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# Efficiency Long Island and Renewable Energy Portfolios

2014 Annual Evaluation Report  
(Volume I - Executive Summary)

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With Subcontractors:



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# 1. Introduction to Annual Report

This report presents the program evaluation results of PSEG Long Island's 2014 Efficiency Long Island Portfolio and Renewable Energy Portfolio conducted by the Opinion Dynamics Evaluation Team. The Efficiency Long Island and Renewable Energy Portfolios were administered by the Long Island Power Authority from inception through 2013. Effective January 1, 2014, PSEG Long Island began its 12-year contract assuming all day-to-day management and operations of the electric system, including planning, administration, design, and implementation of the Efficiency Long Island Portfolio and the Renewable Energy Portfolio. This assessment covers the period from January 1, 2014 to December 31, 2014.

The evaluation team produced two volumes that together comprise the entire Annual Evaluation report. This document, the *2014 Annual Evaluation Report (Volume I)*, provides an overview of evaluation findings, including impact and process results for 2014. The *2014 Program Guidance Document (Volume II)* provides detailed program-by-program impact analysis results, process evaluation findings, and a discussion of data collection and analytic methods. The Evaluation Team developed the *Program Guidance Document* with the needs of PSEG Long Island's program planners and managers in mind as the programs in the Efficiency Long Island Portfolio and the Renewable Energy Portfolio continue to be important and cost-effective resources.

## 1.1 Key Definitions

Below we provide definitions for key terms used throughout the report:

- **Gross Impacts:** The change in energy consumption and/or demand at the generator that results directly from program-related actions taken by participants, regardless of why they participated. These impacts include line losses, coincident factors for demand, and waste-heat factors and installation rate for lighting. Gross impacts are the demand and energy that power plants do not generate due to program-related actions taken by participants<sup>1</sup>.
- **Net Impacts:** The change in energy consumption and/or demand at the generator that results directly from program-related actions taken by participants and that would not have occurred absent the program. The only difference between the gross and net impacts is the application of the net-to-gross ratio (NTGR).
- **Net-to-Gross Ratio (Free-Ridership and Spillover):** The factor that, when multiplied by the gross impact, provides the net impacts for a program. Free-ridership reduces the ratio to account for those customers who would have installed an energy-efficient measure without the program. The free-ridership component of the NTGR can be viewed as a measure of naturally occurring energy efficiency, which may include efficiency gains associated with market transformation resulting from ongoing program efforts. Spillover increases the NTGR to account for those customers who install energy-efficient measures outside of the program (i.e., without an incentive), but due to the actions of the program.
- **Evaluated Net Savings:** The net savings attributed to the program for purposes of comparison to program savings goals. Evaluated net savings are determined by applying program planning assumptions for NTGR to the gross impact estimates determined by the Evaluation Team.

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<sup>1</sup> While this evaluation includes line losses and coincidence factors when estimating gross impacts, PSEG Long Island does not include these in its gross impact estimates.

- **kW (Demand or Capacity):** The average level of power used over an hour. Peak demand is the average power used across a 4-hour period when there is high use. For Long Island, peak demand takes place from 2:00 to 6:00 p.m., Monday through Friday (non-holiday), from June to August. System coincident demand is the level of demand at the hour of the day when there is the maximum demand on the system grid. Demand savings values in this report are system coincident demand impacts between 4:00 p.m. and 5:00 p.m. on non-holiday weekdays in from June to August.
- **kWh (Energy Consumption):** The total power consumed over an hour. Energy impacts are based on annual consumption.
- **Program Administrator Cost (PAC) Test:** A test that measures the net costs of an energy efficiency program as a resource option based on the costs incurred by the Program Administrator (including incentive costs) and excluding any net costs incurred by the participant. To allow for direct comparison with PSEG Long Island's assessment of all supply-side options, and consistent with previous evaluation reports, we applied the PAC test as the primary method of determining cost-effectiveness and used assumptions similar to those used by PSEG Long Island's resource planning team.
- **Total Resource Cost (TRC) Test:** A test that measures the net costs of an energy efficiency program as a resource option based on the total costs of the program, including both the participants' and the Program Administrator's costs. Incentive costs are not included in this test as they are assumed to be a societal transfer.
- **Discount Rate:** The discount rate is the interest rate used to calculate the present value of future payments (i.e., the avoided costs from energy and demand savings). PSEG Long Island uses a weighted average cost of capital (WACC) supplied by LIPA which represents the cost of borrowing to build additional capacity to meet the future supply needs of the service territory. Based on these factors, we used a nominal discount rate of 5.50% in the 2014 evaluation.
- **Levelized Cost of Capacity:** The equivalent cost of capacity (kW) to be incurred each year over the life of the equipment that would yield the same present value of total costs, using a nominal discount rate of 5.50% to be consistent with base load generation supply-side resources in the Long Island service territory. The levelized cost of capacity is a measure of the costs of the program to the administrator in a form that can be compared to the cost of supply additions.
- **Levelized Cost of Energy:** The equivalent cost of energy (kWh) over the life of the equipment that would yield the same present value of costs, using a nominal discount rate of 5.50%. The levelized cost of energy is a measure of the costs of the program to the administrator in a form that can be compared to the cost of supply additions.

## 2. Executive Summary

In 2014, PSEG Long Island continued to cost-effectively increase the savings realized from the Efficiency Long Island and Renewable Energy Portfolios. PSEG Long Island spent approximately \$82 million of the annual budget in these portfolios in 2014, and received an additional \$10.4 million in funding from the New York State Energy Research and Development Authority (NYSERDA) through the NY Sun Initiative for the Solar Pioneer and Entrepreneur programs (Solar PV programs), compared to an investment of approximately \$105 million in 2013. Despite this decrease in total spending, demand savings increased to 70.0 MW compared to 65.2 MW in 2013. Energy savings also increased to 298,210 MWh in 2014 compared to 294,373 MWh in 2013. The 2014 evaluated demand and energy savings from these portfolios exceeded the established goals by 16% and 5%, respectively. Key drivers of 2014 program performance include the following.

**Significant Growth in Solar Installations within the Renewable Portfolio:** The Solar Pioneer and Solar Entrepreneur programs continued to grow rapidly in 2014. In 2014, PSEG Long Island began implementing the NY Sun Initiative in the electric service territory and used \$10.4 million in funds from NYSEDA as part of the allocation of \$60 million by NYSEDA through the NY-Sun Initiative. This influx of additional funds allowed PSEG Long Island to continue to accept applications at a high rate throughout the year and not to slow or suspend the program due to budget constraints, as in previous years. In large part through this increase in funding, the Renewable Portfolio exceeded its MW and MWh goals by 232% and 227%, respectively. System installations more than doubled between 2013 and 2014 (1,625 to 3,408).

Growth in 2014 was also driven by residential leased systems, which removed the barrier of large upfront purchase costs of residential solar systems. With the authorization of residential solar leasing in late 2012, leased systems accounted for 66% of residential systems installed in 2014, up from 33% in 2013. Also, the cost of installing solar systems continued to decrease in 2014, further lowering financial barriers to customers.

**Increase in Sales of Efficient Lighting Products within the Efficiency Long Island Portfolio:** Taken together, lighting measures account for more than two thirds of all Efficiency Long Island demand savings and 86% of energy savings. As such, even small relative departures from the planned savings of lighting measures can have a significant impact on the overall performance of the portfolio.

