



Portland General Electric Company
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September 17, 2025

Public Utility Commission of Oregon
Attention: Filing Center
P.O. Box 1088
Salem, OR 97308-1088

RE: Docket No. UM 2141 – PGE Flex Load Multi-Year Plan, VPP Data Filing

Dear Filing Center,

Portland General Electric Company (PGE or the Company) submits this filing in Docket No. UM 2141 to comply with elements of Public Utility Commission of Oregon (Commission or OPUC) Orders No. 24-454 and 25-047¹ that relate to Virtual Power Plant (VPP) performance data and reporting.

Background

In the Orders noted above, the Commission directed PGE to integrate the VPP into the Company's Flex Load Multi-Year Plan (MYP) and adopted Commission Staff's recommendation for its approach to VPP data collection and evaluation across the Company's MYP, Distribution System Plan (DSP), and Integrated Resource Plan (IRP). In the February 18, 2025 Public Meeting Memo for UM 2141, Staff acknowledged that PGE's then-recently-filed DSP in Docket No. UM 2362 – which had not yet been reviewed – might contain much of the information needed, but also provided a list of VPP-related content and data as a starting point for coordination with PGE on compliance with the Commission's Orders. Staff indicated that it intends to use the DSP review and supplemental UM 2141 VPP filing to evaluate how PGE plans to scale its flexible load portfolio faster, while increasing its operational capabilities, and noted that the information should also prove helpful to PGE's 2026 IRP with respect to consideration of tradeoffs between distributed energy resources and utility-scale assets in a transmission constrained future.

Supplemental VPP filing

PGE and Staff have subsequently held discussions to refine expectations for the supplemental VPP filing in UM 2141 and to clarify and expand on the VPP-related data and information provided in the DSP through UM 2362. PGE thanks Staff for their constructive engagement in this effort and their appreciation for the many aspects of this topic that cross multiple utility planning dockets.

The responsive information provided below is organized by the topic areas identified in Attachment A of Staff's recommendation to the Commission for approval of PGE's Flexible Load Portfolio Multi-Year Plan and Budget for 2025-2026, as adopted in Order No. 25-074.

¹ OPUC Order No. 24-454, available online at <https://apps.puc.state.or.us/orders/2024ords/24-454.pdf>, and Order No. 25-074, available online at <https://apps.puc.state.or.us/orders/2025ords/25-074.pdf>

Conclusion

PGE understands that no Commission action on today's supplemental filing is required or expected. The Company offers the filing, however, with the recognition that our dialogue with the Commission and Staff with regards to VPP review and evaluation will not end with the filing but will also inform and help refine content expectations for subsequent DSPs, MYPs and IRPs. In particular, PGE has committed to providing a more detailed VPP cost-benefit analysis in a future filing, potentially as part of a future MYP.

For any questions or comments regarding this filing, please contact Steven Corson at (503) 550-0857. Please direct any communications related to this filing to the following email address: pge.opuc.filings@pgn.com

Sincerely,

/s/ Jason Salmi Klotz

Jason Salmi Klotz,
Senior Manager, Regulatory Strategy & Planning

ATTACHMENT

Cc: Sarah Hall
Peter Kernan
UM 2141 Service List

To: OPUC Staff
From: Portland General Electric
Date: September 17, 2025

Oregon Public Utility Commission Staff recommendations from UM 2141 Order No. 25-074¹

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. 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:

- 1. All expenditures on VPP resources by year from calendar year 2017 through 2024, broken down by measure**
- 2. A wholistic cost-benefit analysis inclusive of VPP labor costs approved in rates.**
- 3. 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.**
- 4. The primary grid service provided by each event and any revenue generated or avoided by its use.**
- 5. Grid conditions including market pricing, emissions rate, and composition of PGE resources for all dispatches of VPP resources.**
- 6. All VPP-related inputs that PGE believes to be necessary to reasonably model all VPP measures as supply side option in an IRP.**
- 7. 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.**

¹ OPUC (2025). *UM2141 Order 25-074 Flexible Load Portfolio Multiyear Plan and Budget for 2025-2026*. Item 6 Pp. 12-14, Retrieved from <https://apps.puc.state.or.us/orders/2025ords/25-074.pdf>

PGE responses

R1. All expenditures on VPP resources by year from calendar year 2017 through 2024, broken down by measure.

