Portland General Electric
121 SW Salmon Street • Portland, OR 97204
portlandgeneral.com

July 18, 2025

Via Electronic Filing

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

Re: Docket No. UM 2033, PGE Transportation Electrification Plan

Filing Center:

Portland General Electric (PGE or the Company) is pleased to submit a draft Transportation Electrification (TE) Plan to the Public Utility Commission of Oregon (OPUC or Commission) in compliance with ORS 757.357 and OAR Chapter 860, Division 87. The draft encompasses PGE's proposed portfolio of activities in support of TE for program years 2026-2028.

PGE submits this draft plan at a time of heightened focus on customer affordability and has striven to fulfill its obligation to support TE while maximizing the value to customers from non-ratepayer funds and minimizing bill impact.

Consistent with our current, 2023-2025 TE Plan, this draft plan is designed to support our customers, manage increasing electric vehicle load, and address market barriers in the transition to electric transportation. The proposed draft plan includes discussion of Commission-approved TE activities already underway, as well as applications for new programs and infrastructure measures and a portfolio-level TE Budget. The budget delineates proposed expenditures using revenues from the HB 2165 Monthly Meter Charge, the Clean Fuels Program, and other sources, with special emphasis on activities in support of TE for underserved communities.

The draft plan was informed by discussions with Commission Staff and stakeholders in individual and group meetings held in the second half of 2024 and the first half of 2025, including a general stakeholder workshop the Company held on May 15, 2025 to share specific concepts and solicit input on the content and scope of our plan. PGE thanks Staff and stakeholders for their thoughtful engagement and feedback in these discussions.

Unlike the 2023-2025 TE Plan, this draft includes PGE's budget and planned activities relating to the electrification of its own fleet of utility vehicles. This reflects guidance from OPUC Staff[1] and direction from the Commission[2] that this is necessary in order for Staff and the Commission to evaluate PGE's fleet electrification efforts – including holistic consideration of cost-effectiveness as part of PGE's entire TE program – from the broader policy perspective of supporting TE overall.

As required under the Division 87 rules, we are submitting this three-year plan in draft form for public review by Staff and stakeholders. We will consider comments received during this review before filing a final plan for Commission acceptance in the coming months. The final plan will include documentation of the comments received, our response, and any changes made to the plan to reflect the feedback provided.

[1] Docket No. Um 2165, Order No. 22-314
[2] Docket No. UE 435, Order No. 24-454

Please contact Steven Corson at 503-550-0857 if you have questions or require further information. Please direct all formal correspondence and requests to pge.opuc.filings@pgn.com.

Thank you,

/s/ Jason Salmi Klotz

Jason Salmi Klotz
Senior Manager, Regulatory Strategy and Planning

ATTACHMENT

Cc: UM 2033 Service List
UM 2165 Service List
Eric Shierman
Sarah Hall

Transportation Electrification Plan

2026–2028

Contents

Table of Figures

Table of Tables

Transportation Electrification Portfolio

Executive Summary

Portland General Electric (PGE) is committed to supporting the transition to transportation electrification in a way that maximizes benefits for all customers—while navigating today's rapidly changing electric vehicle market. Though the cost per miles traveled in an electric vehicle is less than an internal combustion engine, the transition to an electric vehicle still poses affordability challenges. This 2026–2028 Transportation Electrification (TE) Plan is built around three core responsibilities: Plan, Serve, and Manage EV load. This framework guides and informs our activity which is focused on system value, equity, and meeting the needs and preferences of our customers.

Plan

Within our role as an essential service provider PGE is forecasting Electric Vehicle (EV) adoption, assessing grid impacts, and aligning infrastructure deployment with charging needs in homes, businesses, public corridors, and our communities. Our planning approach integrates transportation electrification into long-term grid and resource strategies to ensure system reliability, safety, readiness, and least cost delivery.

Serve

We serve our customers by enabling access to the benefits of vehicle electrification—which include lower fuel and maintenance costs, cleaner air, quieter neighborhoods, safer working conditions and new mobility options. Through targeted programs and partnerships, we aim to reduce barriers to EV adoption, particularly for low- and moderate-income households, small businesses, and fleet operators. We also provide tools, education, and incentives to help customers make informed decisions and participate in the electric vehicle transition with confidence.

Manage

We are managing the evolving needs of the grid, which is now a growing pillar of support for transportation electrification, while maintaining reliability and affordability. Smart charging, demand response, and time-varying rates are important tools to manage growing EV load with grid capacity and clean energy supply. The TE Plan complements PGE's Distribution System Plan (DSP) and Multiyear Flexible Load Plan (MYP) to ensure EV adoption is integrated into PGE planning activity and goals. We are committed to ensuring the growth of transportation electrification strengthens—not burdens—our electric system and customer total energy costs.

EV Market and portfolio overview

To address customer affordability PGE's 2026-2028 TE Plan utilizes the legislatively created Monthly Meter Charge Dollars and Oregon's Department of Environmental Quality's Clean Fuel Credit program to support a majority of the customer program activity found in this Plan. By leveraging these funds, PGE can lower the revenue requirement for programs supporting state objectives. In the future, PGE anticipates needing more flexibility in deploying Monthly Meter Charge and Clean Fuel Credit funds to mitigate the impact on customer electricity rates.

PGE is being responsive to current market dynamics which reflect both progress and persistent challenges. As of the end of 2024, more than 110,000 EVs were driving on Oregon's roads, including roughly 67,000 in PGE's service area. By 2028, forecasts suggest the number of EVs on Oregon's roads could reach 170,000 vehicles, largely dependent on market conditions including supportive policy, continued incentives, and consumer confidence. While federal and state policies, including rebates and the National Electric Vehicle Infrastructure (NEVI) program, have accelerated adoption, the future of public policy supporting EV adoption is uncertain and macroeconomic factors may slow adoption.

PGE's 2026-2028 TE Plan outlines customer program expenditures of approximately $91 million, of which approximately $80 million is funded through the MMC, as mandated by Oregon House Bill 2165 (effective January 1, 2022) and Oregon's Clean Fuels Program (CFP) as established by House Bill 2186 and Department of Environmental Quality (DEQ) Oregon Administrative Rule (OAR) 340-253-0330. The remainder is funded through customer dollars collected as part of PGE's revenue requirement, referred to as General Rate Base in the funding section of this plan. Spending decisions are guided by clear-use cases, market readiness, cost-effectiveness, and alignment with load flexibility opportunities, ensuring that charging infrastructure and EV support measures are targeted to deliver long-term customer and grid value.

Customer Affordability as EV Adoption Evolves

PGE is committed to supporting Oregon's decarbonization and transportation electrification goals in an affordable least cost manner. Our programmatic activity is structured to share benefits as broadly as possible to all customers. PGE will continue to focus on supporting our customers' move to electric transportation and will work with stakeholders to identify any needed adjustments to programs, funding streams, statute, regulation, or plan budgets over the course of the 2026-2028 TE Plan period.

Benefit-Cost Tests

PGE's TE Plan is designed using benefit-cost ratios derived from three Commission-approved benefit cost analysis tests: Ratepayer Impact Measure, Total Resource Cost and Societal Cost Test.[1] The cost tests provide different perspectives on the cost and benefits across all utility customers, program participants and society holistically:

- **Ratepayer Impact Measure (RIM)** Aims to assess potential rate impacts resulting from DER investment applicable to both participants and non-participants.
- **Total Resource Cost (TRC)** Considers a more holistic view of the resource costs and benefits to both the customer and the utility. Therefore, the TRC includes costs and benefits experienced by the utility system, plus costs and benefits to program enrolled customers.
- **Societal Cost Test (SCT)** Takes the broadest view and includes the costs and benefits experienced by society.

1 "OPUC Order No. 25-028," Oregon Public Utility Commission, 2/5/2025,https://apps.puc.state.or.us/orders/2025ords/25-028.pdf

The overall TE Plan portfolio has a Benefit-Cost Ratio (BCR) of slightly less than one under the RIM test but is significantly higher utilizing the TRC and SCT tests. This demonstrates that a meaningful level of customer and societal benefits can be attributed to the planned activities.

Across all customer classes, rate impacts are expected to remain modest and proportionate to the long-term system benefits delivered, with an increase of 0.12 percent in 2026, 0.14 percent in 2027, and 0.14 percent in 2028. These rate impacts balanced with the customer benefits reflect the plan's strategic focus on long-term affordable solutions delivering customer value and community benefits.

Performance Metrics

PGE's 2026-2028 Plan advances key objectives—such as environmental benefits, equitable access, grid integration, and infrastructure reliability—as demonstrated by the performance metrics required by Oregon Division 87[2], ensuring transparency and accountability in implementation of the Plan. Linking program design to the following measurable outcomes best positions PGE to assess impacts, refine strategies, and deliver long-term value for customers:

- **EV Adoption** – Overall EV adoption forecasted in PGE's service territory; PGE customer programs and internal fleet and workplace electrification support EV adoption
- **Environmental Benefits and GHG Emissions Impacts** – Overall GHG and emissions reductions estimated from the forecasted EV adoption count
- **Underserved Engagement** –PGE's plans to engage and receive input from underserved communities through the plan period
- **Equity of Program Offerings** – Amount of forecasted expenditures and ports benefitting underserved communities
- **Distribution System Impacts and Grid Integration Benefits** – Amount of usage from PGE customers, internal fleet and workplace charging further delineating the amount of off-peak usage and managed charging forecasted to result from portfolio investments
- **Program Participation and Adoption** – Number of customers and ports forecasted to be participating in the portfolio and the additional port counts expected from investments
- **Infrastructure Performance** – Infrastructure deployed furthering customer value and reliability, accessibility, and affordability of charging options

Together, these elements form a cohesive roadmap for PGE's transportation electrification strategy—one that balances innovation and affordability, equity and impact, and near-term action with long-term vision.

PGE Fleet

In alignment with recent guidance from the OPUC, PGE is including its internal fleet electrification investments in the 2026-2028 TE Plan. This inclusion reflects direction from Order No. 24-454 in

[2] "Division 87, Transportation Electrification Plans," Oregon Administrative Rules, 9/29/2022, https://secure.sos.state.or.us/oard/displayDivisionRules.action?selectedDivision=4089

PGE's 2024 general rate case (UE 435). The Order clarified that when fleet electrification is used to inform or support the design and justification of customer-facing TE programs—such as charger infrastructure and load management strategies—its associated costs must be incorporated into the formal TE Plan and budget.[3]

The OPUC has emphasized the importance of transparency and holistic cost-effectiveness assessments for all utility TE investments. Accordingly, fleet electrification is no longer treated as a separate operational activity, but as an integrated element of PGE's broader electrification strategy and program activity portfolio. Including these investments ensures the Commission and stakeholders can evaluate the collective benefits of PGE's transportation electrification portfolio, including its role in fleet and workplace electrification, reducing emissions, and providing long-term customer and grid value.

To meet this expanded reporting requirement, PGE requested and received a short extension[4] for its TE Plan filing to allow for internal coordination, cost integration, and the development of fleet-specific performance metrics. This Plan now presents a unified approach that reflects both customer and utility-side investments in advancing Oregon's decarbonization and electrification goals.

For 2026-2028, PGE forecasts to spend approximately $12 million in general rate case dollars over three years.

[3] "OPUC Order No. 24-454, Resolution of 39b, Page 92 of 126," Oregon Public Utility Commission, 12/20/2024, https://apps.puc.state.or.us/orders/2024ords/24-454.pdf
[4] OPUC Order No. 25-146, April 16, 2025. https://apps.puc.state.or.us/edockets/DocketNoLayout.asp?DocketID=22127

Chapter 1 PGE's Transportation Electrification Vision, Strategy, and Portfolio Overview

1.1 Vision, Strategy and Utility Role of 2025 TE Plan

In 2019, PGE filed our first Transportation Electrification (TE) Plan[5]. Our vision, based on low market adoption and aggressive state decarbonization policies, was to accelerate EV adoption as a flexible resource creating system-wide and locational value for our customers. The 2023 TE Plan further refined forecasts for EV growth and public charging options, largely a result of increased incentives and tax credits along with supportive state policies. The 2023 TE vision supported customer's transition to electric transportation through a strategy to Plan, Serve and Manage while providing equitable charging options in underinvested areas of PGE's service territory. The refinement of the vision and strategy reflected realized and forecasted market growth driven by funding incentives and federal and state policy changes.

In our 2026-2028 TE Plan, we further refine the vision to support our customer's transition to electric transportation. Our strategy remains to **plan** for, **serve**, and **manage** load from customers' and the utility's transition to electric transportation through long-term affordable solutions which provide a reliable grid and community benefits to all customers.

PGE sees its role as supporting our customers' transition to electric transportation through investments in infrastructure and programs to support timely and cost-effective charging that increasingly provides value to the grid and customers. Additionally, through investments to transition our own fleet we are both demonstrating the viability of an electric fleet and importantly learning how to support our customers as they transition their fleets. During listening sessions in 2024 we heard from Oregon DEQ that fleet electrification was a high priority, as commercial fleet vehicles travel more miles than average, present a greater number a higher volume of environmental benefit and impose more demands on the electric system.

PGE also has a role to optimize MMC and CFP funding in a manner that supports customers' transition to electric transportation in underserved communities, promotes EV adoption, and reduces investments which would otherwise increase customer rates. For our underserved communities, PGE will support efforts to enhance education about both EVs and charging, promote equitable access to public and multi-family charging, and provide increased incentives for income-qualified customers. These efforts aim to lower barriers to electric vehicle adoption in large part by making public charging more accessible, inclusive, and affordable.

1.2 Strategy Alignment Across Plans

The 2026-2028 TE Plan aligns with PGE's other strategic plans including: the DSP, the Clean Energy/Integrated Resource Plan (CEP/IRP), and the MYP. These **plans** are designed to be

[5] Portland General Electric, "In the Matter of PORTLAND GENERAL ELECTRIC COMPANY, 2019 Transportation Electrification Plan," Oregon Public Utility Commission, 9/30/2019 https://edocs.puc.state.or.us/efdocs/HAA/haa102039.pdf

integrated. They inform PGE and stakeholders about projected load growth, generation, supply, and distribution resource needs to **serve** all load including the unique needs of electric vehicle load, and the opportunity to **manage** TE load effectively. The 2024 DSP shared a vision of a bi-directional distribution system providing community value based on customer engagement and lowest total cost utility solutions.

PGE's goal is to ensure EV charging becomes a flexible and orchestrated load that supports overall system reliability and affordability. The TE Plan provides a portfolio of programs that incent the right infrastructure, technology, vehicle rates and tariffs. Fleet Partner and the revised Electric School Bus grants support DER development and the bi-directional exchange of energy and services between customer and utility. PGE's programs are structured to incent the installation and use of qualified chargers capable of time of use rate or managed charging. Community grants support vehicles and chargers which can flex the charging timing to meet their communities' needs and optimize charging for both customer and grid value. The portfolio also includes Commercial Demonstrations and Residential Smart Charging pilots to test new technology and grid management solutions to determine new rates or programs to support daily shifting of load to reduce customer bills and lower system costs through peak load management.

1.3 Long-term TE Vision and Utility Role

PGE's long-term vision for the TE Portfolio supports both the customers' and the company's transition to electric transportation, enabled through cost-effective infrastructure investments and rates designed to deliver current and future customer and grid value. This vision encompasses several key initiatives, including updating forecasting capability to provide more granular insight into load, location and impact by feeder and customer type, coordinating with customers to site larger loads in unconstrained locations, structuring grid-friendly and EV growth conscious rates and tariffs, using legislated funds to enable equitable outcomes for our underserved communities, and creating flexible load programs to incent grid-friendly charging.

To support grid planning learnings and equitable access to charging, PGE currently owns and operates public charging sites throughout the service territory. PGE plans to transition public charging and operations to a third-party charging provider to support rapidly evolving technology requirements, allow opportunities for new and innovative charging price structures, and support PGE's core competencies as a provider of make-ready investments and charging management.

1.4 Technical Components Supporting Long-term Vision

Key technological aspects to support PGE's long-term vision include:

- **Aggregation and automation**: While a single vehicle charge might seem small, when optimized and managed together, these vehicles can offer significant benefits to the electrical system. PGE aims to aggregate thousands of EVs across customer segments to create meaningful grid resources. This involves developing and integrating with advanced software platforms that can automatically respond to grid signals and optimize charging across the entire fleet of connected vehicles and chargers. PGE envisions integrating EV charge management

from third-party providers into our Enterprise Distributed Energy Resource Management System (DERMS) to create a fully automated and intelligent grid management solution.

- **Optimization**: PGE's vision extends to optimizing both the bulk power system and specific distribution network needs. Bulk system optimization can provide system-wide flexibility to balance supply and demand, flatten load curves, reduce reliance on peaking plants, and support the integration of variable renewable energy sources. Optimization of EV loads will allow PGE to alleviate stress on specific feeders or substations and implement flexible service connections that dynamically adjust site-level load limits based on the feeder's capacity.
- **Bi-directional charging**: Exploring vehicle-to-grid (V2G) technologies can help maximize the grid value of managed EVs load. EVs with bi-directional capabilities essentially become mobile battery units. When parked and plugged in, they can store excess energy during off-peak hours and feed it back to the grid during high-demand periods. PGE is exploring and implementing V2G technologies.

To enable a fully integrated system capable of such complex and automated controls, PGE will need to focus on:

- **Infrastructure development**: Invest in expanding the charging network, focusing on areas with high flexible load potential. Direct vehicles and chargers to be capable of two-way communication and control. As grid management systems are defined and implemented, refine charger qualification requirements so new installations are capable of integration and follow industry-standard communication protocols and cybersecurity measures.
- **Gradual technology rollout**: Conduct small-scale demonstrations to evaluate new technologies and approaches, then phase in successful solutions, building a solid foundation first, and expanding as systems prove reliable and beneficial. Regularly assess the performance of implemented systems and adjust based on real-world data and emerging technologies.
- **Data analytics**: Invest in data collection and analysis capabilities to understand charging patterns and predict grid impacts. Quantify specific values (avoided costs) for managed charging use cases and incorporate economics into optimization model and grid planning practices.

Chapter 2 Policy and Market Context

PGE's TE Plan is designed to operate within a dynamic policy and market environment shaped by ambitious climate goals, regulatory requirements, and evolving customer expectations. As the planning and operational environment evolves, the TE portfolio will similarly evolve in a responsive, equitable, and effective manner.

At the state level, Oregon has committed to deep decarbonization through legislation and rulemaking aimed at reducing greenhouse gas emissions from the transportation sector—the largest source of emissions statewide. Clean energy standards, such as the Climate Protection Program (CPP), Advanced Clean Truck Rule, provide aggressive timelines for vehicle electrification and emissions reductions. These policies are supported by legislation, such as HB 3409,[6] which established rebate programs for medium- and heavy-duty zero-emission vehicles and prioritized investment in communities burdened by air pollution.

The state has taken steps to direct resources toward transportation equity through HB 2165[7], which institutionalized equity as a core principle in program design and implementation. The law reinforces the need to address underserved communities, including rural residents, low-income households, and communities of color, in the deployment of EV infrastructure and services.

At the federal level, the Infrastructure Investment and Jobs Act (IIJA) and the Inflation Reduction Act (IRA) have already injected hundreds of millions of dollars into transportation electrification. Oregon stands to benefit from multiple federal funding streams, including:

- Up to $52 million in NEVI formula funding to build out a fast-charging network along major corridors
- A $20 million federal award for public charging infrastructure on the I-5 corridor through the Tri-State West Coast Charging and Fueling Corridor Project.
- $197 million allocated to the state under the EPA's Climate Pollution Reduction Grant program, a portion of which will support light-, medium-, and heavy-duty EV incentives and charging infrastructure.

However, ongoing political uncertainty at the federal level threatens long-term stability in the TE market. In July, Congress passed and the President signed a massive budget reconciliation bill that contains significant rollbacks to electric vehicle and clean transportation incentives, including the elimination of tax credits for new and used EVs (Sections 30D and 25E) and commercial clean vehicles (Section 45W) by September 30, 2025. The tax credit for EV charging infrastructure (Section 30C) will also expire by June 30, 2026. Additionally, funding for key clean transportation programs—the Clean Heavy-Duty Vehicle Program and the Diesel Emissions Reduction Act—has been rescinded, and penalties for failing to meet Corporate Average Fuel Economy (CAFE) standards have been reduced to zero.

[6] "Oregon House Bill 3409," 82nd Oregon Legislative Assembly-2023 Regular Session, n.d, HB3409
[7] "Oregon House Bill 2165," 81st Oregon Legislative Assembly–2021 Regular Session, n.d., https://olis.oregonlegislature.gov/liz/2021R1/Downloads/MeasureDocument/HB2165/Enrolled

Congress is also seeking to roll back California's vehicle emission standards by using the Congressional Review Act to nullify the EPA waiver that lets the state set stricter vehicle emission requirements than the federal government. California and ten other states are challenging this action in court, but if Congress is successful, this rollback would also block states like Oregon—who adopt California's standards—from enforcing their own clean car and truck rules, slowing the shift to zero-emission vehicles. In the near term, the Oregon Department of Environmental Quality (ODEQ) has responded to supply chain and economic disruptions by temporarily pausing enforcement of the Advanced Clean Trucks rule, acknowledging the challenges that OEMs and fleet operators face in meeting zero-emission vehicle mandates. While this pause provides flexibility, it also underscores the need for utility programs that can bridge gaps and reduce barriers to electrification.

PGE's service territory reflects both the promise and the pressure of this moment. As of 2024, more than 1,500 public charging ports are deployed in the region—including over 300 fast-charging ports—but infrastructure growth has not kept pace with EV adoption. Between 2023 and 2024, the number of registered EVs per charging port increased, indicating rising demand for limited infrastructure. This strain is particularly acute for drivers without access to home charging, including renters, multifamily residents, and people in rural areas.

Affordability is a broad and key concern, from customer rate impacts to vehicle pricing and charging session costs. While EVs offer long-term savings through reduced fuel and maintenance costs, high upfront prices present an adoption barrier. In addition, rising vehicle prices, inflationary pressures, and the uncertain economic outlook all influence the pace of adoption. Medium and heavy-duty fleet vehicles have not materialized as forecasted in 2019–2020, requiring adjustments to electrification timelines and strategy, including PGE's own vehicle fleet.

Equity remains central to PGE's TE Plan leveraging CFP dollars, MMC funding, and a small portion of public grants to reduce the total cost of ownership for customers in underserved communities. Initiatives such as increased rebates for multifamily housing, panel upgrade support, and technical advisory services help address the unique challenges faced by low-income and rural customers.

The current policy and market landscape presents both opportunities and headwinds. PGE's approach is to remain nimble—leveraging existing state and federal programs, partnering with local organizations, and prioritizing affordability and equity—so all communities can participate in and benefit from Oregon's transition to electric transportation.

Chapter 3 Planning for Transportation Electrification

Robust planning is essential for integrating EV growth into the electric grid while maintaining system reliability, affordability, and equity. PGE's planning efforts reflect a forward-looking approach that incorporates transportation electrification into broader utility system planning processes, including resource adequacy, distribution system capacity, and decarbonization goals.

3.1 Electric Vehicle Market Forecasts

PGE forecasts EV adoption using AdopDER, a distributed energy resource forecasting model developed in partnership with national leaders. More details on AdopDER's methodology are located in Appendix C.

PGE's modeling scenarios reflect both uncertainty and opportunity. The reference case is grounded in current policies, as of May 2025, and expected incentive levels, while the high-adoption case assumes sustained public and private investment in EVs and infrastructure. The low-adoption case assumes tax credits go away and macroeconomic conditions further affect consumer behavior in purchasing electric vehicles. PGE anticipates that the actual adoption rate should most likely be between the low-adoption and reference case forecasts. The forecast data informs program participation estimates, customer impact analysis, and load growth projections across residential, commercial, and public charging use cases.

These forecasts include light-, medium-, and heavy-duty vehicles and are designed to align with statewide decarbonization objectives.

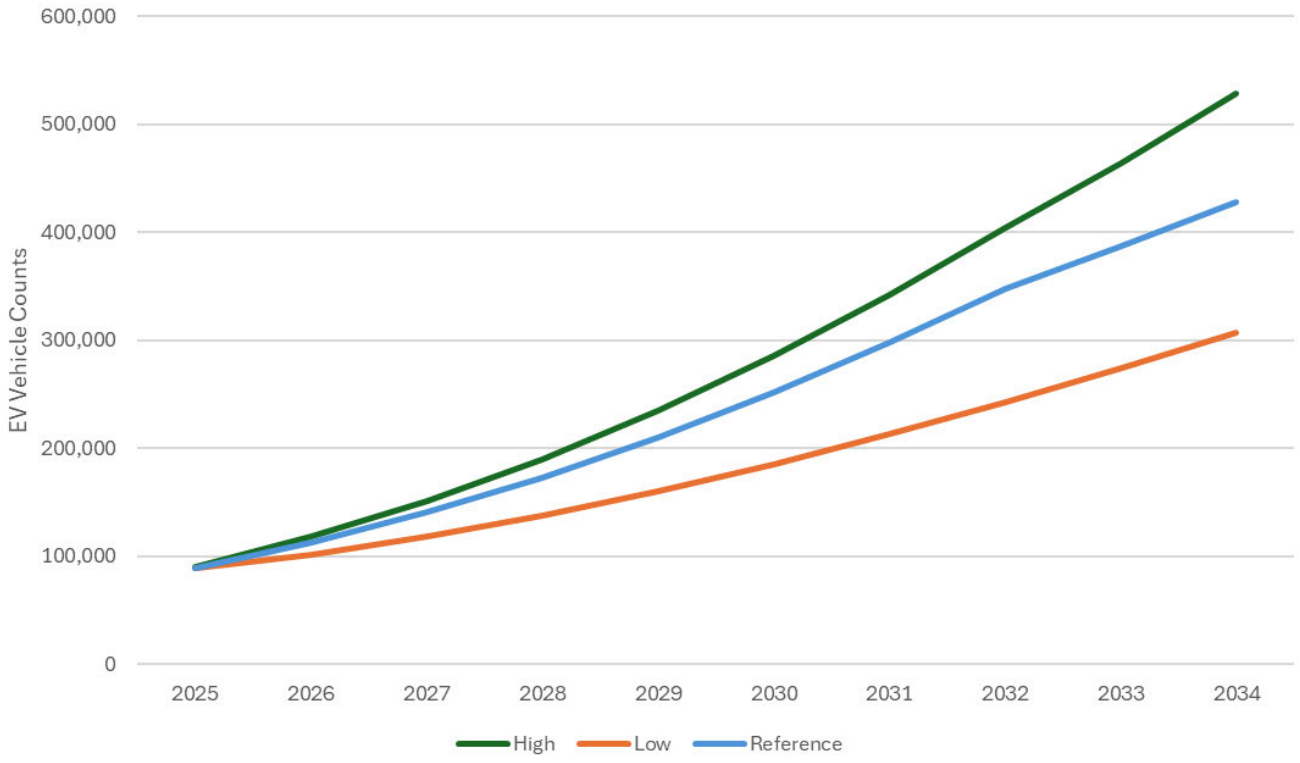


Figure 1. Total EV Adoption by Scenario in PGE Service Territory

As of the end of 2024, there were approximately 67,000 EVs and plug-in hybrid EVs in PGE's service territory. By the end of 2028, PGE expects the number of EVs to reach between 137,666 (low scenario) and 172,896 (reference case), depending on policy stability, market trends, macroeconomic factors and vehicle affordability. The year-by-year forecast for each scenario is shown in Table 1.

Table 1. Electric Vehicle Growth Scenarios

EV Counts	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
High	90,118	117,937	151,000	189,809	234,660	285,505	342,299	404,718	464,095	528,632
Reference	88,975	112,532	140,440	172,896	210,054	251,838	297,976	348,219	386,712	428,255
Low	88,494	101,451	117,992	137,666	160,145	185,283	212,707	242,368	273,944	307,006

To validate AdopDER's light-duty vehicle (LDV) adoption results—representing the largest share of vehicles operating within PGE's service territory—results were benchmarked against external projections from EPRI and the AEO Pacific Census Division. The following figure emphasizes AdopDER's alignment with other regional trend analyses, closely tracking with moderate and low economic growth scenarios.

