

## Chapter 8. Portfolio Performance Areas

New administrative rules from the OPUC are designed to help the Commission and stakeholders comprehensively review TE Plan outcomes and impacts. PGE is pleased to present the following discussion of how this portfolio of activities holistically advances the portfolio performance area categories below, including tracking and forecasting of specific metrics as required by OAR 860-087-0020. The portfolio performance area categories established in these rules include:

- Environmental Benefits and GHG Emissions Impacts
- EV Adoption
- Underserved Community Inclusion and Engagement
- Equity of Program Offerings
- Distribution System Impacts and Grid Integration Benefits
- Program Participation and Adoption
- Infrastructure Performance including charging adequacy, which considers but is not limited to reliability, affordability, and accessibility

In this chapter, we discuss each portfolio performance area category in turn.

### 8.1 Environmental Benefits and GHG Emissions Impacts

The transportation sector is responsible for nearly 40 percent of the greenhouse gas emissions in Oregon and is the largest source of such emissions<sup>198</sup>. Transportation is also responsible for significant air pollution including particulate matter (PM<sub>2.5</sub>), sulfur dioxide (SO<sub>2</sub>), and nitrogen oxide (NO<sub>x</sub>)<sup>199</sup>. The transition to electric transportation reduces both greenhouse gas emissions and air pollution over time, as EVs benefit from the energy efficiency of electric motors over internal combustion engines. Emissions related to electricity are also lower than those from gasoline/diesel because the source of that electricity (power generation plants) employ pollution and other control systems and generate electricity from both lower-emitting fuels such as natural gas as well as non-emitting sources such as hydropower, wind, and solar. PGE's work to support our customers' switch to electric vehicles will reduce both greenhouse gas emissions and non-GHG local air pollutants. [Table 24](#), below, shows the estimated GHG emissions reductions from EVs that are registered in PGE's service area as of year-end 2022, assuming that each of these is replacing a comparable internal combustion engine vehicle that would otherwise be on the road.

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<sup>198</sup> Oregon Global Warming Commission (2020). *Biennial Report to the Oregon Legislature*. Retrieved from <https://static1.squarespace.com/static/59c554e0f09ca40655ea6eb0/t/5fe137fac70e3835b6e8f58e/1608595458463/2020-OGWC-Biennial-Report-Legislature.pdf>.

<sup>199</sup> PGE will present these criteria pollutant reductions in a future filing.

Table 24. Estimated GHG Emission Reductions from EVs Registered in PGE Service Territory in 2022

Vehicle Type	Vehicles in PGE's Service Area	Estimated Annual Miles Driven <sup>200</sup>	Estimated Annual Reduction in CO <sub>2</sub> e (metric tons)
Light Duty (LDV)	40,481 EVs	443,995,608 annual miles	117,428 metric tons
Medium Duty (MDV)	247 EVs	5,228,496 annual miles	5,881 metric tons
Heavy Duty (HDV)	15 EVs	941,265 annual miles	357 metric tons
<b>Total</b>	<b>40,743 EVs</b>	<b>450,165,369 annual miles</b>	<b>123,666 metric tons</b>

To estimate the forecasted GHG emissions reductions from EVs registered in PGE's service area, PGE started with the number of EVs in our service area at the end of 2021. For LDVs, we used the residential registration counts provided by DEQ for the calculation of CFP credits. For MDVs and HDVs, we used PGE's analysis of DMV registration data used for our AdopDER forecast model. For each EV, we assumed that it displaced a comparable ICE vehicle. We also assumed that each EV drove the same number of miles that the ICE vehicle would have driven—namely, the average number of residential miles driven per vehicle in Oregon (from Federal Highway Administration data) for LDVs; and the average number of MDV miles driven nationally (from National Transportation Energy Data Book data) for MDVs.

We assumed a 10-year future life of each vehicle, starting in 2021. We applied vehicle energy economy assumptions to determine the number of kWh consumed, and the number of gallons of gasoline displaced (or diesel, for MDVs) based on the number of miles driven. We used constant values for the carbon intensities of gasoline and diesel and assumed a linear reduction in the carbon intensity of PGE's delivered mix from the 2021 value (0.32 MT/Net MWh) to zero in 2040. The annual reduction was calculated by dividing the 10-year benefit by the number of years.

## 8.2 EV Adoption

PGE's TE portfolio is designed to meet the needs of PGE customers across a variety of vehicle sizes, use cases, and charging needs. PGE expects additional investment is needed to meet market needs. The question of who makes these investments and the role of the utility in each use case will be answered by the market over the coming years. At present PGE's position is that the utility must plan for, serve, and manage the load. As discussed in detail in [Section 4.6](#), there remain numerous variables over which PGE lacks control.

<sup>200</sup> Estimated Annual Miles Driven based on 10,968 annual miles driven per LDV (2022 Federal Highway Administration Data); 21,168 annual miles driven per MDV (National Transportation Energy Data Book); 62,751 annual miles driven per HDV (U.S. Department of Energy).

In its 2019 TE Plan, PGE reported the following EV adoption forecast for the period through this TE Plan:

Table 25. PGE Service Area EV Forecast by Vehicle Type (Reference Case), 2019 TEP<sup>201</sup>

Vehicle Type	2020	2025
Light Duty (LDV)	28,000	99,000
Medium Duty (MDV)	20	500
Heavy Duty (HDV)	10	200
<b>Total</b>	<b>28,030</b>	<b>99,700</b>

While not specified in the 2019 TE Plan, the reference case forecast for LDV EVs in PGE's service area by 2021 was 33,637, while the actual number at the end of 2021 was 30,458. As of December 31, 2022 the number of residential LDV EVs in PGE's service area was 40,481.<sup>202</sup>

See [Section 4.3.1](#) for PGE's new adoption forecasts based on updates accounting for the IRA and new state-level policy and market changes.

### 8.3 Community Engagement

Outreach tends to be short-term for the purpose of informing others. Engagement is long-term and is predicated on trust-building and relationship-development, and reflects the diversity of community members, particularly those impacted by a program project or decision. Potentially affected community groups may not typically participate in regulatory processes or our TE Plan workshops. Given the importance of transportation electrification to our customers, we are focused on longer-term engagement as we recognize the need to go beyond short-term outreach to these underserved communities as defined by HB 2165. [Section 5.1.1](#) details PGE's short-term needs assessment focused on underserved communities.

