



2018 Energy Efficiency and Renewable Plan

September 29, 2017

Table of Contents

Electric Portfolio Budget and Target Summary	4
Background	5
Portfolio Summary	7
Benefit Cost Analysis (BCA)	8
Lockheed Martin Implementation	9
Electric Energy Savings Portfolio of Programs	10
Programs administered through Lockheed Martin.....	10
Programs administered through PSEG Long Island.....	10
Energy Efficiency Products	11
Notable Changes	11
Program Delivery	11
Target Market	14
All residential customers with a PSEG Long Island account.....	14
Measures and Incentives.....	14
Residential Appliance Recycling:	15
Program Delivery	15
Target Market:	15
Measures and Incentives:.....	15
Residential Cool Homes Program.....	16
Notable Changes	16
Program Delivery.....	16
Target Market:	17
Measures and Incentives:	18
Residential Energy Affordability Partnership (REAP) Program	19
Notable Changes	19
Program Delivery	19
Energy Education	20
Referrals	20

Target Market21

Measures and Incentives.....22

Home Performance with Energy Star.....23

 Program Leads.....24

 Notable Changes24

 Program Delivery.....24

 Target Market25

 Measures and Rebates.....26

Commercial Efficiency Program27

 Notable Changes28

 Program Delivery.....29

 Measures and Incentives29

Thermostat Program (Edge Program)30

 Notable Changes30

Dynamic Load Management Programs.....30

Background30

Program Delivery31

Customer Enrollment/Financial Impacts32

Behavioral Initiative (HEM)33

Clean Energy Community Program33

Renewables34

Evaluation Measurement and Verification (EM&V).....36

Electric 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 2018 Energy Efficiency initiative consists of four programs for our residential customers, a multi-faceted program for our commercial customers and our legacy demand response program Edge. We will continue our Behavioral Program, Home Energy Management in 2018, which will be our first full year for this initiative. In 2018 in support of broader New York State policy objectives and in accordance with objectives from grant funding provided by the New York State Energy Research and Development Authority (NYSERDA) we will continue our offerings to include rebates and incentives for installation of energy efficiency measures which save Oil and Propane in residential homes. Additionally, such grant funding will also support efforts geared towards developing broader and more comprehensive longer term savings by targeting reductions to soft costs through efforts aimed at developing behavioral and marketplace changes. These new initiatives, for which quantitative energy savings goals have not been established, are expected to support the policy goals of moving from transactional to broader embedded behavioral savings trends in the future.

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. These stakeholder partnerships facilitate attractive incentives and services to be offered through the Residential Programs which make participant's 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 to be able to respond to available cost effective energy efficiency opportunities throughout any given year. In 2017 PSEG Long Island shifted its focus from MW to MWh saving, we will continue that in 2018. Our 2018 goals are 213,605 MWh of energy efficiency savings and 55,688MWh of renewable energy and HEM savings. This compared to our goals for 2017 of 243,285 and 15,000 respectively. For 2018 PSEG Long Island will continue 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 2018 budget for Energy Efficiency and Renewables for PSEG Long Island remains constant at \$88.9 million. In 2018 PSEG Long Island has initiatives that are budgeted for, but will not have any electric savings associated with them, such as Oil and Propane initiatives at \$5.3M and our statewide programs, Communities Program at \$1.2M and Campus Program at \$700K.

In addition to the Energy Efficiency Programs, for 2018 PSEG Long Island will continue to locally administer the NY-Sun Incentive Program for new solar electric systems up to 500 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.

Statewide Programs

- Communities Program

The Statewide Clean Energy Communities Program through a partnership with NYSERDA is being offered by PSEG Long Island in 2018. This program helps support grant awards for government and municipal entities on Long Island at no cost to them. Communities who achieve certain high impact actions will be designated by NYSERDA as “Clean Energy Communities” and will be eligible for clean energy project grants under the program. PSEG Long Island has budgeted \$1,238,000 in 2018 for this initiative.

- Campus Program

The REV Campus Challenge promotes clean energy efforts by recognizing and supporting colleges and universities in New York State that implement clean energy projects and principles on campus, in the classroom, and in surrounding communities. PSEG Long Island has budgeted \$700,000 in 2018 for this initiative.

REV Campus Challenge members include two- and four-year, public and private institutions from all regions of New York State. From community colleges to state research universities to private liberal arts colleges, REV Campus Challenge members represent New York’s leaders in institutional sustainability.

The REV Campus Challenge provides its members with a range of services including:

- Support programs to enable member institutions to make progress toward their goals
- Opportunities to be recognized for clean energy achievements
- Membership in a network of like-minded institutions from all corners of the State
- Workshops and opportunities to learn from and engage with peers
- A library of resources to consult and draw from

The REV Campus Challenge promotes action in clean energy and sustainability across three areas of contribution:

- Investment in clean energy and greenhouse gas reductions
- Education and research into a range of clean energy concepts
- Engagement of both the campus and surrounding communities

Background

The REV Campus Challenge launched in Fall 2015 with the goal of engaging the broad academic potential of New York State’s colleges and universities to help realize Governor Andrew M. Cuomo’s Reforming the Energy Vision (REV), a strategy to build a clean, resilient, and affordable energy system for all New Yorkers. Since its launch, the REV Campus Challenge has recognized institutions around the State for clean energy achievements, made available \$5 million in funding to support a wide range of clean energy activities, and engaged dozens of institutions around New York in shaping the Challenge’s next steps.