In 2014, the Energy Efficient Products (EEP) program exceeded its demand savings goal by 31% and contributed more demand savings than any other energy efficiency program. Lighting products accounted for the vast majority of program sales and savings for the EEP program. Recent increases in the sale of LED lighting products have driven EEP program performance. CFLs have traditionally been the dominant source of lighting product sales and savings within the EEP program. However, in 2014, savings from LED products approached those realized from CFLs. Program sales of LED bulbs increased from less than 1% of bulbs sold through the program in 2010 to 26% in 2013 and again growing to 37% in 2014. In total volume, the program sold more than 940,000 LED fixtures and bulbs in 2014, accounting for 45% of all lighting demand savings.

Our evaluation found a similar trend in the share of savings associated with the installation of LED fixtures incentivized through the Commercial Efficiency Programs (CEP), as acceptance of LED lighting in the commercial market continued to increase. LED lamps and fixtures accounted for about 52% of all prescriptive and retrofit lighting savings through the CEP in 2014, up from about 42% in 2013 and 30% in 2012.

**Increased Savings from Efficient Pool Pumps:** An important factor in the performance of the EEP program in 2014 is the increased savings from energy-efficient pool pumps. In recent years, the program has focused on optimizing rebates and incentives and increasing its marketing to trade allies. As a result, the Pool Pump Program has gained considerable traction in the market, and the number of efficient pool pumps incentivized

## *Executive Summary*

through the program has increased substantially in the last 2 years. This measure now accounts for almost one-third of the program's evaluated demand savings, up from 7% in 2012 and 2% in 2010.

## 2.1 Summary of Portfolio Performance

The 2014 annual demand and energy savings goals were 60.3 MW and 283,084 MWh for the combined Efficiency Long Island and Renewable Energy Portfolios, as shown in Table 1. Combined evaluated net savings are 116% of the goal for demand and 105% of the goal for energy. PSEG Long Island exceeded the demand and energy goals at a total cost of approximately \$92.42 million, including the \$10.4 million which was provided directly by NYSERDA for solar incentives.

**Table 1. Net Impacts: Efficiency Long Island and Renewable Energy Portfolios Evaluated Impacts versus Goals**

Program	PSEG Annual ELI & Renewable Budget	ELI & Renewable Actual Cost	Coincident Demand Savings (MW)		Energy Savings (MWh)	
			Goal	Evaluated	Goal	Evaluated
<b>Commercial Efficiency Programs</b>	<b>\$47,070,127</b>	<b>\$41,787,796</b>	<b>31.07</b>	<b>27.18</b>	<b>129,323</b>	<b>118,150</b>
EEP	\$15,159,190	\$13,818,296	15.98	20.97	127,217	135,583
Cool Homes	\$8,332,485	\$6,861,698	4.36	5.52	4,736	5,064
Residential Energy Affordability Partnership (REAP)	\$3,163,090	\$2,692,384	0.70	0.14	1,750	995
Home Performance with ENERGY STAR® (HPwES)	\$1,279,858	\$1,468,946	0.43	0.45	328	352
Home Performance Direct (HPD)	\$3,666,668	\$3,283,598	1.37	1.23	3,866	2,821
<i>Existing Homes Subtotal</i>	<i>\$16,442,101</i>	<i>\$14,306,625</i>	<i>6.87</i>	<i>7.34</i>	<i>10,680</i>	<i>9,232</i>
ENERGY STAR® Labeled Homes (ESLH)	\$713,621	\$396,097	0.09	0.05	235	147
<b>Subtotal Residential</b>	<b>\$32,314,912</b>	<b>\$28,521,018</b>	<b>22.93</b>	<b>28.36</b>	<b>138,132</b>	<b>144,962</b>
<b>Subtotal Efficiency Long Island</b>	<b>\$79,385,039</b>	<b>\$70,308,815</b>	<b>54.00</b>	<b>55.55</b>	<b>267,455</b>	<b>263,112</b>
Solar Photovoltaic (including NYSERDA funds)	\$11,995,559	\$21,933,614	6.25	14.50	15,459	35,088
Backyard Wind	\$425,842	\$181,249	0.01	0.00	170	11
<b>Subtotal Renewable Energy</b>	<b>\$12,421,401</b>	<b>\$22,114,863</b>	<b>6.27</b>	<b>14.50</b>	<b>15,629</b>	<b>35,099</b>
<b>Total</b>	<b>\$91,806,440</b>	<b>\$92,423,678</b>	<b>60.27</b>	<b>70.04</b>	<b>283,084</b>	<b>298,210</b>

**Notes:**

1. Results do not include LIPAEEdge.
2. Actual costs are the expenditures necessary to obtain the energy and demand savings as reported in the Siebel system, and do not reflect the PSEG Long Island accrual accounting.
3. Solar Photovoltaic (PV) benefits and costs include \$10.4 million in rebates from NYSERDA's NY-Sun Initiative.

## Executive Summary

In 2014, PSEG Long Island spent just under \$82 million of its annual operating budget of \$91.8 million and \$10.4 million in solar incentives from NYSERDA implementing the Efficiency Long Island and Renewable Energy programs. Based on our analysis of portfolio impacts and costs, the savings generated by the portfolios are cost-effective. As shown in Table 2, the overall benefit/cost ratio, based on the:

- Program Administrator (PAC) cost test, is 3.6 for the combined portfolio savings. (A PAC value greater than 1 indicates that portfolio benefits outweigh costs.) and the levelized costs of the combined portfolio savings are \$153.24/kW-yr and \$0.04/kWh.<sup>2</sup>
- Total Resource Cost (TRC) cost test, is 1.3 for the combined portfolio savings and the levelized costs are \$420.73/kW/yr and \$0.11/kWh.

**Table 2. Efficiency Long Island and Renewable Energy Portfolios Cost/Benefit Ratio and Levelized Costs**

Program	Benefit/ Cost Ratio		PAC Levelized Costs		TRC Levelized Costs	
	PAC	TRC	\$/kW-yr	\$/kWh	\$/kW-yr	\$/kWh
<b>Commercial Efficiency Programs</b>	<b>3.2</b>	<b>2.4</b>	<b>184.09</b>	<b>0.04</b>	<b>248.82</b>	<b>0.06</b>
EEP	6.0	3.0	112.19	0.02	221.08	0.04
Cool Homes	2.1	0.8	157.80	0.20	394.42	0.51
Residential Energy Affordability Partnership (REAP)	0.2	0.2	3,027.06	0.43	3027.06	0.43
Home Performance with ENERGY STAR® (HPwES)	1.2	0.6	324.63	0.42	742.89	0.95
Home Performance Direct (HPD)	1.1	1.1	421.33	0.18	421.33	0.18
<i>Existing Homes Subtotal</i>	<i>1.4</i>	<i>0.8</i>	<i>246.81</i>	<i>0.19</i>	<i>456.95</i>	<i>0.36</i>
ENERGY STAR® Labeled Homes (ESLH)	0.7	0.8	746.71	0.27	661.03	0.24
<b>Subtotal Residential</b>	<b>3.7</b>	<b>1.9</b>	<b>157.00</b>	<b>0.03</b>	<b>297.63</b>	<b>0.07</b>
<b>Subtotal Efficiency Long Island</b>	<b>3.4</b>	<b>2.1</b>	<b>172.05</b>	<b>0.04</b>	<b>270.52</b>	<b>0.06</b>
Solar Photovoltaic (PV) (including NY-Sun Initiative)	4.5	0.7	112.80	0.05	736.01	0.30
Backyard Wind	0.0	0.1	N/A	1.27	N/A	0.57
<b>Subtotal Renewable Energy</b>	<b>4.4</b>	<b>0.7</b>	<b>113.73</b>	<b>0.05</b>	<b>736.42</b>	<b>0.30</b>
<b>Total</b>	<b>3.6</b>	<b>1.3</b>	<b>153.24</b>	<b>0.04</b>	<b>420.73</b>	<b>0.11</b>

**Notes:**

1. Benefit/cost ratio from PAC perspective using comparison to base load marginal supply costs. If ratio is greater than 1.0, program is cost-effective.
2. All levelized cost calculations use a discount rate of 5.50% to be consistent with supply-side alternatives.
3. Solar Photovoltaic (PV) benefits and costs include \$10.4 million in rebates from NYSERDA's NY-Sun Initiative.
4. Results do not include LIPAEdge.

