

PUBLIC UTILITY COMMISSION OF OREGON  
STAFF REPORT  
PUBLIC MEETING DATE: February 20, 2024

REGULAR \_\_\_\_\_ CONSENT  X  EFFECTIVE DATE \_\_\_\_\_ N/A \_\_\_\_\_

DATE: February 12, 2024

TO: Public Utility Commission

FROM: Peter Kernan

THROUGH: JP Batmale and Sarah Hall **SIGNED**

SUBJECT: PORTLAND GENERAL ELECTRIC:  
(Docket No. UM 2141)  
Approval of 2024 update and budget for Flexible Load Portfolio Multiyear Plan.

**STAFF RECOMMENDATION:**

Approve the following elements Portland General Electric's (PGE or Company) supplemental Flexible Load Multiyear Plan (MYP) 2024:

1. Approve the Company's participation in the NEEA End-Use Load Flex Project.
2. Approve the Company's budget of \$13,262,515 for the following projects and programs:
  - a. Residential Smart Thermostat pilot operating under Schedule 5;
  - b. Peak Time Rebates pilot operating under Schedule 7;
  - c. Time of Day program operating under Schedule 7;
  - d. Energy Partner on Demand program operating under Schedule 26; and
  - e. NEEA End-Use Load Flex Project pilot.

Do not approve the following elements:

1. Do not approve \$1.66 million budget for the Multifamily Water Heater pilot operating under Schedule 4.
2. Do not approve \$1.28 million budget for the Energy Partner Smart Thermostat pilot operating under Schedule 25.

## **DISCUSSION:**

### Issue

Whether the Commission should approve PGE's supplemental Flexible Load MYP update and budget for 2024.

### 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.<sup>1</sup>

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.<sup>2</sup>

In Order No. 21-158, the Commission accepted PGE's Flexible Load Plan, including the Company's proposal to move to portfolio-level multiyear planning, budgeting, reporting, and cost recovery for PGE's flexible load activities.<sup>3</sup>

In Order No. 22-115, the Commission approved elements of PGE's Flexible Load MYP and budget covering years 2022 and 2023.<sup>4</sup>

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

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

<sup>3</sup> Order No. 21-158 was issued May 18, 2021, in Docket No. UM 2141, PGE Flexible Load Plan.

<sup>4</sup> 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 the supplemental Flex Load MYP covering the 2024 calendar year, PGE seeks approval of 1) \$16.2 million budget to continue operating existing flex load pilots and programs, and 2) approval of one new flex-load project, Northwest Energy Efficiency Alliance (NEEA) End-Use Load Flex (EULF) Project. The budget represents an incremental investment of \$1.7 million over 2023 spending.

In November 2023, Staff and PGE filed a joint request to extend the timeline established in Order No. 21-158, which would have required a new flexible load MYP by December 31, 2023.<sup>5</sup> The Commission adopted Order No. 23-281 on December 20, 2023, extending PGE's deadline to file its subsequent flexible load MYP to December 31, 2024.<sup>6</sup> PGE filed the MYP supplemental on December 1, 2023, to outline the Company's request for continuation of MYP 2022-2023 pilots and programs through 2024.<sup>7</sup> In this memo, Staff recommends approval, in part, of the MYP supplemental filing.

### *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, and proposed to consolidate the Company's numerous flexible load activities into a single portfolio-level multiyear plan, budget, and cost recovery mechanism.<sup>8</sup> The Commission accepted the flexible load plan on April 18, 2021.<sup>9</sup> PGE subsequently filed the Flexible Load Multiyear Plan (MYP) for 2022-2023 describing the Company's portfolio-level multiyear plan, budget, and cost recovery proposal.

In Errata Order No. 22-115, the Commission approved inclusion of the residential Peak Time Rebate pilot, residential Time of Day program, the residential Smart Thermostat program, the Energy Partner Demand Response program, and Smart Grid Testbed activities and their budgets for inclusion in the 2022-2023 MYP.<sup>10</sup> The Commission declined to authorize inclusion of activities or costs associated with the Multi-family

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<sup>5</sup> See Docket No. UM 2141. *Staff and PGE's Joint Request to extend Multi-Year Plan timeline*, (Nov. 30, 2023), <https://edocs.puc.state.or.us/efdocs/HAO/um2141hao125523.pdf>.