New York State’s more than 200 two- and four-year institutions of higher education sit at the intersection of many of New York State’s greatest resources for achieving a clean energy future. With hundreds of thousands of students, faculty, and staff, New York institutions are at the cutting edge of researching the cleantech of the future, they have strong partnerships with the communities in which they reside, and they serve as incubators for the next generation of the world’s clean energy leaders.

Reforming the Energy Vision—and the future of all New Yorkers—will require harnessing the intellectual potential of New York State’s institutions of higher education.

Oil/Propane summary

In 2018 customers who use oil/propane in their homes and businesses will be eligible for rebates/incentives.

Programmatic Changes

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

Portfolio Summary

2018 EERE Budget & Goals				
2018 Energy Efficiency Goals				
Program	MWh	MW	Total LM Electric Budget	
Efficient Products	107,255	26.19	\$	16,513,970
Cool Homes	3,248	2.46	\$	3,743,609
REAP (Low-income)	1,965	0.48	\$	1,698,345
Home Performance	3,589	2.72	\$	4,369,955
Commercial Efficiency	97,549	24.94	\$	40,239,231
EE_Total	213,605	56.80	\$	66,565,109
Edge	N/A	29.00	\$	1,438,541
EE_ & Edge_Total	213,605	85.80	\$	68,003,650
2018 Statewide Initiatives				
Program	MWh	MW	2018 Budget	
Communities Program	-	-	\$	1,238,000
Campus Program			\$	700,000
2018 PSEG Long Island Budget Spending				
Program	MWh	MW	PSEG LI Program Budget	Total PSEG LI
HEM (Behavioral)	45,740		\$ 2,400,000	\$ 15,604,896
Solar	9,948	4.04	\$ 50,000	
PSEG LI Labor/Outside Services*/Advertising			\$ 11,216,896	
	55,688	4.04	\$ 2,450,000	
*Includes Evaluation,, Advertising, Labor, etc				
2018 Oil/Propane Initiatives				
Program	MWh	MW	Total Oil/Propane Budget	
Home Performance	-	-	\$	5,309,296
2018 Energy Efficiency and Renewable Portfolio				\$ 88,917,843

Benefit Cost Analysis (BCA)

PSEG Long Island used two separate tests to establish a benefit/cost (B/C) ratio for 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 in most respects, but consider slightly different benefits and costs in determining the B/C ratios. The PAC test measures the net costs of an energy efficiency 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 test considers costs to the participant, but excludes rebate and incentive costs, as these are viewed as transfer payments at the societal level. The SCT test 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.

The BCA Order that was issued in 2016 suggested to include the Rate Impact Measure (RIM) test and in order to be consistent with this framework, PSEG Long Island has established the RIM test ratios for each energy efficiency program and the overall portfolio. The RIM test provides as 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.

In order to allow for direct comparison with all supply-side options, the PAC test was traditionally considered a primary method of determining cost effectiveness. However, in order to be consistent with the Benefit-Cost Assessment (BCA) Handbook, PSEG Long Island now uses the SCT test as the primary method and has applied the new avoided capacity and energy costs including the carbon costs to screen its 2018 Energy Efficiency programs and portfolio. 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 table below presents the benefit/cost ratios for the SCT, PAC, and RIM tests for each program and for the overall Energy Efficiency portfolio. Note that the below benefit/cost ratios reflect the savings and budget that are relevant to electric measures only. The total electric budget of \$74,717,895 was included in the cost effectiveness screening. The remaining \$14,199,948 are allocated to oil/propane, statewide initiatives and other non-electric measures.

Program/Sector	SCT Test	PAC Test	RIM Test
Commercial	1.99	1.71	0.65
Commercial	1.99	1.71	0.65
Efficient Products	2.70	4.70	0.72
Cool Homes	0.19	0.72	0.49
REAP	0.48	0.28	0.20
HP	1.00	0.71	0.47
HEM	0.64	0.50	0.21
Residential	1.58	2.79	0.66
Efficiency Portfolio	1.74	2.18	0.66
Solar Pioneer	0.89	13.46	1.05
Renewable Portfolio	0.89	13.46	1.05
Total EE & RE	1.63	2.31	0.67

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 was effective in 2015. The scope of the MSA includes design and implementation of Energy Efficiency, Demand Response and some Utility 2.0 initiatives. Lockheed Martin implements and manages the majority of energy efficiency programs offered under the PSEG Long Island brand. PSEG Long Island retained overall planning and budgeting functions, advertising, direct customer contact efforts and renewable offerings.

Program implementation includes ongoing analysis of implementation methods, 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.

