

March 23, 2023

Public Utility Commission of Oregon  
Attention: Filing Center  
P.O. Box 1088  
Salem, OR 97308-1088

RE: UM 2033 – PGE Transportation Electrification Plan and HB 2165 Monthly Meter Charge Budget

Dear Filing Center,

Portland General Electric Company (PGE or the Company) submits this filing pursuant to Oregon Laws 2021, Chapter 95, Section 2; Oregon Administrative Rules 860-087-0020(3)(g)(B)-(D); and Public Utility Commission of Oregon (OPUC or Commission) Order No. 23-034<sup>1</sup> in Docket No. UM 2033.

The 2021 session of the Oregon Legislature adopted House Bill (HB) 2165, which created a Monthly Meter Charge (MMC) to be collected from electric company customers. Electric companies are to expend revenues from the MMC to support and integrate transportation electrification (TE), consistent with a budget approved by the OPUC for use of the funds. The Commission revised and updated its Division 87 TE planning rules in September 2022 to require holistic planning of utility TE program portfolios and directed utilities to incorporate MMC revenues and the annual MMC budget into their overall, three-year TE Plan (TEP) Budgets.

In January 2023, however, PGE requested a waiver under the revised Division 87 rules to extend the filing deadline for its next draft TEP until June 1, 2023.<sup>2</sup> This was intended to give OPUC Staff (Staff) and stakeholders access to the Company's upcoming Integrated Resource Plan and Clean Energy Plan filings, as they review the draft TEP, to enable a clearer view of PGE's strategy to support decarbonization of the energy system, including transportation. The Commission approved the waiver with Order No. 23-034, entered on Feb. 8, 2023.

In its waiver request, PGE noted that the June 1 TEP filing deadline will not accommodate timely or consistent distribution of 2023 MMC revenues. The Company proposed to resolve this issue by filing interim budgets to allow Staff and stakeholder review and Commission approval of planned 2023 MMC expenditures and Staff and stakeholder review of 2023 Clean Fuels Program (CFP) activities. These one-time filings will provide program continuity and lay the groundwork for implementation of the full TEP (encompassing program years 2023, 2024 and 2025), subject to Commission review and acceptance later this year.

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<sup>1</sup> Commission Order No. 23-034, online at <https://apps.puc.state.or.us/orders/2023ords/23-034.pdf>

<sup>2</sup> PGE TEP deadline waiver request, 1/10/23, online at <https://edocs.puc.state.or.us/efdocs/HAO/um2033hao161540.pdf>

Today's filing fulfills that commitment, as well as the statutory requirement in ORS 757.357 with regards to PGE's proposed 2023 MMC expenditures. The Company has submitted a separate filing to address and seek Commission review of its planned 2023 CFP activities.

The Company does not expect to file similar one-year budgets in future TEP planning cycles, although PGE notes that off-cycle plan or budget updates such as these may occasionally be necessary and are provided for in the revised Division 87 rules.

For 2023, PGE plans a portfolio of MMC-funded programs that build upon the work of the Company's 2022 MMC budget, which the Commission approved in October 2022,<sup>3</sup> and will complement the full TE portfolio budget to be filed with the TEP by June 1, 2023. While this filing does not give Staff and stakeholders the full TE portfolio view anticipated in the to-be-filed TEP, the Company has worked to ensure this budget is consistent with elements of its current, accepted 2019 TEP<sup>4</sup> as well as with guidance provided by stakeholders and Staff in a series of five TE planning workshops the Company held during 2022<sup>5</sup>. PGE also shared a draft of this budget with Staff and stakeholders on Feb. 23, 2023, and requested informal comments or questions, which are summarized together with PGE's responses in Appendix B of this filing.

PGE's proposed 2023 MMC budget allocates funding in four basic areas:

- **Business and Multi-family Make-Ready Solutions:** This program will expand charging access for current and future EV drivers by supporting commercial customers' installation of public or "semi-public" EV charging in workplaces, retail locations, destination centers, and multi-family locations.
- **Municipal Charging Collaboration:** Extends a pilot approved as part of PGE's 2022 MMC budget. This is a platform approach wherein PGE proposes to design, own, operate and maintain EV chargers in the right-of-way and on public property. PGE will collaborate with public entities on deployment of this infrastructure.
- **Fleet Partner Flexible Load:** This proposal will add funding to the existing, high-demand Fleet Partner program to fund Level 2 charger installation rebates for participants, investigate the most efficient means to implement associated smart charging, and perform demand-response events.
- **Portfolio Support:** This funding will support overall TE Portfolio needs with budget and data analysis resources for budgeting and expenditure tracking, capital allocation support, project controls, charger data collection and analysis, metrics tracking and forecasting, and development of the annual TE Plan Report, as required under the Division 87 rules.

We estimate that approximately 60 percent of the revenues collected through the MMC in 2023 will be expended on activities that support underserved communities, in compliance with the statutory requirement and consistent with the Commission's direction in Division 87.

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<sup>3</sup> OPUC Order No. 22-381, available online at <https://apps.puc.state.or.us/orders/2022ords/22-381.pdf>

<sup>4</sup> OPUC Order No. 20-047, available online at <https://apps.puc.state.or.us/orders/2020ords/20-047.pdf>

<sup>5</sup> See workshop materials on PGE's TE Planning web page, [www.portlandgeneral.com/tep](http://www.portlandgeneral.com/tep)

Included in this filing, as Exhibit A, is PGE's full 2023 MMC budget, which provides more detail on the planned expenditures outlined above. In addition, we include, as Exhibits B and C, infrastructure measure applications for the Business and Multi-Family Make-Ready Solutions and Municipal Charging Collaboration programs.

Should the Commission deem these materials compliant with the relevant statutory and rule requirements, we respectfully request approval of our proposed 2023 MMC budget and infrastructure measure applications.

For any questions or comments regarding this filing, please contact Steven Corson at (503) 550-0857.

Please direct your communications related to this filing to the following email address: [pge.opuc.filings@pgn.com](mailto:pge.opuc.filings@pgn.com)

Sincerely,

*/s/ Shay LaBray*

Shay LaBray  
Senior Director, Regulatory Affairs and Strategy

**UM 2003**

**Exhibit A**

**PGE's 2023 HB 2165 Monthly Meter Charge Budget**

**Oregon HB 2165  
2023 Monthly Meter Charge Budget**

**Portland General Electric  
March 2023**

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## Introduction

The 2023 Monthly Meter Charge (MMC) budget requests \$5.266 MM for the proposed Business and Multi-family Make-Ready Solutions, the proposed Municipal Charging Collaboration activities, additional funding for Fleet Partner Pilot Enhancement and Managed Charging, and also portfolio support. This request is summarized in [Table 1](#), below. Further detail can be found in [Chapter 3](#), in [Chapter 4](#), and [Appendix A](#).

*Table 1. Monthly Meter Charge Budget Summary*

Category	
<b>MMC Budget Requested</b>	<b>\$5,266,500</b>
Business and Multi-family Make-Ready Program (Phase I)	\$692,500
Municipal Charging Collaborations (Phase I)	\$3,242,000
Fleet Partner Enhancement and Managed Charging	\$832,000
Portfolio Support	\$499,000

This filing is organized as follows:

- **Chapter 1** provides **regulatory and legislative context**, as well as a discussion of how this filing addresses the needs of **underserved communities**, a focus of the legislature
- **Chapter 2** addresses **stakeholder engagement**, which has informed the proposed activities and is supported by additional detail in [Appendix B](#)
- **Chapter 3** details the **requested budget**, including how spending is allocated by program
- **Chapter 4** provides **program area descriptions** for the Business and Multi-family Make-Ready Solutions and Municipal Charging Collaboration activities, as well as the funding request for Fleet Partner Enhancement and Managed Charging
- **Chapter 5** is our **Conclusion**
- **Appendix A** includes **infrastructure measure applications** for the proposed Business and Multi-family Make-Ready Solutions and Municipal Charging Collaboration activities
- **Appendix B** provides detail on stakeholder feedback and PGE responses



## Chapter 1. Overview

Oregon House Bill 2165 (HB 2165)<sup>1</sup> requires electric companies with more than 25,000 customers in Oregon to collect a Transportation Electrification (TE) Monthly Meter Charge from all customers and expend the revenues therefrom in support of TE and in accordance with a budget approved by the Public Utility Commission of Oregon (OPUC or Commission). PGE submits this budget for its 2023 MMC revenues for consideration and approval by the Commission.

PGE’s 2019 TE Plan identified the importance of make-ready infrastructure in supporting EV adoption and several means by which this can be done: deploying make-ready for customers to install their own chargers, installing infrastructure on distribution poles, and exploring smart charging with fleet customers.<sup>2</sup> We are funding these activities so we can transition to supporting those we expect to file with the next TE Plan. Table 2, below, shows the continuity of activities from the 2019 TE Plan to those proposed as part of this filing and into those expected in the next TE Plan.

*Table 2. Continuity of TE Activities from the 2019 TE Plan Onward*

2019 TE Plan PGE Future Activities	2023 MMC Budget PGE Proposed Activities	Next TE Plan PGE Expected Activities
Make-Ready Infrastructure for Passenger EV Adoption	Business Make-Ready and Multi-family Make-Ready Program (Phase I)	Continued Make-Ready programs to support charging equity
Owner-Operator of charging infrastructure for Passenger EV Adoption	Municipal Charging Collaborations Program (Phase I)	Continued charging options for underserved communities in collaboration with municipalities
Fleet Smart Charging Program	Fleet Partner Pilot Enhancement and Managed Charging	Fleet Partner program and managed charging options

### 1.1 Background

#### 1.1.1 Oregon House Bill 2165

In May 2021, the Oregon Legislature enacted HB 2165 to support utility investment in electric vehicle (EV) infrastructure and extend and improve Oregon’s EV rebate.

<sup>1</sup> 81st OREGON LEGISLATIVE ASSEMBLY–2021 Regular Session. *House Bill 2165*.

<https://olis.oregonlegislature.gov/liz/2021R1/Downloads/MeasureDocument/HB2165/Enrolled>

<sup>2</sup> PGE (2019). *Transportation Electrification Plan* (respectively p. 116, Table 44, and sections 2.2.2.1-2, and 2.2.3.3.3).

<https://apps.puc.state.or.us/edockets/edocs.asp?FileType=HAA&FileName=haa102039.pdf&DocID=22127&numSequence=1>

Section 2 of the statute requires PGE and Pacific Power to collect a monthly meter charge, set at 0.25% of total revenues, from all customers beginning in 2022.<sup>3</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 A) 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, and B) 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>4</sup>

On January 1, 2022, as directed by HB 2165 and approved by the OPUC in Docket No. ADV 1325<sup>5</sup>, PGE began collecting the MMC in supplemental Schedule 150<sup>6</sup>. In 2023, the revenues from the MMC are forecasted to be \$5.9 MM<sup>7</sup>.

### **1.1.2 Transportation Electrification Plan Waiver (2023)**

Oregon Administrative Rule (OAR) Chapter 860, Division 87<sup>8</sup>, which was updated in Order No. 22-336 on September 8, 2022<sup>9</sup>, specifies that utility MMC budgets are to be presented as part of a utility's TE Plan every three years.

Prior OPUC Staff guidance<sup>10</sup>, issued November 24, 2021, had recommended that utilities file standalone 2022 MMC budgets while the Division 87 rules were under revision in Docket No. AR 654<sup>11</sup>. In the November 2021 Staff Report, and again in the Staff Report for a special public meeting on December 7, 2021 (incorporated into OPUC Order No. 21-484<sup>12</sup> on December 27, 2021), Staff anticipated that utilities would file an MMC Budget for the 2022 calendar year in advance of filing their next TE Plans,

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<sup>3</sup> Oregon Laws 2021, Chapter 95, Section 2.

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

<sup>4</sup> Oregon Laws 2021, Chapter 95, Section 2.5 and 2.6.

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

<sup>5</sup> OPUC. Docket No. ADV 1325. <https://apps.puc.state.or.us/edockets/docket.asp?DocketID=23058>

<sup>6</sup> PGE. Schedule 150.

[https://assets.ctfassets.net/416ywc1laqmd/bAlUAOkBJG2ttYMFzDBzQ/2ac1f49f0029c1d4a16b001def790527/Sched\\_150.pdf](https://assets.ctfassets.net/416ywc1laqmd/bAlUAOkBJG2ttYMFzDBzQ/2ac1f49f0029c1d4a16b001def790527/Sched_150.pdf)

<sup>7</sup> PGE's proposed budget does not allocate the full forecast in order to avoid a potential overspend, which could require us to short a future year budget. Any underspend will be allocated to future needs.

<sup>8</sup> OAR Chapter 860, Division 87.

<https://secure.sos.state.or.us/oard/displayDivisionRules.action?selectedDivision=4089>

<sup>9</sup> OPUC. Order No. 22-336. <https://apps.puc.state.or.us/orders/2022ords/22-336.pdf>

<sup>10</sup> OPUC. UM 2165. Staff Report dated Nov. 24, 2021.

<https://edocs.puc.state.or.us/efdocs/HAU/um2165hau1331.pdf>

<sup>11</sup> OPUC. Docket No. AR 654. <https://apps.puc.state.or.us/edockets/docket.asp?DocketID=23161>

<sup>12</sup> OPUC. Order No. 21-484, incorporating Staff Report dated Dec. 7, 2021.

<https://apps.puc.state.or.us/orders/2021ords/21-484.pdf>

and that “After 2022, Staff expects to see the annual HB 2165 MMC budget filed as part of [the TE Plan’s] portfolio TE Budget”<sup>13</sup>. PGE’s 2022 MMC budget, allocating the \$5.2 MM that PGE anticipated collecting in 2022, was approved on October 18, 2022 in Order No. 22-381.<sup>14</sup>

The Commission entered Order No. 23-034<sup>15</sup> on February 8, 2023 waiving PGE’s prior TE Plan filing deadline and establishing a new deadline of on or before June 1, 2023 for PGE to present a draft of its next full TE Plan. PGE’s rationale for this request was to extend the filing deadline to allow for context building as the company files both its Integrated Resource and Clean Energy Plans (IRP and CEP, respectively). The information which stakeholders receive from PGE’s IRP and CEP filings will help them analyze PGE’s TE Plan. The extension also allows time for the Company to develop practices and program structures to leverage new federal funding opportunities.

PGE acknowledges that a complication arises by extending the TE Plan filing deadline. PGE has an obligation to conduct MMC funded program/s within 2023. If the TE Plan filing is the only opportunity for Commission review of a MMC budget, a June filing is inefficient. To resolve this potential complication, PGE, through the waiver, made a request to file our 2023 MMC budget and programs prior to the June TE Plan filing. This filing meets the requirement of the Commission Order 23-034 approving PGE’s waiver request.

### **1.1.3 Underserved Communities**

PGE is committed to a portfolio of programs and infrastructure measures which support charging adequacy in an equitable manner so all customers can transition to electric transportation, including those customers unable to charge their vehicles at home. PGE’s commitment to underserved communities is reflected in the portfolio of programs contained within this budget proposal.

HB 2165 requires utilities make reasonable efforts to spend no less than 50% of the MMC to support TE in underserved communities.<sup>16</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

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<sup>13</sup> OPUC. Order No. 21-484, incorporating Staff Report dated Dec. 7, 2021 (Appendix A, p. 21). <https://apps.puc.state.or.us/orders/2021ords/21-484.pdf>

<sup>14</sup> OPUC. Order No. 22-381. <https://apps.puc.state.or.us/orders/2022ords/22-381.pdf>

<sup>15</sup> OPUC. Order No. 23-034. <https://apps.puc.state.or.us/orders/2023ords/23-034.pdf>

<sup>16</sup> Oregon HB 2165, Section 2(6). <https://olis.oregonlegislature.gov/liz/2021R1/Downloads/MeasureDocument/HB2165/Enrolled>

- Tribal communities
- Rural communities
- Frontier communities
- Coastal communities
- Other communities adversely harmed by environmental and health hazards

OPUC Staff, after consultation with utilities and stakeholders, provided detail regarding their expectations of how utilities will identify underserved communities.

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

An example of these tools is a map PGE developed to identify relative concentrations of underserved communities in our service territory. To create this map:

- PGE developed a map of underserved communities in our service territory and analyzed potential datasets for underserved communities in our service territory.
- We then developed an estimate of the number of premises within each census tract where residents met at least one of the HB 2165 criteria.
- We then determined what percentage of electric service locations (premises) within each census tract were part of an underserved community.