PGE Response:

This response represents a first step toward working collaboratively with Staff to establish a consistent and repeatable approach for reporting Virtual Power Plant (VPP) expenditures.

We recognize that this initial approach may not fully capture all dimensions of interest and expect that both the categorization of measures and the reporting methodology will improve over time. Our intent is to continue working with Staff to refine the framework so that future reporting provides greater consistency, transparency, and value for regulatory review and stakeholder understanding.

The table below summarizes the CAPEX and OPEX costs that contribute to PGE's Virtual Power Plant. As discussed during the recent Demand Response Advisory Group (DRAG) meeting with OPUC Staff, PGE is reporting costs at the level of main VPP resource categories and technology platforms, rather than by individual measures. The first four items include VPP resources. The fifth encompasses the control systems needed to dispatch and communicate with VPP resources. The sixth includes other indirect costs (not allocated to a specific resource or program) to support demand response program development, demand response program operations, energy storage operations, and VPP operations. It is important to note that the total expenditure figures presented herein reflect actual spend and may not correspond to estimates shared in other dockets or MYP reported actuals, due to the exclusion of PGE labor costs from the MYP framework.

The first two VPP resources -- Demand Response and Managed Charging - are residential and commercial customer programs to reduce load. Demand Response programs incentivize PGE's residential and commercial customers to reduce HVAC, water heating and other loads during times of peak load need. Managed Charging programs - described in the 2025 TE Plan -- shift customer electric vehicle charging load to off-peak hours. Battery Projects and Programs include eight small (<20 MWs) PGE-owned distribution-connected energy storage resources and two customer-owned battery programs. Distributed Standby Generation (DSG) is PGE's program to harness the capacity and ancillary capabilities of customer-owned standby thermoelectric generators. DSG costs provided do not include customer contributions.

VPP Summary (CAPEX + OPEX) (\$000)	2017	2018	2019	2020	2021	2022	2023	2024
1. Demand Response Programs	2,817	5,805	10,712	8,752	10,991	11,077	11,453	10,109
2. Managed Charging Programs	-	-	10	110	581	845	2,036	2,878
3. Battery Projects and Programs	300	94	788	3,842	3,331	13,122	10,490	12,730
4. Distributed Standby Generation (DSG)	1,679	2,411	2,111	1,281	541	413	12,809	20,464
5. DERMs, Controls and Other VPP	-	-	284	464	338	209	747	3,038
6. Support Groups	1,729	2,967	3,341	4,256	3,580	3,558	4,695	5,107
Total	6,526	11,276	17,248	18,705	19,362	29,224	42,230	54,325

Demand Response Programs (\$000)	2017	2018	2019	2020	2021	2022	2023	2024
Energy Partner								
CAPEX	-	-	-	-	-	-	-	-
OPEX	2,338	2,867	2,742	4,105	3,978	3,917	5,517	4,799
Total	2,338	2,867	2,742	4,105	3,978	3,917	5,517	4,799
Smart Thermostat Pilot								
CAPEX	-	-	-	-	-	-	-	-
OPEX	415	1,210	2,931	1,130	2,568	2,710	2,906	2,660
Total	415	1,210	2,931	1,130	2,568	2,710	2,906	2,660
Multi-Family Water Heater Program								
CAPEX	-	-	-	-	-	-	-	-
OPEX	64	1,140	2,957	1,634	2,240	1,655	1,001	639
Total	64	1,140	2,957	1,634	2,240	1,655	1,001	639
PTR and TOU								
CAPEX	-	-	-	-	32	-	-	-
OPEX	-	587	2,082	1,884	2,173	2,794	2,030	2,011
Total	-	587	2,082	1,884	2,205	2,794	2,030	2,011
DR Program Total								
CAPEX	-	-	-	-	32	-	-	-
OPEX	2,817	5,805	10,712	8,752	10,959	11,077	11,453	10,109
Total	2,817	5,805	10,712	8,752	10,991	11,077	11,453	10,109
Managed Charging Programs (\$000)								
Residential EV Charging Pilot								
CAPEX	-	-	-	-	-	-	-	-
OPEX	-	-	10	110	581	845	1,939	2,676
Total	-	-	-	-	-	-	-	-
Commercial Managed Charging								
CAPEX	-	-	-	-	-	-	-	-
OPEX	-	-	-	-	-	-	96	202
Total	-	-	-	-	-	-	96	202
Managed Charging Program Total								
CAPEX	-	-	-	-	-	-	-	-
OPEX	-	-	10	110	581	845	2,036	2,878
Total	-	-	10	110	581	845	2,036	2,878