An important catalyst in the decision to invest in the Efficiency Long Island and Renewable Energy Portfolios was the desire to offset the need to develop approximately 520 MW of new generating capacity on Long Island that was required to satisfy forecasted energy demand. As such, performance relative to the annual capacity savings goals is the primary performance metric for these programs. To allow for consistency and direct comparison between evaluated program performance and established savings goals, the Evaluation Team

<sup>2</sup> A levelized cost analysis is a way to quickly compare the cost of energy efficiency programs with energy or demand savings from other sources. Because levelized costs are expressed as \$/kW-yr and/or \$/kWh, they can be readily compared to the cost of alternative supply additions or the cost of generating electricity.

## *Executive Summary*

developed evaluated net savings estimates for each program within the Efficiency Long Island Portfolio and the Renewable Energy Portfolio, as shown in Table 2 and presented throughout this report, for purposes of assessing goal attainment. We calculated evaluated net savings by applying PSEG Long Island's planning assumptions for the net-to-gross factor to the gross demand and energy savings estimates determined through our evaluation.

Among other inputs, the benefit/cost assessment requires an estimate of ex post net program savings. The best-practice approach to this assessment dictates that the net savings used to develop the benefit/cost ratio reflect current levels of naturally occurring energy efficiency, free-ridership, and spillover to provide an estimate of the benefits associated with the current year's investment in the programs. As such, the evaluation team used net-to-gross factors derived from primary data collection with customers to develop the net energy savings estimates included in the benefit/cost ratio calculation and for lifetime levelized cost.

Including the NYSERDA funding, PSEG Long Island spent \$92.4 million on the Efficiency Long Island and Renewable Energy Portfolios in 2014, a 12% decrease in combined spending as compared to 2013. Despite this decrease in expenditures, PSEG Long Island realized a 7% increase in demand savings compared to 2013. Energy savings increased slightly (about 1%). Figure 1 presents a summary of the \$70.3 million spending related to implementation, management, and evaluation of energy efficiency programs in the Efficiency Long Island Portfolio by type of expenditure.<sup>3</sup> Figure 2 provides the detail for the \$22.1 million investment of PSEG Long Island and NYSERDA funds in the 2014 Renewable Energy Portfolio.

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<sup>3</sup> Rebates consist of payments made to participating customers. Incentives consist of payments made to participating contractors (e.g., HVAC installers). Customer Services consist of payments made to program implementers for direct installation (e.g., Lime Energy for Small Business Direct Install [SBDI]).

Figure 1. 2014 PSEG Long Island Expenditures for the Efficiency Long Island Portfolio

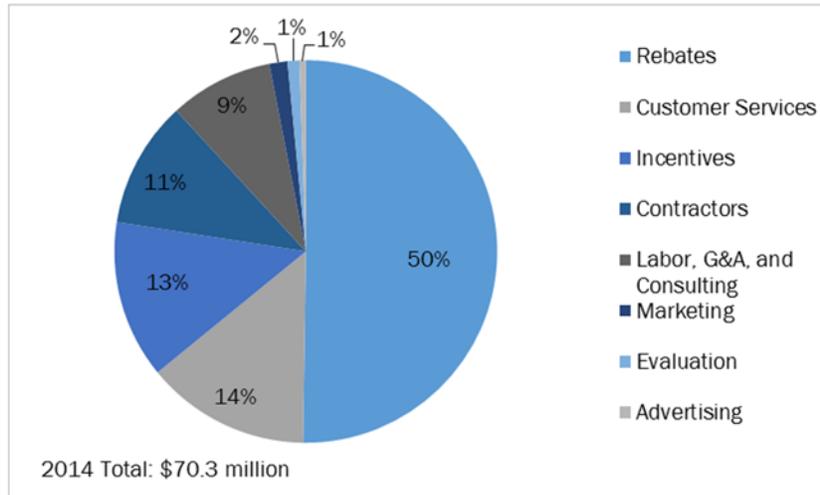
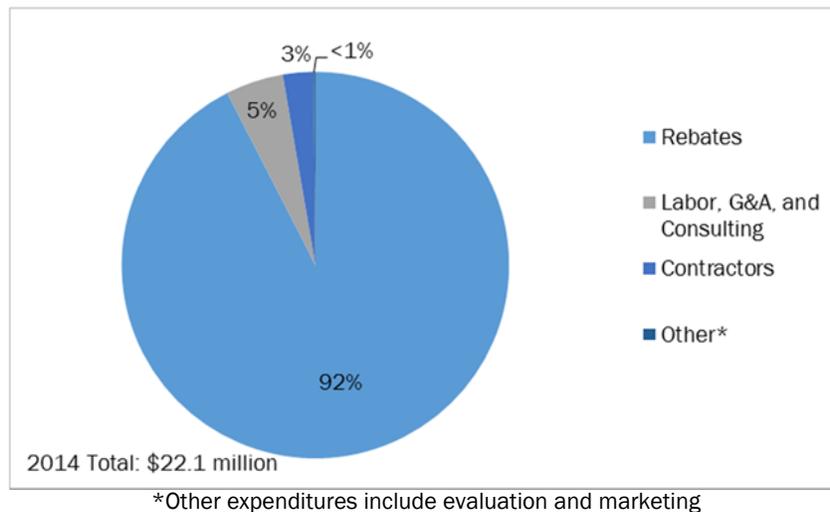


Figure 2. 2014 PSEG Long Island and NYSERDA Expenditures for the Renewable Energy Portfolio



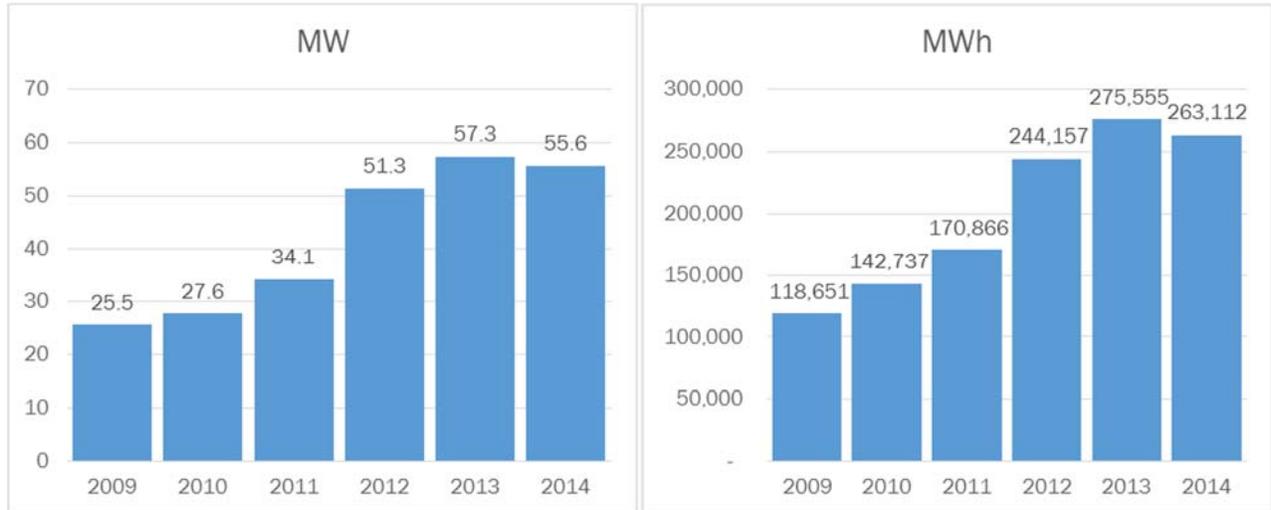
## 2.2 Efficiency Long Island Portfolio Evaluated Impacts

