

**PUBLIC UTILITY COMMISSION OF OREGON
STAFF REPORT
PUBLIC MEETING DATE: May 31, 2022**

REGULAR CONSENT EFFECTIVE DATE June 1, 2022

DATE: May 23, 2022

TO: Public Utility Commission

FROM: Nick Sayen

THROUGH: Bryan Conway, JP Batmale, Sarah Hall **SIGNED**

SUBJECT: PORTLAND GENERAL ELECTRIC:
(Docket No. ADV 1389/Advice No. 22-07)
Revises nonresidential direct load control pilot in Schedule 25 and extends pilot through 2025.

STAFF RECOMMENDATION:

Approve Portland General Electric's (Company or PGE) Advice No. 22-07, authorizing revisions to Schedule 25.

DISCUSSION:

Issue

Whether the Oregon Public Utility Commission (Commission) should approve revisions to PGE's nonresidential direct load control pilot, which include updating incentives, adding new conditions to clarify operation of the pilot, increasing the enrollment cap, and extending the pilot through May 31, 2025.

Applicable Rule or Law

In Order No. 20-152, the Commission acknowledged PGE's 2019 IRP action item 1 B to achieve 141 MW (winter) and 211 MW (summer) of aggregate demand response capacity by 2025.

In Order No. 22-115, the Commission chose not to approve the two-year budget for Energy Partner Smart Thermostat, and instead chose to wait to receive the detailed pilot proposal provided in this filing.

ORS 757.205 requires public utilities file to all rates, rules, and charges with the Commission.

ORS 757.210 establishes a hearing process to address utility filings and requires rates be fair, just, and reasonable.

ORS 757.220 provides that no change shall be made in any schedule, except upon 30 days' notice to the Commission prior to the time the changes are to take effect.

OAR 860-022-0025 requires that filings revising tariffs include statements showing the change in rates, the number of customers affected and resulting change in annual revenue, and the reasons for the tariff revision.

Analysis

This memo discusses background and challenges of the Schedule 25 Nonresidential Direct Load Control Pilot and summarizes the Company's proposed changes as presented in Advice No. 22-07. The memo concludes with Staff's recommendation to approve the Company's filing.

Background

Schedule 25, the nonresidential direct load control pilot (Pilot), became effective December 1, 2017, as a compliment to Schedule 26, the nonresidential demand response pilot.¹ The Schedule 25 pilot is now known as the Energy Partner Smart Thermostat (EPST) pilot.² EPST currently provides participants smart thermostats and installation, at zero cost. The Pilot also provides a seasonal per-participating-thermostat incentive to allow PGE to adjust the temperature setpoint of thermostats, curtailing load from electric HVAC systems during demand response events.

As of March 2022, EPST has enrolled approximately 2,100 thermostats at more than 750 sites. EPST achieved 1.23 MW of demand reduction in the summer and 1.29 MW of demand reduction in the winter.³ By 2030, the market potential for EPST is forecast to reach nearly 25 MW of capacity in summer and over 12 MW of capacity in the

¹ See Docket No. UM 1514, Order No. 17-429, <https://apps.puc.state.or.us/edockets/orders.asp?OrderNumber=17-429>.

² In order to avoid confusion please note the following: the Schedule 26 nonresidential demand response pilot is known as Energy Partner; PGE offers a residential direct load control pilot through Schedule 5 that is marketed as the Smart Thermostat Program.

³ Staff met with the Company on March 29, 2022, as it was developing this filing. PGE presented program data at that time.

winter.⁴ PGE notes in this filing that commercial thermostats represent the largest resource in the supply-curve of Flex Load products that is not currently cost effective.⁵ Further, EPST represents an opportunity to engage small- to medium-sized businesses in contributing to PGE and the State's clean energy goals. This market has historically been difficult reach with cost effective programs.

