

DEEP RETROFIT PAY FOR PERFORMANCE (P4P) PROGRAM



Seattle City Light

PROGRAM SUMMARY

Participants:	<ul style="list-style-type: none"> ✓ Non-residential existing building customers with 50,000 square feet or more of conditioned space, OR that use about 15% more energy than a typical building of the same type; ✓ Must have access to at least hourly or 15-minute interval energy usage data at the building level; and ✓ Must demonstrate stable building energy use over the past year.
Customers are incentivized to:	<ul style="list-style-type: none"> ✓ Leverage the flexibility enabled by the program to pursue creative, long-term, and holistic solutions to achieve building-level energy savings as demonstrated at the electric meter. ✓ Incorporate energy efficiency solutions across multiple building systems.
Incentive structure:	<p>Two options for financial incentives (capped at 70% of total project cost):</p> <ul style="list-style-type: none"> a) incentives paid annually over a three-year performance period at a flat rate of \$0.08/kWh for total savings; or b) incentives paid annually over a five-year performance period for incremental savings at a rate of \$0.18/kWh or higher for any savings achieved greater than 15% (up to \$0.34/kWh for energy savings of 50% or more)
Support provided to customers:	<p>A detailed program manual and step-by-step project workbook are publicly available, and interested participants consult with Seattle City Light's energy advisors for customized technical support in applying and reporting to the program.</p>
Impact:	<p>P4P is expected to help participants achieve about 15-20% energy savings.</p>

Seattle City Light's (SCL's) Pay for Performance (P4P) Program,¹ launched in 2018 (after a limited version was piloted from 2013 to 2016), offers technical support for retrofits of existing buildings alongside one of two financial incentive options that reward demonstrated building energy savings at the meter. SCL's service area includes all the City of Seattle and portions of some surrounding cities.²

¹ Seattle City Light (2020), [Deep Retrofit Pay for Performance](#)

² In addition to the City of Seattle, SCL's service area includes portions of the cities of Burien, Tukwila, SeaTac, Shoreline, Lake Forest Park and Renton, as well as portions of unincorporated King County. Seattle City Light (2020), [Electric Service Representative Assignments](#)

Participants generally follow these steps to complete the program:

1. Apply to the program with an energy efficiency project plan for implementing energy conservation measures (ECMs). Create a baseline model report that estimates the typical energy consumption of the building without any new ECMs implemented. The projected savings from the planned capital improvement ECMs must be more than 15% of the modeled baseline energy consumption.
2. Commence implementation of the ECMs.
3. Carry out the performance phase, which must begin no later than 12 months after the start of ECM implementation. During the performance phase, the participant:
 - ✔ Continues to implement the ECMs;
 - ✔ Provides quarterly reports on ECM progress and any other non-routine events; and
 - ✔ Reports on weather-normalized³ energy savings annually based on models that are continually updated using energy data from both the baseline and the annual performance periods.

INCENTIVES

A whole-building performance-based incentive structure provides the customer flexibility in choosing efficiency solutions, while delivering greater certainty of energy savings for the utility.

Systems Efficiency Benefits. Because the program rewards savings calculated from actual energy consumption data collected at the building's meter – rather than prescribing a specific type of ECM – the customer has significant freedom in choosing the combination of energy efficiency solutions that is most appropriate for their building while maximizing energy savings. Participants must incorporate energy efficiency solutions across multiple building systems, and the performance-based incentive structure enables participants to do so through:

- ✔ Motivating customers and energy service companies (ESCOs), or other implementers with whom customers may contract, to pursue holistic solutions that achieve deeper, multi-systems-level energy savings in order to achieve greater financial rewards.
- ✔ Providing a simple solution – tracking building energy consumption – to assess the impacts of multi-systems-level strategies, which are typically more complex to evaluate than the impacts of a traditional equipment upgrade.
- ✔ Streamlining the process for applying and reporting on progress of multiple ECMs, which is much simpler than navigating multiple rebate programs for different types of building equipment.

“On the whole, participants feel that P4P gives them good options and allows the utility to engage them in a more sophisticated way. It’s a more nuanced conversation where we say ‘what is the long-term plan and how can we help?’”

–Colm Otten, Program Manager,
Solution Design and Management,
Seattle City Light

The requirement that customers have access to at least hourly or 15-minute interval energy usage data at the building level encourages good energy management practices and eases the process for SCL to administer incentives; it also has co-benefits for systems-based approaches. Encouraging increased granularity in monitoring total building energy consumption can provide greater insights into the impacts

³ SCL’s weather-normalization is based on the third edition of Typical Meteorological Year (TMY3) data, as published by the [National Renewable Energy Laboratory](#).

of improved systems efficiency, which cannot be demonstrated at an individual equipment level. For example, participants in past lighting efficiency programs in Seattle have voiced concerns that upgrading to LEDs (highly efficient bulbs that emit less heat) may increase their winter heating loads, even though they may decrease cooling loads. Interval meters provide electricity use data at a finer time resolution to give insight into how different systems are performing. For example, a regression model can compare hourly whole-building energy use with operating hours and heating or cooling degree-days to tease out the effects of ECMs for lighting versus HVAC systems.