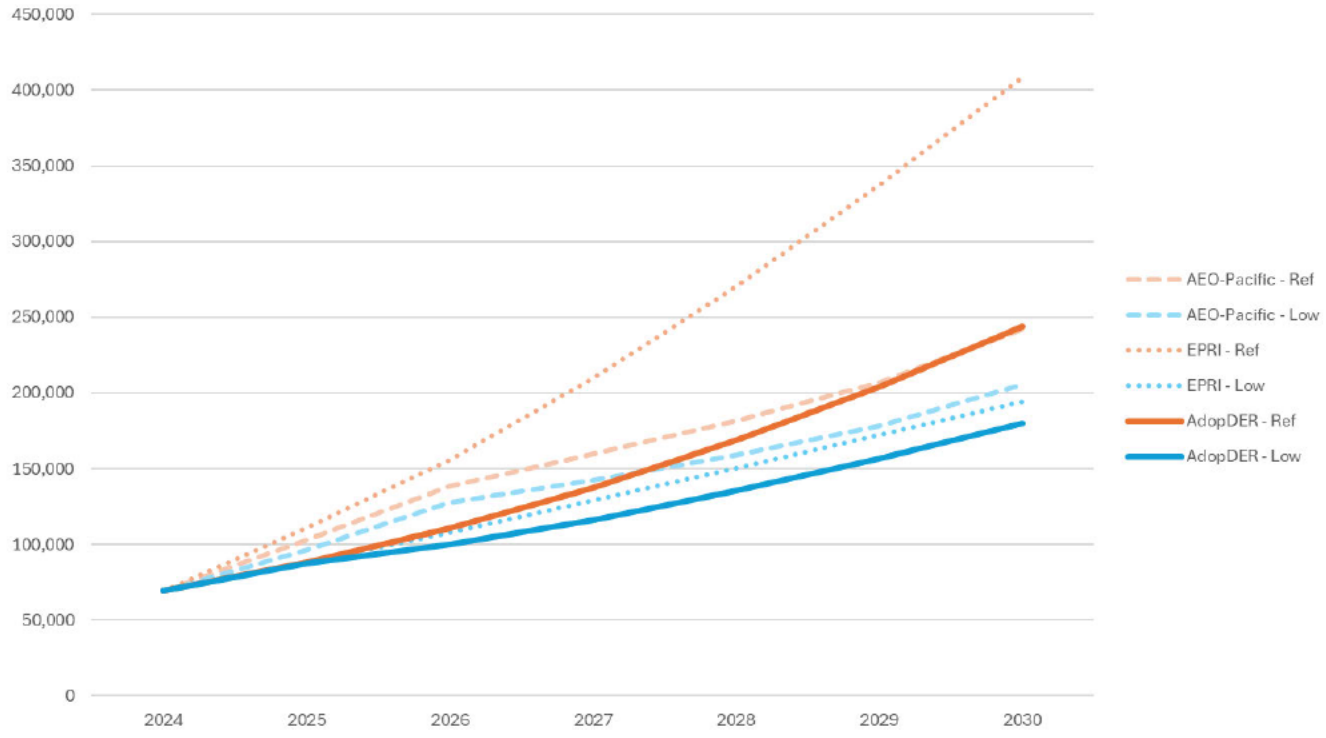


Figure 2. LDV Adoption Trends (BEV and PHEV)

Results account for current market conditions and incorporate uncertainty around federal policy shifts, incentive structures, and broader economic factors that may temper future EV adoption.

3.2 EV Load Impacts

The forecasted growth in EVs will result in a significant increase in electric load. However, that growth is not uniform—different use cases (e.g., home charging, fleets, transit depots) place different demands on the grid.

PGE's modeling shows that residential EV charging remains the largest source of transportation load and is highly concentrated in the evening hours, particularly without managed charging. Multifamily and workplace charging show more daytime variation, while public Direct Charge (DC) fast charging is spread across the day but peaks in the afternoon. Fleet and transit charging, particularly for medium- and heavy-duty vehicles, can present large, concentrated loads, sometimes exceeding one MW at a single site. Load profiles by use case are located in Appendix G.

The following table shows PGE's overall forecasted energy impacts from EV growth through 2034 (aMW).

Table 2. Forecasted Energy Impacts from Electric Vehicle Growth

Scenario	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
High	14	19	28	39	53	72	93	119	147	173
Ref	13	18	26	36	49	66	86	110	133	158
Low	11	15	22	31	41	53	67	80	96	111

AdopDER's forecast projects total EV-related load in the reference case to reach 36 average megawatts (aMW) by 2029—about 30 aMW lower than previously forecasted in the 2023 IRP Update due to revised assumptions and market trends. This demand will be influenced by several factors including charger type, charging behavior, rate structures, and participation in managed charging programs.

The increasing load also creates opportunities: EVs represent a flexible, controllable load that can be managed to avoid peak demand, support grid reliability, and optimize renewable energy integration. Understanding how this load will materialize is the foundation for PGE's planning and investment strategy.

3.3 Integration Into System Planning

Transportation electrification is now a formal input into PGE's IRP, CEP, MYP, and DSP. This alignment informs how EV load forecasts are used to shape generation planning, flexible resource procurement, and distribution infrastructure investments.

For example, the 2024 DSP outlines a vision for a bi-directional, customer-centric grid, where distributed energy resources like EVs provide system and community value. The IRP/CEP highlights how flexible loads, including EVs, are critical to achieving Oregon's clean energy goals—targeting up to 25 percent of peak demand to be met by distributed resources by 2030.

PGE's planning tools continue to evolve including enhancements to AdopDER which now incorporates data from advanced metering infrastructure (AMI), program-supported chargers, and EV-only meters to improve the accuracy and spatial resolution of forecasts.

PGE partnered with EPRI and other leading utilities to develop eRoadMAP[8], an interactive, public-facing map that identifies where, when, and how much EV charging load is expected to materialize on the U.S. electric grid. Launched in 2023, eRoadMAP continues to be enhanced with additional datasets, including school and transit bus depots and broader fleet electrification plans. PGE uses eRoadMAP to supplement and validate its internal transportation electrification forecasting tool, AdopDER, by aligning assumptions with regional trends and peer utilities. Leveraging EPRI's data helps PGE stay informed on emerging electrification patterns, improve forecast accuracy, and better assess the scale and timing of EV adoption and charging opportunities within our service territory.

PGE also contributed to the development of GridFAST, an EPRI-led online platform designed to help fleets and other EV customers engage early and efficiently with utilities across the U.S. to streamline project planning and accelerate energization timelines. Publicly launched in early 2025, GridFAST enables the collection of detailed information on planned fleet electrification and EV charging infrastructure. PGE plans to use this tool to inform grid planning and support site-specific forecasting of EV load and Electric Vehicle Supply Equipment (EVSE) deployment. This data will directly enhance AdopDER by improving visibility into upcoming transportation electrification projects and ensuring these localized impacts are accurately captured in the forecast.

In early 2025, PGE launched a new internal process to study prospective large load requests (over one MW) and a system to track the status of these requests. This allows PGE to have visibility into the load coming to our system (TE load or otherwise) and plan accordingly. PGE plans to connect GridFAST to our internal tracking system to capture TE load requests that start in GridFAST and need distribution studies.

PGE's MYP plays a critical role in ensuring that managed charging is not only supported but strategically incorporated into daily and seasonal grid operations.

Together, these planning efforts enable a more responsive, efficient, and equitable approach to transportation electrification. They also position PGE to support the continued growth of EVs in a way that benefits all customers—by managing system costs, avoiding unnecessary upgrades, and aligning with long-term grid modernization goals.

[8] "EPRI Roadmap," Electric Power Research Institute, n.d.,https://eroadmap.epri.com

Chapter 4 Serving Customer Needs

Serving customer needs is central to PGE's Transportation Electrification (TE) strategy. The 2026–2028 TE Plan continues to expand programs and services designed to help residential, commercial, and public-sector customers transition to electric vehicles, with particular emphasis on equity, accessibility, and education. These efforts are supported by meaningful partnerships and a focus on delivering tangible benefits to communities across PGE's service territory.

4.1 Customer Programs and Incentives

PGE offers a comprehensive set of customer programs designed to accelerate transportation electrification in a way that is affordable, equitable, and aligned with Oregon's clean energy goals. These programs serve residential, commercial, fleet, and public customers, and are structured to meet diverse charging needs while delivering broader grid and community benefits. At the heart of this portfolio is a commitment to ensuring that all customers, regardless of income, geography, or housing type, can participate in and benefit from the clean energy transition.

For residential customers, PGE's **Residential Smart Charging** pilot helps reduce the upfront cost of electric vehicle adoption by offering rebates for the installation of qualified Level 2 chargers and electrical panel upgrades. By enabling enrollment through either charger-based telemetry or vehicle telematics, the program allows customers to earn seasonal incentives when they shift charging to off-peak times. This approach not only helps households save on energy costs, but also supports grid reliability which provides value to all customers.

Public charging access is equally important, especially for customers who cannot install chargers at home. PGE's **Electric Avenue** network delivers reliable fast charging at key locations throughout the service area, while **the Municipal Pole Charging** program introduces Level 2 chargers mounted on existing utility poles, an especially valuable solution in urban neighborhoods with limited off-street parking. These initiatives ensure that the benefits of clean transportation are accessible to renters and residents of multifamily housing, who often face higher barriers to electrification.

PGE also supports commercial and fleet customers with programs that ease the cost and complexity of EV adoption. The **Business EV Charging Rebates** program offers financial assistance for Level 2 and DCFC EVSE installations at workplaces, multifamily properties, and commercial sites, with enhanced incentives available in underserved communities to help close historical gaps in access. For organizations electrifying fleets, PGE's **Fleet Partner** program provides end-to-end support, including planning assistance, infrastructure design, and construction incentives. Complementing these efforts is the **Heavy-Duty Charging Pilot**, which tests high-capacity charging solutions integrated with solar, battery storage, and advanced load management to meet the evolving needs of fleet operators while advancing grid efficiency.

To further unlock grid value and prepare for future scaling, PGE proposes to **launch Commercial Managed Charging Demonstrations** to address the largely unmanaged nature of current commercial EV loads. Since the market for commercial managed charging is still emerging and few utility programs exist nationwide, these demonstrations will test new technologies and strategies to

generate actionable insights. The goal is to transform unmanaged commercial EV charging into a flexible grid asset that can eventually integrate with PGE's Virtual Power Plant (VPP) framework supporting reliability while enabling customers to participate in the clean energy economy.

PGE's fleet and workplace investments in electric vehicles and charging infrastructure have played a pivotal role in shaping and informing customer-facing programs. By transitioning our own fleet to electric, the utility has been able to gain firsthand experience with vehicle performance, charging patterns, operational needs, and cost considerations—insights that directly inform the design of effective, customer-centered EV programs. These internal learnings have supported system planning, managed charging demonstration ideas, and a total cost of ownership analyses to support customer's data-driven decisions around their own fleet electrification supporting their company's strategic and financial goals. The utility's fleet investments showed a pathway for other customers and led by example in supporting transportation electrification across the communities it serves.

Recognizing the dual opportunity to promote community resilience and grid flexibility, PGE is also advancing the **Charging Resiliency Hub Demonstration**. These hubs will pair EV charging infrastructure with solar generation and battery storage in communities vulnerable to power outages, helping maintain mobility during emergencies while supporting demand response and load shifting under normal conditions. By investing in distributed energy resources, PGE is creating a more resilient, sustainable system that empowers customers to both use and contribute to clean energy.

To support long-term EV load growth while improving the customer interconnection experience, PGE is launching **Strategic Grid Investments** to learn about proactive upgrades to grid infrastructure in areas with strong and growing demand from fleet and public charging customers. Using data to identify capacity-constrained feeders, this initiative will track actual EV load enabled by these upgrades and evaluate whether this type of targeted investment can accelerate adoption and inform future grid planning. By aligning infrastructure availability with customer needs, PGE can help reduce interconnection delays and ensure the grid is ready to support transportation electrification where it is needed most.

Additionally, PGE manages a portfolio of initiatives funded through the **Clean Fuels Program**, a market-based program administered by the Oregon Department of Environmental Quality. These programs are designed to benefit residential EV drivers, with a strong focus on underserved communities. Key portfolio categories proposed include Community Grants, such as the Drive Change Fund (DCF); Flexible Buses and Emerging Technology, which supports school bus electrification and pilots cutting-edge charging technologies; and Equitable Electrification, which focuses on technical advisory services, program support for Electric Avenue and Oregon Electric Byways, outreach regarding income qualified public charging discount offered at PGE-owned chargers, along with broad community education, outreach, and underserved community engagement. These investments not only reduce greenhouse gas emissions but also help mitigate customer impacts while ensuring the benefits of electrification are distributed more equitably.

Equity is a cornerstone of every program in PGE's transportation electrification portfolio. All programs are designed with an equity lens, ensuring that customers facing systemic and structural barriers are not left behind. Rebates are increased for projects located in underserved communities,

and targeted outreach efforts aim to engage low-income customers, renters, and multifamily residents. Dedicated grant programs support electrification initiatives led by schools, nonprofits, tribal communities, and local governments, extending the benefits of clean mobility to those who need it most. These investments reflect PGE's belief that affordability and equity are not trade-offs, but essential components of a successful clean energy future.

Table 3. Overview and Summary of Transportation Electrification Programs in 2026-28 TE Plan

Programs	Overview	Target audience and goals
Commercial Managed Charging Demonstrations	PGE plans to launch Commercial EV charging demonstrations to address the mostly unmanaged nature of current commercial EV loads. Since the managed charging market for commercial use is still emerging and few utility programs exist, these demos will help test technologies and strategies to generate valuable insights.	Transform unmanaged commercial EV loads into flexible grid assets. Inform future Commercial Managed Charging programs that can be integrated with the Virtual Power Plant (VPP).
Charging Resiliency Hub Demonstration	PGE is launching a Charging Resiliency Hub demonstration to deploy clean energy infrastructure combining solar, battery storage, and EV charging in high-risk, underserved areas that may be prone to Public Safety Power Shutoffs. The program aims to ensure uninterrupted EV charging during outages, support load management, enhance grid reliability, and promote decarbonization in vulnerable communities.	Enhance community resilience and grid reliability. Support decarbonization and transportation electrification. Integrate distributed energy resources (DER).
Strategic Grid Investments	PGE will demonstrate the use of data to guide proactive grid upgrade investments that support transportation electrification, with a focus on capacity-constrained feeders experiencing strong and ongoing demand from fleet and public charging customers. The initiative will also track the actual TE load enabled by these grid improvements.	Evaluate effectiveness of proactive grid upgrades in enabling TE load. Better understand the types of EV loads and interconnection timing when capacity is known to be available in future. Determine if demonstration can inform future grid planning needs for EV charging.
Business EV Charging Rebates	PGE's program helps non-residential customers reduce the cost of installing qualified Level 2 EVSE by offering rebates to workplaces, fleets, and multifamily properties that commit to maintaining the equipment for 10 years and sharing usage data with PGE. The rebate reservation system provides cost certainty, making participation more accessible for organizations and individuals who may otherwise face financial barriers to installation.	Maintain equitable access to charging in underserved communities, currently achieving 84 percent of total ports. Subsidize the cost difference between networked and non-networked chargers. Provide up to 100 percent coverage for EVSE and installation expenses in underserved areas.

Programs	Overview	Target audience and goals
		Continuously assess session data, pricing structures, and market trends for commercial charging.
Clean Fuels Program	Portfolio of programs funded through Oregon DEQ's CFP, managed by PGE on behalf of residential customers who drive EVs. Portfolio categories include Community Grants such as Drive Change Fund (DCF), Flexible Buses and Emerging Technology to support school bus electrification and test emerging technologies to develop future managed charging and grid resources, and Equitable Electrification to support education and underserved community engagement activities and reduce customer impacts.	Programs and grants must benefit residential customers, with a focus on underserved communities.
Fleet Partner Pilot	Launched in 2021, PGE's Fleet Partner pilot supports customers in transitioning to electric vehicle fleets by simplifying planning and reducing costs in exchange for a 10-year energy use commitment. The two-phase program includes a free Plan Phase with EV feasibility studies, site visits, and detailed cost analyses, followed by a Build Phase offering up to $400K in incentives for infrastructure design and construction. PGE manages infrastructure up to the charger, while customers handle charger installation and maintenance, and share charging data for 10 years.	Larger fleet customers connecting a minimum of kWh load. Goal of ~30 sites and ~310 make-ready ports. 22.4 MW of load capacity by 2028.
Heavy-Duty Charging Pilot	Coordinated site development and partnership with a medium and heavy-duty (MHD) vehicle operator for installation of MHD charging infrastructure paired with solar and Battery Energy Storage System (BESS). Where feasible, site load management will be explored to examine how this technology can support site capacity restraints to better understand how these co-located technologies can be best operated to minimize impact of MHD to the utility grid and delay or avoid costly upgrades.	MHD fleet operators and manufacturers and other public charging end users. Better understand impacts of MHD to the utility grid. Understand how the co-location of complementary grid edge technology such as BESS, solar, and site load management can be best used to minimize impacts to the grid, delay or avoid costly upgrades, and inform future program development.
Municipal Charging Collaboration - Pole Charging	The Municipal Pole Charging Collaboration was piloted to enhance EV charging accessibility, particularly for residents without access to private garages or driveways. The program partners with municipalities to install Level 2 chargers on utility poles in underserved communities	Maintain pole chargers (no plan to expand). Monitor usage, maximize uptime, and ensure consistent charger availability.

Programs	Overview	Target audience and goals
		Monitor pricing; all charging stations will operate under Schedule 50 pricing.
Portfolio Support	Portfolio Support provides essential services that benefit PGE's entire portfolio, rather than being tied to a single program. In the 2026–2028 TE Plan, Portfolio Support will cover all base business operations and maintenance (O&M) costs, following OPUC guidance from PGE's most recent general rate case.	All TE programs and customer classes.
Public Charging–Electric Ave	PGE's Public Charging Network includes 10 stations across its service area–7 Electric Avenue locations and 3 Oregon Electric Byways sites–installed between 2016 and 2020, with updates in 2022 and 2024. The network aims to expand access to public charging, ensure reliability and customer satisfaction, and provide insights into grid impacts.	Underserved residential customers. Maintain Electric Avenue and Oregon Electric Byways sites to maintain a 97 percent uptime. Assess Schedule 50 pricing for peak reduction, idle fees, low-income discount use, and compare L2 pricing with Schedule 38 costs.
Residential Smart Charging Pilot	PGE's residential program provides rebates for the purchase and installation of EV chargers, potential panel upgrades, and load management technologies. Customers can enroll using a qualified Level 2 charger or vehicle telematics system. Seasonal rewards are offered for meeting participation requirements, including charging at least 13 times, participating in 3 or more demand response events, and keeping EVSE online at least 50 percent of the season. Demand response events occur on non-holiday weekdays.	Residential single-family EV owners. 12,500 ports by EOY 2028.
PGE Fleet and Workplace Electrification	PGE was a leader in the fleet electrification space and started testing electric fleet vehicle technology for our internal use in 2011. Early market models suggested rapid technology evolution and long-term financial and community benefits. However, as the availability of suitable models and units, along with broader market adoption, has slowed, PGE is likewise pacing its own fleet electrification investments. This ensures we align spending with the actual opportunities to realize those anticipated benefits. Per UE 435 order, PGE is including our fleet and workplace electrification plans to provide full transparency into status, future goals, associated business case, and anticipated 2026–2028 expenditures.	PGE internal fleet electrification and maintenance of fleet and workplace chargers.

4.2 Customer Education and Engagement

Infrastructure and incentives are critical, but they are not enough on their own to drive widespread electric vehicle (EV) adoption. Many customers, particularly those in rural areas, lower-income communities, or multifamily housing, continue to face significant barriers such as limited awareness, misinformation, or skepticism about EV technology. PGE's education and engagement strategy are designed to close these knowledge gaps by building trust, improving access to reliable information, and empowering customers to make informed choices that support their mobility needs and financial well-being.

Through the CFP, PGE invests in a range of educational and outreach initiatives including community-led events such as ride-and-drives, electrification fairs, and cultural festivals as well as targeted campaigns delivered in partnership with local organizations. These efforts focus on demystifying EV ownership by highlighting the advantages of total cost of ownership, clarifying charging options, and connecting customers with available rebates and incentives. By meeting customers where they are, in both location and lived experience, these campaigns help expand access to clean transportation in an equitable and approachable way.

Technical advisory services are another essential component of this strategy, particularly for commercial customers, school districts, and public agencies navigating the complexity of fleet electrification. PGE provides one-on-one consultations, planning tools, and site feasibility assessments to help these customers evaluate infrastructure needs, budget accurately, and move forward with confidence. This tailored support ensures that organizations can pursue electrification with a clear understanding of timelines, energy requirements, and long-term cost savings.

Education is also key to transforming the market itself. While dealers are well-versed in selling diesel and gas-powered vehicles, many are less familiar or comfortable promoting electric models, especially those with higher upfront costs. Through tools embedded in programs like Fleet Partner, PGE helps address this gap by emphasizing lower operating and maintenance costs, making the business case for EVs more compelling for both sellers and buyers.

By aligning outreach with the specific needs of each customer segment, such as renters, rural households, or small fleets, PGE ensures that communication is relevant, inclusive, and actionable. Together, these efforts help remove non-financial barriers to EV adoption, expanding equitable access to the benefits of clean, affordable transportation.

4.3 Partnerships and Collaboration

PGE's success in delivering transportation electrification outcomes depends on strong partnerships with public, private, and nonprofit stakeholders. The utility works closely with local governments, school districts, and transit agencies to deploy infrastructure, apply for grant funding, and align efforts with regional mobility goals. PGE's partnership in these areas are reflected through Fleet Partner, supporting transit agency infrastructure in UM1938, and applying on grants with partners such Portland Bureau of Transportation as described in Section 7.1.4, Grants.

PGE also partners with private-sector developers, charging companies, and vehicle manufacturers to test new technologies and support market growth. These relationships ensure that PGE's

programs do not duplicate private investment but instead act as a catalyst—supporting early deployment, filling infrastructure gaps, and enabling innovation. PGE has worked with industry partners through the Residential Smart charging pilot, demonstrating pole chargers and V2G technologies in the Clean Fuels program emerging technology. The new demonstrations of Commercial Managed Charging and Resilient Charging Hubs will allow new partnerships and collaborations to test the new abilities to serve and manage EV load in the future.

Coordination with federal and state grant programs is also essential. PGE supports customers and communities in securing funding from programs like NEVI, EPA's Clean School Bus program, and DOE infrastructure grants. The utility provides technical documentation, grid capacity data, and letters of support to maximize access to these critical resources.

Together, these efforts form a comprehensive strategy for serving customers—helping them adopt EVs, reduce costs, navigate complexity, and participate in the transition to a cleaner, more resilient transportation future.

Chapter 5 Managing Grid Impacts and System Benefits

As electric vehicle (EV) adoption continues to grow, managing the resulting load is critical to ensuring grid reliability, minimizing system costs, and maximizing the value of transportation electrification. PGE's approach centers on using smart technologies, rate design, and infrastructure planning to transform EV charging into a flexible grid asset. The 2026–2028 TE Plan builds on lessons from previous efforts and experiences to optimize the utility's role in managing EV load across customer segments and use cases.

5.1 Smart Charging and Load Management

Smart charging is a cornerstone of PGE's load management strategy. By aligning EV charging behavior with grid needs, particularly shifting demand away from peak periods, PGE can reduce system costs, defer infrastructure upgrades, and improve the integration of renewable energy. The TE portfolio includes both passive and active load management tools to achieve these outcomes.

Passive strategies rely on pricing signals and customer behavior. PGE offers time-of-use (TOU) rates for both residential and commercial customers, incentivizing off-peak charging by lowering prices during overnight hours. In 2024, Schedule 38 (for commercial charging) was updated to widen the price differential between on- and off-peak periods, further encouraging load shifting. PGE continues to evaluate the effectiveness of TOU pricing and may adjust these structures in future filings.

Active strategies, by contrast, involve direct utility control of charging through smart chargers or telematics. PGE's Residential Smart Charging pilot allows the utility to schedule charging events, send demand response signals, and optimize energy use at scale. Participants are rewarded for staying connected and responding to events, helping to build a reliable demand-side resource.

Building on this experience, PGE is preparing to expand managed charging into the commercial sector. Demonstrations planned for 2026–2028 will evaluate technologies and participation models for workplaces, fleets, and public charging operators. These demonstrations will inform the development of scalable programs that can be integrated into PGE's broader flexible load portfolio.

PGE is also exploring the future of bi-directional charging, or vehicle-to-grid (V2G), through pilots with school districts and commercial fleets. These efforts test the feasibility of using EV batteries to support the grid during peak hours or emergencies—unlocking a new class of distributed energy resources that enhance grid flexibility.

5.2 Infrastructure Deployment Strategy

PGE's infrastructure strategy is evolving to meet growing demand while ensuring cost-effectiveness and system readiness. A key distinction in the utility's approach is the prioritization of make-ready infrastructure—utility investment up to the point of charger installation—over direct ownership of charging equipment. This model enables customer flexibility, supports innovation, and minimizes long-term rate impacts while ensuring that infrastructure is installed safely and reliably.

To improve deployment efficiency, PGE has introduced site feasibility reviews that provide early feedback to large EV charging projects. These reviews help developers select optimal locations, avoid costly redesigns, and reduce interconnection delays. By encouraging projects to locate on feeders with existing capacity, PGE improves utilization of the existing grid and avoids unnecessary upgrades.

PGE's Strategic Grid Investments demonstration will take this a step further, using forecast data to guide proactive infrastructure upgrades in areas where TE load is anticipated. The goal is to make capacity available when and where it's needed.

Reliability and resiliency are also key components of PGE's deployment strategy. For example, the Charging Resiliency Hub Demonstration will install EV charging infrastructure paired with solar and battery storage in communities at risk of power outages. These hubs will support mobility during emergencies while providing load flexibility and grid support during normal operations.

5.3 Rates

5.3.1 Residential Rates

PGE's residential rate Schedule 7 provides Standard and Optional Service choices for residential customers. The optional Time-of-Day (TOD) option can apply to a whole premise or to EV charging only with a separate meter installation.

In 2026, PGE proposes to investigate rate options to shift charging to off-peak for customers who do not participate in the Residential Smart Charging program or who prefer to manage their own charging. PGE may explore a demonstration to determine the viability of using the charger or vehicle telematics as a submeter with the possibility of applying potential EV-only credits to a time-of-day rate as an EV load pricing signal.

5.3.2 Commercial Rates

Among PGE's commercial rate schedules, we offer an alternative option (Schedule 38) to our standard rate schedules which does not include a demand charge component. This offering is particularly beneficial to large commercial customers with variable and infrequent usage, such as those with growing EV fleet or public charging. A no-demand rate simplifies billing by covering costs through kilowatt-hour (kWh) charges only. This provides customers with a predictable forecast of costs for their fleets and offers public charging users a stable price, eliminating the high and variable nature of demand charges. In 2024, PGE expanded the eligibility for Schedule 38 to allow customers with separately metered EV charging up to 4,000 kW.

Through UE 435, PGE revamped Schedules 38, 83, 85 and 89 by introducing a mid-peak period in addition to the On- and Off-Peak periods PGE already offered. At the same time, we adjusted Schedule 38's On-Peak to Off-Peak price differential from 1.5 cents to 3.0 cents which is slightly higher than the 2.0 cent differential applied to the other commercial rate schedules. PGE will continue to monitor the change this effect has on Customer usage trends and bill amounts and may consider changes to the price differentials in future rate adjustments.

5.3.3 Public Charging Rates

PGE-owned public charging sites leverage Schedule 50 pricing, which offers multiple advantages: incentivizes off-peak energy consumption and provides cost-effective electric vehicle charging options comparable to residential rates. As of January 2025, Schedule 50 pricing was adjusted as follows:

- Pricing moved from fixed fees to per kWh prices, so customers pay for what they use.
- The hours for peak-time fees narrowed from weekdays 3 p.m.–8 p.m. to weekdays 5 p.m.–9 p.m. to align with current residential time of day hours.
- Peak-time rate charges increased from $0.19 per kWh to $0.28 per kWh in alignment with residential time of day rates.
- Monthly unlimited charging subscriptions no longer available.
- Drivers who do not vacate after charging concludes will incur idle fees.
- DCFC kWh prices reflect market pricing while Level 2 kWh prices reflect residential, Schedule 7, kWh pricing.
- Drivers who are PGE Income Qualified Bill Discount participants qualify for a discount in their per-kWh rates.

PGE will continually assess the effectiveness of kWh pricing to more effectively cover the costs of charging and maintenance. PGE will also continue to assess the impact of tiered pricing on grid load management throughout 2025 and beyond. This ongoing evaluation may result in future price adjustments to optimize base kWh and the tiered pricing structure for both Level 2 and DC Fast Charging stations, ensuring it remains effective and beneficial.

Finally, PGE is planning for a transition in its role as a public charging provider. While the utility currently owns and operates the Electric Avenue network, long-term utility role plans to transfer this responsibility to third-party charging companies in 2030-2033 as the currently installed technology reaches end of life. This shift mitigates ongoing risk with long-term maintenance needs and will allow greater pricing flexibility, support market growth, and allow PGE to focus on its core roles: grid investment, customer programs, and charge management.