<sup>6</sup> Order No. 23-481, *Request to extend timeline for flexible load multi-year plan granted*, (Dec. 20, 2023), <https://apps.puc.state.or.us/orders/2023ords/23-481.pdf>.

<sup>7</sup> See Docket No. UM 2141, *MYP Supplemental*, (Dec. 1, 2023), <https://edocs.puc.state.or.us/efdocs/HAQ/um2141haq144139.pdf>.

<sup>8</sup> See Docket No. UM 2141, PGE Flexible Load Plan.

<sup>9</sup> Docket No. UM 2141, Order No. 21-158 issued May 18, 2021, in, PGE Flexible Load Plan.

<sup>10</sup> See Order No. 22-115.

Water Heater pilot and Energy Partner Smart Thermostat pilot, denied five new pilot proposals, and rejected the Company’s cost recovery proposal.

After Order No. 22-115, PGE categorized Multi-family Water Heater and Energy Partner Smart Thermostat as pilots in design transition, as multiple, sustained efforts have occurred over the past two years to improve cost and performance concerns raised in Staff’s memo for the 2022-2023 MYP.

*2024 Supplemental MYP*

PGE’s MYP supplemental includes the budget and activities planned for the six pilot programs within the flexible load portfolio in 2024, as shown in Table 1.<sup>11</sup>

**Table 1: Flexible Load MYP Budget**

Pilots and Programs	2024 Budget Request	Recommended for Approval
Residential Smart Thermostat	\$ 3,837,000	\$ 3,837,000
Peak Time Rebates	\$ 2,971,605	\$ 2,971,605
Time of Day	\$ 690,000	\$ 690,000
Energy Partner on Demand	\$ 5,406,410	\$ 5,406,410
Multi-family Water Heater	\$ 1,656,500	\$ -
Energy Partner Smart Thermostat	\$ 1,280,000	\$ -
NEEA EULF Project	\$ 357,500	\$ 357,500
<b>Total Portfolio</b>	<b>\$ 16,199,015</b>	<b>\$ 13,262,515</b>

PGE expects to add 13.5 MW of flex load capacity, bringing the summertime capacity to 110.0 MW by the end of 2024. PGE noted that year end forecasts showed the Company was set to acquire 97 percent and 94 percent of its 2023 summer and winter MW goals respectively.

**Flexible Load Activities**

PGE projects a 14 percent increase in total summer flexible load capacity in 2024, with increases in each of the active pilots or programs. Table 2 details the actual flexible load capacity for 2022 and provides forecasts of 2023 and 2024. Staff notes that between 2022 and 2023, some pilot programs received evaluations that reduced the amount of flexible load capacity that PGE was able to claim due to performance being lower than capacity values used in planning. These evaluations resulted in year-over-year declines

<sup>11</sup> PGE’s 2024 supplemental 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.

in enrolled capacity values for Peak Time Rebates, Multifamily Water Heater, and Energy Partner Smart Thermostat.

Overall, Staff notes consistent growth in capacity additions across programs, despite differences in program maturity. The four maturing pilots, the residential Peak Time Rebate pilot, residential Time of Day program, and the residential Smart Thermostat program, focus on increasing retention and adding new participants. Challenges persist with the pilots in design transition, and Staff will discuss those further in the cost-effectiveness section below.

**Table 2: Annual Summer and Winter Capacity for MYP Pilot Programs<sup>12</sup>**

Pilots and Programs		Summer Flexible Load Capacity*			Winter Flexible Load Capacity*		
		2022	2023	2024	2022	2023	2024
Flex Load MYP	Residential Smart Thermostat	33.8	39.1*	42.4	11.4	8.5*	9.3
	Peak Time Rebates	17.6	14.5*	15.6	14.7	12.2*	13.4
	Time of Day	n/a	1.7*	4.4	0.0	0.0*	0.0
	Energy Partner on Demand	34.6	36.4	40.4	27.8	29.0	31.9
	NEEA EULF Pilot	n/a	n/a	n/a	n/a	n/a	n/a
	Multifamily Water Heater	4.5	2.0*	2.2	6.7	2.6*	2.8
	Energy Partner Smart Thermostat	1.3	0.8*	2.6	1.2	0.3*	0.3
TE Plan <sup>13</sup>	Residential EV Smart Charging	1.0	2.1	2.4	1.0	2.1	2.4
<b>Total Portfolio</b>		<b>92.7</b>	<b>96.6</b>	<b>110.0</b>	<b>62.8</b>	<b>54.7</b>	<b>60.1</b>