Figure 1, 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.

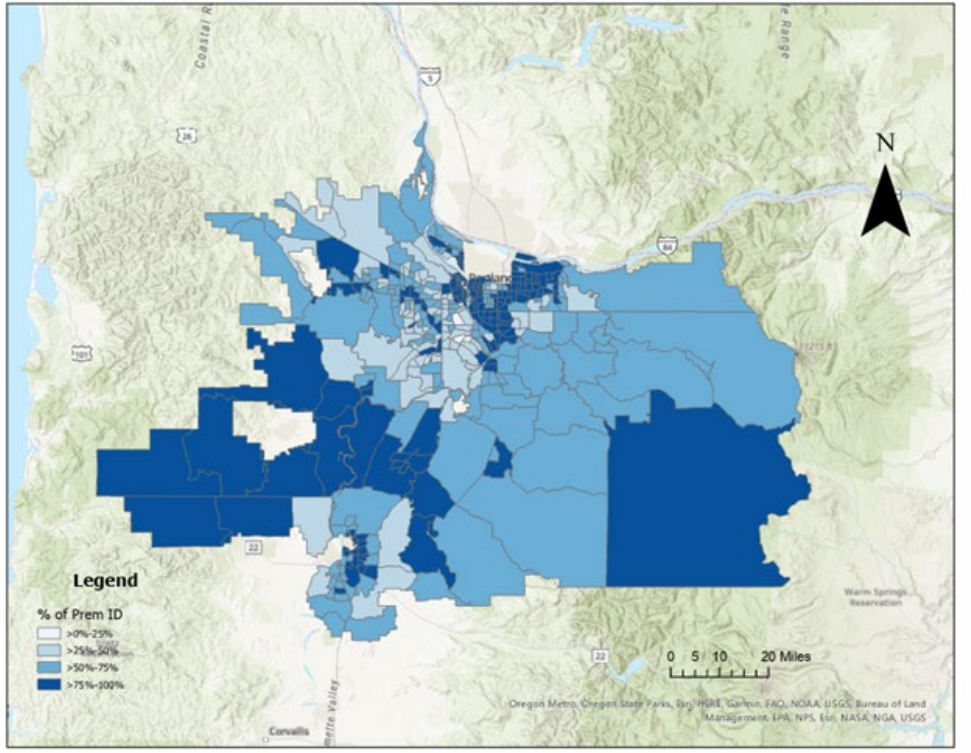


Figure 1. HB 2165 Underserved Communities within PGE’s Service Area

This map allows PGE to focus our TE engagement with underserved communities and will therefore help inform where best to deploy infrastructure to best meet their needs, and finally, to track and report implementation results for these efforts.

## Chapter 2. Stakeholder Engagement

PGE's 2023 MMC Budget reflects feedback gathered from stakeholders in multiple venues and over multiple years. Examples include surveys and focus groups conducted in 2018-19 and 2022 on the needs of PGE customers generally—and underserved communities<sup>17</sup> in particular—with respect to TE. Other examples of stakeholder engagement include discussions within regulatory dockets such as the UM 1826 Clean Fuels Program proceedings<sup>18</sup>; the UM 2165 TE Investment Framework discussions<sup>19</sup>; and the AR 654 Division 87 rulemaking proceedings<sup>20</sup>. PGE also integrated customer and market insights and feedback from partners who support our existing programs in formulating this budget.

In 2022, PGE hosted five stakeholder workshops<sup>21</sup> to discuss the company's draft TE plans. PGE also held follow-up meetings with several stakeholders and received written responses from others. Feedback from the stakeholder engagement process can be found in [Appendix B, Table 18](#), and has been used to help refine the programs to best meet customer and stakeholder needs. PGE's plans for the 2023 MMC were also informed by this engagement.

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<sup>17</sup>Espousal Strategies (August 2022). *Rapid Needs Assessment*, which provides a short term needs assessment for PGE TE on underserved communities.  
[https://assets.ctfassets.net/416ywc1laqmd/3WvXwicRVDQsg75neoEZYb/ed00218aba90de5e00c8422c4bc8bc6b/2022\\_TE\\_Short\\_Term\\_Needs\\_Assessment\\_Report.pdf](https://assets.ctfassets.net/416ywc1laqmd/3WvXwicRVDQsg75neoEZYb/ed00218aba90de5e00c8422c4bc8bc6b/2022_TE_Short_Term_Needs_Assessment_Report.pdf)

<sup>18</sup> OPUC. UM 1826. <https://apps.puc.state.or.us/edockets/docket.asp?DocketID=20725>

<sup>19</sup> OPUC. UM 2165. <https://apps.puc.state.or.us/edockets/DocketNoLayout.asp?DocketID=22828>

<sup>20</sup> OPUC. AR 654. <https://apps.puc.state.or.us/edockets/DocketNoLayout.asp?DocketID=23161>

<sup>21</sup> PGE. *Transportation Electrification Planning* site (section on Materials from past meetings).  
<https://www.portlandgeneral.com/TEP>

### Chapter 3. Monthly Meter Charge Budget

Table 3, below, illustrates the proposed budget for deployment of the MMC revenue that will be collected in 2023. Note that we anticipate some programs will continue beyond 2023. Definitions for budget categories can be found in Table 4, following thereafter.

Table 3. 2023 Monthly Meter Charge Budget (\$000s)

Activity	Total Budget	Infrastructure	Incentives	Program Operations	O&M on Investments	Evaluation	Outreach and Education	Pct to Underserved Communities
<b>Business and Multi-family Make-Ready Solutions (Phase I)</b>	<b>\$693</b>	-	\$152	\$438	\$3	\$50	\$50	62%
<b>Municipal Charging Collaborations (Phase I)</b>	<b>\$3,242</b>	\$1,983	-	\$527	\$482	\$100	\$150	75%
<b>Fleet Partner Pilot Enhancement and Managed Charging</b>	<b>\$832</b>	-	\$92	\$740	-	-	-	25%
<b>Portfolio Support</b>	<b>\$499</b>	-	-	\$499	-	-	-	0%
<b>Total</b>	<b>\$5,266</b>	<b>\$1,983</b>	<b>\$244</b>	<b>\$2,204</b>	<b>\$485</b>	<b>\$150</b>	<b>\$200</b>	
<b>Percentage of Total</b>		38%	5%	42%	9%	3%	4%	58%

Note that rows and columns may not sum due to rounding.

Table 4. Category Definitions for the MMC Budget (preceding table)

2023 MMC Budget Table Category	Definition and examples
<b>Infrastructure</b>	Infrastructure category 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.
<b>Incentives</b>	Rebates, enrollment incentives, or participation incentives given to customers for signing up or participating in a PGE program.
<b>Program Operations</b>	Cost to create and run a program, including the labor of individuals involved in the processes.
<b>O&amp;M on Investments</b>	Ongoing costs to maintain equipment or charging software.
<b>Evaluation</b>	Costs to hire a third party to evaluate program effectiveness.
<b>Outreach and Education</b>	Costs to engage, educate, and market programs to customers, as well as to create materials for education and engagement.
<b>Percent to Underserved Communities</b>	Anticipated percentage of program recipients included in underserved community definition



## Chapter 4. Program Area Descriptions

This section describes the Business and Multi-Family Make-Ready Program (Phase I) and Municipal Charging Collaborations Program (Phase I). The associated infrastructure applications can be found in Appendix A.1 and Appendix A.2. These infrastructure applications are required since these programs extend beyond currently approved TE activities and programs.

This section also describes Fleet Partner Enhancements and Portfolio Support.

### 4.1 Business and Multi-family Make-Ready Program (Phase I)<sup>22</sup>

While many commercial and multi-family property owners in PGE's service territory are interested in providing EV charging as an amenity for their customers, employees, tenants, and residents, the up-front cost of installing infrastructure remains a deterrent. At the same time, the cost, convenience, and grid impact benefits of installing charging at these medium- and long-dwell-time locations are an important complement to community charging, be it Level 2 (L2) or Direct Current Fast Charge (DCFC).

PGE proposes to use a portion of the 2023 MMC to launch Phase I of a Business and Multi-family Make-Ready Solutions program. This program will expand charging access for current and future EV drivers by supporting commercial customers' installation of public or "semi-public"<sup>23</sup> EV charging in workplaces, retail locations, destination centers, and multi-family locations.

For customers participating in the program, PGE proposes to support customer-installed EV chargers by designing, installing, owning, and maintaining electrical infrastructure both in front of and behind the customer meter. The customer will select and pay for the chargers, their installation, and also on-going maintenance of the chargers. This approach leverages PGE's expertise in service design and installation, relieving the customer of the logistical burden of managing such projects. Customers will select their EV chargers from a Qualified Product List (QPL) and receive a rebate to offset their charger costs. For its part, PGE will receive charging session data, which it will use to better understand the grid impacts of EV charging and to plan for more widespread passenger fleet electrification.

PGE has budgeted \$2.6 MM for Phase I of the program to support approximately 10 sites and approximately 100 ports. PGE plans to propose Phase II of the program with its 2023-25 TE Plan.

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<sup>22</sup> PGE (2019). *Transportation Electrification Plan* (p. 118, Table 45), which references make-ready for businesses and multifamily. <https://edocs.puc.state.or.us/efdocs/HAA/haa165721.pdf>

<sup>23</sup> "Semi-public" EV charging is that which may be restricted to certain groups, as allowable by law (e.g., employees or multi-family residents) but is not intended to solely support EVs owned by the business (such as fleet vehicles).

## 4.2 Municipal Charging Collaborations Program (Phase I)

Municipal Charging Collaborations is a collaborative approach wherein PGE proposes to design, own, operate, and maintain EV chargers in the municipal right-of-way (e.g., on utility poles or curbside) and on public property (e.g., at schools, parks, libraries, or at a city hall). PGE will collaborate on deployment of this infrastructure with public entities such as municipalities, regional governments, school districts, counties, and state government. PGE Schedule 50 is used because its pricing structure was designed to create price equity for low-income customers by approximating the cost-to-charge as if the customer took service under PGE's residential Schedule 7.<sup>24</sup>

This approach is the result of discussions with multiple municipalities and is informed by lessons learned from PGE's Municipal Charging Collaborations pilot, the Pole Charging demonstration, Electric Avenue, and Oregon Electric Byways networks. In conversations with these stakeholders, PGE found the right-of-way and public property to be an ideal means for PGE to collaborate with municipalities on TE and better meet the anticipated charging needs of underserved communities, including those who rent, live in multi-family dwellings, or lack off-street parking at home. Collaborating with public entities and communities will inform PGE on how best to streamline site host agreements, manage cost, and help municipalities meet their climate action goals.

PGE's 2022 MMC Budget funded a pilot to install 60 pole-mounted chargers in the ROW. Demand has already exceeded capacity of that pilot, with the full complement of 60 chargers planned at 7 of the 12 municipalities which have thus far expressed interest. This level of demand has led PGE to the current proposal for an additional 100 pole-mounted L2 chargers, which will help bring accessible charging to other underserved communities throughout our service territory.

PGE will continue to collaborate with municipalities and communities to identify high value locations to install chargers. PGE's priority is to install chargers within underserved communities, as these are least served by the existing market and would most benefit from the switch to electric transportation. PGE aims to have all chargers installed under this pilot by mid-2024.

PGE has budgeted \$3.2 MM for Phase I of the program. PGE is filing a TE infrastructure measure application for Phase I of this program concurrent with this 2023 MMC Budget filing (see [Appendix A.2](#)). PGE plans to propose Phase II of the program in its 2023-25 TE Plan.

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<sup>24</sup> PGE. *Schedule 50*.

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## 4.3 Fleet Partner Pilot Enhancement and Managed Charging

### 4.3.1 Background

The Fleet Partner pilot was approved by the OPUC on July 1, 2021.<sup>25</sup> Under the currently approved budget, PGE expects to install make-ready infrastructure at 24 sites for approximately 400 chargers. Under this pilot, PGE currently provides upfront planning and technical services, which includes a Fleet Partner Study with an EV feasibility assessment, charging analysis, preliminary site design and cost estimate, as well as a summary of all eligible incentives. If the customer approves the preliminary site design and signs a contract, they proceed to the Build phase, where PGE provides the turnkey final design and construction of make-ready infrastructure, along with custom cost incentives based on the customer's 10-year forecasted energy use at their chargers. PGE owns and maintains the make-ready infrastructure up to the charger. The customer is responsible for purchasing and installing all associated chargers. At least one charger must be installed within six months of the completion of construction.

### Key Pilot Challenges

Today, Fleet Partner participants are eligible for L2 rebates. This is a separate process through our Business EV Charging Rebate pilot program. As this program's L2 charger rebate budget now serves several programs, the available funding is quickly depleting. Requiring our business and fleet partners to apply to separate programs has also created frustration. To address this, PGE proposes to add 2023 MMC funds to the Fleet Partner pilot to fund \$92K in L2 charger rebates for 2023 Fleet Partner participants.

In addition, PGE proposes to allocate \$740K in 2023 MMC funds to further research managed charging for these customers and these types of charger installations. Fleet charging needs and load profiles need to be well understood before offering a sustainable managed charging approach. Although the Fleet Partner pilot requires chargers on its QPL be networked, which is necessary to enable smart and managed charging, neither the current Fleet Partner pilot nor Business EV Charging Rebates require demand response (DR) enablement and enrollment. Budgeting 2023 MMC funds to further our work on managed charging for fleets will yield insights (e.g., technology capabilities and customer engagement lessons) which PGE can apply as we further engage in this space in the coming years. These investigative efforts will be additive to our EV charging demonstration in the Smart Grid Testbed Phase I and Phase II.

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<sup>25</sup> PGE. *Schedule 56*.

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Table 5. Fleet Partner Pilot Enhancement and Managed Charging Budget

Line Item	Existing budget	Additional Budget Requested	Total Budget
<b>OpEx</b>	<b>\$2,340,521</b>	<b>\$832,739</b>	<b>\$3,173,260</b>
O&M	\$27,191	-	\$27,191
Fleet Planning	\$150,000	-	\$150,000
Administration and Managed Charging Research	\$1,608,330	\$740,489	\$2,348,819
Incentives (Rebates)	-	\$92,250	\$92,250
Outreach and Engagement	\$150,000	-	\$150,000
Evaluation	\$405,000	-	\$405,000
<b>CapEx</b>	<b>\$6,700,366</b>	<b>-</b>	<b>\$6,700,366</b>
Infrastructure/ Incentives	\$6,700,366	-	\$6,700,366
<b>Total</b>	<b>\$9,040,887</b>	<b>\$832,739</b>	<b>\$9,873,626</b>

#### 4.4 Portfolio Support

PGE proposes \$499 K in portfolio support for the activities described in this filing, to facilitate coordination on federal grant opportunities, and to extend our planning forecast capabilities.

Chief among the grant opportunities is the funding which the federal government is making available to state government, municipalities, and manufacturers through the Infrastructure Investment and Jobs Act<sup>26</sup> and Inflation Reduction Act<sup>27</sup> (the Infrastructure act alone allocates \$52 MM to Oregon over the next five years). Funding this work will enable PGE to offer a combination of non-federal matching funds for grant applications and coordinate on project scoping and implementation with our partners. This work is in line with the coordination proposed by Pacific Power in their 2022 MMC.<sup>28</sup>

PGE will also use portfolio support funds to enhance our EV forecasting abilities regarding locational adoption and to assess a wider range of potential outcomes. PGE’s AdopDER model provides a forecast of EV growth across the service area, as well as more granularly down to the customer level. Improving the forecast of locational adoption and our understanding of charging-related impacts directly informs PGE’s distribution operations and planning. Funding this work will help our

<sup>26</sup> 117<sup>th</sup> Congress (2021-22). H.R. 3684 Infrastructure Investment and Jobs Act. <https://www.congress.gov/117/plaws/publ58/PLAW-117publ58.pdf>

<sup>27</sup> 117<sup>th</sup> Congress (2021-22). H.R. 5376 Inflation Reduction Act of 2022. <https://www.congress.gov/bill/117th-congress/house-bill/5376/text>

<sup>28</sup> Pacific Power (2022). Proposed Monthly Metering Charge Budget for 2022 (pp. 11-12). <https://edocs.puc.state.or.us/efdocs/HAH/um2056hah152616.pdf>

planning tools capture market changes brought on by recent policy. The following are examples of the type of work that will support these goals:

- Adjustments to account for Inflation Reduction Act and Oregon Advanced Clean Cars II rule.
- Improved mapping of DMV registrations and fleet locations to customer sites and distribution assets.
- Integration of more advanced vehicle telematics data to understand medium- and heavy-duty travel patterns and estimated vehicle charging demands on a locational basis.

