December 3, 2021

Oregon Public Utilities Commission
Administrative Hearings Division – UM 2197
P.O. Box 1088
Salem, OR 97308-1088

RE: Docket No. UM 2197 – Portland General Electric Company's Distribution System Plan Part 1

Weave Grid, Inc. ("WeaveGrid") submits these comments to the Oregon Public Utilities Commission ("the Commission") in response to Portland General Electric Company's ("PGE" or the "Company") Distribution System Plan ("DSP" or "Plan") for acceptance.

I. Introduction

WeaveGrid is a software company that helps utilities increase the adoption of electric vehicles ("EVs") through greater understanding of customer charging behaviors, managed charging programs, and distribution-level optimization.

WeaveGrid's technology leverages utility and charging data, including the embedded vehicle telematics—data, controls, and communication systems— to transform unpredictable and disaggregated EV charging loads into a cohesive network of controllable grid resources. Our approach enables customers to participate in utility programs without installing specific chargers or onboard diagnostic devices. WeaveGrid is a market leader in providing these solutions, which we are deploying in utility programs across the United States. In Oregon, WeaveGrid recently became a partner vendor for the Company's managed charging efforts.

II. Comments

WeaveGrid is supportive of the Company's proposed Distribution System Plan Part 1.[1] We recommend that the Commission accept the filing.

[1] Portland General Electric Company's Distribution System Plan Part 1, October 2021, https://edocs.puc.state.or.us/efdocs/HAA/um2197haa85326.pdf.

WeaveGrid commends the Oregon Public Utilities Commission for its leadership on DSPs[2] and appreciates the significant effort of the Company in developing a comprehensive DSP that includes human-, community-, and equity-centered elements. The DSP represents significant work to create a vision and execution plan of a modern distribution system that addresses various needs for the diverse communities served. We believe it is a document that other commissions and utilities around the country will look to as a best practice.

We appreciate the Company's framework incorporating capability elements from the U.S. Department of Energy's modernized distribution grid framework, including virtual power plant; planning and engineering; grid management systems; sensing, management, and control; telecommunications; and the physical grid. There is also ample discussion and explanation of the tools that would need to be developed, advanced, or acquired to achieve the desired sophisticated capabilities. The Plan acknowledges that DERs offer value, their value is variable both temporally and locationally, and tools and platforms will be required to monitor, implement, and manage DERs effectively.

WeaveGrid is keenly interested in and respectful of the transportation electrification components of the Plan. With the nearly 20,000 electric vehicles in PGE's territory, there is a relatively large, and very much growing, pool of resources offering a unique category of load flexibility. Furthermore, we appreciate that the Plan positions electric vehicles as potential resilience tools for customers.

The Plan suggests that electric vehicle adoption has been and will continue to be clustered. Clustered EV adoption creates impacts on the distribution grid at a localized level, which can be mitigated with managed charging. In fact, a 2019 Lawrence Berkeley National Lab and Pacific Gas and Electric study found that high levels of EV adoption in residential areas with unmanaged charging resulted in a significant amount of the feeders in the study area reaching or exceeding their maximum loading limit.[3] The same study concluded that managed charging is the most cost-effective solution to reduce distribution grid impacts. Managed charging offers significant value for the distribution grid, including but not limited to curbing "timer peaks,"[4] shifting charging to low-cost off-peak time periods, and minimizing loading on infrastructure by clusters of vehicles. Software providers like WeaveGrid have solutions that can help capture these benefits for utilities and their customers with a software platform that can connect directly with electric vehicles' data, communication, and control systems to monitor and manage charging across a service

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[2] Oregon Public Utilities Commission Docket No. UM 2005, Order 20-485, December 2020, https://apps.puc.state.or.us/orders/2020ords/20-485.pdf.

[3] J. Coignard, P. MacDougall, F. Stadtmueller and E. Vrettos, "Will Electric Vehicles Drive Distribution Grid Upgrades?: The Case of California," in *IEEE Electrification Magazine*, vol. 7, no. 2, pp. 46-56, June 2019, https://ieeexplore.ieee.org/document/8732007.

[4] Timer peaks occur when electric vehicle customers are enrolled on a utility's time-of-use rate and their vehicles start charging simultaneously at the point when the lowest-cost time period starts, which then creates a localized electricity demand peak.

territory. Managed charging platforms such as ours can help realize climate, affordability, and state and utility goals.

III. Conclusion

WeaveGrid appreciates the dedicated efforts of PGE to develop Part 1 of its Distribution System Plan, and the Plan offers a thoughtful approach to modernizing the Company's distribution grid. We look forward to continued engagement and thank the Commission for consideration of these comments.

Respectfully submitted,

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