



July 13, 2023

Oregon Public Utility Commission
Attn: Filing Center
201 High Street SE, Suite 100
Salem, OR 97308-1088

Re: Docket No. UM 2033, PGE Transportation Electrification Plan – Comments of ev.energy on Portland General Electric’s Draft 2023 Transportation Electrification Plan

Dear Mr. Shierman:

EV.ENERGY CORP (“ev.energy”) appreciates the opportunity to provide comments on Portland General Electric’s (“PGE”) Transportation Electrification Plan for 2023 (the “TEP”). PGE has invested significant time and effort into this holistic strategy that will move Oregon further toward its clean energy goals by electrifying the state’s transportation sector. We support PGE’s broad efforts to expand and evolve its existing electric vehicle (“EV”) program offerings.

In these comments, we focus our recommendations on three aspects of the PGE Residential Smart EV Charging Pilot described in its TEP:

1. PGE should consider expanding the scope of the Residential Smart EV Charging Pilot to include vehicle telematics brands beyond Tesla;
2. PGE should consider an enhanced user interface for its Residential Smart EV Charging Pilot in order to increase customer participation in Smart Charge events; and
3. PGE should set aside budget for enhanced managed-charging functionality including renewable generation alignment and bidirectional charging (V2X).

We expand on these recommendations below

ABOUT EV.ENERGY:

Ev.energy is a leading software platform for managed EV charging with experience running some of the country’s largest utility EV charging programs, including SmartCharge New York, Charge Smart MA, and MCE Sync. Operating across all 50 U.S. states, we provide an end-to-end solution for utilities to directly control residential EV load through a broad suite of APIs that connects to both vehicles and Electric Vehicle Supply Equipment (“EVSEs”), covering over 95% of PGE’s light-duty EV customers based on recent data from the Oregon Department of Transportation.

To deliver vehicle-grid integration, ev.energy can obtain one or multiple signals from a utility including static time-of-use pricing, localized load feeds from a distributed energy resource management system (“DERMS”) platform, system-wide demand-response dispatches, and/or renewable energy generation forecasts. We can then use these signals to schedule, turn on/off,

and/or throttle EV charging in order to optimize load at the network and local levels while still ensuring the customer's vehicle is charged by the time they need it.

Over 95% of EV drivers on our platform adhere to managed charging each day, which we achieve through an award-winning mobile app that can be white-labeled for the utility and provides the customer with transparency and control over their EV charging schedule, consumption/costs, battery level and health, and the ability to opt out of managed charging events if needed.

In summary, our managed charging software helps utilities to realize:

- *Reliable load shifting.* We are consistently shifting as much as 97% of EV load to off-peak hours with Madison Gas & Electric;
- *Meaningful demand response ("DR") curtailment.* By maximizing customer participation in DR programs and events we are able to deliver an average of 1.4 kW of load reduction per EV to the United Illuminating Company of Connecticut;
- *Renewable generation alignment.* We are aligning over 50% of the average California customer's EV charging with intermittent renewable generation through the GridShift program with Silicon Valley Clean Energy, reducing the carbon intensity of the electricity used to charge by as much as 70%;
- *Customer savings.* We've been proven to reduce Time-Of-Use customers' energy bills by automatically charging their EVs off-peak, saving Con Edison customers \$400/year on average.

DETAILED RECOMMENDATIONS:

1. PGE should consider expanding the scope of the Residential Smart EV Charging Pilot to include vehicle telematics brands beyond Tesla

In its TEP, PGE states that it plans to maintain customer eligibility for the pilot to Tesla drivers and customers with a qualified home charger (currently limited to ChargePoint, Enel X Way, and Flo)¹. We would strongly recommend that PGE consider expanding customer eligibility to additional vehicle telematics brands to better advance social equity and help PGE reach its stated program enrollment goals.