The proposed portfolio support activities will extend to locational EV forecasts in the DSP. PGE will work with the Electric Power Research Institute to advance the integration of fleet telematics (see [Figure 2](#), below) into our AdopDER model, which feeds into subsequent distribution planning workflows. PGE will also work with the Oregon Department of Environmental Quality to better understand whether and how available data sources from the Advanced Clean Truck Rule's<sup>29</sup> initial reporting cycle can inform the analysis of potential fleet charging impacts.

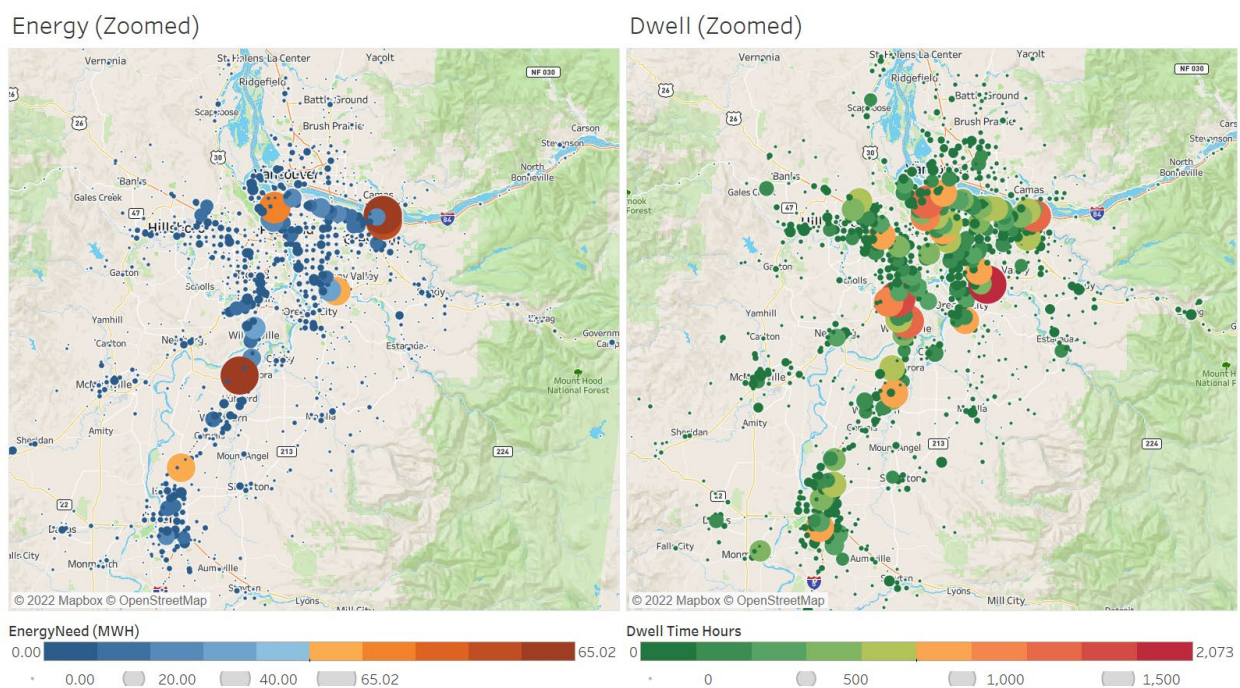


Figure 2. Fleet Telematics: Single Day Medium- and Heavy-Duty Energy and Dwell Times in PGE Service Area

Image and analysis source: Electric Power Research Institute

<sup>29</sup> Oregon Department of Environmental Quality (2021). *Permanent Administrative Order DEQ 17-2021 Clean Truck Rules 2021*. <http://records.sos.state.or.us/ORSOSWebDrawer/Recordhtml/8581405>

## Chapter 5. Conclusion

This Monthly Meter Charge Budget proposal for \$5.266 MM will enhance PGE's activities within currently-approved and new programs (approximately 92 chargers for fleet customers; installation of an additional 100 pole chargers with municipal partners; approximately 100 ports at 10 public and multi-family sites) and grant additional insights into the market, new technologies, and various customer experiences.

These programs and activities will inform components of our upcoming TE Plan filing, where the Commission and stakeholders will have another opportunity to reassess them in the context of a larger portfolio and a changed market.

The approval of the budget is necessary for the above 2023-4 activities. Continuing this momentum will provide PGE, stakeholders, and the Commission an opportunity to collect data and learnings to inform our approach to these rapidly evolving markets. This is important because they have undergone significant changes since the filing of PGE's 2019 TE Plan, with heretofore unseen levels of EV adoption and significant investment and research on the part of original equipment manufacturers and state and federal governments.

The approval of the budget is necessary for the above 2023-4 activities. Continuing this momentum will afford PGE, stakeholders, and the Commission an opportunity to collect data and learnings to inform our approach to these markets.

The proposals offered within this MMC budget filing will also inform our forthcoming 2023 TE Plan and previously approved TE activities. PGE looks forward to comment on these proposals, and further discussion with stakeholders as we evaluate and evolve our market approach for the 2023 TE Plan.

# Appendices

## Appendix A. Infrastructure Measure Applications

### Appendix A.1 Business and Multi-family Make-Ready Solutions (Phase I)

#### Appendix A.1.1 Introduction

PGE estimates there will be 150,000 EVs in PGE service territory by 2025. To serve these EVs, the number of charging ports will need to increase 400% in the next two years. Many commercial and multi-family property owners in PGE’s service territory recognize this opportunity and are interested in providing EV charging as an amenity to attract customers, employees, tenants, and residents. However, several barriers to charger installation and utilization exist. They include the lack of funds for site upgrades, competing priorities for property upgrades, insufficient return on investment if self-funded, and limited technical and engineering expertise. Business and Multi-family Make-ready Solutions (Phase I) is designed to address these barriers. The proposed 2023 MMC budget furthers PGE’s ability to understand how to manage these new unique loads to better compliment grid operations and customer charging needs. Understanding the long dwell times expected with these loads will complement lessons learned from commercial L2 and DC fast charging (e.g., those found at PGE’s Electric Avenue or other public charging).

The Business and Multifamily Make-Ready Solutions program will expand charging access for current and future EV drivers with installation of make-ready to support EV charging in public or “semi-public”<sup>30</sup> spaces such as workplaces, retail locations, destination centers, and multi-family locations.

For customers participating in the program, PGE proposes to design, install, own, and maintain electrical infrastructure in front of and behind the customer meter to support customer-installed EV chargers. This approach leverages PGE’s expertise in service design and installation and relieves the customer of the logistical burden of managing such projects. Customers will select their EV chargers from a QPL and receive a rebate to offset a portion of their charger costs. PGE will receive charging session data, which it will analyze to better understand the grid impacts of this type of long dwell EV charging and inform our plans to accommodate more widespread passenger fleet electrification.

The proposed budget for this program is \$2.6 MM, funded by a mix of PGE capital and 2023 MMC funds. PGE proposes to utilize \$693K in 2023 MMC funds for this program.

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<sup>30</sup> “Semi-public” defined in footnote 23 on Pg. 12.

## Appendix A.1.2 Program/Measure Details

### Appendix A.1.2.1 Elements, Objectives, Timeline, Expected Outcomes

#### Appendix A.1.2.1.1 Program Objectives

This program aims to:

- Expand charging access and adequacy for current and future EV drivers
- Support business customers by reducing the cost and complexity associated with installing EV charging
- Create a network of DR-enabled EV chargers, which are demand response enabled and can support efficient grid operations
- Better understand the customer and market barriers and opportunities in the EV charging space
- Identify areas for utility process improvement with respect to EV charging
- Generate an empirical data set for EV charging that:
  - Supports PGE in managing electric vehicle load, thereby increasing grid utilization and mitigating increases to system peak loads
  - Informs existing utility analyses and helps PGE develop future products and programs

#### Appendix A.1.2.1.2 Program Elements

From the customers' perspective, key features of the offering include:

- Site planning services
- Product qualification of Level 2 EVSE
- Vendor qualification of EV service providers
- PGE ownership of make-ready infrastructure located behind the meter
- Turnkey design and installation of electrical infrastructure up to, but not including, the EVSE
- Rebates for the purchase of L2 EVSE based on the type of charging offered (multi-family or other)
- Other technical services, as appropriate

PGE's proposed design separately meters networked and DR-ready charger installations from existing site load to facilitate frictionless adoption of follow-on products such as EV rates or Flexible Load programs.

PGE has designed the terms and conditions for participation to extend benefits to all customers and reduce the risk of stranded utility assets. To this end PGE will require that participants:

- (Multi-Family Housing only) have a minimum of 10% affordable units and be in a census tract with greater than 50% of the premises meeting the underserved criteria as defined by HB 2165.



- Submit a refundable deposit to cover final site design, should extensive engineering be required
- Install qualified, networked, DR-enabled EVSE upon PGE’s completion of make-ready infrastructure
- Keep EVSE operational and on a cost-of-service rate for 10 years
- Release charging data to PGE
- Reimburse PGE for pro-rata capital and rebate costs, should the participant breach any of the above commitments

Appendix A.1.2.1.3 Program Timeline

PGE intends to launch Phase I of the program in mid-2023. Funding will be available on a first-come, first-served basis until the funding dedicated to this program is fully reserved. Customers reserve funding during the Preliminary Design Approval stage of the program. During this stage the customer approves a final design and thereby reserves funding in accordance with the agreed-upon site need. Construction will necessarily lag the enrollment window. PGE anticipates all sites will finish construction by the end of 2024.

PGE will propose Phase II of this program in its 2023 TE Plan.

Appendix A.1.2.1.4 Expected Outcomes

PGE expects this program to support adoption of light-duty EVs by providing convenient charging where current and future EV drivers work, live, shop, and play. Specific outcomes include:

- Installation of an additional 100 L2 charging ports in PGE’s service area by the end of 2024, with at least:
  - 40 ports (40%) installed at multi-family sites
  - 40 ports (40%) made publicly available, with 20 of those (50% of public ports, or 20% of all ports) located within low to medium income communities by census tract as defined by HB 2165.
- Increase levels of EV awareness among both commercial and residential customers
- Improve PGE’s ability to plan, engineer, and operate the distribution system in service to new TE loads supporting multi-family charging
- Increase equitable access to electric mobility through the provision of EV charging ports in underserved communities

**Appendix A.1.2.2 Market Baseline Assumptions**

Forecasts indicate that the PGE service territory will need 6,015 public and workplace L2 ports to serve 2025’s expected levels EV adoption.<sup>31</sup> Today, there are only 991 public and workplace L2 ports in PGE’s service territory.

**Appendix A.1.2.3 Major Performance Milestones**

Major performance milestones include:

- Q3 2023: Program launch
- Q4 2023: 100% of funding reserved
- Q1 2024: Completion of first site and commencement of charging data collection
- Q2 2024/25/26: Status updates within TE Plan Report
- Q1 2026: Evaluation report

Major per-project milestones include:

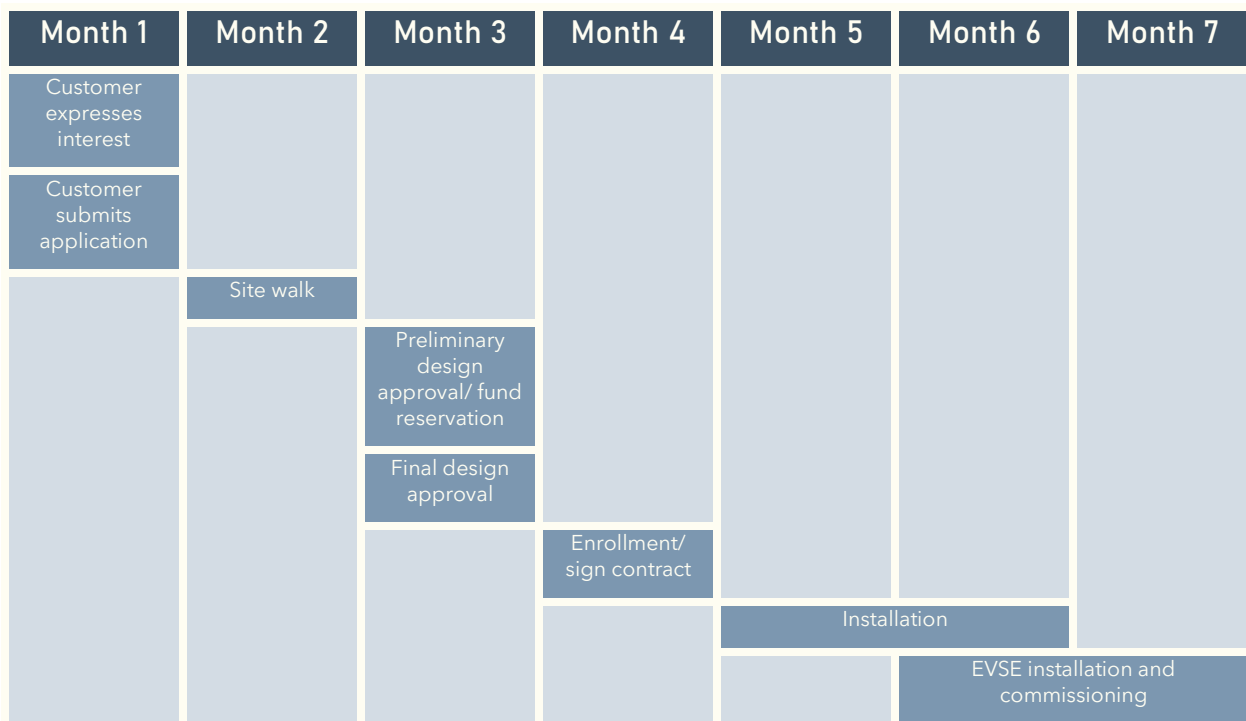


Figure 3. Business and Multi-family Make-Ready Milestones

**Appendix A.1.2.4 Program/Measure Phases**

PGE will propose Phase II of this program in its 2023 TE Plan.

<sup>31</sup> Based on TEINA’s EV charging infrastructure needs forecasts, adapted for PGE’s service area, and also internal EV adoption forecasts,

### Appendix A.1.2.5 Utilization, Eligibility, Incentive Structures

The program will be offered to non-residential customers in PGE’s service area including, but not limited to, workplaces, retail locations, destination centers, schools, houses of worship, and multi-family locations. Our present understanding of L2 charger load shapes, utilization rates, uptime, and make-ready costs informs the following participation requirements for the program:

- Eligible sites must be capable of installing a minimum of eight ports and those ports (or their replacements) must operate for 10 years on an eligible rate schedule.<sup>32</sup>
- Since granular usage data is needed to validate the above referenced understandings, PGE will require a separate meter for each site. PGE will also use this information to assess the performance of managed charging. These learnings will inform future iterations of the program and to adjust for changes as the market matures.
- PGE will allow these customers to participate in other PGE offerings such as EV-Ready Affordable Housing or the Drive Change Fund but they will not be allowed to cross-enroll the same site in A) Business EV Charging Rebates, since EVSE rebates are already provided within the program design, or B) either Fleet Partner or the Electric School Bus Fund, which are not semi-public.

While the precise number of sites the program can accommodate will depend on the number of ports installed per site, PGE forecasts approximately 10 sites may enroll in the program at the proposed funding level.

Table 6. Business and Multi-family Make-Ready Illustrative Number of Sites

	Small Sites (8 ports)	Medium Sites (12 ports)	Large Sites (16 ports)	Total Sites
Multi-Family	1	3	0	4
Public	1	3	0	4
Workplace	1	1	0	2
<b>Total</b>	<b>3</b>	<b>7</b>	<b>0</b>	<b>10</b>

Further, the terms of participation require the enrolling customers to cover the difference between total project and the available incentive dollars PGE offers. Further, the incentives PGE offers may only be applied to the following costs:

<sup>32</sup> Currently eligible rates include Schedules 32, 38, 83, 85, and 89. This may be expanded later to new rates, including EV-specific rates.

