

**PUBLIC UTILITY COMMISSION OF OREGON
STAFF REPORT
PUBLIC MEETING DATE: September 22, 2020**

REGULAR CONSENT EFFECTIVE DATE October 1, 2020

DATE: September 14, 2020

TO: Public Utility Commission

FROM: Kacia Brockman

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

SUBJECT: PORTLAND GENERAL ELECTRIC:
(Docket No. ADV 1097/Advice No. 20-25)
Requests Extension to Multifamily Residential Water Heater Demand
Response Pilot, Schedule 4.

STAFF RECOMMENDATION:

Approve Portland General Electric Company's (PGE or Company) request to extend the Multifamily Residential Water Heater Demand Response Pilot, Schedule 4, from September 30, 2020, to January 31, 2021, in order to complete installations that were delayed due to the COVID-19 pandemic.

DISCUSSION:

Issue

Whether the Commission should approve PGE's request extend the Multifamily Residential Water Heater Demand Response Pilot to January 31, 2020, to provide PGE four additional months during which to install water heater control devices, while following safety protocols to protect customers and workers during COVID-19.

Applicable Law

Oregon Revised Statutes (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

Summary

In this Advice Filing, PGE requests a four-month extension to the Multifamily Residential Water Heater Demand Response Pilot in order to complete installation of water heater control devices it has already procured. Due to COVID-19, installations were stopped altogether in second quarter 2020, and then later resumed, but at a slower pace to accommodate new safety protocols. PGE reports that, at the new pace of installations, all previously procured control devices can be installed prior to the proposed new pilot expiration date of January 31, 2021.¹ No tariff changes other than the expiration date are included in the Advice Filing.

This memo provides brief background on the pilot, an update on pilot results, and progress toward the pilot's potential transition to a full program.

Background

PGE's Multifamily Residential Water Heater Demand Response Pilot allows PGE to reduce peak load by curtailing load from up to 10,000 domestic water heaters retrofitted with demand response control devices. The pilot operates under Schedule 4, which was originally approved by the Commission in June 2017.² In the pilot, PGE installs demand response control devices on existing water heaters and pays incentives both to the owners or managers of participating multifamily residences and to the tenants who reside in those properties and don't opt out of participating.

The pilot's research objectives include: 1) integrate and test different technologies; 2) implement different demand response dispatch strategies; 3) determine appropriate incentive levels for customers; and 4) quantify energy consumption that can be shifted to different times.³ The pilot's original capacity goal was 0.5 kW of peak load reduction per water heater in each demand response event.⁴

¹ PGE advised Staff of the delays and need to extend the pilot in a meeting August 20, 2020.

² See UM 1827, Order 17-224, June 27, 2017.

³ See PGE Advice No. 19-33, page 2, filed November 25, 2019.

⁴ See UM 1827, Application for Deferred Accounting of Costs Associated with the PGE Demand Response Water Heater Pilot, April 18, 2017, page 5.

The pilot was originally authorized for 30 months, from July 1, 2017, to December 31, 2019. PGE faced a number of early implementation challenges and the pilot started slowly and performed poorly in its first evaluation, filed November 1, 2019.⁵ After PGE resolved two critical barriers that impeded generation of statistically significant event data (poor Wi-Fi connectivity and mismatch between timing of events called and AMI data collected), the Commission granted a 3-month extension of the pilot to March 31, 2020. The extension allowed time for additional evaluation results to confirm PGE's progress with the pilot. At that time the Commission also authorized an increase in the number of participating water heaters from 8,000 to 10,000 in order to install more cell-enabled control devices, which have better connectivity rates than Wi-Fi-enabled devices.⁶ The second evaluation, filed February 12, 2020, showed marked improvement in the pilot results.⁷ The Commission then granted a 6-month extension to September 30, 2020, to allow PGE time to develop its Flexible Load Plan and plan next steps for the pilot.⁸

In a meeting with Staff on August 20, 2020, PGE alerted Staff of implementation delays due to the COVID-19 pandemic. PGE reported that it had planned to install the additional 2,000 control devices it had procured, resulting in a total of 10,000 installed units, prior to September 30, 2020. However, installation work necessarily stopped during Q2 2020 due to Oregon's COVID-19 stay-at-home order.⁹ The control devices are physically installed on existing water heaters, requiring a technician to enter customers' homes. Later, PGE adapted its installation practices to help protect both the residents and the technician from virus transmission and resumed installations. However, given the slower pace of installations under COVID-19, PGE anticipates that it needs until the end of January 2021 to install the remaining 2,000 control units. It is for this reason that PGE submitted this Advice Filing requesting a third short-term extension of the pilot to January 31, 2021.

⁵ See ADV 1067, Staff Report, December 17, 2019.

⁶ *Ibid.*

⁷ See UM 1827, Multifamily Residential Demand Response Water Heater Pilot Evaluation for the Summer 2019 Demand Response Season, filed February 12, 2020.