The following section illustrates PGE's long-term engagement with underserved communities. This engagement will include other forms of electrified transportation such as micromobility and electric-powered public transit. Specifically, PGE's goal is to integrate underserved communities' needs and wants into the implementation and future planning of TE programs. We want to create multiple avenues for stakeholder feedback to address the fact that underserved communities are underrepresented by traditional avenues such as stakeholder workshops. PGE understands that we must engage more purposefully with underserved communities to get their feedback. Additionally, we seek to strengthen relationships with community partners, help improve understanding of TE among communities, listen to feedback, and refine TE development. The long-term engagement

<sup>201</sup> Navigant. *Distributed Resource and Flexible Load Study*. Filed as part of PGE's 2019 IRP, page 465. Retrieved from <https://downloads.ctfassets.net/416ywc1laqmd/6KTPcOKFllvXpf18xKNseh/271b9b966c913703a5126b2e7bbbc37a/2019-Integrated-Resource-Plan.pdf>.

<sup>202</sup> Source: Oregon DEQ.

strategy of underserved communities, discussed in detail below, will build stronger relationships to better serve customers.

In discussions on how best to engage, stakeholders encouraged PGE to include community group capacity-building<sup>203</sup> in our TE planning. In this context, capacity-building means providing long-term support and compensation for their time and contributions, and also building up their understanding of utility regulatory process so they might participate in additional OPUC engagements. We plan to execute this strategy as follows:

- Adopt the best practices co-developed with community-based and community-serving organizations leading up to the recent DSP I and II filings.
- Leverage the PGE Community Engagement Framework<sup>204</sup>, the Greenlining Institute's Mobility Equity Framework<sup>205</sup>, and the City of Portland's POEM framework<sup>206</sup> (a local guide to equitable mobility) to guide our work.
- Commit to an iterative approach that will lean on the guidance and expertise of a local, minority-owned and -led third-party facilitator which we will hire through the in-progress RFP process for long-term engagement work.
- Convene a TE community working group for sessions 2 or more times per year to delve into programs at various stages. These work group sessions will focus on gaining specific feedback to make program implementation and future planning more accessible and equitable.
- Compensate individuals for their participation using funds from the HB 2165 Monthly Meter Charge and the Oregon Clean Fuels Program.

### 8.3.1 Long-Term Engagement with Underserved Communities for Transportation Electrification

PGE has contracted with and onboarded a minority-owned and led consulting firm to support long-term engagement with underserved communities for Transportation Electrification. This work builds upon what communities have already provided PGE and seeks to invite a deeper understanding of the TE needs of individuals within underserved communities. It is one of many ways in which PGE can build a stronger understanding of the diverse needs of individuals, and substantial, long-term relationships with these communities.

PGE aims for an initial three year engagement strategy to better understand long-term customer needs within underserved communities regarding TE offerings that support EV adoption and charging, as well as other forms of electrified transportation. Specifically, we plan to integrate

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<sup>203</sup> National council of Nonprofits define capacity building as, "an investment in the effectiveness and future sustainability of a nonprofit." <https://www.councilofnonprofits.org/tools-resources/what-capacity-building>.

<sup>204</sup> PGE Community Engagement Framework used by PGE's DSP team who hosted a multi-year engagement process with stakeholders and community partners [https://assets.ctfassets.net/416ywc1laqmd/1wLNK2VjxZdnWiPSf5wvxf/f34e9939bd4cde85bb36d524b6a0177d/PGE\\_Community\\_Engagment\\_Report\\_7.20.21.pdf](https://assets.ctfassets.net/416ywc1laqmd/1wLNK2VjxZdnWiPSf5wvxf/f34e9939bd4cde85bb36d524b6a0177d/PGE_Community_Engagment_Report_7.20.21.pdf).

<sup>205</sup> Greenlining Institute's Mobility Equity Framework elevates values of social equity and community power and addresses structural inequalities through a process for all stakeholders in program and project creation. For additional detail, see: [https://greenlining.org/wp-content/uploads/2019/01/MobilityEquityFramework\\_8.5x11\\_v\\_GLI\\_Print\\_Endnotes-march-2018.pdf](https://greenlining.org/wp-content/uploads/2019/01/MobilityEquityFramework_8.5x11_v_GLI_Print_Endnotes-march-2018.pdf).

<sup>206</sup> More of the City of Portland's POEM work is retrieved from <https://www.portland.gov/transportation/planning/pricing-options-equitable-mobility-poem>

underserved communities' wants and needs into the design, build, implementation, and modification of TE programs. PGE's goal is to create multiple avenues for feedback, and to address barriers to TE. Additionally, we seek to strengthen relationships with community partners, help improve understanding of TE among communities, listen to feedback, and adjust programming.

The primary strategy will leverage a working group consisting of the same group of people, meeting two to four times per year. Participants in the working group will be representative of the HB 2165 definition of underserved communities within our service area. PGE will compensate participants for their time. A consistent group will build knowledge and capacity over time, which is critical to PGE's engagement strategy. While the first session will focus on level-setting and learning about TE and utilities, those following will be program-focused, with program managers bringing ideas and discussion topics to improve program equity. This work is intended to continue through mid-2026.

PGE will also leverage focus groups, which we will use to gather feedback on program-focused areas and consist of groups from specific underserved communities, meeting on a one-off basis. These focus groups will complement and build off the working group to increase the number of people we will hear from and improve program equity.

Engagement with underserved communities will be a continuous process that informs the development and implementation of TE programs and will continue to be reflected in our TE Plan and program filings.

#### 8.4 Equity of Program Offerings

PGE has made several adjustments to address equity in our TE program offerings based on short-term outreach findings from underserved communities. For example, the Business and Multi-family Make-ready program will include more targeted outreach to underserved communities, a higher rebate amount for multi-family dwellings, and the ability for customers to reserve rebate funds in advance of charger installation.