- Customer share of line extension costs, following the application of the line extension allowance, as defined in Schedule 300<sup>33</sup> and Rule I<sup>34</sup>
- Permitting, trenching, and pathway on the utility side of the meter
- All work—including design, engineering, permitting, construction, and installation—on the customer side of the meter up to, but not including, the EVSE
- Project management for site construction

PGE’s contribution to make-ready will be capped at \$17,000 per L2 port. PGE will offer the following incentive for each port installed:

- Standard rebate: \$1,000 per L2 port
- Multi-family rebate: \$2,300 per L2 port

This incentive is structured in manner to yield:

- A greater number of ports in underserved communities than the current market would undertake
- Customer investments in line with their ability and willingness to pay
- Site designs that take into account both current and future charging needs
- Data on participation and charger utilization to inform next steps in program, rate, managed charging, and incentive design

### Appendix A.1.2.6 Market and Implementation Barriers Addressed

#### Appendix A.1.2.6.1 Market Barriers

This program design addresses several market barriers identified by TEINA. They include:

Table 7. Business and Multi-family Make-Ready Barriers, Mitigants (TEINA)

Barrier	How Addressed
Cost of electric power upgrades and charging port installation (conduit, trenching)	Contributions from PGE towards charging infrastructure
Limited multi-unit dwelling and workplace charging	60% of program resources to be allocated for charging at multi-unit dwellings and workplaces

<sup>33</sup> PGE. *Schedule 50*.  
[https://assets.ctfassets.net/416ywc1laqmd/Z9SW1311yNz1OUs0i0Syr/fdb0972659acb84dcdf126fd1c87b38a/Sched\\_300.pdf](https://assets.ctfassets.net/416ywc1laqmd/Z9SW1311yNz1OUs0i0Syr/fdb0972659acb84dcdf126fd1c87b38a/Sched_300.pdf)

<sup>34</sup> PGE. *Rule I, Line Extensions*.  
[https://assets.ctfassets.net/416ywc1laqmd/6O5exEiUrGrN3R4KugNpgy/4b0cba50ac265f2130bd62be541803c8/Rule\\_I\\_-\\_1919\\_Eff\\_Dec\\_4.pdf](https://assets.ctfassets.net/416ywc1laqmd/6O5exEiUrGrN3R4KugNpgy/4b0cba50ac265f2130bd62be541803c8/Rule_I_-_1919_Eff_Dec_4.pdf)

Barrier	How Addressed
Economics of installing and operating charging ports (upfront, demand charge costs)	PGE will own, operate, and maintain make-ready infrastructure, providing cost relief for participants while leveraging existing assets and resources to keep overall costs low
Confusing and inconsistent user charging experience	PGE to provide incentives on prequalified chargers which are compatible with A) commonly available charging standards, and B) have the ability to participate in future PGE EV pricing/DR offerings

Appendix A.1.2.6.2 Implementation Barriers

PGE anticipates several implementation barriers for this program and has applied lessons learned from its Fleet Partner program, along with lessons from similar utility programs, in considering how to mitigate these. Key barriers and mitigation plans include:

*Table 8. Business and Multi-family Make-Ready Barriers, Mitigants (additional)*

Barrier	How Addressed
Higher-than-anticipated construction and materials costs due to supply chain issues stemming from the CO-VID 19 pandemic.	Per port cap on utility contribution for installation. An incentive that will present a compelling business case for the customer.
Long sales cycle inherent to projects of this scale.	PGE expects—and PGE staff will be prepared to support—a six-month cycle time from customer application to commissioning of the charger.
Low applicant success rate due to lack of experience installing electric charging infrastructure and underestimation of process and costs.	PGE will manage this risk by pre-qualifying sites. Up front engagement, and assistance with site design and business case development. Long-term site engagement for the collection information and data will inform PGE of the success and hurdles these early adopter experience thus informing PGE role an activity.

**Appendix A.1.2.7 Performance Area Categories**

PGE’s proposed design addresses relevant Division 87 performance area categories as follows:

*Table 9. Business and Multi-family Make-Ready Performance Area Categories*

Performance Area Category	How Addressed
<b>Environmental benefits including greenhouse gas emissions impacts</b>	As the site is utilized PGE will be able to calculate illustrative emission reductions. The data can be used to draw correlations between the investment made and the driving and charging habits of those who utilize these chargers. The data may help us better understand how these investments affect the community where they are sited.
<b>Electric vehicle adoption</b>	Increased charging adequacy, including visible and available chargers at the retail, workplace, multi-family, and other destinations frequented by residential customers. PGE expects this to help meet the needs of increased EV adoption across PGE’s service area.
<b>Equity of program offerings to meet underserved communities</b>	The program will target and prioritize public and semi-public charging for underserved communities including renters, multi-family residents, and others lacking access to charging at home.
<b>Distribution system impacts and grid integration benefits</b>	PGE does not anticipate distribution system impacts stemming from this program. Grid integration benefits are largely represented by the networked and DR-capable requirements in the technical standards PGE sets. Data acquired will inform how growth of Multi-Family and Business charging could affect the design and operation of the distribution system. Being DR capable these chargers will also inform how smart and managed charging can mitigate distribution system operation disruptions, support local grid and system reliability.
<b>Program participation and adoption</b>	PGE anticipates that approximately 10 sites (representing approximately 100 L2 ports) will be constructed under this program. 40 ports will be installed at multi-family dwellings, with a further 40 ports installed at public sites. Half of those public ports will be sited in geographically designated

Performance Area Category	How Addressed
	underserved communities. Another 20 ports will be installed at workplace locations.
<b>Infrastructure performance including charging adequacy which considers, but is not limited to reliability, affordability, and accessibility</b>	PGE tracks charger uptime and the cost-to-charge across its fleet of utility-supported chargers and will report on this information in future TE Plan Reports. If the site host elects to bill EV drivers, PGE requires multiple forms of payment be available. This requirement increases accessibility of chargers to all types of residential customers.

### Appendix A.1.2.8 PGE's Role in the Program

PGE's role in the program includes:

- Support for customers with site planning services and advice on charger deployment
- Qualification of EVSE products for inclusion in the program
- Ownership, operation, and maintenance of make-ready assets up to, but not including, the EVSE
- Design and installation of electrical infrastructure from the existing distribution grid through the meter to the charger pad(s)
- Calculation of custom incentive and rebate amounts
- Issuance of rebates
- Other technical assistance, as appropriate
- Program administration

The customer's role in the program includes:

- Selection of qualified equipment from PGE's QPL
- Timely review and approval of preliminary and final site designs
- Engaging a vendor to procure and install the EVSE
- Submission of invoices and other supporting documentation for EVSE procurement and installation to PGE, as requested
- Release of charger session data to PGE
- Maintaining an ongoing relationship with a qualified vendor for data and software services
- Maintaining the chargers in good working condition, and on a cost-of-service rate, for 10 years
- Paying the retail energy rate at the meter
- Determining charger access and pricing for EV drivers, if any

### **Appendix A.1.2.9 Resulting Distribution Upgrades**

The maximum site size that PGE has modeled for this program is under 150 kW of load. Aside from new or upgraded distribution-level transformers, both of which are accounted for in the budget below<sup>35</sup>, PGE does not expect the program to trigger significant distribution system upgrades. PGE will work closely with customers on right-sized EVSE, managed charging, and planful siting that will help control distribution system costs and minimize potential impacts (including cost impacts) on both participating and nonparticipating customers.

### **Appendix A.1.2.10 Ownership Structure**

To meet program objectives, PGE proposes to own the make-ready infrastructure behind the meter up to, but not including, the EVSE. This approach allows customers to focus on the aspects most important to their business, including choice in the type of charger installed and the related charging experience.

PGE's market research indicates that multiple third parties (typically EVSE vendors) are engaged in Charging as a Service (CaaS). Under a CaaS model, the vendor owns the EVSE at the customer site and the customer pays for charging service over time as an off-balance-sheet operating expense. In traditional CaaS, the vendor does not own or operate the make-ready infrastructure. Importantly, chargers installed under third-party CaaS contracts will also be eligible for rebates. In this case, program rebates will still be issued to the PGE customer (site host).

Third parties are beginning to explore and offer financing for turnkey make-ready infrastructure to address the market gap. However, to PGE's knowledge, entrants in this space are either start-ups or are working with financing partners that are themselves new to this model. Furthermore, our market research suggests that this approach is more common for fleets than charging-as-an-amenity. PGE continues to view this as an immature market and sees the need for trusted customer solutions today.

### **Appendix A.1.2.11 Equipment Interoperability**

This program will rely on PGE's existing qualification process and QPL. Required interoperability features include:

- Compliance with Open Charge Point Protocol (OCPP) v1.6 or later, which allows EV charging stations and central management systems from different vendors to communicate with each other
- Compliance with open communication platform Open Automated Demand Response 2.0B, which enables coordination with distributed energy resources and is capable of demand response

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<sup>35</sup> See [Appendix A.1.4 Program and Infrastructure Costs](#)



- Equipment compliant with Society of Automotive Engineers (SAE) J1772 standard for EVSE connectors

PGE also recommends the following interoperability features:

- International Organization of Standards/International Electrotechnical Commission (ISO/IEC) 15118, which is an international standard defining a vehicle-to-grid communication interface for bi-directional charging/discharging of EVs

#### **Appendix A.1.2.12 National Standards**

Other national standards required for hardware and software qualification include:

- NEMA Type 3R or 4, which certifies equipment as weatherproof, for either indoor or outdoor use
- Listing by a nationally recognized test lab to the requirements of Underwriters Laboratory (UL) 2251 and 2594, demonstrating that products are tested to UL's recognized safety standards
- Compliance with recommended practice SAE J2894/1\_201112 or later, which lay out power quality requirements for EVSE
- Compliance with National Electrical Code (NEC), National Fire Protection Association article 625, which covers wires and equipment used to supply electricity for EV charging
- Capable of installation in compliance with the Americans with Disabilities Act (ADA)
- If the EVSE owner opts to bill EV drivers for the energy consumed at the charger, multiple forms of payment must be made available to the driver

PGE also recommends the following national standard:

- EnergyStar certification to certify energy efficiency (currently only available for Level 2 EVSE)

PGE has developed a Qualified Product List whose hardware and software offerings meet our interoperability, measurement, communication, durability, safety, accessibility, and other requirements. Participants may select hardware and software from this list that meets their business needs. Customers and vendors may also request to add products to the list, as PGE's qualification process remains open. This allows for customer choice and promotes competition within the market, while still ensuring that installations meet our baseline requirements.

#### *Appendix A.1.3 Program/infrastructure coordination*

##### **Appendix A.1.3.1 Stakeholder involvement in development**

PGE discussed this program concept with stakeholders in workshops we held on April 28, June 14, July 12, and October 6, 2022. We specifically discussed the concept of

make-ready ownership at business charging sites in our February 2019 UM 1811 compliance filing, our July 2020 Transportation Line Extension Allowance filing, and in early 2021 discussions with stakeholders regarding PGE's Fleet Partner pilot.

At the urging of stakeholders, PGE has:

- Reduced the overall cost and scale of the program
- Introduced cost sharing for customers
- Tiered incentives to deliver higher benefits to underserved communities
- Made commitments regarding the total number of ports installed at each type of site to ensure that underserved communities are included

#### **Appendix A.1.3.2 Coordination with State Programs**

PGE will make customers aware of, and support customers' awareness of the Oregon Clean Vehicle Rebate, the Oregon Clean Fuels Program, and other relevant state programs.

PGE anticipates that some customers may elect to combine incentives offered through this program with federal, state, and/or local funding sources. PGE welcomes this type of coordination and will work as necessary with federal, state, and/or local entities and representatives.

#### **Appendix A.1.3.3 Coordination with Market Actors and Activities**

The following are examples of how PGE works with EVSE hardware and software vendors to support increased customer choice and access to public and semi-public EV charging:

- PGE manages a qualification process and list for hardware and software for EV charging. PGE collects details and specifications about each hardware option, reviewing it to ensure EVSE and software meet the technical requirements specified above.
- PGE has executed data sharing agreements with each of the vendors on the QPL and will obtain charging session data directly from the vendors (customers will sign a data release as part of the enrollment process). This ensures that customers do not have to provide data directly to PGE on an ongoing basis.
- PGE also works regularly with the vendors on the QPL to ensure that they are informed about PGE's various TE programs and have outreach and education and other collateral on hand to share with their customers. In this way, vendors play an integral role in raising customer awareness of PGE's programs. For its part, PGE shares EVSE options and details with customers, and will work directly with their selected vendors to ensure that PGE and the vendor are able to provide the most efficient customer experience.
- PGE will also coordinate with installers, dealers, and trade groups as appropriate to best serve the customer.

#### Appendix A.1.3.4 Fit with Long Term TE Strategy

This program is designed to address two pillars of PGE’s long-term vision for TE:

1. Charging that is equitable, affordable, reliable, and accessible
2. Electric vehicles which are efficiently integrated into the grid

Make-ready programs offer an opportunity for utilities to effectively support the deployment of EV charging. They leverage a favorable capital model while also allowing for significant customer choice and control over EVSE and shaping of the driver experience.

Additionally, as previously stated all chargers installed through this program will be networked and managed charging enabled. At present, data shows workplace and multi-family charging load shapes are generally favorable for the grid, with charging predominantly during times of excess grid capacity. Workplace charging patterns show predominate charger usage during morning hours while multi-family charging happens predominantly overnight.

#### Appendix A.1.4 Program and Infrastructure Costs

##### Appendix A.1.4.1 Estimated total costs, including incentives, program delivery, evaluation, marketing, and program operations costs

Table 10. Business and Multi-family Make-Ready Phase I Budget

	Amount
OpEx/MMC	\$692,500
Evaluation Services	\$50,000
Incentives	\$152,000
Outreach & Education	\$50,000
O&M on Investments	\$2,500
Program Operations	\$438,000
CapEx	\$1,855,000
<b>Total</b>	<b>\$2,547,500</b>

##### Appendix A.1.4.2 Estimated participant costs

Final costs to program participants will vary by site. Participants will be responsible for the costs associated with the following:

- Make-ready and line extension costs beyond that covered by PGE’s Line Extension Allowance and the custom PGE capital contribution for this program
- Acquisition of EVSE, less rebate amount
- Installation and commissioning of EVSE

- Maintenance of EVSE, including data/software fees
- Energy and other costs via the PGE bill, for the meters serving the EVSE

To help offset participants' out-of-pocket costs, they will be required to claim and monetize CFP credits generated at the EVSE, either directly or through a brokerage. Additionally, participants may elect to recover their costs by requiring payment from EV drivers, the specific pay structure and amount to be set by the participant.

