for our residential customers and a multi-faceted program for our commercial customers. We will continue our Behavioral Initiative, Home Energy Management, in 2020. In 2020, in support of broader New York State policy objectives, we will expand our offerings to include rebates and incentives for installation of energy efficiency measures that will supply beneficial electrification to the grid and allow customers to save on their fossil fuel-based costs. Additionally, we will also pilot efforts geared towards developing broader and more comprehensive longer term savings by providing customers with alternative financing option(s) and through a pay for performance initiative to encourage innovative business models that transform the way we invest in energy efficiency.

As part of its overall goal of reducing GHG emissions by 40% by 2030, New York set new statewide energy efficiency targets as part of its *New Efficiency: New York* (NENY) Order in 2018. These NENY goals establish savings targets on an energy (Btu) basis for New York State as a whole and Long Island, as well as and establishing estimated reductions in forecasted sales (based off the 2015 NYISO econometric forecast) by 2025 that would come about due to the order. In laying out these targets, NENY established fuel-neutral targets to accommodate beneficial electrification of buildings, since increasing electrification in the building and transportation sectors is necessary to achieve the State's carbon reduction goals. PSEG Long Island has been actively engaged in rolling out utility-leading residential and commercial savings programs for customers and is in a strong position to meet and exceed the NENY targets from the continuation of base programmatic energy efficiency efforts. This plan focuses on continuing to deliver energy efficiency savings programs to residential and commercial customers while expanding our efforts to include beneficial electrification initiatives. Adopting fuel-neutral savings targets allows PSEG Long Island to aggregate efficiency achievements across electricity, natural gas, and delivered fuels such as oil and propane, which in turn requires a shift towards investments in non-lighting opportunities, especially an expanded focus on heat pumps and other beneficial electrification opportunities.

Early in our efficiency program implementation efforts we recognized the importance of aligning the business trades with its program offerings. Our nationally-recognized residential portfolio promotes the ENERGY STAR® message through its media campaigns, Web site, marketing materials and outreach. In addition, collaboration with trade allies, state agencies, local utilities and municipalities supports a coordinated effort to reach our goals. These stakeholder partnerships facilitate attractive incentives and services to be offered through the Residential Programs which make participants' homes energy efficient, safe and comfortable.

PSEG Long Island's program philosophy and delivery is structured to be able to respond to market changes and cost effective energy efficiency opportunities during any given year. To align with NENY goals, the 2019 goals of energy efficiency savings were changed to reflect savings on a gross basis at site for the first time, rather than looking at net

program effects at the generator. Our goals for 2020 are 1,110,447 total MMBtu savings and 294,908 MWh of energy efficiency savings and are similarly reflected on a gross basis at site.

For 2020, PSEG Long Island continues to offer residential and commercial customers established programs as well as incorporating additional innovative programs and measures to add to their energy savings opportunities. The proposed 2020 budget for Energy Efficiency and Renewables for PSEG Long Island remains equal to 2019's budget at \$88.8 million. In 2020, PSEG Long Island has initiatives that are budgeted for, but will not have any savings associated with them in 2020, such as our Direct Load Management Program at \$1.3 million and the launch of the first pay for performance initiative partnership with NYSERDA on Long Island. Finally, given the increased emphasis on advancing energy affordability by developing initiatives focused on energy solutions for low- to moderate-income (LMI) consumers, enhanced heat pump rebates and programmatic changes designed to enhance the Home Performance and REAP programs will total about \$5.5 million in spending in 2020, which represents 15% of the non-commercial portfolio budget for rebates and incentives.

As of February 2019, all residential and nonresidential incentives for the NY-Sun Incentive Program have been fully subscribed. In 2020, PSEG Long Island will continue to locally administer the NY-Sun Incentive Program for projects that are in the queue for new solar electric systems up to 750 kW installed at multifamily buildings, schools, not-for-profit, and government buildings. For residential customers, PSEG Long Island will continue local implementation of Green Jobs - Green New York financing and the Affordable Solar Program which offers NY-Sun incentives for income-eligible households.

Programmatic Changes

PSEG Long Island monitors program performance and consumer uptake on a continual basis. By doing this we can respond to changes in market conditions in a timely and efficient manner which allows us to revise offerings throughout the year in response to changing market conditions. Depending upon the program we do an annual and/or monthly review to help us to respond to market conditions.

Portfolio Summary

2020 Energy Efficiency Goals			
Program	Total MMBtu	MWh EE	Total Program Budget
Efficient Products	324,990	109,902	\$ 17,372,131
Home Comfort	111,021	2,633	\$ 10,844,214
REAP (Low-income)	3,903	1,238	\$ 1,417,275
Home Performance	28,387	2,014	\$ 5,548,822
Commercial Efficiency	329,232	96,549	\$ 37,529,558
Total	797,533	212,335	\$ 72,712,000

2020 PSEG Long Island Budget Spending				
Program	Total MMBtu	MWh EE	PSEG LI Program Budget	Total PSEG LI
HEM (Behavioral)	233,883	68,547	\$ 2,330,000	\$ 16,088,000
DLM Program			\$ 1,300,000	
Pay for Performance			\$ 83,000	
PSEG LI Labor/Outside Services/Advertising			\$ 12,375,000	

	Total MMBtu	MWh EE	
Overall Total	\$ 1,031,416	\$ 280,882	\$ 88,800,000

2020 Energy Efficiency and Renewable Portfolio \$ 88,800,000

Benefit Cost Analysis (BCA)

While PSEG Long Island’s energy efficiency planning is now done on a gross basis at site to align with state objectives, the cost effectiveness screening is still done on a net basis that takes into account potential free rider and spillover effects as a result of the program offerings. PSEG Long Island has historically primarily used two separate tests to screen each energy efficiency program and for the overall portfolio: the Program Administrator Cost (PAC) test and the Societal Cost Test (SCT). The tests are similar, but consider slightly different benefits and costs in determining the B/C ratios. The PAC test measures the net costs of an energy efficiency and/or renewable program as a resource option based on the costs incurred by the program administrator (PA), including all program costs and any rebate and incentive costs, but excludes costs incurred by the participant. The SCT considers costs to the participant, but excludes

rebate and incentive costs, as these are viewed as transfer payments at the societal level. The SCT also includes the benefits of non-electric (i.e. gas and fuel oil) energy savings where applicable, resulting in different benefit totals than the PAC test.

To be consistent with the BCA Order that was issued in 2016, the Rate Impact Measure (RIM) test is also conducted for each energy efficiency and renewable program and for the overall portfolio. The RIM test provides an assessment of the preliminary impact on customer rates and compares utility costs and utility bill reductions with avoided costs and other supply-side resource costs.

PSEG Long Island now uses the SCT as the primary method and has applied the June 2019 Benefit-Cost Assessment (BCA) Handbook, including the avoided capacity and energy costs from including the carbon costs, to screen its 2020 Energy Efficiency programs and portfolio, which is the same BCA Handbook that was used for the 2019 Utility 2.0 filing. The PAC and RIM tests are used as secondary reference points to assess the impact on utility costs and ratepayer bills from the benefits and costs that pass the SCT. The SCT uses a traditional model based on electric savings and does not accurately reflect beneficial electrification and resulting MMBtu savings as outlined in this plan. As additional regulatory guidance is developed regarding how to properly account for beneficial electrification, the cost tests will be updated to reflect these calculations.

The table below presents the benefit/cost ratios for the SCT and RIM tests for each program and for the overall Energy Efficiency and Renewable portfolios. **Note that the below benefit/cost ratios reflect the savings and budget that are relevant to electric savings measures only, and the PAC test does not reflect MMBtu-based benefits resulting from beneficial electrification.** The total efficiency savings budget of \$82,017,000 was included in the screening.

Program/Sector	SCT Test	RIM Test
Commercial	2.12	0.85
Efficient Products	2.51	0.48
Home Comfort	0.25	0.17
REAP	0.71	0.24
HP	0.56	0.13
HEM	1.93	1.10
Residential	1.81	0.44
Overall Portfolio	1.96	0.60

Program/Sector	\$/MMBtu	\$/kWh
Commercial	\$88.32	\$0.30
Efficient Products	\$26.41	\$0.08
Home Comfort	\$65.05	\$2.74
REAP	\$363.09	\$1.15
HP	\$127.95	\$1.80
HEM	\$9.96	\$0.03
Residential	\$33.02	\$0.13
Overall Portfolio	\$72.76	\$0.27

Lockheed Martin Implementation

PSEG Long Island has partnered with Lockheed Martin to deliver the PSEG Long Island energy efficiency programs. This partnership is governed by a Master Services Agreement (MSA) that has been effective since 2015. The scope of the MSA includes design and implementation of both residential and commercial Energy Efficiency. Lockheed Martin

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implements and manages most of the energy efficiency programs offered under the PSEG Long Island brand. PSEG Long Island retains overall planning, budgeting, and advertising functions.

Program implementation includes ongoing analysis and continuous improvement of implementation methods, market conditions and measure mix, and also includes such activities as qualifying products, qualifying projects, validating project scopes, conducting pre- and post-inspections, processing rebates, issuing payments, engaging Contractors, and training stakeholders. In addition, Lockheed Martin provides customer service and technical assistance, including customer consultations, design collaboration and customer support in developing energy plans and customized engineering studies. Lockheed Martin is responsible for program analytics, including pipeline, product, and results reporting. Lockheed Martin works in collaboration with the PSEG Long Island program planning and evaluation team, participating in annual program Evaluation and ensuring best practices are established and followed throughout the programs.

New Efficiency:New York

As part of its overall goal of reducing GHG emissions by 40% by 2030, New York set a new statewide energy efficiency target of 185 TBtu by 2025. Of the 185 TBtu goal by 2025, the *New Efficiency:New York* (NENY) December 2018 Order established an incremental target of 31 TBtu of reduction by the State’s utilities towards the achievement of the goal, with the expectation that LIPA will contribute an incremental share of increased energy efficiency savings of at least 3 TBtu over the 2019-2025 time period in addition to base level electric energy savings. In addition, the NENY Order also calculated estimated reductions in utility forecasted sales that would be necessary to achieve the Statewide target. Based upon the analysis, each investor owned utility in the State needs to achieve a 2% reduction of electric sales in 2025, which combined with the NYSERDA projected achievements would bring the total reduction 3%. It is important to note that the reduction in sales was based on forecasted sales as they were set forth in the 2015 NYISO Econometric forecast, which was also used for calculating the Clean Energy Standard targets. Due to its historically aggressive energy efficiency programs, PSEG Long Island is in a unique position to achieve its reduction target without a significant increase in its overall energy efficiency program budget. Secondly, new energy sales due to beneficial electrification are to be netted out in determining progress toward the 3% target.