We encourage PGE to consider additional ways to promote social equity, such as expanding the Residential Smart EV Charging Pilot to include additional vehicle OEMs connected through telematics. We applaud PGE for already considering social equity in its TEP, identifying "ongoing barriers that historically excluded communities face in accessing electric transportation".² PGE further seeks to address financial barriers in its Residential Smart EV Charging program, stating that "[t]o help remove financial barriers, we will explore both point-of-purchase rebates (as opposed to post-purchase rebates) and also ongoing support

¹ See <https://portlandgeneral.com/charge-faster> for information on PGE's current Residential Smart EV Charging Pilot.

² See June 1, 2023 "2023 Transportation Electrification Plan", at p. 66.

throughout the installation process.”³ However, maintaining L2 EVSEs as the primary channel for eligibility and enrollment risks further restricting renters, residents of multi-unit dwellings, and low-income communities. As the MIT Science Policy Review found, “lower income households may find the installation of home charging unaffordable, and those in multifamily housing are less likely to have access to charging at home”.⁴ Rewiring America has further found that 60-70 percent of households have electrical panels with ratings less than the 200 amps needed to fully electrify, with service upgrades costing between \$2,000–\$30,000.⁵ Instead of relying on the installation of L2 chargers when many households simply cannot afford it, we encourage PGE to utilize other solutions such as telematics to enable program participation. Otherwise, the program as proposed risks exacerbating the existing barriers to EV adoption for lower-income households and multifamily residences.

Expanding customer eligibility and participation channels will also make it much more feasible for PGE to meet, and perhaps even exceed, its stated enrollment goal of 9,899 participants by 2025. Right now, the Residential Smart EV Charging Pilot restricts vehicle telematics participation to Teslas, which make up just 31% of EVs registered in the state as of November 2022, according to the Oregon Department of Transportation. Hardware-agnostic software platforms connected to a broad range of EV makes - including Ford, Chevrolet, Hyundai, Kia, Jeep, Rivian and others - exist in the market today. We encourage PGE to explore the market for integrations beyond just Tesla to ensure that every PGE customer who wants to participate in this pilot can do so.

2. PGE should consider an enhanced user interface for its Residential Smart EV Charging Pilot in order to increase customer participation in Smart Charge events

While PGE has already demonstrated a 70%-80% customer participation rate in Smart Charge events, we are concerned that the design of the pilot’s user interface and the way that customers are engaged prior to and during these events may be leaving further load reduction on the table. Specifically, customer participation rates from other successful smart-charging programs have been verified to be much higher. For example, California’s largest CCA Marin Clean Energy (“MCE”) utilized ev.energy’s mobile app to send push notifications to customers prior to demand response events, leading to 98% customer participation.⁶ Similarly, Ameren leveraged ev.energy’s mobile app and behavioral nudging platform to achieve 100% customer participation and load reduction in a demand response pilot run with EPRI; EPRI concluded that “user-friendly apps and rewards programs [like ev.energy’s] can be effective in helping

³ Ibid., at p. 85.

⁴ See August 30, 2021 “A perspective on equity in the transition to electric vehicles”, available <https://sciencepolicyreview.org/2021/08/equity-transition-electric-vehicles/>.

⁵ See “Circuit Breakers: Upending Electrification Myths”, available at <https://www.rewiringamerica.org/circuit-breakers-the-grid#12>.

⁶ See October 13, 2022 “Bay Area EV Drivers Helped Prevent Blackouts During 2022 Heat Waves with MCE Load-Shifting Program”, available at <https://www.utilitydive.com/press-release/20221013-bay-area-ev-drivers-helped-prevent-blackouts-during-2022-heat-waves-with-mc-1/>.

customers reduce their energy bills, track consumption and savings, meet environmental goals, and adhere to managed EV charging through gamification and rewards.”⁷

Indeed, across the dozens of utility managed charging programs ev.energy has delivered alongside our utility partners, we have found that a mobile-based user interface is vital to engage customers where they spend most of their time. This interface allows the program administrator to send push notifications or behavioral nudges to encourage demand response event participation. A sophisticated user-centric interface also helps to alleviate customer hesitancy about enrolling in a managed charging program and supports ongoing customer retention by displaying helpful information on costs, savings and incentives. Finally, such an interface would help to achieve PGE’s conclusion that “an integrated digital experience is necessary to help them complete the energy journey from awareness to education, adoption, and through to implementation and support.”⁸