Electric Energy Savings Portfolio of Programs

Programs administered through Lockheed Martin

- Energy Efficient Products Program
- Cool Homes Program
- Residential Energy Affordability Program
- Home Performance with Energy Star
- Commercial Efficiency Programs
- Edge Thermostat Program

Programs administered through PSEG Long Island

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

Statewide Programs

- Clean Energy Community Program
- Campus Program

Renewable Program

- Solar

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 on ENERGY STAR® certified products for 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). Also, in the product mix are advanced power strips sold through the online catalog only. ENERGY STAR specifications are an important external factor to the EEP Program offerings. As the ENERGY STAR specifications have changed, PSEG Long Island has adjusted its program offerings accordingly. These adjustments 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 prominently financial incentives, to increase the market saturation of these efficient products. These incentives typically come in the form of either 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. This program expansion reflects both new technology development and availability as well as an expanding number of ENERGY STAR products that have made it easier to identify and promote efficient models within a given product category.

Notable Changes

No significant changes to the program for 2018. We will be adding Most Efficient Dishwashers and adding a second tier for Advanced Power Strips (Tier I and Tier II) both will be rebated through the online catalog-not at the retailer.

Program Delivery

The EEP Program is delivered through partnerships between Lockheed Martin, retailers and product manufacturers. Customers who purchase qualifying models are eligible to receive 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.

UPSTREAM INCENTIVES

Upstream incentives are payments to manufacturers and/or retailers to stock, promote and sell ENERGY STAR certified lighting products. By directing the incentive to the retailer or manufacturer, rather than the consumer, PSEG Long Island is able to 'buy-down' the wholesale price, rather than the retail product price. 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 a number of 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 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 PAs’ 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.

DOWNSTREAM INCENTIVES

Processing Mail-In Rebates

Incentive payments to manufacturers and retailers are currently being issued twice per month. The Fulfillment contractor is responsible for processing all mail-in and online submitted rebates as follows:

- Customer submits a rebate application with a copy of the receipt/invoice and a recent utility bill
- The applicant must be verified as a customer of a PSEG Long Island
- Products purchased must meet the eligibility requirements set forth by program guidelines

If customers and products are confirmed as eligible after various quality assurance routines have been followed the payment of rebates will be authorized and checks will be printed and mailed at the close of the next reporting period.

The Bulk Purchase Rebate Program is offered to home owners, builders and contractors that 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.

Rebate processing cycle for rebates involve reviewing and inputting 'clean' applications within 7 business days of receipt, and batching rebates for payment after they have all been through manual and electronic quality control checks, twice per month. This processing cycle results in almost all rebate checks mailing to applicants within four weeks from when the application was received.

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
- Design marketing and program promotional materials
- Manage Pool Pump program dealers and installers
- Recruiting 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.
- Providing staffing for in-store promotions to promote the PSEG Long Island Program, efficient products, and current incentive offerings.
- Developing and managing relations with lighting and appliance manufacturers.
- Working 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 and customer rebate processing.
- Services include but not limited to the following:
 - Processing of upstream lighting incentives utilizing retailer Point of Sale (POS) reports.
 - Processing of mail-in and all electronic rebate forms.

2018 EERE Plan

Target Market

All residential customers with a PSEG Long Island account.

Measures and Incentives

2018 Efficient Products Program

	Estimated 2018 Units	Incentive Per Unit	Estimated Rebate Per Unit
SSL - common (A19)	2,000,000	\$ 1.50	N/A
SSL - specialty	2,000,000	\$ 2.00	N/A
Most Efficient Clothes Washers	3,000	\$ -	\$40
Most Efficient Dishwasher	1250		\$50
Most Efficient Refrigerators	2,000	\$ -	\$50
Refrigerator Recycle Pre 2001	800	\$ -	\$50
Refrigerator Recycle Post 2001 & Pre 2010	2000	\$ -	\$50
RAC Recycle	400	\$ -	\$35 voucher
Dehumidifier Recycle	150	\$ -	\$35 voucher
Room A/C <6000 Btuh	2,500	\$ -	\$25
Room A/C ≥6000 & ≤7999 Btuh	4,500	\$ -	\$30
Room A/C ≥ 8000Btuh & ≤ 13999 Btuh	3,000	\$ -	\$40
ENERGY STAR 2-Speed Pool Pump	400	\$75	\$150
ENERGY STAR Variable Speed Pool Pump	2000	\$100	\$350
Advanced Power Strips - Tier I	150	\$	\$ 10
Advanced Power Strips - Tier II	50		\$20
Super-Efficient Dryer - Heat Pumps	50	\$ -	\$300
ES Dryer - Electric Resistance	3,000	\$ -	\$40
ES Room Air Purifiers	600	\$ -	\$50
ES Heat Pump Water Heater - ≤55 gallons	75	\$ -	\$750
Heat Pump Water Heater - >55 gallons	25	\$ -	\$750
ES Dehumidifiers	2,500	\$ -	\$25
Total	4,028,450		

Residential Appliance Recycling:

The Appliance Recycling Program will continue in 2018. The goal of the program is to promote the removal and retirement of working older inefficient appliances. The program rewards residential and commercial customers when they remove inefficient refrigerators, freezers, room air conditioners, and dehumidifiers from the electric system and dispose of them in an environmentally safe and responsible manner.

