

**PUBLIC UTILITY COMMISSION OF OREGON
STAFF REPORT
PUBLIC MEETING DATE: February 18, 2025**

REGULAR **CONSENT** **EFFECTIVE DATE** _____ **N/A**

DATE: February 10, 2025

TO: Public Utility Commission

FROM: Peter Kernan

THROUGH: Caroline Moore, JP Batmale, and Sarah Hall **SIGNED**

SUBJECT: PORTLAND GENERAL ELECTRIC:
(Docket No. UM 2141)
Flexible Load Portfolio Multiyear Plan and Budget for 2025-2026.

STAFF RECOMMENDATION:

Approve the following elements and direction regarding Portland General Electric's (PGE or Company) Flexible Load 2025-2026 Multiyear Plan (MYP):

1. Approve the Company's participation in the NEEA End-Use Load Flex Project and allow a mid-cycle budget request for 2026 in Docket No. UM 2141.
2. Approve the Company's two-year budget of \$34,320,359 for the following pilots and programs:
 - a. Residential Smart Thermostat program operating under Schedule 5;
 - b. Peak Time Rebates program operating under Schedule 7;
 - c. Time of Day pilot operating under Schedule 7;
 - d. Energy Partner on Demand program operating under Schedule 26;
 - e. Multifamily Water Heater pilot operating under Schedule 4;
 - f. Energy Partner Smart Thermostat pilot operating under Schedule 25; and
 - g. NEEA End-Use Load Flex Project pilot.
3. Direct PGE to move Multifamily Water Heater and Energy Partner Smart Thermostat deferrals to Docket No. UM 2234 and close Docket Nos. UM 1827 and UM 1514 by January 1, 2026.
4. Do not approve the funding request to develop a stakeholder portal and user interface for PGE's AdopDER forecasting model.

DISCUSSION:

Issue

Whether the Commission should approve, in whole or in part, PGE's Flexible Load MYP update and budget for 2025-2026.

Applicable Rule or Law

In Order No. 17-386, the Commission acknowledged PGE's 2016 Integrated Resource Plan (IRP) action item to achieve 77 MW (winter) and 69 MW (summer) of aggregate demand response capacity by 2021 but directed PGE to work more aggressively to achieve the IRP's demand response high-case targets of 191 MW (winter) 162 MW (summer). The Commission also directed PGE to take actions to accelerate demand response acquisition including (i) study the market potential for demand response; (ii) establish a "Demand Response Review Committee" to provide guidance on demand response activities; and (iii) establish demand response testbed.¹

In Order No. 20-152, the Commission acknowledged PGE's 2019 IRP action item 1B to achieve 141 MW (winter) and 211 MW (summer) of aggregate demand response capacity by 2025. In the order, the Commission highlighted the importance of PGE's upcoming Flexible Load Plan in advancing stakeholder understanding of PGE's approach to acquiring demand-side resources to help meet PGE's increasing capacity needs.²In Order No. 24-096, the Commission acknowledged PGE's 2023 IRP customer action item to acquire 211 MW summer and 158 MW winter demand response by 2028.³

In 2021, the Commission accepted PGE's initial Flexible Load Plan, including the Company's proposal to move to portfolio-level multiyear planning, budgeting, reporting, and cost recovery for flexible load activities.⁴ The Commission approved elements of PGE's subsequent Flexible Load Multi-Year Plans (MYPs) for 2022-2023,⁵ and 2024.

¹ Order No. 17-386 was issued October 9, 2017, in Docket No. LC 66, PGE 2016 Integrated Resource Plan.

² Order No. 20-152 was issued May 6, 2020, in Docket No. LC 73, PGE 2019 Integrated Resource Plan.

³ Order No. 24-096 was issued April 18, 2024, in Docket No. LC 80, PGE 2023 Clean Energy Plan and Integrated Resource Plan.

⁴ Order No. 21-158 was issued May 18, 2021, in Docket No. UM 2141, PGE Flexible Load Plan.

⁵ Docket No. 2141, Order No. 22-115, *Errata Order No. 22-023 Corrected*, <https://apps.puc.state.or.us/orders/2022ords/22-115.pdf>.

Analysis

Summary

In its Flexible Load Multi-Year Plan (MYP) covering 2025-2026, PGE seeks approval of a two-year \$34.3 million budget to continue operating existing flexible load pilots and programs. The budget represents an incremental investment of \$170,000 in 2025 and an additional \$1.6 million in 2026 compared to PGE's 2024 budget request. In this memo, Staff recommends approval of the MYP covering 2025-2026.