Battery Projects (\$000)	2017	2018	2019	2020	2021	2022	2023	2024
Anderson Readiness Center								
CAPEX	-	-	-	28	834	251	851	21
OPEX	-	-	-	-	-	-	1	2
Total	-	-	-	28	834	251	851	23
Beaverton Public Safety Center								
CAPEX	-	-	413	627	-	26	8	133
OPEX	-	-	-	12	16	24	47	29
Total	-	-	413	639	16	50	55	162
Coffee Creek Battery Storage								
CAPEX	-	-	71	9	29	10,358	7,249	6,940
OPEX	-	-	-	-	-	-	-	2
Total	-	-	71	9	29	10,358	7,249	6,942
Electric School Bus Pilot								
CAPEX	-	-	-	-	-	-	-	-
OPEX	-	-	-	5	-	-	0	-
Total	-	-	-	5	-	-	0	-
Electric Island Energy Storage								
CAPEX	-	-	-	-	-	746	279	1,161
OPEX	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	746	279	1,161

HB2193 Energy Storage Project

CAPEX	-	-	-	-	-	-	-	-
OPEX	268	61	53	39	10	1	-	-
Total	268	61	53	39	10	1	-	-

IOC Battery Storage

CAPEX	-	-	-	-	-	1,287	1,744	629
OPEX	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	1,287	1,744	629

Port Westward Battery Storage

CAPEX	-	3	190	2,915	2,080	(55)	-	-
OPEX	-	-	-	-	-	-	-	94
Total	-	3	190	2,915	2,080	(55)	-	94

Residential Storage Pilot

CAPEX	-	-	-	-	-	-	-	-
OPEX	-	-	23	172	340	373	267	585
Total	-	-	23	172	340	373	267	585

Salem Smart Center

CAPEX	-	-	-	-	-	74	-	-
OPEX	32	30	38	36	23	38	44	51
Total	32	30	38	36	23	111	44	51

Salem Smart Center Repower

CAPEX	-	-	-	-	-	-	-	3,084
OPEX	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	3,084

Battery Project Total

CAPEX	-	3	675	3,578	2,943	12,686	10,131	11,968
OPEX	300	90	114	263	388	436	359	761
Total	300	94	788	3,842	3,331	13,122	10,490	12,730

DSG (\$000s)	2017	2018	2019	2020	2021	2022	2023	2024
CAPEX	1,511	2,102	1,662	947	101	50	12,493	20,113
O&M	168	309	449	335	440	363	316	351
Total	1,679	2,411	2,111	1,281	541	413	12,809	20,464

Other VPP Projects (\$000s)	2017	2018	2019	2020	2021	2022	2023	2024
Virtual Power Plant - P37368								
CAPEX	-	-	-	-	-	-	-	-
O&M	-	-	-	-	-	135	708	338
Total	-	-	-	-	-	135	708	338
Energy Storage Controls (VPP)								
CAPEX	-	-	284	464	338	74	39	(0)
OPEX	-	-	-	-	-	-	-	-
Total	-	-	284	464	338	74	39	(0)
Distributed Energy Resource Mgmt Sys (DERMS)								
CAPEX	-	-	-	-	-	-	-	2,381
OPEX	-	-	-	-	-	-	-	318
Total	-	-	-	-	-	-	-	2,699
Other VPP Total								
CAPEX	-	-	284	464	338	74	39	2,381
OPEX	-	-	-	-	-	135	708	656
Total	-	-	284	464	338	209	747	3,038
Support Group Costs - (\$000s)								
Product Portfolio Management (RC532)	863	1,300	597	584	506	238	706	1,079
Flexible Load Porfolio (RC538)	-	-	24	143	332	469	442	586
Transportation Electrification (RC542)	-	-	-	-	-	-	-	-
Enterprise Energy Storage (RC509)	-	19	863	2,255	1,725	2,011	1,364	2,081
Customer Specialized Programs (RC924)	866	1,648	1,857	1,275	1,017	839	2,184	1,360
TOTAL	1,729	2,967	3,341	4,256	3,580	3,558	4,695	5,107

R2. A wholistic cost-benefit analysis inclusive of VPP labor costs approved in rates

PGE Response: PGE recognizes the importance of presenting a more complete view of program costs and benefits, including labor where appropriate. As discussed during the July 10, 2025 Demand Response Advisory Group (DRAG) meeting with OPUC Staff, PGE intends to continue engaging with Staff to explore options for enhancing cost transparency. PGE understands that Staff is willing to review this cost-effective analysis in a future Multi-Year Plan (MYP).