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

<sup>12</sup> 2022 values are actuals. 2023 and 2024 are forecasts.

<sup>13</sup> Residential EV Smart Charging is included as reference only. The budget request and approval exist within PGE's transportation electrification plan.

### **New Activities**

The MYP supplemental introduces the NEEA EULF, which seeks to replicate NEEA's market transformation role for energy efficiency with flexible loads. By aggregating resources from regional electric utilities, NEEA will have greater influence in the development of standards, consideration of product designs and capabilities, and ability to achieve economies of scale. Staff supports NEEA's EULF project and PGE's participation for low-cost flexible load market transformation potential.

Additionally, the MYP supplemental introduces three conceptual activities for development in 2024. PGE utilizes a program lifecycle management process to explore the following concepts, and Staff includes a cursory overview below.

1. Commercial Behavioral Demand Response: akin to behavioral offerings for residential customers, PGE will explore a commercial and industrial behavioral offering to engage more C&I customers and particularly smaller ones where a custom offering may not be warranted.
2. Strategic Custom Offering: PGE has identified that some customers have valuable flexible load assets that might require a custom pathway to participation. PGE seeks to balance this customization with a programmatic structure that also creates process consistency.
3. Tariff Alignment: PGE seeks to align the tariffs which dictate when and how individual pilots within the flexible load portfolio operate. Of note, PGE seeks to increase the flexibility of when the Company can call events and use these resources. Staff fully supports this increased ability to utilize the flex load assets, as it is often valuable to utilize the resource on weekends, holidays, and outside certain windows.

Staff supports immediate adjustments to tariffs to increase the value and utility of the flexible load portfolio, noting that potential loss of load and elevated market prices don't always fall within the parameters set in existing tariffs. Further, Staff supports PGE exploring the Commercial Behavioral Demand Response and Strategic Custom Offering via the program lifecycle management process and will expect updates at Learning Labs for stakeholders and the Demand Response Advisory Group for Staff.

### **Budget**

PGE forecasts a \$1.36 million, or 9 percent, increase in spending for the flexible load portfolio in 2024, with historical and forecasted costs by pilot detailed in Table 3. The Company's \$357,500 request for the NEEA EULF Project is a notable component of the increase. The remaining increase is primarily driven by the two pilots, Residential Smart Thermostats and Multifamily Water Heaters. Respectively, the requested budget increases are 46.8 percent and 35.1 percent.

**Table 3: Historical Flexible Load MYP Budget**

Pilot Programs	2022 Actuals	2023 Forecasted	2024 Forecasted
Residential Smart Thermostat	\$2,530,663	\$2,613,077	\$3,837,000
Peak Time Rebates	\$2,477,246	\$2,859,000	\$2,971,605
Time of Day	\$370,996	\$749,000	\$690,000
Energy Partner on Demand	\$2,718,634	\$5,675,000	\$5,406,410
Multi-family Water Heater	\$1,572,063	\$1,226,467	\$1,656,500
Energy Partner Smart Thermostat	\$1,055,301	\$1,357,000	\$1,280,000
NEEA EULF Project	n/a	n/a	\$357,500
<b>Total Portfolio</b>	<b>\$10,724,903</b>	<b>\$14,479,544</b>	<b>\$16,199,015</b>

The Residential Smart Thermostats budget increase is mostly attributed to incentives to add 4,200 new customers for an additional 3.3 MW in summer capacity. PGE’s budget for Multifamily Water Heater indicates the Company’s intention to emerge the pilot from maintenance mode, which was the idle state in 2023, while the Company considered pathways to revive activities. The budgets for Time of Day, Energy Partner On Demand, and Energy Partner Smart Thermostat are forecast to decrease in 2024.