Overall, evaluated net savings from the Efficiency Long Island Portfolio included 55.6 MW of demand savings and approximately 263,000 MWh of energy savings. These energy savings resulted in the annual displacement more than 176,000 tons of CO<sub>2</sub>, 72 tons of SO<sub>2</sub>, and 124 tons of NO<sub>x</sub>. These environmental savings represent the equivalent of removing more than 33,500 cars from the road and a fuel savings of more than 372,000 barrels of oil.<sup>4</sup>

<sup>4</sup> Displacement savings values calculated using 2010 Long Island sub-regional emissions rates from the Ninth Edition of the US EPA's Emissions & Generation Resource Integrated Database (eGRID), Version 1.0. Equivalent savings values are based on the US EPA's Greenhouse Gas Equivalencies Calculator (updated April 2014).

In 2014, the Efficiency Long Island Portfolio exceeded its demand savings goal by 3%, but energy savings ended up short of the savings goal by 2%. Figure 3 presents the evaluated savings from the energy efficiency programs spanning the 6 years since the Efficiency Long Island Portfolio’s inception.

**Figure 3. 2014 Efficiency Long Island Portfolio Evaluated Net MW and MWh Savings**



Similar to previous years, there were variances between evaluated results and the established savings goals across programs. While the CEP fell short of its demand and energy goals, the shortfall in demand savings of 3.9 MW was more than offset by the residential programs exceeding their demand goals by 5.4 MW. However, in terms of energy savings, the residential programs together came in just over their goal, but this was not enough to make up for the shortfall in energy savings from commercial programs.

In total, the evaluated net savings for the CEP achieved similar savings as in 2013 and approached the annual savings goals, realizing 87% of the 2014 demand savings goal and 91% of the energy savings goal. In 2014, the CEP was composed of three different delivery components: CEP Mid-Market, Solution Provider/Large Business, and Small Business Direct Install (SBDI). The deficit in demand savings was due to both the SBDI program and the Solution Provider/Large Business program, which achieved 77% and 86% of the annual demand savings goals, respectively. The SBDI program was the primary driver for the deficit in energy savings, achieving 66% of its energy savings goal. The Mid-Market efficiency program came in just under its demand and energy goals for 2014, at 99% and 95%, respectively.

The EEP program accounts for the largest share of demand and energy savings among the residential programs, and its performance largely drives the overall performance of the residential portfolio. The EEP program surpassed its annual demand and energy savings goals, with evaluated net savings equal to 131% and 107% of goal, respectively.

Based on an analysis of portfolio impacts and costs, the savings generated by the Efficiency Long Island Portfolio are cost-effective. As shown in Table 3, the benefit/cost ratio, as calculated using the PAC test, is 3.4. The benefit/cost ratio using the TRC test is 2.1. In addition, the levelized costs for Efficiency Long Island Portfolio savings are \$172.05/kW-yr or \$0.04/kWh—less than the comparable marginal costs of supply-side alternatives.

**Table 3. Summary of 2014 Efficiency Long Island PAC Test, TRC Test and Levelized Costs**

Cost Effectiveness Test	Benefit/Cost Ratio	Levelized Cost (\$/kW-yr)	Levelized Cost (\$/kWh)
Program Administrator Cost (PAC)	3.4	172.05	0.04
Total Resource Cost (TRC)	2.1	270.52	0.07

## 2.3 Economic Impacts of the Efficiency Long Island Portfolio

As part of the annual evaluation, the Evaluation Team assessed the economic impacts of the Efficiency Long Island investments on the economy of Long Island. In 2011, and every year thereafter, we developed an Input-Output (I-O) model of the Long Island regional economy using IMPLAN modeling software to estimate these impacts. Central to the I-O model approach is the development of a static model for the effects of program spending based on a matrix of relationships among economic sectors, including industries, households, government, and foreign trade. The model requires inputs on spending, avoided cost, electric rates, and other parameters from PSEG Long Island, and draws on the net savings information included in the benefit/cost assessment. The Evaluation Team updated this model and its inputs for this 2014 evaluation.

As in previous years, we estimated 1-year and 10-year economic impacts associated with the 2014 Efficiency Long Island investment, where the 10-year economic impacts accrue from measures installed in 2014 over their remaining measure life. We then add these 1-year and 10-year economic impacts to the 2009–2013 estimates to develop a portfolio-to-date estimate (adjusted to 2014 dollars).<sup>5</sup>

As shown in Table 4, our analysis of economic benefits found that PSEG Long Island’s \$70.3 million investment in the Efficiency Long Island Portfolio in 2014 returned \$73.9 million in total economic benefits to the Long Island regional economy in 2014, including an additional 473 full-time equivalent (FTE) employees.<sup>6</sup> Over 10 years, these 2014 investments are expected to return \$160.9 million in total economic benefits to the regional economy (in 2014 dollars<sup>7</sup>), with an employment benefit of 1,166 new FTEs over the time period.

Extrapolating these results over the 6-year life of the portfolio, the \$330.9 million invested to date in Efficiency Long Island (\$367.8 million in 2014 dollars) produced approximately \$425.0 million<sup>8</sup> in cumulative economic benefits in each program year, with an employment benefit of 2,626 FTE employees. Over the 10 years following each program year investment, these 6-year investments are expected to return \$910.0 million<sup>9</sup> to the Long Island regional economy, and result in 5,993 additional FTEs between 2009 and 2023.

<sup>5</sup> We estimated the economic impact of the portfolio for the first 2 years of Efficiency Long Island implementation by extrapolating the economic impacts from 2011 (assuming similar multipliers of economic impact) to arrive at a portfolio-to-date estimate.

<sup>6</sup> Full-time equivalents represent the number of total hours worked divided by the number of compensable hours in a full-time schedule. This unit allows for comparison of workloads across various contexts. An FTE of 1.0 means that the workload is equivalent to a full-time employee for 1 year, but could be done, for example, by one person working full-time for a year, two people both working half-time for the year, or two people both working full-time for 6 months.

<sup>7</sup> Using the energy supply discount rate assumption of 5.50%.

<sup>8</sup> In 2014 dollars.

<sup>9</sup> In 2014 dollars.