One example of PGE's targeted outreach to underserved communities is our TE Community Working Group. This engagement is enabled by CFP funds and facilitated by a local, minority-owned and -led third-party implementer and reflects a strategy to solicit input directly from underserved communities on TE programs and infrastructure measures. While the working group is designed to build capacity with a consistent group of individuals from underserved communities defined by HB 2165, the agreement with the facilitator allows for targeted focus groups for input on specific activities. For example, a focus group of low-income renters could provide specific input on the multi-family and municipal charging. As individuals have intersecting identities, the working and focus groups may have participants who bring the lived experience from one or more of the underserved communities defined by HB 2165. For a more detailed list of changes made to programs due to results from the short-term outreach from underserved communities, please see [Section 5.1.3](#).

PGE is making a concerted effort to ensure that the TE programs presented in this filing reflect our commitment to serving underserved communities. This is demonstrated by the fact that, as illustrated in the below table, the portfolio has allocated over half of the funding to benefit underserved communities:

Table 26. Forecasted Program Funding Allocations that Benefit Underserved Communities

Program	Total Program Funds (\$)	Funds to Underserved Communities (\$)	Funds to Underserved Communities (%)
Business & Multi-Family Make Ready Solutions	\$2,547,130	\$1,528,278	60%
Business EV Charging Rebates	\$2,788,728	\$1,059,717	38%
CFP Administration	\$3,622,612	\$1,811,306	50%
CFP Education and Outreach	\$4,528,265	\$2,264,132	50%
CFP Emerging Tech	\$2,264,132	-	0%
CFP Grants and Infrastructure	\$32,914,638	\$26,331,711	80%
EV Ready Affordable Housing Grants	\$1,000,000	\$1,000,000	100%
Fleet Partner Pilot	\$18,117,273	\$3,623,455	20%
Heavy Duty Charging Pilot	\$3,620,453	\$1,810,226	50%
Portfolio Support	\$2,486,500	\$1,243,250	50%
Public Charging - Municipal Charging Collaboration and Electric Ave	\$15,163,797	\$11,372,848	75%
Residential Smart Charging Pilot	\$6,492,722	\$3,246,361	50%
<b>Total Portfolio, 2023-2025</b>	<b>\$95,546,249</b>	<b>\$55,291,283</b>	<b>58%</b>

The following table enumerates targeted actions that PGE is undertaking, or will undertake through our TE activities to address key barriers to underserved communities:

Table 27. How TE Activities Will Deliver Benefits to Underserved Communities

Program	Targeted Action	Key Barrier(s) Addressed/Removed	Demographic Addressed
Heavy Duty Charging	After site selection: education about site implications to neighboring communities (air and noise quality)	Education/awareness and air/noise quality	All underserved communities, particularly communities adversely affected by poor air quality
PGE Clean Fuels programs	Education and outreach: long-term engagement to underserved communities funded through PGE Clean Fuels revenues.	Education/awareness/integration of wants and needs of underserved communities	All underserved communities
	Emerging Tech: Funding of e-micromobility program	Financial barriers, program for non-drivers	All underserved communities
	Grants and Infrastructure: outreach to and prioritization of underserved communities in grants evaluation	Education/awareness of grants available and financial barriers	All underserved communities

Program	Targeted Action	Key Barrier(s) Addressed/Removed	Demographic Addressed
Public Charging - Municipal Charging Collaboration	Partner with municipalities to communicate effectively with underserved communities	Education/awareness/ integration of wants and needs of underserved communities	Underserved communities where chargers are installed
	More targeted education and outreach on how to use a pole charger	Education/awareness	Underserved communities where chargers are installed
	More targeted education and outreach on Schedule 50	Education/awareness	Underserved communities where chargers are installed
Fleet Partner	More outreach to transit agencies, school districts, and other fleets in underserved communities: Fleet Electrification and Fleet Partner	Education/awareness of program	Fleets in underserved communities
	Communications and outreach events for general fleet electrification whenever a project is completed	Education/awareness and air/noise quality	Communities where infrastructure is built
	Tracking percentage of infrastructure built in underserved communities	Prioritization of underserved communities to help improve air and noise pollution	All underserved communities, particularly communities adversely affected by poor air quality
Business and Multi-family Make-ready Solutions	Tiered incentives for workplace, public, and multi-family sites	Financial barriers	Multi-family residents and those who rely on public charging
	Committing 70 percent to multi-family sites and 30 percent to public and workplace (half of this is underserved)	Higher accessibility of make-ready for underserved communities	Multi-family residents and those who rely on public charging
	Working with CBOs to conduct outreach to and	Education/awareness and capacity	Underserved communities: low- and moderate-income

Program	Targeted Action	Key Barrier(s) Addressed/Removed	Demographic Addressed
	assist in identifying potential MDF locations. E.g., TE Community Working Group could provide direct input underserved communities to inform this activity		communities, residents of multi-family housing.
	Lowering minimum ports required for underserved multi-family sites	Higher accessibility of make-ready for underserved multi-family sites	Underserved multi-family sites
	Education/awareness directly at multi-family in underserved communities	Education/awareness and capacity	Underserved multi-family sites
<b>Residential Smart EV Charging</b>	More targeted outreach to underserved communities E.g., Using underserved community mapping to focus our outreach to those areas, as well as work with a focus group of underserved community members around the residential smart charging program	Education/awareness of available incentives	Underserved communities
	Exploration of point-of-purchase rebates vs post-purchase rebates	Upfront financial barriers	Underserved communities
	Higher rebate amount for income-eligible customers	Financial barriers	Low- and moderate-income communities
	Increased income eligibility from 80 percent of area median income to 120 percent of state median income	Financial barriers	Low- and moderate-income communities
	Provide support through the installation process	Support/guidance throughout process	Underserved communities

Tracking impacts on underserved communities begins with understanding where these communities are located. At present, PGE is developing a suite of mapping and analytical tools to better understand underserved communities (as defined in HB 2165) within our service area. These tools will provide a set of geographic, demographic, socioeconomic, and environmental data to aid our program planning for these communities.