Program Delivery

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 engaged 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.
- Provides voucher to customer via email/mail.
- Periodically report progress towards program goals and 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:

Rewards per Unit

Measure	
Refrigerator/Freezer Recycle	\$50
Room Air Conditioner	\$35 voucher
Dehumidifier	\$35 voucher

Program requirements to recycle a refrigerator or freezer:

- Must be a PSEG Long Island customer and own the appliance.
- Appliance must be picked up at the service location associated with customer account #.

- 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
- Limit of two (2) refrigerators/freezers per calendar year, per account #/service location.

Customers receive a \$50 incentive for each refrigerator or freezer recycled. Plus, recycle up to three (3) working room air conditioners or dehumidifiers in conjunction with a qualifying refrigerator or freezer pickup and the customer will earn a \$35 voucher for each unit for use at the PSEG Long Island Online Energy Efficient Products Catalog.

Residential Cool Homes Program

The goal of the Residential “Cool Homes” HVAC program is to reduce the peak electric demand of residential customers with central air conditioning systems. Air conditioning load is highly coincident with peak demand and has a significant impact on the electric system. The primary objective of the program is to persuade PSEG Long Island customers to make high efficiency choices as part of the decision making process 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 geothermal heat pumps. This is achieved by building strong working business partnerships with CAC contractors, manufacturers and program support contractors in order to educate the customer and influence the purchase decision. Newly installed systems will operate in a customer’s home for the next 10 to 25 years. Affecting the decision making process upfront is critical in achieving PSEG Long Island’s efficiency goals, as the next opportunity to affect this load could be years into the future.

Notable Changes

We are enhancing the rebates by additional rebates for ductless heat pumps and cold climate air-source heat pumps. We (re)aligned the tier 1 and 2 efficiency requirement for GSHP, including realigning the tier 1 of GSHP to match ENERGY STAR requirements. This adjustment is design to allow more open loop system to qualify for rebates.

Program Delivery

The Cool Homes program seeks to improve the energy efficiency of residential HVAC systems throughout Long Island. Through the assistance of a program-approved contractor, residential account holders can apply for rebates for the quality installation (QI) of higher-efficiency HVAC equipment. QI means that the contractor performs Manual J calculations to install an energy-efficient unit that is appropriately sized for the space and to ensure that the refrigerant charge and airflow are checked using prescribed tests. Participating Cool Home contractors receive incentives for each rebated QI. PSEG Long Island also offers an equipment-only rebate option that allows the customer to choose any licensed air conditioning (A/C) contractor to install qualifying split CACs, geothermal and air-source heat pumps, and ductless mini-splits rather than having the work performed only by Cool Home program contractors. With the equipment-only rebate, customers receive lower rebate amounts for qualifying equipment and contractors are not eligible for QI incentives.

PSEG Long Island’s Cool Homes Central Air Rebate Program portfolio offers customer rebates and contractor incentives on the following equipment; Central Air Conditioners (CAC), Air Source Heat Pumps (ASHP), Ductless Mini Split AC, Ductless Mini Split HP, and Geothermal (GSHP) systems. Each system type has distinct rebate schedules and requirements for eligibility. Rebates and incentives are available for installations performed by a Cool Homes Participating Contractor (QI) and for qualifying systems installed in the service territory regardless of installation contractor (non-QI). The rebates and incentives offered are based on system efficiency and potential energy savings.

In 2018 Quality Installation (QI) will continue to be the cornerstone of the program; however qualifying systems installed in the service territory regardless of installation contractor (non-QI) rebates are available to achieve a wider market influence. In 2018 and beyond, the PSEG Long Island Cool Homes Central Air Rebate Program rebate schedule will continue to encourage the installation of highly efficient equipment, ideally to replace older operational HVAC systems.

Target Market:

The program is offered to all residential customers in our service territory.

Measures and Incentives:

Eligible Equipment	Tier	Efficiency Requirements	Estimated 2018 Units	Incentive Per Unit	Rebate Per Unit
Central Air Conditioners	1	SEER >= 16	2050 (QIV)	\$100 (QIV)	\$200 (QIV)
	2	SEER >= 17	310 (QIV) 40 (EO)	\$100 (QIV)	\$400 (QIV) \$250 (EO)
		SEER >= 18	220 (QIV) 30 (EO)	\$150 (QIV)	\$500 (QIV) \$350 (EO)
Air Source Heat Pumps	1	SEER >= 15 and HSPF >= 8.5	130 (QIV) 20 (EO)	\$100 (QIV)	\$500 (QIV) \$350 (EO)
	2	SEER >= 16 and HSPF >= 8.5	40 (QIV) 10 (EO)	\$100 (QIV)	\$600 (QIV) \$400 (EO)
Cold Climate Air Source Heat Pump		SEER >= 16 and HSPF >= 10	40 (QIV) 10 (EO)	\$150 (QIV)	\$700 (QIV) \$450 (EO)
Ductless Mini Split Systems (AC)	3	SEER >= 18 and EER >=12.5	600		\$150
Ductless Mini Split Systems (HP)	3	SEER >= 18 and EER >=12.5	600		\$250
Cold Climate Ductless Mini Split Systems		SEER >= 18 and HSPF >= 10	150		\$350
Geothermal	1	EER >=19 and <=24.9	250	\$200	\$3000
	2	EER >=25	150	\$200	\$6000
Smart Thermostats			1600		\$35