#### *Appendix A.1.5 Learning Objectives, Evaluation of Effectiveness, and Data Collection Methods*

PGE will design the pilot evaluation to measure the program's effectiveness in meeting its objectives, identify areas for continuous improvement, and assess energy impacts on PGE's system. High-level evaluation learning objectives include:

- **Customer/Market Lessons**
  - Validate PGE's assessment of customer barriers to EV charging installation
  - Identify additional customer barriers to TE, utility opportunities, and potential solutions
  - Identify barriers to program participation, including customers' internal processes and timelines, the attractiveness of the incentive, the impact of non-financial support such as turnkey design and installation, and the impact of customer commitments and requirements
  - Understand PGE's level of influence in customer decisions to install EV charging, and the materials, information, and/or analyses that could most effectively accelerate such installation
  - Track customer participation and satisfaction levels with program offerings (e.g., planning, design, incentives, installation, and assistance)
  - Track the impact on underserved communities, such as the number of ports made available to members of those communities
  - Assess the aforementioned across various customer segments
- **Program Implementation Lessons**
  - Document the successes and challenges of delivering turnkey charging installations
  - Understand impacts on the local network of installers for EV infrastructure, assess workforce development needs, and potential economies of scale
  - Assess the costs and benefits of utility ownership of make-ready infrastructure
  - Identify internal and external implementation successes and challenges, as well as opportunities for process improvement
- **Develop an Empirical Dataset** to:

- Understand and reduce grid impacts such as coincident peak load or feeder overloading
- Support participant efforts to encourage optimized charging at their sites
- Forecast distribution system impacts and infrastructure needs
- Inform future EV rates
- Inform future Flexible Load opportunities or offerings
- More effectively site future EV charging infrastructure

#### **Appendix A.1.5.1 Evaluation Methods**

PGE and its evaluation vendor will develop and implement a comprehensive evaluation scope that details the analysis methods to be used, including the sampling and timing best suited to evaluate the program. Following are brief descriptions of the anticipated types of evaluation methods:

- **Customer/Market Lessons**, which will be derived from interviews and web surveys. Expected customer/market evaluation activities include:
  - **Participant in-depth interviews and web surveys**, whose topics may include sources of program awareness, ease of enrollment and participation, the project development process and successes/challenges, experience working with PGE, charger reliability and utilization, energy bill impacts and tariff changes (if any), impact of EV charging on site operations and sustainability goals, as well as remaining barriers and other elements.
  - **Non-participant in-depth interviews**, whose primary topics will include sources of program awareness, clarity and comprehension of program offerings, experience working with PGE sales/outreach and education staff, and reasons for non-participation (pilot-specific and/or exogenous).
- **Process Evaluation (Program Implementation Lessons)** will help to identify the successes and problem areas in program design and implementation. These findings provide periodic feedback that can help make continuous improvements to the program. Expected activities include:
  - **Logic Model:** Early in the program evaluation, PGE and its evaluation vendor will create a logic model, review the program objectives detailed in this application, and adjust evaluation activities accordingly. The logic model will illustrate how the planned activities should lead to a set of expected short-term outcomes, followed by longer-term outcomes. Should program goals not be achieved, the logic model will help structure evaluation activities and identify any gaps in program design, which PGE would then work to remediate.
  - **Data Analytics:** The evaluation will track and report program participation levels and include firmographic analysis to determine the

types of customers who are and are not participating, and other project details such as the number of sites and ports.

- **Partner Interviews:** PGE’s evaluator will conduct in-depth interviews with key partner groups such as construction contractors and EV service providers to understand implementation successes and challenges.
- **PGE Program Administrator Interviews:** PGE’s evaluator will conduct annual in-depth interviews with PGE program staff and implementation partners on a wide range of program topics. The initial interviews are anticipated to focus on the launched program design, customer targeting, as well as outreach and education activities, initial contracting experiences, program implementation (planning, design, and construction), and staff coordination. Subsequent interviews will focus on implementation successes and challenges, program design or delivery changes (enacted and anticipated), and also lessons learned.
- **Data Evaluation:** PGE will require customers to release session-level charging data (e.g., charger type, start and end times, energy consumption, and price paid by EV driver) in a prescribed format so PGE can track charger utilization over time. In addition, PGE’s evaluation vendor will analyze customer meter data to further assess customer load impacts and impacts to PGE’s system (e.g., on-peak to off-peak ratios). In addition to including data analysis results in regular program reporting, PGE also plans to leverage the program dataset in regular planning documents such as the TE Plan.

PGE will report on the results of this program through its annual TE Plan Report, as required by OPUC.

The cost of evaluation for this program is \$50,000, as shown in [Table 10](#), above.

*Appendix A.1.6 How Infrastructure Measure Addresses Oregon Administrative Rule and Oregon Law*

*Table 11. Business and Multi-family Make-Ready OAR Concordance*

OAR 860-087-0020(4)	Section of Application Addressing the Rule
A description of the infrastructure measure	<a href="#">Appendix A.1.2 Program/Measure Details</a>
Data used to support the description	<a href="#">Appendix A.1.2 Program/Measure Details</a>
A description of infrastructure measure coordination	<a href="#">Appendix A.1.4 Program and Infrastructure Costs</a>
A description of how the proposed infrastructure measure fits within the	<a href="#">Appendix A.1.3.4 Fit with Long Term TE Strategy</a>

OAR 860-087-0020(4)	Section of Application Addressing the Rule
electric company's long-term strategy to support TE	
A description of costs	<u>Appendix A.1.4 Program and Infrastructure Costs</u>
A description of learning objectives and how the electric company will evaluate the infrastructure measure	<u>Appendix A.1.5 Learning Objectives, Evaluation of Effectiveness, and Data Collection Methods</u>
For infrastructure measures, a description of how the measure addresses the considerations of ORS 757.357	<u>Table 12, below</u>

Table 12. Business and Multi-family Make-Ready ORS Concordance

ORS 757.357	How Application Addresses the Law
<p>(1) (b) (A) "Infrastructure measures" includes, but is not limited to, investments in, expenses related to or rebates for:</p> <ul style="list-style-type: none"> <li>(i) Distribution system infrastructure that supports transportation electrification</li> <li>(ii) Communication and control technologies that support transportation electrification</li> <li>(iii) Behind the meter infrastructure that supports transportation electrification and is owned by an electric company or by a customer</li> </ul>	<p>The investments proposed in this application meet the description of infrastructure measures in (iii), as they are issued for behind-the-meter infrastructure that supports TE and is owned by a customer.</p>
<p>(b) (B) "Infrastructure measures" does not include investments in or expenses related to education and outreach activities related to transportation electrification, or other transportation electrification-related activities determined by the Public Utility Commission to be separate and distinct from the development of infrastructure.</p>	<p>While this infrastructure measure has an associated outreach and education budget, it is for enrollment only, not to more generally advance transportation electrification.</p>

ORS 757.357	How Application Addresses the Law
(5) If undertaken by an electric company, an infrastructure measure to support transportation electrification is a utility service and a benefit to utility customers if the infrastructure measure can be reasonably anticipated to:	
(a) Support reductions of transportation sector greenhouse gas emissions over time	<a href="#"><u>Appendix A.1.2.7 Performance Area Categories</u></a>
<p>(b) Benefit the electric company's customers in ways that may include, but need not be limited to:</p> <p>(A) Distribution or transmission management benefits</p> <p>(B) Revenues to utilities from electric vehicle charging to offset utilities' fixed costs that may otherwise be charged to customers</p> <p>(C) System efficiencies or other economic values inuring to the benefit of customers over the long term, or</p> <p>(D) Increased customer choice through greater transportation electrification infrastructure deployment to increase the availability of and access to public and private electric vehicle charging stations.</p>	<p><a href="#"><u>Appendix A.1.2.7 Performance Area Categories</u></a></p> <p><a href="#"><u>Appendix A.1.3.3 Coordination with Market Actors and Activities</u></a></p>



## Appendix A.2 Municipal Charging Collaboration (Phase I)

### Appendix A.2.1 Introduction

The State of Oregon has a goal of growing Zero Emissions Vehicle adoption to 250,000 registered vehicles by 2025.<sup>36</sup> The Company forecasts that approximately 135,000 of those light duty vehicles will be registered in PGE’s service territory (up from 31,000 in 2021). EV drivers who own their homes and have access to off-street parking are likely to perform the majority of their vehicle charging at home overnight. However, many potential EV drivers—such as those who rent their home or live in multi-unit dwellings (MUD)—lack dedicated off-street parking at their current residence and cite this as a main barrier to their EV adoption. A recent PGE survey found that, within the population of renters, 44% of MUD residents and 32% of single-family housing residents responded that they were more likely to consider an EV or Plug-in Hybrid Electric Vehicle (PHEV) if they had access to a utility-pole-mounted charger in their neighborhood. Furthermore, within the population of customers without access to off-street parking, 55% of MUD residents and 48% of single-family housing residents noted that they would be much more likely to consider an EV if they had access to utility-pole-mounted EV charging in their neighborhood.

Almost half of residents in the PGE’s service territory live in renter-occupied dwellings. BIPOC communities and/or traditionally underserved communities disproportionately rent their residence.<sup>37</sup> ODOT’s TEINA found that overnight home charging was the key factor to achieve widespread and equitable adoption of EVs. TEINA shows that, by 2025, a four-fold increase in the total number of charging ports (over 2020 levels) will be needed to support urban LDV requirements, particularly in areas with high density of rentals and MUDs. TEINA goes on to show that vehicle registrations are 11% lower in underserved communities, and that these customers currently have no way to charge an EV near their home, and therefore are unlikely to consider acquiring one.<sup>38</sup> These customers will be unable to enjoy the benefits of owning an EV, which include decreased maintenance costs, better air quality, and the convenience and cost savings of electric fuel.

To ensure that all residents may enjoy these benefits, customers need:

- Reliable access to public charging infrastructure close to their residence
- Chargers located where their vehicles are likely to be parked for long periods of time

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<sup>36</sup> Oregon Revised Statutes, Volume 7, Title 26, Chapter 283 (ORS 283.401). *Report concerning utilization of zero-emission vehicles within state: recommendations for legislation.* [https://oregon.public.law/statutes/ors\\_283.401](https://oregon.public.law/statutes/ors_283.401)

<sup>37</sup> Portland Housing Bureau (2020). *State of Housing Report.* <https://www.portland.gov/phb/state-of-housing-report>

<sup>38</sup> Oregon Department of Transportation. *TEINA Study.* Retrieved February 10, 2023, from <https://www.oregon.gov/odot/Programs/Pages/TEINA.aspx>

- Charging available at a price comparable to what they might pay to charge at home

To help meet these needs for those without access to off-street parking, PGE proposes installing Level 2 chargers in the right-of-way (ROW) near multi-family housing, as well as in residential neighborhoods with high levels of rentals and/or where homes lack driveways/garages. This strategy was first tested with PGE’s ROW demonstration in southeast Portland, where EVSE were mounted onto PGE-owned utility-poles under Schedule 16. Based on utilization data and public scores from Plugshare, this demonstration has proven popular and well-utilized.

PGE developed the current concept for the Municipal Charging Collaboration with municipalities and communities. The proposed program builds upon the pole-mounted demonstration and the 60 pole-mounted chargers funded with the 2022 MMC Budget filing. As noted in Section 4.2, above, municipalities’ interest in the pilot offering extends beyond the 60 chargers approved as of the prior MMC filing, which leads to this request for an additional 100 chargers to help address the demand for accessible charging for other underserved communities across our service territory.

The program allows chargers to be built, owned, and operated by PGE on any public property maintained by the municipality or public entity. In this application for Phase I of the program, PGE proposes installing an additional 100 pole-mounted L2 chargers using \$3.2 MM in 2023 MMC funds and \$0.4 MM in utility-provided capital, for a total program cost of \$3.6 MM. Chargers installed under this program will follow PGE’s Retail Charging Rate (Schedule 50).

For Phase II of this program, PGE envisions installing additional pole-mounted L2 chargers, curbside L2 chargers, and parking lot DCFC chargers.

#### *Appendix A.2.2 Program/Measure Details*

##### **Appendix A.2.2.1 Elements, Objectives, Timeline, Expected Outcomes**

###### Appendix A.2.2.1.1 Program Objectives

This program aims to:

- Improve charging adequacy to PGE’s underserved customers
- Help municipalities reach their climate action and sustainability goals
- Provide affordable and equitable pricing at EVSE so that those who rely on public chargers do not pay a premium over what they would pay to charge at home, if they had that option
- Inform PGE on how best to reach this underserved market exploring an approach whereby the utility will design, own, operate, and maintain EVSE for municipalities unable to fund this work. PGE suspects the endeavor will provide an understanding of how best to coordinate and partner with other market actors and other business deployment and installation models.

- Help underserved communities gain access to EVSE near their residence by targeting areas of high density of rentals, multi-family housing, low-income families, BIPOC communities, and other traditionally underserved communities, as defined by HB2165
- Accelerate EV adoption by allaying customers' concerns regarding access to EV charging
- Use existing franchise agreements and ROW ordinances to fairly compensate municipalities for the use of their property
- Install appropriate charging infrastructure based on ODOT's TEINA estimates
- Generate Clean Fuels Credits to help offset costs

Appendix A.2.2.1.2 Elements, Objectives, Timeline, Expected Outcomes

Key features of the program include:

- Close partnership to determine the best locations to help underserved communities
- PGE ownership and maintenance of EVSE and make-ready equipment
- Affordable and equitable pricing for all customers
- Improved access to public charging infrastructure
- Provide electrical service to the chargers via PGE's Schedule 50, which provides for monthly subscriptions to charging services.
- PGE will ask municipalities commit to:
  - Provide written approval for PGE to install EVSE on identified public property
  - Assist to expedite permits for installation applications
  - Mutually agreed upon terms between PGE and municipality
  - Conduct outreach to communities regarding upcoming EVSE installations
  - Notification of vandalism, questions, or concerns they receive around EVSE installed under this program
- PGE will commit to:
  - PGE will work with internal and external stakeholders to select locations that best provide charging to underserved communities at the lowest cost.
  - PGE will seek equipment designs and specifications that meet the unique combination of requirements for utility pole-mounted applications, as put forth by the National Electrical Code and National Electrical Safety Code. PGE will ensure proposed designs are supported by internal and external stakeholders, including OPUC safety staff.
  - PGE will design and engineer sites to ensure conformance with all applicable codes, regulations, and standards.

- PGE will permit and install all chargers to meet all applicable codes, regulations, and standards set forth by the authority having jurisdiction.
- PGE will operate and maintain all make-ready and charging infrastructure for the duration of the program. Operations and maintenance tasks include remote monitoring, testing and inspection, routine maintenance, and emergency repair.

PGE will track the uptime and rate at which the first attempt to charge was successful for each individual charger. PGE will consider replacement of individual units if they are found to consistently underperform this target.

#### Appendix A.2.2.1.3 Program Timeline

PGE plans to launch the program in Q2 2023, following the pilot approved as part of the 2022 MMC budget, with additional signed agreements and EVSE installations in Q3 and Q4 of 2023, potentially running into the early part of 2024. PGE will, on an annual basis, reassess public infrastructure needs and conduct surveys of municipalities and of neighborhoods where chargers have been deployed. PGE plans to make this data available to all municipalities and managers of public property (e.g., Metro, school districts).

#### Appendix A.2.2.1.4 Expected Outcomes

PGE believes this program will accelerate TE in our service territory, especially amongst underserved communities. Our expected outcomes are below:

- Installation of an additional 100 chargers in residential neighborhoods
- Increased awareness, as measured via customer surveys
- Increased EV consideration in neighborhoods where chargers are deployed, as measured via customer surveys
- Unique customers leveraging our charging portfolio via analysis of charger data
- Increased utilization of chargers via analysis of charger data

Additional outcomes include:

- Reduction in greenhouse gas emissions and criteria air pollutant emissions in PGE's service territory and beyond
- Beneficial partnership that helps both PGE and municipalities achieve their climate goals
- Streamlined data collection from EVSE to better understand customer charging
- Promote the use of public facilities such as libraries and parks

### Appendix A.2.2.2 Market Baseline Assumptions

As of October 2022, PGE’s service territory includes 35,305 Light Duty BEVs/PHEVs<sup>39</sup>, and that number is forecasted to grow to roughly 135,000 by 2025.

To serve multi-family customers who do not have access to a garage and thereby increase adoption of EV among these customer PGE recognizes that near curbside charger placement is important. This program will focus on underserved communities, where the private sector is least likely to invest. PGE expects that the installation of EVSE in these areas will help underserved communities gain access to the benefits EV ownership.

Table 13, below, illustrates how the usage of PGE’s two pole chargers compares to that of PGE’s Electric Avenue L2 public chargers. The increased utilization of our current two pole chargers informs PGE’s proposal as these numbers do demonstrate high utilization. The investment of 2023 MMC funds will further our understanding of this unique and emerging need in the market. PGE will similarly track utilization rates for new chargers. Data collected will help inform next steps.

Table 13. PGE Public L2 Usage Data (Q1 2022)

Station Name	Usage (kWh)
<b>Pole Chargers</b>	
Pole Charger 29th Ave.	5,241
Pole Charger 35th Ave.	4,893
<b>Electric Avenue L2 Public Chargers</b>	
Electric Avenue - World Trade Center	4,050
Electric Avenue - Hillsboro	69
Electric Avenue - Eastport Plaza	1,791
Electric Avenue - Wilsonville	221
Electric Avenue - Beaverton	1,211

### Appendix A.2.2.3 Major Performance Milestones

Milestones are as follows:

- Municipality expresses interest in program
- PGE begins negotiations with a municipality
- Mapping commences and sites are selected

<sup>39</sup> Oregon Department of Energy. *Oregon Electric Vehicle Dashboard: Electric Vehicles by Utility October 2022*. <https://www.oregon.gov/energy/Data-and-Reports/Pages/Oregon-Electric-Vehicle-Dashboard.aspx>. Accessed February 22, 2023.