Customer Benefits. Two incentive structures offer different benefits depending on the participant’s needs.

1. The three-year performance period, also known as the persistence path, offers a flat incentive rate of \$0.08/kWh for cumulative savings over the course of three years relative to the baseline set at the beginning of the application process. This path may work best for customers that prioritize a steady and predictable flow of cash.
2. The five-year performance period, also known as the tiered path, offers \$0.18/kWh for incremental savings realized over the course of five years. The savings are assessed incrementally, rather than cumulatively, because the baseline is reset each year to increase the level of savings required each year to receive more incentive payments. In other words, the incremental savings achieved in year two would be based on year two’s baseline, and would not include the savings achieved during year one (which would be related to year one’s baseline). The incentive rate is set according to the depth of savings achieved at the end of the performance year, as described in Table 1. This path may work best for customers that can achieve deeper energy savings or those who wish to spread out the implementation of ECMs over multiple years.

Table 1. SCL’s P4P Five-Year Path Incentive Rates

Savings level at the end of the performance year	Up to 14.99%	15-19.99%	20-24.99%	25-29.99%	30-34.99%	35-39.99%	40-44.99%	45-49.99%	50-100%
Incentive paid on incremental savings (per kWh)	\$0.18	\$0.20	\$0.22	\$0.24	\$0.26	\$0.28	\$0.30	\$0.32	\$0.34

Utility Benefits. The P4P program shifts risks away from the utility and ratepayers by providing incentives for actual measured savings, rather than for modeled/predicted savings. Many utilities across the U.S. provide incentives based on “deemed” or predicted savings. However, there is always some level of uncertainty in projected savings because buildings may not perform as designed. Under a P4P-type program, there is less risk for the utility, in terms of both power capacity-building and costs, because the financial incentives are assigned based on realized savings.⁴ The administrative support required for the

⁴ Nevertheless, the assessment of realized savings is based on the development of an accurate baseline energy model, and there is always some level of inherent risk in accuracy associated with modeling. SCL takes steps to mitigate these risks by following guidelines that are consistent with the BPA Verification by Energy Modeling Protocol, the BPA Regression for M&V Reference Guide, International Performance Measurement and Verification Protocols Option C, and ASHRAE Guideline 14. Additionally, savings are weather-normalized to the [National Renewable Energy Laboratory’s TMY3 data](#).

program is also more easily justified because it involves the facilitation of rewards for actual savings achieved. Demonstrated successes and lessons learned from programs like SCL's P4P Program can help shift other utility programs toward performance-based frameworks.

CUSTOMER SUPPORT

Program staff fills technical gaps for customers while ESCOs provide both efficiency expertise and financial support.

Technical support from SCL staff. SCL holds participants accountable for assigning dedicated team leads at their buildings to ensure that measurement and verification systems are maintained and that the participants maximize both the financial and technical benefits of the program. Participants consult with SCL energy advisors throughout the application process to help address knowledge gaps and modeling challenges. If a participant does not have access to experts who can maintain accurate baseline or performance models, SCL can produce the baseline and performance models and conduct measurement and verification on their behalf.

For additional support, SCL also publicly posts program information on its website, including:

- A detailed program manual⁵ titled “Deep Retrofit, Pay for Performance: A How-to Guide & User Manual for Commercial Customers.” This guide walks participants through every phase of the process and provides guidelines on measurement and verification practices.
- A step-by-step project workbook⁶ that standardizes and simplifies the reporting process.

ESCO services. Customers often consult with ESCOs to help them take full advantage of the P4P Program. ESCOs provide expertise in holistic solutions, which often offer greater energy savings compared to simple equipment upgrades, but also involve more complexity in design and implementation. ESCOs can help customers bundle multiple systems-level solutions and navigate the different returns on investments (ROI) for different ECM bundles, considering the incentives available from the P4P Program. Some ESCOs negotiate guaranteed savings contracts to reduce the risk for the building owner.

The ESCOs within SCL's service territory are often familiar with multiple SCL incentive programs, so ESCOs also can provide recommendations on the utility program that provides the best fit for the customer. In fact, ESCOs' consistent experience with finding significant energy savings potential for their customers was part of the impetus behind creating a P4P Program that could help customers realize deeper savings.

LOOKING FORWARD

SCL aims to increase participation in the P4P Program.

SCL has crafted the P4P program to align with Washington State's upcoming building performance standards. Customers can use the P4P program to get accustomed to setting whole building energy performance goals and achieve those goals, which will help early adopters of the new standards.

⁵ Seattle City Light (2018), [Deep Retrofit Pay for Performance, A How-To Guide & User Manual for Commercial Customers](#)

⁶ Seattle City Light (2018), [P4P Deep Retrofit Project Workbook](#)

There were three participants in the program as of December 2019. To further expand the program, SCL is considering offering an aggregation option, through which an owner of multiple buildings can bundle more than one metered building into the program and then assess savings and streamline participation across the bundled building portfolio, which may increase the participation of smaller buildings in the program.

Contact:

Colm Otten, Senior Energy Management
Analyst, Customer Energy Solution,
Seattle City Light
colm.otten@seattle.gov | 206-727-3576