Background

PGE filed its initial flexible load plan in December 2020 to provide insight into PGE's flexible load planning process as requested by the Commission in Order No. 20-152. In the plan, the Company proposed to consolidate its numerous flexible load activities into a single portfolio-level multiyear plan, budget, and cost recovery mechanism.⁶ The Commission accepted the flexible load plan on April 18, 2021.⁷ PGE subsequently filed the Flexible Load Multiyear Plan for 2022-2023 describing the Company's portfolio-level multiyear plan, budget, and cost recovery proposal.

In Errata Order 22-115, the Commission approved inclusion of the residential Peak Time Rebate pilot, residential Time of Day pilot, the residential Smart Thermostat pilot, the Energy Partner Demand Response program, and Smart Grid Testbed activities and their budgets for inclusion in the 2022-2023 MYP.⁸ The Commission declined to authorize inclusion of activities or costs associated with the Multifamily Water Heater and Energy Partner Smart Thermostat pilots, and five new pilot proposals, and declined to adopt the Company's cost recovery proposal.

After Order 22-115, PGE categorized Multifamily Water Heater and Energy Partner Smart Thermostat as "pilots in design transition." Order No. 24-049, which partially approved PGE's 2024 MYP Supplemental, maintained the recommendation not to approve budgets for pilots in design transition.

PGE's 2025-2026 MYP calls for growing PGE's flexible load assets at a time when PGE's system requires more capacity and on-system resources that avoid the cost and timing uncertainty of new transmission. The 2023 IRP called for 905 MW of summer capacity by 2028, which PGE's final short list in Docket No. UM 2274 offers significant capacity to help meet. In addition to those targets, PGE set a summer demand

⁶ See Docket No. UM 2141, *PGE Flexible Load Plan*, (December 23, 2020), <https://edocs.puc.state.or.us/efdocs/HAA/haa125814.pdf>.

⁷ See Order No. 21-158, Docket No. UM 2141, (May 18, 2021), <https://apps.puc.state.or.us/orders/2021ords/21-158.pdf>.

⁸ See Order 22-115, Docket No. UM 2141, (April 11, 2022), <https://apps.puc.state.or.us/orders/2022ords/22-115.pdf>.

response capacity target of 211 MW by 2028. In response to discovery, PGE notes that the 2025 IRP Update will reduce the summer 2028 target to 188 MW.⁹ Staff notes that even with the lower targets, annual growth rates will need to increase in 2027 and 2028.

PGE’s 2025-2026 MYP includes the budget and activities planned for the six pilots and programs within the flexible load portfolio, as shown in Table 1.¹⁰ PGE forecasts a \$1.75 million or 10.8 percent increase in annual spending over the 2024 approved budget for the flexible load portfolio by 2026. Most of the increase is attributable to planned growth for the Multifamily Water Heater pilot in 2026. PGE will request additional 2026 funding for market transformation work from the Northwest Energy Efficiency Alliance (NEEA) End Use Load Flexibility (EULF) Project later in 2025.

Table 1: Flexible Load MYP Budget

Pilots and Programs	2024 Approved Budget¹¹	2025 Proposed Budget	2026 Proposed Budget
Residential Smart Thermostat	\$3,837,000	\$3,756,000	\$4,044,000
Peak Time Rebates	\$2,971,605	\$2,913,610	\$2,967,105
Time of Day	\$690,000	\$666,550	\$535,150
Energy Partner on Demand	\$5,406,410	\$6,087,977	\$6,055,727
Multifamily Water Heater	\$0	\$1,170,250	\$2,771,080
Energy Partner Smart Thermostat	\$0	\$1,422,000	\$1,573,460
NEEA EULF Project Pilot	\$357,500	\$357,500	TBD
Total Portfolio	\$13,262,515	\$16,373,837	\$17,946,522

Flexible Load Activities

PGE projects growing around nine percent per year, adding 19 MW to bring the 2026 summer capacity to 123.6 MW. Table 2 details the actual flexible load capacity for 2022-2023 and provides forecasts of 2024-2026. Staff notes that between 2022 and 2023, some pilots received evaluations that reduced the amount of flexible load capacity that PGE was able to claim due to lower observed performance compared to capacity values used in planning. These evaluations resulted in year-over-year declines in

⁹ PGE Response to PUC Data Request 12.

¹⁰ PGE’s 2025-2026 MYP includes an update on the Smart Grid Testbed for informational purposes only, as those demonstration projects have separate budgets and learning objectives, which are documented in Docket No. UM 1976.

¹¹ The Commission did not approve 2024 budgets for Multifamily Water Heater or Energy Partner Smart Thermostat, but PGE requested \$1,656,500 and \$1,280,000 respectively.

enrolled capacity values for Peak Time Rebates, Multifamily Water Heater, and Energy Partner Smart Thermostat, despite stable or increasing participation.

Overall, Staff notes consistent growth in capacity additions across programs, despite differences in program maturity. The four mature pilots and programs, the Residential Peak Time Rebate pilot, Residential Time of Day pilot, and the Residential Smart Thermostat program, focus on increasing retention and adding new participants. Pilots in design transition have incremental growth through 2026. PGE expects to grow the winter capacity from 58.2 MW in 2024 to 62.2 MW in 2026, a seven percent increase.