Table 4. Comparison of Charging Infrastructure from 2023 to 2024[9]

Port Type	2023				2024			
	Installed Non-Tesla Ports	Installed Tesla Ports	Total Ports	Registered Vehicles per Port	Installed Non-Tesla Ports	Installed Tesla Ports	Total Ports	Registered Vehicles per Port
L2	928	91	1019	40	1199	35	1234	54
DCFC	113	74	187	216	198	114	312	215
Total	**1041**	**165**	**1206**	**34**	**1397**	**149**	**1546**	**43**

[9] "Alternative Fuels Data Center," US Department of Energy, n.d., https://afdc.energy.gov/

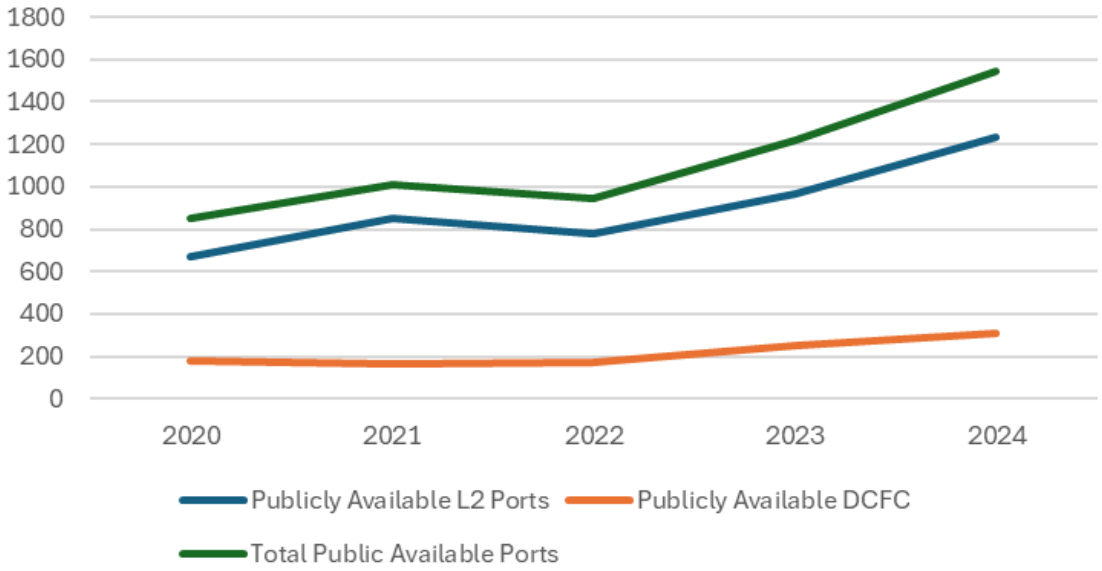


Figure 3. Public Port Availability for PGE Territory

Chapter 6 Implementation Roadmap

As part of PGE's Implementation Roadmap, the 2025 Transportation Electrification Plan builds on the foundation of the 2023–2025 cycle by incorporating critical insights from program performance, customer feedback, and technology evolution. The successful execution of PGE's 2026–2028 TE Plan depends on a thoughtful, phased approach that allows for adaptability, continuous learning, and integration with broader utility initiatives. This section outlines the roadmap for implementation over the three-year planning horizon, with a long-term perspective that aligns with Oregon's decarbonization goals and PGE's system modernization efforts. From program shifts like transitioning from make-ready infrastructure to enhanced rebates, to expanded managed charging capabilities and adaptive public charging investments, each element of the plan is designed for scalability, equity, and resilience. The following summary highlights how these learnings have been integrated to inform a more responsive and effective 2026–2028 TE portfolio.

6.1 Summary of Learnings Integrated into Proposed TE Portfolio

We have carefully reviewed and incorporated the valuable insights and lessons learned from our 2023 Transportation Electrification (TE) Plan to shape and strengthen the 2025 TE Plan. By building on past experiences, successes, and challenges, the 2025 TE Plan is designed to be effective, adaptable, and responsive to evolving technology and customer needs, ensuring continued progress toward a cleaner, more sustainable transportation future. For more details regarding each specific program's learnings, see Chapter 9 and Appendix B.

The **Business & Multifamily Make-Ready (Biz MFMR) Program** encountered challenges securing participation, especially in underserved communities. Requirements such as new service, minimum port counts, and cost-sharing led to a complex application process, resulting in up to 60 percent of applicants being unable to proceed. Cost-sharing was the most significant barrier, as many business and property owners lacked the resources to contribute. Those who did move forward often relied on supplemental grant funding. From 2023 to 2025, the program aimed to install approximately 100 Level 2 (L2) charging ports at around 10 workplace, commercial, and multifamily locations. As of June 2025, five sites have been enrolled—three multifamily, one workplace, and one public site—totaling 44 ports, with 5 additional sites pending enrollment. Separately, in 2024 and 2025, the program also targeted the installation of approximately 100 ports in the right-of-way near multifamily properties impacted by HB 2165 criteria. As of June 2025, this effort has resulted in 28 ports installed across three multifamily sites. To address the barriers encountered, the program will transition to an enhanced rebates model. This new approach focuses on increasing financial incentives for workplace and multifamily customers in underserved areas, offering higher rebates for both L2 and DC Fast Charging (DCFC) equipment and installation. PGE will also discontinue direct ownership of non-fleet make-ready infrastructure to provide customers with more flexibility. In parallel, the Business EV Rebates Program is expanding its budget to offer larger rebates for workplace, multifamily, and public charging projects in underserved communities, helping offset installation costs and increase accessibility.

The **Business EV Charging Rebates Program** continues to outperform expectations, with 86% of installed ports located in underserved communities. A major driver of this success has been the

optional reservation system, which has supported 80% of applications and enabled many multifamily property owners to move forward with EVSE installations. Participation exceeded projections in PGE's 2023–2025 Transportation Electrification (TE) Plan, which forecast support for 500 L2 ports, 250 L2 make-ready installations, and 20 DC Fast Charging (DCFC) ports between 2019 and 2025. As of mid-2025, the program has issued or reserved rebates for 730 L2 ports, 233 make-ready installations, and 27 DCFC ports. Originally expected to sunset by the end of 2024, the program gained renewed momentum after the L2 Installation Rebate was introduced in late 2022. Participation surged, prompting PGE to reassess the program's role in its broader TE strategy. Insights from the Business & Multifamily Make-Ready Program, where many participants faced financial barriers and relied on grants or internal resources, reinforced the customer preference for flexible rebates over direct infrastructure support. In response, PGE is consolidating both programs into a single, enhanced rebate offering designed to provide greater flexibility and simplify participation. Rebate levels will increase to better offset installation and equipment costs—particularly for networked chargers that support future load management—and remain competitive with peer utilities. Demand has consistently outpaced forecasts, with the L2 Installation Rebate fully subscribed by early 2024. Additional funding, including repurposed Municipal Curbside funds, will support continued growth through 2025. For the 2026–2028 period, rebate amounts will increase again, with a continued focus on serving underserved communities. The DCFC rebate program will also resume, offering up to $55,000 per port and $22,000 for installation, rebates that were fully allocated by April 2024 and primarily benefited multifamily and business customers in high-need areas. The reservation system, widely valued by participants, will remain in place.

Since late 2024, Portland General Electric's **Fleet Partner Program** has slowed due to customer concerns over electric vehicle costs, supply chain disruptions, regulatory uncertainty, limited public charging, and unclear total cost of ownership. Despite this, customer satisfaction remains high, reflecting the continued value of PGE's technical assistance. The program's first phase achieved strong results, exceeding goals with 50 applications, 24 reserved incentives, and 23 completed sites by December 2024. However, customer demand in Phase 2 fell short, with only 24 applications in 2024 compared to the goal of 50 applications. This drop was attributed to market conditions and federal policy uncertainty. As a result, the program's budget for the 2026–2028 TE Plan has been reduced to reflect the slower market conditions. To support customer ease, PGE is simplifying eligibility and combining incentives to streamline the process. Technical assistance will remain a key focus, with updates to the fleet total cost-of-ownership tool. The program, originally set to sunset in 2025 with a transition to a new fleet line extension, will now extend through 2028, allowing PGE to refine its approach and continue supporting fleet electrification.

Electric Avenue usage continues to grow with increasing EV adoption, driven by significant infrastructure and pricing improvements. In 2024, PGE upgraded six of seven Electric Avenue sites, replacing aging BTC Power chargers on the Shell Recharge Network with ChargePoint hardware. This upgrade boosted charger uptime from 76-95 percent, improved charging speeds, and resulted in a 455 percent surge in usage from July to December 2024. The World Trade Center site, previously at risk due to Shell software limitations, has been successfully transitioned to OpConnect, chosen for its enhanced software capabilities and maintenance support.

To improve customer experience, PGE has implemented QR codes for real-time feedback and will expand outreach efforts to increase visibility of charging locations. In line with UE 435, Schedule 50 transitioned to a per-kWh rate in January 2025, incorporating idle fees, peak pricing, and income-qualified discounts. Key changes include:

- Elimination of unlimited charging subscriptions
- Idle fees for vehicles not moved after charging
- Peak pricing increased from $0.19 to $0.28/kWh, with updated peak hours (weekdays 5–9 p.m.)
- Income-qualified drivers receive discounted rates

Schedule 50 is designed to promote off-peak usage, ease grid impacts, and keep costs comparable to residential charging. PGE will continue evaluating tiered pricing and charger performance throughout 2025 to ensure the program remains reliable, equitable, and responsive to customer needs.

The **Municipal Pole Charging Pilot** was launched to expand equitable EV access by leveraging existing utility poles, but significant implementation barriers have limited its progress. While early projections identified over 20,000 potential sites, detailed evaluations revealed that fewer than 1% met safety, structural, and electrical requirements. By the end of 2024, only 58 chargers had been installed, well short of the original goal of 180 by mid-2025. Current forecasts suggest the target may still be reached, pending final discussions with a few cities, though construction may extend into 2026. Infrastructure constraints were compounded by administrative hurdles, including limited city staffing, funding gaps for signage and striping, and community concerns around aesthetics and lighting. Installations proved more complex and costly than expected, requiring extensive coordination and longer timelines. Shell Recharge's exit from the public charging market added further disruption, necessitating hardware and software changes that increased operational costs. Although the rollout of the revised, equity-focused Schedule 50 rate in early 2025 was a positive milestone, it arrived later than planned. Due to the limited number of viable sites and participating cities, the program will no longer pursue expansion. Instead, PGE will shift its focus to sustaining and optimizing the existing network through proactive maintenance, software upgrades, and customer engagement. Funding will support the installed chargers through their service life, integrating pole charging as a steady component of PGE's broader electrification strategy.

The **Clean Fuels Program** has applied a portfolio approach to the CFP since 2020. In the 2023–2025 plan to date, PGE has awarded over $8.4M in Drive Change Fund grants to 58 projects, supporting the adoption of 159 EVs and 110 ports. From 2023–2025, the Electric School Bus Fund has granted over $13.9M to enable the electrification of 68 electric school buses across 13 school districts. During 2024, PGE saw the value in the portfolio approach with varying credit prices in 2023 and 2024 but also decided to reevaluate the portfolio in planning for the 2025 TE Plan. Combining input from stakeholders, market research, and program participation to date, several key themes emerged: PGE should leverage CFP funding in ways that reduce costs for and return benefits to residential customers, CFP funding is an appropriate avenue to test and develop future managed charging resources, and grant programs are still needed. The CFP in 2026–2028 will prioritize three focus areas: Flexible Buses and Emerging Tech, Equitable Electrification, and

Community Grants, supporting initiatives like the Electric School Bus Fund, educational outreach, and consistent funding for Drive Change grants.

Electric Island continues to generate valuable insights into deploying advanced EV infrastructure. Notably, the project revealed the need for clearer design and installation guidance to help customers future-proof their sites facilitating future upgrades, maintenance, and optimal charger placement. Permitting for BESS took longer than expected, reinforcing the importance of starting early and supporting contractors unfamiliar with BESS. Similarly, the integration of emerging technologies like Megawatt Charging System (MCS) chargers has required extended timelines due to outside parties' time needed to create MCS standards. In 2022, PGE and Daimler Truck North America (DTNA) signed a funding agreement for Phase 2, committing to a 50/50 cost share (up to $3.34 million) for BESS, solar, and MCS installations. DTNA also agreed to share Clean Fuels credits and charging data with PGE, an arrangement that remains in place.

Since then, planning and implementation have advanced, with two major takeaways:

- Specialized contractor selection is critical: The first BESS installation was delayed by nearly a year due to permitting and contractor readiness. Future solar and BESS work will prioritize partners with proven expertise and permitting experience.
- Set realistic timelines for emerging tech: Designing and deploying the MCS proved more complex than anticipated. A prototype will be installed to evaluate grid impacts and inform future rollouts.

The program will continue through 2027, focusing on testing megawatt scale charging, battery systems, and solar integration. Insights from this pilot will inform future offerings, though no major program changes are planned at this time.

The **Residential Smart Charging pilot** continues to yield valuable insights, despite recent market disruptions. Tesla's reauthorization requirement caused a 13 percent drop in connected vehicles, and Enel X Way's exit impacted 700 customers. Still, customer satisfaction remains high with low opt-out rates. Surveys show that 62 percent of income-eligible panel upgrade rebate recipients wouldn't have installed a Level 2 charger without the rebate, reinforcing its value. However, participation comprehension remains a challenge, only one-third of EVSE users and half of telematics participants correctly identified seasonal incentive requirements, signaling a need for clearer, more intuitive program design. To improve stability and scalability, PGE will expand the Qualified Products List, simplify the PGE+ installation, rebate, and enrollment process, increase the Standard EVSE and Bring-Your-Own-Charger incentives and introduce a telematics control group for more accurate impact measurement. The new control group addresses a shortcoming in the original EVSE group, enabling stronger program evaluation starting in 2026. Program evaluations in 2023 and 2024 confirmed the pilot's ability to shift EV charging to off-peak hours via time-of-use rates and direct load control but also identified gaps, especially between 8 and 10 p.m., a critical window for grid stress. Evaluations also identified the need for rebates to offset the costs of panel upgrades so the program budget was expanded to continue supporting panel upgrades in 2024 onward. Due to market disruptions, the pilot will fall short of its 2023–2025 target of 9,399 ports and currently forecasts ending 2025 below its original forecast of 8,150 with 7,500 ports. The 2026–

2028 phase will address these challenges by enhancing load control, increasing incentives and refining participation criteria.

Managed Charging Demonstrations will expand to cover all identified commercial use cases, leveraging both active and passive approaches to evaluate off-peak incentives, fleet load optimization, and workplace demand response, ensuring adaptability for emerging technologies. Building on the comprehensive study completed during the 2023 TEP, this expanded scope aims to assess the feasibility of potential pilots and programs across key use cases: Commercial Off-Peak Incentives, Fleet Demand Response and Load Optimization, and Workplace Demand Response. Each demonstration is expected to run for 6 to 12 months, involving 5 to 15 participant sites. Additionally, demonstrations may be repeated or revised throughout the 2026-28 period to incorporate new participants or test innovative technologies.

Throughout all TE Programs, PGE is committed to capturing lessons learned, using insights from each program to shape future offerings benefitting all customers, and guiding strategic infrastructure investments. This adaptive approach ensures continuous improvement, maximizes customer benefits, supports underserved communities, and enables scalable EV infrastructure deployment.

6.2 Phased Program Deployment

From 2026 to 2028, PGE's Transportation Electrification (TE) Customer Program Roadmap builds on the foundation laid during the 2023–2025 cycle, which focused on piloting innovative solutions, upgrading public charging infrastructure, and gathering key insights about customer needs, technology performance, and program design. Lessons learned from that period—such as the importance of realistic timelines for emerging technologies, the value of targeted contractor expertise, and the need for flexible program design are shaping a more strategic, scalable approach in the years ahead.

Implementation from 2026 through 2028 will occur in coordinated phases, designed to scale successful pilots, integrate new technologies, and stay responsive to evolving policy, regulatory, and market conditions. In the early phase (2026), PGE will prioritize launching new demonstrations, such as Residential Smart Charging, Commercial Managed Charging Demonstrations, and Charging Resiliency Hubs, and will refine existing program structures based on performance insights gathered from the 2023–2025 portfolio. This phase also includes transparency into overall portfolio, program development and program support in line with Commission guidance under UE 435.[10]

By mid-cycle (2027), PGE plans to enhance program delivery mechanisms, apply lessons learned from ongoing pilots, and update incentives, eligibility, and engagement strategies to ensure continued alignment with customer needs. Where possible, the company will also seek to leverage available state and federal funding opportunities to amplify program reach and impact.

[10] "OPUC Order No. 24-454, IE 435, Resolution of 38e, Page 90 of 126," Oregon Public Utility Commission, n.d., https://apps.puc.state.or.us/orders/2024ords/24-454.pdf

In the final phase (2028), focus will shift to scaling the most successful demonstrations, institutionalizing process improvements, and preparing for the next TE planning cycle. Demonstration outcomes from earlier years will inform long-term program and rate design, while infrastructure expansion will target high-growth areas identified through updated EV adoption forecasts.

Throughout, PGE remains committed to delivering on Oregon's transportation electrification goals in a way that is transparent, collaborative, and customer-centric—maximizing benefits for residential customers and underserved communities while ensuring responsible stewardship of funds.

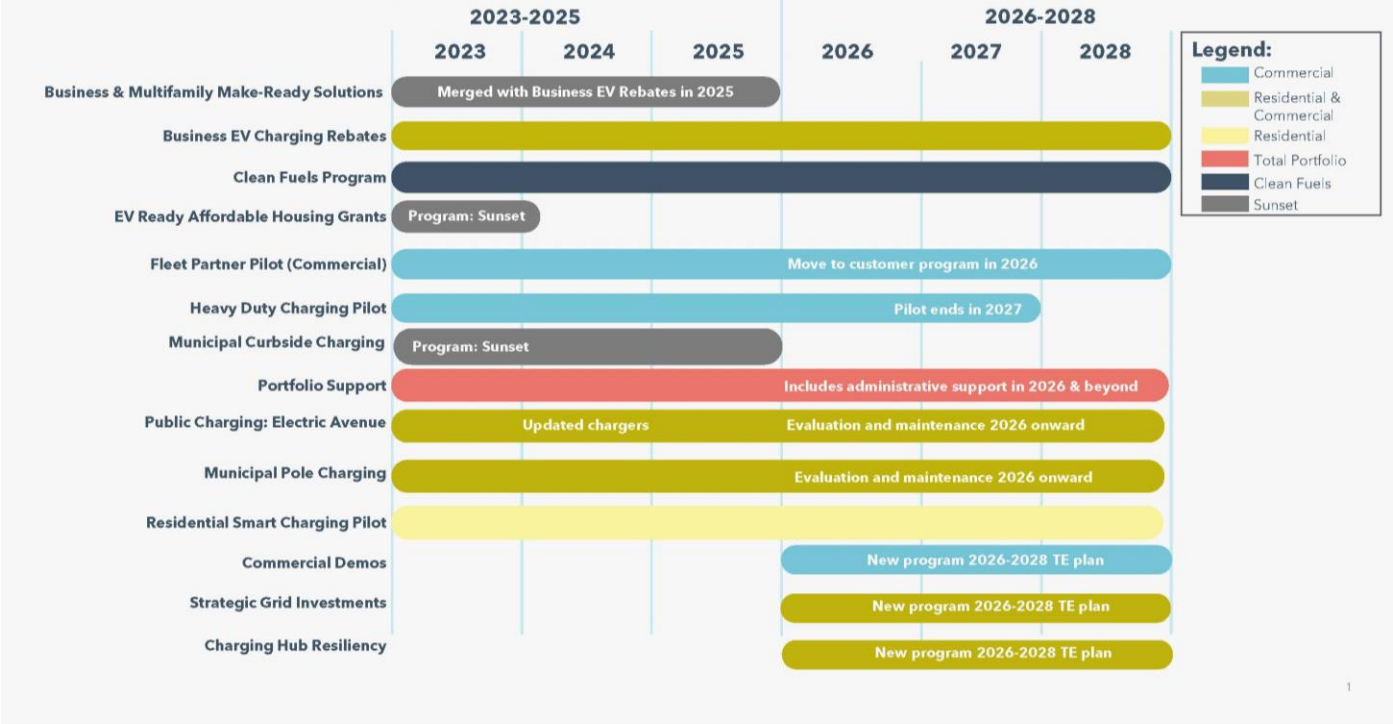


Figure 4. Transportation Electrification Customer Program Roadmap 2023–2028

6.3 Ongoing Adaptation and Responsiveness

The transportation and energy sectors are evolving rapidly, and PGE's implementation roadmap is intentionally designed to remain adaptive in the face of change. While the TE Plan outlines a structured three-year strategy, it also includes mechanisms for mid-cycle updates, budget reallocations, and the launch of new initiatives as needed to respond to shifting market dynamics, policy developments, and customer needs.

PGE will closely monitor macroeconomic indicators, technological advancements, and federal and state policy changes, including updates to the Inflation Reduction Act, Clean Fuels Program, and Oregon's climate and equity mandates. Developments such as accelerated battery innovation, the introduction of new electric vehicle models, or evolving funding opportunities will be continuously evaluated for their implications on program design, customer adoption patterns, and grid infrastructure planning.

This flexibility is rooted in PGE's customer affordability approach and its responsibility as both a utility and a system planner. Through ongoing internal governance, cross-functional review, and robust stakeholder engagement, including coordination with regulators, community-based organizations, and industry partners, PGE will ensure that the Transportation Electrification Plan remains current, relevant, and strategically positioned to deliver long-term benefits. These include greater access to EV infrastructure, improved grid resiliency, and equitable decarbonization across the communities PGE serves.

Chapter 7 Portfolio Budget and Cost and Benefit Analysis

PGE's 2026–2028 Transportation Electrification (TE) Plan represents a significant investment in Oregon's clean energy future. This section outlines the sources of funding, overall portfolio costs, and the expected benefits—both financial and societal. These elements ensure the Plan is not only ambitious in scope but grounded in affordability, cost-effectiveness, and value to customers.

7.1 Description of Funding Sources

The TE portfolio is supported by a combination of utility investment, public grant funding, and proceeds from the CFP and MMC revenues. PGE's approach prioritizes leveraging legislative and market funds to reduce the cost burden on customers, especially in underserved communities while meeting the requirements of the legislative funding directives as listed in their respective sections below.

7.1.1 Monthly Meter Charge

In May 2021, the Oregon Legislature enacted HB 2165 to support utility investment in EV infrastructure and extend and improve Oregon's EV rebate. Section 2 of the statute requires PGE and Pacific Power to collect a monthly meter charge, set at 0.25 percent of total revenues, from all customers beginning in 2022 and ending in 2030.[11] With the revenue, HB 2165 requires utilities make reasonable efforts to spend no less than 50 percent of the MMC to support TE in underserved communities.[12] The legislation specifies that approaches may include, but are not limited to, programs, infrastructure, rebates, or expenses. MMC are O&M dollars to cover related customer programs costs such as program operations, incentives, O&M on investments, evaluations, education and outreach, and also costs associated purchasing and installing assets such as solar panels, batteries or chargers (under the budget heading "Infrastructure").

7.1.2 Clean Fuels Program Funding

The CFP is administered by the Oregon DEQ.[13] The DEQ allows PGE to generate credits based on the number of residential EVs registered in the Company's service area (based on Department of Motor Vehicle (DMV) vehicle registrations) on a biannual basis. PGE sells these credits to regulated fuel providers throughout the year in the CFP marketplace and plans for the yearly programs based on actual revenue from credit sales. There is a two-year delay between when credits are generated and when programs are implemented (e.g., the 2026 PGE Clean Fuels program budget is based on 2024 EV counts). PGE also generates credits through the charging stations we own, operate, and/or maintain. Revenue from those credits is used to offset the cost of operating and maintaining that infrastructure.

[11] "Oregon Laws 2021, Chapter 95, Section 2," 81st Oregon Legislative Assembly–2021 Regular Session, n.d., https://www.oregonlegislature.gov/bills_laws/lawsstatutes/2021orlaw0095.pdf
[12] "Oregon House Bill 2165, Section 2(6)," 81st Oregon Legislative Assembly–2021 Regular Session, n.d., https://olis.oregonlegislature.gov/liz/2021R1/Downloads/MeasureDocument/HB2165/Enrolled
[13] "Oregon Clean Fuels Program," Oregon Administrative Rules, Chapter 340, Division 253, n.d.,https://secure.sos.state.or.us/oard/displayDivisionRules.action?selectedDivision=1560

Due to the variable credit market experienced in 2023-2024, PGE is forecasting the Clean Fuels Program revenue from selling the credits received from residential EVs registered. Annually, the company determines if incremental credits will be purchased by comparing the cost to purchase RECs versus the potential forecasted revenue based on the credit price trend, past average, and lowest values seen. If incremental credits are sold, the revenue will be allocated to the Clean Fuels portfolio subprograms in accordance with the budget range agreed upon with stakeholders.

7.1.3 General Rate Base

PGE includes forecasted costs, both operational and capital expenditures, to serve customers' electricity needs and operate our business through a general rate case. The operational (O&M) and capital (CAPEX) costs to support Transportation Electrification activities are included in the budgets of both customer programs and PGE's fleet and workplace electrification budgets. Per Commission Order No. 24-454[14] in PGE's most recent rate case, PGE includes full departmental O&M support costs in the TE Plan even if the costs are not specifically related to one customer program. Overall departmental costs not related to a specific program have been included in the Portfolio Support section and include such costs as administrative support across all programs, education and training, rate and program development, EV and charging expertise for internal and external inquiries, and compliance reporting. PGE went beyond the reductions specified in Order No. 24-454 and reduced operational budgets further to minimize impact to customer rates.

7.1.4 Grants

Between 2023 and 2025, PGE collaborated with partners to pursue three grant opportunities. Of these, one was successfully awarded: the Park and Charge project, submitted by the Portland Bureau of Transportation (PBOT) and funded by the U.S. Department of Energy. The project aims to expand community access to overnight EV charging by leveraging utility pole-mounted chargers. A portion of the grant funding is designated to offset charger software costs. Grant expenditures are anticipated to occur in 2025 and are not currently reflected in the 2026–2028 budget. However, if project timelines shift, some spending may carry over into 2026, in which case updates will be provided in future annual reports.

No additional grant awards were secured for the 2026–2028 period.

7.2 Portfolio Budget

7.2.1 Customer Programs Actuals and Forecast by Funding Source

The total customer-facing program budget for 2026–2028 is approximately $90.9 million with 86 percent of the budget funded by the legislatively mandated funding in alignment with the focus on customer affordability and decreasing impacts to customer rates.

In the 2023 TE Plan, PGE had not included the O&M costs that were not specifically tied to one program in the overall portfolio as stated in Section 7.1.3. In the table below, the actual spend, 2025

[14] "OPUC Order No. 24-454, UE 435," Oregon Public Utility Commission, n.d., https://apps.puc.state.or.us/orders/2024ords/24-454.pdf

forecasted spend and the forecasted budgets requested in the 2025 TE plan, are listed so the reader can see the change from one plan to the next. As seen, the amount of General Rate Case dollars has decreased since the last plan to maintain customer affordability.

Table 5. Customer Programs Actuals and Forecasted Budget by Funding Source

	Previously Approved TE Plan		Current Funding Request				
Programs–$000s	2023 Actuals	2024 Actuals	2025 Forecast	2026	2027	2028	2026-2028
General Rate Case[15]	$5,254	$6,125	$5,082	$3,837	$3,763	$3,477	$11,076
MMC	1,415	4,241	11,322	12,200	15,063	12,735	39,998
Deferral	2,237	660	–	–	–	–	–
Grants	–	–	40	–	–	–	–
Clean Fuels	8,399	15,106	15,427	10,846	13,428	15,480	39,754
Customer Programs	$17,304	$26,131	$31,871	$26,883	$32,254	$31,692	$90,829

7.2.2 Discussion of How Actual Revenue From Funding Sources Might Vary From the Estimate

All forecasts are inherently uncertain, so we reiterate that the dollar projections in the above table are based on the best information available to PGE at the time this plan was prepared. Actual revenue may–and likely will–vary from these estimates.

For instance, PGE Clean Fuels program revenues are dependent on EV adoption rates, the rules and policies of the Oregon Department of Environmental Quality in issuing Clean Fuels credits, and market prices for the sale of Clean Fuels credits. As this forecast is based on multiple forward-looking estimates, readers should assume actual credit revenue will vary. For example, in the 2023[16] TE Plan, PGE forecasted CFP revenue to be $43.3M from 2023–2025 and the actual revenue is $38.4M due to lower growth of EV's, higher 2023 credit prices, and drastically lower 2024 credit prices–half of the forecasted credit price–which created a variance in revenue than forecasted. Due to the portfolio nature of the Clean Fuels program, the program budgets flexed to work with the varying prices and some of the large revenue funding the 2024 budget was reserved to keep grant funding similar in 2025 since the lower 2024 credit prices would have created a low 2025 budget. PGE reported the sales and outcomes in both our annual reports in 2024[17] and 2025 and will continue to report actual credit revenue to both the OPUC and DEQ on an annual basis.

[15] Capital expenditures included in General Rate Case funding forecasts reflect incurred costs only.
[16] Portland General Electric, "2023 Final Transportation Electrification Plan, page 35, OPUC Docket 2033," Oregon Public Utility Commission, 8/25/2023, https://edocs.puc.state.or.us/efdocs/HAH/um2033hah15818.pdf
[17] Portland General Electric, "2024 Annual Transportation Electrification Plan Report," Oregon Public Utility Commission, 5/1/2024, https://edocs.puc.state.or.us/efdocs/HAQ/um2033haq336533034.pdf

Monthly Meter Charge revenues are based on PGE's current base rates and projected retail power sales during the planning period. Should base rates change in a future General Rate Case or power sales exceed or fall short of projections, Monthly Meter Charge revenues will diverge from these estimates.

PGE will seek to manage within its overall customer TE budget to address variations in revenue from projections. PGE will file a budget update for Commission approval in the event that we determine significant shortfalls in non-ratepayer funding sources which should be backfilled with additional ratepayer funds to achieve essential TE portfolio objectives. Conversely, the utility will also file a memo on proposed program shifts or additional options to support EV adoption if proposed 2025 TE Plan programmatic changes for MMC and CFP funded programs do not receive the market interest forecasted due to changing dynamics.

7.2.3 Summary of Portfolio Costs by Program

The 2025 TE Plan portfolio reflects continued support for key initiatives such as Business EV Charging Rebates supporting multi-family, workplace, and public charging, Residential Smart Charging, Clean Fuels funded grants, Fleet Partner advisory services, and three new customer programs: Commercial Demonstrations, Charging Resiliency Hubs and Strategic Grid Initiatives along with PGE's internal fleet and workplace charging program.

Table 6 below shows the forecast of program costs of the 2025 TE Plan side-by-side with actuals and forecasted program costs from the 2023 TE Plan. The amounts in 2023 and 2024 reflect the actual spend of the 2023 TE Plan as reported in the last two Annual Reports. As the TE Plan is being submitted in the middle of the year, 2025 costs represent our current forecast for the year.