Additionally, a second Statewide target for overall energy reduction was set at least 5 TBtu through an expanded emphasis on heat pump deployment, though individual utility shares of this goal were not explicitly defined. Electrification of thermal end uses in buildings is a key energy efficiency and decarbonization strategy that utilities are expected to use to meet these goals. In laying out these targets, NENY established fuel-neutral targets to accommodate beneficial electrification of buildings. Increasing electrification in the building and transportation sectors is necessary to achieve the State’s carbon reduction goals. Heat pumps represent a key opportunity to optimize TBtu reductions while increasing electric sales volume and thus reducing overall costs for non-participating customers. PSEG Long Island is in a strong position to meet and exceed the NENY targets from the continuation of base programmatic energy efficiency efforts.

1. Reduction in Electric Sales by 2025

PSEG Long Island worked with NYSERDA and DPS to adapt the NENY methodology used to establish the targets contained in the NENY December 2018 Order. Applying this methodology LIPA’s service territory using our current long range forecast for energy efficiency programs from the 2019 Gold Book yielded the following:

Table: NENY Calculations of Subsidiary 2% Target for Long Island

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Energy Efficiency from 2019 Gold Book ¹ (GWh)	275	309	275	343	256	255	556	361	434	364
2015 Gold Book Econometric Forecast ² (GWh)	20,803	21,105	21,376	21,620	21,920	22,295	22,687	23,090	23,566	23,906
Adjusted LIPA Load ³ (GWh)	20,464	20,490	20,458	20,470	20,468	20,699	21,022	20,991	21,152	21,164
EE as % of LIPA Load	1.3%	1.5%	1.3%	1.7%	1.2%	1.2%	2.6%	1.7%	2.1%	1.7%
2019 Gold Book Econometric Forecast ⁴	-	-	-	18,945	18,805	18,690	18,672	18,492	18,383	18,185
Sales Reductions % from 2019 to 2015 Gold Book Forecasts	-	-	-	12.4%	14.2%	16.2%	17.7%	19.9%	22.0%	23.9%
Annualized Reduction (2016-2025)										2.4%

Without the additional benefit of NYSERDA acquired savings that the other investor-owned utilities draw from, LIPA is expected to average over 2% in reduction of electric sales from 2016-2025 from existing energy efficiency efforts. Moreover, as reflected in the bottom two rows of the above chart, when comparing the 2019 LIPA Load forecast to the 2015 Gold Book Econometric Forecast, LIPA’s overall electric sales in 2025 are now expected to be roughly 23.9% below originally forecasted levels in the 2015 Gold book, with an annualized reduction of 2.4% over the period from 2016 to 2025, resulting in a much greater level of carbon reduction than originally estimated in the original analysis.

2. Incremental Energy Savings of at least 3 TBtu from 2019-2025

Of the incremental target of 31 TBtu of reduction by the State’s utilities towards the achievement of the goal, LIPA was assigned a proportional share of increased energy efficiency savings of at least 3 TBtu over the 2019-2025 time period, or 7.85 TBtu when combining base level electric savings and the incremental amount established in the December 2018 Order. Using the energy efficiency savings calculated in the table above, the total contribution of savings over the period from 2019-2025 is expected to be about 7.8 TBtu. However, it should be noted that these TBtu savings

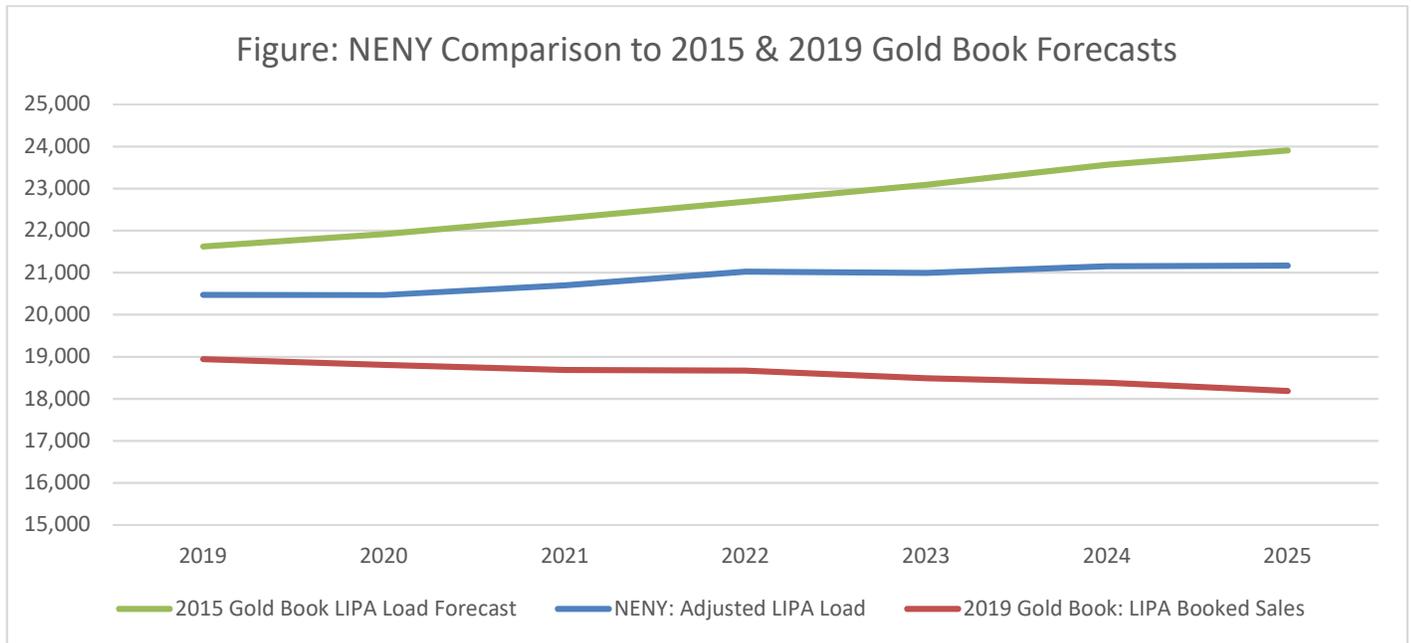
¹ In order to maintain consistency with NENY goals which are expressed in energy basis at site, all figures in this table are converted from the Gold Book values at the generator using line loss true-ups.

² The values in this row represent LIPA’s energy sales by removing the NYPA and other municipal portions from the Zone K forecast.

³ Per the NENY Order, this is adjusted to reflect prior years’ actual or projected energy efficiency achievements. For purposes of avoiding double counting contributions, this table differs from the NENY Order by excluding NYISO assumed Codes & Standards occurring during this period.

⁴ The values in this row represent LIPA Booked Sales, which include beneficial electrification.

represent only the converted kWh values from expected energy efficiency efforts. They do not reflect contributions from interactivity effects on other fuels for electric measures undertaken as the PSEG Long Island Technical Resource Manual did not contemplate a Btu-based approach prior to the 2020 version. Using this 2020 filing as a reference point, Btu savings from beneficial electrification represent a nearly 8% addition to electric energy savings. As PSEG Long Island and the market gain greater insights from implementing fuel neutral programs, the share of Btu savings each year beyond electric savings would be expected to increase. Therefore, PSEG Long Island would expect to meet but exceed the LIPA contribution towards statewide efforts.



As shown in the above figure, the most recent forecast for total LIPA energy sales from the 2019 Gold Book is significantly lower than both the 2015 Gold Book forecast as well as the Adjusted LIPA Load calculations from the table above. Overall, running base level programs as currently forecast should bring total LIPA energy sales to roughly 76% of the 2015 Gold Book forecast.

With Long Island well positioned to meet and exceed the NENY goals, the focus of our 2020 planning is on continuing to deliver energy efficiency savings programs to residential and commercial customers while expanding our efforts to include beneficial electrification initiatives. Adopting fuel-neutral savings targets allows PSEG Long Island to aggregate efficiency achievements across electricity, natural gas, and delivered fuels such as oil and propane, which in turn requires a shift towards investments in non-lighting opportunities, especially an expanded focus on heat pumps and other beneficial electrification opportunities.

Energy Savings Portfolio of Programs

Programs administered through Lockheed Martin

- Energy Efficient Products Program
- Home Comfort Program
- Residential Energy Affordability Program
- Home Performance with Energy Star
- Commercial Efficiency Programs

New Programs in 2020

- Pay for Performance
- Alternative Financing

Programs administered through PSEG Long Island

- Behavioral Initiative (Home Energy Management Program)
- DLM Tariffs

Energy Efficiency Products

The objective of the Energy Efficient Products (EEP) program is to increase the purchase and use of energy efficient appliances and lighting among PSEG Long Island residential customers. The program provides rebates or incentives for ENERGY STAR® certified lighting and appliances through upstream and downstream promotions. These products meet the energy efficiency standards set by the Environmental Protection Agency (EPA) and Department of Energy (DOE). Advanced power strips are also included in the product mix and are available through the Marketplace and special promotions. ENERGY STAR® specifications are an important external factor to the EEP Program offerings. If ENERGY STAR® specifications change, PSEG Long Island adjusts its program offerings accordingly. The adjustments to the program offerings ensure that the program offers incentives for products that meet the latest standards and highest quality of efficiency.

In addition to financial incentives, the program educates customers about the benefits of using energy efficient products in their homes through a variety of marketing channels. The PSEG Long Island Efficient Products Program supports the stocking, sale, and promotion of efficient residential products at retail locations. The program uses a variety of mechanisms, most notably financial incentives, to increase the market saturation of these efficient products. These incentives are distributed either through direct consumer rebates or upstream incentives paid directly to manufacturers or retailers.