Table 2: Annual Summer Capacity for MYP Pilots and Programs¹²

Pilots and Programs		Summer Flexible Load Capacity*				
		2022	2023	2024	2025	2026
Flexible Load MYP	Residential Smart Thermostat	33.8	39.1*	43.7	48.1	52.5
	Peak Time Rebates	17.6	14.5*	15.4	16.1	16.6
	Time of Day	n/a	1.7*	2.5	4.1	5.6
	Energy Partner on Demand	34.6	36.4	38.8	41.3	43.8
	Multifamily Water Heater	4.5	2.0*	2.0	2.0	2.3
	Energy Partner Smart Thermostat	1.3	0.8*	2.2	2.1	2.8
Total Portfolio		91.8	94.5	104.6	113.7	123.6
Year-over-Year Increase			2.9%	10.7%	8.7%	8.7%

*Denotes values where an evaluation decreased the amount of capacity delivered by each connected device.

For informational purposes, PGE reports flexible load capacity for the transportation electrification plan's Residential EV Smart Charging Program, which adds 3.3 MW of summer and 3.5 MW winter capacity by 2026. Staff did not include those values in Table 2, since no Residential EV Smart Charging funds are requested in the 2025-2026 MYP. PGE also tests flexible load capacity with the Smart Battery Pilot and in the Smart Grid Testbed.

2025-2026 MYP and Staff Recommendations

PGE's flexible load MYP filings represent a funding request and an opportunity for PGE to justify the continued operation of the flexible load pilots and programs. Staff's role is to provide oversight of PGE's demand side investments and ensure the Company is investing in cost-effective alternatives to traditional, supply-side utility resources.

Staff sees today's highest flexible load value as providing emergency load shed. In the executive summary of PGE's 2024 DSP, the Company notes that use of the flexible

¹² 2022 and 2023 values are actuals. 2024-2026 values are forecasts.

load portfolio during a transmission constraint in 2023 avoided a potential power outage that could have cost PGE and its customers over \$165 million.¹³ Staff generally understands this event to have occurred in August 2023, when Bonneville Power Administration accelerated implementation of congestion management on the North of Pearl path. A heat wave starting on August 13 resulted in PGE calling flexible load events, where “load reductions resulting from PGE’s use of flexible load programs were key contributors to resolving Real Time Contingency Analysis (RTCA) exceedances and avoiding the use of curtailment as a tool to manage congestion.”¹⁴

If one were to take these numbers at face value, the savings justify years’ worth of flexible load investments. That said, many resources contributed to meeting that peak demand, including energy efficiency. Flexible load events, as a resource of last resort, lend rationale for attributing some specific value to avoiding outages. Staff looks forward to working with the Company for reasonable methods of including benefits from such extreme events into cost-effectiveness analysis.

Despite this demonstrated value, PGE’s costs are high and expectations for greater scale appear low. From 2025 to 2026, Staff notes that costs escalate faster than the amount of capacity, increasing the portfolio’s cost per kW-year. Staff may need more long-term analysis to see how PGE can improve performance or alternatively understand the opportunities for divesting some or all of a VPP resource through an RFP. Actual expenditures came in 30 percent lower than proposed in the 2022-2023 MYP budget.¹⁵

Below, Staff outlines key elements of PGE’s 2025-2026 MYP proposal and provides recommendations.

1. Affordability

PGE discusses the flexible load portfolio’s role in customer affordability by providing customers with bill reduction opportunities via participation in flexible load pilots and programs. PGE notes that this is part of a three-pronged affordability strategy that includes: bill assistance to pay bills that customers cannot afford; bill discounts to reduce monthly bills based on household income; and bill reduction via energy efficiency and flexible load offerings.

Via an information request, Staff requested PGE report on co-enrollment of flexible load participants with the Company’s Income Qualified Bill Discount (IQBD) program. Table 3

¹³ See Docket No. UM 2362, *PGE’s 2024 Distribution System Plan*, (December 18, 2024), p. 17, <https://edocs.puc.state.or.us/efdocs/HAA/haa333816025.pdf>.

¹⁴ PGE Response to PUC IR 006.

¹⁵ PGE requested approval of \$30,695,573 in the 2022-2023 MYP and reported actuals of \$21,502,061 in annual reports to the PUC.

shows participation percentages by offering. Staff notes that Multifamily Water Heater has the highest participation percentage by IQBD customers, but questions how much of a bill reduction customers see in instances where the incentive is directed to the multifamily property owner.