To begin, PGE has developed a service territory map of underserved communities. To develop the map, PGE reviewed the HB 2165 definitions for underserved populations and analyzed various possible datasets for each category.<sup>207</sup> We developed an estimate of the number of PGE premises within each census tract where residents met at least one of the HB 2165 criteria. We then determined what percentage of premise IDs within each census tract were part of an underserved community based on that minimum threshold. [Figure 17](#), below, shows the results by census tract, with higher proportions of underserved communities in darker blue and lower proportions of underserved communities in lighter blue.

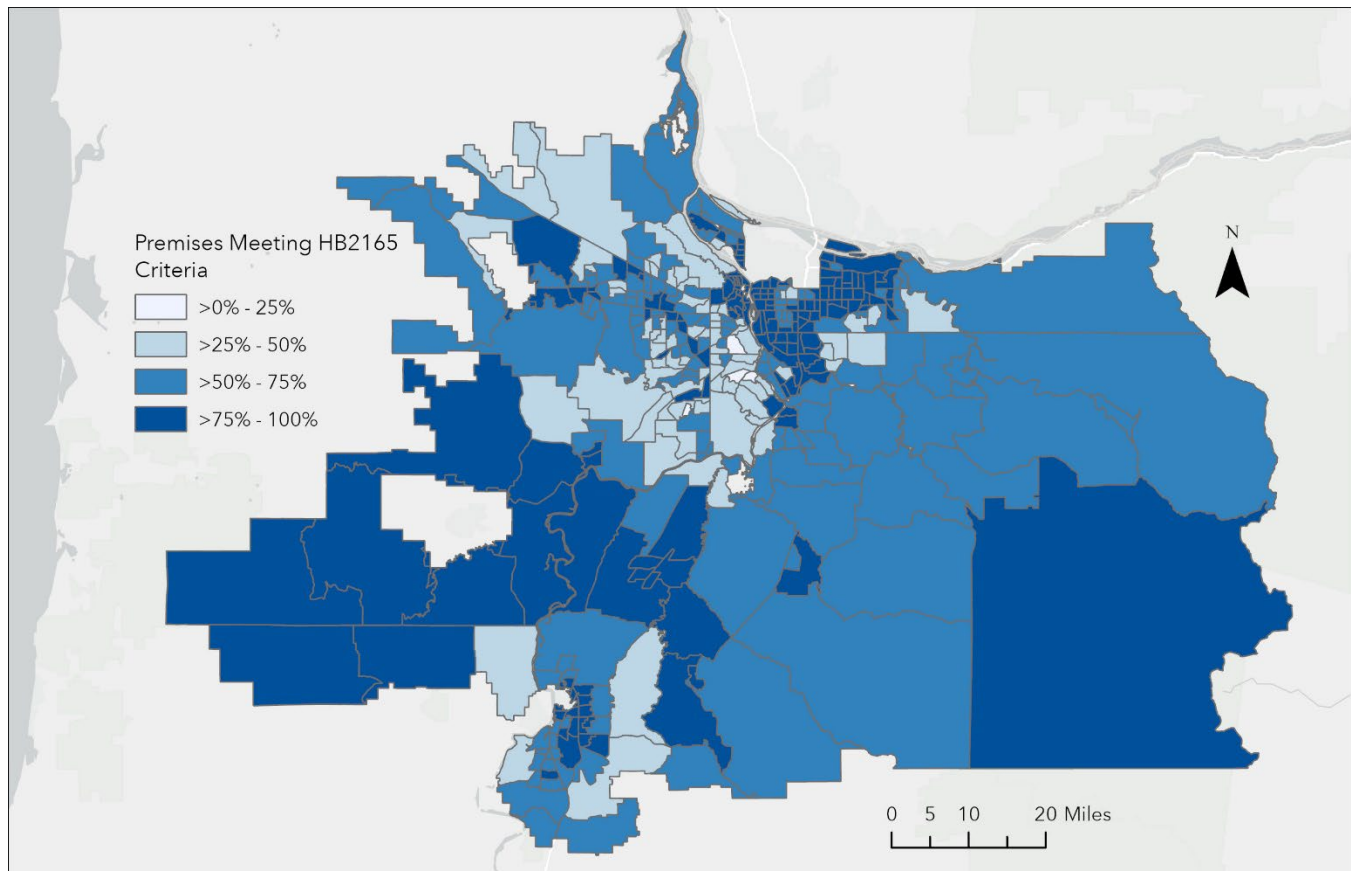


Figure 17. HB 2165 Underserved Communities within PGE's Service Area

This map and the underlying data will enable us to evaluate how many underserved customers each program has served.

Additionally, we assessed the overlapping nature of many of these indicators by developing a composite map, allowing us to identify which census tracts score highly under multiple HB 2165 criteria. This more nuanced view will allow us to better understand where to target certain programs based on the number of community members who may experience even greater barriers to EV

<sup>207</sup> See DSP Part II Section 3.5.4 and Appendix N for more detail on mapping underserved communities and the variables and data sources PGE reviewed. Retrieved from <https://portlandgeneral.com/about/who-we-are/resource-planning/distribution-system-planning/dsp-resources-materials>

adoption and access to charging than looking at each criterion in isolation. For example, the Business and Multi-family Make-ready Solutions program needs to locate communities who have both a large number of renters, multi-family dwellings and low-income community members in order to serve customers who may face multiple systemic barriers to EV adoption. This will allow us to better engage with community members about needs relating to TE so we can more effectively manage deployment of resources in these communities. [Figure 18](#) shows the composite score map across all HB2165 criteria.