Since program inception, PSEG Long Island has significantly expanded its program offerings through the Efficient Products Program. The expansion is a result of new technology development and availability and the increase in ENERGY STAR® certified products. Identifying and promoting efficient models within a given category has become much easier as ENERGY STAR® continues to expand.

In 2020 rebates will continue to be available for ENERGY STAR® Appliances. The program will also focus on promoting and rebating measures that support beneficial electrification. Rebates for advanced power strips (Tier 2) will likely be available through retailers as a mid-stream program. However, in recognition of the direction which EISA (Energy Independence and Security Act) lighting standards, seem to be heading, LED common lamps (A19s) will no longer be incentivized, however, we will continue to incentivize all ENERGY STAR® specialty LEDs.

Secondly, in accord with the goals of beneficial electrification, in 2020, the Energy Efficient Products pool of measures will be broadened to include residential-use battery operated lawn maintenance equipment (mowers, string trimmers and blowers) to displace gas fueled counterparts.

Lastly, to provide a more comprehensive digital marketplace offering, in 2020, PSEG Long Island anticipates to go a solicitation for a web based portal which will allow for a broader array of products and services to be available for multiple channels for customers to be able to pursue energy efficiency and distributed energy opportunities. We would expect that this new offering would be available to our customers in 2021.

Program Delivery

The EEP Program is delivered through partnerships between Lockheed Martin, retailers, and product manufacturers. Customers who purchase qualifying ENERGY STAR® models are eligible for mail-in rebates on appliances and/or point-of-sale incentives on lighting products. The EEP provides training to retailer staff on efficient products, and supports the stocking, sale and promotion of efficient products at retail locations within the service territory. The overall goal of the EEP program is market transformation, which is the transition to a mature energy efficiency market that is self-sustaining without subsidies.

Upstream Incentives

Upstream incentives are payments to manufacturers and/or retailers to stock, promote, and sell ENERGY STAR® certified lighting products. PSEG Long Island is able to “buy-down” the wholesale price, rather than the retail product price, by directing the incentive to the retailer or manufacturer. This typically results in a greater reduction of the retail price compared to a similarly sized consumer rebate. Retailer and manufacturer reimbursement is based on the submission and verification of sales data.

‘Mark-downs’ focus on working directly with manufacturers and retailers to reduce the final retail price of specified products. A ‘Mark-down’ is structured to provide a participating retailer a per unit incentive for all sales of a particular product sold during a specified time.

The Implementation Contractor negotiates a Program Agreement (PA) with retailers and manufacturers and reimbursement is based on the submission and verification of sales data. There are several negotiated lighting PAs with manufacturers and retailers that provide a budget cap and number of products to be sold during a specified time. For each upstream promotion a PA is established that identifies:

- The model numbers and quantity of products to be promoted
- The PSEG Long Island per unit incentive
- Total allocated funding for the promotion
- The retail price for each specific product model during the promotional period
- Promotion duration including start and end dates
- The location of each retail store participating in the promotion
- What sales data must be provided to PSEG Long Island’s incentive processing contractor
- Frequency of sales data submissions
- Any marketing requirements, e.g., placement of PSEG Long Island branded point of purchase materials (POP)

The Fulfillment Contractor is responsible for the following lighting rebate processing procedures:

- Gather credible point of sale (POS) data from retailers to confirm that the ‘bought down’ or ‘marked down’ product is selling through the stores to consumers
- Maintain a database that can track sales data on a product basis, date/time basis, store basis, by promotional PA’s number, by manufacturer, and by retailer

- Ensure that incentives are paid only for eligible products sold through participating stores during an active promotional period, and that any sales double-reported are caught so that incentives are not double paid
- Inputting various sales reports supplied by different industry partners into a central program database and, after reviewing and subjecting inputted data to various quality assurance checks, pay industry partners in a timely fashion for incentives they are owed
- Incentive payment to manufacturers and retailers are currently issued twice a month

Downstream Rebates

Processing Mail-In Rebates

Lockheed Martin, in mid-2018, began processing Pool Pump Applications and rebates in house. Because the Pool Pump processing was so successful, in 2019 Lockheed Martin assumed responsibility of all appliance and pool pump rebate processing. Lockheed Martin will continue to process all rebate applications in house for 2020.

The Fulfillment contractor is currently responsible for processing all lighting incentives and any customer activity on the Marketplace, the online store.

Lockheed Martin will process all other mail-in and online submitted rebates as follows:

- Customer submits a rebate application with a copy of the receipt/invoice
 - Lockheed Martin built an Online Application portal for customers to utilize in 2019 to expedite rebate processing
- The applicant must be verified as a residential customer of PSEG Long Island
- Products and the purchased item must meet the eligibility requirements set forth by program guidelines
After various quality assurance checks are completed, if customers are eligible and products qualify, the payment of rebates will be authorized and checks will be printed and mailed by PSEG Long Island
- The processing cycle concludes with almost all rebate checks mailing to applicants within six weeks from when the application was received

The Bulk Purchase Rebate Program is offered to home owners, builders and contractors who install ENERGY STAR® certified LEDs in residential applications within the PSEG Long Island service territory when more than the allowed 20 bulbs are needed. Preapproval is required before purchase can be made. Rebates are processed by the Fulfillment Contractor.

The program is effectively delivered by utilizing an implementation contractor and a fulfillment contractor with Lockheed Martin, on behalf of PSEG Long Island, managing the program and subcontractors. Roles for the subcontractors are outlined below:

Implementation Contractor

- Day to day program implementation and oversight
- Recruit and train EE products retailers and distributors
- Design and manage product promotions

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- Design marketing and program promotional materials
- Manage Pool Pump program dealers and installers
- Recruit retailers and distributors to participate in the Efficient Products program
- Field Reps provide training to retailer and distributor sales staff on Program participation and product eligibility requirements during regular retailer visits
- Provide staffing for in-store promotions of the PSEG Long Island Program, efficient products, and current incentive offerings
- Develop and manage relationships with lighting and appliance manufacturers
- Work with both retailers and manufacturers to develop and implement upstream product promotions

Fulfillment Contractor

- Retain a broad-based utilities division support staff including program management, data processing and customer service for retail rebate processing
- Services include but not limited to the following:
 - Processing of upstream lighting incentives utilizing retailer Point of Sale (POS) reports

Target Market

All residential customers with a PSEG Long Island account.

Measures and Incentives

Measure	Program Year	2020 Planned Units	Measure Incentives	Measure Rebates
Advanced Power Strips (Tier II)	2020	100		\$ 20
Electric Lawn Mowers <4Ah	2020	150	\$ -	\$ 30
Electric Lawn Mowers > 5Ah	2020	200	\$ -	\$ 50
Electric Lawn Mowers 4-5 Ah	2020	150	\$ -	\$ 40
Electric Leaf Blowers	2020	500	\$ -	\$ 25
Electric Weed Trimmers	2020	500	\$ -	\$ 25
Energy Star 2-Speed Pool Pump	2020	300	\$ 75.00	\$ 150
ENERGY STAR Bathroom Exhaust Fan	2020	250	\$ -	\$ 20
ENERGY STAR Most Efficient Bathroom Exhaust Fan	2020	75	\$ -	\$ 25
Energy Star Variable Speed Pool Pump	2020	2,750	\$ 100.00	\$ 350
ES Dehumidifiers	2020	3,000	\$ -	\$ 30
ES Dryer - Electric Resistance	2020	2,500	\$ -	\$ 50
ES Freezers	2020	250	\$ -	\$ 30
ES Room Air Purifiers (<200 CADR)	2020	350	\$ -	\$ 40
ES Room Air Purifiers (>200 CADR)	2020	250	\$ -	\$ 50
Heat Pump Pool Heaters	2020	100		\$ 750
Heat Pump Water Heater ≤ 55 gallons	2020	200	\$ 100.00	\$ 650
Heat Pump Water Heater > 55 gallons	2020	100	\$ 100.00	\$ 650
LED In-Storage	2020	1	\$ -	\$ -
Most Efficient Clothes Washers	2020	2,500	\$ -	\$ 40
Most Efficient Dishwashers	2020	450	\$ -	\$ 40
Most Efficient Dryers- Heat Pumps	2020	50	\$ -	\$ 250
Most Efficient Refrigerators	2020	1,000	\$ -	\$ 50
Smart Thermostats - Connected (WiFi Enabled)	2020	3,750	\$ -	\$ 35
Smart Thermostats - Learning	2020	3,750	\$ -	\$ 50
SSL - specialty	2020	2,400,000	\$ 2.50	\$ -
Techniart - SSL - specialty	2020	6,400	\$ 2.63	\$ -

Residential Appliance Recycling:

The Appliance Recycling Program will continue in 2020. The goal of the program is to promote the removal and retirement of older inefficient appliances that are still working and in use. The program provides vouchers to residential and commercial customers upon the removal, and proper disposal, of inefficient refrigerators, freezers, room air conditioners, and dehumidifiers from the electric system.

Program Delivery

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Lockheed Martin on behalf of PSEG Long Island uses an implementation contractor that demonstrates a record of providing the services offered and responsibly disposing of the appliances. The contractor will be responsible to perform, or subcontract for, all the services.

The implementation contractor for recycling is responsible for:

- Scheduling pickups from customer homes and/or businesses, verification of appliance qualification, and appliance removal from customer homes and/or businesses
- Rebate processing
- Program tracking
- Providing voucher to customer via email/mail
- Periodically reporting progress towards program goals and identifying opportunities for improvement

The implementation contractor works with the program manager to develop innovative and creative marketing strategies and materials. Marketing may include, but not be limited to, mailers, bill inserts, direct mail, eblasts, flyers, web site, print ads, and giveaway promotions.

Target Market:

All residential and small/mid-sized commercial customers.