Table 6. Summary of Portfolio Costs

	Previously Approved TE Plan			Current Funding Request			
Programs–$000s	2023 Actuals	2024 Actuals	2025 Forecast	2026	2027	2028	2026-2028 Total
Business EV Charging Rebates	$626	$1,569	$3,379	$4,916	$5,131	$4,090	**$14,138**
Charging Resiliency Hub	–	–	–	273	2,381	730	3,384
Clean Fuels Program	8,399	15,106	15,006	10,501	13,128	15,172	38,800
Commercial Managed Demonstrations	–	188	715	1,167	1,164	433	2,764
Electric Avenue & OR Electric Byways	475	91	$712	645	610	625	1,880
Fleet Partner[18]	4,162	4,430	2,660	2,047	2,036	1,574	5,658

[18] All program costs exclude tariff and Clean Fuels Credit revenues. Capital expenditures included in General Rate Case funding forecasts reflect incurred costs only.

	Previously Approved TE Plan			Current Funding Request			
Programs–$000s	2023 Actuals	2024 Actuals	2025 Forecast	2026	2027	2028	2026-2028 Total
Heavy Duty Charging Pilot[19]	606	1,279	1,141	485	172	117	773
Municipal & Public Charging	507	805	2,823	685	545	1,828	3,058
Portfolio Support	684	118	475	1,813	1,813	1,863	5,488
Residential Smart Charging	1,845	2,545	4,962	3,602	4,040	3,991	11,633
Strategic Grid Initiatives	–	–	–	749	1,236	1,269	3,253
Customer Programs	**$17,304**	**$26,131**	**$31,871**	**$26,883**	**$32,254**	**$31,692**	**$90,829**

An additional $12.3 million is allocated to PGE's internal fleet and workplace electrification, which is included in the Plan for the first time to provide a transparent, holistic view of transportation electrification across the utility's operations. This internal investment covers both vehicle procurement, charging infrastructure maintenance, maintenance on electrified vehicles and the full cost of vehicle purchases—not just the incremental cost of vehicle electrification.

Our commitment to customer affordability has led PGE to reassess capital expenditure plans company wide. A key example is our refined strategy for fleet electrification. Early market models suggested rapid progress and significant long-term financial and community benefits. However, as the availability of suitable models and units, along with broader market adoption, has slowed, PGE is likewise pacing its own fleet electrification investments. This ensures we align spending with the actual opportunities to realize those anticipated benefits. PGE's Fleet and Workplace program is fully funded through base rates with both capital expenditures for vehicles and charger replacements and the O&M to maintain chargers along with the anticipated energy costs to fuel the chargers. Table 7 below shows the breakout of the various costs included with PGE fleet and workplace charging.

Table 7. PGE Fleet and Workplace Program Costs

				Current Funding Request			
Costs -$000s	**2023 Actuals**	**2024 Actuals**	**2025 Forecast**	**2026**	**2027**	**2028**	**2026-2028 Total**
Charging Infrastructure	8,146	2,705	2,467	–	–	–	–
Chargers	–	–	–	100	50	52	202
Vehicles	7,523	5,788	8,479	6,400	–	–	6,400

[19] All program costs exclude tariff and Clean Fuels Credit revenues. Capital expenditures included in General Rate Case funding forecasts reflect incurred costs only.

				Current Funding Request			
GRC CapEx[20]	**15,669**	**8,493**	**10,945**	**6,500**	**50**	**52**	**6,602**
O&M	963	1,291	1,586	1,853	1,909	1,928	5,691
GRC OPEX	963	1,291	1,586	1,853	1,909	1,928	5,691
GRC Total	**16,632**	**9,784**	**12,531**	**8,353**	**1,959**	**1,981**	**12,293**

Together, these budgets reflect a comprehensive and integrated approach to both customer and utility transitions to electric transportation.

7.3 Benefit-cost Test Descriptions

Generally, the introduction of transportation electrification and other decarbonization goals across the economy are requiring changes to be made to legacy decision-making tools such as cost-effectiveness. Order No. 22-314,[21] highlighted the importance of transparent cost and benefit analysis to inform discussions and prioritize utility investments in the TE space, while making clear that budget approvals for the 2023-2025 TE Plan were not conditioned upon an investment in TE infrastructure or programs being cost-effective under current tests. Rather, the order noted that this information would be used to inform ongoing efforts to determine any necessary updates preceding subsequent TEP filings. Order No. 25-028[22] updated that guidance to specify that expenditures of the Monthly Meter Charge do not require cost-effectiveness for approval, and that utilities should not include expenditures of credit revenue from Oregon's Clean Fuels Program as costs in their Societal Cost Test (SCT), but that for approval of expenditure of customer funds beyond the MMC in plans beginning with the 2025-2028 TE Plan the TE portfolio's benefits should exceed the costs from at least one of four standard cost effectiveness tests, including the Utility Cost Test (UCT), the Ratepayer Impact Measure (RIM), the Total Resource Cost Test (TRC), or the SCT.

The previous TEP used California's Standard Practice Manual (SPM) as a guide for cost effectiveness. This manual has been used for decades to inform and steer approaches to evaluating utility demand-side management programs, such as energy efficiency and demand response.[23] Although it was primarily developed for demand reduction programs, it was also intended for applications that add load, such as fuel switching or electrification. For the TE Plan we calculate benefit-cost ratios using three tests: RIM, TRC, and SCT.

- The **Ratepayer Impact Measure (RIM) Test** evaluates the potential bill impacts on all customers, including non-participants.

[20] Capital expenditures included in General Rate Case funding forecasts reflect incurred costs only.
[21] "OPUC Order No. 22-314. Appendix A, Page 8 of 17," Oregon Public Utility Commission, 8/26/2022, https://apps.puc.state.or.us/orders/2022ords/22-314.pdf.
[22] "OPUC Order No. 25-028. Appendix A, Page 7 and 8 of 17," Oregon Public Utility Commission, 2/5/2025, https://apps.puc.state.or.us/orders/2025ords/25-028.pdf.
[23] "California Standard Practice Manual: Economic Analysis of Demand-side Programs and Projects," California Measurement Advisory Council, 7/2002, https://www.calmac.org/events/spm_9_20_02.pdf

- The **Total Resource Cost (TRC) Test** provides a broader view, measuring the net benefits to both the utility and program participants.
- The **Societal Cost Test (SCT)** takes the widest lens, incorporating environmental and social benefits, such as reductions in greenhouse gas emissions and air pollution.

Additional details on the specific costs and benefits associated with each benefit-cost test are included in Appendix K.

7.4 Benefit-cost Test Results

The portfolio has a Benefit-Cost Ratio (BCR) of slightly less than one for the RIM test but is significantly higher than one for the TRC and the SCT. This indicates that a high level of host-customer and societal benefits are attributable to the incremental EV usage from the customer TE programs along with PGE's fleet and workplace charging programs.

Table 8. Benefit Cost Tests

RIM	TRC	SCT
0.85	1.21	1.52

These results collectively show that while there is a modest short-term rate impact, the overall customer and community benefit is favorable.

7.5 Ratepayer Impact Evaluation

The TE portfolio is carefully designed to minimize rate increases. The costs included in the ratepayer impact are both the general rate case operations and maintenance budgets and incurred capital expenditures. Though the operations and maintenance budgets are already included in customer prices and do not create future increases, the costs are a part of general rate case reviews as such are included in the ratepayer impact evaluation. Below is percentage of customer prices that TE general rate case costs would encompass by year – the O&M costs are already included in customer prices but there would be a slight rate increase for capital expenditures. The customer impacts include both the customer programs and the internal fleet/workplace investments which include the cost of the vehicle that would occur whether the vehicle was fully electric or fully combustion driven.

Table 9. Total Estimated Price Impact (2026-2028) Customer Programs and PGE Fleet and Workplace

Category	Schedule	2026 Price Impact	2027 Price Impact	2028 Price Impact
Residential	7	0.21%	0.21%	0.21%
Small Non-residential	32	0.20%	0.21%	0.21%
Large Non-residential Time of Day	38	0.30%	0.31%	0.31%
Large Non-residential Capacity Tier	83	0.03%	0.03%	0.03%
Large Non-residential Capacity Tier	85	0.03%	0.03%	0.03%
Large Non-residential Capacity Tier	89	0.05%	0.05%	0.05%

Category	Schedule	2026 Price Impact	2027 Price Impact	2028 Price Impact
Large Non-residential Capacity Tier	90	0.02%	0.00%	0.00%
Total Impact, All Schedules		0.13%	0.14%	0.14%

This controlled price trajectory of less than a half percent is the result of targeted incentive design, strategic use of external funds, and a shift away from utility-owned public charging infrastructure. By focusing on enabling infrastructure (such as fleet make-ready and rebates) and supporting third-party ownership of public charging through rebates, PGE reduces the long-term operational costs borne by customers.

Included in the PGE Fleet costs are the full costs of the vehicles – both the costs that would be incurred in purchasing a combustion engine along with the incremental cost of electrification. To see the incremental price impact of PGE's fleet and workplace electrification and extract out the costs of vehicle which would occur whether the vehicle was electric or diesel, a separate view is included below for the customer price impacts of electrification. The estimated price impact for incremental fleet and workplace electrification investments is 0.003% across all three years – reflecting the desire to focus on customer affordability while optimizing the benefits from investments made.

Table 10. Total Estimated Price Impact (2026-2028) Incremental Impact of PGE Fleet and Workplace CAPEX

Category	Schedule	2026 Price Impact	2027 Price Impact	2028 Price Impact
Residential	7	0.01%	0.01%	0.01%
Small Non-residential	32	0.01%	0.01%	0.01%
Large Non-residential Time of Day	38	0.01%	0.01%	0.01%
Large Non-residential Capacity Tier	83	0.00%	0.00%	0.00%
Large Non-residential Capacity Tier	85	0.00%	0.00%	0.00%
Large Non-residential Capacity Tier	89	0.00%	0.00%	0.00%
Large Non-residential Capacity Tier	90	0.00%	0.00%	0.00%
Total Impact, All Schedules		0.003%	0.003%	0.003%

7.6 Anticipated Long-term Expenditures for the Next Ten Years

All TE customer programs are subject to approval through the TE Plan, so no long-term projections are included for Fleet Partner capital expenditures beyond 2028. PGE's internal fleet and workplace charging program are high-level preliminary estimates beyond 2029. PGE evaluates capital expenditures every year for reasonableness and where to invest on behalf of customers so spending is subject to change based on the most critical needs at that time. Chargers ordered prior to 2022 are an early generation of technology and new technology is anticipated to last longer. PGE

annual estimates are between $0.3M to $0.4M for PGE fleet and workplace charger replacements in 2029-2034.

In sum, the 2026–2028 TE Plan is financially sound, cost-effective, and structured to deliver value across a wide spectrum—from individual EV drivers to the grid as a whole. It balances immediate affordability with long-term benefits, advancing transportation electrification while protecting customer interests.

Chapter 8 Regulatory Reporting, Metrics, and Evaluation

Accountability and transparency are core to the success of PGE's Transportation Electrification (TE) Plan. As required under Oregon Division 87 rules, the Oregon Public Utility Commission (OPUC) has established a framework for tracking performance, evaluating outcomes, and engaging stakeholders throughout the 2026–2028 planning period. This ensures the Plan remains aligned with its objectives, responsive to changing conditions, and beneficial to all customers—especially those in underserved communities.

8.1 Division 87 Performance Metrics

PGE will report annually on a set of standardized performance metrics that evaluate the effectiveness of TE programs in achieving environmental, equity, and system benefits. These metrics include:

8.1.1 Electric Vehicle Adoption

Forecasts and actual adoption scenarios within PGE's service territory, including growth across residential, commercial, and fleet segments, were discussed in Section 3.1 PGE's reference case includes the growth projected by weight classes for vehicles. In Table 11, the reference case scenario is further broken to display the forecasted growth by weight class. The forecast includes higher growth in light-duty vehicles with slower growth in medium and heavy-duty vehicles due to multiple factors such as Oregon's slower policy enforcement for percentage of medium and heavy-duty vehicle purchased along with affordability and limited available models for the higher weight classes.

Table 11. Projected Number of Vehicles by Weight Class

Vehicle Class	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Light duty vehicle (LDV)	87,936	110,853	137,652	168,646	204,007	243,652	287,464	335,098	370,670	409,126
Medium duty vehicle (MDV)	913	1,457	2,433	3,755	5,324	7,126	9,062	11,185	13,612	16,112
Heavy duty vehicle (HDV)	126	222	355	495	723	1,060	1,450	1,936	2,430	3,017
Total	**88,975**	**112,532**	**140,440**	**172,896**	**210,054**	**251,838**	**297,976**	**348,219**	**386,712**	**428,255**

8.1.2 GHG Reductions and Environmental Benefits

Estimated emissions reductions associated with the EV usage, based on the reference case of 2028 forecasted EV adoption, calculated using projected electricity consumption and fuel displacement is listed in Table 12.

Table 12. Greenhouse Gas Emissions Reductions by EV Type

Vehicle Type	Forecasted Vehicles in PGE's Service Area by 2028	Estimated Annual Miles Driven	Metric Tons from EVs	Estimated Annual Reduction in CO2e (metric tons)	Estimated Annual Reduction in NOx (metric tons)	Estimated Annual Reduction in PM2.5 (metric tons)
LDVs	168,646	1,849,709,328	164,264	604,486	2,044	31
MDVs	3,755	79,485,840	7,059	56,290	400	23
HDVs	124	7,781,124	691	12,268	98	4
Total	**172,525**	**1,936,976,292**	**172,014**	**673,045**	**2,542**	**58**

8.1.3 Underserved Community Engagement

PGE recognizes the importance of inclusive and ongoing engagement with stakeholders—including community-based organizations, industry experts, government agencies, and customers.

In its 2023–2025 TEP, PGE began a three-year long-term engagement with underserved communities to integrate underserved communities' needs into the implementation and future planning of TE programs. This work has engaged community members representative of the HB 2165 definition of underserved communities that might not typically participate in utility regulatory processes or TE planning efforts. Individuals have been compensated for their time and feedback provided. PGE has sought specific feedback on several existing and conceptual TE program designs as well as input on educational and outreach strategies which can benefit and increase the reach of all TE programs. For the 2023 TE Plan, PGE created an underserved community map based on HB2165 underserved community definitions. Additional detail regarding the data sources and methodology are listed in Appendix H. Figure 5 shows PGE's underserved community map which displays the varying levels of underserved customers in each census tract, from 0 (low count of underserved customers in the census tract) to 5 (majority of customers in the census tract meet 5 different underserved categories).

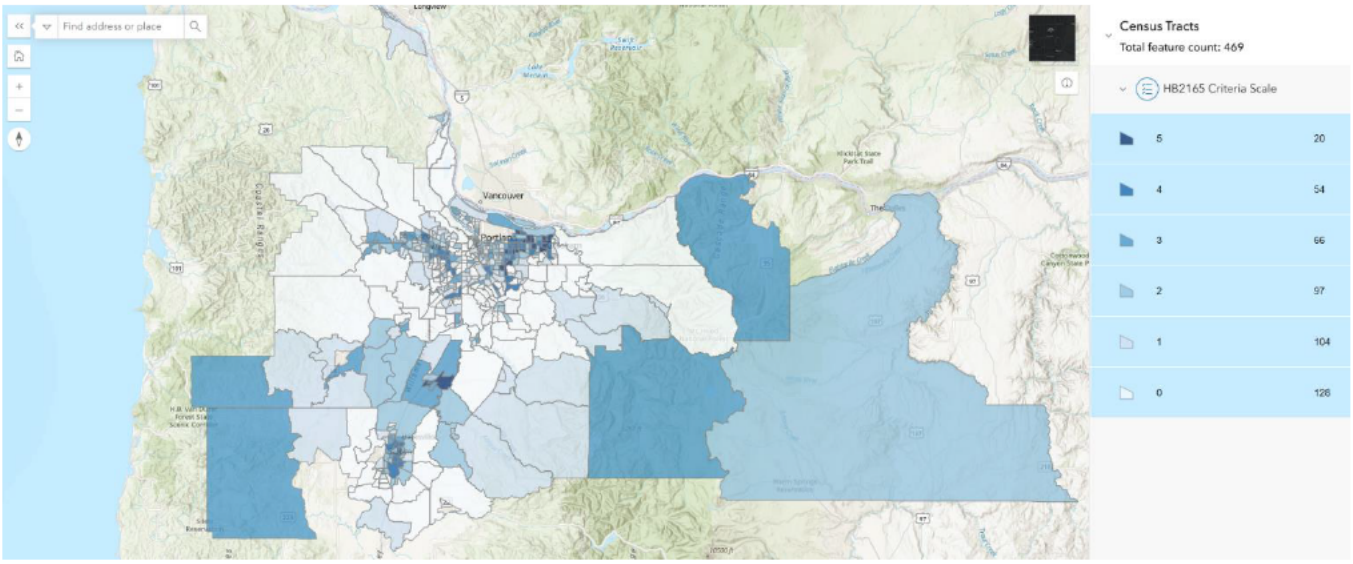


Figure 5. PGE's Underserved Community Map by Census Tract

Feedback loops established during prior TE cycles will continue in this Plan, with enhancements based on experience.

Engagement will include:

- Regular stakeholder advisory group meetings to review progress and provide feedback;
- Targeted outreach to organizations representing low-income and rural communities;
- Opportunities for input on emerging technologies, rate design, and program design adjustments.

These engagements are not merely consultative–they directly inform program refinements as shown in Table 13. The table below includes the underserved community feedback and input on various customer programs, the goals of the conversation with community members, and the improvement implemented. Year 2 results will be available in the 2025 annual report which is slated to be filed May 1, 2026.

Table 13. Program Improvements Resulting from Underserved Engagement (Year 1)

Area of Focus	Goal	Implemented Improvement
Education and Outreach Improvements	Increase awareness of EVs through more accessible media types	A series of educational videos were created that explain EV and charging basics, available in four languages. These are available on YouTube and will be included in digital campaigns in 2025.
Education and Outreach Improvements	Help address concerns about long-distance travel in an EV	Photo and video content were created that demonstrate EV capabilities for long trips. These assets have been incorporated into printed and digital collateral to be used at events in 2025.
Education and Outreach Improvements	Increase access to EV education	PGE's ride and drive program in 2024 was planned to include coordination with community events.
Education and Outreach Improvements	Increase access to information about the costs associated with EV adoption	Marketing efforts increased around PGE's Costs and Savings Calculator, also available in Spanish.
Municipal Charging Program	Improve visibility and safety	Streetlights were installed at PGE's neighborhood pole charging locations.
Municipal Charging Program	Raise awareness of these charging locations	Marketing efforts increased in nearby communities using techniques such as personalized email communications and door hangers.

The strategy to conduct this effort across working groups and focus groups accomplishes two things. First, a consistent working group of individuals that meet multiple times per year will allow for knowledge-building and a deeper understanding and critique of PGE programs. Second, focus groups made up of groups from specific underserved communities allow for the collection of feedback on program-focused areas and increases the number of people we hear from. When feasible, PGE will seek to host in-person sessions to leverage the rich engagement that face-to-face

interactions provide. All other sessions will be held virtually to maximize participation from across PGE's service area.

In parallel to the activities taking place in the third year of engagement, PGE will determine a plan to continue these efforts long-term. PGE is currently exploring opportunities to leverage other ongoing efforts within the Company to build capacity to engage underserved communities, such as through the Community Benefits Impact Advisory Group (CBIAG).

8.1.4 Equity of Program Offerings

Between 2026 and 2028, PGE expects that approximately 63 percent of EV charging ports supported through its programs will be installed in underserved communities, with an estimated investment of $84 million. This reflects PGE's strong commitment to advancing equitable transportation electrification by prioritizing access to clean, reliable charging infrastructure in communities that have historically faced barriers to EV adoption. Through these targeted investments, PGE aims to deliver meaningful environmental, economic, and public health benefits while supporting the state's broader equity and climate goals.

Table 14. Program Port Forecasts and Anticipated Percentage of Underserved Community Benefit

Port Forecasts & Underserved Benefit %	Forecasted 2025 Ports	2026-2028 Port Additions	Forecasted 2028 Ports	Underserved Benefit %
Business EV Charging	761	727	1,488	88%
Charging Resiliency Hub	–	–	–	100%
Electric Avenue & OEB Public Charging	51	–	51	100%
Fleet Partner	590	310	900	70%
Heavy-Duty Charging Pilot	15	–	15	–
Municipal Pole Charging	180	–	180	100%
Residential Smart Charging	8,071	7,181	15,252	60%
Strategic Grid Initiatives	–	–	–	100%
PGE Fleet and Workplace	286	-	286	84%
Total Ports	**9,940**	**8,218**	**18,158**	**86%**

Following the guidance of HB 2165, PGE allocates a minimum of 50 percent of our MMC funding to ensure that underserved communities are not overlooked in the transition to electricity as a fuel. Additionally, the Clean Fuels Program directs 100 percent of funding to benefit underserved communities though some grants do not result in port count increases as they fund vehicles and not chargers. Below is the table with the anticipated spending, by program, benefitting underserved communities.

Table 15. TE Portfolio Underserved Communities Benefit

Programs–$000s	Previously Approved TE Plan			Current Funding Request			
	2023 Actuals	2024 Actuals	2025 Forecast	2026	2027	2028	2026-2028 Total
Business EV Charging Rebates	552	1,411	2,973	4,326	4,515	3,600	12,441
Clean Fuels Program	8,399	15,106	15,006	10,501	13,128	15,172	38,800
Charging Resiliency Hub	–	–	–	273	2,381	730	3,384
Commercial Managed Demonstrations	–	–	357	584	582	217	1,382
Electric Avenue & OR Electric Byways	475	91	712	645	610	625	1,880
Fleet Partner Pilot	2,913	3,233	1,862	1,433	1,425	1,102	3,960
Heavy Duty Charging Pilot	–	–	–	–	–	–	–
Municipal & Public Charging	507	805	2,823	685	545	1,828	3,058
Portfolio Support	342	59	237	906	906	931	2,744
Residential Smart Charging Pilot	1,107	1,527	2,977	2,161	2,424	2,394	6,980
Strategic Grid Initiatives	–	–	–	749	1,236	1,269	3,253
Customer Programs	**14,295**	**22,232**	**26,948**	**22,263**	**27,751**	**27,867**	**77,882**
PGE Fleet & Workplace	–	–	10,559	7,039	1,651	1,669	10,359
Grand Total	**14,295**	**22,232**	**37,507**	**29,302**	**29,403**	**29,537**	**88,241**

Additional Budget Views contains a detailed budget view by program and funding source that supports underserved communities.

Many of our programs are specifically designed to address market gaps and promote education, making EV adoption a viable option for residents in underserved areas, as defined by HB 2165. The table below highlights the details and equity-focused initiatives of our programs:

Table 16. PGE's Equity-focused Program Initiatives

Program	Highlights
Business EV Rebates	The enhanced Business EV Rebates program will increase rebate amounts to provide greater financial support, making electric vehicle charging infrastructure more accessible and affordable for underserved communities. Approximately 88 percent of the program's budget is anticipated to be allocated to these underserved areas, with a primary focus on businesses, workplaces, and multifamily properties located in regions defined by HB 2165. The program specifically targets rebates for Level 2 and DC Fast Charging hardware and installation costs in these communities to promote equitable access to EV infrastructure.

Program	Highlights
Clean Fuels Program - Community Grants	CFP funds support programs that increase access to electric transportation. Since its inception in 2019, the Drive Change Fund has awarded millions of dollars to projects that contribute to transportation electrification. DCF eligible projects include: ▪ Funding for purchases of electric vehicles including e-bikes, light, medium and heavy-duty vehicles. ▪ Funding for the purchase and installation of PGE approved chargers. ▪ Education and outreach campaigns. ▪ Other innovative projects that focus on accelerating the adoption and awareness of transportation electrification. DCF customers/awardees include: ▪ Not-for-Profit Organizations ▪ Government Entities ▪ Multifamily Housing ▪ Community Health Organizations ▪ Education Institutions ▪ Environmental Institutions
Electric Ave	100 percent of Electric Avenues sites are considered underserved, underscoring the program's strong commitment to equity. Through UE435, the General Rate Case approval, both Electric Avenue and Oregon Electric Byways offer an Income Qualified Discount Billing (IQDB) program that provides discounted rates for DC Fast Charging and Level 2 charging at PGE-owned stations. Importantly, Level 2 pricing under this program is equitable to the Schedule 7 pricing rate. These initiatives aim to address existing barriers and accelerate the adoption of clean transportation solutions where they are needed most.
Fleet Partner	Over 70 percent of Phase 1 Fleet Partner pilot projects were installed in underserved communities. Many fleets are located in underserved communities. Thus, it is expected that continued engagement with school districts, transit agencies, and fleets to provide education and awareness will result in at least 70 percent of Phase 2 and 3 projects being completed in underserved communities.
Municipal Pole Charging	All pole chargers, along with their ongoing maintenance, are dedicated to supporting underserved customers in communities with limited access to EV charging infrastructure. These sites are strategically located in areas with a high concentration of multifamily or rental properties where off-street parking is scarce, addressing a critical gap in EV accessibility. Owned and maintained by PGE, the pole chargers bill customers at Schedule 50 rates, ensuring affordable and equitable pricing for end users.
Clean Fuels Program – Outreach & Education	CFP funds support outreach and education activities to increase access to and awareness of transportation electrification with a priority focus on underserved communities. Specifically, ride and drive event planning will prioritize locations in underserved communities or partnerships with community-based organizations. New collateral and educational materials will be translated into multiple languages and provided in multiple media types such as videos and animations. PGE will continue to engage directly with underserved communities to ensure accessibility of the programs across the TE portfolio.
Residential Smart Charging	Higher rebate amounts for income eligible customers creates equitable access to purchase and install home charging or upgrade the electrical panel to support EV charging. In 2024, 64 percent of the ports supported customers in underserved communities which included the income eligible customers. At least 60 percent of the funding is anticipated to support underserved communities in 2026-2028.

Program	Highlights
Charging Resiliency Hub Demonstration	PGE's Charging Resiliency Hub demo is designed to support underserved communities by deploying clean energy infrastructure including EV charging, solar generation, and battery storage, in high-risk areas that may be in Public Safety Power Shutoffs (PSPS). These areas are typically underserved communities with heightened fire threats. The program aims to enhance community resilience and grid reliability while supporting decarbonization and transportation electrification efforts.
Strategic Grid Investments	PGE's initiative intends to prioritize grid upgrades in underserved communities by utilizing new datasets to target constrained capacity feeders with strong demand from transportation electrification (TE) customers such as fleets and public charging networks. This approach ensures that investments directly support areas with limited EV infrastructure. Ultimately, this demonstration will help inform future grid planning to meet the specific needs of underserved communities, advancing equitable access to EV charging.

8.1.5 Grid Impacts

This metric forecasts how EV load affects grid capacity and how PGE plans to manage the load for a reliable grid through TOU rates to shift more customer charging to off peak along with shifting load through managed charging programs.

The system peak window was updated from 5 to 9 p.m., as referenced in the 2023 TE Plan, to 5 to 10 p.m. to align with the Loss of Load Hour (LOLH) analysis in the 2023 IRP Update, which indicated increased risk of loss of load extending into the 10 PM hour. In Table 17 below, PGE forecasts 72 percent of EV charging will occur in off peak hours based on current load profiles of the various customer segments, use cases and load profiles from usage prior to 2025. PGE implemented a new mid-peak tier for commercial rates on January 1, 2025, which will influence load profiles for commercial use cases in the future. Usage will continue to be assessed to determine customer behavior changes from the new structure, assess the effectiveness of the time of use rate offerings, analyze options to further incent off peak charging behavior, and test out options through demonstrations or new residential rate offerings.

Table 17. Forecasted Energy Usage, Peak, and Off-peak

Energy Usage 2028	Peak (5 p.m.-10 p.m.)	Off Peak	Total
Business EV Charging	1,439	2,506	**3,945**
Charging Resiliency Hub	–	–	**–**
Electric Avenue & OEB Public Charging	457	1,441	**1,899**
Fleet Partner	2,897	5,788	**8,685**
HDV Pilot	–	–	**–**
Municipal Pole Charging	112	346	**458**
Residential Smart Charging	7,340	20,362	**27,702**
Strategic Grid Initiatives	–	–	**–**
PGE Fleet	165	744	**925**

Energy Usage 2028	Peak (5 p.m.-10 p.m.)	Off Peak	Total
PGE Workplace	17	284	**301**
Total	**12,427**	**31,471**	**43,899**
Percent of Total Energy Usage	**28%**	**72%**	**100%**

In addition to the off-peak usage targets, PGE also has managed charging goals which currently include the Residential Smart Charging pilot goal to achieve 3.85 MW by the end of 2028. Additional technologies expanding use cases for managed charging will be assessed through the Commercial Managed Charging Demonstration and V2X demonstrations through the Flexible School Bus grants in the Clean Fuels program. As the technologies are assessed and proven viable for future managed charging scaling, PGE will provide updates in their annual reports and develop future pilots or programs for the 2028 TE Plan.

8.1.6 Program Participation

PGE's portfolio is designed to deploy charging ports across a variety of use cases and customer segments. Section 8.1.4 includes Table 14 which states how many enrolled ports each program forecasts by the end of 2025 and how many additional ports are forecasted to be added in 2026-2028. Since some programs support multiple use cases, such as Business EV Charging Rebates, the use additions are included below in Table 18.