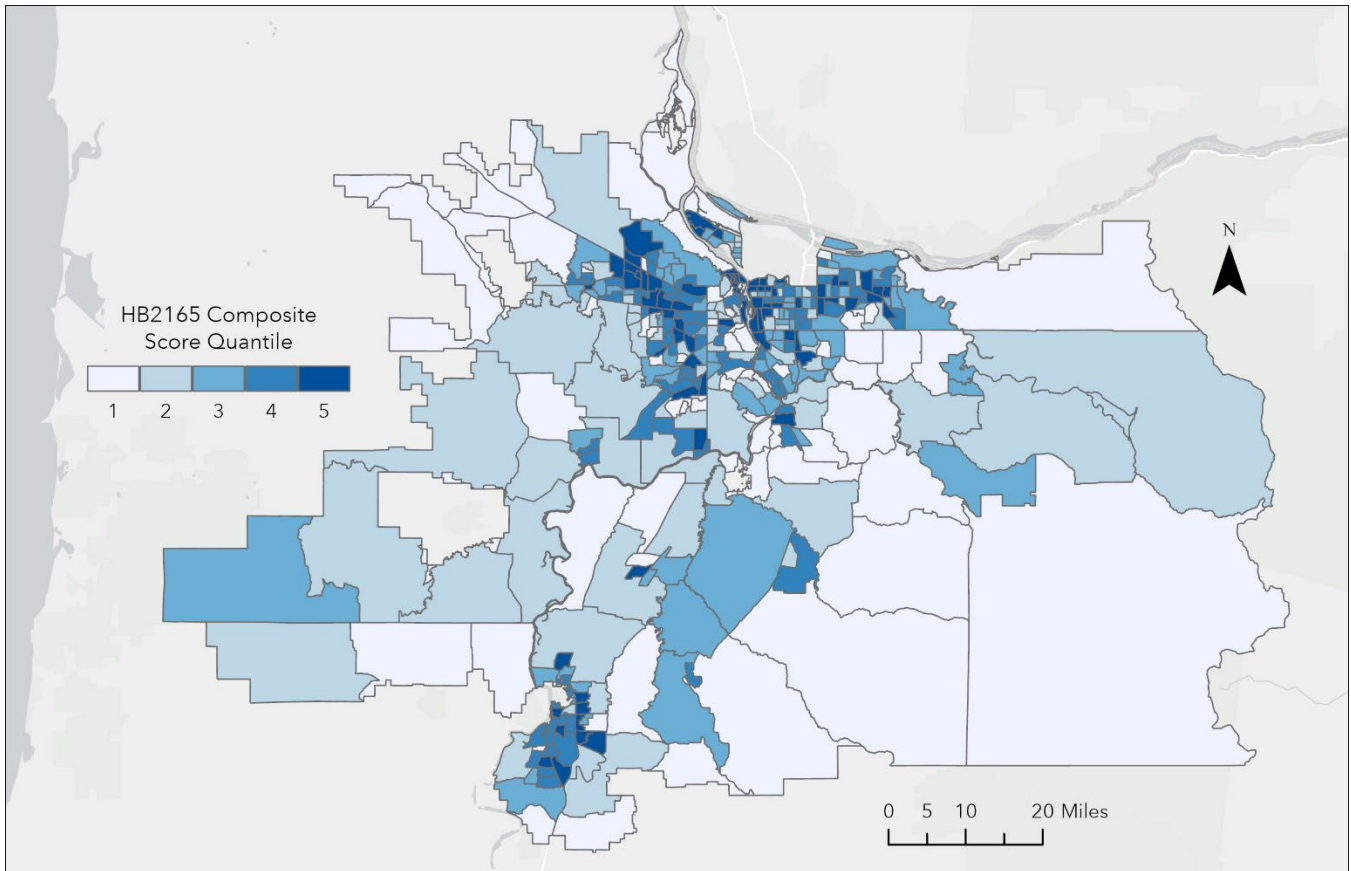


Figure 18. HB 2165 Composite Scoring of Underserved Communities within PGE’s Service Area

### 8.5 Distribution System Impacts and Grid Integration Benefits

PGE’s portfolio is designed to manage load by using the right technique for the right customer and charging use case.

Managed charging can take many forms. For example, the Smart Electric Power Alliance describes managed charging as falling into one of two categories: active managed charging or passive managed charging. The following table presents examples of both:

Table 28. Examples of Active and Passive Managed Charging<sup>208</sup>

Passive Managed Charging	Active Managed Charging
EV time-varying rates, including Time of Use and hourly dynamic rates	Direct load control via the charging device
Communication to customer to voluntarily reduce charging load (i.e., Behavioral Demand Response event)	Direct load control via automaker telematics
Incentive programs rewarding off-peak charging	Direct load control via a smart circuit breaker or panel
Good fit for residential, fleet, workplace, and public charging	Good fit for residential, fleet, and workplace charging

In the deployment of this TE Plan, PGE will seek to better understand how to manage EV load in the most efficient ways that benefit the grid, keep integration and program management costs low for all customers, and meet the EV driver’s use case for timely charging of their vehicle. To that end, we will begin by tracking the portion of program-enabled charging load that occurs on- and off- peak. Further PGE is currently working with automobile manufacturers and others on vehicle telematics. This pathway is data rich and promises to better manage the vehicle state of charge against grid services needs. This approach is emerging among the OEMs and others. Access to this managed charging pathway is likely by way of a monthly fee imposed on the utility. By assuring deployment of connected chargers capable of participating in DR events while also exploring partnerships for vehicle telematics PGE will be able to assess the capability of both approaches.

Table 29. Forecasted Program-Enabled Charging Load Occurring On- and Off-Peak, by Use Case, 2022-2025<sup>209</sup>

Use Case	On-Peak MWh	Off-Peak MWh	Total MWh
Residential	1,212	2,030	3,242
Multi-Family	376	291	667
Workplace	8	46	54
Corridor Public	309	1,172	1,481
Non-Corridor Public	2,089	-	2,089

<sup>208</sup> Adapted from Smart Electric Power Alliance (May 2019). *A Comprehensive Guide to Electric Vehicle Managed Charging*.

<sup>209</sup> For the purposes of TE Portfolio financial analyses, PGE defines on-peak hours as 5 PM-9 PM, Monday through Friday, year-round except for federal holidays.

Use Case	On-Peak MWh	Off-Peak MWh	Total MWh
LDV Fleet	2,702	3,573	6,275
MHD Fleet	2,081	3,588	5,669
Total MWh	8,778	10,701	19,479
Percentage of Total	45.06%	54.94%	100%

## 8.6 Program Participation and Adoption

PGE's portfolio is designed to deploy charging ports across a variety of use cases and customer segments.

