

**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON**

UM 1856

In the Matter of

PORTLAND GENERAL ELECTRIC
COMPANY,

Residential Storage Pilot

Staff Comments
Informational Filing Only

The Public Utility Commission of Oregon Staff (Staff) offers these brief comments on Portland General Electric's (PGE) Revised Residential Storage Pilot Proposal.

BACKGROUND

On August 13, 2018, the Commission issued Order No. 18-290 in this docket, adopting a partial stipulation (Stipulation)¹ that outlined an agreed approach to the development of five energy storage projects, of which this residential storage pilot is the fifth and final proposed project. Pursuant to the Stipulation, PGE filed an addendum to the energy storage proposal in January 2019.² Staff met with PGE in July 2019, and after that discussion PGE and Staff agreed that PGE would revise the residential storage pilot design, still under the terms of the Stipulation, to address Staff's concerns. PGE met with Staff on January 27, 2020 and February 14, 2020, to discuss progress on revisions to the pilot design, and PGE filed the Revised Residential Storage Pilot Proposal on March 12, 2020.³

COMMENTS ON REVISED RESIDENTIAL STORAGE PILOT

Based on the information provided by PGE, Staff notes that the Revised Residential Storage Pilot Proposal is generally well thought-out and includes appropriate objectives, research questions, and potentially learnings to inform development of future programs.

¹ Docket No. UM 1856, Partial Stipulation filed May 22, 2018.

² Docket No. UM 1856, Addendum to PGE's Residential Storage Pilot filed January 25, 2019.

³ Docket No. UM 1856, PGE's Revised Residential Storage Pilot Proposal filed March 12, 2020.

Staff would like to thank PGE for its work on significantly improving this proposal over the original version.

After meeting with PGE on March 30, 2020, to discuss this revised proposal, Staff offer the following comments for PGE to keep in mind throughout the life of the pilot:

- Some of the most important learnings from this pilot should be deeper understandings of customer preferences, customer-perceived value and risks associated with residential battery storage, and the appropriate level of incentives that might be necessary for customers to allow the utility to manage storage resources that are located “behind the meter.” PGE’s revised proposal highlights a number of key questions about customers, their experiences and preferences, and methods PGE will employ to test customer responses.⁴ Staff is generally in agreement with PGE’s proposal, but Staff note that PGE’s revised proposal separates the section about “The Customer”⁵ from the section that describes “The Program” and “Specific questions PGE seeks to address to inform future program design,” all of which pertain to the value of residential battery storage to system operation.⁶ Due to the nature of this pilot, which involves infrastructure installed behind the meter in customers’ homes, Staff believe the potential learnings about customer experiences and preferences could be just as important as learnings about aggregated dispatch of distributed battery storage and potential values for grid operation.
- In particular, staff note that PGE plans to perform baseline surveys of customer awareness and interest, ongoing surveys of customers enrolled in the pilot, and “surveys of those who do not enroll in the program (identified as those who install solar panels through the Energy Trust program but do not purchase a battery) to better understand their barriers.”⁷ Staff agree with this approach, and appreciate the difficulty of reaching customers who receive marketing materials, do not have solar panels, and do not participate in the pilot. However, Staff urge PGE to devise an appropriate survey to gauge barriers to customer adoption of stand-alone battery storage. For example, one of the key benefits to the customer of behind-the-meter storage is the battery’s ability to island from the grid in the event of an outage and provide power to the customer.⁸ However, this outage mitigation benefit is limited if the customer does not also have rooftop solar panels to generate electricity and supplement or recharge the battery unit. Staff are curious how customers perceive these differing outage mitigation benefits, and if customers perceive other risks or barriers to participation that Staff or PGE have not contemplated.

⁴ Docket No. UM 1856, PGE’s Revised Residential Storage Pilot Proposal filed March 12, 2020, pp. 9-10.

⁵ *Ibid.*

⁶ Docket No. UM 1856, PGE’s Revised Residential Storage Pilot Proposal filed March 12, 2020, pp. 11-12.

⁷ Docket No. UM 1856, PGE’s Revised Residential Storage Pilot Proposal filed March 12, 2020, p. 10.

⁸ Docket No. UM 1856, PGE’s Revised Residential Storage Pilot Proposal filed March 12, 2020, pp. 14-15.

- Regarding marketing of the pilot, Staff appreciate that PGE conducted a market research study in January 2020 with more than 1,400 customers to gauge customer awareness and interest.⁹ However, Staff note that the revised proposal lacks a full, formal marketing plan, and the target roll-out of 175 residential battery units per year in years 1 to 3 of the pilot¹⁰ is aggressive in comparison with existing residential battery storage deployments in the Portland metropolitan area, as communicated to Staff by Energy Trust of Oregon. PGE indicated that the company has been preparing a full marketing plan, which PGE will share with Staff during mid-April 2020. Staff look forward to reading this marketing plan.
- Further, since PGE's market research study in January 2020, the global coronavirus pandemic has had dramatic impacts on utility operations, utility access to customer homes, consumer confidence and spending, and the state, national, and global economies. As such, Staff and PGE agree that the marketing plan, customer incentives, and/or test cases might need to be adjusted in future years if the number of installed battery units lags significantly behind the targets.
- With regard to the budget for this pilot, Staff greatly appreciate that PGE's revised proposal includes a relatively low capital cost (approximately \$40,000 NPV)¹¹ compared with the \$1.5 million capital cost cap included in the Stipulation. Staff appreciate that the incentives and some of the program costs identified in the budget generally accrue with each incremental battery unit installed as part of the pilot, so that a slower than anticipated roll-out will incur lower overall costs than the budget assumes. To this end, Staff urge PGE to work with its Program Manager and its implementation partner (Energy Trust of Oregon) to similarly ensure that, to the greatest extent possible, Program Costs are variable and keyed to the number of battery units installed, rather than fixed up-front costs.
- Regarding usage, charging state, and other data, Staff understand and appreciate that PGE plans to analyze data captured directly from the inverters on the installed battery units, via the customer's WiFi signal, rather than utilize more cumbersome and/or expensive methods.
- Finally, Staff note a minor typographical error in Table 4: Evaluation Schedule. The Projected Capacity for Year 2 should read, "350 customers, between 0.4 MW – 1.2 MW for 4 hours," rather than "0.4 MW – 0.2 MW." Staff and PGE discussed this, and it does not materially affect the proposal.

Keeping the above comments in mind, Staff believe this revised pilot proposal is sound and will lead to important learnings over the next five years, which should help Staff and PGE better understand the values, customer experiences, and technical considerations

⁹ Docket No. UM 1856, PGE's Revised Residential Storage Pilot Proposal filed March 12, 2020, pp. 19-20.

¹⁰ Docket No. UM 1856, PGE's Revised Residential Storage Pilot Proposal filed March 12, 2020, p. 31.

¹¹ Docket No. UM 1856, PGE's Revised Residential Storage Pilot Proposal filed March 12, 2020, p. 30.

of potential future programs. Staff welcome PGE to make advice, tariff, and compliance filings as necessary to implement pilot.

This concludes Staff's comments.

Dated at Salem, Oregon, this 9th day of April, 2020.

/s/ Nicholas A. Colombo

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