Table 18. Forecasted Number of Program-enabled Port Additions, by Use Case (2026-2028)

Use Case	L2 Ports	DCFC Ports	Total Ports	% of Total
Residential	7,181	–	7,181	87%
Multifamily	492	–	492	6%
Workplace	77	–	77	1%
Corridor Public	–	45	45	1%
Non-Corridor Public	–	–	–	0%
LDV Fleet	270	42	311	4%
MDV/HDV Fleet	88	23	112	1%
Customer Programs	8,108	110	8,218	100%
PGE LDV Fleet	0	–	0	0%
PGE MDV/HDV Fleet	–	–	–	0%
Total	8,108	110	8,218	100%

8.1.7 Infrastructure Performance

Measurement of charging station reliability (including uptime of PGE-owned chargers), accessibility, and responsiveness to pricing signals.

These metrics provide a comprehensive view of how PGE's TE efforts contribute to statewide transportation and climate goals while ensuring customer-focused delivery.

8.1.7.1 Reliability

PGE has set a 97 percent uptime target for utility-owned chargers, aligning with NEVI standards, and employs a three-point strategy for reliability: procuring high-quality equipment with robust service terms, actively maintaining and monitoring chargers, and replacing underperforming units when necessary. Chargers are monitored remotely to detect issues, initiate maintenance work orders, and communicate with customers. PGE also ensures a robust spare parts inventory and employs staff to facilitate timely repairs. For customer-owned chargers, PGE maintains a qualified product list and reserves the right to remove underperforming hardware. Below is a table of uptime by year and 2025 includes the year-to-date uptime from January–May 2025.

Table 19. Uptime at PGE-owned Chargers

PGE Program	2023	2024	2025
Electric Avenue	86.7%	86.9%	96.8%
Municipal Pole Charging	97.0%	98.5%	94.2%
Oregon Electric Byways[24]	–	99.0%	96.1%
PGE Fleet	98.5%	96.6%	86.9%
PGE Workplace	98.7%	97.9%	99.7%

The uptime clearly displays the improvement made by replacing Electric Avenue chargers in 2024 that had low performance in moving uptime from 86.9 percent in 2024 to 96.8 percent in 2025.

8.1.7.2 Affordability

PGE's transparent pricing for public chargers includes $/kWh and time-of-use rates to encourage grid-friendly charging. As of January 1, 2025, Level 2 charging is $0.12/kWh, and DCFC charging costs $0.30/kWh, with additional on-peak surcharges applied during high-demand hours. Additionally, PGE offers discounted public charging to their Income Qualified Bill Discount customers to make public charging equitable to discounts they would receive if charging was installed at their home location. Customer-owned chargers also benefit from competitive rate structures, and multifamily property owners can offer rates comparable to residential electricity costs. While PGE does not regulate customer-owned charger pricing, it offers guidance on structuring fair and transparent rates for EV drivers.

8.1.7.3 Accessibility

Ensuring inclusive access to charging is a core priority for PGE. PGE-owned DCFC chargers provide CHAdeMO and CCS ports, while Level 2 chargers use J1772 ports, supporting a wide range of EV

[24] Vendor developed uptime reporting for Oregon Electric Byways during 2023 and provided it in 2024. PGE operations monitored chargers daily for maintenance and emergency fixes and could view overall system health metrics.

models. Tesla drivers can now access all of these chargers using adapters, and PGE will explore including NACS (North American Charging System) ports as they become commercially viable. Public and multifamily charging sites are designed with accessibility and mobility aid users in mind, guided by U.S. Access Board recommendations, covering hardware, site layout, and signage. For example, PGE designed all sites in the Business & Multifamily Make-Ready Program with shared facilities to have two wide accessible charging spaces and an access aisle connected to the site's existing accessible route. PGE also emphasizes flexible payment options, recommending that public chargers support credit card readers, mobile payments, and toll-free numbers, aligning with Washington State Administrative Code [25] until Oregon adopts specific requirements.

8.2 Program Evaluation and Continuous Improvement

Each program within the TE portfolio includes specific evaluation plans to assess effectiveness, customer satisfaction, and opportunities for improvement. For example, the Residential Smart Charging pilot includes a control group for telematics-based impact measurement, while the Commercial Managed Charging Demonstrations will track load-shifting outcomes across different technologies and settings. Each program's learning objectives and program evaluation methodologies are listed in the program details in Appendix A and Appendix B, covering new and existing program designs accordingly.

PGE regularly incorporates feedback from implementation partners, contractors, and customers to influence future incentive levels, streamline application processes, and enhance equity outcomes. Many 2026–2028 programs are direct evolutions of earlier initiatives, reflecting the company's commitment to learning by doing and adjusting course where needed.

In addition to internal evaluations, PGE uses third-party research and external benchmarking to validate assumptions, align with best practices, and support regulatory filings. Lessons learned are shared with stakeholders and the OPUC through annual reports, attending regularly scheduled stakeholder-held meetings, and formal docket updates as needed.

8.3 Stakeholder and Customer Engagement

In addition to the underserved community engagement work referenced in **Underserved** section above, PGE also aims to continue engagement with various stakeholders, government organizations and customer groups to glean input or feedback on program designs or future iterations or ideas. Some stakeholder groups request PGE attendance at their regularly held meetings and others request ad hoc meetings to discuss their concerns or ideas or receive an update on programs and how they are operating. Additional details on stakeholder meetings held, comments received in the May 15th stakeholder workshop and PGE response are included in Appendix I, Stakeholder Engagement. PGE values the opportunity to meet with interested stakeholders to hear their perspectives and take their input into consideration when developing

[25] "Washington Administrative Code 16-662-210," Washington State Legislature, n.d.,https://app.leg.wa.gov/WAC/default.aspx?cite=16-662-210

new programs or considering changes to programs and will continue to engage with stakeholders through 2028.

Chapter 9 Conclusion

PGE's 2026–2028 Transportation Electrification Plan reflects both an understanding of today's challenges and a commitment to a cleaner, more equitable energy future providing affordable solutions benefitting all customers. As Oregon continues to lead in climate action, transportation electrification remains an important pathway to reduce emissions, improve air quality, and empower customers through choice and innovation.

This Plan builds on years of experience and evolving strategy, anchoring around three pillars: **Plan, Serve, and Manage**. Through robust forecasting and grid planning, PGE is preparing for the scale and complexity of EV load. Through inclusive programs and incentives, we are ensuring all customers, especially those historically left behind, have access to the benefits of electrification. And through smart charging, rate innovation, and infrastructure deployment, we are managing this transition in a way that strengthens the grid and delivers long-term value.

Importantly, the Plan is grounded in affordability and accountability. Failing to manage EV load would likely result in far greater long-term rate impacts driven by uncoordinated grid strain, costly infrastructure upgrades, and missed opportunities to align charging with lower-cost energy. With a clear roadmap, stakeholder and customer engagement, and measurable metrics, PGE's TE portfolio encompasses affordable solutions that are equitable, effective, and aligned with the state's decarbonization goals.

As technologies evolve, markets shift, and customers' needs change, PGE remains committed to listening, learning, and leading with purpose. Through partnership, innovation, and smart planning, we will continue to move forward—together—toward a cleaner, more resilient transportation system.

Appendix A New Program Designs

A.1 Commercial Managed Charging Demonstrations

Table 20. Commercial Manager Charging Demonstrations

Regulatory Reference	Ports (forecast through 2028)	Proposed Funding (2026-2028)
ORS 757.357 and OAR 860, Division 87. Tariff TBD.	Number of ports will vary by demo	$2,764,308 (MMC)

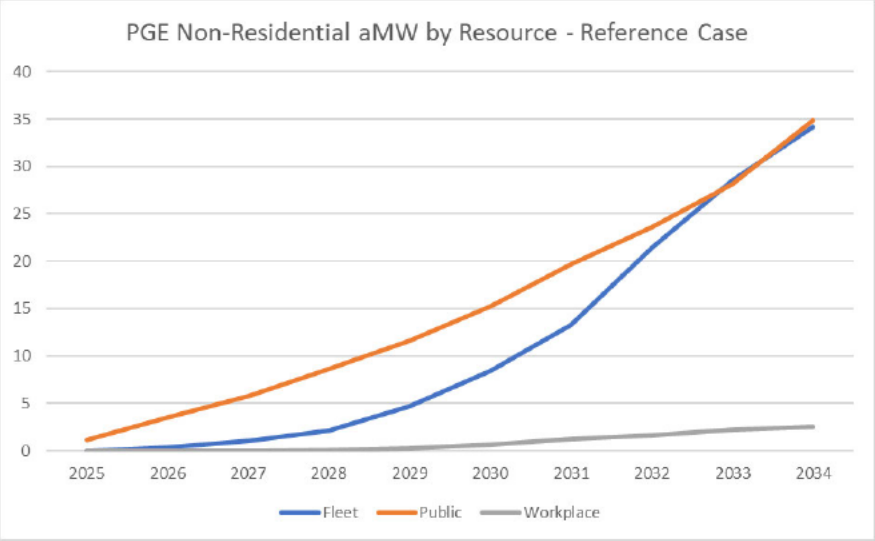
PGE is right-sizing its Commercial Managed Charging Demonstrations based on available research, customer insights, and implementation feasibility. These demonstrations build on foundational work already completed, including a comprehensive market study conducted in 2023 to assess customer needs and technology readiness. In 2025, PGE is actively progressing through the fleet Time-of-Use (TOU) consulting demonstration, further informing our approach.

These demonstrations are critical to advancing PGE's Virtual Power Plant (VPP) and Flexible Load strategies and are also being conducted as part of the TE Plan strategy to Plan, Serve, and Manage. Their primary goal is to validate the flexible load potential of commercial EV charging and to evaluate the technologies and customer experiences necessary to onboard fleets, workplace, and multifamily charging systems as grid-interactive assets. The outcomes will directly inform pilot designs and long-term program development. Recognizing the diversity within commercial charging use cases, PGE plans to test a range of managed charging strategies tailored to the unique operational needs of fleets, workplaces, and multifamily properties.

Table 21. Commercial Managed Charging Demonstrations: Program Participation and Adoption

Performance Area Category	Description
Program participation and adoption	Commercial Managed Charging Demonstrations are crucial for the future of VPP and Flexible Load. The primary goal of these demonstrations is to validate the Flexible Load potential with PGE customers and test the unique technologies that could onboard commercial vehicles and chargers as VPP assets. Results will inform PGE's pilot and program development decisions. Commercial charging includes fleet, workplace, and multifamily, each with specific charging technologies and processes. To prepare for increasing load from nonresidential electrification, PGE plans to test several recommended strategies for Commercial Managed Charging using both EVs and EVSEs. These demonstrations will assess the scalability and effectiveness of each approach in meeting PGE's load management goals. PGE will issue continuous customer surveys to gather feedback on implementation, which will shape the final recommendations for building an attractive customer program.

Table 22. Commercial Managed Charging Demonstrations: Fit with Strategy, Benefits to Customers

Strategic Alignment and Benefits	Description
How the activity furthers PGE's long-term strategy to plan for, serve, and manage TE load, and specific steps theretoward	As commercial vehicle electrification accelerates, it is expected to drive significant load growth in PGE's service area. To plan for this transition, PGE is validating the potential of commercial EVs to operate as flexible loads, informing smarter investments in distribution infrastructure and generation capacity. To serve this growing demand efficiently, PGE is piloting managed charging demonstrations that test how EV load can be shifted on constrained feeders and substations, reducing or avoiding the need for costly upgrades. By proactively managing commercial EV charging, PGE aims to integrate large-scale electrification while maintaining grid reliability, controlling costs, and supporting decarbonization. Expanding our managed charging capabilities to commercial EV loads will increase the total flexible load in our VPP, while also helping site operators manage their costs. (Figure 6 below).  **Figure 6. Forecast of Commercial Electric Vehicle Charging Growth in PGE's Territory Through 2034**
Summary of actions for the next three years	In the 2026-28 TE Plan, we are proposing another set of demonstrations to continue testing various managed charging approaches and technologies. Potential demonstrations include but are not limited to: **Commercial Off-peak Incentives:** Encourage load shift using a passive approach (incentives). **Fleet DR & Optimized Charge Management:** Automate load shifts during DR events or apply dynamic load limits by sending utility signals downstream to fleet EVSE. Automate load shifts during system peaks by sending DR events downstream to workplace EVSE (or directly to EV telematics). Demonstrations are expected to run for 6–12 months with 5-15 participant sites each. It is possible to run a demonstration multiple times within 2026-28 to involve new participant sites or test emergent technologies.

Strategic Alignment and Benefits	Description
▪ Distribution or transmission management benefits	By re-shaping and shifting loads off-peak, we can better utilize existing T&D capacity and potentially defer costly infrastructure upgrades. Operationally, enabling more MW capacity in PGE's VPP will expand grid flexibility and resilience during peak times and weather events. Demonstrations will validate how much flexible load is achievable with customers, which can help right-size our planning for future loads and infrastructure investments.
▪ System efficiencies or other economic values inuring to the benefit of customers over the long term	Customers who optimize charging will save money on their energy bills, but also help PGE optimize its own grid investments. Improving utilization of the existing grid capacity will drive operational efficiencies and put downward pressure on rates, spreading benefits to other PGE customers.
▪ Increased customer choice through greater TE infrastructure deployment to increase the availability of and access to public and private EV charging stations	Managed Charging is an emerging concept and set of technologies. Very few utilities have operational pilots or programs for commercial EV customers, and few customers have sophisticated load management in-house. Through these demonstrations, PGE can identify the best-fit investments to help nonresidential customers optimize and automate their EV charging loads. Investments in Managed Charging should bolster customer choice, cost savings, grid reliability, and time to interconnection, which will help customers achieve their decarbonization goals.
▪ Other relevant benefits to customers	Energy bill predictability is important to our commercial customers. The novelty of adopting EVs can add complexity and unpredictability to costs. Managed Charging can add predictability and tap into cost savings from shifting loads off-peak and avoiding costly energy spikes if they are on a demand charge rate.
If possible, how does this program lead to future rates, programs, or steps toward a program.	Results from each demonstration will be reviewed on a case-by-case basis to determine next steps. Below are some next steps PGE would expect after the 2026-28 demonstrations, based on their results: Decide which managed charging offerings PGE should provide in the future for commercial customers; Decide if more technologies should be tested to reach interoperability with more customers and unlock additional flexible load (MW). Compare vendors and approaches for Active Managed Charging; Validate if vendors are reliable, scalable, and interoperable with existing hardware/software used by PGE and its customers; Validate which optimization and notification methods were most effective and favored by customers. Final results should help calculate and right-size an EV-specific TOU rate and/or future off-peak incentives for commercial charging customers. Determine which types of customers benefit most and are most likely to participate in managed charging programs. Results should inform which pilots or programs should be proposed (if any) and the marketing efforts needed to recruit and engage participants. Estimate costs if the demonstration were to scale to a pilot program. Calculate how much flexible load must be achieved to make the program cost-effective.

Table 23. Commercial Managed Charging Demonstrations: Description and Supporting Data

Program/Measure Details	Description
Program/infrastructure measure elements, objectives, timelines, and expected outcomes	Final scopes for each demonstration will be detailed in individual Project Plans and reviewed by internal stakeholders. Generally, each demonstration is expected to run for 6-12 months with 5-15 participant sites each. It is possible to run a demonstration multiple times within 2026-28 to involve new participant sites or test emergent technologies. Outcomes from each demonstration will be used to inform pilot and program strategy for Commercial Managed Charging.
Market baseline assumptions	Very few utilities have operational pilots or programs for commercial EV customers, and few customers have sophisticated load management in-house. In 2023 PGE completed a study reviewing load shift potential among all commercial use cases (Fleet, Workplace, Multifamily) across passive and active strategies. The study identified several potentially effective approaches. Demonstrations will be used to test the recommended approaches with local customers, which will help benchmark the market and measure a baseline impact.
Major performance milestones	Demonstration Project Plans for each demonstration. Vendor exploration, selection, contracting. Customer recruitment and enrollment. 6-12 months of active demonstration periods (for each demonstration). Final customer/vendor surveys. Final reports for each demonstration.
Program/ measure phases	Each demonstration will have an individual timeline, Project Plan, Test Plan, and Evaluation Plan.
Utilization, eligibility, incentive structures	The incentive structures and customer eligibility will differ for each demonstration, based on its flexible load potential and customer types.
Market and implementation barriers addressed	Managed charging (especially for nonresidential EVs) is an emerging concept and set of technologies. Few utilities have operational pilots or programs in this space. Testing multiple technologies with local customers will help guide our program investments.
PGE's role in the demo	PGE's TE strategy is to Plan for, Serve, and Manage EV load growth. As the utility, PGE is incentivized to improve utilization of current grid capacity through Managed Charging. By taking the lead on these demonstrations and involving multiple customers and vendors, PGE can make wise investments in future programs and technologies.
Resulting distribution upgrades	No permanent upgrades will be made to the distribution system through these demonstrations. Some demonstrations may temporarily improve distribution capacity constraints by re-shaping loads during peaks at the feeder and substation levels.
Ownership structure	EVs and EVSEs in these demonstrations will primarily be customer-owned and managed. It is possible PGE will leverage its in-house fleet, as well.

Program/Measure Details	Description
Technical requirements that will be imposed on participating technology or customers, equipment interoperability and relevant national standards	Each demonstration will define its own technical requirements. Generally, vendors and technologies will be evaluated based on: ▪ Cost. ▪ Off-the-shelf features vs. road-mapped features. ▪ Existing utility pilots and commercial customers. ▪ Interoperability with PGE systems and existing customer systems (if relevant). ▪ Use of open standards (OpenADR, IEEE 2030.5, OCPP, etc.) ▪ User interface for utility (if applicable). ▪ User interface for customers (if applicable). ▪ Time to deployment. ▪ Customer eligibility factors might include: ▪ Rate Schedule (typically a Time-of-Use rate). ▪ Number of EVs ▪ Number of EVSE ports ▪ Current load profile (On/Mid/Off-peak).

Table 24. Commercial Managed Charging Demonstrations: Coordination

Program/Infrastructure Coordination	Description
Stakeholder involvement in development	The Charging Resiliency Hub Demonstration is currently pending approval from the Oregon Public Utility Commission (OPUC), and its development will be informed by stakeholder workshops and feedback gathered throughout the process.
Coordination with state programs	There are no current state programs directly related to these demonstrations.
Coordination with market actors and activities	Both utility-facing and customer-facing vendors have an appetite for supporting more nonresidential managed charging programs. They are also eager for utilities to provide more direction about future needs so they can adapt their products to the market. Through these Commercial Managed Charging demonstrations, PGE will test and compare multiple vendors' approaches to load management, which will enable us to make informed recommendations for vendors and the industry to bring Commercial Managed Charging to scale.

Table 25. Commercial Managed Charging Demonstrations: Learning Objectives and Evaluation

Measurement and Verification	Description
Learning objectives	Learning objectives will vary per use case. Below are some common learning objectives across the managed charging demonstrations: Measure grid benefits of each load optimization approach. Evaluate effective program designs for each use case (Fleet, Workplace, Multifamily). Validate which types of customer and site types are most likely to enroll and contribute flexible load; Survey customers who declined to enroll or could not upkeep participation. Learn more about the customer experience (drivers, fleet managers, multifamily property managers, etc.) when participating in Managed Charging programs. Test the technologies necessary to deploy Active Managed Charging at fleet, workplace, and multifamily sites; Evaluate technologies for their reliability, interoperability, and scalability. Determine the investments and processes needed to scale Managed Charging to a pilot program for each use case (Fleet, Workplace, Multifamily). Common KPIs across the demonstrations are listed below. ▪ Customer cost savings and incentive redemption ($). ▪ Peak Load Shift (MW). ▪ Event Participation – DR events & Load Optimization events. ▪ Customer Satisfaction. ▪ Interoperability of technology with PGE systems. ▪ Interoperability of technology with customer hardware/software. ▪ Reliability of technology (uptime, lag time, and accuracy of charge/discharge signals). ▪ Cost Effectiveness of technology, if scaled.
Evaluation of effectiveness	Each demonstration will have a separate assessment and Final Report. Generally, for each demonstration the project teams will ensure relevant data is collected from internal or vendor systems, then synthesize results in a Final Report and make recommendations for future pilots or programs.
Data collection methods	Quantitative results will be measured using customer billing/meter data and DERMS vendor reports on customer-level participation and KW contribution. Qualitative results will be derived from customer/vendor surveys and check-in calls, as well as internal feedback sessions to discuss scalability.

Table 26. Commercial Managed Charging Demonstrations: Supporting Data and Analysis

Supporting data and analysis used to develop the TE Plan	Description
Review of costs and benefits	A primary objective of these demonstrations is to understand the potential costs and benefits of Managed Charging for each commercial customer segment (Fleet, Workplace, Multifamily). Demonstrations will enable PGE to measure the achievable load shift with local charge sites and make recommendations for future, cost-effective pilot programs that could contribute to PGE's VPP.
Overlap or integration with other electric company programs	These demonstrations are a continuation of the Managed Charging efforts initiated in the 2023-25 TEP under the Fleet Partner pilot program. It funded a study to review load shift potential among commercial use cases across passive and active strategies. Within TE, there is overlap with other commercial TE programs such as Fleet Partner, Business Multifamily Make-Ready Program, Business EV Rebates, Electric School Bus (ESB), and Drive Change Fund programs, all of which are pipelines for commercial customers to work with PGE on site electrification. There is also overlap with the Energy Partner programs, which help commercial customers contribute to PGE's virtual power plant (VPP) through DERs such as smart thermostats. Since EVs are another DER, we will draw lessons from our experience developing programs for passive and active load control.
Customer and electric vehicle user engagement	Demonstrations are a low-stakes pathway for customers to save on energy costs through optimized charging times while supporting grid stability and reducing environmental impacts. In turn, PGE can grow our understanding of our customers' operational needs and values. Testing multiple Managed Charging strategies will help PGE understand which paths cultivate customer choice and satisfaction. To build an effective VPP program, the paths to enrollment and participation must be attractive to customers. Demonstrations will verify which approaches are reliable, effective, and interoperable with customer-owned technology.

BEGIN CONFIDENTIAL

Table 27. Commercial Managed Charging Demonstrations: Three-Year Budget by Cost Category

Cost Category	2026	2027	2028	2026-28
OpEx	[redacted]			
Incentives				
Operations				
O&M				
Evaluation				
Education and Outreach				
CapEx				

Cost Category	2026	2027	2028	2026-28
Total[26]	**1,167,068**	**1,164,221**	**433,018**	**2,764,308**

END CONFIDENTIAL

A.2 Charging Resiliency Hub (CRH) Demonstration

Table 28. Charging Resiliency Hub (CRH) Demonstration

Regulatory Reference	Ports (forecast through 2028)	Proposed Funding (2026-2028)
ORS 757.357 and OAR 860, Division 87. Tariff TBD.	1-2 hubs with solar, battery and EV charging ports	$3,384,286 (MMC)

Table 29. CRH Demonstration: Fit with Strategy, Benefits to Customers

Strategic Alignment and Benefits	Description
How the activity furthers PGE's long-term strategy to plan for, serve, and manage TE load, and specific steps theretoward	To plan for increasing transportation electrification (TE) load, PGE is exploring Charging Resiliency Hub ("CRH") demonstrations that integrate solar and battery storage to enhance grid stability and reduce reliance on centralized infrastructure. These hubs would be strategically located to support underserved areas, potentially including those in Public Safety Power Shutoff (PSPS) zones[27] promoting continued access to EV charging during outages. To serve customers more reliably, especially during grid disruptions, the hubs would offer resilient charging options that build confidence in EV adoption. By participating in demand response programs and leveraging on-site generation and storage, these hubs can also manage load more effectively supporting the grid during periods of high demand or low supply, improving efficiency, and potentially lowering costs. This approach supports a more reliable, equitable, and sustainable charging network as TE scales.
Summary of actions for the next three years	2026: Investigate and Design CRH Infrastructure 2027: Install and commission hubs. 2028: Manage, monitor and report.
How the activity benefits PGE customers by providing one or more of the following: ▪ Distribution or transmission management benefits ▪ Revenues from EV charging to offset PGE's fixed costs that may otherwise be charged to customers ▪ System efficiencies or other economic values inuring to the benefit of customers over the long term ▪ Increased customer choice through greater TE infrastructure deployment to increase the availability of and access to public and private EV charging stations ▪ Other relevant benefits to customers	
▪ CRH may offer a range of potential benefits for PGE customers and the broader grid, with the possibility of integrating and orchestrating solar, battery, and charging within Enterprise DERMS to serve as a Virtual	

[26] All actuals exclude any revenue, and budgets are shown independent of their associated funding streams. Budgets by funding stream can be found in Appendix J.
[27] "PSPS Planning Map," Portland General Electric, n.d., https://experience.arcgis.com/experience/1759eb3356be4b00968e537a227eaeae

Strategic Alignment and Benefits	Description
	Power Plant (VPP) resource. These installations could contribute to a more resilient, efficient, and cost-effective energy system by supporting the integration of renewable energy and electric vehicles. Hubs may help reduce strain on the distribution grid during periods of high demand by discharging stored energy, which could in turn delay or reduce the need for costly grid upgrades. When strategically located, hubs might also help relieve congestion on transmission and distribution lines by acting as localized sources of power and storage. Additionally, their ability to store surplus solar energy and release it when needed could provide greater operational flexibility in balancing supply and demand. These benefits remain under evaluation as part of PGE's demonstration to better understand the role hubs can play in future grid planning. ▪ This demonstration is funded through MMC, with the program actively exploring third-party ownership models for the charging infrastructure. Fixed costs and revenue collection and distribution mechanisms have not yet been determined. Funding through MMC is intended to help minimize direct costs to customers. ▪ As part of this demonstration, PGE is exploring the potential for hubs to provide a range of community and grid benefits. During power outages, hubs may offer critical backup power to essential services and ensure continued access to EV charging, supporting greater reliability and resilience. Outside of emergencies, hubs could deliver grid services such as peak shaving and demand response, potentially reducing the need for additional infrastructure investments by discharging stored energy during high-demand periods. The demonstration also examines how increased use of solar energy through hubs might lower reliance on fossil fuels and help reduce customers' carbon footprints. ▪ Adds more public charging in underserved areas, providing charging options to customers in areas where few public chargers may currently exist. ▪ During natural disasters or other emergencies, hubs could serve as critical infrastructure, providing power for essential services.
If possible, how does this demonstration lead to future rates, programs, or steps toward a program.	This demonstration is designed to generate learnings that can inform future decisions about broader deployment. By testing the technology in a real-world setting, the project aims to provide tangible evidence of its viability and potential benefits, which could help build support for larger-scale implementation. It will also produce valuable data on system performance, energy savings, and user behavior, offering insights to guide future program design and optimization. Importantly, the demonstration allows PGE to identify and address technical, logistical, and regulatory challenges early, reducing risks during future scaling. In addition, the visibility of the project may help raise public awareness and acceptance of the technology, potentially increasing demand for similar solutions. Direct input from users will also play a critical role in refining both the technology and the overall customer experience.

Table 30. CRH Demonstration: Description and Supporting Data

Program/Measure Details	Description
Program/infrastructure measure elements, objectives, timelines, and expected outcomes	Design, install, and commission at least one hub and report outcomes by the end of 2028.
Market baseline assumptions	In 2025, there are 12 High Risk Fire Zones in PGE's service area. No infrastructure like this exists in PGE service area at this time so this demonstration is to learn about market interest and scalability.
Major performance milestones	2026: Investigate ownership model and design 2027: Installation and commissioning 2028: Final report

Program/Measure Details	Description
Program/ measure phases	Phase 1: Design Phase 2: Installation Phase 3: Data collection and analysis
Utilization, eligibility, incentive structures	Incentive structures will vary based on ownership models, technology configurations, and customer types.
Market and implementation barriers addressed	Phase 1 of the demonstration will explore key barriers to deploying CRH, including the risk of stranded assets, limited space for equipment and solar installations, grid integration challenges, regulatory hurdles, and current technology limitations. This phase is intended to help define practical mitigation strategies for each of these issues, guiding future implementation and scaling efforts.
PGE's role in the program	As part of this demonstration, PGE will play an active role in supporting learning across all aspects of hub deployment and integration. This includes helping to identify optimal locations based on grid needs, customer demand, and land availability, as well as investigating ownership models, and working with potential vendors to ensure proper integration into existing infrastructure. PGE will also navigate regulatory requirements, facilitate interconnection of solar and storage, and establish protocols for sharing grid and usage data to optimize operations. The utility would monitor performance, assess grid impacts, and collaborate on load management strategies.
Resulting distribution upgrades	PGE does not anticipate distribution upgrades due to battery and solar installations.
Ownership structure	PGE is actively investigating the optimal ownership model for CRH, considering factors such as risk mitigation, speed of deployment, operational efficiency, and long-term performance.
Technical requirements that will be imposed on participating technology or customers, equipment interoperability and relevant national standards	PGE is aware the following standards may apply to designs pending further investigation: ▪ IEEE 1547 standards for interconnecting distributed energy resources with electric power systems. ▪ OpenADR 2.0b or IEEE 2030.5 for demand response and grid communications. ▪ Cybersecurity: NERC CIP standards and IEC 62351 for power system communications and control security. ▪ EV Charging: SAE J1772 for AC charging and CCS (Combined Charging System) or NACS (North American Charging Standard) for DC fast charging. ▪ Battery Energy Storage: UL 9540 for energy storage systems and UL 1741 for inverters. ▪ Solar PV Systems: NEC Article 690. ▪ Revenue-grade metering compliant with ANSI C12.20 standards. ▪ Use of OCPP (Open Charge Point Protocol). ▪ IEEE 519 standards for harmonic control in electrical power systems. ▪ Adherence to Green Button standards for energy usage data sharing. ▪ Rated for outdoor use and meet NEMA ratings appropriate for the installation environment. ▪ NFPA 70E for electrical safety.