Table 30. Forecasted Number of Program-Enabled Ports, by Use Case (2023-2025)

Use Case	L2 Ports	DCFC Ports	Total Ports	% of Total
Residential	4,088	-	4,088	70%
Multi-Family	73	-	73	1%
Workplace	683	-	683	12%
Corridor Public	17	20	37	1%
Non-Corridor Public	340	-	340	6%
LDV Fleet	341	74	415	7%
MHD Fleet	192	50	242	4%
Total	5,734	144	5,878	100%

## 8.7 Infrastructure Performance

As discussed in [Section 4.6](#), the reliability and accessibility of charging infrastructure—specifically public charging infrastructure—remain a serious challenge within the EV charging industry. A successful and easy charging experience requires improved performance, as currently there are far too many chargers either permanently or temporarily inoperable, sited in unsafe or suboptimal locations, too costly, not designed for all users (such as those using wheelchairs), and/or incapable of serving all EV drivers due to differing plug types.

PGE's proposed portfolio endeavors to address these issues for both PGE-owned and customer-owned chargers, to the extent that our role supports it. We will report on both cost-to-charge (in \$/kWh) and charger uptime across our portfolio, whether the chargers are owned by customers or

PGE. We have a target uptime of 97 percent for both PGE-owned and customer-owned chargers, which corresponds with the minimum uptime required by the IJJA's NEVI program. To adopt common formulas for calculating uptime, PGE will look to industry standards developed by NEVI and other rulemaking processes, industry experts such as EPRI, or multi-stakeholder standards such as the EV Charging Use Data Specification<sup>210</sup>.

In addition to these metrics, elements of our strategy and approach are detailed below.

### 8.7.1 Reliability

**PGE-Owned Chargers:** Reliable charging infrastructure is key to ensuring customers feel confident in their transition to electricity as a transportation "fuel". PGE has leveraged the experience from owning, operating, and maintaining fleet, workplace, public, and transit charging infrastructure to develop a three-point charging reliability strategy:

- **Procure.** Providing reliable charging infrastructure for all customers starts with procuring best-in-class products and service with robust terms and conditions. To achieve this, PGE will continue to use an open and competitive bidding process, leverage commercial terms to ensure equipment is functional upon delivery, enter into service level agreements for maintenance services, develop contracts that allow PGE to self-perform certified repairs, and maintain a robust spare parts inventory for all charging infrastructure.
- **Operate.** To provide highly reliable charging services, PGE must diligently operate and maintain equipment. PGE or third parties operating on PGE's behalf will remotely monitor equipment during business hours to detect performance issues, create maintenance work orders, and dispatch field technicians; communicate directly with customers regarding issues; routinely inspect and clean charging equipment; perform all routine maintenance at appropriate intervals; and perform emergency repairs.

PGE's EV charger uptime target follows the NEVI uptime standards per-port uptime of 97 percent. However, there are differences: to-date, PGE has counted as downtime any time an EV charger is not available to charge or actively charging, whereas NEVI standards have allows "exclusions for scheduled maintenance, vandalism, natural disasters, and limited hours of operation."<sup>211</sup> PGE will continue to monitor the emerging standards.

- **Replace.** PGE must also replace equipment that cannot meet reliability metrics after multiple field repairs, subject to available budget. Purchasing terms will support the replacement of equipment under warranty and capital fitness dollars will ensure that out-of-warranty equipment is replaced.

**Customer-Owned Chargers:** PGE maintains qualified product lists for both residential and commercial chargers. While PGE does not endorse or guarantee the performance of products on the list, we do reserve the right to remove any vendor from the list at any point in time and for any reason. For example, if one type of hardware is consistently underperforming in terms of charger uptime, that might merit a removal of that hardware from the qualified product list.

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<sup>210</sup> EV Charging Use Data Specification retrieved from <https://evchargingspec.org/#home>.

<sup>211</sup> Detail on NEVI standards available at <https://www.govinfo.gov/content/pkg/FR-2023-02-28/pdf/2023-03500.pdf>.

### 8.7.2 Affordability

**PGE-Owned Chargers:** The cost-to-charge at PGE-owned public chargers is set by Schedule 50. Schedule 50 offers a flat fee of \$3 per L2 session, a flat fee of \$5 per DCFC session, or a \$25 per month subscription to Electric Avenue sites in lieu of a flat fee. In addition to the flat fee, an on-peak surcharge of \$0.19 per kWh is applied during the hours of 3 and 8 PM (excluding weekends and holidays).

**Customer-Owned Chargers:** The cost of electric service paid by charger owners is established through PGE's various residential and commercial tariffs. PGE tariffs commonly offer Time of Use cost tiers that enable EV drivers to optimize their charging times for the most beneficial rate.

For public chargers where the owner plans to bill the EV driver for the charging session, PGE requires that the charger offer multiple payment methods and that prices be clearly posted before the charging session begins. PGE staff are available to help owners understand pricing options and advise how to structure pricing for EV drivers. In fact, Level 2 charging at a commercial property (Schedule 32) has slightly lower energy prices at 11.513 cents/kWh than residential customers (Schedule 7) at 12.674 cents/kWh, though the commercial fixed monthly fee is greater. If multi-family property owners install multiple chargers, which are all utilized, we believe they can offer EV charging prices similar to residential home energy prices. However, PGE does not propose to have requirements regarding the price that charger owners may charge EV drivers, instead letting the competitive market prevail.

### 8.7.3 Accessibility

**PGE-Owned Chargers:** PGE is invested in ensuring that all EV drivers are able to charge at PGE-owned chargers. To that end, PGE only installs DCFC that offer both CHAdeMO and Society of Automotive Engineers (SAE) Combined Charging System (CCS) charging ports. PGE will explore the possibility of including Tesla ports on PGE-owned DCFC if and when these are made more widely available commercially (note that Tesla drivers can use an adapter to connect to a CHAdeMO port). For L2 charging, PGE uses the industry-standard J-1772 charging port (again, Tesla drivers can access these ports via an adapter).