Pilot challenges

PGE filed Advice No. 20-35 on November 12, 2020.⁶ The filing proposed extending the EPST termination date from December 31, 2020 to May 31, 2022, and reducing the cap on the number of participating thermostats from 10,000 to 3,800 to align with the Pilot's scaled-back implementation plan. These changes were in response to challenges Pilot had encountered. These challenges were discussed in Staff's memo, and included the following:

- Delayed rollout. While Schedule 25 became effective in December 2017, PGE did not begin installing thermostats in the Pilot until 2019.
- Lack of conclusive evaluation results. The Pilot's first evaluation was filed November 5, 2020, but performance data was sparse due to the small number of enrolled thermostats in summer 2019 and the lack of called events resulting from mild weather in winter 2019-2020.⁷

However, by late 2020 the Company had installed over 1,100 thermostats and requested the extension in order to apply learnings from upcoming evaluations, and to gain experience with additional winter and summer seasons. Staff found that the Pilot had achieved participation volume adequate to test learning objectives, and the extension was necessary to allow sufficient data to be collected and evaluated over consecutive demand response event seasons. Staff recommended approval of the filing. On December 29, 2020, the Commission approved PGE's Advice No. 20-35.⁸

⁴ See Docket No. ADV 1389, Initial Utility Filing, Attachment A, p. 4, PGE cites to the distributed energy resource forecast in its Distribution System Plan (DSP) Part 1 filing, <https://apps.puc.state.or.us/edockets/edocs.asp?FileType=UAA&FileName=uaa134710.pdf>.

⁵ See Docket No. ADV 1389, Initial Utility Filing, Attachment A, p. 3, <https://apps.puc.state.or.us/edockets/edocs.asp?FileType=UAA&FileName=uaa134710.pdf>.

⁶ See Docket No. ADV 1195, Initial Utility Filing, <https://apps.puc.state.or.us/edockets/DocketNoLayout.asp?DocketID=22635>

⁷ See Docket No. ADV 1195, Staff Report, <https://apps.puc.state.or.us/edockets/edocs.asp?FileType=HAU&FileName=adv1195hau123220.pdf>.

For the November 2020 evaluation see Docket No. UM 1514, PGE's Energy Partner Evaluation, <https://apps.puc.state.or.us/edockets/edocs.asp?FileType=HAH&FileName=um1514hah155829.pdf>.

⁸ See Docket No. ADV 1195, <https://apps.puc.state.or.us/edockets/DocketNoLayout.asp?DocketID=22635>

During the Pilot extension, PGE enrolled additional thermostats in EPST and ran the Pilot through several more winter and summer seasons. The Company separated the operations of EPST and the Schedule 26 nonresidential demand response pilot and conducted a thorough analysis of EPST.

EPST was included in PGE's Flexible Load Multi-Year Plan filed in November 2021.⁹ However, the analysis of EPST was not complete and Staff recommended not approving the Pilot's two-year budget proposed in the Flexible Load Multi-Year Plan. Staff recommended instead waiting for completion of the EPST analysis and the resulting detailed proposal that PGE committed to submitting which would justify extending the Pilot beyond its then expiration date. The Commission adopted this recommendation in Order No. 22-023.¹⁰

PGE completed the analysis of EPST in early 2022, resulting in this filing. The analysis revealed a number of problematic issues which PGE discusses in Attachment A of this filing.¹¹ Staff summarizes these below:

- Prior to March 2022, EPST was unable to review reliable event results until third-party evaluation reports were completed following the conclusion of the season. Several individual challenges contributed to this overarching issue:
 - Throughout most of the past tariff cycle, EPST's demand response management system (DRMS) did not have a baseline set to measure thermostat performance. This meant that curtailment values reported out of the DRMS were inaccurate and unusable. PGE worked with its implementer and the DRMS vendor to select and implement a baseline methodology effective July 2021.
 - The DRMS software used average peak time event kW impact to calculate system load reduction during events. In February 2022, the Pilot began using HVAC system data to calculate load reduction accurately, rather than the estimated kW impact per system per event.
 - The DRMS did not have a method for reporting event results out for PGE's use. PGE worked with its implementer and the DRMS vendor to develop and finalize in March 2022 an event report with thermostat-level performance information.

⁹ See Docket No. UM 2141, Flexible Load Multi-Year Plan 2022-2023, p. 70, <https://apps.puc.state.or.us/edockets/edocs.asp?FileType=HAD&FileName=um2141had16243.pdf>

¹⁰ See Docket No. UM 2141, Order No. 22-023, <https://apps.puc.state.or.us/edockets/orders.asp?OrderNumber=22-023>.

¹¹ See Docket No. ADV 1389, Initial Utility Filing, Attachment A, Section 6, p. 4, <https://apps.puc.state.or.us/edockets/edocs.asp?FileType=UAA&FileName=uaa134710.pdf>.