Program/Measure Details	Description
	▪ ADA guidelines. ▪ Relevant EPA regulations for noise and emissions. ▪ Implementation of smart inverter functions as per IEEE 1547-2018.

Table 31. CRH Demonstration: Coordination

Program/Infrastructure Coordination	Description
Stakeholder involvement in development	The CRH demonstration is currently pending approval from the Oregon Public Utility Commission (OPUC), and its development will be informed by stakeholder workshops and feedback gathered throughout the process.
Coordination with state programs	N/A
Coordination with market actors and activities	Through this demonstration, PGE will evaluate various ownership models, including those proposed by potential vendors, to assess the most effective approaches to deploying resilient charging hubs.

Table 32. CRH Demonstration: Learning Objectives and Evaluation

Measurement and Verification	Description
Learning objectives	This demonstration is designed to explore how CRH can effectively integrate solar, battery storage, and EV charging with existing grid infrastructure. PGE aims to assess performance across a range of areas, including load management during peak demand, backup power during outages, solar utilization, and battery deployment for both grid and charging support. The project will gather insights on customer experience, financial performance, regulatory considerations, and technical compatibility with various EV models. It will also evaluate the potential to enhance community resilience, support future Community-Based Renewable Energy (CBRE) efforts, and reduce greenhouse gas emissions. These findings will help inform whether and how this model could be scaled across PGE's service territory.
Evaluation/assessment of effectiveness	The demonstration plans to collect a range of performance data to evaluate the effectiveness and potential of CRH. Key measurements may include uptime and reliability, particularly during outages; solar energy utilization for EV charging; and the hub's impact on local grid stability and peak demand reduction. PGE may also assess user adoption, customer satisfaction, and the hub's ability to deliver charging during disruptions. Financial performance, energy storage efficiency, load management capabilities, and provision of grid services like voltage support may also be monitored. Additionally, the demonstration may evaluate how well the hub integrates with existing infrastructure and the overall scalability of the model for future deployment.
Data collection methods	As part of this demonstration, a range of data collection tools may be used to evaluate system performance and user experience. These could include smart meters for real-time energy data, charging station management software, battery and solar monitoring systems, and local weather stations to correlate conditions with output. Digital user surveys may gather feedback on satisfaction and usability, while fault detection systems could help identify equipment issues. Financial transaction

Measurement and Verification	Description
	systems may also track charging-related revenues and costs, contributing to a broader understanding of the hub's operational and financial performance.

Table 33. CRH Demonstration: Three-Year Budget by Cost Category

BEGIN CONFIDENTIAL

Cost Category	2026	2027	2028	2026-28
OpEx				
Incentives				
Program Operations				
O&M				
Evaluation				
Education and Outreach				
CapEx				
Total[28]	**273,152**	**2,381,347**	**729,787**	**3,384,286**

END CONFIDENTIAL

A.3 Strategic Grid Investments

Table 34. Strategic Grid Investments

Regulatory Reference	Ports (forecast through 2028)	Proposed Funding (2026-2028)
Schedule 150	N/A	3,252,951(MMC)

Table 35. Strategic Grid Investments: Fit With Strategy, Benefits to Customers

Strategic Alignment and Benefits	Description
How the activity furthers PGE's long-term strategy to plan for, serve, and manage TE load, and specific steps theretoward	The Strategic Grid Investments (SGI) demonstration supports PGE's long-term strategy to proactively plan for and serve future electric transportation needs. These investments aim to explore how early targeted upgrades can inform and improve distribution system planning. In selected areas near highway corridors, the demonstration will create at least two MW of new capacity, helping to meet customer needs in a timely and efficient manner. Targeted outreach, both before project selection and during construction, will help maximize the impact of these investments by raising awareness of new capacity available for fleet and public EV charging. Prioritizing areas with consistent or high EV load requests as part of the site selection criteria will provide learnings around the efficacy of using this method to justify grid upgrades.

[28] All actuals exclude any revenue, and budgets are shown independent of their associated funding streams. Budgets by funding stream can be found in Appendix J.

Strategic Alignment and Benefits	Description
Summary of actions for the next three years	The demonstration will begin with selecting projects for consideration using the selection criteria established for prioritizing sites under consideration. In order to be considered, projects must: ▪ Be near a highway corridor ▪ Have little or no grid capacity ▪ Need upgrades that can be executed within three years and under 5 million (reconductoring for example) ▪ Create a minimum of two MW of new capacity ▪ Benefit multiple potential EV customers Eligible projects will then be scored and prioritized based on: ▪ Expected benefits to LDV and MHD public charging and MHD fleet depot charging ▪ The cost of upgrades vs MWs of new capacity created ▪ Existing EV load requests in the project area ▪ Probability of EV projects moving forward Once selected, PGE will complete design and construction of the distribution upgrade projects using funds from the demonstration. The demonstration will conduct concurrent outreach to surrounding fleet customers, as well as public charging companies interested in building light-duty and MHD public fast charging in those areas.
How the activity benefits PGE customers by providing one or more of the following: ▪ Distribution or transmission management benefits ▪ Revenues from EV charging to offset PGE's fixed costs that may otherwise be charged to customers ▪ System efficiencies or other economic values inuring to the benefit of customers over the long term ▪ Increased customer choice through greater TE infrastructure deployment to increase the availability of and access to public and private EV charging stations ▪ Other relevant benefits to customers	
▪ Distribution upgrade projects will create additional grid capacity in areas where transportation electrification load is estimated. It will directly benefit customers that can utilize this new capacity but ultimately will benefit all customers through these new grid planning processes. Data and learning from this demonstration will inform future grid planning processes and upgrades. ▪ PGE proposes to use MMC funds for this work instead of traditional rate-based capital. This reduces the impact on customers and allows the projects to be executed more quickly. Revenues from EV projects in the project area will further prevent rate impacts. ▪ The learnings from these strategic investments will enable us to make the right grid investments to build capacity in the areas where they will be utilized, ultimately leading to a more efficiently designed and well utilized system. ▪ System upgrades may result in increased public and private EV charging stations increasing availability of and access to TE infrastructure. ▪ Improved customer experience by meeting customers' timeline expectations for connecting new TE load.	

Table 36. Strategic Grid Investments: Description and Supporting Data

Program/Measure Details	Description
Program/infrastructure measure elements, objectives, timelines, and expected outcomes	The demonstration will evaluate how proactive grid upgrades could enable new public and fleet EV charging in constrained areas of the system. We want to understand what local characteristics make for more successful projects so we can better identify high-confidence grid investments. Through a data-driven site-selection process PGE will predict which grid upgrades are most likely to lead to new TE load. After making the upgrades, PGE will use targeted outreach to encourage the installation of EV charging in those areas and measure the amount, and speed, of the TE load that appears. This data will help improve our grid planning capabilities for identifying the right proactive grid upgrades in the future.
Market baseline assumptions	The strategic grid investment demonstration will target areas with little or no grid capacity but with anticipation of future EV load requests.
Major performance milestones	2025-2026: Data collection on potential projects. 2026: Select projects 2026–2028: Design and construct upgrades 2028-2029: Targeted outreach 2028-2030: Measure TE load growth in project areas
Program/measure phases	(see above)
Utilization, eligibility, incentive structures	In order to be considered, projects must: ▪ Be near a highway corridor ▪ There is little or no grid capacity ▪ Need upgrades that can be executed within three years and within program budget (reconductoring for example) ▪ Create a minimum of two MW of new capacity. ▪ Benefit multiple potential EV customers. This demonstration will not include incentives to customers but rather rely on targeted outreach that will include references to other incentive programs.
Market and implementation barriers addressed	Investment in highly valued charging areas may result in faster support of EV adoption and charging because proactive grid investment may remove financial and timeline barriers to businesses seeking to build public charging and fleet depots. PGE desires to support a wide range of transportation electrification use cases while giving consideration to rural areas as well as those with a little or no DCFCs. Outreach to raise awareness of potential DCFC rebates that can potentially be combined with access to the improved distribution system.
PGE's role in the program	PGE will select and complete all construction of distribution upgrade projects. PGE will ensure potential public charging customers and potential fleet customers in project area are aware of increased capacity.
Resulting distribution upgrades	While this demonstration will make grid upgrades it is ultimately about improving our grid planning capabilities for identifying the right distribution upgrades in the future.

Program/Measure Details	Description
Ownership structure	PGE will own all infrastructure upgrades made as part of this demonstration.
Technical requirements that will be imposed on participating technology or customers, equipment interoperability and relevant national standards	The demonstration's projects will be subject to all PGE standards for the distribution system. Customer projects that follow the strategic investments will be subject to the terms of their load requests or participation in PGE TE programs and rebate offerings.

Table 37. Strategic Grid Investments: How The Program or Infrastructure Measure Holistically Advances Performance Area Categories

Performance Area Category	Description
Environmental benefits and GHG emissions impacts	Not applicable.
EV adoption	This demonstration would enable new fleet and public charging infrastructure to be built, encouraging more EV adoption across light, medium, and heavy-duty vehicles. The learnings from this demonstration could enable more proactive upgrades, ensuring the grid meets the needs of increasing EV adoption.
Underserved community inclusion and engagement	Rural and historically underserved areas may be prioritized in the criteria for selecting projects.
Equity of program offerings	Rural and historically underserved areas may be prioritized in the criteria for selecting projects. The upgrades will be designed to serve all likely EV customers in the area, even without a submitted a service request.
Distribution system impacts and grid integration benefits	While this demonstration will make grid upgrades it is ultimately about improving our grid planning capabilities for identifying the right distribution upgrades in the future.
Program participation and adoption	The demonstration will track resultant EV load in the targeted upgrade areas.
Infrastructure Performance including charging adequacy, which considers but is not limited to reliability, affordability, and accessibility	Proposed grid investments are intended to improve grid capacity to provide more accessibility to EV charging by enabling fleet and public charging projects.

Table 38. Strategic Grid Investments: Coordination

Program/Infrastructure Coordination	Description
Stakeholder involvement in development	The Strategic Grid Investment Demonstration is subject to OPUC approval. Stakeholders such as public EV charging companies and fleets in the project areas will be included in targeted outreach efforts to raise awareness of the possibility of system upgrades.
Coordination with state programs	Coordination with state programs will be explored during detail program design.

Program/Infrastructure Coordination	Description
Coordination with market actors and activities	Public charging companies will be canvassed by the demonstration to gauge the likelihood of public LDV and MHD charging to be sited in an area considered for a strategic upgrade. Fleet customers around the area benefited by the upgrades will also be contacted to raise awareness of fleet electrification.

Table 39. Strategic Grid Investments: Learning Objectives and Evaluation

Measurement and Verification	Description
Learning objectives	The demonstration will evaluate how proactive distribution planning innovations can enable new public and fleet EV charging in constrained areas of the grid. It will also explore which local characteristics contribute to successful outcomes, helping to better identify high-confidence, targeted grid investments.
Evaluation of effectiveness	Through a rigorous, data-driven, site-selection process PGE will predict which grid upgrades are most likely to inform distribution planning activity and how to plan for TE load in constrained areas. After making the upgrades, PGE will use targeted outreach to encourage the installation of EV charging in those areas and measure the amount, and speed, of the TE load that appears. This data will help improve our grid planning capabilities for identifying the right proactive grid upgrades in the future.
Data collection methods	▪ Customer surveys ▪ Load requests ▪ Planning load studies ▪ Meter data

Table 40. Strategic Grid Investments: Three-Year Budget by Cost Category

BEGIN CONFIDENTIAL

Cost Category	2026	2027	2028	2026-28
OpEx				
Incentives				
Program Operations				
O&M				
Evaluation				
Education and Outreach				
Infrastructure				
CapEx				

Cost Category	2026	2027	2028	2026-28
Total[29]	**748,582**	**1,235,527**	**1,268,843**	**3,252,951**

END CONFIDENTIAL

A.4 PGE Fleet and Workplace Programs

A.4.1 PGE Fleet and Workplace Charging Program Summary

As a regulated utility with a responsibility to facilitate statewide transportation electrification, PGE recognizes the importance of aligning our actions with our customer-facing programs. Our investment in fleet and workplace electrification reflects a deliberate effort to model the behaviors, infrastructure planning, and technology adoption leading to long-term financial benefits for our customers and company. This alignment builds trust, enhances credibility, and provides critical learnings that influence the design and delivery of customer offerings.

PGE began its fleet electrification efforts in 2015, driven by a combination of vehicle and charging options supporting both fleet and employee charging which provided the opportunity to gain early experience in fleet electrification, assess EV adoption when workplace charging is available, and resulting load impacts from both. From the outset, electrifying the utility's own fleet was recognized as a step in supporting broader transportation electrification goals across the state. The company also understood that deploying charging infrastructure, inclusive of make-ready, at company facilities allows PGE to model real-world impacts on distribution infrastructure, test vehicle-to-grid technologies, and assess the feasibility of load flexibility. These experiences strengthen PGE's IRP[30] and DSP[31] processes, ensuring alignment between transportation electrification and grid modernization.

PGE's approach to fleet electrification focused on incremental investments to support learning and evaluation of the benefits for electrifying our fleet through workplace charging and beyond that can be scaled for customer programs and systemwide transportation electrification investments. The incremental investments approach ensures that utility-led transportation electrification proceeds with operational insight and learning, which PGE is able to fold into customer fleet infrastructure programs technical advisory services as customers determine their own fleet electrification plans and infrastructure needs. Initial deployments focused on available light-duty vehicles which provided lower fuel costs along with assessing maintenance and charging needs to support company use. The experience in light-duty vehicles and charging supported evaluating future investment opportunities in medium-duty electrification options and shaping customer-facing programs for fleets and workplace charging.

[29] All actuals exclude any revenue, and budgets are shown independent of their associated funding streams. Budgets by funding stream can be found in Appendix J.
[30] PGE's 2023 Clean Energy Plan and Integrated Resource Plan update. TE references in Section 5.2 and Section 5.3 on pages 106-110.
https://downloads.ctfassets.net/416ywc1laqmd/39HTZudGPLrmFIKO6XHtJK/5a768ca4eceb2383abecdf2503decd83/2023_CEP_IRP_Update_FINAL.pdf
[31] PGE's 2024 Distribution System Plan, TE references on pages 307-323,
https://downloads.ctfassets.net/416ywc1laqmd/6fsVybjYRmGNV4M7PwBOl2/c9ffcaa9e432ea82d67e6359c24c76ac/2024_PGE_DSP_2024_12_18.pdf

PGE's fleet electrification has been justified by its potential to deliver long-term financial benefits—including reduced fuel and maintenance costs—while also providing direct community benefits such as reduced greenhouse gas emissions, lower particulate matter from vehicle exhaust, quieter vehicle operation consistent with local noise ordinances, and improved employee safety with increased ability to communicate while working in the air and reduced impact to hearing. PGE's investment in its own electric fleet and charging infrastructure is a foundational element of its broader transportation electrification strategy. It accelerates institutional readiness, informs regulatory filings, and strengthens programmatic effectiveness while modeling the leadership expected of Oregon's largest investor-owned utility in achieving an equitable and decarbonized transportation future.

A.4.2 2024 Strategy Update

Early market models suggested rapid technology progress resulting in faster ability to electrify greater portions of PGE's fleet. However, as the availability of suitable models and units, along with broader market adoption, has slowed, PGE is likewise pacing its own fleet electrification investments. PGE is focused on customer affordability - the reduction in our overall PGE fleet investments in 2026-2028 reflect our focus to reduce spending while still providing long-term benefits from investments made.

Over the next few years, we are optimizing the investments already made and supporting customer affordability with reduced fleet spend. Our approach will prioritize:

- **Optimized Charging Infrastructure Integration:** Vehicle purchases will be directly tied to the availability and strategic development of efficient, long-term make-ready charging infrastructure at the intended operating locations. This ensures immediate utilization and maximizes the value of each EV acquisition.
- **Strategic Replacement of End-of-Life ICE Vehicles:** Prioritize the replacement of Internal Combustion Engine (ICE) vehicles based on their age, maintenance costs, and specific use cases where an EV equivalent offers a beneficial total cost of ownership (TCO), operational efficiency, or the ability to work within municipal noise ordinances.
- **Maximizing Proven EV Benefits:** Focus on vehicle models that demonstrably capture the greatest number of electric vehicle benefits (e.g., lower fuel costs, reduced maintenance, emissions reductions, quieter operation) for our specific long-term use cases. This requires a thorough analysis of duty cycles, range requirements, and operational patterns.
- **Leveraging Market-Proven Vehicle Models:** Prioritize the acquisition of vehicle models that have been successfully adopted and rigorously tested in comparable fleet operations elsewhere in the market, reducing adoption risk and ensuring reliability.
- **Demonstrated Total Cost of Ownership (TCO) Advantage:** Each proposed EV acquisition and associated infrastructure investment must present a clear, quantifiable, and favorable Total Cost of Ownership (TCO) compared to its ICE counterpart over its expected lifespan. This includes factoring in all relevant costs (purchase, charging, maintenance, incentives, regulatory lag, and energy costs) and benefits.

- **Scalability and Future-Proofing:** Future infrastructure investments will be designed for scalability to accommodate anticipated long-term growth in the electric fleet, avoiding piecemeal and potentially more costly upgrades in the future. This includes planning for modular charging solutions and adaptable power distribution.
- **Alignment with Customer Affordability & Regulatory Pathways:** New investments will be carefully phased to align with our customer affordability commitments and realistic regulatory timelines for cost recovery, demonstrating prudent financial management.

We made infrastructure investments based on our 2019 fleet electrification strategy, learned from them, optimized our investments and as the market matures, we will continue to electrify additional sites in 2029 and beyond. We pause additional site electrification for customer affordability while noting that the benefit-cost ratio for all past and future electric vehicles is 0.98 with current vehicles providing an improved benefit-cost ratio over 1 as the cost differential between EV's and combustion engine vehicles has reduced.

PGE's workplace charging investments are designed to support employee EV adoption while also providing flexible, dual-purpose infrastructure that can accommodate utility fleet charging needs. Charging infrastructure has been installed at strategic employee parking locations, enabling charging for fleet and personal vehicles during business hours and fleet vehicles afterhours. This approach maximizes the utility of installed assets, provides operational flexibility, and supports broader decarbonization goals by facilitating EV adoption across both the employee base and the company's own operations.

Workplace charging also provides a valuable platform for learning—allowing PGE to test smart charging technologies, assess driver behavior, and inform the design of customer-facing charging programs. As employee EV adoption continues to grow, workplace charging will play a key role in reinforcing PGE's leadership in transportation electrification and demonstrating the viability of shared-use charging infrastructure.

Table 41. PGE Internal Fleet and Workplace Charging Description

Program/Measure Details	Description
Program/infrastructure measure elements, objectives, timelines, and expected outcomes	PGE's fleet and workplace charging program includes the fleet electrification strategy based on benefits assessment for investments made in make-ready, chargers and PGE fleet vehicles. The program description outlines PGE's leadership in fleet electrification through testing electric vehicles and charging technologies to assess potential benefits, market readiness and charging infrastructure needs. PGE's latest fleet assessment was completed in 2019 which showed benefits to be gained by electrifying the fleet and informed investments needed to support the growth trajectory in 2022-2025. PGE's 2024 fleet strategy shift was driven by a review of our 2019 methodology, reassessing market maturity in vehicle availability, aligning vehicle replacements with end-of-life cycles, and assessing customer affordability impacts. The Fleet Charging Infrastructure Strategy was established to support the transition of the PGE fleet to electric vehicles (EVs) by proactively preparing facilities by installing make-ready for future EV charger installations beyond the initial fleet and workplace charging

Program/Measure Details	Description
	investments. This strategy focuses on designing and implementing facility construction upgrades necessary for electrification readiness. Key components include: ▪ Developing detailed engineering designs ▪ Installing new electrical service connections ▪ Trenching and laying conduit ▪ Installing electrical stubs for future EV charging stations EV chargers and new electric vehicles (Class 1 & 2) will be deployed as existing fleet vehicles reach end-of-life and are vintaged with suitable EV replacements (if field functionality needs are met). Electrifying vehicles within the capabilities of our existing charging infrastructure optimizes investments made through continuing to provide savings on fuel and maintenance with each vehicle replacement now and in the future.
Market baseline assumptions	▪ PGE will continue to assess fleet replacement needs, market availability of vehicles, and align with principles supporting customer affordability. ▪ Class 1-2 has a more mature market with vehicles that are economically viable by providing lower maintenance costs and fuel savings along with reducing emissions for the community. ▪ Class 3-8 vehicles are still maturing and do not have fully electric models supporting PGE's needs. Electrifying the power take-off (PTO) portion of the vehicle has shown benefits in some use cases so PGE will continue to assess the fuel and maintenance benefits until additional models are available.
Major performance milestones	▪ 2026: Receive 23 Class 3-8 vehicles with ePTOs and continue to evaluate on-going benefits and costs of electrified vehicles. Continue to monitor performance of initial workplace chargers and replace to support fleet electrification. ▪ 2027: Continued improvements in overall vintage replacement strategy of vehicles (using data-driven analysis) and evaluating charge management benefits and impacts. Continue to monitor performance of initial workplace chargers and replace to support fleet electrification. ▪ 2028: Assess vehicle market readiness and electrification options for the future. Continue to monitor performance of initial workplace chargers and replace to support fleet electrification.
Program/ measure phases	Prior year phases: ▪ PGE fleet electrification testing with workplace charging infrastructure: 2015-2016. ▪ PGE Fleet study: Started in 2019. ▪ PGE Fleet Electrification Planning and Site Evaluations: Two-year evaluation of sites, cost estimation and confirming pathway to electrification. ▪ Beginning of Fleet Site Infrastructure Builds: 2022–2025. Program measures and phases 2026 onward: ▪ Evaluate current fleet charging sites: Utilize vehicle and charging data to assess charging needs, both level 2 and DCFC, with growing electric fleet and determine any future design modification recommendations.

Program/Measure Details	Description
	▪ Optimize fleet charge management: Determine paths to optimize site charging while meeting customer needs–the goal to decrease peak charging while allowing vehicles to be ready for on-call or outage work. ▪ Resiliency: Our resiliency needs for fleet electrification are being researched. We are in the process of studying potential emergency situations to determine electric fleet capabilities and charging needs. Typically, for a short outage, overnight fleet charging may not be impacted. Critical factors are being considered for level of resiliency needed at sites to support not only our daily work but also timely restoration of customer outages.
Utilization, eligibility, incentive structures	This program is for PGE's internal fleet and workplace charging electrification program. The chargers are to be utilized for PGE's fleet electrification and limited PGE employee use.
PGE's role in the program	PGE Fleet Electrification involves both internal transformation and leadership in clean energy adoption. By transitioning to electric vehicles (EVs), we demonstrate our commitment to state climate mandates while gaining the operational insight needed to better serve our customers and communities in a rapidly evolving energy landscape. Utilizing our fleet provides direct experience with EV load management, grid planning, charging infrastructure deployment, and has the potential for informing demand response, microgrids, or battery storage projects.
Resulting distribution upgrades	The make-ready construction and charger installations at PGE Fleet sites had very little impact on the distribution system. PGE fleet infrastructure installations at the Beaverton Operations Center and the Woodburn Operations center included the replacement of existing distribution-voltage conductors feeding those locations.
Ownership structure	PGE is responsible for the construction, ownership, and maintenance of its fleet and workplace EV infrastructure.
Technical requirements that will be imposed on participating technology or customers, equipment interoperability and relevant national standards	PGE's Fleet Management uses a fleet management information system, (FIMS), called Fleet Focus with a specific module for asset planning, called Capital Asset Management (CAM). The analytic software uses PGE specific fleet records and evaluates all relevant data to provide the lowest total cost of ownership (TCO) targeted lifecycles. The analytics within CAM continuously calculate the costing impacts of several industry metrics which assist Fleet Management to determine asset lifecycles. Additionally, we use telematics to populate real-time usage data, giving us even more important data. CAM supports our overall asset planning, so we can determine when to acquire, maintain, repair, or retire an asset. Through CAM's analysis, we can weigh the risks of equipment retention or life extension, or if replacement is necessary to optimize customer capital investment, which is essential in our ability to support crews who serve our customers and spend budgets in the most fiscally responsible way. Below are examples of different data points continuously measured by CAM for replacement planning: ▪ Age ▪ Maintenance Cost Guidelines- ▪ Work Order History (chassis and aerial) ▪ Total Cost of Ownership evaluation

Program/Measure Details	Description
	▪ Maintenance class codes ▪ Mileage ▪ Engine hours ▪ Fuel usage ▪ Replacement lead time ▪ Budget year forecast ▪ Months of depreciation ▪ Equipment type ▪ Vehicle class ▪ Equipment use/work group ▪ Fuel type ▪ Original capital cost ▪ Inflation
How the activity furthers PGE's long-term strategy to plan for, serve, and manage TE load, and specific steps theretoward	Electrifying the fleet directly supports PGE's long-term TE strategy to plan for, serve, and manage transportation electrification (TE) load by providing a practical, scalable, and data-informed foundation for system-wide planning and customer advisory services. By electrifying our own fleet, PGE gathers load data (charging profiles, usage patterns, peak demand, etc.) that informs more accurate long-term system planning models for fleet electrification load profiles along with the customer data gathered through PGE's customer program, Fleet Partner. It helps identify and test optimal locations and configurations for charging within our make-ready infrastructure to support grid planning with and without managed charging. PGE can demonstrate and validate different charging strategies (e.g., depot charging, managed charging) to inform our future make-ready designs and better advise customers who are new to electrification. Assessing PGE's fleet charging needs and challenges along with testing charge management with customers can help refine PGE offerings like time-of-use rates, off-peak charging incentives, or charge management programs. PGE's fleet electrification serves as a real-world testbed for demand response, vehicle-to-grid (V2G), and provides practical experience in shifting loads informing grid designs and managed charging technologies.
Summary of actions for the next three years	PGE's Fleet Electrification for the years 2026-2028 will focus on managing overall fleet purchase and infrastructure cost to limit capital spending supporting customer affordability while meeting customer needs.
How the activity benefits PGE customers by providing one or more of the following: ▪ Distribution or transmission management benefits ▪ Revenues from EV charging to offset PGE's fixed costs that may otherwise be charged to customers ▪ System efficiencies or other economic values inuring to the benefit of customers over the long term ▪ Increased customer choice through greater TE infrastructure deployment to increase the availability of and access to public and private EV charging stations ▪ Other relevant benefits to customers	

Program/Measure Details	Description
▪ Distribution management benefits: Assessing different charge management strategies and technologies can provide learnings supporting decreased grid builds on distribution feeders or provide capacity reductions during peak time periods. ▪ Avoided infrastructure costs: In planning sites to accommodate future EV growth, PGE avoided additional costs of retrenching, transformer upgrades or additional transformer built to support additional lines of conduit to support each addition of chargers. ▪ Lower maintenance and fuels costs providing long-term cost-effective solutions with vehicle electrification. As our fleet operates daily in the communities we serve, fleet electrification brings meaningful and measurable direct societal and environmental benefits, including: ▪ Lowering fuel and maintenance costs, while enhancing service delivery with quieter, cleaner, and more efficient vehicles. ▪ Reducing greenhouse gas (GHG) emissions, supporting Oregon's climate goals. ▪ Improving local air quality, especially in urban and densely populated areas. ▪ Complying with local noise ordinances ▪ Workforce and community development, where we partner with local workforce programs to introduce them to careers in mechanics and clean transportation. ▪ Improved safety and health for PGE employees with reduced idling noise and improved ability to communicate while working at the site.	

Table 42. Coordination (New Only)

Program/Infrastructure Coordination	Description
Stakeholder involvement in development	Stakeholders have been able to provide input on PGE investments during PGE's general rate cases which have been the venue to see PGE fleet and workplace charging investments prior to inclusion in the 2025 TE plan. Through the TE plan process, PGE is providing additional transparency of future investments and a venue for stakeholder input through workshops and comments in the UM2033 docket. PGE is open to other venues of engagement through stakeholder requests as appropriate. Customer affordability has informed our decreased PGE fleet and workplace charging investments proposed in 2026-2028.
Coordination with federal and state programs	PGE's fleet and workplace charging program take advantage of existing federal tax credits, which may be phased out under proposed federal legislation, for charging infrastructure and electric vehicles purchased. Workplace and fleet chargers are registered with Oregon's DEQ Clean Fuels program to earn clean fuels credits on usage to offset on-going maintenance costs. PGE coordinates EV policy with Oregon state agencies through the Zero Emission Vehicle Interagency Working Group (ZEVIWG).
Coordination with market actors and activities	PGE continues to assess fleet electrification strategies based on market maturity, vehicle availability, cost/benefits, resiliency phases and technology suitability for the various work applications. Fleet Management evaluates various vendor offerings to compare benchmarking data and national association data to evaluate electric fleet vehicle options.