**Cost-effectiveness**

In the MYP supplemental, PGE presents a flexible load portfolio that is not cost-effective. The breakdown of cost-effectiveness of the entire portfolio and of individual pilots can be seen in Table 4. Between 2022 and 2023, the overall downward trend is a cause for concern and Staff will need to contemplate the viability of certain pilots in the upcoming 2025-2026 MYP.

**Table 4: Preliminary Cost-effectiveness of Flexible Load Pilots**

Pilot Programs	2022		2023	
	TRC	TRC2 <sup>14</sup>	TRC	TRC2 <sup>15</sup>
Residential Smart Thermostat	1.41	1.83	1.53	1.97
Peak Time Rebates	0.50	0.64	0.56	0.68
Time of Day	1.24	1.24	1.50	1.50
Energy Partner on Demand	1.07	1.99	0.84	1.29
Multi-family Water Heater	0.12	0.12	0.15	0.16
Energy Partner Smart Thermostat	0.30	0.65	0.17	0.22
<b>Total Portfolio</b>	<b>0.83</b>	<b>1.15</b>	<b>0.77</b>	<b>0.97</b>

Of particular concern, the cost-effectiveness values of the two pilots in design transition, Multifamily Water Heater and Energy Partner Smart Thermostat, are critically low. A combination of poor performance and enrollment challenges plague the pilots despite concerted and good-faith efforts by PGE and third party implementers to improve outcomes.

In addition to addressing the pilots in design transition, Staff also tees up the need to address updated avoided costs in the 2025-2026 MYP. PGE notes in the MYP supplemental that avoided costs remain based on the 2019 IRP. As Staff and PGE discussed during PGE’s 2023 Integrated Resource Plan (IRP), Docket No. LC 80, PGE’s modeling clearly identified that demand side resources within PGE’s balancing authority deserve a significantly higher avoided cost than the low values impugned by forward market prices.<sup>16</sup> Staff expects PGE to meaningfully contribute to Docket No. UM 1893, the energy efficiency avoided cost docket in 2024, and apply outcomes to the upcoming MYP to help modernize the data and accounting such that a more accurate value of efficiency and flexibility can be realized. Without such avoided cost modernization, it will be harder for Staff to consider an approval recommendation for pilots in design transition.

*Staff Recommendation for Multifamily Water Heater and Energy Partner Smart Thermostat Pilots*

Staff highlights that Order No. 22-115 did not approve the two-year budgets proposed in the 2022-2023 MYP for either pilot, though recommended each continue to operate using separate deferral authorizations. Staff recommends maintaining this precedent

<sup>14</sup> TRC2 excludes the value of service lost, which TRC includes. Staff continues to request utilities report both values for demand response and flexible load pilots and programs.

<sup>15</sup> TRC2, see above.

<sup>16</sup> See Docket No. LC 80, *OPUC Staff Round 2 Comments and Recommendations*, p. 7-10, (Oct. 24, 2023), <https://edocs.puc.state.or.us/efdocs/HAC/lc80hac145648.pdf>.



with the 2024 supplemental MYP by recommending to not approve the budgets for Multifamily Water Heater and Energy Partner Smart Thermostat.

Staff recommends the Company use existing tariff schedules and deferral authorization dockets to operate the two pilots in 2024. 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 declines to use the 2024 MYP supplemental as the venue to decide whether these two pilots are ready for inclusion in the flexible load portfolio, particularly considering continued challenges. Staff will look to the 2025-2026 MYP for determination and notes that it is the Company's intention to, "seek to include these pilots in design transition in the next MYP".<sup>17</sup>

#### *Staff Recommendation for the 2025-2026 MYP*

Overall, Staff supports PGE's efforts to pursue flexible loads. Staff appreciates that PGE has already invested heavily in a suite of flexible load tools including direct load control and price-based demand response. This strong base and experience will help the Company expand offerings and maximize the value of demand-side assets as identified via the 2023 IRP.