Measures and Incentives:

Measure	Program Year	2020 Planned Units	Measure Rebates
Dehumidifier Recycle	2020	150	\$ 35
RAC Recycle	2020	400	\$ 35
Refrigerator Recycle Post 2001 & Pre 2010	2020	2,000	\$ 50
Refrigerator Recycle Pre 2001	2020	800	\$ 50

Program requirements to recycle a refrigerator or freezer:

- Customer must have a valid PSEG Long island account number and own the appliance
- Appliance must be picked up at the service location associated with customer account number
- Refrigerator must be between 10 and 30 cubic feet in size, plugged in, and operating (cooling) at the time of the scheduled pick-up
- Appliance must have been manufactured prior to 2010

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- Sub-Zero models are not eligible for this program
- Limit of two (2) refrigerators/freezers per calendar year, per account #/service location

Customers receive a \$50 incentive for each refrigerator or freezer recycled. Customers can also earn an additional \$35 voucher/unit for recycling up to three (3) working room air conditioners or dehumidifiers in conjunction with a qualifying refrigerator or freezer pickup. Vouchers are for use at the PSEG Long Island Online Energy Efficient Products Catalog.

Residential Home Comfort Program

The goal of the Residential “Home Comfort” HVAC program is to reduce the energy usage of residential customers with central air conditioning systems and heat pumps. Air conditioning load is highly coincident with peak demand and has a significant impact on the electric system. Heat pumps provide both clean renewable heating and cooling, reducing the state’s and Long Island’s dependence on non-renewable fossil fuels. The primary objective of the program is to influence PSEG Long Island customers to make high efficiency choices when purchasing and installing ENERGY STAR® ducted split central air conditioners (CAC), ducted split air-source heat pumps, ductless mini split AC, ductless mini split HP, and packaged terminal heat pumps. This is achieved by building strong working business partnerships with CAC contractors, manufacturers, and program support contractors. Together, the customers become educated on the different efficient systems available and can make more efficient purchase decisions based on their new-found knowledge. It is anticipated that newly installed systems will operate in a customer’s home for the next 10 to 25 years. Because of this, affecting the decision making process upfront is critical in achieving PSEG Long Island’s efficiency goals.

In the spring of 2019, PSEG Long Island rebranded the Cool Homes Program to the Home Comfort Program. The rebranding provided a new focus, and market push, on air-source heat pumps. PSEG Long Island also increased air-source heat pump rebates to \$800/ton or \$1,000/ton. These rebates were for customers with existing electric resistance heating and new construction. In total, about \$6.1 million in rebates and incentives are projected to support an expanded emphasis on air source heat pumps in 2020.

Notable Changes

In 2020, and in a similar format to NYSERDA’s plans to promote the installation of more air-source heat pumps, higher rebates for air-source heat pumps will be offered to participants. The contractor incentives will be increased for the installation of air-source heat pump equipment. To further support NENY goals of providing additional financial mechanisms to spur the adoption of clean energy technologies by low- to moderate-income households, additional incentives (150%) will be available to income-eligible residential customers who install heat pumps that can serve the whole house. Additionally, the anticipated level of geothermal installations was reduced downward based upon actual experience in 2018 and 2019 along with the introduction of lower cost air source heat pumps.

Program Delivery

Home Comfort program participation is primarily driven through partnerships with installation contractors, or Home Comfort Participating Contractors. Customers may also apply directly without an installation contractor under the Equipment Only (EO) application. Engaging the installation contractors to deliver the program has improved program performance and market impacts by ensuring the Quality Installation Verification (QIV) of HVAC equipment. Home Comfort Partners are trained and vetted by the program implementation team and are designated Home Comfort Partners upon successful completion of the team’s processes. As such, Home Comfort Partners relationship management is an integral part of the program. Lockheed Martin holds weekly Contractor meetings to assist the

contractors with all aspects of program participation and promote two-way communication between the program and the contractors.

It is important for the program's success to designate qualified contractors as Home Comfort Partners to generate QIV projects. Through the completion of QIV projects, the program can claim more savings than it can claim under the EO component. Because of the additional steps and equipment testing required to complete a QIV project, the program offers QIV contractors incentives to offset costs. In 2020, all whole-house heat pumps will require a QIV installation.

Contractors who wish to obtain QIV rebates and incentives perform Manual J calculations to ensure appropriately sized energy-efficient units are installed. In addition to right-sizing equipment, the Home Comfort Partners will ensure that the refrigerant charge and airflow are checked using prescribed tests.

Under the EO component, rebates are offered as "equipment-only rebates" and customers may choose any licensed air conditioning contractor. Customers who select the EO rebate can have the following qualifying equipment installed; split CACs, air-source heat pumps, and ductless mini-splits. Contractors who participate through the EO component are not eligible for QIV incentives.

Customers and contractors who want to install qualifying geothermal equipment, utilize the standalone Geothermal application. The Geothermal application accommodates both Commercial and Residential geothermal installations and associated rebates. Rebate levels and contractor incentives are the same for both project types, however measure savings will vary by applying appropriate attributes for commercial and residential customers. To ensure proper project processing, as savings are different for Residential and Commercial installations, the applicant who fills out the application will select with Commercial or Residential for the "Customer Type" field. The customer type is validated by rate code and site inspection

Target Market:

The program is offered to all residential customers in the PSEG Long Island service territory.

Measures and Incentives:

Measure	Program Year	2020 Planned Units	Measure Incentives	Measure Rebates
ASHP (Non-QI) New/EOL ≥15 SEER, ≥8.5 HSPF	2020	20	\$ -	\$ 350
ASHP (Non-QI) New/EOL ≥16 SEER, ≥8.5 HSPF	2020	50	\$ -	\$ 400
ASHP (QI) New ≥16 SEER, ≥8.5 HSPF - Electric Resistance	2020	100	\$ 500.00	\$ 2,000
ASHP (QI) New ≥16 SEER, ≥8.5 HSPF - Electric Resistance - LMI	2020	300	\$ 500.00	\$ 75
ASHP (QI) New/EOL ≥15 SEER, ≥8.5 HSPF	2020	150	\$ 125.00	\$ 350
ASHP (QI) New/EOL ≥16 SEER, ≥8.5 HSPF	2020	75	\$ 150.00	\$ 400
CAC (Non-QI) New/EOL ≥16 SEER	2020	1,500	\$ -	\$ 175
CAC (Non-QI) New/EOL ≥17 SEER	2020	100	\$ -	\$ 250
CAC (Non-QI) New/EOL ≥18 SEER	2020	100	\$ -	\$ 350
ccASHP (Non-QI) New/EOL ≥17 SEER, ≥10 HSPF	2020	20	\$ -	\$ 450
ccASHP (QI) New >17 SEER, ≥10 HSPF - NC Whole House	2020	168	\$ 500.00	\$ 5,000
ccASHP (QI) New >17 SEER, ≥10 HSPF - NC Whole House - LMI	2020	8	\$ 500.00	\$ 375
ccASHP (QI) New >17 SEER, ≥10 HSPF - Whole House All Others	2020	500	\$ 500.00	\$ 1,800
ccASHP (QI) New >17 SEER, ≥10 HSPF - Whole House All Others - LMI	2020	23	\$ 500.00	\$ 525
ccASHP (QI) New >17 SEER, ≥10 HSPF - Whole House Existing Oil w/No CAC	2020	500	\$ 500.00	\$ 2,400
ccASHP (QI) New >17 SEER, ≥10 HSPF - Whole House Existing Oil w/No CAC - LMI	2020	0	\$ 500.00	\$ -
ccASHP (QI) New ≥17 SEER, ≥10 HSPF - Electric Resistance	2020	100	\$ 500.00	\$ 2,500
ccASHP (QI) New ≥17 SEER, ≥10 HSPF - Electric Resistance - LMI	2020	0	\$ 500.00	\$ -
ccASHP (QI) New/EOL ≥17 SEER, ≥10 HSPF	2020	75	\$ 200.00	\$ 450
ccDuctless Minisplit HP New/EOL >18 SEER, ≥10 HSPF	2020	400	\$ -	\$ 350
Ductless Minisplit HP New/EOL ≥18 SEER, ≥8.5 HSPF	2020	800	\$ -	\$ 250
GSHP EER ≥ 25 EER	2020	100	\$ 200.00	\$ 6,000
GSHP EER 19 to < 25 EER	2020	50	\$ 200.00	\$ 3,000
Integrated Controls	2020	1,000	\$ -	\$ 500
Integrated Controls - LMI	2020	150	\$ -	\$ -
PTHP-Packaged Terminal Heat Pump ≥ 11.4 EER, 3.3 COP	2020	200	\$ -	\$ 100
Smart Thermostats - Learning - ASHP	2020	65	\$ -	\$ 50
Smart Thermostats - Learning - CAC	2020	60	\$ -	\$ 50
Smart Thermostats (Connected WI-FI enabled) - ASHP	2020	65	\$ -	\$ 35
Smart Thermostats (Connected WI-FI enabled) - CAC	2020	60	\$ -	\$ 35

Residential Energy Affordability Partnership (REAP) Program

The Residential Energy Affordability Partnership (REAP) Program is for income-eligible customers and is intended to save energy, provide education, and help participants reduce electric bills. Participation in REAP can also make a customer's home healthier and safer. This program encourages whole-house improvements to existing homes by promoting home energy surveys and comprehensive home assessment services. This process identifies potential efficiency improvements at no cost to the customer. The Program goals include:

- Achieving persistent energy savings
- Encouraging energy saving behavior and whole house improvements
- Helping residential customers reduce their electricity bills
- Developing partnerships with contractors to bring efficient systems to market
- Marketing and cross-promoting other PSEG Long Island program offerings

Notable Changes

Similar to changes noted in the Efficient Products Program, we have included a significant reduction in savings due to expected EISA impacts. Planning for 2020 anticipates a significantly lower number of LED bulbs replacing existing incandescent or halogen bulbs and savings durations are also planned for much shorter durations due to the anticipation that upon existing bulb failure standard A19 LED bulbs would be the only choice the consumer has. As noted above in the Home Comfort program, income qualified customers will be able to receive 150% of the standard rebate for qualifying heat pump installations.

Program Delivery

PSEG Long Island and Lockheed Martin will engage a third-party implementation contractor to efficiently meet energy saving goals while adhering to the program's budget. The program begins with targeted marketing towards specific homes: high intensity usage, underserved regions or populations, and specific need profiles such as low income. These homes will be offered a free comprehensive home assessment, enticing the customer to act afterward. While in the home, the implementation contractor will explain other products and services that PSEG Long Island has to offer. These additional resources will provide the customer with increased education and awareness on how to better manage their energy usage.