Table 3: Percent of flexible load customers enrolled in PGE IQBD program¹⁶

	Residential Smart Thermostat	Peak Time Rebate	Time of Day	Multifamily Water Heater	EV Smart Charging	Smart Battery
Percent of flex load customers enrolled in PGE IQBD program	4.5%	13.3%	12.9%	18.9%	2.9%	1.5%

Peak Time Rebates and Time of Day also have strong enrollment of IQBD customers and at substantially higher volumes than the other pilots. Staff partially attributes this to the relative low barrier to entry for those behavioral programs. Customers do not need any connected devices to participate in either program, and self-manage their household load to observe bill reductions.

Staff supports PGE’s efforts to expand bill reduction opportunities for income qualified and energy burdened customers. Staff expects PGE to propose additional co-deployment opportunities alongside Energy Trust in 2025 and beyond. Staff supports PGE’s justification of additional incentives so long as they provide incremental flexibility value not captured by Energy Trust’s benefit-cost analysis.

Staff requests PGE continue to publish co-enrollment of IQBD and flexible load offerings in annual reporting. Further, Staff will work with PGE to consider additional data which can provide ongoing performance indicators of co-deployment of flexible load and energy efficiency with Energy Trust.

2. Cost-effectiveness

PGE presents a cost-effective flexible load portfolio that reflects Company efforts to improve the methodology. Table 4 shows PGE’s reported cost-effectiveness by individual pilot and program and as a portfolio. Staff notes that changes to the methodology drove increases to the benefit-cost ratios for each pilot and program, with many entering the 2025-2026 MYP with high benefit-cost ratios. The two pilots in design transition, Multifamily Water Heater and Energy Partner Smart Thermostat, remain not cost-effective despite improvements.

¹⁶ PGE Response to PUC IR 007.

Table 4: Total Resource Cost (TRC) Cost-effectiveness of Flexible Load Portfolio

Pilot or Program	2022	2023	2024	2025-2026
	TRC	TRC	TRC	TRC
Residential Smart Thermostat	1.83	1.97	1.86	3.90
Peak Time Rebates	0.64	0.68	0.60	1.13
Time of Day	1.24	1.50	1.37	2.52
Energy Partner on Demand	1.99	1.29	1.48	2.59
Multifamily Water Heater	0.12	0.16	0.28	0.29
Energy Partner Smart Thermostat	0.65	0.22	0.12	0.64
Total Portfolio	1.15	0.97	1.00	2.07

Staff continues to review cost-effectiveness on both portfolio and individual pilot-level perspectives. Staff finds that some level of support for non-cost-effective pilots is important in order to develop the market and increase the cumulative size of the flexible load portfolio. This support is consistent with Staff’s recommendations to support flexible load demonstrations in PGE’s Smart Grid Testbed. Staff support is also consistent with its treatment and consideration of exceptions to cost-effectiveness for energy efficiency.

Staff highlights three elements that are most important for interpreting the changes to cost-effectiveness. In addition, Staff worked with PGE to review workpapers and discuss the proposed changes in the 2025-2026 MYP. Staff will publish its review of cost-effectiveness as a separate document to Docket No. UM 2141.

First, Staff finds that the avoided cost of capacity should reflect more recent fixed price assumptions for four-hour batteries and reflect the costs of more expensive capacity when the IRP’s preferred portfolio selects such resources.¹⁷ Because of this PGE’s avoided capacity costs are too low, and that a higher value is more reasonable for benefit-cost analysis. A higher avoided capacity cost will increase flexible load benefit-cost ratios.

Staff conducted analysis to propose its solution for resolving these two issues. For fixed costs, Staff used reputable public data from Lazard regarding the 2024 levelized cost of a utility four-hour battery. Staff then calculated a 20-year levelized net cost of capacity based on the Lazard fixed cost assumption of \$214/kW-yr for 2026-2034, and the PGE

¹⁷ See Docket No. UM 1893, *Staff report on request for approval of energy efficiency avoided cost data to be used by Energy Trust*, (Jan. 21, 2025), pp. 8-11, <https://edocs.puc.state.or.us/efdocs/HAU/um1893hau334281025.pdf>.

supplied values for generic capacity costs covering 2035-2043, for years which PGE's 2023 IRP selects that resource.¹⁸

The result of Staff's analysis is a net avoided cost of capacity of \$353/kW-yr, which includes PGE's net cost adjustments for energy, flexibility, and ELCC. A significantly higher avoided capacity cost means that PGE's flexible load offerings will be more cost-effective.

Second, Staff finds that PGE's cost-effectiveness analysis should be more holistic with respect to costs to operate the portfolio. PGE began including flexible load portfolio labor costs in base rates starting with Docket No. UE 394. Even so, PGE's workpapers exclude flexible load portfolio related base rate costs and the rate of return from deferring operations and maintenance costs from MYP cost-effectiveness tests. PGE's workpapers also exclude the carrying cost of flexible load pilot and program deferral funding from cost-effectiveness tests. Since utilities earn interest on deferral spending, the ratepayer cost of program operations is higher than budgets reflect. Staff recommends inclusion of these costs in flexible load portfolio cost-effectiveness testing, which will put downward pressure on benefit-cost ratios.