Residential Energy Affordability Partnership (REAP) Program

The Residential Energy Affordability Partnership (REAP) Program is for income-eligible customers designated to save energy and reduce electric bills. Participation in REAP can make the customers home healthier and safer. This program will encourage whole-house improvements to existing homes by promoting home energy surveys and comprehensive home assessment services. The customer receives a no-cost in-home energy survey. The survey will identify potential efficiency improvements. The Program goals include:

- Demonstrate persistent energy savings.
- Encourage energy saving behavior and whole house improvements.
- Help residential customers reduce their electricity bills.
- Develop partnerships with contractors to bring efficient systems to market.
- Market and cross-promote other PSEG Long Island program offerings.

Notable Changes

No significant program changes for 2018.

Program Delivery

PSEG Long Island and Lockheed Martin will engage a third-party implementation contractor to efficiently obtain the savings goals while adhering to the budget and goal of the program. The program begins with targeted marketing towards specific homes: high usage intensity, underserved regions or populations and specific needs profiles such as low income. These homes will be offered a free comprehensive home assessment, enticing the customer to take action after the assessment. While in the home, other products and services that PSEG Long Island has to offer will be explained to the customer. 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. Scheduling with customers is made through a designated Call Center. Prior to the appointment customers receive a notification and pre-assessment communications to highlight the key characteristics of the home.

The implementation contractor will:

- Hire a local staff to perform home surveys and direct measure installation.
- Engage customers and schedule home energy survey appointments.
- Provide customer service support.
- Track program performance, including customer participation as well as quality assurance/quality control (QA/QC).
- Monthly report progress towards program goals. PSEG Long Island will work with the implementation contractor to market the program to residential customers utilizing the following approaches:
 - Marketing will include traditional direct mail, outbound and inbound call center services, and online acquisitions via email marketing.
 - 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

To increase referrals and productivity, the Community Outreach Specialist targets 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 end uses where there is potential to reduce energy use, and develop 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. In particular, 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 course of the home energy survey that is relative 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. During the Customer Education portion of the visit, the field technicians are knowledgeable and cognizant of appropriate programs for follow up energy efficiency measures, 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 , educating PSEG Long Island customers of appropriate social support programs to meet special needs and working with the PSEG Long Island Program Manager or designee to make referrals.
 - A REAP Customer Folder is provided to the customer which includes an Energy Saving Guide with additional PSEG Long Island and non-PSEG Long Island Programs along with eligibility requirements and contact numbers as well as brochures such as 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 and provide information to help customers become aware of the benefits of the REAP Program. Other Marketing channels are REAP postcard mailings and advertisement in the local town papers; along with brochures placed in Customer Offices and “open houses” at the Town Supervisor offices providing information on all residential programs.

Energy Forum for Advocates

There is an annual Energy Forum for Advocates held which is hosted by PSEG Long Island and headed up by the REAP Program Manager. This forum enables advocates to get connected to services that can make a real difference in low income family lives. Energy Assistance Programs for the clients include:

- PSEG Long Island’s Household Assistance Rate
- Consumer Advocates from PSEG Long Island
- CDC’s Weatherization Assistance Program
- 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 commencing. In this way, the latest information on programs that provide assistance for heating can be obtained and passed onto the clients. A team is formed 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

[2017/2018 REAP INCOME GUIDELINES](#)

Size of Family	Annual Income	Monthly Income
1	\$54,316	\$4,526
2	\$62,075	\$5,173
3	\$69,834	\$5,820
4	\$77,594	\$6,466
5	\$83,801	\$6,983
6	\$90,009	\$7,501
7	\$96,216	\$8,018
8	\$102,424	\$8,535
Per each add'l person	\$6,207	\$517

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 home, total household income, and the inclusion of income from alternate sources.

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
- 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:

Core Measures: Measures which are typically direct 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 which the customer can utilize income eligible enhanced incentives through the Home Performance with Energy Star program to undertake.

Home Performance with Energy Star

The primary objective of the 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 with electric, oil or propane as a primary heat source.

Included in the overall Home Performance with Energy Star program budget is rebate funding of approximately \$3.3M there to support rebates and incentives for propane and oil measures offered to support the HPwES program

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. PSEG Long Island HPwES contractors provide these assessments in order to promote additional efficiency work under the HPwES Program. PSEG Long Island customer can apply for a 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, (LED's, duct sealing, low flow DHW devices, smart strips) the customer receives their free HEA and are eligible for HPwES rebates.

Notable Changes

No significant changes for 2018

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 satisfactorily completing five HPwES projects. There are currently 24 full participating contractors enrolled in the program.

PSEG Long Island's HPwES Program portfolio offers customer rebates and contractor incentives on electric, oil, and propane HVAC and DHW equipment, as well as accompanying weatherization and building shell upgrades like insulation and air sealing. Certain minimum efficiency requirements must be met to receive the HPwES incentives and all projects must be pre-approved by the implementation 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 MMBTU's and reported to PSEG Long Island as well, which is then sent to NYSERDA.