The program will utilize a proprietary technology platform to identify the most inefficient homes in the residential area with a high probability of program qualification. A designated Call Center will be responsible for scheduling an assessment with the customer. Prior to the appointment, customers receive a notification and other pre-assessment communications to highlight the key characteristics of the home.

The implementation contractor will:

- Hire local staff to perform home energy surveys and direct measure installation
- Engage customers to schedule home energy survey appointments
- Provide customer service support
- Track program performance, including customer participation as well as quality assurance/quality control (QA/QC)

- Report monthly on progress towards program goals
- PSEG Long Island will work with the implementation contractor to market the program to residential customers utilizing the following approaches:
 - Utilizing bill inserts to raise awareness of our energy efficiency program to all PSEG Long Island customers
 - Delivering targeted direct mail piece to further inform the customer of program benefits and scheduling information
 - Outbound calling and door to door canvassing with the option to schedule an assessment over the phone or on the doorstep
 - Emailing relevant information to eligible customers
 - Hosting “open houses” at the offices Town Supervisors

To increase referrals and productivity, Program management will coordinate with different populations:

- Non-profit, Non-governmental Organizations
- Government
- Senior Citizens
- Financial/Debt Counseling Organizations
- Faith-based institutions
- Apartment and Multi-Family dwellings
- Public Libraries

Energy Education

A fundamental precept of the REAP Program design is that extensive customer energy education, counseling and involvement are critical to securing the savings of installed measures. The REAP Program works with “Partners” to identify potential actions they would be willing to take to lower their bills, and then secures customer “Action Commitments” to implement these behavioral measures. Examples of these actions include lowering water heater temperature, regularly checking furnace filters, turning off lamps when not in use, and energy saving settings on clothes washers and other appliances.

The “Partnership” concept guides the approach to customer involvement. If customers want to participate in the REAP Program, and receive its considerable benefits, they need to agree to become “Partners”, accepting certain responsibilities and doing their part by making and keeping action commitments. This is formalized in a written participation agreement and personal action plan, signed by each participant and a REAP Program representative.

The customer education component of the REAP Program will help Partners better understand their energy use, identify opportunities to reduce energy use, and achieve household energy savings. The energy education component will also seek to maximize the benefits of installed energy efficiency measures by helping Partners understand the measures and how to use them to obtain high levels of energy efficiency. Education will focus on:

- Use and value of installed high efficiency lighting retrofits;
- Set-back thermostat operation and management;
- Appliance use and management;
- Water conservation measures; and,
- Water heater temperature setting

Referrals

Referrals are defined as information (written and/or verbal) provided to the PSEG Long Island customer by the field technicians during the home energy survey that is related to other appropriate energy efficiency programs approved by PSEG Long Island. These referrals will benefit the customer by providing additional energy efficient measures or other assistance. Field technicians are trained to understand follow up energy efficiency measures related to programs including, but not limited to:

- PSEG Long Island Home Performance Program;
 - NYS Home Energy Assistance Program;
 - NYS Weatherization Assistance Program; and, Other relevant programs including Town and/or County specific programs and social support programs to meet special needs
- A REAP Customer Folder is provided to each Partner and includes an Energy Saving Guide with information on additional Programs, such as eligibility requirements and contact numbers. The folder also includes PSEG Long Island brochures, including “PSEG Long Island 66 Ways to Save on Your Electric Bill,” “Household Assistance Rate,” and “Financial Assistance.”

Lead Generation

PSEG Long Island participates in residential events throughout the year to distribute brochures that promote the benefits of the REAP Program.

Energy Forum for Advocates

PSEG Long Island hosts an annual Energy Forum for Advocates which is spearheaded by the REAP Program Manager. This forum enables advocates to get connected to services that can have a positive impact on the lives of low income family. Energy Assistance Programs for the clients include:

- PSEG Long Island’s Household Assistance Rate
- Consumer Advocates from PSEG Long Island
- CDC Long Island’s Weatherization Assistance Program
- National Grid Home Energy Affordability (HEAT) Program and Energy Affordability Program (EAP)
- Home Energy Assistance Program (HEAP)
- United Way of Long Island’s Project Warmth
- DSS Emergency Energy Assistance

The Energy Forum is typically held in the fall prior to the heating season. In this way, the latest information on programs that help with heating can be obtained and passed on to clients. A planning team is formed every year to discuss ideas and establish assigned tasks for the Forum.

Target Market

The program will be offered to all residential customers who:

- Have a PSEG Long Island Account
- Own or Rent in the Service Territory
- Comply with income guidelines and size of household and meet the qualifying criteria below. Income guidelines are updated in the March-April timeframe

2019/2020 REAP INCOME GUIDELINES

Size of Family	Annual Income	Monthly Income
1	\$62,300 or less	\$5,191 or less
2	\$71,200 or less	\$5,933 or less
3	\$80,100 or less	\$6,675 or less
4	\$88,950 or less	\$7,412 or less
5	\$96,100 or less	\$8,008 or less
6	\$103,200 or less	\$8,600 or less
7	\$110,300 or less	\$9,191 or less
8	\$117,450 or less	\$9,787 or less

Customer Qualification:

Verification of REAP Program income eligibility for each PSEG Long Island customer is initially performed by the Lockheed Martin’s call center during the initial intake call. The customer must provide proof of income documentation prior to the start of the home energy survey. This eligibility shall be based on number of persons living in the home, total household income, and the inclusion of income from alternate sources. The program is open to both homeowners and renters.

The Field Implementation contractor’s field technician is responsible for the review of customer documentation to ensure eligibility for participation. In addition, the field technician is responsible for the recording of household member’s name, annual income, source(s) of income and Verification Code of Documents (VCD) code on the Participation Agreement form.

Verification Codes for Documents

- CSO – Child Support/Court Order
- DPW – Department of Public Welfare
- EVL – Employer Verification Letter
- PS2 – Pay Stubs, previous two months
- SSD – Social Security Disability
- SSI – Supplemental Security Income Award Letter

2020 EERE Plan

- SSR – Social Security Retirement
- SSS – Social Security Survivor’s Benefit
- UAL – Unemployment Award Letter
- VBA – Veteran’s Benefits Award Letter
- W-2 – Previous Year W-2 or 1040 SSE Form
- WCA – Workman’s Compensation Award Letter
- Other _____

Measures and Incentives

Current PSEG Long Island Residential Energy Affordability Partnership (REAP) Program measures and Energy Education are as indicated below:

Measure	Program Year	2020 Planned Units	Measure Incentives	Measure Rebates
LED Bulbs	2020	22,000	\$ -	\$ -
6,000 BTU RAC 1 Unit/HH	2020	600	\$ -	\$ -
8,000 BTU RAC 1 Unit/HH	2020	200	\$ -	\$ -
10,000 BTU RAC 1 Unit/HH	2020	60	\$ -	\$ -
12,000 BTU RAC 1 Unit/HH	2020	60	\$ -	\$ -
Dehumidifiers 30 Pints/Day	2020	130	\$ -	\$ -
Dehumidifiers 50 Pints/Day	2020	120	\$ -	\$ -
Dehumidifiers 70 Pints/Day	2020	50	\$ -	\$ -
Pipe Insulation/In ft	2020	356	\$ -	\$ -
Low Flow Showerheads/unit	2020	200	\$ -	\$ -
Faucet Aerators/unit	2020	320	\$ -	\$ -
Water Temperature Turndown/HH	2020	60	\$ -	\$ -
Thermostatic Valve	2020	200	\$ -	\$ -
Advanced Power Strips (Tier II)	2020	2,000	\$ -	\$ -
16 cf Refrigerator	2020	60	\$ -	\$ -
18 cf Refrigerator	2020	60	\$ -	\$ -
21 cf Refrigerator	2020	60	\$ -	\$ -
Nightlight	2020	2,000	\$ -	\$ -
ES Room Air Purifiers (<200 CADR)	2020	175	\$ -	\$ -
ES Room Air Purifiers (>200 CADR)	2020	125	\$ -	\$ -

It is estimated that 2,000 REAP visits will be conducted in the 2020 program year. A variety of the above-mentioned energy saving measures will be installed during the visit.

Offered measures are divided into Core Measures and Major Efficiency Measures.

Core Measures: Measures which are typically directly installed regardless of the heating fuel used by the PSEG Long Island residential customer.

Major Efficiency Measures: Those measures which will cost-effectively reduce the energy consumption of high-use or seasonal appliances but typically require more extensive treatment. All energy-efficient measures are installed at no cost to the customer or building owner, if cost-effective, given site specifics. In the case of Partners who occupy rental property, "Core Efficiency Measures" involving building owner property, such as non-tenant-owned appliances, may not be installed without the prior written approval of the building owner.

Typical Core Measures:
<ul style="list-style-type: none">• Installation of high-efficiency lighting• Pipe Insulation• High-efficiency showerheads• Faucet Aerators• Reducing electric water heater temperature settings• Thermostatic Shower Valves• Smart Strips
Major Efficiency Measures:
<ul style="list-style-type: none">• Replacement of inefficient room air conditioners (RACs) and dehumidifiers• Replacement of inefficient refrigerators

At the completion of a REAP visit follow on work may be identified in which the customer can utilize income eligible enhanced incentives through the Home Performance with Energy Star program.

Home Performance with Energy Star

The primary objective of the Home Performance with ENERGY STAR® program is to make high efficiency choices part of the decision-making process for PSEG Long Island customers when upgrading their home. The goal of the Home Performance with ENERGY STAR® Program (HPwES) is to reduce the carbon foot print of customers who utilize electric, oil or propane as a primary heat source.

The U.S. Department of Energy (DOE) administers the Home Performance with ENERGY STAR® (HPwES) Program and works in conjunction with the U.S. Environmental Protection Agency (EPA) to support local program sponsors. PSEG Long Island administers the HPwES Program on behalf of the sponsor, the Long Island Power Authority (LIPA). Lockheed Martin provides support to PSEG Long Island, program contractors, and customers. Lockheed Martin's program administration includes program design and management, quality assurance and quality control, technical training and providing contractor support to promote the quality installation of energy efficient measures which are relevant to produce savings.