- During the summer 2021 season, one of the thermostat manufacturers incorrectly reported thermostat performance data and associated event curtailment values. This affected over half of the thermostat fleet. The thermostat manufacturer provided a corrected dataset to EPST that allows accurate retroactive calculations of event performance. Effective March 2022, the DRMS' new event report addresses this issue so accurate event performance is available for upcoming seasons.
- Up to 546 thermostats at 89 customer sites with multiple PGE meters may be associated with the incorrect meter. Mis-association of meters may result in sites showing zero reduction during events since the meter data is not necessarily reflecting HVAC load at the site. For each participant with more than one meter, the EPST implementer is analyzing load data to identify the meters that should be linked to thermostats and used for evaluation. This project is scheduled to complete in April 2022.
- From the inception of the Pilot to summer 2021, the EPST marketing plan was focused on delivering a high volume of thermostat installations. However, after research and study, marketing and outreach is now focused on identifying and engaging customers with a propensity to participate in EPST, and to contribute capacity during events.

Staff is disappointed to learn of such fundamental issues occurring in a Pilot operating for well over two years. Staff also appreciates PGE's thorough Pilot review and candor in describing the issues and the challenges they presented. Staff is relieved the Company has corrected these operational issues or will do so in the coming months.

The analysis of EPST also revealed a problematic financial issue, summarized below:

- Prior to January 2021, EPST administration costs were combined with the Schedule 26 pilot; cost effectiveness of a standalone EPST pilot was unknown.
- Once modeled on its own, EPST cost effectiveness in 2021 was 0.54 from a Total Resource Cost (TRC) perspective, with no Value of Service Lost.

Summary of Proposed Changes

PGE proposes the changes below to improve the cost effectiveness of EPST.

1. Adding a participant copay

Currently EPST participants are offered unlimited thermostats installed at the participant's business at zero cost. PGE proposes that participants shall be charged a \$60 copay per installed thermostat under the direct installation channel. PGE proposed in the Initial Utility Filing that the copay would be \$50 per installed thermostat under the

direct installation channel.¹² However, Staff found an inadvertent omission in the tariff language related to the copay. As a result, PGE filed a supplemental filing on May 19, 2022, that included tariff language stating the copay may be up to \$60 per installed thermostat. PGE confirmed to Staff via email that the copay amount would be \$60. Staff supports this change as it improves EPST cost effectiveness and is a reasonable cost for participants in exchange for both a new smart thermostat, and installation.

2. *Shifting the basis of the seasonal incentive*

EPST currently provides participants a \$60 per-participating-thermostat incentive for each event season participated in. For example, if a participant had five thermostats at two sites and participated in the summer and winter season, the incentive would be \$600 (five thermostats X \$60 X two seasons). PGE proposes shifting the incentive to \$60 per site for each event season participated in. Using the same example as above, the incentive would be \$240 (two sites X \$60 X two seasons). Staff notes that for participants having more than one thermostat per site this change would result in an incentive reduction.

PGE states in this filing that a 2021 participant satisfaction survey indicated the highest value is derived from a free thermostat upgrade, installation provided by the Pilot, the flexibility to opt out of events, and a commitment to contributing to a clean energy future. The seasonal incentive was not one of the highest values. Staff supports this change as it improves EPST cost effectiveness and seems unlikely to have a detrimental effect on participation.

3. *Adding a Trade Ally referral channel*

EPST currently utilizes a direct installation delivery channel. PGE proposes to maintain this channel but add a Trade Ally referral channel. Through this approach PGE will partner with HVAC companies and the Company will provide incentives to the HVAC firms to provide leads of eligible customers who have qualifying thermostats installed at their business. PGE will then perform outreach directly to these customers to encourage enrollment in EPST and participation of their previously installed thermostats in the Pilot. Participants will be eligible for ongoing seasonal incentives. Staff understands the incentives provided to the HVAC companies to be less than the cost of a standard direct installation. As such, Staff supports this change as it improves EPST cost effectiveness.

¹² See Docket No. ADV 1389, Initial Utility Filing, Attachment A, p. 2, <https://apps.puc.state.or.us/edockets/edocs.asp?FileType=UAA&FileName=uaa134710.pdf>.