Access for customers living with disabilities is also important to PGE. While the State of Oregon lacks specific requirements regarding compliance with the Americans with Disabilities Act (ADA) for EV charging, design recommendations do exist. When installing PGE-owned public charging, PGE will look to the design recommendations of the U.S. Access Board<sup>212</sup> for guidance on how to ensure access for customers living with disabilities. These design recommendations apply to both charging hardware and software, as well as charger siting, site layout, and signage.

It is important to PGE that all customers be able to pay for EV charging using a variety of payment methods. Today, the State of Oregon has no requirements for payment methods at public chargers. Until and unless such requirements exist, PGE proposes to look to the Washington State Department of Agriculture's standards for guidance on payment methods. The current draft of these standards require the following options on public chargers installed on or after January 1, 2024:

- Toll free number or built-in call button that provides the user the option to initiate a charging session and submit payment at any time that EVSE is operational and publicly available

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<sup>212</sup> U.S. Access Board (August 11, 2022). *Design Recommendations for Accessible Electric Vehicle Charging Stations*. Retrieved from <https://www.access-board.gov/tad/ev/>.

- Credit card reader device that can accept, at a minimum, a Euro Mastercard Visa (EMV) chip
- A mobile payment option

PGE notes that these standards may not be possible to implement in all cases (in particular, on utility pole chargers, where NEC and NESC standards must be applied).

**Customer-Owned Chargers:** For customer-owned public DCFC enabled through PGE programs, PGE will likewise require that all DCFC offer both CHAdeMO and CCS ports, and that all L2 offer a J-1772 port.

PGE also requires that qualified chargers be compliant with the ADA. PGE will recommend that customers follow the design recommendations of the U.S. Access Board when installing customer-owned behind-the-meter infrastructure. At sites where PGE owns the make-ready infrastructure and provides the site design, PGE will look to the U.S. Access Board design recommendations for guidance, even if the customer owns the charger.

PGE proposes to likewise require that customer-owned public chargers follow the Washington State Department of Agriculture's standards for payment methods, until and unless an Oregon requirement is in place.

## 8.8 Clean Fuels Program and the Monthly Meter Charge

Two of the transportation electrification funding sources, Clean Fuels Program (CFP) and Monthly Meter Charge (MMC), were created through legislation and administrative rule. Both include requirements on how the money is allocated and spent as governed by legislation, Oregon Administrative Rules, and/or Commission orders.<sup>213</sup> The following sections outline the requirements for the two funding sources and how the requirements apply to the TE portfolio.

### 8.8.1 Clean Fuels Program

For a full description of activities and programs funded by CFP please see [Appendix A.4](#).

The CFP is administered by the Oregon DEQ. The DEQ allows PGE to generate credits based on the number of residential EVs registered in the Company's service area (based on DMV vehicle registrations) on a biannual basis. PGE sells these credits to regulated fuel providers throughout the year in the CFP marketplace and plans for the yearly programs based on actual revenue from credit sales. There is a two-year delay between when credits are generated and when programs are implemented (e.g., the 2023 PGE Clean Fuels program budget is based on 2021 EV counts). PGE also generates credits through the charging stations we own, operate, and/or maintain. Revenue from those credits is used to offset the cost of operating and maintaining that infrastructure.

To date, PGE has planned CFP-funded programs through an iterative approach with stakeholders, in consultation with DEQ and OPUC staff, and guided by principles delineated in Commission Order No. 18-376, Docket No. UM 1826. As part of Docket No. UM 2165, Order No. 22-314<sup>5</sup> amended the principles in Order No. 18-376 to allow closer coordination of CFP-funded programs with other TE Portfolio initiatives, and the annual review process for residential CFP funded programs is now incorporated into utility TE Plans.

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<sup>213</sup> See [Section 4.1.1](#) for more detail.

The six program design principles the Commission established under Order No. 18-376 for CFP-funded programs were:

1. Support the goal of electrifying Oregon's transportation sectors
2. Provide the majority of benefits to residential customers
3. Provide benefits to traditionally underserved communities
4. Programs are designed to be independent from ratepayer support
5. Programs are developed collaboratively and transparently
6. Maximize use of funds for implementation of programs

Order No. 22-314 eliminated the fourth principle regarding ratepayer support but retained the remaining principles to guide PGE's CFP-funded programming going forward, with continued stakeholder consultation, as part of the company's broader TE portfolio.

### 8.8.2 Monthly Meter Charge

In May 2021, the Oregon Legislature enacted HB 2165 to support utility investment in EV infrastructure and extend and improve Oregon's EV rebate. Section 2 of the statute requires PGE and Pacific Power to collect a monthly meter charge, set at 0.25 percent of total revenues, from all customers beginning in 2022.<sup>214</sup>

Section 2 also requires funds collected under the MMC be:

- Expended by the utility to support and integrate TE
- Consistent with a budget approved by the Commission
- Expended on elements contained within the utility's TE Plan accepted by the Commission

The bill states that:

- The MMC charge is "a minimum investment in TE and may not limit the amounts that may otherwise be collected" for related utility investments or expenses
- the utility "shall make reasonable efforts to expend not less than one-half of the amount collected [through this charge] on TE in underserved communities."<sup>215</sup>

On January 1, 2022, as directed by HB 2165 and approved by the OPUC in Docket No. ADV 1325<sup>216</sup>, PGE began collecting the MMC in supplemental Schedule 150<sup>217</sup>. PGE submitted annual budgets for programs funded by MMC for both 2022 and 2023, which were approved in October 2022<sup>218</sup> and April 2023<sup>219</sup>, respectively. This portfolio contains the programs which were approved in those filings

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<sup>214</sup> Oregon Laws 2021, Chapter 95, Section 2. Retrieved from

[https://www.oregonlegislature.gov/bills\\_laws/lawsstatutes/2021orlaw0095.pdf](https://www.oregonlegislature.gov/bills_laws/lawsstatutes/2021orlaw0095.pdf)

<sup>215</sup> Oregon Laws 2021, Chapter 95, Section 2.5 and 2.6. Retrieved from

[https://www.oregonlegislature.gov/bills\\_laws/lawsstatutes/2021orlaw0095.pdf](https://www.oregonlegislature.gov/bills_laws/lawsstatutes/2021orlaw0095.pdf)