**Table 4. Economic Impact of 2009–2014 Efficiency Long Island Portfolio Program Investments**

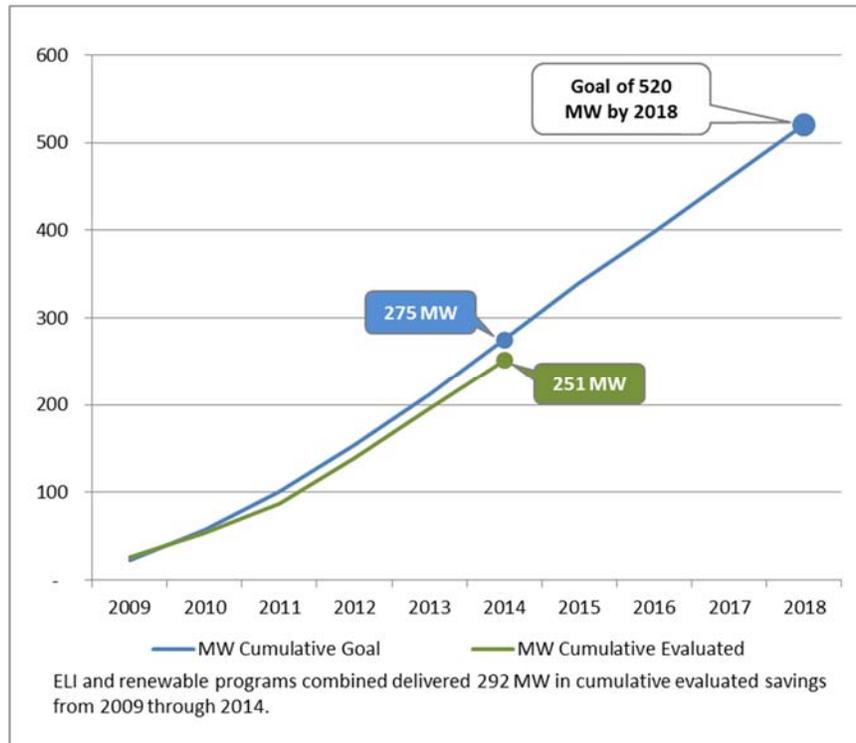
Effect	Impact of 2014 Program Investment		Impact of 2009–2014 Program Investment	
	First-Year Impact	Impact over 10 years*	First-Year Impact	Impact over 10 years*
Total Economic Output <sup>10</sup> (2014 \$1M)	\$73.9	\$160.9	\$425.0	\$910.0
FTE Employees	473	1,166	2,626	5,993

\* Includes the 10-year impacts for each program year beginning in that year.

## 2.4 Progress toward Long-Term Efficiency Long Island Portfolio Goals

In 2009, the Long Island Power Authority established aggressive annual and cumulative demand savings goals for the Efficiency Long Island Portfolio. Specifically, the goals call for a cumulative reduction of 520 MW in system coincident peak demand by 2018, as shown in Figure 4.

**Figure 4. Efficiency Long Island Portfolio Progress toward Demand Goal (MW)**



Since establishing these goals, the Efficiency Long Island investments continued to result in progress toward the long-range goal. The Efficiency Long Island Portfolio has achieved 91% of the cumulative demand savings goal in 2014, compared to 92% through 2013.<sup>11</sup> (It should be noted that the Long Island Power Authority's

<sup>10</sup> Total economic output is the value of industry production. In IMPLAN these are annual production estimates in producer prices.

<sup>11</sup> When the cumulative evaluated demand savings associated with the Renewable Energy programs since 2009 are added to Efficiency Long Island savings, the total cumulative evaluated demand savings increases to 292 MW.

Electric Resource Plan used a conservatively set expected value equal to 79% of the long-range goal for the Efficiency Long Island Portfolio in its capacity planning models)

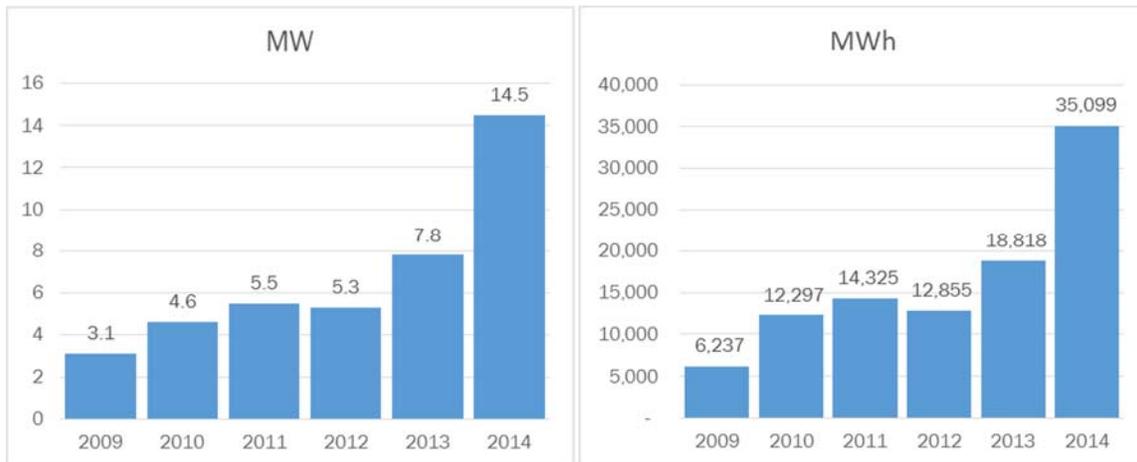
In 2014, the Efficiency Long Island portfolio realized 103% of its annual energy demand savings goals and spent approximately 89% of its budget.

## 2.5 Renewable Energy Portfolio Evaluated Impacts

In 2014, PSEG Long Island spent \$11.7 million of its operating budget plus the \$10.4 received through NYSEERDA on the Renewable Energy Portfolio. Of the \$22.1 million, \$21.9 million was for the Solar Pioneer and Entrepreneur programs and the remaining small amount went to the Backyard Wind program. Overall, the portfolio generated 14.5 MW of coincident demand and 35,099 MWh of energy. The Renewable Energy Portfolio resulted in an annual displacement of approximately 23,448 tons of CO<sub>2</sub>, 10 tons of SO<sub>2</sub>, and 17 tons of NO<sub>x</sub>. These environmental savings represent the equivalent of removing approximately 4,500 cars from the road and a fuel savings of almost 50,000 barrels of oil.<sup>12</sup>

The Renewable Energy Portfolio greatly exceeded its goals in 2014, achieving 231% of its net energy demand goal and 225% of its energy goal, while spending 178% of its budget (94% not including the NYSEERDA funding). The portfolio's performance was largely due to its rebate budget being supplemented with \$10.4 million from NYSEERDA's NY-Sun Initiative, as well as decreasing system and rebate costs per kW. Demand and energy savings from the Renewable Energy Portfolio increased over 2013 by 85% and 87%, respectively. The Solar Pioneer and Entrepreneur programs are the clear driver of portfolio performance, as the Backyard Wind program contributed only very limited savings and the Solar Hot Water program was discontinued after 2013.

Figure 5. 2014 Renewable Energy Portfolio Evaluated Net MW and MWh Savings



PSEG Long Island is the local administrator of the NY-Sun Initiative. Through the initiative, NYSEERDA provides incentives to expand the solar PV capacity in the state of New York and has committed \$60 million in total incentives for Long Island, consisting of 122 MW for residential systems and 58 MW for non-residential systems under 200 kW. The ultimate goal of the initiative is to promote market transformation in the state by creating a sustainable market not dependent on subsidies. To accomplish this, NYSEERDA created blocks of

<sup>12</sup> Displacement savings values calculated using 2010 Long Island sub-regional emissions rates from the Ninth Edition of the US EPA's Emissions & Generation Resource Integrated Database (eGRID), Version 1.0. Equivalent savings values are based on the US EPA's Greenhouse Gas Equivalencies Calculator (updated April 2014).

MW targets at specific incentive levels for each region of the state based on the maturity of the region’s solar PV market. When the MW target of each block is met, the block is closed and a new block with a new MW target and lower incentive level is opened until all blocks for the region are filled and the incentive is no longer offered.

The Evaluation Team also reviewed the cost-effectiveness of the Renewable Energy Portfolio. Based on an analysis of portfolio impacts and costs, the savings generated by the Renewable Energy Portfolio are cost-effective. As shown in Table 5, the PAC benefit cost ratio is 4.4<sup>13</sup>, which is a notable improvement of the 2013 value of 2.1. This increase in the PAC benefit/cost ratio for renewables in 2014 is due mainly to the decreasing system and rebate costs per kW of installed solar photovoltaics. The benefit/cost ratio using the TRC test is 0.7.