Table 43. Learning Objectives and Evaluation

Measurement and Verification	Description
Learning objectives	Evaluating the electrification of PGE's fleet requires clear learning objectives and robust evaluation strategies. Utilizing our fleet management software and associated technology we will be optimize the ability to achieve the objectives below: ▪ Measure driver/operator satisfaction and adaptation. ▪ Refine the total cost of ownership (TCO) comparison between EVs and ICE vehicles. ▪ Measure vehicle downtime and maintenance costs. ▪ Analyze energy cost versus fuel cost. ▪ Evaluate different charge management strategies or technologies to reduce overall energy costs and peak system utilization while meeting customer needs. ▪ Confirm workplace charging technologies' ability to prioritize fleet charging while aligning to workplace charging policy through new functionality or imposing fees.
Evaluation of effectiveness	Internal assessments are completed at least annually to update and refine assumptions made in PGE's fleet strategy and workplace charging needs.
Data collection methods	Fleet management software Meter data Fleet and workplace charger data

A.4.3 PGE Fleet and Workplace Benefit-Cost Assessment

In UE435, the Commission acknowledged the reasonableness of electric vehicle purchases but questioned the investment in fleet EV chargers. We maintain that make-ready infrastructure and additional chargers are critical for charging and utilizing electric fleet vehicles. While the vehicles' purchase and use are nearly cost-effective, the necessary make-ready infrastructure pulls the benefit-cost ratio below 1. Without this infrastructure, an electric fleet transition would be impossible. Our decision to build comprehensive make-ready infrastructure at each site for future use represents a long-term, least-cost business case as it avoided additional costs for trenching, increased infrastructure and additional design costs as the vehicle market matured and more models became available.

PGE's fleet current benefit-cost model reflects the business case for just one electric vehicle assumed lifecycle though make-ready infrastructure lasts for the life of many vehicle replacements. As replacements occur over the life of the infrastructure, the benefit-cost ratio continues to improve as more recent electric vehicles result in more benefits than costs. Despite individual test results, PGE's Fleet and Workplace activities merit approval due to:

- Valuable Learning: This initiative has significantly informed our approach to commercial fleet and other programs.
- Pathway to Cost-Effectiveness: The make-ready infrastructure over the lifespan is nearly cost effective.

- Social Benefits: Similar to low-income measures, Fleet and Workplace electrification offers significant social, environmental, and policy benefits through PGE's investment

Additionally, multiple social benefits are not currently able to be quantified though still provide benefits such as, compliance with municipal noise ordinance, decreased noise in customer neighborhoods, additional air, health and waterway benefits of reduced pollution, increased crew safety due to reduced noise from PTO operations which improves the ability to communicate safely at the site and decreases impact to hearing. PGE also feels strongly that investment in fleet electrification demonstrates PGE commitment to market change, informs early adopters of the viability of this technology in accordance with legislative findings and goals set by the Governor.

A.4.4 PGE Fleet and Workplace Program Costs 2026-2028

PGE fleet vehicle purchases can fluctuate based on emerging needs, prior vehicle replacement cycles, supply chain constraints, and long-lead time orders meeting functionality specifications. Below is our forecast of spend by categories pertinent to PGE fleet and workplace programs: charging infrastructure, which is the make-ready supporting chargers, chargers (for 2026-2028 – potential replacements for initial workplace and fleet chargers), vehicles including electric PTO's, costs to operate and maintain the chargers, and energy supply.

Table 44. PGE Fleet and Workplace Program Costs for 2026-2028

Cost Category	2026	2027	2028	2026-28
Charging Infrastructure	-	-	-	-
Chargers	100,000	50,000	52,000	202,000
Vehicles, including ePTO	6,400,000	-	-	6,400,000
O&M	1,853,000	1,909,000	1,928,000	5,691,000
Total	**8,353,000**	**1,959,000**	**1,981,000**	**12,293,000**

Appendix B Existing Program Designs

B.1 Business Electric Vehicle Charging Rebates

Table 45. Regulatory Reference for the Business Electric Vehicle Charging Rebates Program

Regulatory Reference	Ports (forecast through 2028)	Proposed Funding (2026-2028)
Schedule 52	682 L2 and 45 DCFC	14,137,553 (MMC)

B.1.1 Program Description

The Business EV Charging Rebates program supports EV adoption by increasing the availability of 40 flexible charging infrastructure serving workplace, multifamily, business public, fleet, and public fast charging customers. The program's incentives reduce the cost and complexity of purchasing and installing EVSE, which can prevent business and property owners from deploying charging infrastructure. While available to all business customers, the program prioritizes the development of EVSE at multifamily and underserved properties to promote equitable access to charging in PGE's service territory.

In previous years the program has seen engagement that outpaced forecasted participation and port counts, resulting in the opportunity to increase the program budget multiple times during the 23-25 TE Plan term. PGE proposes to expand the program for 2026-2028 to incentivize EV charging ports for all three years, with higher levels of support to engage participants who would otherwise be prohibited due to cost. The proposed structure for the coming years will include a higher rebate for the purchase of EV charging units, alongside a more robust installation rebate to support behind-the-meter and grid-side installation costs. The program also intends to encourage more public fast charging options in underserved communities (as defined by HB2165[32]) with a refined DCFC rebate. Table 46 displays the incentive amounts for each type of rebate.

Table 46. Business Electric Vehicle Charging Rebates: Rebate Amounts

Rebate	Rebate Amount
Workplace + Fleet Level 2 Charger Rebate	Up to 2,000 per port, 50,000 per site maximum.
Multifamily Level 2 Charger Rebate	Up to 3,500 per port, 50,000 per site maximum.
Installation Rebate in underserved communities	Up to 22,000 per port 176,000 per site maximum.
DCFC Charger Rebate in underserved communities	Up to 55,000 per port.

[32] "Oregon House Bill 2165 Enrolled," 81st Oregon Legislative Assembly–2021 Regular Session, n.d., https://olis.oregonlegislature.gov/liz/2021R1/Measures/Overview/HB2165

B.1.2 2023–2025 Transportation Electrification Plan Milestones and Lessons Learned

In the 2023 TE Plan, the Business EV Charging Rebate program was planned to sunset and cease operations by the end of 2024. Program participation in the preceding years had been slow, and as a result PGE intended to shift focus towards supporting infrastructure development, while at the time the program only offered rebates for purchasing charging equipment. However, in late 2022 as part of the MMC 2022 budget filing, an Installation Rebate was added to the program's offerings to provide greater support for EV charger installations, and a noticeable increase in participation followed in 2023 and 2024.

Lessons learned from PGE's Business & Multifamily Make-Ready Program, designed to support EV charger installations at business and multifamily properties, offered valuable insight into the specific needs of commercial customers. Many potential participants struggled with the added costs of charger installation and make-ready work, and those who did proceed often relied on external grant funding to cover their share of expenses. In several cases, customers had access to their own construction resources, and many sites did not require electrical service upgrades. The Make-Ready program originally aimed to install about 100 ports across 10 sites, including multifamily, workplace, and public locations. As of June 2025, five sites have been enrolled—three multifamily (28 ports), one workplace (8 ports), and one public (8 ports)—with five more sites pending and a projected total of 44 additional ports. PGE concluded that a rebate would better meet the needs of many multifamily and business participants rather than direct construction support and is planning for the continued operation of the Business EV Charging Rebate program.

The Business EV Rebates Program saw stronger-than-expected participation in 2023–2024, exceeding forecasts outlined in the 2023–2025 Transportation Electrification (TE) Plan. The plan anticipated that between 2019 and 2025, the program would support 500 Level 2 (L2) charging ports, 250 L2 make-ready installations, and 20 DC Fast Charging (DCFC) ports. As of mid-2025, actual participation has surpassed those estimates, with rebates issued or reserved for 730 L2 ports, 233 L2 make-ready installations, and 27 DCFC ports. In response to this strong market demand, PGE will increase funding for the rebate program in 2025, in part by repurposing budget previously allocated for Municipal Curbside charging. One key signal of unmet need: the L2 installation rebate, which was only expected to be used by a portion of participants, was fully subscribed early in 2024. This aligns with findings from the Business & Multifamily Make-Ready Program, where many potential participants, especially in underserved communities, were unable to afford any installation costs. To address these gaps, rebate amounts will be increased across the board for the 2026–2028 period, and additional funding will be directed to the L2 installation rebate to engage a broader range of participants. The DCFC rebate program will also resume, offering up to $55,000 per DCFC port, along with up to $22,000 per port for installation. These rebates were originally forecast to be available through 2024 but were fully allocated by April of that year, driven largely by high participation from multifamily and business customers in underserved areas, significantly expanding equitable access to public charging. Participant behavior continues to reflect strong interest in the program's optional reservation system, which allows applicants to secure rebate funds before completing installation. Given its popularity and value to participants, this system will remain in place moving forward.

Table 47. Business Electric Vehicle Charging Rebates: Fit with Strategy, Benefits to Customers

Strategic Alignment and Benefits	Description
How the activity furthers PGE's long-term strategy to plan for, serve, and manage TE load, and specific steps theretoward	PGE's goal with the Business EV Rebates program is to serve customers with installation and charger incentives that provide flexible charging options supporting EV adoption in primarily underserved communities. The Business EV Charging Rebates program is designed to meet the needs of underserved communities–including renters, multifamily residents, low to medium income customers and others who lack access to charging at home–by expanding access to public, workplace and multifamily housing charging. In addition, the rebate reservation system offers cost certainty and the ability to coordinate with other PGE programs in a way that benefits capital-constrained organizations, including those that serve underserved communities. The program supports future planning needs by capturing the load profiles for various use cases which can be used for grid planning purposes. The qualified chargers also provide future manage capabilities through the ability to incorporate time variable rates and future flexible load pilots which support efficient grid operations, flexible load and future renewables integration.
Summary actions for the next three years	Assist commercial and multifamily properties in installing charging infrastructure by increasing rebate incentive amounts and renewing previously exhausted offerings. This increase in support, projected to be up to 100 percent of costs covered for most projects that are 12 ports or less. ▪ The EV Charger Rebate, for the purchase of an EV charging hardware, will increase to 2,000 per port for standard rebates, and 3,500 for multifamily properties. ▪ The Level 2 Installation Rebate will be reopened and increased to 22,000, to provide support for project's installation and make-ready costs. Refocus the development of Public DCFC charging for exclusively underserved communities with increased incentive levels and refined qualifications such as: ▪ Projects must be in an underserved community as defined by HB2165. ▪ Eligible participants may receive up to 55,000 per port, which can be applied to the charging unit or installation costs. Continue to promote the installation of qualified equipment that could provide opportunities for DR development in the future. Improve operational efficiency of the program by streamlining the participation process. This objective seeks to reduce program operations' costs and improve customer experience. PGE remains committed to focusing rebates on underserved communities and equity by targeting: ▪ Multifamily properties ▪ Workplaces ▪ Removing eligibility for DCFC projects outside underserved communities Additionally, the program prioritizes use cases with high flexible load potential, including: ▪ Multifamily properties

Strategic Alignment and Benefits	Description
	▪ Workplace charging solutions ▪ Non-Fleet Partner fleet Level 2 chargers
If possible, how does this program lead to future rates, programs, or steps toward a program.	Requiring qualified chargers ensures that customers can utilize current time variable rates which may lead to future iterations supporting passive load management for EV charging. In 2026–2028, PGE is also implementing additional technical demonstrations for workplace and active fleet managed charging. Rebate customers could enroll their chargers to earn additional dollars through testing grid services potentially benefitting all customers via a virtual power plant.
How the activity benefits PGE customers by providing one or more of the following: ▪ Distribution or transmission management benefits ▪ Revenues to offset PGE's fixed costs charged to customers ▪ System efficiencies or other economic values benefitting customers long term ▪ Increased customer choice by increasing availability and access to public and private EV charging stations ▪ Other relevant benefits to customers	
▪ Qualified chargers installed by customers support time variable rates and demand response use cases for current charging optimization and future grid services. ▪ The customer program is a rebates program so no revenue is generated. ▪ The rebate reservation system offers cost certainty which benefits capital-constrained organizations or other grant funding requests. ▪ Meet the needs of underserved communities–including renters, multifamily residents, and others who lack access to charging at home–by expanding access to public and semi-public charging. In 2023-2024, 82 percent of the rebates supported underserved communities. ▪ Customers can select their preferred charging solution through the qualified charger list which supports over 500 chargers and 30 software options. ▪ Appendix F shows the underserved public charging locations. ▪ Support EV adoption which decreases GHG emissions in PGE service area.	

Table 48. Business Electric Vehicle Charging Rebates: Learning Objectives and Evaluation 2026-2028

Measurement and Verification	Description
Learning objectives	▪ Utilize charger and meter data to confirm charger utilization patterns and user charging behavior by various use cases which can inform future load planning efforts or rate designs. ▪ Analyze EVSE installation trends to identify areas with high concentrations of installed equipment and, more importantly, pinpoint regions with low development, often referred to as charging deserts. This analysis will guide our efforts to promote more equitable distribution of charging infrastructure through changing incentives. ▪ Explore different incentive structures, to determine the best way to support EVSE development and EV adoption, especially in underserved communities.
Evaluation of effectiveness	In-depth analysis of pilot effectiveness, utilization and usage patterns, lessons learned, and possible action items to improve the overall pilot success will be completed through a third-party evaluation of the program during 2027.

Table 49. Business Electric Vehicle Charging Rebates: Three-Year Budget by Cost Category[33]

BEGIN CONFIDENTIAL	Previously Approved			Current Funding Request			
Cost Category	**2023 Actuals**	**2024 Actuals**	**2025 Forecast**	**2026**	**2027**	**2028**	**2026-28**
OpEx							
Incentives							
Program Operations							
O&M							
Evaluation							
Education and Outreach							
Infrastructure (MMC)							
CapEx							
Total[34]	**626,211**	**1,568,576**	**3,378,663**	**4,916,343**	**5,130,752**	**4,090,458**	**14,137,553**

END CONFIDENTIAL

B.2 Clean Fuels (Clean Fuels Dollar Funded)

B.2.1 Program Description

The Clean Fuels Program is administered by ODEQ. The ODEQ allows PGE to generate credits based on the number of residential EVs registered in the company's service area (based on DMV registrations) on a biannual basis. PGE sells these credits to regulated fuel providers throughout the year in the CFP marketplace and plans for the yearly programs based on actual revenue from credit sales. There is a two-year delay between when credits are generated and when programs are implemented (e.g., the 2025 PGE Clean Fuels program budget is based on 2023 EV counts). PGE also generates credits through the charging stations we own, operate, and/or maintain. Revenue from those credits is used to offset the cost of operating and maintaining that infrastructure.

To date, PGE has planned CFP-funded programs through an iterative approach with stakeholders, in consultation with DEQ and OPUC staff, and guided by principles delineated in Commission Order No. 18-376, Docket No. UM 1826[35]. As part of Docket No. UM 2165, Order No. 22-314 amended the principles in Order No. 18-376 to allow closer coordination of CFP-funded programs

[33] Costs from the 2023–2025 TE Plan allocated to Business & Multifamily Make-Ready Program are now included, as this program is being merged with Business EV Rebates in the 2026–2028 TE Plan.
[34] All actuals exclude any revenue, and budgets are shown independent of their associated funding streams. Budgets by funding stream can be found in Appendix J.
[35] "OPUC Order No. 18-376, UM 1826," Oregon Public Utility Commission, 10/1/2018, https://apps.puc.state.or.us/orders/2018ords/18-376.pdf.

with other TE Portfolio initiatives, and the annual review process for residential CFP funded programs is now incorporated into utility TE Plans[36].

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

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

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

In January 2025, the Environmental Quality Commission adopted rules that update the requirements and tools used by the Clean Fuels Program to calculate greenhouse gas emissions to safeguard the program's environmental integrity[37]. This rulemaking included updating the full well-to-wheels OR-GREET fuel carbon intensity model to version 4.0 and updating and adding simplified calculators for Tier 1 fuels. The rulemaking also added other provisions, including a reserve account for credits from fuel pathways with carbon capture and sequestration projects associated with them, additional tracking requirements for high-risk feedstocks, and requiring electricity reporting and fuel pathway applications to go through third-party verification. The provision pertaining to PGE includes third-party verification of electricity reporting which would apply to PGE-owned charging reporting submitted quarterly. Due to the current level of utilization at PGE's EV charging station deployments, PGE does not anticipate crossing the threshold of 6,000 credits/calendar year until at least 2029. As such, PGE does not account for this requirement and any related expenses in this TE Plan.

B.2.2 New Strategic Overview of Funds

Since 2020, PGE has used a portfolio approach for its Clean Fuels Program. This strategy has successfully allowed the utility to adapt to changing market needs and fluctuations in Clean Fuels credit prices, which in turn affect program revenues. Several influencing factors led PGE in 2024 to reassess its portfolio approach:

- Credit sales in 2023 reached a peak average credit price of over 130/credit resulting in over 17M in revenues for the Clean Fuels Portfolio, and PGE sought to ensure its current portfolio

[36] "OPUC Order No. 22-314, UM 2165," Oregon Public Utility Commission, 8/15/2022, https://apps.puc.state.or.us/orders/2022ords/22-314.pdf

[37] "Clean Fuels Program 2024," Oregon Department of Environmental Quality, January 9, 2025, https://www.oregon.gov/deq/rulemaking/Pages/cfp2024.aspx.

structure was still in alignment with stakeholders against the backdrop of a maturing Clean Fuels credit market.

- PGE had utilized the same program portfolio since 2020, and it made sense to review the portfolio categories to ensure optimal use of the funds.
- As PGE began work to develop its 2026–2028 TE Plan, it was appropriate to ensure continued alignment with the utility role to plan, serve, and manage.

PGE consulted with stakeholders to consider what types of programs to support in consideration of a strategy shift. In August 2024, PGE participated in a meeting with environmental stakeholders and offered to meet 1:1 with any stakeholders who would be interested in providing input on a future Clean Fuels strategy. These meetings were held with three stakeholders in late 2024. In January 2025, PGE met with DEQ and OPUC staff to share and hear feedback on the proposed approach and then PGE presented again in January 2025 to environmental stakeholders. The culmination of this input was combined with market research, internal subject matter experts, and Clean Fuels Program participation to date. Several key themes emerged which have informed our proposed 2026–2028 strategy:

- Clean Fuels Program Principles remain a key driver for potential program development and implementation.
- PGE should seek to leverage Clean Fuels Program funding in ways that reduce costs for and return benefits to residential customers.
- Clean Fuels Program funding is an appropriate avenue for developing a network of future managed charging and grid resources.
- Grant programs such as the Drive Change Fund and Electric School Bus Fund are still needed.
- As program funding grows over time, it is prudent to direct a sustainable level of funding toward Drive Change Fund in order to maintain continuity over time.

PGE is proposing the following portfolio areas in its 2026–2028 TE Plan:

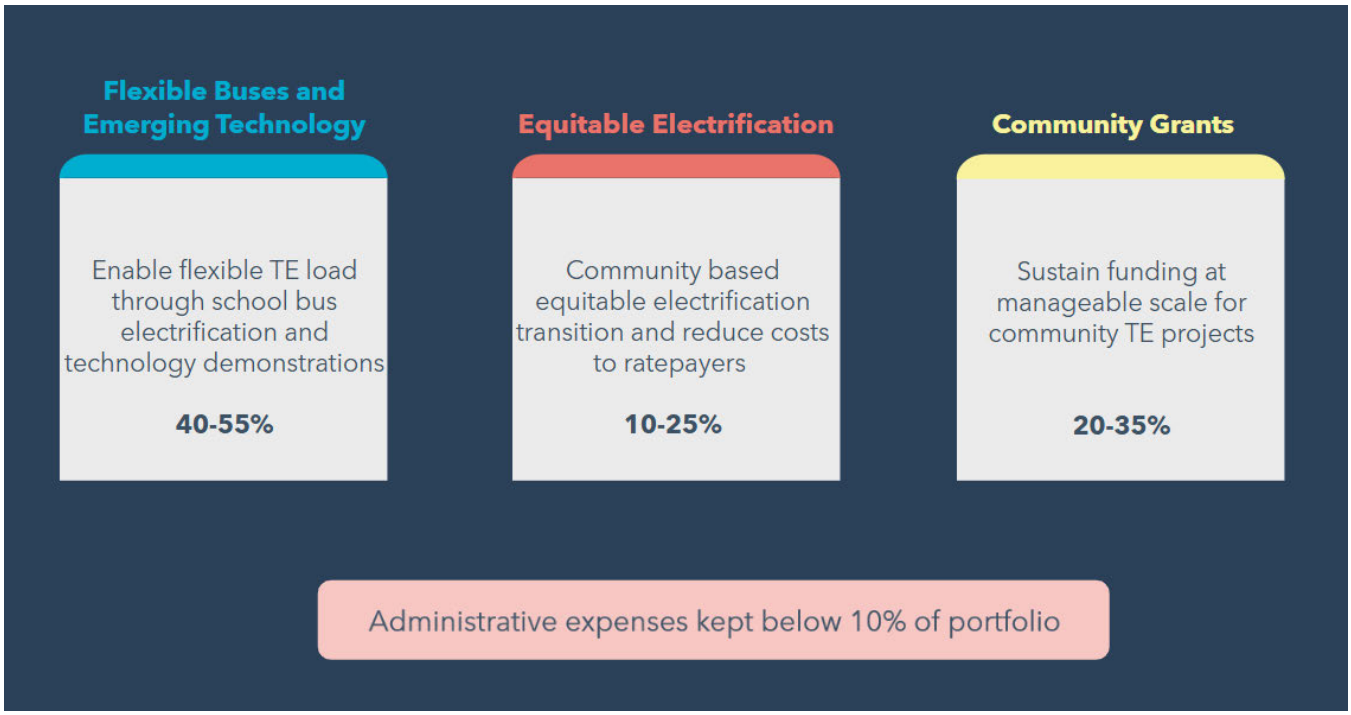


Figure 7. 2026-2028 Proposed Portfolio Areas

B.2.3 Flexible Buses and Emerging Technology (target 40–55 percent of expenditures)

This portfolio area seeks to enable flexible TE load through school bus electrification and technology demonstrations. The strategies to accomplish this are outlined as follows.

The Electric School Bus Fund will continue as it is still needed to support the incremental cost of transitioning school bus fleets from combustion engines to electric vehicles. Funds will be allocated to maximize the number of electric school buses supported through this program. Outcomes expected will be aligned with those in the 2023-2025 TE Plan in which the Electric School Bus Fund supported the electrification of 50 electric school buses across 12 school districts. The Electric School Bus Fund opens in September of each year to align with the fleet procurement timelines of most school districts. PGE is planning to open the 2026 award cycle in fall of 2025 but will not make final awards until 2026, pending the approval of the 2026-2028 TE Plan.

The Electric School Bus grant will evolve to support future flex load needs through new eligibility requirements of requiring vehicle-to-grid (V2G) capable buses and through additional funding to support the incremental infrastructure costs needed to support a V2G DC fast charger (DCFC) instead of a Level 2 charger. To future proof for V2G and to enable additional technology demonstrations, PGE will develop an incentive for V2G-capable infrastructure through a make-ready and rebate incentive designed to bring the cost of a V2G-capable charger in line with that of a Level 2 charging station. More and more school districts are interested in V2G technology, but current bidirectional charging requires a DCFC. This is a challenge because a Level 2 charger is typically sufficient and more cost-effective for most school bus fleet needs. The significant cost difference between V2G-capable DCFC chargers and Level 2 chargers can make V2G investments prohibitive for school districts. Additionally, since make-ready infrastructure has a long lifespan, customers need

to choose their charging capacity carefully when purchasing vehicles to ensure their installations are appropriately sized. We must ensure our incentives support the right level of charging infrastructure to enable V2G demonstrations and future pilot programs. The incentive for V2G chargers will be available as funds are available and assessed annually as the V2G charger market continues to evolve and mature.

Additionally, PGE will test emerging technologies through demonstrations to understand potential for future flexible load and V2X programs. Additional demonstrations are planned in the 2026-2028 TE Plan for V2G technology and use cases to inform future program design. Lessons learned in V2G demonstrations conducted in 2023-2025 will inform future demonstrations. The Smart Grid Test Bed (SGTB) is exploring residential V2G use cases which will be assessed to determine the viability of a future residential V2G pilot. Other emerging technologies to enable flexible load will also be evaluated as the market evolves.

B.2.4 Equitable Electrification (target 10–25 percent of expenditures)

This portfolio area seeks to enable community-based equitable electrification transition and reduce costs to customers. This portfolio area will enable the following strategies in support of this objective.

Outreach and Education activities can support customers in the transition to transportation electrification by increasing awareness and building confidence in electric vehicles. PGE will continue outreach and education activities to raise awareness of transportation electrification and educate current and future EV owners about PGE program offerings. These efforts continue to build on and are informed by those implemented in the 2023-2025 TE Plan and include:

- Conducting Ride and Drive events, which will continue to focus on reaching underserved communities.
- Supporting the ongoing costs of the EV Costs and Savings Calculator which helps provide a seamless experience for new or potential EV customers, providing how and when customers would experience their savings and plugging into PGE resources like PGE+.
- Creation of information and collateral to position PGE as a trusted resource in their TE transition and ensuring equitable access to this information by using mixed media types and translation into other languages.
- Exploration of opportunities to increase access to EV charging and EV education for high school students. Many high schools in PGE's service area have existing Automotive Career and Technical Education programs which provide an opportunity to catalyze student and teacher leadership in developing the skills and knowledge needed to access careers related to transportation electrification. PGE can amplify these efforts by supporting the installation of EV charging stations at these schools to provide community access to charging infrastructure and a tangible learning tool for students.

PGE will seek to position PGE as a customer's experienced guide by providing technical assistance and advisory services for entry into PGE programs. These services will provide education to customers about PGE's TE Programs and their electrification journey to provide a clear

understanding of timing, requirements, and long-term benefits. The goal is a better customer experience, more equitable enrollments in programs, and grant assistance. PGE can also leverage this resource to target hard-to-reach customers.

For Portfolio-wide benefits, PGE will continue underserved community engagement efforts to ensure TE programs are accessible and responsive to community needs. For example, as events are planned in the future, PGE will ensure that event locations, printed collateral, and digital resources are accessible and relevant to a variety of audiences and translated as needed. PGE is exploring opportunities to continue this work internally to align with other community engagement activities in the Company such as the Community Benefit and Impacts Advisory Group (CBIAG). This will allow PGE to maintain its commitment to fostering long-term relationships with underserved communities while ensuring TE programs are incorporated to other existing and ongoing touchpoints with communities and customers.

PGE will support equitable deployment of and access to public charging infrastructure through TE Portfolio support to reduce customer pressure. PGE will continue to utilize Clean Fuels revenues to cover ongoing maintenance costs associated with operating PGE's Electric Avenue public charging sites. Other TE Portfolio programs may be considered if funding allows and if those programs meet the core principles of the Clean Fuels Program.

B.2.5 Community Grants (target 20–35 Percent of Expenditures)

This portfolio area seeks to support community organizations in their transition to transportation electrification through programs that are sustained at manageable funding levels year over year.

PGE will offer funding support through grants which prioritize underserved community benefits to support community-based organizations in their electrification journey. Specifically, PGE will continue administering the Drive Change Fund while keeping grant levels sustainable and responsive to the external funding landscape. PGE ran the fifth and sixth cycles of the Drive Change Fund in 2023 and 2024, awarding $8.4M across 58 projects. PGE is in the review cycle for the 2025 Drive Change Fund applications. PGE will also continue to offer Grant Matching funds which allow organizations to reserve matching funding to provide in support of external funding opportunities.

B.2.6 Administration (target less than 10 percent of expenditures)

Administrative expenses will be kept below 10 percent of portfolio spending. PGE will continue to report on any renewable energy certificate costs.

B.2.7 Portfolio Targets

While funding amounts vary from year to year based on residential Clean Fuels Program revenue, PGE proposes an approximate budget breakdown by the percentage targets outlined in the following table. These targets allow for continuity across portfolio program offerings while remaining in alignment with the Clean Fuels Program Principles and PGE's broader TE strategy.

Table 50. Clean Fuels: Budget Breakdown Percentage Targets

Category	% Portfolio per Year
Flexible Buses and Emerging Tech	45–60%
Equitable Electrification	10-25%
Community Grants	20–35%
Administrative Costs	5–10%

B.2.8 Budget Forecast Context

PGE's Clean Fuels program revenues depend on several factors: the rate of EV adoption, the Oregon Department of Environmental Quality's rules for issuing Clean Fuels credits, and the market prices at which these credits are sold. Because this forecast relies on multiple forward-looking estimates, actual credit revenue will likely vary. PGE will continue to report actual credit revenue to both the Oregon Public Utility Commission (OPUC) and the DEQ annually.

It's important to note a two-year delay between when Clean Fuels credits are generated and when they fund a programmatic year. For example, the 2026 program year will be funded by credits generated in 2024 and monetized in 2025.

In 2024, the Clean Fuels credit market saw a significant price drop, from approximately 130/credit in mid-2023 to about 20/credit in mid-2024[38]. This was largely due to a substantial increase in credit supply from renewable diesel. PGE's Clean Fuels forecast in this Transportation Electrification Plan (TEP) accounts for this shift and other market factors, providing a conservative estimate. Specifically, PGE does not include incremental credit revenue in its budget forecasts given the extreme volatility in credit pricing over the last two years of the current TE Plan. The decision to claim these incremental credits is made annually. If PGE does claim them during the 2026–2028 TE Plan, the resulting revenues would be distributed across the portfolio to maintain the percentage targets established at the Clean Fuels Portfolio level.

Table 51, below, shows the three-year budget by subsection, while

Table 52 shows the three-year budget by cost category.