- Neighborhoods are engaged in program
- PGE installs chargers on public property

**Appendix A.2.2.4 Program/Measure Phases**

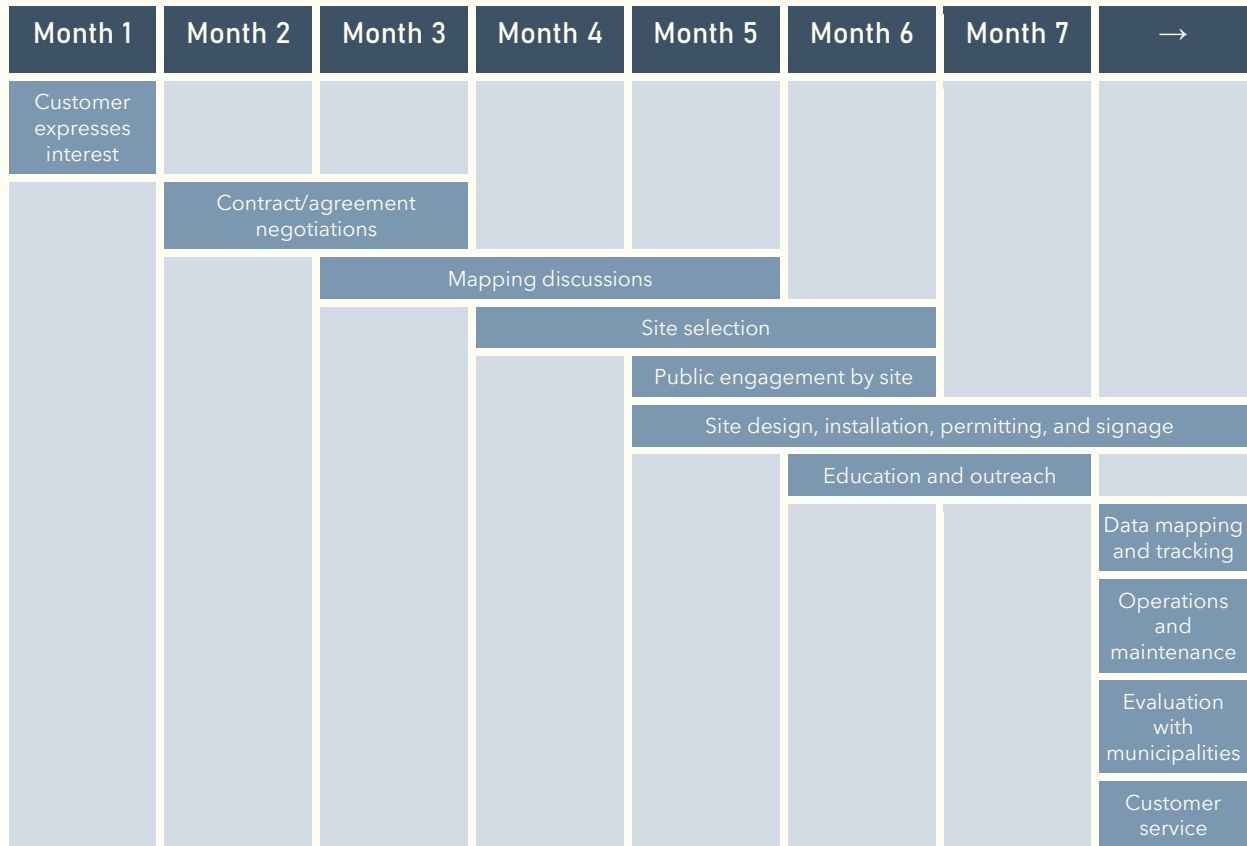


Figure 4. Municipal Charging Collaboration Program Phases

**Appendix A.2.2.5 Utilization, Eligibility, Incentive Structures**

Municipalities and public entities that manage or own public property (including tribal governments, cities, counties, school districts, state agencies, and regional agencies) are eligible to partner with PGE to offer this product.

PGE encourages any municipality in its territory to participate. PGE will use geospatial analysis to highlight those historically underserved communities most in need of EV charging infrastructure. Public property managed by the municipality will be overlaid on this map and PGE’s program team will evaluate key areas to determine the best locations to place EVSE.

### Appendix A.2.2.6 Market and Implementation Barriers Addressed

PGE found that current EV owners have a higher level of home ownership (94%) compared to that of all respondents (67%).<sup>40</sup> Only 3% of current EV owners surveyed lived in multi-family housing, compared to 22% of all respondents.<sup>41</sup> These data points indicate an issue with equitable access for non-homeowners, as 63% of vehicle purchasers surveyed reported the ability to charge at home as a major barrier.

Additionally, we found that current EV owners reported higher household incomes, with 59% reporting household income of over \$100,000, compared to 25% of all respondents.<sup>42</sup>

ODOT’s TEINA study identifies the following as additional barriers to light-duty vehicle charging:

Table 14. *Municipal Charging Collaboration Barriers and Mitigants*

Barrier	How Addressed
Cost of electric power upgrades and charging port installation	Utility will cover costs for electric upgrades for public charging
Inconsistent fees and/or rates for public charging	Chargers installed under this program will be subject to PGE’s Schedule 50 pricing, which is designed to be easy to understand, equitable, and grid friendly
Limited MUDs and workplace charging	The site selection process which PGE will undertake with municipalities and communities will include a prospective site’s proximity to MUDs and rentals
Limited EV-focused government planning, programs, policies, and resources	PGE will leverage its expertise in charger ownership and management and use existing assets to reduce the complexity of these projects for municipalities
Limited government planning, guidance, or resources for EV infrastructure needs	PGE already assesses and plans for EV infrastructure needs and can provide this information with municipalities

<sup>40</sup> Opinion Dynamics (May 19, 2022). *Evaluation of Portland General Electric’s Transportation Electrification Pilot Programs*. Figure 31.

<https://edocs.puc.state.or.us/efdocs/HAD/um1938had165623.pdf>

<sup>41</sup> Ibid, Figure 32.

<sup>42</sup> Ibid, Figure 34.

Barrier	How Addressed
Limited venues capable of providing power, safety, and amenities	Placing charges on utility poles will provide charging at or near residences, where it most benefits customers
<b>Further Barriers for Underserved Communities:</b>	
Need for DCFC charging in areas of high transportation network company (e.g., rideshare companies like Lyft or Uber) use or near drivers' homes	Future phases of this program will take into consideration the placement of utility-owned DCFC on public property
Cost to install charging in the right-of-way	Pole charging is a more economical way to provide charging in the right-of-way

The above barriers can result in a lack of charging infrastructure (colloquially referred to as a “charging desert”) and is a particular issue in BIPOC communities.<sup>43</sup> PGE’s 2022 TE Evaluation found that the same lack of infrastructure was cited by 45% of survey respondents as a reason for not considering an EV/PHEV.<sup>44</sup> This program seeks to address this barrier with:

- Focus on deployment in underserved communities
- Access to public property for charger placement
- Skilled owner/operator (the utility)
- Help for local governments to plan for and deploy chargers in their communities

PGE will collaborate with municipalities to engage and understand the needs of selected neighborhoods, which will help design a project best suited to that community.

#### **Appendix A.2.2.7 Performance Area Categories**

PGE’s proposed design addresses relevant Division 87 performance area categories in the following ways:

- **Environmental benefits including greenhouse gas emissions reductions.** Increased access to electricity as a transportation fuel will reduce greenhouse gas emissions and improve air quality across PGE’s service area.
- **Electric vehicle adoption.** PGE expects increased charging adequacy—including chargers that are visible and available at the retail, workplace, multi-

<sup>43</sup> Englund, Will (December 2021). *Without access to charging stations, Black and Hispanic communities may be left behind in the era of electric vehicles.* Washington Post. <http://www.washingtonpost.com/business/2021/12/09/charging-deserts-evs/>.

<sup>44</sup> See footnote 40.



family, and other destinations residential customers frequent—may help potential EV drivers feel more confident in their ability to successfully transition to electric fuel, thus boosting EV adoption across PGE’s service area.

- **Equity of program offerings to meet underserved communities.** The expansion of public charging anticipated with this program will better meet the needs of underserved communities, including BIPOC communities, renters, multi-family residents, and others who lack access to charging at home.
- **Distribution system impacts and grid integration benefits.** PGE does not anticipate distribution system impacts stemming from this program. Grid integration benefits are largely represented by the networked and DR-capable requirements in the technical standards that PGE sets. There is no formal DR component to this program.
- **Program participation and adoption.** PGE anticipates that an additional 100 L2 ports will be constructed under this program. The majority of ports (75%) will be installed near underserved communities as defined by HB 2165. All ports installed under this program will be publicly available.
- **Infrastructure performance including charging adequacy which considers, but is not limited to reliability, affordability, and accessibility.** PGE tracks charger uptime and cost-to-charge across its fleet of utility-owned chargers and will report on this information in future TE Plan Reports.

#### **Appendix A.2.2.8 PGE’s Role in the Program**

Utilities play a central and critical role in advancing transportation electrification. PGE owns infrastructure in public rights of way that can serve as the location for public or home charging for those without off-street parking. Utilities have an obligation to serve all customers, not just the most profitable use cases, and we apply an equity lens to all customer programs, including our TE programs.

The Oregon Legislature has found that “widespread transportation electrification requires that electric companies increase access to the use of electricity as a transportation fuel in low- and moderate-income communities”.<sup>45</sup> Utilities are well positioned to provide public charging based on community needs, rather than where usage will be maximized. Private charging business models may depend on high utilization and may therefore leave behind underserved communities, where EV adoption is expected to be slower and later. EV adoption in these communities is still dependent on charging availability as a key part of the decision to drive electric. To choose charger locations, PGE will use in-house mapping of underserved communities

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<sup>45</sup> Oregon Revised Statutes, Volume 19, Title 57, Chapter 757 (ORS 757.357). *Legislative findings: programs to accelerate transportation electrification, tariff schedules and rates, and long-term stranded costs.* [https://oregon.public.law/statutes/ors\\_757.357](https://oregon.public.law/statutes/ors_757.357)

and work with municipalities and their communities, who are also the customers we serve.

PGE's role in the program includes support for municipalities to:

- Plan for public charging infrastructure
- Undertake public outreach to neighborhoods identified through mapping
- PGE to design, own, and maintain EVSE in service to municipal climate and transportation electrification goals
- Perform customer outreach to notify residents of the availability of new chargers in their communities
- Other technical services

While utilities play a central role in TE, the breadth and speed required for the EV transition requires an "all-of-the-above" approach. Partnerships, investments, and coordination amongst utilities, charging networks, businesses, local governments, states, fleets, and communities are essential. This proposal is an example of such collaboration and is detailed in [Appendix A.2.3](#), below.

#### **Appendix A.2.2.9 Resulting Distribution Upgrades**

PGE does not expect the program to trigger any significant distribution system upgrades. However, as part of our data gathering work, the Company will monitor transformers and substations to proactively identify any needed upgrades.

#### **Appendix A.2.2.10 Ownership Structure**

In discussions with municipalities, many have expressed the need of public charging to help in the transition to electric vehicles. Municipalities also have stated that many underserved communities could be left behind without a program such as this or without PGE's help. In additional discussions, PGE has learned that, while many municipalities want to provide public charging for their constituents, they don't believe they are well suited to own and operate the equipment and look for PGE to help fill this role and provide guidance. To address these barriers, PGE will A) own the make-ready infrastructure installed under this program, and B) own, procure, install, operate, and maintain EVSE installed under this program. Data gathered will inform the evolution of this program offering.

Public right-of-way charging is well suited for this program, as EV charging can be deployed on utility assets already located therein. The program also allows PGE to offer local and visiting customers in its service area a consistent user experience with equitable, affordable, and easy-to-understand pricing. PGE ownership, operation, and maintenance of EVSE in the ROW, and collaboration with municipalities, helps ensure that chargers are located strategically, with an eye toward an equitable transition to EVs.

#### **Appendix A.2.2.11 Equipment Interoperability**

PGE proposes to use a Level 2 EVSE equipped with an SAE J-1772 standard connector that is compatible with all road-legal EVs for sale in the United States, including plug-in hybrids (PHEVs) and battery electric vehicles (BEVs). The proposed EVSE is also compliant with OCPP v1.6, enabling the flexibility to operate with a variety of network service providers.

#### **Appendix A.2.2.12 National Standards**

PGE proposes to qualify up to two Level 2 EVSE models that meet the following technical requirements for pole-mounted charging:

- Equipped with an SAE J-1772 standard connector compatible with all road-legal EVs for sale in the United States, including plug-in hybrids (PHEVs) and battery electric vehicles (BEVs).
- OCPP v1.6 compliant (and remotely upgradable), enabling the flexibility to operate with a variety of network service providers.
- Internal metering accuracy within +/- 1.0%.
- Capable of responding to utility DR signals through Open Automated Demand Response 2.0b (or equivalent). This is for standardization and future proofing.
- Capable of pole-mounting on an electric utility pole in accordance with NEC and NESC, while remaining compliant with ADA.
- Minimum rating of National Electrical Manufacturers Association (NEMA) 3R (or equivalent) to ensure functionality in adverse weather conditions.
- Listed by a nationally recognized test lab to the requirements of Underwriters Laboratory (UL) 2251 and UL 2594.
- Ability for EV driver to start a charging session without charging network user account (e.g., via mobile app, mobile payment, credit card, Plug&Charge, or other means).

At present, only one EVSE model meets these qualifications. PGE remains open to qualifying up to one more EVSE model for this program if additional market options become available. PGE will offer the municipality a choice in the selection of the type of EVSE to be installed, if and when such a choice is available.

#### *Appendix A.2.3 Program/infrastructure coordination*

##### **Appendix A.2.3.1 Stakeholder involvement in development**

PGE will design, own, operate, and maintain charging infrastructure installed under the program. Both PGE and municipalities recognize the importance of gaining constituent support for the siting and location of chargers. PGE is coordinating with municipalities on this public engagement and outreach. Municipalities will take the lead on public engagement, with PGE support as needed.

Given that both PGE and municipalities share a focus on equitable deployment to underserved communities, PGE will assist with engagement strategies to reach those constituents. To that end, PGE will share community input we have and will receive. Our goal in sharing this information is to help municipalities effectively communicate with these constituents. To this end PGE will also help with outreach and education regarding how to use different charging equipment, and PGE's Retail Electric Charging Rate (Schedule 50).

#### **Appendix A.2.3.2 Coordination with State Programs**

PGE will claim all CFP credits for chargers installed and registered under this program. The credits will offset the program's O&M costs.

The program is intended to resolve barriers which ODOT identified in its TEINA study (see [Table 14](#), above).

#### **Appendix A.2.3.3 Coordination with Market Actors and Activities**

The City of Portland's Bureau of Transportation (PBOT) has applied for a Department of Energy (DOE), Office of Energy Efficiency and Renewable Energy grant to leverage utility pole-mounted chargers for overnight EV charging. PGE joined the City of Portland as a partner in this grant application. Regardless of whether PBOT receives the DOE grant, we expect to move forward with placing pole-mounted chargers in Portland, and for the Municipal Charging Collaboration program to help PBOT with permitting, engagement, and processes related to the grant.

PGE has also coordinated closely with a variety of market actors including network service providers, EVSE manufacturers, and other utilities to better understand the most promising technology and strategies used in ROW charging. These conversations have helped inform PGE's requirements for EVSE technology and program design. As of writing, only one manufacturer has brought a charger to market that is both ADA-compliant and capable of meeting NEC and NESC requirements for mounting on an electric utility pole.

Both the Los Angeles Department of Water and Power (LADWP) and National Grid have piloted EVSE on their utility-owned poles in the right-of-way. For their part, LADWP has deployed over 400 of these chargers on light poles throughout their city. National Grid has deployed 16 chargers on utility poles in Melrose, Massachusetts. Both utilities shared engineering standards which helped inform PGE how best to mount these chargers on our utility poles. PGE has also been part of the World Resources Institute's working group on pole-mounted charging, where we shared program design and strategies with other utilities.