The 2014 levelized costs are \$113.73/kW-yr and \$0.05/kWh compared to \$239.18/kW-yr and \$0.10/kWh in 2013. It is important to note that these levelized costs do not include the lost revenue associated with net metering, which is consistent with the calculation of levelized costs for energy efficiency programs. We provide this value to allow for a direct comparison to the Efficiency Portfolio.

**Table 5. Summary of 2014 Renewable Energy PAC Test, TRC Test and Levelized Costs**

Cost Effectiveness Test	Benefit/Cost Ratio*	Levelized Cost (\$/kW-yr)	Levelized Cost (\$/kWh)
Program Administrator Cost (PAC)	4.4	113.73	0.05
Total Resource Cost (TRC)	0.7	736.42	0.30

\* Includes \$10.4 million from NYSERDA’s NY-Sun Initiative.

## 2.6 Economic Impact of Renewable Energy Portfolio

The 2014 evaluation also includes an assessment of the economic impact of investments in the Renewable Energy Portfolio on the economy of Long Island. The Evaluation Team developed an I-O model of the Long Island regional economy for the 2011 evaluation and updated the model inputs in each subsequent year. We estimated economic impacts associated with the PSEG Long Island’s 2014 investments, and then combined those results with our assessments of the prior five years of implementation of the Renewable Energy programs to arrive at a portfolio-to-date estimate.

As shown in Table 6, our analysis of economic benefits found that the combination of PSEG Long Island’s \$11.7 million budget in the Renewable Energy Portfolio in 2014 plus the additional \$10.4 million in funding through NYSERDA’s NY-Sun Initiative returned \$60.5 million in total economic benefits to the Long Island regional economy in 2014, including an additional 411 FTEs. Over the 10-year period, these 2014 investments are expected to return \$95.9 million in total economic benefits to the regional economy (2014 dollars<sup>14</sup>), with an employment benefit of 705 new FTEs.

<sup>13</sup> Includes \$10.4 million from NYSERDA’s NY-Sun Initiative.

<sup>14</sup> Using the energy supply discount rate assumption of 5.50%.

Extrapolating these results over the 6-year life of the portfolio, the \$144 million investment in Renewable Energy programs to date (\$165.9 million in 2014 dollars) produced approximately \$189.7 million<sup>15</sup> in cumulative economic benefits in each program year, with an employment benefit of 1,157 FTE employees. Over the 10 years following each program year investment, these 6-year investments are expected to return approximately \$299.8 million<sup>16</sup> to the Long Island regional economy and result in 1,960 additional FTEs between 2009 and 2023.

**Table 6. Economic Impact of 2009–2014 Renewable Energy Program Investments**

Effect	Impact of 2014 Program Investment		Impact of 2009–2014 Program Investment	
	First-Year Impact	Impact over 10 Years*	First-Year Impact	Impact over 10 Years*
Total Economic Output <sup>17</sup> (2014 \$1M)	\$60.5	\$95.9	\$189.7	\$299.8
FTE Employees	411	705	1,157	1,960

\* Includes the 10-year impacts for each program year beginning in that year.

Spending on PSEG Long Island’s Renewable Energy Portfolio resulted in much greater benefits to the Long Island economy in the 2014 program year than in 2013. This difference is primarily driven by the substantially increased number of solar systems installed through the Solar Pioneer program that were supported through the additional \$10.4 million in funding received through NYSERDA’s NY-Sun Initiative. The portfolio also continued to benefit from the falling price of PV modules.

## 2.7 Key Themes for Continued Success

The Efficiency Long Island and Renewable Energy Portfolios continued to demonstrate strong performance in 2014, providing substantial capacity and energy savings in a cost-effective manner and combined exceeding the established goals for demand and energy savings. To continue to make progress toward the long-range savings goals, to maintain overall portfolio performance, and to build on the historical success of the Efficiency Long Island and Renewable Energy programs, PSEG Long Island must continue to identify and consider emerging issues and challenges to success in its planning, budgeting, implementation, and management decisions. Below we provide an overview of the performance of the Efficiency Long Island and Renewable Energy programs for the 2014 evaluation cycle and identify challenges that the Evaluation Team identified that warrant attention in the future.

### COMMERCIAL EFFICIENCY PROGRAMS

#### OVERVIEW OF PERFORMANCE

PSEG Long Island’s CEP Mid-Market and Solution Provider/Large Business programs together achieved about 90% of their combined demand savings goal and 98% of the combined energy savings goal. The shortfall in savings associated with the CEP with respect to goals is in part due to lower-than-expected performance of the SBDI program and a mid-year reduction in spending on Mid-Market and Large Business projects to manage the budget and maximize energy and demand savings. Despite the reduction in program spending and

<sup>15</sup> In 2014 dollars.

<sup>16</sup> In 2014 dollars.

<sup>17</sup> Total economic output is the value of industry production. In IMPLAN, these are annual production estimates in producer prices.

## *Executive Summary*

associated energy savings, the levelized costs of these programs were lower in 2014 (\$184.09) than in 2013 (\$200.93).

Based on our interviews with the program staff and a review of the tracking data, the Evaluation Team concluded that the program continues to benefit from a proven implementation structure; a solid foundation of rigorous data capture, transfer, and tracking; and a procedure-driven delivery process with thorough QA/QC. The Siebel data tracking system continued to be the core data entry and tracking system for CEP. With the exception of a few new LED product offerings, equipment offerings remained largely unchanged in 2014. Rebate amounts for many measures decreased in 2014 from their levels in 2013.

Program staff indicated that promotion of the CEP through trade ally outreach continued to be the main vehicle for marketing the Mid-Market and Solution Provider/Large Business programs in 2014. While the program is heavily reliant on lighting, the lighting product offerings continue to transition to LED products in response to rapid changes in the lighting market. In 2014, LED lamps and fixtures accounted for more than half of all prescriptive and retrofit lighting savings. In addition, despite being offered for the first time in 2014, LED Tubes, which can instantly replace fluorescent tube lighting with no changes to the ballast or fixture, and LED retrofit kits gained considerable traction within the program.

In August 2014, the contract with TRC for the Solutions Provider/Large Business program component expired and PSEG Long Island began implementing the program among its large managed accounts. PSEG Long Island leveraged established processes and, throughout the transition, was able to maintain program delivery and, according to staff, maintain customer-facing functions. According to the program staff, while there were a few temporary bottlenecks associated with access to the tracking database on the back end, all customer-facing interactions transitioned seamlessly.

Changes in program processes are continuing in 2015, as Lockheed Martin, a subcontractor to PSEG Long Island, has taken over the design and implementation of CEP. As part of this transition, the Siebel tracking system will be replaced by Lockheed Martin's proprietary LM Capture database in 2015. In addition, at PSEG Long Island's recommendation, the SBDI program was discontinued at the end of March 2015. As these changes have been and are being implemented, program staff believe the CEP program is well positioned to meet its 2015 goals.

## **POTENTIAL CHALLENGES FOR THE FUTURE**

### ***LIGHTING***

There are several potential challenges that could hinder the CEP's goal achievement in the future. The core challenge is the program's heavy reliance on lighting measures (a challenge we note is not unique to CEP, but is endemic to commercial lighting programs across the nation). In 2014, over 80% of the program's energy and demand savings were from lighting measures. Federal regulations phasing out T12s in 2012 will affect the savings that PSEG Long Island can claim as part of lighting retrofits. Increasing prominence, customer interest, and rapid reduction in prices for LED lighting products is likely to contribute to an increase in naturally occurring adoption of LED technology in the commercial sector. Understanding the state of the market and market dynamics while strategically adjusting the portfolio's offerings will be critical for the program's continued success from a net savings perspective. In addition, to accurately reflect net program savings, particularly given the steady increase in savings from LED lighting, it will be necessary to update the planning assumptions and evaluated net-to-gross factors for the CEP program such that they stay abreast with these changes.