The HPwES Program is intended to help homeowners improve the efficiency, safety and comfort of their homes using a comprehensive, whole-house approach, while helping to protect the environment. Homeowners are encouraged to make high efficiency choices as a part of the decision-making process when upgrading their home. This is achieved by building strong working business partnerships with our existing PSEG Long Island HPwES contractor base, as well as various trade allies and constituent-based organizations which currently include NYSERDA, Long Island Green Homes, BPI, BPCA, and Efficiency First. Newly installed systems will operate in a customer's home for the next 10 to 25 years.

Program Leads

- **PSEG Long Island Home Energy Assessments**

PSEG Long Island Home Energy Assessments (HEA) are free energy audits available to any single-family homeowner in PSEG Long Island service territory. The program is administered by Lockheed Martin and involves a qualified contractor to conduct a Home Energy Assessment in order to make the homeowner aware of energy savings opportunities. In 2020, PSEG Long Island plans to launch its own energy audit tool, to be used by the HPwES contractors, which will be importable in to the Lockheed Martin Captures database.

PSEG Long Island HPwES contractors provide these assessments in order to promote additional efficiency work under the HPwES Program. PSEG Long Island customers can apply for an HEA using the online application on the PSEG Long Island website.

- **Home Performance Direct Install**

Eligible customers with electric heat can participate in this free program, which includes an energy assessment and select free efficiency upgrades. Once the free direct install measures are completed, (LEDs, duct sealing, low flow DHW devices, smart strips) the customer receives their free HEA and are eligible for HPwES rebates.

Notable Changes

After discussions with NYSERDA, and in accordance with New York State's Reforming the Energy Vision (REV), PSEG Long Island will discontinue rebates for fossil fuel measures for the 2020 HPwES program. The HPwES Program design for 2020 will encourage contractors to recommend whole house solutions that will include upgraded weatherization projects coupled with HVAC upgrades, including enhanced rebates for air source heat pumps, geothermal systems, and integrated controls. Including free or low-cost weatherization measures within this program ensures that the customer, especially those falling into the Low to Moderate Income (LMI) demographic, sees as large a reduction in their monthly energy bills as possible. In conjunction with MWh savings, PSEG Long Island also plans to calculate and report MMBtu savings for 2020 HPwES projects.

To further support *New Efficiency: New York* goals of providing additional financial support for efficiency measures impacting LMI households, these projects will be tracked separately so we're able to assess all rebates targeting the LMI community holistically, including those falling under REAP. One potential method to pursuing this goal is to integrate the implementation of REAP and HPwES into a single offering. This way, once a REAP audit is performed for a customer, the contractor can assess whether the customer is a good candidate for measures under HPwES. These LMI customers may receive enhanced rebates for both weatherization work as well as for the installation of an air source heat pump. Additionally, similar to the changes discussed in the REAP program, lighting savings will no longer be provided from standard A19 LED bulbs. Instead a small amount of savings will be provided from the provision of specialty LED bulbs.

PSEG Long Island plans to explore increasing the adoption of home energy retrofits and potentially residential heat pumps in the single family residential sector by seeking partnership opportunities with companies that can help customers finance key home improvements using the money homeowners currently waste on energy. In addition, PSEG Long Island hopes to explore on-bill financing using LIPA capital sources, as discussed in the 2019 Utility 2.0 filing.

Program Delivery

Prospective HPwES contractors must submit a signed PSEG Long Island HPwES Contractor Participation Agreement as well as documentation showing proof of business identification, financial condition, insurance, licensing, satisfactory customer relationships, and Building Performance Institute (BPI) accreditation. Upon acceptance, the contractor is deemed a Provisional Participating Contractor until they successfully complete five HPwES projects. As of July 2019, are currently 26 participating HPwES contractors enrolled in the program.

PSEG Long Island's HPwES Program portfolio plans to offer customer rebates and contractor incentives for weatherization and building shell upgrades like insulation, air sealing, and duct sealing. Certain minimum efficiency requirements must be met to receive the HPwES incentives and all projects must be pre-approved by the HPwES Program team contractor.

On a monthly basis all electric (kW and kWh) savings are reported to PSEG Long Island. Fossil fuel (oil/propane, other non-natural gas heating fuels) savings are converted to MMBs and reported to PSEG Long Island as well, which is then sent to NYSERDA.

Target Market

The PSEG Long Island Home Performance Energy Audit (HEA) is offered to all single-family homes in PSEG Long Island territory. The PSEG Long Island rebate availability to single family homes in PSEG LI territory is still TBD as the 2020 HPwES program is currently being developed. PSEG Long Island plans to offer both market and Low-Median Income (LMI) rebates to homeowners conducting weatherization upgrades.

In order to qualify the LMI customers, we may consider utilizing the same income qualification methods as REAP. If a customer participates in the REAP program, and also qualifies for HPwES, the customer will be notified about the additional opportunities available to them through HPwES participation.

It is estimated that 7,000 Home Energy Assessments (HEAs), 400 Home Performance Direct Installs, and 1,000 Home Performance with Energy Star projects will be completed for the 2020 program year.

Measures and Rebates

PSEG Long Island Home Performance with ENERGY STAR Eligible Measures List		
	Eligible Measure	Minimum Efficiency Requirements
	Duct Sealing	UL 181B mastic or tape; use od "duct tape" is disallowed
	Duct Insulation	Installed in accordance with all applicable state and local codes
Building Shell	Insulation (attic, wall, floor, band joist, basement, crawl space)	Must be accompanied by blower door assisted air sealing per BPI standards
	Air Sealing	Blower door assisted per BPI standards

Measure	Program Year	2020 Planned Units	Measure Incentives	Measure Rebates	Fuel Oil/Propane Rebates
HEA Audit Giveaway (Specialty LEDs)	2020	21,000	\$ -	\$ 6.29	\$ -
HEA Audits	2020	7,000	\$ -	\$ -	\$ -
Market Projects	2020	500	\$ -	\$ 500	\$ 500
LMI Projects	2020	750	\$ -	\$ 2,000	\$ 2,000
DI - LED Bulbs (100% of projects ; 8/HH)	2020	3,750	\$ -	\$ -	\$ -
DI - Low Flow Showerheads/unit (50% of projects)	2020	200	\$ -	\$ -	\$ -
DI - Faucet Aerators/unit (50% of projects)	2020	200	\$ -	\$ -	\$ -
DI - Water Temperature Turndown/HH (50% of projects)	2020	200	\$ -	\$ -	\$ -
DI - Duct Sealing (80% of projects)	2020	320	\$ -	\$ -	\$ -
DI - Pipe Insulation/In ft (80% of Projects)	2020	320	\$ -	\$ -	\$ -
DI - Thermostatic Valve (50% of projects)	2020	200	\$ -	\$ -	\$ -
DI - Nightlight (80% of projects)	2020	320	\$ -	\$ -	\$ -
DI - Smart Strips - TierII (100% of projects)	2020	400	\$ -	\$ -	\$ -

Commercial Efficiency Program

PSEG Long Island's Commercial Efficiency Program (CEP) is intended to assist non-residential customers in saving energy by offering a number of rebates and incentives for the installation of energy conservation measures. In addition to rebates for energy savings measures, Technical Assistance rebates are available under the CEP to offset the cost of engineering and design services for qualifying projects. To ensure an approach to market that is consistent with the CEP objectives for demand savings and proper lighting design, CEP continues to implement the Prime Efficiency Partner Program. All certified Prime Efficiency Partners have undergone program training and testing to ensure that they are familiar with the CEP guidelines and may be recommended by the program to end users. All certified Prime Efficiency Partners must apply for recertification each year. In addition, only Prime Efficiency Partners may participate in the Fast Track program component.

In 2020, PSEG Long Island's Commercial Efficiency Program proposes providing customer rebates for the following energy efficiency measures:

- Lighting
 - Indoor Lighting
 - Performed Based
 - Prescriptive (Fast Track)
 - Outdoor Lighting
- HVAC
- Geothermal
- Standard Application
 - Cool Roof
 - Variable Frequency Drives
 - Compressed Air
- Refrigeration
- Custom and Custom Retrofit
 - Data Collection forms for Chillers and Data Centers
- Distributed Generation
- Multi-Family
- Beneficial Electrification
- Technical Assistance (TA) Program:
 - LEED Certification and Points
 - ENERGY STAR® Labeled Buildings
 - Energy Engineering Study
 - Whole Building (Energy Modeling)

Notable Changes

In 2019, CEP continued to offer the performance based interior lighting program that incentivizes customers and contractors to install the most energy efficient equipment available. In past years, the CEP lighting rebates were more in line with a prescriptive rebate approach and rebated per fixture. In mid-2018, the program's main goal metric was adjusted from kW to kWh, leading the team to adjust rebate offerings to reflect actual kWh savings instead of the quantity of fixtures installed. Because of the new approach, customers and contractors started making more efficient decisions. The focus of this initiative continues to influence efficient equipment installation, target facilities that still use inefficient T12s and facilities that have high hours of operation. Rebates are paid to customers on a \$/kWh basis and the program included language in the application to allow for quarterly updates to the \$/kWh rebate as needed.

The CEP team continues to focus on engaging and educating the Small and Medium Business customers through assessments. The assessment procedure has been modified from year prior to better meet needs of the customers. When a customer requests an assessment, the Energy Consultant (EC) or Inspector (INS) will arrange a meeting with the customer and discuss all the programs available to that customer. If the customer is looking for quick and easy tips on how to save energy, the EC or INS will leave the customer a checklist complete with energy saving tips to implement that covers the four basic measures found in a typical small business (Lighting, HVAC, Compressed Air, and Refrigeration). Customers who want a detailed energy usage report will receive a benchmark/level 1 audit of the facility. The EC or INS will utilize the ASHRAE Building Energy Quotient (bEQ) tool to complete the audit. The ASHRAE bEQ tool will provide all the information needed to submit an ENERGY STAR® benchmark, as well as take inventory of all the measures and energy usage. If a large business customer requests an assessment, the EC will meet with the customer and review all of the available programs. After the initial meeting, if the customer would like an audit or to have their building(s) benchmarked, the EC will recommend Technical Assistant (TA) partners who can provide the service and then work with the customer to submit a project and receive rebates Technical Assistance Program.