R3. 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

PGE Response:

PGE appreciates the opportunity to work with Commission Staff to improve the clarity, consistency, and utility of VPP performance reporting. A foundational step in this effort is to collaboratively define what constitutes "VPP performance" and how it should be measured across a portfolio of diverse and evolving customer-side resources.

In the first attached confidential spreadsheet, PGE provides preliminary dispatch event data for summer 2024 and winter 2024/2025 for the following five peak-time programs:

- Residential Smart Thermostats
- Peak Time Rebates
- Energy Partner Smart Thermostat (Schedule 25)
- Energy Partner on Demand (Schedule 26)
- Multifamily Water Heater

This data is consistent with the format used in PGE's response to UM 2141 IR 003. Reported MW values represent preliminary estimates and are subject to validation. The second attached confidential spreadsheet includes performance data for the Distributed Standby Generation (DSG) program.

Both attached spreadsheets are marked "confidential" and contain information subject to General Protective Order No. 23-132

PGE acknowledges that data for other VPP-enabling programs, including Residential Smart Battery, Residential Smart Charging, and Time of Day pricing, is not yet included in this report. PGE anticipates being able to provide performance data for these programs in future filings as telemetry, systems integration, and program maturity advance.

Looking ahead, PGE is committed to working with Staff to establish an accurate and repeatable performance reporting approach that supports evaluation of the VPP as a system resource and aligns with broader DSP, IRP, and market integration goals.

R3 VPP Reporting Request - Flex Load.xlsx

R3 VPP Reporting Request - DSG.xlsx

R4. The primary grid service provided by each event and any revenue generated or avoided by its use.

PGE Response:

The value of the Virtual Power Plant (VPP) portfolio lies in its ability to deliver targeted grid services across a range of system conditions. Currently, utilization of VPP resources does not result in direct revenue but rather supports portfolio optimization through load reduction, load shifting, and contingency response to deliver system value through avoided capacity purchases and risk mitigation during grid stress events.

Today, VPP resources primarily support:

- Peak Capacity (through scheduled peak demand reduction), and
- Resource Optimization (by scheduled shifting of load)
- Contingency Reserve (by responding to unplanned events)

As the capabilities of PGE's integrated technology platforms expand, especially through improved telemetry, automated dispatch, and integration with operational planning, the set of grid services available from VPP resources is expected to grow.

As noted in R3, PGE anticipates that the Dispatchable Standby Generation (DSG) program will be included in future reporting and VPP performance evaluations. DSG provides highly controllable, locational capacity that complements demand-side resources during reliability events. As part of the VPP, DSG will enhance the overall reliability and responsiveness of the portfolio.

R5. Grid conditions including market pricing, emissions rate, and composition of PGE resources for all dispatches of VPP resources.

PGE Response:

Note: See data response in question R4 for relevant grid/market related information.

Dispatch Criteria:

- Based on (Could be an individual criteria or combination of items below)
 - Forecasted PGE BA conditions (extreme weather events, increased transmission congestion)
 - Forecasted extreme weather across all of WECC (not just PGE BA weather condition specific)
 - Elevated wholesale market prices
 - Generation outages

Notification Windows:

- Programs range from 10 minutes to 18 hours
- 'All-call events' require minimum 18-hour advanced notifications

Decision Timeline:

- Primarily made in the day ahead timeframe but PGE retains the ability to adjust as needed during the operational day per each program's specific notification guidelines should grid and/or market conditions change from the day ahead to real-time time horizon.

Coordination:

- Coordination occurs between Power Operations, Grid Operations and Customer Programs. Power Operations and our Customer Programs teams meet each Monday during the peak Summer and Winter months to discuss upcoming weather forecast and plan our usage of Flex load programs around upcoming market and grid conditions.