3. PGE should set aside budget for enhanced managed-charging functionality, including renewable generation alignment and bidirectional charging (V2X)

In the three years of its Residential Smart EV Charging Pilot thus far, PGE has demonstrated its capability to deploy L2 chargers and engage customers in Smart Charge events. We encourage PGE to consider additional ways to expand its residential managed charging pilot and its vehicle-grid integration toolkit because as PGE states in its TEP: “managing customer loads is critical to our ability to meet our goals and manage costs and reliability for our customers.” Specifically, we believe that the Residential Smart EV Charging Pilot could prove even more valuable to PGE by beginning to test dynamic renewable load-balancing and V2X.

Oregon's Renewable Portfolio Standard sets a requirement that 50 percent of electricity use come from renewable resources by 2040.⁹ Presently, 14% of Oregon’s in-state generation is from wind and 3% is from solar.¹⁰ As installed renewable capacity continues to grow to meet Oregon’s goals, it will become increasingly important for PGE to have dynamic load balancing capability given the intermittent nature of renewables and the inherent flexibility of residential EV charging. EVs are one of the ideal resources to provide load balancing for renewables, as data from millions of EV charging sessions performed on ev.energy’s platform shows that the average residential EV is plugged in for 12-14 hours but only requires an average of 2-3 hours of charge at L2. Applying real-time renewable generation alignment to EV charging could result in up to 70% lower-carbon electricity used to charge EVs, as Silicon Valley Clean Energy has proved through its GridShift program.¹¹

⁷ See March 2021 “MANAGED EV CHARGING SOFTWARE Incubatenergy Labs 2020 Pilot Project Report”, available at

<https://skipsolabs-epri.s3.amazonaws.com/uploads/content/44bf0c2a83c23c767aa6ef08548c268bb68864ba.pdf>.

⁸ See June 1, 2023 “2023 Transportation Electrification Plan”, at p. 30.

⁹ See <https://www.oregon.gov/energy/energy-oregon/pages/renewable-portfolio-standard.aspx> for more information.

¹⁰ See U.S. Energy Information Administration “Oregon State Profile and Energy Estimates”, available at <https://www.eia.gov/state/analysis.php?sid=OR#:~:text=Renewable%20energy,in%2Dstate%20electricity%20net%20generation>.

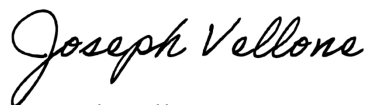
¹¹ See September 8, 2021 “Time shift: How to make EV charging as clean as possible”, available at <https://www.canarymedia.com/articles/ev-charging/time-shift-how-to-make-ev-charging-as-clean-as-possible>.

Another important tool in PGE’s future grid-balancing toolkit could be the ability to export energy to the grid via bidirectional charging, or V2X. PGE states that it has deployed a V2G demonstration project in October 2021 with a single Nissan LEAF.¹² We are encouraged that PGE is committed to “test[ing] grid support capabilities, network communication efficiency, system response functionalities, and V2G benefits and impacts on the local distribution system.”¹³ We believe this capability could be tested at a small scale within the Residential Smart EV Charging Pilot, looking not only at export potential but also at customer preferences and behaviors, and suggest that PGE allocate additional funding to testing how V2G could be rolled out to residential customers at scale.

CONCLUSION:

Ev.energy thanks the Commission, PGE, and all other parties for thoughtful consideration of its comments. We support PGE’s TEP, and in particular its intentions to bring active managed charging to PGE customers. We encourage the Commission to permit PGE to adopt the recommendations made by ev.energy in order to maximize the efficacy of PGE’s TEP and to support Oregon’s climate goals. Please contact me with any questions, and we look forward to engaging with all stakeholders on the PGE TEP.

Sincerely,



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¹² See June 1, 2023 “2023 Transportation Electrification Plan”, at p. 113.

¹³ Ibid.