The construction of Multi-Family developments continues to be on the rise in Long Island. To meet the needs of this segment, and engage developers, a multi-family program will be launched to incentivize the installation of energy efficient equipment. Measures that will be included in the program include, lighting (indoor and outdoor), HVAC, appliances, and cool roofs.

In 2020, MMBtu savings will be incorporated in to the CEP savings goal. Because of the addition of MMBtu savings, new programs may be introduced to ensure that the CEP meets and exceeds the savings goal. A Beneficial Electrification offering is among the new programs and may include measures such as battery powered commercial lawn equipment.

Program Delivery

The CEP participation is driven through partnerships with installation contractors, or Lead Partners, though customers may apply directly without an installation contractor. Engaging the implementation contractors to deliver the program has improved program performance and market impacts. As such, Lead Partner relationship management is an integral part of the program. The program recognizes, and promotes, the importance of open communication between the contractors and the program. Lockheed Martin holds weekly Contractor Meetings to ensure that contractors have the assistance they need when participating in the program. The weekly Contractor Meetings, from the initial launch through today, have had such a tremendous impact that the Contractor Meetings were featured in AESP's National

Conference in 2016. Speakers from Lockheed Martin were invited to discuss the successes of the meetings and were scored among the best at the conference. In 2018, Lockheed Martin was invited back to AESP to speak at the Summer Conference. The Lockheed Martin speakers discussed the strategic innovation behind the design and implementation of the Fast Track Program and the Prime Efficiency Partner Program. Both programs work cohesively to drive customer engagement, satisfaction, and participation through collaborating with program participants and prioritizing their needs.

The introduction of the Prime Efficiency Partner network in 2017 has enabled the program to touch more small business customers and has led to an increase in project submittals. Contractors wishing to participate in the Fast Track program and be designated “Prime” must meet specific business criteria, complete trainings, and meet the strict program requirements. The launch of the Prime Efficiency Partner program has also played a crucial role in maintaining customer satisfaction. Weekly trainings are conducted for those contractors wishing to achieve the Prime Efficiency Partner designation. Prime Efficiency Partners are subject to Quality Control Evaluation procedures as necessary, in an effort to ensure continued quality installations for commercial customers.

In addition to the weekly contractor meetings and trainings, Lockheed Martin hosts several contractor breakfasts, new technology expos, and regularly participates in industry events such as USGBC, ASHRAE, HIA, and AIA. The team also participates in Community Partnership Program (CPP) events to promote the different programs and interact with customers. Lockheed Martin, on behalf of PSEG Long Island, coordinates and hosts an Energy Efficiency conference that occurs on an 18 month basis. The conference is open to all customers and contractors and provides networking opportunities, informative seminars with industry leaders, market trends, emerging technologies, and highlights project successes. In 2017, attendance reached over 600, with nearly half attendees being customers. The event is well regarded throughout Long Island as the energy efficiency event of the year. It is an excellent platform for the program team to build camaraderie with participating lead partners and customers, as well as an opportunity for customers and lead partners to stay abreast on industry trends.

Target Market

All non-residential customers in the PSEG Long Island service territory.

Measures and Incentives

With the exception of Combined Heat and Power projects, Custom and Custom Retrofit project rebates are calculated by the PSEG Long Island CEP Project Screening Tool. Rebates are calculated based upon 4 inputs: \$/kW, \$/kWh, Simple Payback and Incremental cost, with overall \$/kWh and percentage of cost caps. Savings is determined through custom analyses and input to the Project Screening Tool. For Combined Heat and Power projects, projects are screened to ensure program administrator and societal cost tests, among others, however rebates and savings calculations are deemed. For all other measures, rebates are set per market conditions, and may adjust during the year as the market changes. All measures are subject to cost/benefit screening prior to launch.

Pay for Performance

Beginning in 2020, PSEG Long Island intends to launch a Pay for Performance pilot initiative. These initiatives are emerging nationally as a market-based approach to delivering and paying for energy efficiency solutions. Supported by policy reforms, PSEG Long Island's deployment of AMI, and growth in sophisticated data analytics, the pay for performance model shifts the focus away from individual measure savings estimates to whole building metered savings. Payment is restructured to align with realized energy savings. Under this initiative, approximately \$250,000 in awards is available for projects that result in 1100 MMBtus of annual reductions in energy use for participating PSEG Long Island customers.

The initiative will be a collaboration between PSEG Long Island, NYSERDA, energy efficiency service providers, and other supporting partners designed to transform the way we invest in energy efficiency. Unlike the existing energy efficiency programs that use measure-specific (e.g. light bulbs, appliances, etc.) rebates and incentives, this initiative will compensate service providers over a three-year period for measured energy efficiency that accrues from portfolios of residential and commercial customers that undergo energy efficiency upgrades and operational improvements. This flexible approach to investing in energy efficiency will allow service providers to innovate and provide a more comprehensive approach to meeting customers' energy needs, while fostering a longer-term relationship that can result in additional investments in energy efficiency.

NYSERDA is currently in the process of launching pay for performance pilots with Consolidated Edison and National Grid, and PSEG Long Island will leverage those learnings by partnering with NYSERDA to issue a Request for Proposal (RFP) to competitively select one or more service providers. These service providers, known as Portfolio Managers, will engage with customers to implement energy efficiency solutions. The pay for performance initiative is designed to test an alternative incentive approach that emphasizes energy savings performance at the utility meter and the persistence of energy savings over time. Under this program, a single upfront flat payment, as used in traditional energy efficiency rebate programs, is replaced with regularly occurring payments for normalized meter-measured energy savings over a defined period. Portfolio Managers can establish relationships to re-engage with their participating customers to increase the likelihood of continued savings and additional interventions, opening new and exciting options for testing different approaches and business models.

Participating customers' energy savings are measured and aggregated on an ongoing basis to calculate the Portfolio Manager's performance payments that will be paid by PSEG Long Island. Working with NYSERDA, we will use the CalTRACK methodology to calculate energy savings via an Advanced Measurement and Verification (AMV) platform. After an initial intervention with the customer, Portfolio Managers will have access to individual customer and aggregated portfolio data, providing analytics and insights into realized savings and opportunities.

This pay for performance initiative will leverage PSEG Long Island's substantial investments today in rolling out AMI meters across Long Island. By the end of 2019, full AMI deployment is expected in the Towns of Southold and Riverhead, which comprise the North Fork. Taken together, this will create a geographically defined pool of about 35,000 customers that will be eligible for Portfolio Managers to enroll in the initiative.

PSEG Long Island and NYSERDA will jointly develop and release an RFP in the first half of 2020. After competitively selecting the winning Portfolio Manager(s), which will be awarded a five-year contract with PSEG Long Island, comprising of a nearly two year Implementation Period during which Portfolio Managers can enroll customers and

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implement energy efficiency measures, and three years for the completion of Project Performance Periods during which payments will be made for delivered energy savings. Each Project will have its own Performance Period and Projects in the Performance Period will contribute to payments for the Portfolio:



First year costs will be limited to marketing budget, utility platform, portfolio managers and extraction transformation loading costs and are estimated to be \$83,000, with additional costs related to evaluation, per meter costs, incentives (including temporal), etc. during subsequent years. There will be no incremental energy savings during 2020 as these savings will be claimed on an MMBtu basis following each of the three years during the performance period. Over the five years of the pay for performance initiative, costs are estimated to be the following:

PSEG Long Island Pay 4 Performance Pilot Program			
Year	Number of Portfolio Managers	Number of Customers Enrolled	Annual Costs
2020	4	0	\$108,000.00
2021	4	350	\$184,219.50
2022	4	613	\$192,384.12
2023	4	613	\$189,321.62
2024	4	263	\$146,852.12
Total	4	613	\$820,777.36

For each Project, a baseline will be established using individual customers’ energy consumption data for the 12 months prior to the initial intervention. Following the initial intervention, the three-year performance period for that Project is triggered. Portfolio Managers can re-intervene and make additional improvements with participating customers at any time during the performance period to achieve greater savings, but the performance payments will not be made beyond three years for any given project. Portfolio Managers must have participating customers provide authorization through Green Button Connect for the AMV Platform to access to their utility consumption data throughout the performance period. Portfolio Managers must also complete a Customer Consent Form by using an e-signature service. Information must be completed correctly to successfully add a Project to a Portfolio and ensure approval to share data has been given.

Lessons learned from this implementation of pay for performance will be used as an input to improve and scale the initiative and further encourage innovative, new business models to achieve larger-scale savings, attract additional investment, and encourage deeper energy efficiency across a broader range of PSEG Long Island customers.

Alternative Financing

PSEG Long Island plans to increase the adoption of home energy retrofits and potentially residential heat pumps in the single family residential sector by establishing partnerships with a company(s) that finances key home improvements using the money homeowners currently waste on energy.

PSEG Long Island intends to establish a partnership(s) to offer a program that allows PSEG Long Island single family residential customers to pay for energy-saving home improvements with the value of their expected energy savings. Leveraging capital provided by the partner and or other institutions (including the New York Green Bank), the partner would invest in home improvements that save energy, and customers would pay the partner back based on the actual energy they save. If customers don't save energy, the partner would not get paid back.

A partnership along these lines would be a market-based relationship and would not require any dedicated program budget from PSEG Long Island. The partner(s) business model is premised on customer savings being realized over time. The partner provides all the necessary capital for customer acquisition, operations, and project finance.

In addition to financing, the partner would provide upfront education and engagement on comfort and other non-energy customer pain points, and provide customers with a proposal and/or recommendations on how they can solve these problems. Customers will receive this education and engagement over phone and web, and will be connected to local contractors once they have determined the project that will best meet their needs. Qualified customers will also receive the opportunity to use the partners financing program and pay for some or all of their project with their energy savings.