In 2018 we will pilot a standalone Smart Thermostat rebate that can be offered by HPwES and Cool Homes contractors, but will be processed through the existing Cool Homes worksheet.

Target Market

The PSEG Long Island Home Performance Energy Audit is offered to all single family homes in PSEG Long Island territory. The PSEG Long Island incentives are available to single family homes in PSEG LI territory with a primary heating fuel of oil, propane, or electric, as well as homes with natural gas as a primary heating source AND central AC.

The approved eligible measures and rebate tiers are listed below.

Measures and Rebates

Proposed PSEG Long Island 2017 Home Performance with ENERGY STAR®(HPwES) Programs		
Program	Customer Eligibility	2017 PSEG LI Offering
Free PSEG Long Island Home Performance Energy Audit	Single family homes In PSEG LI territory	\$200 contractor incentive, Comprehensive Home Assessment, Thank You! kit from PSEG LI
PSEG Long Island HPwES Incentives	Single family homes in PSEG LI territory: 1) primary heating fuel of oil, propane, or electric. 2) homes with natural gas as a primary heating source and central AC	15% customer rebate capped at \$3,000. On-Bill Financing.
PSEG Long Island Assisted HPwES Incentives	Single family homes in PSEG LI territory at 80% or less of Area Medium Income: 1) primary heating fuel of oil, propane, or electric. 2) homes with natural gas as a primary heating source and central AC	50% customer rebate capped at \$4,000. On-Bill Financing
PSEG Long Island Enhanced HPwES Incentives	Single family homes in PSEG LI territory at 60% or less of Statewide Medium Income: 1) primary heating fuel of oil, propane, or electric. 2) homes with natural gas as a primary heating source do not qualify	100% capped at \$4,000 for attic and wall insulation

PSEG Long Island Home Performance with ENERGY STAR Eligible Measures List		
All Eligible Measures apply only to homes with Oil, Propane, or Electric as a Primary Heat Source		
	Eligible Measure	Minimum Efficiency Requirements
Primary Heating and Cooling Systems	Furnace - Fuel Oil / Propane	AFUE 85%
	Boiler - Oil / Propane Condensing	AFUE 87%
	Boiler - Oil / Propane Non-Condensing	AFUE 85% (must include boiler reset control)
	Boiler - Oil / Propane Steam	AFUE 82% (size must be matched to cumulative capacity of connected radiators, per Institute of Boilers & Radiators Mfrs Standards)
	Central Air Conditioner	Eligible for Cool Homes Incentives Only
	Air Source Heat Pump	Eligible for Cool Homes Incentives Only
	Ground Source Heat Pump	Eligible for Cool Homes Incentives Only
	Boiler Reset Controls	Programmed properly per manufacturer's specifications and site conditions. Maximum price of \$500.
	Distribution Improvements	Installed in accordance with all applicable state and local codes
	Duct Sealing	UL 181B mastic or tape; use of "duct tape" is disallowed
	Duct Insulation	Installed in accordance with all applicable state and local codes
	Pipe Insulation	R-3
Smart Thermostat	Eligible for Cool Homes Incentives Only	
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
DHW & Conservation	Electric	EF .93 – Heat Pump DHW units receive EEP incentives only
	Propane	Tank: 20-100 gallons, EF >= 0.67, FHR >= 67 gallons per hour, < 75,000 BTU. ENERGY STAR Qualified.
		On Demand: EF >= 0.82, GPM >=2.5 over a 77F rise, < 2 gallon storage, <200,000 BTU. ENERGY STAR Qualified
	Oil	Tank: 20-100 gallons, EF >= .067
	Indirect Fired	UL Approved
	Pipe Insulation	R-3
	Faucet Aerator	
Low Flow Shower Head	Maximum flow rate of 1.5 GPM	

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 installation of energy reducing products. 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. In order to ensure an approach to market that is consistent with the CEP objectives for demand savings and proper lighting design, CEP introduced the Prime Efficiency Partner network. All 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. In addition, only Prime Efficiency Partners may participate in the Fast Track program component.

In 2018, PSEG Long Island Commercial Efficiency Program proposes providing customer rebates for the following energy efficiency measures:

- Lighting
- HVAC (including Geothermal)
- Chillers
- Cool Roofs
- Refrigeration
- Variable Frequency Drives
- Custom (Including Combined Heat and Power and potentially Sub Metering)
- Custom Retrofit
- Technical Assistance (TA) Program:
 - LEED Certification and Points
 - ENERGY STAR® Labeled Buildings
 - Energy Engineering Study
 - C-Pace Audits
 - Targeted Performance Program

- Funding from a Memorandum of Understanding (MOU) between LIPA and NYSERDA will supplement the following new/enhanced offerings. Current robust rebates for geothermal systems are expected to remain at the present offerings, due to additional funding from NYSERDA.
- Targeted Performance Program
- C-Pace
- Combined Heat and Power
- Thermal Energy Storage

Notable Changes

The late 2016 introduction of Combined Heat and Power (CHP) rebates under the Custom program represents a significant change to the implementation of the PSEG Long Island CEP for 2018. Although the measure was introduced in 2016, because of the long lead-times associated with CHP projects, the program did not see any interest in participation until 2017. While only a handful of projects were preapproved, there is significant interest for 2018, so much so that the 2018 budget is likely to be significantly impacted by the introduction of CHP. With the potential significant impact to the 2018 budget, adjustments to the other CEP offerings will need to be made accordingly.