Looking ahead, Staff will increasingly turn attention to flexible load assets that can be frequently deployed and have minimal customer impact. Staff highlights the relative success of PGE's Time of Day pilot as an example. Since customers have changed habits, there is a permanent shift in the energy consumption away from costly and high-carbon peak hours. In essence, that flexible load resource is deployed daily, thus taking advantage in the daily price arbitrage between peak and non-peak market prices. The Time of Day pilot has a 1.50 on the total resource cost (TRC) cost-effectiveness test and Staff appreciates the forecasted year-over-year growth in 2024.

Staff will continue to seek opportunities within the flexible load portfolio to maximize ratepayer value to save money and reduce carbon emissions. The logic model is compelling, and PGE showcased that narrative potential in two Learning Labs at the end of 2023.<sup>18</sup> However, looking ahead to the 2025-2026 MYP, Staff needs better visibility into the reality in addition to the vision.

For example, Staff maintains the following outstanding questions:

1. What were the market prices that PGE avoided during called events?

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<sup>17</sup> Docket No. UM 2141, *MYP Supplemental*, p. 21.

<sup>18</sup> Nov. 2, 2023, Learning Lab 23-9, *Resource and Grid Operations* and Dec. 14, 2023, Learning Lab 23-10, *Distributed Energy Resource Integration Opportunity*, <https://portlandgeneral.com/about/who-we-are/resource-planning/resource-planning-engagement>.

2. Were the events called during the hours with the most expensive pricing?
3. Did the flexible load resources change how PGE operated its fossil generators during the event?
4. How many MW of unspecified market purchases were avoided by the events?
5. When will “mature” pilots become programs and move into rates outside the deferral process?

Staff sees value in focusing on operational performance as the 2025-2026 MYP discussion turns toward further integrating flexible loads with power operations. Additional comparison of planning assumptions against actual deployment of the flexible load portfolio will help articulate the value for reducing power costs, capacity needs, and carbon emissions.

### Conclusion

Staff recommends approval, in part, of PGE’s MYP supplemental and budget request for 2024. Staff maintains the precedent from Order No. 22-115 by recommending to not approve the budgets for Multifamily Water Heater and Energy Partner Smart Thermostat in the MYP supplemental filing, since those were not initially approved. Staff recommends the Company continue operating those pilots via the existing deferral authorizations and tariff schedules in 2024.<sup>19</sup> Staff recommends approval of the remaining MYP supplemental filing, including the budget and updates for: Residential Smart Thermostat, Peak Time Rebates, Time of Day, Energy Partner on Demand, and NEEA’s EULF.

PGE’s flexible load portfolio continues to grow and be a valuable tool for meeting peak loads. The incremental budget increase is justified with additional flexible load capacity and the new, NEEA EULF project to hopefully initiate future low-cost market transformation efforts.

Staff appreciates PGE’s flexibility on the timing and process for the MYP supplemental and the 2025-2026 MYP. However, echoing Staff feedback from Order No. 22-115, Staff expects PGE to increase the volume and substance of stakeholder engagement of the 2025-2026 MYP in 2024. Staff identifies that PGE must engage stakeholders on both the detail and theory of the MYP such that feedback may be informed.

Finally, Staff looks forward to engagement with PGE on cost-effectiveness in 2024. Staff remains open to proposals on best practices for MYP avoided costs and opportunities to

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<sup>19</sup> 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.

improve transparency of actual savings derived using the portfolio as PGE increasingly integrates with power operations.

**PROPOSED COMMISSION MOTION:**

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1. Approve the Company's participation in the NEEA End-Use Load Flex Project.
2. Approve the Company's budget of \$13,262,515 for the following projects and programs:
  - a. Residential Smart Thermostat pilot operating under Schedule 5;
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  - d. Energy Partner on Demand program operating under Schedule 26; and
  - e. NEEA End-Use Load Flex Project pilot.

Do not approve the following elements:

1. Do not approve \$1.66 million budget for the Multifamily Water Heater pilot operating under Schedule 4.
2. Do not approve \$1.28 million budget for the Energy Partner Smart Thermostat pilot operating under Schedule 25.