Since 2020, PGE has operated a pole charging demonstration project on two utility poles in the SE Clinton neighborhood in Portland, Oregon. PGE has been in discussion

with two well-established network service providers (and also one start-up company) regarding how to improve the technology and user experience for this program.

**Appendix A.2.3.4 Fit with Long Term TE Strategy**

The Municipal Charging Collaboration program fits into PGE’s overall retail charging strategy to support EV adoption by increasing access to charging infrastructure for customers. To achieve this, charging equipment should be installed where customers park today, particularly those parked for an extended period (e.g., in residential areas without off-street parking). PGE plans to focus the program on underserved communities, where the private sector is least likely to direct their investments. Installation of EV charging in these areas with a high density of MUDs and rentals will help residents in underserved communities gain access to the benefits that owning an EV offers.

This program utilizes PGE’s Retail Electric Charging Rate (Schedule 50) to provide affordable and equitable pricing so that those who rely on public charging do not pay a premium over what they might otherwise pay if they owned their home. By owning, operating, and maintaining this charging infrastructure, PGE can help provide reliable EV charging to these customers.

*Appendix A.2.4 Program and Infrastructure Costs*

**Appendix A.2.4.1 Estimated total costs, including incentives, program delivery, evaluation, marketing, and program operations costs**

Table 15. *Municipal Charging Collaboration (Phase I) Budget*

Line Item	Amount
<b>OpEx</b>	<b>\$3,242,791</b>
Infrastructure	\$1,983,000
Evaluation Services	\$100,000
Incentives	-
Outreach and Education	\$150,000
O&M on Investments	\$482,000
Program Operations	\$527,791
<b>CapEx</b>	<b>\$427,000</b>
Infrastructure	\$427,000
<b>Total</b>	<b>\$3,669,791</b>

The above budget is based upon forecasted usage, which PGE will re-evaluate in 2025 to ensure any changes in O&M costs are reflected.

#### **Appendix A.2.4.2 Estimated participant costs**

PGE will design, own, operate, and maintain charging infrastructure installed under this program. Residential customers will pay a Schedule 50 rate, priced as follows:

- Flat fee (all hours) of \$3 for four hours
- An additional peak-time fee of \$0.19 per kWh will be assessed on weekdays between 3 PM and 8 PM.

#### *Appendix A.2.5 Learning Objectives, Evaluation of Effectiveness, and Data Collection Methods*

PGE will design the program evaluation to measure effectiveness in meeting its objectives, identify areas for continuous improvement, and assess energy impacts on PGE's system. We are focused on establishing a baseline and then measuring the following:

- Awareness of chargers
- Increased EV consideration in neighborhood
- The number of unique customers leveraging chargers
- Increased charger utilization

High-level evaluation learning objectives include:

- **Customer/Market Lessons**
  - Identify additional customer barriers to TE
  - For municipalities: identify the attractiveness of the program, the ease of working with PGE, and their satisfaction with the program
  - Understand the program's influence on helping customers purchase EVs
  - For residential customers: identify their satisfaction with both the program in general, and more specifically, PGE's ability to maintain chargers
  - Track the impact on underserved communities
- **Program Implementation Lessons**
  - Document the successes and challenges of different installation types
  - Assess the costs and benefits of utility ownership of EVSE and make-ready equipment
  - Identify internal and external implementation successes and challenges, as well as areas for process improvement
- **Develop an Empirical Dataset**
  - Forecast distribution system impacts and infrastructure needs
  - Inform future EV rates
  - Inform the siting of future EV charging infrastructure

### Appendix A.2.5.1 Evaluation Methods

#### Customer/Market Lessons

- Along with its evaluation vendor, PGE will conduct in-depth interviews with municipalities which participate in the program. Interviews will initially take place after EVSE launch, to be followed by annual surveys.
- PGE will also survey customers in the area of the chargers regarding their general awareness of, and satisfaction with, those chargers.

#### Program Implementation Lessons

- PGE’s team will conduct regular data analytics of the EVSE deployed in this program. Data will include both survey data, as well as data from the chargers and meters themselves.
- PGE will also conduct partner interviews with municipalities participating in this program. PGE will seek to learnings regarding process improvement including how we could be a better partner and how to make the process easier to understand.

#### Data Evaluation

- PGE Data Analytics will monitor session-level charging data in a format so we can assess charger utilization over time. PGE will also analyze meter data from the chargers to assess load impacts and impacts to PGE’s entire system.

#### Reporting Timeline

- PGE will report on the results of this program through its annual TE Plan Report, as required by OPUC.

### Appendix A.2.6 How Infrastructure Measure Addresses Oregon Administrative Rule and Oregon Law

Table 16. Municipal Charging Collaboration OAR Concordance

OAR 860-087-0020(4)	Section of Application Addressing the Rule
A description of the infrastructure measure	<a href="#">Appendix A.2.2 Program/Measure Details</a>
Data used to support the description	<a href="#">Appendix A.2.2 Program/Measure Details</a>
A description of infrastructure measure coordination	<a href="#">Appendix A.2.3 Program/infrastructure coordination</a>
A description of how the proposed infrastructure measure fits within the	<a href="#">Appendix A.2.3.4 Fit with Long Term TE Strategy</a>

OAR 860-087-0020(4)	Section of Application Addressing the Rule
electric company's long-term strategy to support TE	
A description of costs	<a href="#">Appendix A.2.4 Program and Infrastructure Costs</a>
A description of learning objectives and how the electric company will evaluate the infrastructure measure	<a href="#">Appendix A.2.5 Learning Objectives, Evaluation of Effectiveness, and Data Collection Methods</a>
For infrastructure measures, a description of how the measure addresses the considerations of ORS 757.357	<a href="#">Table 17</a> , below



Table 17. *Municipal Charging Collaboration ORS Concordance*

ORS 757.357	How Application Addresses the Law
<p>(1) (b) (A) "Infrastructure measures" includes, but is not limited to, investments in, expenses related to or rebates for:</p> <ul style="list-style-type: none"> <li>(i) Distribution system infrastructure that supports transportation electrification</li> <li>(ii) Communication and control technologies that support transportation electrification</li> <li>(iii) Behind the meter infrastructure that supports transportation electrification and is owned by an electric company or by a customer</li> </ul>	<p>The investments proposed in this application meet the description of infrastructure measures in (iii), as they are issued for behind-the-meter infrastructure that supports transportation electrification</p>
<p>(b) (B) "Infrastructure measures" does not include investments in or expenses related to education and outreach activities related to transportation electrification, or other transportation electrification-related activities determined by the Public Utility Commission to be separate and distinct from the development of infrastructure.</p>	<p>While this infrastructure measure has an associated outreach and education budget, it is for enrollment only, rather than general education and outreach to advance transportation electrification</p>
<p>(5) If undertaken by an electric company, an infrastructure measure to support transportation electrification is a utility service and a benefit to utility customers if the infrastructure measure can be reasonably anticipated to:</p>	
<p>(a) Support reductions of transportation sector greenhouse gas emissions over time</p>	<p><u><a href="#">Appendix A.2.2.7 Performance Area Categories</a></u></p>

ORS 757.357	How Application Addresses the Law
<p>(b) Benefit the electric company's customers in ways that may include, but need not be limited to:</p> <p>(A) Distribution or transmission management benefits</p> <p>(B) Revenues to utilities from electric vehicle charging to offset utilities' fixed costs that may otherwise be charged to customers</p> <p>(C) System efficiencies or other economic values inuring to the benefit of customers over the long term, or</p> <p>(D) Increased customer choice through greater transportation electrification infrastructure deployment to increase the availability of and access to public and private electric vehicle charging stations.</p>	<p><a href="#"><u>Appendix A.2.2.7 Performance Area Categories</u></a></p> <p><a href="#"><u>Appendix A.2.3.3 Coordination with Market Actors and Activities</u></a></p>

## Appendix B. Stakeholder Feedback

### Appendix B.1 Prior Stakeholder Feedback

PGE has long believed that planning the transition to electric transportation requires a broad engagement including utilities, regulators, private charging providers, governments, advocates, customers, and the communities we serve. In that spirit, the company participated in the active dialogue between parties in 2021 and 2022 during the OPUC’s investigation into development of a transportation electrification investment framework for utilities (Docket No. UM 2165) and the subsequent revision of the Commission’s Division 87 rules governing utility TE plans and programs (Docket No. AR 654). PGE found these proceedings a valuable forum to gather input, not only to inform the Commission’s regulatory policies and processes, but to also give PGE and other utilities insight into stakeholder expectations, concerns, and priorities about utility TE plans. PGE’s participation in these dockets and the information and comments shared there has informed our TE-related planning processes and is reflected in this MMC budget and the associated program and infrastructure measure applications.

Table 18 summarizes prior stakeholder feedback, gathered as part of the processes described above, and PGE responses thereto.

*Table 18. Prior Stakeholder Feedback (2021-22)*

Program and Topic	Stakeholder Feedback	PGE Response
<b>Make-Ready Solutions: Cost Sharing</b>	PGE needs to explain how the utility considered customer cost sharing in program design, and the extent of utility assistance.	PGE has added customer cost sharing where appropriate, such as in the proposed Business and Multi-family Make Ready Solutions offering (see <a href="#">Section 4.1</a> ).

Program and Topic	Stakeholder Feedback	PGE Response
<b>Make-Ready Solutions: Charger Access</b>	When there is significant utility investment, the site host should be limited from making charging available to only selected members of the public, such as their employees or customers.	<p>PGE understands this perspective, but notes that the host must maintain control over property, and requirements that overly interfere with customer needs may reduce participation in utility programs.</p> <p>Instead of setting requirements for each participant, PGE has set customer segment minimums for multi-family and public charging within the program design of the Business and Multi-family Make-Ready Solutions offering (see <a href="#">Section 4.1</a>).</p>
<b>Make-Ready Solutions: Cost to Charge</b>	Utility should take a role in setting rates for utility assisted public charging. PGE should consider Puget Sound Energy's recently filed TE tariffs, Schedule 552 and Schedule 555, which ensure site hosts, who make EV charging available for a cost, set the price per kWh no more than the average Electric Charges per kWh of their Electric Service from the Company.	PGE recognizes that there are many non-energy charges that owners of EVSE incur (e.g., data and software fees, maintenance costs, and demand charges) and the complexity of applying these across per-kWh charges for EV drivers. PGE also acknowledges that customers have different use cases and business models which may impact the prices they set for EV charging. For these reasons, PGE will not take a role in setting rates for program-enabled ports, except to offer advice to charger owners as we are able, and letting the competitive market prevail.
<b>Make-Ready Solutions: Cost to Charge</b>	Support PGE's approach to let site host set price to charge for the EVSE they own	See above

Program and Topic	Stakeholder Feedback	PGE Response
<b>Make-Ready Solutions: Charger Reliability</b>	Any enforcement of charger reliability standards should attach to the person who received the utility funds. For small businesses, PGE could require that site host/funding recipient has a service level agreement with charger provider to transfer maintenance responsibility.	<p>PGE does not propose to enforce charger uptime for customer-owned chargers due to the significant challenges of charger reliability (which include basic requirements for enforcement such as a common formula for calculating uptime).</p> <p>Instead, PGE will continue to rely on requirements that customers keep chargers operational or risk forfeiting the utility-provided incentives. PGE also reserves the right to remove any vendor from the QPL, at any time and for any reason.</p>
<b>Make-Ready Solutions: Charger Reliability</b>	Can PGE require/incentivize private suppliers to provide a consistent customer experience at different charging stations (including its own)?	As part of listing on the QPL, vendors must demonstrate a satisfactory customer experience. PGE reserves the right to remove a vendor from the QPL if they fail to meet customer experience requirements.
<b>Make-Ready Solutions: Charger Reliability</b>	Appreciate uptime reporting requirement proposals but concerned about placing the enforcement on the customer rather than the charging provider.	As part of listing on the QPL, vendors must provide charging session data to ensure that chargers incentivized through utility programs demonstrate satisfactory performance. PGE reserves the right to remove a vendor from the QPL if they fail to meet this requirement.
<b>Make-Ready Solutions: Charger Reliability</b>	We encourage PGE to require 97% or greater uptime for customer-owned chargers for a minimum of five years and add "internet service provider outages" to the list of eligible uptime	PGE will provide annual reporting on reliability of EVSE, with a target uptime of 97%.

Program and Topic	Stakeholder Feedback	PGE Response
	exclusions. Publish standardized reliability data.	
<b>Make-Ready Solutions: Charger Reliability</b>	Ultimate responsibility for meeting charger reliability requirements should rest with owner and operator for reporting and compliance.	As part of listing on QPL, vendors must demonstrate satisfactory customer experience. PGE reserves the right to remove a vendor from the QPL if they fail to meet customer experience requirements.
<b>Make-Ready Solutions: Charger Reliability</b>	Support reliability requirements for utility-owned and supported public charging stations.	Programs supported by this MMC budget reflect this feedback.
<b>Make-Ready Solutions: Charger Reliability</b>	Enforcement mechanisms to ensure compliance with the uptime standard for non-utility owned chargers are not necessary at this time. Encourage PGE to consider additional tools that can increase compliance with any reliability standard, such as requiring service level agreements between site hosts and charging providers to ensure the charging provider adequately services the charger.	PGE will first look to the development of a national formula for calculating uptime in a standardized way.  Applying enforcement mechanisms for uptime without an agreed-upon calculation method would be premature at this point in the EV charging market.
<b>Make-Ready Solutions and Municipal Charging</b>	National EV Infrastructure Formula program's proposed standards require contactless card reader as a minimum, PGE should consider using NEVI standards for payment method.	PGE will require that all public PGE-owned and customer-owned charging adhere to the payment methods requirements set by the State of Washington. These requirements stipulate that public L2 and DCFC chargers installed after January

Program and Topic	Stakeholder Feedback	PGE Response
<b>Collaborations: Payment Methods</b>		1, 2024 contain a Europay, Mastercard, and Visa (EMV) chip reader.
<b>Municipal Charging Collaborations: Payment Methods</b>	PGE should follow the draft rule in Washington that requires an EMV chip card reader. Contactless is that it is not fully accessible, CARB Technical Review found 43% of low-income drivers don't have contactless card or smart phone. Veteran benefits and SSI benefits are paid through direct express Mastercard debit cards, which is EMV only.	See above
<b>Municipal Charging Collaborations: EVSE and Infrastructure Requirements</b>	Please ensure there are clear explanation materials on equipment (payment etc.). PGE should also ensure that there are no requirements to use chargers that require membership or subscription.	PGE-owned chargers will have clear instructions on how to use equipment, including multiple modes of payment.
<b>Municipal Charging Collaborations: EVSE and Infrastructure Requirements</b>	PGE should consider ADA needs for EVSE accessibility and make clear to stakeholders what it will require and on what basis.	PGE proposes to look to the recommendations of the U.S. Access Board with respect to accessible EV charging.

Program and Topic	Stakeholder Feedback	PGE Response
<b>Municipal Charging Collaborations: EVSE and Infrastructure Requirements</b>	Open Charge Point Interface version 2.1.1 should be required for all publicly available chargers.	PGE is considering implementing additional requirements for publicly available chargers, including Open Charge Point Interface.
<b>Municipal Charging Collaborations: Cost to Charge</b>	Will equitable pricing include lower rates for PGE customers who are in PGE’s low-income program?	Due to software integration limitations, PGE is not currently capable of offering lower retail EV charging rates to customers enrolled in our Income-Qualified Bill Discount program. However, we are working to understand what it would take to offer something like this in the future.
<b>Municipal Charging Collaborations: Cost to Charge</b>	Provide price parity so residential customers charging at public stations don’t pay more than residential customers charging at home.	The programs supported by this MMC Budget address this issue via use of Schedule 50 for utility-owned chargers.
<b>Municipal Charging Collaborations: Outreach</b>	Muni program: Engage community members/neighborhood delegates from the beginning in site selection and project design to address community needs.	PGE is leveraging Geographic Information System mapping to identify those utility poles within underserved communities which are strong candidates for charger placement. We will also work directly with municipalities to conduct thorough outreach within the communities where chargers are proposed.
<b>Municipal Charging Collaborations: Outreach</b>	Where affordable housing has no parking, work with developers to site pole chargers?	PGE will, through the Municipal Charging Collaborations program ( <a href="#">Section 4.2</a> and <a href="#">Appendix A.2</a> ), examine the possibility of partnering with municipalities with high rates of affordable housing



Program and Topic	Stakeholder Feedback	PGE Response
		lacking dedicated parking to install pole chargers in those neighborhoods.
<b>Municipal Charging Collaborations: Accessibility</b>	Make languages other than English available at utility owned and supported public charging stations.	PGE plans to do so for utility-owned chargers.
<b>Municipal Charging Collaborations: Accessibility</b>	Access to charging stations was a common concern for many reasons including the connection with gentrification and potential displacement and conflict, as well as less parking spaces for non-EVs.	PGE will help municipalities participating in the Municipal Charging Collaboration (see <a href="#">Section 4.2</a> ) effectively communicate with underserved communities and gather input from the same.