To meet the needs of small business customers, the Small Business Assessment Tool will be used by program personnel visiting small business customers in an effort to educate customers about energy efficiency and engage them with the rebate programs. Program personnel will walk through facilities with the customer and populate the tool on an electronic tablet. Recommendations and savings data will be calculated during the walk through, and the CEP will follow up by sending the customer a printed version of the relevant pages of the tool. The tool will provide customers with an energy usage profile, recommendations on energy efficiency upgrades, and a print out of the summary. To meet the needs of large business customers, a similar tool is under development, however the recommendations and associated summary will contain more detailed data and is presented in terms relevant for energy managers.

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. To ensure open communication with all contractors, 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.

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.

In addition to the weekly contractor meetings and trainings, Lockheed Martin hosts several contractor breakfasts, and updates throughout the year. On an annual basis, Lockheed Martin coordinates an Energy Efficiency conference. The objectives of the conference are to provide networking opportunities and seminars with industry leaders and customers on topics such as project successes, market trends, and emerging technologies. In 2016, 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 forum for building camaraderie with the lead partners that helped PSEG Long Island and Lockheed Martin achieve our goals, for networking with customers and lead partners, and for staying abreast of trends in the industry.

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.

Thermostat Program (Edge Program)

The Thermostat program is a pager based system which cycles the air conditioning compressor upon initiation of a curtailment signal.

The goal of the program is to run a curtailment on the peak demand day of the summer for both the entire state of New York (referred to as NYCA or the New York Control Area) and Long Island (The New York State Independent System Operator (NYISO) refers to Long Island as “Zone K”). There are about 30,000 customers enrolled in the Thermostat program.

No incentive is provided other than the pager system compatible thermostats which were provided to the enrollees.

Calling a curtailment coincident with the 2018 NYCA peak LIPA customers will receive a load reduction credit against the LI portion of the NYCA load in 2019. As a result of successful curtailments in 2016 LIPA accrued load reduction credits of \$1.6 M. This breaks out as approximately \$400K for NYCA and \$1.2M for Zone K. Both the overall and relative level of savings can fluctuate yearly based on forecasted changes in load, supply, locational requirements and pool reserve margin requirements. The credit calculations are performed by Electric System Operations (ESO).

Notable Changes

No significant program changes for 2018.

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 REV by providing price signals to encourage 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

In order 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 a number of 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 in order 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 in order 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 August 31, 2017.

Program	2017 Cumulative Customers	2017 cumulative MW Reduction	Curtailment Events (cumulative)
Smart Savers Program	7,100	7.1	4
CSRP	39	14	2
DLRP	39	14	2

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

	DLM Tariff Customer Enrollment 5 YR Forecast				
	2017	2018	2019	2020	2021
DLC MW Enrolled	9.9	17.9	27.9	39.9	51.9
CRSP MW Enrolled	13.1	15.1	18.1	21.6	25.1
DLRP MW Enrolled	13.1	15.1	18.1	21.6	25.1

Total MW Enrolled *	23	33	46	61.5	77
DLC Customer Payment	\$ 703,750	803,750	\$1,073,750	\$1,368,750	\$1,518,750
CRSP Customer Payment	\$338,920	\$415,820	\$495,420	\$591,620	\$690,320
DLRP Customer Payment	\$184,300	\$222,500	\$265,500	\$317,000	\$369,500
TOTAL	1,226,970	\$1,442,070	\$1,834,670	\$2,277,370	\$2,578,570

Behavioral Initiative (HEM)

This Home Energy Management Program will support statewide goals under Reforming the Energy Vision (REV) plan 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 RFP 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. This program should result in increased customer satisfaction, increased 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 foster the development of marketplace solutions which will induce deeper clean energy penetration and leverage greater private investments in such efforts. Expected outcomes 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,
- Increased customer satisfaction, as reflected by J.D. Power Electric Utility Residential Customer Satisfaction Study scores and program specific surveys.

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 LI expects the HEM Program to expand in 2017 to include a Marketplace offering where customers will have the ability to purchase equipment and potential services through a holistic customer engagement platform.

Clean Energy Community Program

Clean Energy Community Program is a statewide program and is an opportunity for PSEG Long Island to work jointly with the NYSERDA Communities & Local Government team to recognize and reward Long Island municipalities (cities, towns, villages, and counties) for their clean energy leadership through the NYSERDA Model Communities Program. Funding would be used for flexible project grants from PSEG Long Island to municipalities that complete four out of ten "high-impact" actions which include policies and projects that save money, create jobs, and improve the environment.

To participate in this program an applicant must demonstrate completion of four of the ten high-impact actions by submitting the requested documentation on-line.