<sup>216</sup> OPUC. Docket No. ADV 1325. <https://apps.puc.state.or.us/edockets/docket.asp?DocketID=23058>

<sup>217</sup> PGE. Schedule 150. Retrieved from

[https://assets.ctfassets.net/416ywc1laqmd/bAlUAOkBjG2ttYMFzDBzQ/2ac1f49f0029c1d4a16b001def790527/Sched\\_150.pdf](https://assets.ctfassets.net/416ywc1laqmd/bAlUAOkBjG2ttYMFzDBzQ/2ac1f49f0029c1d4a16b001def790527/Sched_150.pdf)

<sup>218</sup> OPUC Order No. 22-381. Retrieved from <https://apps.puc.state.or.us/orders/2022ords/22-381.pdf>

<sup>219</sup> OPUC Order No. 23-147. Retrieved from <https://apps.puc.state.or.us/orders/2023ords/23-147.pdf>



which will be implemented 2023 onward. The portfolio also contains programs which will be funded by the forecasted collection of MMC revenues for 2024 and 2025.

MMC are O&M dollars to cover program operations, incentives, O&M maintenance on investments, evaluations, education and outreach, and also costs associated purchasing and installing assets such as pole chargers (under the budget heading "Infrastructure"). Infrastructure includes the capital cost to purchase and install make-ready equipment such as conduit and switchgear, and in some cases, may include the purchase and installation of chargers where there is a market need. PGE views these investments as an extension of traditional capital deployment and as such, expects similar treatment, including the associated authorized rate of return.

HB 2165 requires utilities make reasonable efforts to spend no less than 50 percent of the MMC to support TE in underserved communities.<sup>220</sup> The legislation specifies that approaches may include, but are not limited to, programs, infrastructure, rebates, or expenses. HB 2165 identifies the following groups as underserved communities:

- Residents of rental or multi-family housing
- Communities of color
- Communities experiencing lower incomes
- Tribal communities
- Rural communities
- Frontier communities
- Coastal communities
- Other communities adversely harmed by environmental and health hazards

PGE outlines the MMC spend by program along with the amount allocated to underserved communities in the Budget section.

## 8.9 Related Activities

### 8.9.1 Delivery Platform

PGE is developing a digital platform to support residential customers through the purchase, installation, and program enrollment journeys of qualifying EV chargers. The platform will provide customers education on qualifying grid-enabled chargers and installation considerations to keep costs down. It will connect customers with PGE vetted installers that have been trained on PGE's Residential EV Smart Charging pilot requirements. Should customers choose to enroll in the Residential EV Smart Charging pilot, the platform will give them a streamlined way to do so and will apply the applicable rebates at time of install, reducing the required upfront costs. For customers that need additional financial support to install a grid-enabled EV charger, the platform will connect them to a third-party lender where they can apply for a loan and repay it on a PGE bill. Customers that are able to pay in full at time of purchase, they can do so also via a PGE bill. Potential tax credit information will be provided as well as actions needed to claim those tax credits.

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<sup>220</sup> Oregon HB 2165, Section 2(6). Retrieved from <https://olis.oregonlegislature.gov/liz/2021R1/Downloads/MeasureDocument/HB2165/Enrolled>

## 8.9.2 Virtual Power Plant

PGE is preparing for significant growth of distributed resources.<sup>221</sup> PGE assumes that all resource types—including managed charging in the transportation electrification sector—can be integrated into PGE’s system and orchestrated to deliver their full potential system value. However, extending this assumption to smaller and/or “behind-the-meter” resources requires advancement of PGE’s ability to monitor, schedule, and dispatch resources in an optimized manner. To ensure realization of the full value of these resources, PGE is coordinating resource deployment and operation through a virtual power plant.

PGE’s VPP comprises DERs and flexible loads managed through a technology platform to provide grid and power operations services. The VPP will incorporate and optimize the operation of DERs and flexible loads by connecting them through the VPP platform to provide services they would not be able to provide in isolation. The VPP will be an important tool to identify and extend DER and flexible load benefits to customers and communities seeking local clean energy investments.

The development of the VPP will allow PGE to activate the full value of DER capabilities assumed in IRP modeling. Resource orchestration will be managed by a VPP technology platform, which will provide real-time visibility and control of generation, flexible loads, and batteries residing within the distribution network. The VPP will provide essential grid services and serve up to 25 percent of peak demand by coupling customer participation with PGE expertise and resources. PGE recognizes that, in contrast to traditional generation resources, successful operation of the VPP must take into account the customer experience. The ability to orchestrate resources through the technology platform, will provide value during extreme events and essential grid services 24/7/365.

The VPP will also continuously enhance capabilities to increase value during all operating conditions. The number of VPP operations will grow from the 139 events in 2022 to many thousands and eventually millions as we go from discrete event operation to real-time energy management. The progression of the VPP will enable DERs and flexible loads to provide enhanced time- and location-specific benefits. Realization of incremental contingency reserves, frequency response, and peak load reduction services are the foundation of the VPP. These operational services were prioritized for initial capability development due to their high expected value and alignment with other internal initiatives. As the capabilities of the VPP platform are implemented and the size of our DER and flexible load portfolio grows the VPP will increasingly be able to deliver additional services including energy scheduling, voltage regulation, and islanding, which will result in increased reliability (prevention of customer minutes interrupted) and non-wires solutions (locational congestion relief).

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<sup>221</sup> PGE. *Clean Energy Plan and Integrated Resource Plan 2023*, Sections 6.2, 8.2, 8.3, and Chapter 11. Retrieved from [https://downloads.ctfassets.net/416ywc1laqmd/6B6HLox3jBzYLXOBgskor5/db59c8b594a3c380b9d42e90ec9a35aa/2023\\_PGE\\_CEP-IRP.pdf](https://downloads.ctfassets.net/416ywc1laqmd/6B6HLox3jBzYLXOBgskor5/db59c8b594a3c380b9d42e90ec9a35aa/2023_PGE_CEP-IRP.pdf).