## Appendix B.2 Stakeholder Feedback on Draft MMC Budget

In addition to the prior stakeholder feedback described above, PGE also received feedback on a March 2023 draft of this filing shared with stakeholders. [Table 19](#), below, summarizes this additional feedback and PGE responses thereto.

Table 19. Stakeholder Feedback on Draft MMC Budget (2023)

Program and Topic	Stakeholder Feedback	PGE Response
<p><b>Underserved communities</b></p>	<p>In Fig. 1 of PGE's 2023 MMC, a very large pct of PGE's service area could potentially be considered underserved.</p> <p>1. a. How did PGE define underserved in this budget? What is the threshold?</p> <p>1.b. Does PGE's site location methodology reach a higher level of granularity to identify highest priority communities and community members?</p> <p>1.c. Does methodology consider capacities of various communities to make use of different EVSE (L2 vs DCFC)?</p> <p>1.d. Does PGE's methodology also consider the capacities of various underserved communities to make use of different electric vehicle supply equipment (EVSE) (ie affordable L2 ports versus more expensive DCFC ports)?</p> <p>CUBs preference is to place EV investments in least-served communities. Hard to tell if that's the case absent more granular delineation of communities.</p>	<p>1.a. PGE reviewed the HB 2165 definitions for underserved populations and analyzed various possible datasets for each category. We developed an estimate of the number of PGE premises within each census tract where residents meet at least one of the HB 2165 criteria. We then determined what percentage of premise IDs within each census tract are part of an underserved community. The map showed the results by census tract, using intervals of 25% to scale the numbers. So the 75% -100% percentage (deepest color) are those with the most underserved communities under HB2165 Criteria - the census tracts with a higher proportion of underserved communities are in darker blue, and census tracts with a lower proportion of underserved communities are in lighter blue.</p> <p>The following is HB 2165's underserved communities Criteria. We used seven index in PGE territory: renters, multifamily housing, BIPOC, FPL below 400%, Tribal communities, Rural communities and communities adversely harmed by environmental and health hazards.</p> <ol style="list-style-type: none"> <li>1) Residents of rental or multifamily housing</li> <li>2) Communities experiencing lower incomes</li> <li>3) Tribal communities</li> <li>4) Rural communities</li> <li>5) Frontier communities</li> </ol>

Program and Topic	Stakeholder Feedback	PGE Response
		<p>6) Coastal communities</p> <p>7) Adversely harmed by environmental or health hazards</p> <p>1.b. - 1.d. will be addressed in the TEP we file later this spring (by June 1).</p>

Program and Topic	Stakeholder Feedback	PGE Response
<b>Business/MF Make Ready</b>	Please clarify the use of MFMR for low-income housing. Concerned that privately operated EVSE at MF dwellings could have captive clientele and absent regulation could charge above-retail rates. Please discuss use of this program for low-income housing and how PGE believes market will be sufficient to keep rates reasonable. Terms and duration of contracts? Use of rates as metric for competitive procurement? Long and exclusive contracts increase threat of monopoly pricing.	PGE appreciates this comment and anticipates further discussion among Staff, stakeholders, and the Company during the Transportation Electrification Plan (TEP) proceedings.
<b>Federal Grants</b>	Support earmarking money thru Portfolio Support to facilitate coordination with federal grant opportunities. Encourage continued use of federal funding opportunities to offset TEP costs.	PGE agrees.
<b>Business/MF Make Ready</b>	Clearly define "publicly available ports" so privately-operated parking areas that charge a fee are eligible.	Publicly available ports are available to EV drivers without restriction. Port users are not required to reside, be a guest of, or be an employee of a business, commercial location or MF location to be allowed to use charging infrastructure.
<b>Business/MF Make Ready</b>	Amend eligibility criteria to MUDs that have a minimum of 10 pct affordable	PGE will retain the current criteria for the 2023 MMC budget program and will consider refining the criteria as part of the TEP plan filing.

Program and Topic	Stakeholder Feedback	PGE Response
	units OR are in a census tract with at least 50 pct underserved residents.	
<b>Payment standards</b>	Align minimum payment standards for all public chargers with final NEVI guidelines. No EMV chip readers.	PGE appreciates this comment and anticipates further discussion among Staff, stakeholders and the Company during the Transportation Electrification Plan (TEP) proceedings.
<b>Municipal Charging Pilot</b>	Prioritize investment in make-ready and amend Muni pilot to enable greater competition in EV charging market.	PGE appreciates this comment and anticipates further discussion among Staff, stakeholders and the Company during the Transportation Electrification Plan (TEP) proceedings.
<b>Fleet Partner</b>	Generally support proposal. Request clarification of use of \$740K for research on managed charging. (This echoes NWECC request.)	PGE has conducted market research (e-Source, EPRI, EEI, internal, etc.) to identify and learn from the EV and EVSE activity utilities and/or fleets are conducting. The money set aside here is for demonstration work, data collection and lessons learned. Fleet electrification and management of such a load is novel to PGE. Developing a strategy or strategies to serve while also managing these loads will require research and demonstration. Plan to research DR at charger level, DR at telematics level, incentives for shifting load, TOU/Rates. Will put out RFI/RFQ/RFP; depending on response, will work towards testing/integration(s) of technologies.

Program and Topic	Stakeholder Feedback	PGE Response
<b>Fleet Partner</b>	Generally support budget; want to see consistency in TEP and more detail. Holistic planning envisioned in Div. 87. For FP, want to learn more about the managed charging research component. Can PGE provide more detail about how exactly it will yield technology capability insights and customer engagement lessons?	Market insights research (e-Source, EPRI, EEL, internal, etc.) to figure out what other utilities and/or fleets are doing, what is working best. Plan to research DR at charger level, DR at telematics level, incentives for shifting load, TOU/Rates. Will put out RFI/RFQ/RFP; depending on response, will work towards testing/integration(s) of technologies.
<b>Underserved communities</b>	Can PGE make underserved community's map an interactive map on website, or provide a more detailed and zoomable PDF on website? Either way, provide criteria used to create the map and describe its use.	PGE will consider website options. See responses to related questions from Staff and CUB regarding criteria and use.
<b>Underserved communities</b>	How much of the 62 pct used for underserved communities will be directed to businesses and what pct to MDUs?	No businesses/commercial customers are classified as underserved, so 0% of the 62% is intended for them. MUD are designated as underserved and a minimum of 40% of those funds are budgeted for that segment.
<b>Business/MF Make Ready</b>	Can PGE confirm applicants will be notified before the refundable deposit will be used for engineering? How will "extensive engineering" be defined?	PGE will address these issues in the customer contracts.

Program and Topic	Stakeholder Feedback	PGE Response
<b>Business/MF Make Ready</b>	How will PGE treat vandalism of a participant's EVSE for operational requirement? Is insurance available and required?	Operations and Maintenance of EVSE is the responsibility of the customer, so any cost or effort required to address vandalism will be borne by customer. PGE is not planning on offering any insurance for EVSE.
<b>Business/MF Make Ready</b>	What factors did PGE consider in selecting 10 year timeframe for requiring cost of service rate? What happens after 10 years?	10 years is consistent with the Cost of Service Requirement for PGE's Fleet Partner program.
<b>Business/MF Make Ready</b>	Will PGE share charging data from participants with OPUC and stakeholders in annual TE reports?	PGE will provide overall program charging and metrics as defined by Division 87 rules in TE annual reports.
<b>Business/MF Make Ready</b>	Will participants have a point of contact at PGE to assist with electricity-related issues after seven month period allowed for preparation and installation of EVSE?	Yes, program manager and/or technical advisor will be available for electricity related questions after seven month period.
<b>Business/MF Make Ready</b>	TE Annual Reports should document number of interested applicants who cannot afford to cover difference between project cost and incentives, and the difference amount for enrolled participants.	We can provide an accounting of the number of applicants who decided not to move forward due to cost being an issue.
<b>Performance categories</b>	Does PGE intend to meet the 97% NEVI uptime standard? Does PGE intend to work with stakeholder to define "T_outage" versus "T_excluded?" NEVI is good start but	PGE aims to meet the 97% NEVI uptime standard. The standard is being developed at a national level and PGE will seek to align with national standard definitions.

Program and Topic	Stakeholder Feedback	PGE Response
	needs refinement for accurate reporting.	
<b>Rates</b>	Does PGE intend to review hosts rates, fees, subscription requirements to assure they're reasonable? Or establish a rate cap as other utilities have?	PGE appreciates this comment and anticipates further discussion among Staff, stakeholders and the Company during the Transportation Electrification Plan (TEP) proceedings.
<b>Payment standards</b>	Can PGE confirm it will require EMV readers? They provide broadest convenient and most reasonable access to EV charging...	Any charger on the QPL is eligible.
<b>Payment standards</b>	Require multilingual accessibility? Other states do.	PGE is actively working with charging solution vendors to ensure that software can be accessible in multiple languages. PGE's own website is currently available in English and Spanish.
<b>Capital spend</b>	Make ready likely to require more than MMC spend. GEI reserves comments on capital spend and rate recovery for TEP review.	We look forward to the conversation during the TEP workshops.
<b>Municipal Charging Pilot</b>	Does PGE intend to conduct mapping activities or specific community outreach to pick siting locations? Community-driven process helps education and accessibility.	PGE has conducted mapping activities and is actively working with municipalities to identify specific communities for potential charging locations. Some municipalities intend to do further community outreach to identify additional potential locations.



Program and Topic	Stakeholder Feedback	PGE Response
<b>Municipal Charging Pilot</b>	Does PGE intend to make future utility pole charging locations available for third-party EV charging apps for site location and info? Update PGE website with map of charging locations? Inform customers in area of chargers, of new service?	PGE intends to put charger locations on apps such as Chargeway and Plugshare. PGE also intends to build a charging map on its website with locations of pole chargers and Electric Avenues.
<b>Municipal Charging Pilot</b>	Likely to require more capital. Reserve comments on capex and recovery for TEP.	We look forward to the conversation during the TEP workshops.
<b>Fleet Partner</b>	Will PGE require FP participants using 2023 MMC funds to enroll in DR and purchase DR-enabled chargers? If not, to what extent will FP customers be required to participate in DR activities?	There are requirements for chargers to be "DR-capable/enabled" and on our qualified product list. We do not have an approved Fleet DR program today; but plan to have language in our FP contracts and/or Biz Rebate contracts that require future participation. Our set aside of \$740k will enable PGE to conduct demonstrations to inform our Fleet DR strategy and approach. Some of these customers enrolled in our Fleet Partner program may be part of these demonstration efforts.
<b>Underserved communities</b>	Are the percentages to underserved communities in Table 3 on page 11 all determined by the expected siting of the project relative to a certain shade of blue in Figure 1? If so, please explain which shade of blue is used and how the locations were forecasted. If not, please explain the	The underserved community percentage for each program was derived from the expected siting of the projects for the program goals and applying the underserved community percentage of the potential census tracts where project sites could be located. The program percentage is a high-level estimate as project sites will not be determined until the programs are approved and sites hosts engage.

Program and Topic	Stakeholder Feedback	PGE Response
	method used to estimate those percentages.	
<b>Capital spend</b>	Is the “Infrastructure” column capital expenditures?	Yes, infrastructure is capital expenditures and related expenses covered by MMC.
<b>Municipal Charging Pilot</b>	Please list the 60 locations where pole-mounted chargers are planned for installation.	PGE is actively working with municipalities to identify locations. Beaverton, Hillsboro, Gresham, Portland, Milwaukie, and Salem.
<b>Vehicle telematics</b>	Referencing the “vehicle telematics data” on page 17, if PGE plans to use more than one source of this data, please list them.	PGE plans to leverage EPRI's fleet telematics dataset to implement near-term forecasting improvements. We are in discussion with other potential partners, including automakers, to identify additional telematics data sources that can inform our forecasting and planning efforts. PGE will provide more information on any additional telematics data used for forecasting as these partnerships evolve and the nature and allowable uses of the data are more clear.

Program and Topic	Stakeholder Feedback	PGE Response
<b>Workplace charging</b>	Referencing page 22, of the 991 L2 ports, how many are workplace chargers?	The 991 L2 ports on page 22 is pulled from the US DOE Alternative Fuels Data Center (AFDC) and filtered for those chargers in PGE's service area. In the AFDC, sites are not identified explicitly based on use case, but do have an access flag for public vs. private access to the L2 chargers. This count is 187 private and 804 public L2 for a total of 991 in PGE's service area. We can assume the 187 represent workplace charging, though it should be noted that some chargers may be labeled as public, but also serve as workplace charging (for example, chargers at retail establishments may serve customers as well as employees, as well as government or other public entities that choose to install chargers that serve both purposes).
<b>CaaS market research</b>	Referencing page 28, please provide the list of CaaS firms that PGE's market research surveyed.	PGE's research identified CaaS available through several EVSE/EVSP including, but not limited to; EV Connect, Shell/Greenlots, Watt Logic, Chargepoint.
<b>Standards</b>	Referencing page 29, please explain why J1772 compliance is necessary. It seems like a requirement where instances of noncompliance are not even possible as a commercial option, but if such an option exists, please explain why noncompliance is to be avoided	Referring to applicable standards is our current process for selecting qualified chargers and is an engineering best practice to ensure safety and functionality of systems. Also note, while J1772 is the most common standard, there is also Tesla, CCS, CHAdeMO, wireless induction charging (SAE J2954), and the MCS standard is in development.

Program and Topic	Stakeholder Feedback	PGE Response
<b>Municipal Charging Pilot</b>	Referencing the statement on page 39, that the Municipal Charging Collaboration aims to: "Use existing franchise agreements and ROW ordinances to fairly compensate municipalities for the use of their property":	(See answers below for the subset questions)
	a. Do existing franchise agreements generally require more compensation for this extended scope of the use of a distribution system pole?	In our conversations with municipalities thus far, further compensation beyond current franchise agreements is not required.
	b. Will eventual siting on public property beyond the distribution poles' right of way, such as a school or a library, generally come with a compensation requirement?	We do not believe that this will be the case. For the purpose of the pilot we are still primarily focusing on just the right of way.
<b>Municipal Charging Pilot</b>	Given PGE's response to the public accessibility issue on pages 55 and 56, please confirm whether the Municipal Charging Collaboration is expected to build charging infrastructure that is limited to use by municipal fleets or municipal employees' workplace charging.	All chargers installed in the Municipal Charging Collaboration will be for public use and not limited to any municipal fleet or municipal employee workplace charging.
<b>Budget</b>	Table 3 doesn't match Table 10 and 15. This appears to be due to the longer-term budget in the	Table 3 lists all expenditures funded through MMC dollars. Table 10 & 15 includes PGE CapEx expenditures (not MMC dollars) for Business and

Program and Topic	Stakeholder Feedback	PGE Response
	application, but the filing is for a one-year budget approval. Confirm?	Multi-family Make-Ready infrastructure and Municipal Charging Collaboration, respectively.
<b>Municipal Charging Pilot</b>	Concerned with statement that outreach will be the responsibility of the municipality, and that installing signage and striping will be responsibility of municipality. COP wants to talk more about the split of responsibilities between the utility and municipality. At this time, the City is concerned about any proposed approach for public EV charger installations that diverges from the City's standard operating procedures and commits City resources outside of the City's own budget and established decision-making process. We look forward to continued conversation on these topics.	PGE will be developing marketing materials for municipalities to use, but asks that Municipalities help with outreach, signage, and striping. The COP had previously signed a letter of support for the Municipal Charging Pilot with the conditions previously mentioned. However PGE will work with the City to address concerns.