Third, Staff requests new IRP analysis and additional operational data to validate the cost-effectiveness of the flexible load portfolio using different perspectives. The IRP's endogenous selection of flexible load resources in the preferred portfolio would send a clear signal that flexible load resources compete on cost, availability, and performance against other resource options. In current practice, PGE's flexible load portfolio is not a supply side resource option in IRP modeling but is rather included as a reduction in capacity need.¹⁹

Staff has ongoing interest in reviewing how actual flexible load dispatch data can validate avoided cost assumptions. PGE's Power Operations group only requested flexible load dispatch for two events in summer 2024. PGE's flexible load staff called other events over the course of the year, but the origin was not a request from Power Operations. Such operation might be justified but raises questions of integration for grid services beyond emergency load shed. Further, the assets' use on such seldom occasion should inform how flexible loads are modeled in both IRPs and traditional cost-effectiveness testing.

¹⁸ Lazard, *Levelized Cost of Storage Comparison—Version 9.0*, (June 2024), <https://www.lazard.com/media/xemfey0k/lazards-lcoeplus-june-2024-vf.pdf>.

¹⁹ See Docket No. LC 80, *PGE's 2023 Clean Energy Plan and Integrated Resource Plan*, (March 31, 2023), p. 275, <https://edocs.puc.state.or.us/efdocs/HAA/lc80haa8431.pdf>.

3. Pilot-to-Program Transition

Staff published *Utility Guidance: Pilots to Programs* in January 2022, as part of its recommendation to approve elements of PGE's 2022-2023 MYP.²⁰ Staff distinguishes a program as "a sustained offering of a product or service that benefits the ratepayer."²¹ A program contrasts with a pilot which has limited scope and duration to test an idea with learning objectives for broader adoption. PGE presents two pilots as ready to transition from pilot to program status, Residential Smart Thermostat and Peak Time Rebate.

Residential Smart Thermostat launched in 2015 and has grown to an estimated 55,394 customers by the end of 2024. Summer and Winter capacity targets have steadily grown and are expected to continue through the 2025-2026 MYP, ending at 52.5 MW and 10.8 MW respectively. PGE reports a TRC benefit-cost ratio of 3.9, making it a highly cost-effective offering.

Peak Time Rebate, in its current form, has operated since 2019 with stable enrollment of around 124,000 residential customers, or roughly 15 percent of PGE's residential customer base. PGE projects modestly increasing MW targets to 16.6 MW summer and 12.4 MW winter by the end of 2026. PGE reports a TRC benefit-cost ratio of 1.13. PGE notes that part of the Peak Time Rebate value is flexible load awareness and that customers often migrate to direct load control offerings. In 2023, 2,800 Peak Time Rebate customers migrated to Residential Smart Thermostat.

Staff agrees that both Residential Smart Thermostat and Peak Time Rebate are mature and stable offerings that provide benefits to ratepayers. Only one of the six flexible load offerings have program status, Energy Partner On Demand. The addition of Residential Smart Thermostat and Peak Time Rebate mean that half of offerings and 89 percent of flexible load capacity would be considered programs.

Staff notes that PGE requests the pilot to program transition but does not indicate any change to cost recovery treatment. All flexible load pilots and programs are currently funded via deferrals, and Staff questions whether these mature and stable programs should be transitioned into base rates. Staff expects rate treatment of the mature flexible load programs to be an issue in the next rate case.

Staff supports the inclusion of mature flexible load programs in base rates. However, transparency into performance remains critical for establishing rate payer value and for planning purposes. Staff will continue to work with the Company and stakeholders to ensure that full programmatic transparency and oversight of these programs continues outside rate cases. For example, Staff would expect rigorous reporting continue via UM 2141 on all flexible load offerings.

²⁰ See Order No. 22-115, Appendix A.

²¹ Order No. 22-115, p. 19.

4. Pilots in Design Transition

PGE designates two offerings as “pilots in design transition,” Multifamily Water Heater and Energy Partner Smart Thermostat. Noting performance and cost-effectiveness challenges, Orders No. 22-115 and 24-049 did not approve the budgets proposed for either pilot. Operation of each pilot was encouraged via the separate deferral authorizations. Multifamily Water Heater operates under Schedule 4 and seeks deferral authorization via Docket No. UM 1827. Energy Partner Smart Thermostat uses the Schedule 25 tariff and Docket No. UM 1514 for deferral authorizations.