Dynamic Load Management Programs

Background

LIPA introduced three (3) Dynamic Load Management programs to the electric tariff effective April 1, 2016. The Dynamic Load Management Tariff (DLM) was designed to be consistent with the objectives of Reforming the Energy Vision (REV) by providing innovative market-based solutions to transmission and distribution system needs. The program is effective during the capability period, which is May 1 – September 30th.

The Dynamic Load Management Tariff (DLM) consists of a direct load control tariff program and a demand response tariff program. The Bring Your Own Device Smart Savers Program allows residential and small commercial customers who have “smart” thermostats to provide PSEG Long Island with control of their thermostats during times of high electric demand periods to curtail overall electric demand. In exchange for this control, participating customers will receive a one-time \$85 enrollment payment. In subsequent years, the customer will receive an annual \$25 performance payment linked to their actual curtailment usage, when customers fully participate in a minimum of 50% of the curtailment events during the capability period.

The second part of the DLM tariff is a more traditional Demand Response tariff, which emulates the New York Independent System Operator’s Emergency Demand Response and Special Case Resource programs. Under this tariff, medium to large size commercial customers would sign up and be obligated to the Company to reduce their load by a specified amount when called upon either through a day-ahead notification or in reliability need times two hours ahead.

For the Direct Load Control Smart Savers Program, PSEG Long Island will communicate with each participating customer’s individual thermostat; and for the Commercial System Relief Program / Distribution Load Relief Program, PSEG Long Island will instruct aggregators and/or customers to curtail during a Demand Response (“DR”) event one day or two hours in advance dependent upon whether the Commercial System Relief Program or Distribution Load Relief Program is initiated.

Program Delivery

To implement the Dynamic Load Management Tariffs, EnergyHub was contracted to administer the tariff requirements and implement the program.

Direct Load Control Smart Savers Program

The Smart Savers Program will pay customers that purchase and install “smart” thermostats \$85. The thermostat will allow PSEG Long Island to curtail usage of central air conditioning systems in the home or small business. In addition, the customer will receive a \$25 payment for each subsequent year they remain in the program and fully participate in a minimum of 50% of the curtailment events during the capability period. The customer must utilize an approved thermostat provider and install the device in their home or business. Approved thermostat providers market and promote the program to potential customers, and customers enroll in the Smart Savers Program through the smart

thermostat electronic application. The device is a wireless thermostat that is registered with the program enrollment administrator and is linked to PSEG Long Island through an enrollment portal. PSEG Long Island initiates a load reduction curtailment day when appropriate, during the program capability period.

Commercial System Relief Program

The Commercial System Relief Program (CSRP) creates the opportunity for market forces to identify and implement load relief measures that would allow PSEG Long Island to avoid building new distribution capacity at specific locations along the transmission and distribution system. The goal of the program is to have the market provide such solutions and for PSEG Long Island to spend less on transmission and distribution upgrades and projects.

The CSRP offers several features to both individual customers and aggregators of customers in the program. The program scope consists of:

- Monthly reservation payments per kW for commitments to reduce load on 21 hours' notice. The current reservation payment is \$5/kW/month.
- Performance payments for each kWh of energy curtailed during a called event, lasting up to 4 hours. The current performance payment is \$0.25 per kWh reduced during a curtailment event.

Customers and aggregators may participate by reducing or deferring load, or utilizing dispatchable on-site generation options, to meet the commitment to reduce their load on the system. Generation options must meet strict emissions criteria to be eligible for the program. AMI metering is also required of all customers enrolled in the program. All load reduction provided during a called curtailment event will be quantified using a Customer Base Load (CBL) methodology, which requires detailed usage information made available on a timely basis.

Distribution Load Relief Program

The Distribution Load Relief Program (DLRP) creates the opportunity to reduce electric load in certain designated zones or "load pockets" on the PSEG Long Island system. These load pockets will be identified, when necessary, by PSEG Long Island and posted to the PSEG Long Island website. The DLRP offers:

- Monthly reservation payments per kW for commitments to reduce load on two (2) hours' notice. The current reservation payment is \$3/kW/month of enrolled load reduction.
- Performance payments for each kWh of energy curtailed during a called event lasting up to 4 hours. The current performance payment for load reduced during a called event is \$0.25 per kWh.

Customers and aggregators may participate by reducing or deferring load, or utilizing dispatchable on-site generation options, to meet the commitment to reduce their load on the system. Generation options must meet strict emissions criteria to be eligible for the program. AMI metering is also required of all customers enrolled in the program. All load reduction provided during a called curtailment event will be quantified using a Customer Base Load (CBL) methodology, which requires detailed usage information made available on a timely basis.

Customer Enrollment/Financial Impacts

The financial impacts of the three proposed programs are expected to be favorable to ratepayers on a net present value basis. Each of the three programs involves payments that are less than the costs that can be avoided from their

implementation, producing a net benefit to ratepayers. The chart below shows the enrollment activity as of January 1, 2019.

Program	2018 Cumulative Customers	2018 Cumulative MW Reduction	Curtailement Events (cumulative)
Smart Savers Program	17,900	17.9	3
CSRP	123	17	7
DLRP	123	17	7

Customers currently enrolled in both the CSRP and DLRP are duplicative and are enrolled in both programs simultaneously.

DLM Tariff Customer Enrollment 3 YR Forecast			
	2020	2021	2022
DLC MW Enrolled	36.9	48.9	60.9
CRSP MW Enrolled	22.6	26.1	29.6
DLRP MW Enrolled	22.6	26.1	29.6
Total MW Enrolled	59.5	75	90.5
<i>DLC Customer Payment</i>	\$1,186,250	\$1,481,250	\$1,631,250
<i>CRSP Customer Payment</i>	\$624,820	\$718,520	\$817,220
<i>DLRP Customer Payment</i>	\$334,000	\$384,500	\$437,000
TOTAL	\$2,145,070	\$2,584,270	\$2,885,470

*All Customer Payments are collected through the Power Supply Charge and therefore do not impact the operating budget.

Notable Program Changes

Effective June 1, 2019, LIPA approved the use of battery storage (whether standalone or paired with other distributed energy resources) for both residential and commercial customers as part of the DLM tariff program. Eligible customers enrolled in the DLM tariff program with qualifying battery storage and battery storage systems paired with solar equipment will receive a reservation payment locked in for up to 10 years from the date of initial enrollment. In addition, net metered customer accounts will not be eligible to enroll in the DLM tariff program.

Behavioral Initiative (HEM)

This Home Energy Management Program that was launched in the third quarter of 2017 supports statewide goals under REV to create a cleaner, more resilient, and affordable energy system for all New Yorkers. Through regulatory overhaul, REV encourages the cleanest, most advanced and efficient power system operation. State programs supporting clean energy are being redesigned to accelerate market growth and unlock private investment. This program will advance progress towards New York State's goals of achieving a 40% reduction in greenhouse gas levels and a 600 TBTU increase in statewide energy efficiency by 2030.

PSEG Long Island's overarching objective of this Program is to motivate and inspire PSEG Long Island customers to increase their understanding of all aspects of their energy needs and take active control of their energy usage. Indications are that this program has resulted in increased customer satisfaction, increased customers' understanding and ability to manage their energy usage, increased customer adoption of existing energy efficiency offerings, improved customer access to energy efficient products and clean energy service providers (i.e. energy efficiency, residential solar, community solar, demand response and related services), and has fostered the development of marketplace solutions such as smart thermostats which will induce deeper clean energy penetration and leverage greater private investments in such efforts. Outcomes undergoing evaluation include:

- Customer bill savings
- Reduction in greenhouse gases
- Clean energy penetration including increased use of renewable and low carbon sources,
- Demand and capacity reductions
- Greater private sector investment in clean energy solutions,
- Customer satisfaction

This Home Energy Management Program enables residential customers to realize cost effective verifiable energy efficiency savings, while also increasing awareness and adoption of applicable programs, products and services, and increases customer satisfaction. PSEG Long Island expanded the Home Energy Report treatment group to over 500,000 residential customers and expects to enhance the HEM Program in early 2021 to include an integrated Marketplace offering where customers will have the ability to purchase equipment and potential services through a holistic customer engagement platform.

Evaluation Measurement and Verification (EM&V)

Opinion Dynamics Corporation (ODC), a consulting firm hired by PSEG Long Island, typically conducts annual program evaluations and portfolio evaluation of the Energy Efficiency and Renewable Energy programs as well as any ad-hoc evaluation studies that are deemed necessary.

Annual Evaluation of 2019 Energy Efficiency Programs:

As part of the annual evaluation cycle, ODC will produce two volumes, Volume I and II, which together comprise the entire Annual Evaluation report. The Volume I will provide an overview of evaluation findings, including impact and process results for 2019. Volume II of the 2019 Annual Evaluation Report – the Program Guidance Document - will provide detailed program-by-program review of gross and net impacts of the Energy Efficiency and Renewable Energy Portfolios along with process evaluation findings, and a discussion of data collection and analytic methods. The program guidance document is developed to provide PSEG Long Island and its implementation contractor, Lockheed Martin, with data-driven planning actions moving forward and full transparency for the methods employed to calculate energy and demand savings. Annual evaluation reports are comprised of the following three overarching categories:

1. Impact Evaluation
 - a. Determine energy, demand, and environmental impacts achieved from each energy efficiency and renewable energy program as well as for both portfolios;
 - b. Conduct cost effectiveness analysis for each energy efficiency and renewable energy program as well as for the portfolios.

2. Process Evaluation
 - a. Assess how efficiently a program is being implemented, by evaluating the operational efficiency of program administrators and contractors;
 - b. Gap analysis to be conducted to identify strengths, opportunities, and improvements in program tracking data collections necessary for savings calculations and other evaluation processes and studies.

3. Economic Impact Analysis – As part of their annual evaluation efforts, ODC team will also assess the economic impacts of the Energy Efficiency and Renewable Energy portfolios' investments on the economy of Long Island. ODC will provide 1-year and 10-year economic impacts estimates associated with the 2019 Energy Efficiency and Renewable Energy portfolio investments where the 10-year economic impacts accrue from measures installed in 2019 over their remaining measure life. ODC will develop an input-output (I-O) model of the Long Island regional economy using IMPLAN modeling software to estimate these impacts.