4. *Increase the enrollment cap*

PGE proposes to increase the EPST enrollment cap from 3,800 to 7,000 thermostats. The increased cap will accommodate 1,350 annual new thermostat installations through the direct installation channel, plus trade ally referrals. New customers must be enrolled in the Pilot in order to test the efficacy of the customer copay, revised seasonal incentive, trade ally referral incentive, and use of the marketing and outreach study to identify customers most likely to participate.

5. *Extend the Pilot through May 31, 2025*

PGE proposes to extend the Pilot from May 31, 2022 to May 31, 2025. Staff supports this change to provide time to implement and evaluate the significant Pilot changes PGE proposes in this filing.

6. *Miscellaneous tariff language changes*

PGE proposes miscellaneous language additions in the tariff, including adding a definition for Qualified Site, and a special condition stating the Company shall have the right to pre-heat or pre-cool as part of a direct load control event. The supplemental filing on May 19, 2022, proposes adding a definition for Direct Installation, adding a special condition stating the Company may enable existing thermostats at customers' sites to enroll them in the Pilot, and eliminating special conditions related to the Non-Ducted HVAC System Thermostat Demonstration, as this demonstration is no longer occurring. Staff supports these changes.

Projected cost effectiveness

PGE states that as a result of the revamped Pilot design that includes the operational improvements and proposed changes discussed above, the Pilot's cost effectiveness is projected to be 1.02 from the TRC perspective. PGE stated in the Initial Utility Filing a cost effectiveness from the TRC perspective projected to be 1.15.¹³ However, PGE explained to Staff via email that after submitting the filing, the Company revised the annual installation forecast to a more conservative rate. This resulted in a TRC of 1.02. The utility provided electronic workpapers demonstrating these calculations. Staff reviewed these workpapers and they appear reasonable and accurate; the lower TRC is reflected therein.

¹³ See Docket No. ADV 1389, Initial Utility Filing, Attachment A, Section 6, p. 5, <https://apps.puc.state.or.us/edockets/edocs.asp?FileType=UAA&FileName=uaa134710.pdf>.

Budget

This filing states that the EPST budget will be reported in the Schedule 25 deferral reauthorization filing due June 1, 2022. However, for the purposes of estimation, Staff notes the Company proposed a two-year \$2.8M budget for EPST in November 2021, as part of the Flexible Load Multi-Year Plan.¹⁴

To satisfy the requirements of OAR 860-022-0025, PGE states in this filing:

The proposed revisions to Schedule 25, Nonresidential Direct Load Control Pilot, do not increase, decrease, otherwise change existing rates, or impact revenues; costs are being deferred in UM 1514 for later ratemaking treatment.

Pilot cost recovery

The Commission has authorized the deferral of incremental EPST costs and recovery through an automatic adjustment clause, Schedule 135.¹⁵ At the next occurrence that PGE seeks amortization of deferred costs, Staff recommends a prudence review that addresses certain Pilot challenges related to:

- The EPST DRMS, and the limited functionality it delivered to the Pilot, and
- The mis-association of thermostats with incorrect PGE meters (service point ID), affecting approximately 25 percent of enrolled thermostats.

Conclusion

The issues and challenges EPST has encountered are substantive. Despite these setbacks PGE is bullish on this Pilot:

PGE is confident that the pilot is now inherently stable and primed for a strategic pivot to a model that is cost effective, focused on delivery to customers able to deliver value to the pilot, and capable of measuring energy savings capacity during Peak Time Events.

Staff is encouraged by this sentiment but will be focused in the coming years on properly evaluating whether the Pilot is viable to continue long-term as a mature program. In the interim, Staff finds that PGE's proposed revisions to the nonresidential direct load control pilot and progress addressing EPST's issues, combined with its long term market potential, merit approval of this filing.

¹⁴ See Docket No. UM 2141, Flexible Load Multi-Year Plan 2022-2023, Table 4, p. 22, <https://apps.puc.state.or.us/edockets/edocs.asp?FileType=HAD&FileName=um2141had16243.pdf>.

¹⁵ See Docket No. UM 1514, Order No. 21-421, <https://apps.puc.state.or.us/edockets/orders.asp?OrderNumber=21-421>.

Docket No. ADV 1389
May 23, 2022
Page 9

PROPOSED COMMISSION MOTION:

Approve PGE's Advice No. 22-07, authorizing revisions to Schedule 25.

CA3 Docket No. ADV 1389