Staff recommends approving the pilots’ 2025-2026 budgets and requests the Company migrate the pilots into the primary flexible load deferral, UM 2234, starting in 2026. Staff recommends approval based on continual improvement and streamlining of deferral filings to gain better visibility into all flexible load offerings in one deferral.

Consolidation of deferral filings does not limit Staff’s ability to make recommendations about limited cost recovery or pilot termination. Staff notes that neither pilot is cost-effective, and PGE has yet to present a pathway for pilot-level cost-effectiveness. Multifamily Water Heater continues to operate in “maintenance mode,” where PGE works to improve performance while not enrolling new customers. In 2026, PGE anticipates emerging from maintenance mode. Prior to doing so, Staff expects a PGE proposal that will detail why Multifamily Water Heating is ready to emerge from maintenance mode, the timing of the expansion, and future cost-effectiveness expectations.

Staff considered a range of options from pilot in design transition termination to budget approval. Ultimately, Staff recommends approval because of improvements to the pilots and high avoided capacity costs. Redesigned elements of Energy Partner Smart Thermostat have improved its cost-effectiveness, and the most-recently published evaluation pre-dates those changes.²² Multifamily Water Heater has unique operational characteristics, for which Staff holds optimistic expectations. Namely, connected water heaters are a flexible load resource which can be called multiple times daily with little to no customer impact. This differentiates Multifamily Water Heater from other pilots and programs which are restricted by annual events or annual event-hours. In Staff’s opinion, a daily load shifting resource operating in a VPP could bring additional grid benefits such as renewables matching and price arbitrage.

Staff finds further support for water heater demand response as a strategic priority for the region. HB 2062 (2021) requires all new electric storage water heaters in Oregon be

²² See Docket No. 2141, *PGE's Flex Load Portfolio Evaluation Summer 2022 and Winter 2022-2023*, (Dec. 10, 2024), <https://edocs.puc.state.or.us/efdocs/HAQ/um2141haq333456024.pdf>.

demand response enabled.²³ NEEA prioritized water heater demand response as one of three product workstreams in the EULF market transformation project that PGE and other regional utilities are funding. Thus, active efforts continue to improve the value of this resource.

Neither pilot currently shows a path to program status, and approval of these budgets does not indicate future support. Continuation of these offerings will be contingent on further improvements and a demonstrated pathway to cost-effective programs. Specifically, Staff requests that PGE propose its plan for emergence from Multifamily Water Heater's maintenance mode by the end of 2025 and prior to increasing spending.

5. Northwest Energy Efficiency Alliance (NEEA) End Use Load Flexibility (EULF)
Staff recommends approval of funding for NEEA's EULF market transformation work and invites PGE to file a 2026 funding request to Docket No. UM 2141. Via information request, Staff requested project deliverables to date. Staff appreciates the regional coordination with NEEA and other utilities.

As PGE's investment in the NEEA EULF enters year two, Staff recommends consideration of performance measures. PGE did not perform benefit-cost analysis of the NEEA funding, and Staff requests a future connection to ratepayer benefits. PGE explicitly states that the NEEA funding "does not provide direct benefits to the portfolio."²⁴ Despite this, Staff recommends inclusion of NEEA investments in the portfolio-level cost-effectiveness; the portfolio perspective is intended to ensure cost-effectiveness inclusive of enabling investments that do not have direct benefits.

PGE and NEEA must consider how to quantify flexible load market transformation achievements. For energy efficiency, NEEA justifies spending by quantifying savings and reporting those to Energy Trust and PGE.

6. Virtual power plant (VPP)
In Order No. 24-454, the Commission was clear that PGE must file additional VPP justification in Docket No. UM 2141. The Commission stated,

We agree with Staff that PGE needs to better justify its incremental spend request for the VPP, but we decline to open a stand-alone docket focused on VPP reporting. Instead, we direct PGE to integrate the VPP into its Flexible Load Plan and provide more detailed and granular cost-benefit

²³ ORS 469.233 Section 2(16)(a)(A). All units sold in Oregon must include a CTA-2045 communication port.

²⁴ See Docket No. UM 2141, PGE's Flexible Load 2025-2026 Multiyear Plan, (October 20, 2024), p. 4, <https://edocs.puc.state.or.us/efdocs/HAQ/um2141haq332220025.pdf>.

analysis there, along with other information to facilitate our evaluation of the performance of the VPP as a whole.²⁵

To this end, timing has been an issue. PGE filed its Flexible Load Plan on October 18, 2024 and filed its DSP on December 18, 2024. The Commission's order in UE 435 directing PGE to integrate VPP into the Flexible Load Plan, was posted on December 20, 2024.

In the December DSP filing, PGE included some of the information which Staff sought in UE 435 including the current and future capacity of the VPP and the underlying composition of participating assets. The flexible load portfolio makes up 20 percent of the VPP's nameplate capacity in 2024.

