Portland General Electric
121 SW Salmon Street · Portland, Ore. 97204

August 27, 2020

Public Utility Commission of Oregon
Attn: Filing Center
201 High Street, S.E.
P.O. Box 1088
Salem, OR 97308-1088

RE: PGE UM 1856 2020 Annual Energy Storage Update

Pursuant to Public Utility Commission of Oregon (OPUC or Commission) Order No. 18-290, Portland General Electric Company (PGE) submits its second annual report on the progress of its energy storage proposal which includes: Baldock, Coffee Creek, Microgrid pilot, Port Westward 2 (PW2), Residential Storage pilot, and the controls for the energy storage systems. During operation of the projects, PGE will submit comprehensive evaluations in the third, sixth, and tenth operating year, along with annual progress updates. The following report details each project and includes progress, challenges, and preliminary learnings (as available). As is discussed further in this update, with the exception of the residential battery storage pilot, several projects are delayed due to the COVID 19 pandemic and its business and social distancing consequences.

History of Energy Storage Docket

The Commission opened Docket No. UM 1751 in September 2015 to implement House Bill 2193, which requires Oregon electric companies (PGE and PacifiCorp) to submit proposals by January 1, 2018, to procure qualifying energy storage systems with capacity to store at least five megawatt hours of energy. PGE met this requirement and has procured 11 MWh of energy storage (Port Westward 2 and a Microgrid site Beaverton Public Safety Center) as of December 31, 2019.

PGE filed its energy storage proposal and final Energy Storage Potential Evaluation on November 1, 2017, which were reviewed in this docket. Order 18-290 partially approved and modified the stipulation and provided conditional approval on the following projects:

- **Energy Storage Potential Evaluation** – Prior to moving forward with any of the projects, PGE will submit a detailed written explanation of a plan to improve its energy storage modeling capability to estimate all energy storage benefits as directed in Order Nos. 17-118 and 17-375. This will be submitted to OPUC Staff (Staff) where they will evaluate and determine approval to allow PGE to move forward with all projects.

- **Baldock Mid-Feeder Project** – Submit a site analysis to Staff where they will evaluate and determine whether adequate evidence has been provided to allow PGE to move forward with the project.
- **Coffee Creek Substation Project** – Similar to Baldock, submit a site analysis for evaluation by Staff. In addition, PGE is to submit a justification for utility ownership.
- **Residential Storage Pilot** – Submit an addendum that details how PGE will optimize learnings and mitigate risks to Staff where they will evaluate and determine whether adequate evidence has been provided to allow PGE to move forward with the pilot.

2020 Annual Energy Storage Update

Baldock Mid-Feeder Energy Storage System

This project will develop and build a 2 MW, two-hour energy storage system adjacent to PGE's Baldock Solar facility and will be interconnected to the Canby-Butteville feeder. The final project energy rating (MWh) will be determined based on the proposal pricing received and space availability.

PGE has prepared the Request for Proposal (RFP) for this project, but due to economic conditions stemming from the COVID-19 pandemic, this project has been pushed out to 2022. PGE plans to issue the RFP in late 2021 for evaluation.

Coffee Creek Substation Energy Storage System

This project will develop and build a 17-20 MW, four-hour energy storage system sited and interconnected at PGE's Coffee Creek Substation. The final project rated capacity will be determined based on the proposal pricing received.

Due to economic conditions stemming from the COVID-19 pandemic, this project has been pushed out to 2022. PGE plans to reissue the RFP in late 2021 for revised pricing and re-evaluation.

Microgrid Pilot

This project will develop and build two microgrids and will serve either single customers or a subset of customers.

PGE and the City of Beaverton signed an agreement to deploy the first energy storage microgrid at the Beaverton Public Safety Center back in 2019. The project will consist of a 250 kW, four-hour battery and will be energized on or around September 1, 2020 when the building begins to be occupied by the city.

PGE and the Oregon Military Department have signed an agreement to deploy the second energy storage microgrid at the Anderson Readiness Center. We anticipate this project will be energized in 2021. Discussions occurred between PGE and Staff this past June and July where Staff affirmed PGE must use a competitive process to award contracts for the Anderson Readiness Center instead of doing a request for procurement from the same vendor that was used for the Beaverton Public Safety Center. Based on this guidance, PGE submitted the RFP for stakeholder review in June 2020 and is currently updating the requirements. PGE will be issuing the RFP in September 2020 to a number of vendors.

Both microgrid sites are designed to support community resiliency.

Port Westward 2 (Generation Kickstart) Energy Storage System

This project will develop and build a 5 MW, two-hour energy storage system at PGE's Port Westward 2 Generating Station (PW2). This energy storage system will be coupled with one of PW2's reciprocating engines. The project will enable the combined resource (i.e. the energy storage system and a PW2 reciprocating engine) to qualify as spinning reserve, even when the engine is not running.

When called upon for spinning reserves, the energy storage system will immediately deliver full output to the grid while the adjacent PW2 engine starts and synchronizes to the grid (within 10 minutes), thereby providing the full 18.9 MW required. This will reduce the wear and tear, operation and maintenance expense, and carbon footprint of the PW2 engine while providing ancillary services.

Pursuant to the competitive bidding requirements in UM 1751, PGE submitted the RFP for stakeholder review in May 2019, and issued the RFP in June to 12 bidders that were identified in the same RFI described above. RFP bids were received on August 16, 2019 and bid evaluations were completed. The project has been awarded to Tesla and the project is currently in the design phase, with construction scheduled to start by the end of 2020. The site certificate amendment request has been approved by the Oregon Department of Energy.

Residential Storage Pilot

PGE worked closely with OPUC Staff on the details of the Residential Storage pilot and received regulatory approval for Schedule 14 on June 30, 2020. The tariff effective date was August 1, 2020, and PGE has been operationalizing the Pilot to prepare to serve the first participants.

PGE's residential storage pilot, dba "PGE Smart Battery," will integrate up to 525 customer-owned residential storage units as a dispatchable resource providing grid services. During grid outages, the energy storage system will provide back-up power to participating residences. In exchange for allowing PGE to operate the battery for grid services, a customer will receive $20 or $40 per month. Customers within the Smart Grid Testbed are also eligible for an up-front rebate to encourage the density that will be needed to test locational benefits, and income qualified customers participating in the Energy Trust's Solar Within Reach program are also eligible for an up-front rebate so that PGE may better understand the needs of a diverse set of customers.

Energy Storage Modeling Capability

PGE has provided EPRI with the necessary StorageVET value streams. Coffee Creek and Baldock project valuations have been assessed, and Port Westward 2 valuation is underway after being delayed due to Covid-19, after which a final report will be generated. Energy storage value streams which are location-independent have had their value quantified. PGE is still investigating how to model and quantify distribution/locational value such as Volt-Var Optimization and Conservation Voltage Reduction.

Please direct any questions regarding this filing to Chris Pleasant at (503) 464-2555. Please direct all formal correspondence and requests to the following email address pge.opuc.filings@pgn.com

Sincerely,

\s\ Robert Macfarlane

Robert Macfarlane
Manager, Pricing & Tariffs

cc: UM 1856 Service List