### **ELIMINATION OF THE SBDI PROGRAM**

In 2014, the SBDI program accounted for 16% of the CEP demand savings and 8% of the ELI Portfolio demand savings in 2014. These savings are anticipated to be taken up by other CEP programs. With the understanding that small businesses make up a significant and unique portion of the commercial market on Long Island, the Evaluation Team conducted a market traction study for the SBDI program in 2012. This study showed that SBDI-eligible customers have very different characteristics from other commercial customers. Small business customers have a unique set of barriers to participation, namely, lack of time and resources to dedicate to investigation and implementation of energy-efficient improvements, and having a turnkey program for this customer group is beneficial. At present, the Evaluation Team questions the degree to which the CEP Mid-Market program can absorb the SBDI program participants. The Evaluation Team believes that through effective targeting of program resources, the SBDI model has the benefit of addressing capacity-constrained areas, which is a stated priority for PSEG Long Island.

### **TRANSITION TO LOCKHEED MARTIN**

Organizational and operational challenges may arise as the commercial programs are transferred to PSEG Long Island's subcontractor, Lockheed Martin, in 2015. As new program staff are added and roles and responsibilities change, PSEG Long Island will need to make efforts to ensure the effective transfer of institutional knowledge of the programs. In addition, in transitioning from the Siebel data tracking system to Lockheed Martin's LM Capture system, data transfer and processing issues may arise, resulting in implementation bottlenecks. Implementing a staggered transition to LM Capture, providing thorough training on the new system, carefully documenting the data entry and processing steps, and developing QA/QC protocols will help eliminate possible issues and make the transition to LM Capture seamless to customers and ensure the system is capable of providing the data required to support planning and evaluation activities.

## **RESIDENTIAL EFFICIENCY PROGRAMS**

### **OVERVIEW OF PERFORMANCE**

Collectively, the residential portfolio of programs provided substantial demand and energy savings in 2014 that were largely driven by the EEP and Cool Homes programs. In 2014, the EEP program exceeded its demand and energy goals by 27% and 2%, respectively. The Cool Homes program, next largest in terms of savings, exceeded its demand and energy goals by 26% and 7%, respectively. Together, the EEP and Cool Homes programs accounted for 93% of the evaluated demand savings from the residential programs in 2014.

While the Home Performance with ENERGY STAR® (HPwES) program met its goals, the remaining residential portfolio programs—Residential Energy Affordability Partnership (REAP), Home Performance Direct (HPD), and ENERGY STAR® Labeled Homes—were all below their demand and energy goals.

### **POTENTIAL CHALLENGES FOR FUTURE**

#### **LIGHTING**

The performance of the EEP program largely drives the overall energy and demand performance of the residential portfolio. Within the EEP program, CFLs savings account for a substantial proportion of savings. The CFL market is evolving and the baseline efficiency of incandescent bulbs will increase going forward due to code changes introduced as part of the Energy Independence and Security Act (EISA) of 2007. EISA required the phasing out of inefficient 100-watt incandescent light bulbs beginning in 2012, 75-watt incandescent bulbs in 2013, and 60-watt and 40-watt incandescent bulbs in 2014. While we anticipate that CFLs will remain

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an important part of the residential portfolio into the future, they will gradually yield lower savings per unit as the wattages that the CFLs replace increase. PSEG Long Island has worked to adjust the portfolio to accommodate this reduction in CFL savings and has significantly increased the share of Solid State Lighting products (LEDs) through the program in recent years.

Research in other jurisdictions has shown that this baseline efficiency of lighting products is not necessarily moving in real time with the effective dates of the EISA standards. Some retailers have lingering pre-EISA stock on their shelves, and some lighting manufacturers may not be complying with the EISA requirements, as there is no enforcement of the provisions of the act. Given the importance of residential lighting as a source of savings, monitoring the actual baseline lighting efficiency on Long Island will be critical to understanding energy savings associated with EEP lighting and to inform future revisions in program strategy. The Evaluation Team recommends primary research to establish and track baseline efficiency values by lumen category in the future. In addition, given the recent and ongoing changes to both the lighting market and the products offered by the EEP program, the Evaluation Team recommends conducting research to update net-to-gross values on residential lighting measures.

### **ROOM AIR CONDITIONERS**

Research conducted by the Evaluation Team on Long Island in 2013 revealed that the market for room air conditioners and dehumidifiers has essentially transformed such that the vast majority of units for sale are ENERGY STAR® qualified. Based on this research, PSEG Long Island discontinued its rebates for these products for the 2014 program year. Federal efficiency standards for room air conditioners tightened in 2014, and in late 2015, ENERGY STAR® version 4.0 specifications for room air conditioners will increase the accepted combined energy efficiency ratio (CEER) base rating across all room air conditioners. These new ENERGY STAR® version 4.0 criteria may decrease the share of qualifying models and increase market share for non-ENERGY STAR® units. As such, PSEG Long Island should monitor market trends moving forward and consider reinstating rebates for these higher energy-efficient products as they come into the marketplace.

### **POOL PUMPS**

The EEP program has experienced substantial increases in the number of energy-efficient pool pumps rebated over the last 2 years such that ENERGY STAR® pool pumps now account for about 30% of the EEP program evaluated demand savings. The Evaluation Team based the current savings estimates for pool pumps on the ENERGY STAR® savings calculator assumptions. While we deemed this source to be the most current and appropriate for the 2014 evaluation effort, the savings values may not reflect the actual use conditions on Long Island. To the extent that pool pumps are expected to account for a larger share of program demand savings, additional Long Island-specific measurement and verification on pool pump energy use and research on operation and net-to-gross may be warranted.

### **GEOTHERMAL HEAT PUMPS**

Geothermal systems represent a significant opportunity for energy savings, and PSEG Long Island is making efforts to increase the installation of these systems on Long Island. As a result, PSEG Long Island expects to see more geothermal heat pumps installed through the Cool Homes program in the coming years. The Evaluation Team recommends that PSEG Long Island conduct research that will aid in long-term planning of the geothermal heat pump component of the Cool Homes program. No research has been conducted on the free-ridership rate and efficiency baseline for these systems in the Long Island electric service territory, nor is there research on establishing the most effective incentive levels. Given that geothermal installations are significantly more expensive than air-source heat pumps (ASHPs) and traditional central air conditioning (CAC)

systems, an ongoing education effort combined with a higher/more-effective incentive level may be key elements to growing the geothermal component of the Cool Homes program.

## **RENEWABLE ENERGY PORTFOLIO**

### **OVERVIEW OF PERFORMANCE**

The Renewable Energy Portfolio greatly exceeded its goals in 2014, driven by continued decreases in PV system prices, the demand for leased residential solar systems, and the influx of \$10.4 million from NYSERDA's NY-Sun Initiative. Past research conducted by Opinion Dynamics found that, since their inception, the Solar Pioneer and Entrepreneur Programs have promoted the development of a renewable energy industry on Long Island by helping increase consumer awareness and availability of and demand for solar energy. The programs have effectively developed a strong photovoltaic market infrastructure on Long Island and a knowledgeable trade ally base. With this market in place, the combination of the influx of leased systems, which accounted for 64% of total installations in 2014, spurred additional demand and resulted in strong growth and program participation in 2014. The program's shift to implementing the NY-Sun Initiative with its associated \$60 million allocated to the Long Island electric service territory also fostered growth in the market, as it allowed PSEG Long Island to continue to accept applications at a high rate throughout the year and not to slow or suspend the program due to annually-set budget constraints, as in previous years. Through the NY-Sun Initiative PSEG Long Island will continue to foster market transformation and create a sustainable market.