To satisfy the order in UE 435 Staff will work with PGE to file the necessary VPP in UM 2141 with additional detail and justification of spending, by July 1, 2025. Much of this information may be found in the content from the DSP. To facilitate a more granular cost-benefit analysis, part of Staff's work with the Company will include a list of information in Attachment A that Staff believes will facilitate review of the VPP.

Staff will continue to review PGE's 2024 DSP and be wholistic about the relationship of its components including the VPP and the flexible load portfolio. Staff is aware that PGE's 2023 IRP established a need for on-system resources and a corresponding high avoided cost for resources that avoid off-system infrastructure. Staff is heartened to see PGE envision a flexible load portfolio in the 2024 DSP that more than doubles to 250 MW by 2030. However, Staff finds a disconnect between the current flexible load portfolio offerings and the scale anticipated in the DSP.

For example, Staff previously expressed support for flexible load assets that move capacity in a more permanent manner. Time of Day is one example where the pricing signal motivates customers to move energy consumption out of peak hours. There is thus a daily capacity benefit outside of emergency load shed events. Similarly, PGE called 80 Multifamily Water Heater events in the summer of 2022, more regularly shaping demand.²⁶

However, the amount of capacity available to both pilots remains limited. During those 80 events in summer 2022, PGE shifted between 0.5 and 2.4 MW of demand per event. In the 2025-2026 MYP, PGE projects Time of Day growing to 5.6 MW and Multifamily Water Heater remaining at 2.3 MW through 2026.

²⁵ See Order No. 24-454, Docket No. UE 435, (December 20, 2024), p. 49, <https://apps.puc.state.or.us/orders/2024ords/24-454.pdf>.

²⁶ See Docket No. UM 1827, *Guidehouse Final Evaluation of PGE's Multifamily Water Heater Pilot*, (December 30, 2024), p. 25, <https://edocs.puc.state.or.us/efdocs/HAH/um1827hah333839025.pdf>.

In 2025, PGE's Smart Battery Pilot will expire in UM 1856, and Staff expects the Company to propose a pilot Phase 2 and would prefer to see its inclusion in the flexible load portfolio. Staff identifies this as an opportunity given programmatic success elsewhere such as the rapid scaling of Vermont's Green Mountain Power distributed battery program (i.e., 22 MW within three years). To put that level of growth in perspective, a PGE program growing at the same per-capita rate would add 42 MW of capacity a year and over 200 MW by 2030.²⁷ By contrast, PGE's 2025-2026 MYP envisions a Smart Battery Pilot Phase 2 only growing to a cumulative 4.7 MW by 2029.²⁸ With respect to asset use, Green Mountain Power and Rocky Mountain Power's Wattsmart programs deploy the batteries daily for multiple grid services, which justify program costs.

Staff raises the distributed battery example as one where the scale and asset use seem to justify the costs. Staff is interested in program models, such as utility ownership with customer leasing, which could scale by 2030. Staff will use the DSP review and supplemental UM 2141 VPP filing to evaluate how PGE plans to scale the flexible load portfolio faster, while increasing its operational capabilities. This information should also be helpful to PGE's 2026 IRP, as it considers tradeoffs between DER and utility-scale assets in a transmission constrained future.

7. AdopDER funding request

In addition to the 2025-2026 MYP, PGE requested approval of funding for a collaborative project between PGE, Lawrence Berkeley National Laboratory, and the U.S. Department of Energy (DOE) to develop a stakeholder portal and user interface for PGE's AdopDER forecasting model. The goal is that stakeholders would have access to a sophisticated modeling tool to better inform feedback and analysis in utility planning and regulatory recommendations.

In principle, Staff is supportive of this request to democratize access to important modeling tools. However, Staff cannot lend blanket approval of an unknown funding amount to this project. PGE's filing did not include a requested amount or supporting detail of matched funding from project partners. Based on subsequent conversations with PGE, it appears unlikely that the project will move forward with the new administration and subsequent impacts to U.S. DOE. Staff is open to reviewing a more formal proposal at a future time.

²⁷ Case No. 23-1335-TF, *Investigation to revise energy storage system service and bring your own device program tariffs*, (May 2023), <https://epuc.vermont.gov/?q=node/64/189132/FV-ALLOTDOX-PTL>. Based on Staff review of Green Mountain Power's filing and extrapolation of growth rates to PGE's larger service territory.

²⁸ See Docket No. UM 2141, 2025-2026 MYP, p. 39.