⁸ See ADV 1097, Staff Report, March 23, 2020.

⁹ See Oregon Executive Order No. 20-12, March 23, 2020.

Pilot Results to Date

Three successive pilot evaluations have been conducted after each of three successive demand response event seasons, beginning with winter 2018-2019.^{10,11,12} Evaluation results from the current summer 2020 event season will be filed in May 2021.

In an email to Staff on September 8, 2020, PGE reported the following key findings from the most recent evaluation, which covers the winter 2019-2020 season:

- Nearly all events produced statistically significant demand reductions that are measurable in the AMI data.
- Connectivity rates averaged 91 percent for the season which is a 16 percent increase from summer 2019.
- Controllability rates for Wi-Fi-enabled devices improved from 46 percent to 58 percent. Controllability rates for cell-enabled devices averaged 67 percent.

In that same email, PGE provided the information in the following table, which demonstrates that the impact results of the first three event seasons are trending in the right direction.

Metric	Seasonal average per event		
	Winter 2018-2019	Summer 2019	Winter 2019-2020
Percentage of water heaters connected	64%	75%	97%
Percentage of water heaters controlled	36%	46%	62%
Total demand reduction (kW)	0	107	621
Demand reduction per controlled water heater (kW)	-0.04	0.15	0.35

¹⁰ See UM 1827, Multifamily Residential Demand Response Water Heater Pilot Evaluation, filed November 1, 2019. This evaluation covers the winter 2018-2019 demand response season.

¹¹ See UM 1827, Multifamily Residential Demand Response Water Heater Pilot Evaluation, filed February 12, 2020. This evaluation covers the summer 2019 demand response season.

¹² See UM 1827, Multifamily Residential Demand Response Water Heater Pilot Evaluation, filed August 14, 2020. This evaluation covers the winter 2019-2020 demand response season.

Potential for Pilot-to-Program Transition

The significant changes in pilot results from season to season, as shown in the table above, indicate that the Multifamily Residential Water Heater Demand Response Pilot is not yet mature. Consequently, PGE would like to continue operating the pilot during 2021 to generate more event season data and to test new market-available technologies, program delivery methods, and other strategies to improve the pilot's impact and cost effectiveness.

Prior to requesting a 2021 pilot extension, PGE should update the pilot's planning assumptions, goals, implementation strategies, budget, and timeline based on updated market data and findings from the evaluations. PGE should also describe how this pilot will be managed under PGE's upcoming Flexible Load Plan. PGE should engage Staff early in its planning efforts.

In its original deferral filing for this pilot, PGE proposed a list of pilot-to-program success criteria.¹³ In its September 8, 2020, email to Staff, PGE provided an update on the pilot's progress under those criteria, as summarized below, demonstrating that the gap between planning values and actual results is narrowing.

1. Participation rate among the 50 largest multifamily residence providers in PGE territory is currently 26 percent, exceeding PGE's target of 10 percent.
2. Communications up-time has exceeded PGE's target of 80 percent during the past two seasons.
3. Control device defect rate is below 1 percent, exceeding PGE's target of 5 percent.
4. Verified capacity reduction per water heater per event is now approximately half of PGE's target 0.5 kW.
5. Cost effectiveness is 0.82 (using Total Resource Cost method), short of PGE's target of at least 1.0.
6. Participating tenant satisfaction rates have met PGE's target of remaining stable over the past two seasons, and currently average 7.4 out of 10.
7. More than half of participating multifamily management companies have enrolled multiple participating properties, demonstrating growth in satisfaction, as targeted.
8. Total demand reduction per event is 3.4 MW, short of PGE's target 4.0 MW.

Staff will soon present to PGE guidance for submitting new pilot proposals and transitioning pilots to programs. Staff looks forward to working with PGE during Q4 2020

¹³ See UM 1827, Application for Deferred Accounting of Costs Associated with the PGE Demand Response Water Heater Pilot, April 18, 2017, page 5.

to review its updated pilot plan and pilot-to-program transition strategy for alignment with Staff guidance.

Conclusion

Staff finds that the COVID-19 pandemic caused unforeseeable and unavoidable delays in the installation of more than 2,000 control devices that PGE had already procured. For that reason, and because program results continue to improve, the Commission should grant PGE its requested four-month pilot extension to January 31, 2021. Staff confirms that no changes other than the pilot expiration date are made to Schedule 4 in this Advice Filing.

Staff also finds that the pilot is making measurable progress toward its goals and that the pilot should likely continue in 2021. PGE should coordinate closely with Staff as it prepares an updated pilot plan prior to requesting an additional pilot extension. The Company should extend its success criteria as needed to address upcoming Staff criteria for the pilot-to-program transition.

PROPOSED COMMISSION MOTION:

Approve PGE's request to extend the Multifamily Residential Water Heater Demand Response Pilot, Schedule 4, from September 30, 2020, to January 31, 2021, in order to complete installations that were delayed due to the COVID-19 pandemic.