In 2014, PSEG Long Island discontinued the Solar Hot Water program due to low participation. In addition, after operating for 5 years, PSEG Long Island is discontinuing the Backyard Wind program in 2015, also due to low participation, including no new turbine installations in 2014.

### **POTENTIAL CHALLENGES FOR THE FUTURE**

PSEG Long Island has implemented NYSERDA's NY-Sun Initiative since August 2014. While providing many benefits to Long Island's electric customers (including the \$60 million in funding provided by NYSERDA), implementing the NY-Sun Initiative may present some challenges. Unlike the Solar Pioneer Program, in 2014 the NY-Sun Initiative was capacity-based not performance-based, meaning that rebates are provided based on the size of the system in kW, not its actual output. As such, the systems installed under the NY-Sun Initiative may not be optimally sited, limiting both actual energy generation and peak period generation. To encourage the installation of higher output systems, the NY-Sun Initiative updated its requirements in 2015 to reduce incentives for systems with shading and orientation losses above 20%. However, further research should be conducted to monitor the actual output of newly installed systems.

By implementing the NY-Sun Initiative, PSEG Long Island has relinquished some control over the application and approval process and how data are tracked, which could make it more difficult to change the statewide processes thus potentially making it more difficult to address concerns or delays for customers and contractors.

Notably, the NY-Sun and the Solar Pioneer programs are both designed to build infrastructure and long-term confidence in the solar PV marketplace with the goal of achieving sustainable market transformation on Long Island, not simply the acquisition of peak capacity reductions. The NY-Sun Initiative is designed to incrementally reduce rebates as customer choices within the market (e.g., system lease, remote net metering, community aggregation, etc.) emerge, the market grows, and the installed costs of systems fall. Funding for solar PV system rebates through the NY-Sun initiative is expected to end on Long Island within the next two to three years. Per the program theory, it is assumed that, at that time, the market for solar PV systems will have been transformed through the combined programmatic efforts of the Long Island Power Authority, PSEG Long

Island, and NYSERDA, and rebates will not be required to sustain the PV marketplace on Long Island. Given that solar PV accounts for 100% of the renewable energy capacity reductions realized by PSEG Long Island, the loss of solar PV funding, and the associated savings garnered by the NY-Sun Initiative, present a challenge for the future. To maintain similar levels of capacity relief, PSEG Long Island will require additional research and should continue efforts to identify emerging renewable energy technologies around which new market transformation programs can be developed, and/or other energy efficiency program designs and strategies.

### 3. Impact Results

This section presents the evaluated net energy and demand impacts for the Efficiency Long Island and Renewable Energy Portfolios.

#### 3.1 Efficiency Long Island Portfolio Impacts

##### **ENERGY AND DEMAND IMPACTS**

The portfolio of Efficiency Long Island programs performed well in 2014, achieving similar evaluated net savings as those of 2013, exceeding its stated demand goals for the year, and delivering considerable energy and demand savings to electric customers on Long Island. Specifically, the Efficiency Long Island Portfolio accounted for almost 56 MW and approximately 263,000 MWh in total evaluated net savings for 2014. This represents approximately 97% of evaluated net demand and 95% of evaluated net energy savings compared to 2013 results, which were approximately 57 MW and 276,000 MWh. As shown in Table 7, the portfolio reached 103% of its net demand and 98% of its net energy savings goals. The 2014 goal was 54.00 MW. and after a rigorous evaluation, we find evaluated net savings of 55.55 MW.

**Table 7. Net Impacts: Efficiency Long Island Portfolio Evaluated Savings versus Goals**

Program	2014 Net Savings Goals		Evaluated Net Savings		Percent of Goal	
	MW	MWh	MW	MWh	MW	MWh
CEP Mid-Market	7.02	28,454	6.95	27,142	99%	95%
Solution Provider/Large Business	18.53	75,107	15.97	74,084	86%	99%
Direct Install	5.52	25,762	4.27	16,924	77%	66%
<b>Total Commercial</b>	<b>31.07</b>	<b>129,323</b>	<b>27.18</b>	<b>118,150</b>	<b>87%</b>	<b>91%</b>
EEP	15.98	127,217	20.97	135,583	131%	107%
Cool Homes	4.36	4,736	5.52	5,064	126%	107%
REAP	0.70	1,750	0.14	995	20%	57%
HPwES	0.43	328	0.45	351.76	105%	107%
HPD	1.37	3,866	1.23	2,821	90%	73%
ESLH	0.09	235	0.05	147	60%	62%
<b>Total Residential</b>	<b>22.93</b>	<b>138,132</b>	<b>28.36</b>	<b>144,962</b>	<b>124%</b>	<b>105%</b>
<b>Efficiency Long Island Total</b>	<b>54.00</b>	<b>267,455</b>	<b>55.55</b>	<b>263,112</b>	<b>103%</b>	<b>98%</b>

Consistent with the design of the Efficiency Long Island Portfolio, for the third consecutive year the CEP account for about half of total evaluated net demand savings of the Efficiency Long Island Portfolio. At the portfolio level, CEP achieved 87% of the combined 2014 net demand savings goal and 91% of the net energy savings goals. Driven by the success of the EEP program, the residential efficiency programs performed

## Impact Results

exceptionally well, achieving 124% of their combined demand savings goals and 105% of their combined energy savings goal.

Within the CEP offerings portfolio, the CEP Mid-Market program performed well, achieving 99% of its goal for demand savings and 95% of its goal for energy savings. The Solution Provider/Large Business program achieved 86% of its demand and 99% of its energy savings goals, while ultimately accounting for more than half of the annual evaluated demand and energy savings of the commercial portfolio. The SBDI program fell short of its projected demand and energy goals for the second year in a row, at 77% of its demand and 66% of its energy savings goals.

The EEP program continues to account for the largest portion of energy and demand savings within the residential programs, and performance of this program has a substantial impact on the ability of the portfolio to achieve savings goals. The continued success of the EEP program significantly contributed to the strong overall performance of the residential efficiency programs in 2014.

## 3.2 Renewable Energy Portfolio Impacts

### ENERGY AND DEMAND IMPACTS

Through PSEG Long Island's \$11.7 million spend plus \$10.4 million in funding through NYSERDA's NY-Sun Initiative the portfolio of Renewable Energy programs exceeded both its net demand and energy goal, achieving 231% and 225% of these goals, respectively. The performance of the portfolio is driven by the performance of the Solar PV programs, as shown in Table 8.

The Backyard Wind program includes carryover savings from 2012 and 2013, but did not achieve any new installs in 2014. There continues to be strong performance in the Solar PV programs, which was aided by the additional funding provided in 2014 as part of the allocation of \$60 million by NYSERDA through the NY-Sun Initiative.

**Table 8. Net Impacts: Renewable Energy Portfolio Evaluated Savings versus Goals**

Program	2014 Net Savings Goals		Evaluated Net Savings		Percent of Goal	
	MW	MWh	MW	MWh	MW	MWh
Solar PV	6.25	15,459	14.50	35,088	231%	227%
Backyard Wind	0.01	170	0.00	11	0%	6%
<b>Total Renewable</b>	<b>6.27</b>	<b>15,629</b>	<b>14.50</b>	<b>35,099</b>	<b>231%</b>	<b>225%</b>

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