The High Impact Actions:

- Benchmarking
- Clean Energy Upgrades
- LED Street Lights
- Clean Fleets
- Solarize
- Unified Solar Permit
- Energy Code Enforcement Training
- Climate Smart Communities Certification
- Community Choice Aggregation
- Property Assessed Clean Energy (PACE) Financing

Renewables

For 2018, PSEG Long Island will continue to serve as the local administrator of the Green Jobs-Green New York (GJGNY) and the NY-Sun Initiative, two NYSERDA programs that incentivize the installation of new solar electric systems in our territory. Residential customers are eligible for GJGNY loans (both On-Bill Recovery and Smart Energy Loans) and the NY-Sun Affordable Solar Incentives, which offers a \$0.20 per Watt incentive for up to 6kW of capacity for income-eligible customers. Non-residential customers are eligible for incentives for up to 500 kW system sizes. Non-residential incentives are based on the NY-Sun MW Block in effect at the time of application. New programs such as Community Distributed Generation and Remote Net Metering require the host solar systems to be interconnected through a commercial account. All new commercial host systems are eligible for the NY-Sun incentive to offset the cost of building the solar system. In addition to approving new incentive and financing applications, PSEG Long Island will continue to process incentive requests and release of loan requests for existing residential and non-residential projects in the pipeline.

Additionally, PSEG Long Island will locally implement NYSERDA's quality assurance program via photo inspections to ensure compliance with Code and NY-Sun Program standards. PSEG Long Island will also conduct post-installation field inspections of both residential and commercial systems that receive NY-Sun incentives or GJGNY loans, or are involved in a customer complaint. Renewables will continue to support both internal and external stakeholders in the

2018 EERE Plan



development of an approach to the Value of Distributed Energy Resources (VDER) and the implementation of Community Distributed Generation and Remote Net Metering. Renewables will also implement commercial solar outreach support with Major Accounts to educate multifamily buildings, schools, not-for-profits, and government buildings on how to benefit from available incentives and programs.

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 program as well as any ad-hoc evaluation studies that are deemed necessary.

Annual Evaluation of 2017 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 2017. Volume II of the 2017 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 2017 Energy Efficiency and Renewable Energy portfolio investments where the 10-year economic impacts accrue from measures installed in 2017 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.

2018 Ad-hoc Evaluation Studies:

Based on the discussions with PSEG Long Island, Opinion Dynamics Corporation had proposed several research efforts for 2017/18 timeframe in addition to the ongoing impact and process evaluation activities. These research efforts are designed to update PSEG Long Island's understanding of residential and commercial markets for energy-efficient products on Long Island. The results of these studies may be utilized as a baseline to assist in measuring program market effects and/or to plan for energy-efficient product offerings in the future. The below explains each research effort in details:

1. Residential and Commercial Potential Studies

Opinion Dynamics will develop a potential model that will estimate technical, economic, and achievable energy efficiency potential in the residential and commercial sectors on Long Island. The main objective is to estimate and determine energy efficiency opportunities by sector and key customer segments that will support the company's short- and long-term energy efficiency planning and program design. The study will also provide a wealth of supporting baseline information regarding:

- Long Island customer characteristics;
- Features of current energy-using equipment in place;
- Turnover rate of that equipment;
- Barriers and drivers to customer investment in energy efficiency over the study forecast period; and
- Demographic and Firmographic statistics

The studies will include a prioritized and targeted primary data collection strategy for each sector. Sector-specific inputs will include:

- Penetration, saturation, and characteristics of key equipment installed in homes and businesses on Long Island; and
- Information regarding customer decision-making criteria and market barriers to inform the development of Long Island-specific measure adoption curves.

The studies will include extensive primary data collection, including mail surveys, telephone surveys, and on-site visits. Mail surveys (residential) and on-site visits (residential and commercial) will be the primary sources of equipment characteristics and saturation data.

2. Monitoring & Verification for Custom Combined Heat and Power (CHP) Projects

The main objective of this effort is to confidently develop a baseline that will assist Opinion Dynamics in their annual evaluation efforts as CHP is fairly new for PSEG Long Island. Since CHP projects are expected to be more prevalent in the future and the rebate amounts are relatively large, it is important that the baseline is determined accurately and appropriately by collecting pre-install data. Below is the data collection plan that Opinion Dynamics plans to utilize to estimate the baseline electric and hot water load profiles for the three (3) pre-approved CHP projects:

- Verify the nameplate information on all impacted equipment through visual inspection and equipment specifications and mechanical drawings if available.
- Take spot measurements of chiller power consumption.
- Take spot measurements of the power consumption of associated chilled water pumps.

2018 EERE Plan



- Installation of metering equipment (DENT kW loggers, temperature loggers on the chilled water supply and return lines, current transducers on the chilled water pump motors) related to the existing electric chiller to estimate cooling load and chiller efficiency.
- Supplementary data collection and interviews with facility representatives to determine regular and seasonal operating patterns that might affect the savings extrapolation

When possible, ODC will utilize AMI data to supplement or replace the metering scope described above. The metering equipment will remain in the field for an average of four weeks during the summer.