8. Flexible load portfolio reporting

Given the value of the alternative cost-effectiveness perspectives discussed previously in this memo, Staff recommends PGE report updates on the following categories as part of the supplemental VPP filing due July 1, 2025. Staff will work with PGE on this reporting, but offers the following priority topics:

- **Operational Asset Use:** PGE should complete more rigorous reporting on the use of the flexible load resources. Outside of evaluations and in addition to the annual report, Staff requests more regular reporting on the operational use of the flexible load pilots at the end of each season. Staff commits to working with the Company to formalize this. Reporting should document the observed load reductions during events and calculate the avoided energy cost and avoided emissions based on market prices and emissions rates during events.
- **Full cost transparency:** When PGE files supplemental VPP information in UM 2141, Staff requests PGE update all cost-effectiveness analysis to include the complete flexible load portfolio costs. Updated analysis should include costs that are in rates such as staffing and operations and maintenance. Staff and the Commission need to holistically understand the VPP resource economics.
- **Improved IRP Modeling:** PGE should include the flexible load portfolio as a supply side resource option in the 2025 IRP Update. That inclusion should characterize the full costs of the resource as well as its availability for dispatch inclusive of tariff constraints on use. Staff notes that this will likely require conducting new Sequoia ELCC analysis to update pilot and program ELCC values. Staff is open to tariff revisions to increase PGE's flexibility in using flexible load resources economically for all ratepayers.

Conclusion

Staff recommends approval of PGE's 2025-2026 MYP and budget requests, with the exception of PGE's request to approve funding to develop a stakeholder portal for the AdopDER model. Staff's recommendations are bound by the cohesive thread that demand-side investments are necessary and opportunistic. In both 2023 and 2024, PGE proved flexible load success during summer heat waves by deploying emergency load shed capabilities. The flexible load portfolio's value is further communicated via the high value of on-system resources in the 2023 IRP and subsequent avoided costs in Docket No. UM 1893. Staff highlights these themes and requests future reporting to improve insight about the cost and utilization of the current flexible load portfolio.

Staff recommends approval of the six pilots and programs within the 2025-2026 MYP including the budgets and programmatic updates. Staff recommends the Company request funding for Multifamily Water Heater and Energy Partner Smart Thermostat via the existing deferral authorizations in 2025, and in 2026 transition the requests to the

primary flexible load portfolio deferral, Docket No. UM 2234.²⁹ Staff supports PGE's 2025 funding request for market transformation work via NEEA's EULF and expects a 2025 filing to request 2026 funding. Finally, Staff will work with PGE to detail the expectations of an additional VPP filing in UM 2141 by July 1, 2025, to comply with Order No. 24-454.

PROPOSED COMMISSION MOTION:

Approve the following elements and direction regarding Portland General Electric's (PGE or Company) Flexible Load 2025-2026 Multiyear Plan (MYP):

1. Approve the Company's participation in the NEEA End-Use Load Flex Project and allow a mid-cycle budget request for 2026 in Docket No. UM 2141.
2. Approve the Company's two-year budget of \$34,320,359 for the following pilots and programs:
 - a. Residential Smart Thermostat program operating under Schedule 5;
 - b. Peak Time Rebates program operating under Schedule 7;
 - c. Time of Day pilot operating under Schedule 7;
 - d. Energy Partner on Demand program operating under Schedule 26;
 - e. Multifamily Water Heater pilot operating under Schedule 4;
 - f. Energy Partner Smart Thermostat pilot operating under Schedule 25; and
 - g. NEEA End-Use Load Flex Project pilot.
3. Direct PGE to move Multifamily Water Heater and Energy Partner Smart Thermostat deferrals to Docket No. UM 2234 and close Docket Nos. UM 1827 and UM 1514 by January 1, 2026.
4. Do not approve the funding request to develop a stakeholder portal and user interface for PGE's AdopDER forecasting model.

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²⁹ Multifamily Water Heater: Schedule 4 and Docket No. UM 1827 for deferral authorization. Energy Partner Smart Thermostat: Schedule 25 and Docket No. UM 1514 for deferral authorization.

Attachment A: VPP Reporting

Staff seeks reporting that can establish performance measures and demonstrate PGE's ability to cost-effectively operate and manage the VPP and its constituent parts, including the flexible load portfolio. Staff provides this list as a starting place for coordination with PGE on compliance with Order No. 24-454.

- All expenditures on VPP resources by year from calendar year 2017 through 2024, broken down by measure.
- A holistic cost-benefit analysis inclusive of VPP labor costs approved in rates.
- Data detailing the performance of the VPP to date, such as the date, duration, maximum hourly MW, total hourly MWh, and hourly resource profile consistent with PGE's full response to UM 2141 IR 004 for all dispatches of VPP resources.
- The primary grid service provided by each event and any revenue generated or avoided by its use.
- Grid conditions including market pricing, emissions rate, and composition of PGE resources for all dispatches of VPP resources.
- All VPP-related inputs that PGE believes to be necessary to reasonably model all VPP measures as supply side option in an IRP.
- A narrative explanation, along with supporting data describing how the Commission's disallowance of \$1.5 million of PGE's VPP related expenses impacts the projected VPP spending levels initially proposed in the DSP.