Dispatch Timeframes:

- Summer: 16:00 – 19:00 or 17:00 – 20:00
- Winter: Same time windows as summer with an additional morning option of 07:00 – 10:00
- May deviate based on operational conditions if there is a reliability need outside of these timeframes

Event Performance Data Availability:

- Day Before Event: Forecast of expected MW reduction that is submitted to CAISO
- 2-3 business days post-event: Preliminary performance data
- 6 months post-event: Evaluated results available

Emissions Content Tracking:

PGE will not be able to provide the emissions rate or the system emissions factor during specific Flex load events. A response to this question would be speculative and difficult to quantify as it is challenging to quantify emissions avoided directly from Flex load events, as the events could potentially decrease PGE's power purchases in the wholesale energy market rather than decrease generation from PGE's facilities. PGE does report emissions to DEQ on an annualized basis.

R6. All VPP-related inputs that PGE believes to be necessary to reasonably model all VPP measures as supply side option in an IRP.

PGE Response: PGE currently models demand response resources in its IRP. Those resources have not historically been treated in the same manner as supply-side resources when considered for inclusion in portfolio construction; to do so would require speculation by PGE. The current IRP modeling of these resources relies on a prior determination of cost effectiveness (i.e., cost effective measures are an input to the modeling process). In general, PGE's IRP portfolio construction has considered the costs and benefits of supply-side resources while satisfying capacity and energy constraints. Resource costs include fixed costs (up-front and ongoing expenditures, both capital and O&M) and variable costs (incurred based on resource operation). Benefits are measured via a

resource's capacity contribution, energy value, and flexibility value. Specific resource characteristics and parameters that may be required to derive these values include: the timing and volume of incremental resources available for consideration, capacity, storage duration (energy capacity), efficiency, useful life, degradation, minimum/maximum operating time, ramp rate, generation profile, outage rate (planned and forced).

PGE believes modeling VPP as a supply-side option is possible in the future. The following inputs are some, but not all, measures that could be considered: dispatchability constraints, ELCC or equivalent capacity value, program costs inclusive of labor and IT systems, annual call limitations, event durations, geographic granularity (where applicable), telemetry availability, and minimum resource aggregation size.

These inputs and their data sources, as well as an analytical methodology, would require development to reasonably model the VPP portfolio similarly to a supply-side resource. PGE looks forward to continued coordination with Staff on how to potentially develop this approach for future IRP modeling frameworks.

R7. 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.

PGE Response: The Commission's disallowance of \$1.5 million out of PGE's proposed \$4 million investment in the Enterprise Distributed Energy Resource Management System (DERMS), referred to as a Virtual Power Plant (VPP) expense, has affected the implementation timeline of capabilities outlined in PGE's 2024 Distribution System Plan (DSP).

The Enterprise DERMS supports PGE's VPP Strategy to:

- Orchestrate customer-side DERs at scale;
- Provide operational visibility and situational awareness;
- Enable real-time dispatch to support grid services like peak load reduction, voltage control, and localized constraint management.

Per DSP Chapter 7.2.1, DERMS implementation includes phased functionality to support an eventual 24/7 VPP Desk, which is envisioned to coordinate dispatch in real time with Grid and Power Operations. The \$1.5 million disallowance has specifically impacted the planned acceleration of this operational capability through Enterprise DERMS. Functionality to support an eventual 24/7 VPP Desk can be achieved by further development of Enterprise DERMS or by another integrated DERMS solution option.

As a result:

- PGE has deferred full 24/7 staffing of the VPP Desk, focusing instead on business-hour operations to ensure continued coordination of DER program dispatch and integration.

- The transition to automated dispatch, which is foundational to system value realization, is progressing more slowly than initially proposed.
- Integration of DERMS into distribution planning, reliability, and contingency management functions is being paced to match available funding.

PGE remains aligned to its DSP roadmap and to advancing customer-sited flexibility as a core system resource. We continue to evaluate investment strategies that align with Commission guidance and will incorporate updated cost-benefit and performance metrics in future filings.

CERTIFICATE OF SERVICE

I hereby certify that I have this day caused the **Portland General Electric Company's Supplemental Compliance Filing** to be served by electronic mail to those parties whose e-mail addresses appear on the attached service list for OPUC Docket UM 2141.

Dated at Portland, Oregon, this 17th day of September, 2025.

/s/ Danielle McCain

Danielle McCain
Associate Regulatory Analyst
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UM 2141 Service List

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