[38] "Monthly Credit Transaction Report," Oregon Department of Environmental Quality, n.d. https://www.oregon.gov/deq/ghgp/cfp/Pages/Monthly-Data.aspx

Table 51. Clean Fuels: Three-Year Budget by Sub-section

BEGIN CONFIDENTIAL

Program Year	Flexible Buses and Emerging Tech	Equitable Electrification[39]	Community Grants	Administration	Total
2026	[redacted]				
2027					
2028					
Total	20,455,254	4,033,497	12,721,339	1,590,167	38,800,258

END CONFIDENTIAL

Table 52. Clean Fuels: Three-Year Budget by Cost Category

BEGIN CONFIDENTIAL	Previously Approved			Current Funding Request			
Category	2023 Actuals	2024 Actuals	2025 Forecas[t40]	2026	2027	2028	2026-28[41]
Incentives	[redacted]						
Program Operations							
O&M							
Evaluation							
Education and Outreach							
Total	8,398,989	15,106,100	15,005,887	10,500,571	13,127,597	15,172,089	38,800,258

END CONFIDENTIAL

B.3 Fleet Partner Pilot

Table 53. Regulatory Reference for Fleet Partner Pilot Program

Regulatory Reference	Ports (forecast through 2028)	Proposed Funding (2026-2028)
Schedule 56	310 additional ports (total of 893 ports in pilot)	5,657,588 (Capital & O&M)

B.3.1 Program Description

The Fleet Partner pilot was first launched in 2021 with the objective to reduce the costs and confusion for customers interested in transitioning their fleets from traditional to electric fuel by supporting the design and construction of charging make-ready. An additional goal was to create a network of DR-enabled EV chargers to support both efficient grid operations and future renewables integration. The pilot pairs fleet advisory services with turnkey design and construction of make-

[39] 953,927 is reserved from the Equitable Electrification allocation to support TE Portfolio activities and is included in the budget for Electric Avenue.
[40] 421,000 is forecasted in 2025 to cover TE Portfolio activities and is excluded here. This budget is included in Electric Avenue.
[41] 953,927 is reserved to support TE Portfolio activities and is included in the budget for Electric Avenue.

ready infrastructure to enable L2 and DCFC chargers. The pilot is organized into Plan and Build phases:

- The Plan phase is provided at no cost to customers and includes EV feasibility assessments, vehicle operations and charging analyses, fuel cost and clean fuel credit analyses, site walkthroughs, design and cost estimates, and an incentive summary delivered in a comprehensive Fleet Partner Study.
- The Build phase includes turnkey final design, construction of the make-ready infrastructure, make-ready incentives, and PGE ownership and maintenance of the make-ready infrastructure.

Customer incentives are based on a 10-year energy usage commitment. The customer must commit to a 10-year energy commitment to move through the Build phase from design to construction. The commitment reserves funding to cover the final design and construction of the site. Once construction is completed, customers must install and register chargers attached to the Fleet Partner infrastructure and share charging data with PGE for the 10-year agreement term.

The initial funding phase (phase one) of the pilot was fully reserved early in 2023 with early adopter customers wishing to take advantage of the original 750,000 incentive cap. The final phase one pilot projects (436 ports at 23 sites) were constructed and energized in late 2024.

Phase two of the pilot was proposed through the 2023–2025 TE plan which was approved in October 2023. The pilot was re-launched in 2024 with a lower incentive cap of 400,000, still based on the 10-year energy usage commitment. The pilot remains best suited to larger fleet customers planning to convert from traditional to electric fuel. Customers with larger LDV fleets or with MHD vehicles are able to commit to higher energy usage, thereby maximizing the incentive level available to offset their out-of-pocket project costs.

B.3.1.1 TriMet Mass Transit Pilot

In 2018, PGE launched a pilot in partnership with TriMet, the TriMet Mass Transit pilot, to support mass transit electrification through procurement, management and maintenance of transit chargers, both depot and enroute. This pilot was submitted via UM1811 in April 2018 and approved through amended agreement via UM1938. The ten-year pilot agreement ends in 2028.

A goal of this pilot is to study the impacts of electrified mass transit on PGE's system. The pilot indicates that electrification of mass transit will require more on route charging than planned due to real life battery performance and degradation of the bus batteries. Until advances in technology alleviate this, impacts of electrified mass transit may result in more on-peak charging. Key pilot learnings include distribution system impacts and customer service considerations by studying coincident peak, non-coincident peak, feeder voltage dynamics, charging behaviors, siting requirements, and load profiles. PGE agreed to register as a credit generator under the Clean Fuels Program and to credit any value it receives from Clean Fuels Program credits associated with the TriMet charging stations to all customers and customer classes to offset the cost of these pilots.

Since both the Fleet Partner pilot and the TriMet Mass Transit pilot have combined interests in learning about distribution system impacts and charging behaviors, the two pilots are combined into one section in this TE plan as their learnings are related.

B.3.1.2 2023–2025 TE Plan Milestones and Lessons Learned

Portland General Electric's Fleet Partner pilot program has shown remarkable progress and yielded valuable insights throughout its implementation. The program's first phase demonstrated strong success, meeting or exceeding most of its goals. It successfully attracted 50 applications in its first year, fully reserved all incentive funding for 24 customer sites within 18 months and completed its first site on schedule in September 2022. By the end of 2023, 13 sites were operational, surpassing the target of 12. The program nearly achieved its goal of completing all 24 Phase 1 sites by August 2024, with 23 sites finished by December 2024. As of the end of 2024, a total of 453 ports had been enabled by the Fleet Partner pilot program.

The transition to Phase 2 saw both achievements and challenges. The education and outreach efforts were successfully relaunched, resulting in two completed Phase 2 projects by the end of 2024. However, customer demand for Phase 2 incentives fell short of expectations, with only 24 applications received in 2024 compared to the goal of 50. This shortfall was attributed to market dynamics, including an ongoing freight recession and federal regulatory uncertainty.

Despite these challenges, the program has garnered high levels of satisfaction among participants. Customers appreciated the pilot's comprehensive handling of technical aspects related to make-ready infrastructure projects, which significantly eased the financial burden of fleet electrification. The program not only helped participants achieve their electrification goals but also raised awareness about transportation electrification within their organizations and communities.

PGE has identified areas for improvement based on customer feedback. To address confusion around payment limits, the pilot proposes combining the line extension agreement and make-ready incentive into a single total incentive. Eligibility guidelines are being simplified, replacing the 70 kW minimum requirement with a 400,000-kWh threshold to clarify kW and kWh distinctions.

Technical assistance remains a crucial component, particularly for businesses requiring additional guidance on fleet electrification benefits. The fleet total cost-of-ownership (TCO) tool, updated with a vehicle catalog in mid-2025, provides valuable information to customers about suitable electric options for their specific needs.

Looking ahead, PGE plans to emphasize education on fleet electrification benefits and effective charging load management. The company is also exploring time-of-use strategies to encourage off-peak electricity use. While the original goal was to complete the pilot by December 2025, it will now continue through the 2026–2028 TE Plan duration, allowing for further refinement and adaptation to market needs.

This comprehensive approach demonstrates PGE's commitment to supporting sustainable transportation solutions while continuously improving the program based on real-world experiences and customer feedback.

Table 54. Fleet Partner Pilot: Fit With Strategy, Benefits to Customers

Strategic Alignment and Benefits	Description
How the activity furthers PGE's long-term strategy to plan for, serve, and manage TE load, and specific steps theretoward	The Fleet Partner pilot reflects PGE's plan, serve, manage strategy by proactively preparing for fleet electrification. To plan, PGE engages with current and potential Fleet Partner participants to understand future electrification needs and assess opportunities for managed charging,

Strategic Alignment and Benefits	Description
	battery storage, solar, and vehicle-to-grid technologies. Energy usage data from transit sites like TriMet's Sunset Transit Center and Merlo Garage further informs grid planning and utilization strategies. To serve customers effectively, Fleet Partner provides tailored rate advisory services and site assessments, helping businesses electrify their fleets while addressing grid constraints. To manage future load, participants commit to 10-year energy agreements, ensuring purpose-built infrastructure and enabling demand response–ready charging networks that can reduce peak impacts and support greater renewable integration.
Summary actions for the next three years	A freight recession and broader economic factors began to reduce new applications to the Fleet Partner pilot in late 2024. This economic uncertainty for businesses has led to a decrease in the number of sites and charging ports projected for installation between 2026 and 2028 compared to previous pilot targets. Proposed refinements for Fleet Partner for the next three years include: ▪ The line extension allowance and make-ready incentive amounts will be combined into one single incentive. ▪ The incentive cap will remain unchanged at 400,000 but will be based on the 10-year energy commitment instead of the annual usage at year five to avoid customer confusion. ▪ The minimum site requirement will be changed from 70 kW to 400,000 kWh to make it easier for customers to understand eligibility requirements but still provide revenue to support the make-ready incentive amount. ▪ The pilot will broaden outreach to include a fleet leaders' advisory group with quarterly meetings and in-person electric fleet events. These proposed refinements make it easier for customers to understand eligibility requirements and incentive levels. Broader outreach improves outreach tactics to reach more participants. PGE plans to continue routine monitoring and inspection of charger equipment at TriMet's Sunset Transit Center and Merlo Garage. Load profiles across multiple use cases in the Fleet Partner pilot and the TriMet Transit pilot will continue to be assessed to determine how transit load profiles may differ from other fleet types.
If possible, how does this program lead to future rates, programs, or steps toward a program.	The Fleet Partner pilot will utilize the learnings from the commercial managed charging demonstrations along with inputs from Fleet Partner customers and TriMet pilot charger utilization to determine development of additional managed charging incentives to reduce grid build and propose new advisory services or rates to incent off-peak charging. The pilot will also inform participant potential for battery storage, solar and vehicle-to-grid options.
How the activity benefits PGE customers by providing one or more of the following: ▪ Distribution or transmission management benefits ▪ Revenues to offset PGE's fixed costs charged to customers ▪ System efficiencies or other economic values benefitting customers long term ▪ Increased customer choice by increasing availability and access to public and private EV charging stations ▪ Other relevant benefits to customers	

Strategic Alignment and Benefits	Description
▪ Qualified chargers installed by customers support TOU and DR use cases for future grid services. ▪ Fleet Partner customers commit to a ten-year energy usage commitment generating revenues to offset PGE's make-ready infrastructure investments. ▪ Fleet Partner supports customers in their fleet electrification journey, providing turn-key assistance from initial feasibility studies through the construction of make-ready infrastructure. ▪ Fleet Partner brings to bear subject matter expertise and learnings from customer projects, ensuring efficient project management from planning through construction, increasing availability to EV charging. ▪ TriMet Transit Pilot revenues from EV charging offset costs of providing pilot investments in chargers ensuring that PGE's costs will not be charged to customers.	

Table 55. Fleet Partner Pilot: Learning Objectives and Evaluation 2026–2028

Measurement and Verification	Description
Learning objectives	▪ To better understand fleet customers and market barriers and opportunities in the fleet electrification space. ▪ Investigate the best ways to engage and increase participation of customers, including in underserved communities. ▪ Survey pilot participants at the conclusion of Plan and Build Phases of pilot to identify areas for utility process improvements with respect to fleet electrification.
Evaluation of effectiveness	Phase one evaluation key findings include: ▪ Fleet Partner participants are primarily motivated to participate to meet climate goals and lower operational costs, in addition to taking advantage of technical services available through the pilot. ▪ Fleet Partner participants report high satisfaction with the pilot's technical assistance, turnkey offerings, and make-ready incentives that enable fleet electrification. ▪ Permitting and make-ready equipment procurement must be monitored to limit impact on project timelines. Fleet Partner pilot staff can limit impact by ordering equipment early in process and ensuring that project permits are applied for as far in advance as possible. For 2026–2028, there are minimal changes to program design from what was evaluated in the 2023-2025 timeframe. Therefore, two evaluations are planned to ensure program refinements are effective in moving fleet customers forward in their electrification journey. Customers will continue to be surveyed at the conclusion of the Plan phase of the program, as well as at the conclusion of their project construction.

Table 56. Fleet Partner Pilot: Three-Year Budget by Cost Category[42]

BEGIN CONFIDENTIAL

	Previously Approved			Current Funding Request			
Cost Category	2023 Actuals	2024 Actuals[43]	2025 Forecast[44]	2026	2027	2028	2026-28
OpEx							
Incentives							
Program Operations							
O&M							
Evaluation							
Education and Outreach							
CapEx							
Total	**4,161,840**	**4,618,886**	**3,374,823**	**2,047,134**	**2,035,719**	**1,573,994**	**5,657,588**

END CONFIDENTIAL

B.4 Medium Heavy Duty Charging Demonstration (Electric Island)

Table 57. Regulatory Reference for the Medium Heavy Duty Charging Demonstration (Electric Island) Program

Regulatory Reference	Ports (forecast through 2028)	Proposed Funding (2026-2028)
Schedule 53	15 DCFC Ports	772,861 (MMC & Rates)

B.4.1 Program Description

Electric Island, a collaborative effort between PGE and Daimler Truck North America (DTNA), serves as a medium- and heavy-duty (MHD) charging testbed. The core purpose of this initiative is to enable PGE and its partner to plan, design, and construct a heavy-duty charging site while simultaneously gathering crucial learnings. These learnings encompass the viability of non-wires solutions, the collection of MHD charging load data for future forecasting, and the evaluation of battery, solar, and megawatt scale charging technologies. Ultimately, through Electric Island, PGE aims to develop proactive strategies for siting these large-scale charging projects to mitigate potential grid impacts and to inform the development of future programs for similar deployments.

Future offerings would look at the feasibility to feature on-site BESS and solar, enabling them to supply energy and capacity back to the grid during peak demand. At the MHD charging sites, the BESS will serve multiple purposes: reducing peak grid demand, providing voltage support during

[42] All actuals exclude any revenue, and budgets are shown independent of their associated funding streams. Budgets by funding stream can be found in Appendix J.
[43] 2024 and 2025 include Commercial Managed Demonstrations. The budget for Commercial Managed Demonstrations is presented separately starting in 2026.
[44] 2024 and 2025 include Commercial Managed Demonstrations. The budget for Commercial Managed Demonstrations is presented separately starting in 2026.

high charging loads, and, specifically Electric Island, allowing DTNA to explore repurposing large truck batteries for second-life site storage. This second-life storage could also reduce peak load and provide charging resilience during outages. Furthermore, the BESS can offer additional grid capacity through demand response programs. This integrated approach of charge management, energy storage, and on-site generation will help mitigate the impact of MHD charging and potentially avoid or delay costly distribution feeder upgrades.

B.4.2 2023–2025 TE Plan Milestones and Lessons Learned

In 2022, PGE and Daimler Truck North America (DTNA) entered into a funding agreement outlining shared responsibilities for Phase 2 of the Electric Island project. This phase includes the engineering, design, and installation of two BESS, solar generation, and additional high-power charging infrastructure, including a megawatt-scale charger. Under the agreement, PGE and DTNA committed to a 50/50 cost share for eligible items, with a maximum total expenditure of $3.34 million. DTNA also agreed to share both charging session data and Clean Fuels Program credit revenues with PGE, a commitment that has remained in place to date.

Since the agreement was signed, planning and implementation have been actively underway. Key lessons learned during this process include:

Specialized Contractor Engagement for New Technologies: Installing advanced technologies like BESS requires highly experienced contractors who not only understand the technical requirements but also have strong working relationships with local permitting authorities. For example, the initial BESS installation at Electric Island, originally scheduled for completion in late 2023, was delayed until late 2024, with commissioning expected in early 2025. To avoid similar setbacks, the upcoming solar and second BESS installations will prioritize contractors with proven expertise in these areas.

Establishing Realistic Timelines for Emerging Technologies: The design and integration of high-power charging infrastructure, particularly the MCS, has proven more complex than initially expected. As a result, its deployment timeline has extended beyond original projections. A prototype MCS will be installed at Electric Island to assess its grid impacts and optimize performance alongside solar and storage systems. As a megawatt charging standard has now been approved, the MCS is anticipated to be installed by the end of 2025. This experience underscores the importance of setting realistic development timelines when working with emerging technologies.

Table 58. Medium Heavy Duty Charging Demonstration (Electric Island): Fit with Strategy, Benefits to Customers

Strategic Alignment and Benefits	Description
How the activity furthers PGE's long-term strategy to plan for, serve, and manage TE load, and specific steps there toward	PGE's approach to medium- and heavy-duty (MHD) vehicle charging demonstrates the Plan, Serve, and Manage strategy in action. To plan, PGE is using pilot sites and partnerships like the West Coast Clean Transit Corridor to gather critical data on when and where peak charging occurs, how long sessions last, and the impacts on specific feeders. These insights will inform long-term grid planning and investment decisions. To serve the growing MHD market reliably, PGE is identifying locations with existing

Strategic Alignment and Benefits	Description
	capacity to reduce the need for expensive distribution system upgrades and co-locating solar and storage to support load where capacity is limited. To manage future demand, this work builds on efforts at Electric Island to explore load shaping and demand reduction strategies, while also responding to evolving market trends, such as momentum in school bus and delivery fleets despite broader adoption delays and funding uncertainty.
Summary actions for the next three years	To understand the value of onsite energy resources and large-scale EV charging, we will test and evaluate the BESS, solar, and MCS technologies at Electric Island. This will allow us to analyze use case values and grid impacts. The evaluation will focus on: ▪ Peak load reduction: Assessing the ability of battery discharge during peak demand periods to lower demand charges and alleviate grid stress, particularly valuable when peak demand costs are high. ▪ Voltage support/reactive power compensation: Examining how the systems can improve grid power quality and stability. ▪ Frequency regulation: Testing the rapid power injection or absorption capabilities of the battery to stabilize grid frequency. ▪ Grid impacts and load profiles: Analyzing the effects of megawatt-scale charging under various conditions. ▪ Sitewide energy management system: Exploring the potential to control site load across multiple charger types.
If possible, how does this program lead to future rates, programs, or steps toward a program.	This program will inform efficient deployment of MHD charging sites within PGE's service territory and help build future rates and tariffs which influence the siting of larger loads at feeders and substations with available capacity.
How the activity benefits PGE customers by providing one or more of the following: ▪ Distribution or transmission management benefits ▪ Revenues to offset PGE's fixed costs charged to customers ▪ System efficiencies or other economic values benefitting customers long term ▪ Increased customer choice by increasing availability and access to public and private EV charging stations ▪ Other relevant benefits to customers	
• This demonstration will explore the potential of pairing BESS with high-powered public megawatt charging to support grid planning and customer needs. By analyzing public charging load profiles, PGE aims to identify trends that can inform future load and grid forecasts. The project will assess whether BESS can reduce grid demand during peak events, contribute capacity through demand response, and provide additional grid services such as voltage support and frequency regulation when not actively offsetting peak demand. It will also evaluate whether co-locating BESS with solar can improve system efficiency and defer costly distribution system upgrades at similar MHD charging sites. Additionally, the demonstration supports the MHD transition by increasing public charging accessibility and may offer resiliency benefits through microgrids capable of providing charging during outages if properly sized and configured.	

Table 59. Medium Heavy Duty Charging Demonstration (Electric Island): Learning Objectives and Evaluation 2026-2028

Measurement and Verification	Description
Learning objectives	Test and evaluate grid impacts and load profiles of megawatt scale charging in various scenarios including by: ▪ Season to assess temperature impact. ▪ Vehicle throughput patterns to simulate various charging behaviors. Test and evaluate the value of behind the meter BESSs deployed at MHD EV charging sites paired with MHD charging. ▪ Assess the ability of the BESS to successfully reduce peak load and support feeder voltage quality. ▪ Assess the ability of the BESS to support EV charging at rates beyond installed service capacity. Test and evaluate how co-located solar can be optimized with BESS and megawatt scale charging along with the potential sitewide energy management system.
Evaluation of effectiveness	The use cases will be evaluated internally within PGE and in conjunction with external partners to determine value of demonstration to support grid-friendly solutions for charging.

Table 60. Medium Heavy Duty Charging Demonstration (Electric Island): Three-Year Budget by Cost Category[45]

BEGIN CONFIDENTIAL	Previously Approved			Current Funding Request			
Cost Category	2023 Actuals	2024 Actuals	2025 Forecast	2026	2027	2028	2026-28
OpEx							
Incentives							
Program Operations							
O&M							
Evaluation							
Education and Outreach							
CapEx							
Infrastructure (MMC)							
Total[46]	**605,853**	**1,278,903**	**1,140,874**	**484,623**	**171,753**	**116,486**	**772,861**

END CONFIDENTIAL

[45] Budgets and costs are shown independent of their associated funding streams. Budgets by funding stream can be found in Appendix J.
[46] Budgets and costs are shown independent of their associated funding streams. Budgets by funding stream can be found in Appendix J.

B.5 Municipal Pole Charging Collaboration

Table 61. Regulatory Reference for the Municipal Pole Charging Collaboration Program

Regulatory Reference	Ports (forecast through 2028)	Proposed Funding (2026-2028)
Schedule 50	180	$3,057,631(MMC)

B.5.1 Program Description

The Municipal Pole Charging Collaboration is a pilot designed to partner with municipalities to provide equitable access to public Level 2 charging in underserved communities through installing chargers on existing utility poles in the public right-of-way. The pilot's goal is to provide equitable access to charging options located in neighborhoods. Utilizing HB 2165 underserved community definition, PGE has installed pole chargers in areas that have higher percentages of low income, multifamily, renters, BIPOC, and rural areas in an effort to increase the availability of chargers for people who don't have access to a charger at their place of residence.[47]

The 2023-2025 TE Plan used MMC funding to target the install of 180 pole chargers by the end of 2025. For 2026-2028, the pilot will shift solely to operations and maintenance. PGE does not plan to install any additional pole chargers beyond 180. Construction and installation for the original goal could extend into 2026. After installation, PGE will monitor usage and uptime to ensure the chargers are operational and available to the community. Chargers under this pilot will utilize Schedule 50.

B.5.1.1 2023-2025 TE Plan Milestones and Lessons Learned

After two years of implementation, the Municipal Pole Charging Pilot has encountered persistent structural, logistical, and administrative challenges that have necessitated a strategic reassessment of its goals and future direction. Originally launched to expand equitable public access to EV charging by leveraging existing utility poles, the pilot aimed to minimize installation costs and accelerate deployment in urban and underserved areas. While the concept generated strong interest early on, practical execution revealed a series of barriers that have slowed progress and prompted a shift in focus from expansion to optimization.

Infrastructure limitations were the most immediate obstacle. Although the pilot initially estimated thousands of viable pole locations, detailed site assessments conducted in 2023 and 2024 found that fewer than 1 percent of over 20,000 poles met structural and electrical requirements. Many poles lacked sufficient integrity to support equipment, were located in areas with inadequate electrical capacity, or faced zoning and historical preservation restrictions. These findings directly impacted one of the plan's key milestones–identifying 20 viable locations by Q3 2024. While this milestone was met and all identified sites were energized by the end of Q4 (totaling 58 active chargers), the scale of viable expansion proved far more limited than originally anticipated.

Municipal engagement also proved more complex than expected. The pilot's original milestone of executing formal agreements with participating cities by Q4 2024 was technically achieved:

[47] "Oregon House Bill 2165, Page 2," 81st Oregon Legislative Assembly, 2021 Regular Session, n.d., https://olis.oregonlegislature.gov/liz/2021R1/Downloads/MeasureDocument/HB2165/Enrolled

agreements were signed with three municipalities. However, scaling to other cities proved challenging. Budget constraints, limited staff capacity, and frequent administrative turnover delayed implementation, while some cities struggled to fund supporting elements like striping, signage, and enforcement. Additionally, some community feedback revealed resident discomfort with chargers installed in front of homes, citing concerns about lighting, aesthetics, and perceived impacts to neighborhood character.

Despite these difficulties, the pilot did reach a major milestone in Q1 2025 with the implementation of the revised Schedule 50 rate. This new structure replaced flat fees and subscriptions with a per-kWh pricing model, including idle fees and an income-qualified discount was delivered one year later than originally planned but nonetheless aligning with broader equity and grid management goals.

Costs, however, continued to rise. Extensive safety reviews, prolonged planning phases, and necessary community outreach efforts exceeded initial expectations. Further, software fees and network equipment replacements, compounded by Shell Recharge's exit from the public charging market added operational complexity and raised questions about long-term cost-effectiveness.

While the original goal was to install 180 chargers by Q2 2025, this milestone is no longer achievable on the planned timeline. The program is now targeting completion by the end of 2025 or early 2026, contingent on permitting and construction logistics. Given these cumulative challenges, the pilot is shifting its focus. No additional expansion will be pursued beyond currently committed sites. Instead, the program will prioritize maintaining and optimizing existing infrastructure, with an emphasis on reliability, uptime, and user experience. Over the next five years, efforts will center on proactive maintenance, software upgrades, and targeted customer support ensuring that the pole charging network remains a valuable, stable asset within PGE's broader transportation electrification portfolio.

Table 62. Municipal Pole Charging Collaboration: Fit with Strategy, Benefits to Customers

Strategic Alignment and Benefits	Description
How the activity furthers PGE's long-term strategy to plan for, serve, and manage TE load, and specific steps theretoward	Serve ▪ Serve customers with equitable, affordable charging options as well as increase accessibility with chargers located in local neighborhoods. Manage ▪ Schedule 50 public L2 charging prices are utilized at pole chargers and Schedule 50 uses pricing signals to encourage grid-friendly charging timeframes outside of the system peak. PGE can evaluate the impact of L2 charging in neighborhoods to determine any additional grid planning considerations outside of residential EV load growth if neighborhood charging becomes more prolific.
Summary actions for the next three years	▪ The installed municipal pole chargers will remain operational through their end of life, and PGE will ensure that chargers are well maintained, and the chargers are available to the community. ▪ Uptime and customer experience will be monitored via the software dashboard, email inbox, and quarterly site visits to ensure locations are devoid of any vandalism or damage. Any chargers that are experiencing issues will be repaired or replaced.

Strategic Alignment and Benefits	Description
	▪ PGE will gather data on user experience, hardware and software reliability, usage, and uptime. This will include compiling data regularly on the effectiveness of the chargers in terms of utilization and uptime through reporting from the charging software. PGE will also keep records of site visits and maintenance tickets as well as resolutions to determine any pattern of issues to address with hardware and software providers. ▪ PGE will implement targeted outreach campaigns in low-utilization areas to enhance awareness and understanding of the charging infrastructure. If these efforts do not yield significant improvement in utilization rates, PGE may explore alternative strategies. ▪ PGE strives to maintain an excellent customer charging experience and relationships with municipalities and continue to provide regular usage data to partnered municipalities to strengthen relationships and improve customer experience. ▪ PGE will assess if Schedule 50 peak pricing timeframes impact customers' decisions on when to charge when chargers are located near to their home.
If possible, how does this program lead to future rates, programs, or steps toward a program.	The Municipal Pole Charging Collaboration will continue to provide information about neighborhood charging in underserved communities. Chargers installed under the Municipal Charging Collaboration will utilize Schedule 50. Learnings from the pilot will help PGE understand if the current Schedule 50 rate is appropriate or requires tariff revisions. The rate was revised in 2025 to better reflect the market with a per kWh L2 charging rate closer to residential rates to promote parity between customers who can charge their vehicles at home and those who rely on the availability of public charging infrastructure. PGE will continue to evaluate the effectiveness of Schedule 50 to provide equitable public charging rates for underserved communities while balancing the need for a sustainable rate to adequately cover the costs of various charging options.
How the activity benefits PGE customers by providing one or more of the following: ▪ Distribution or transmission management benefits ▪ Revenues to offset PGE's fixed costs charged to customers ▪ System efficiencies or other economic values benefitting customers long term ▪ Increased customer choice by increasing availability and access to public and private EV charging stations ▪ Other relevant benefits to customers	
• Clean Fuel credit revenue: energy used at pole chargers will generate Clean Fuels credit revenue which helps offset a portion of operational costs. • Cost-effective infrastructure: Utilizing existing pole infrastructure significantly reduces installation costs compared to new construction, allowing for more widespread deployment. • Enhanced charging accessibility: By strategically installing chargers on existing utility poles, the EV charging network is expanded, particularly in underserved areas and charging deserts. This provides convenient charging options for customers without off-street parking options. • Customer choice: The expanded charging network provides customers with more options for EV charging, supporting the transition to electric vehicles. • Environmental impact: By supporting EV adoption, pole charging contributes to reduced emissions, which leads to long-term health and environmental benefits for the entire community.	

Table 63. Municipal Pole Charging Collaboration: Learning Objectives and Evaluation 2026-2028

Measurement and Verification	Description
Learning objectives	▪ Charger utilization and behavior in underserved communities through reporting from charger software vendor, as well as any information the pilot can obtain from the income qualified discount pilot enrollments and usage. ▪ Schedule 50 effectiveness – this will be measured by the success and continued accuracy of schedule 50 pricing on the chargers and implementation of idle fees. These will be monitored through the charger software vendors reporting. ▪ Collect data from usage reports and DMV EV registrations on whether pole chargers increase EV adoption in underserved communities. Evaluate utilization increases over time. ▪ Validate the reliability and maintenance requirements of the hardware and software.
Evaluation of effectiveness	In-depth analysis of pilot effectiveness, utilization and usage patterns, lessons learned, and possible action items to improve the overall pilot success.

Table 64. Municipal Pole Charging Collaboration: Three-Year Budget by Cost Category[48]

BEGIN CONFIDENTIAL	Previously Approved			Current Funding Request			
Cost Category	**2023 Actuals**	**2024 Actuals**	**2025 Forecast**	**2026**	**2027**	**2028**	**2026-28**
OpEx	[redacted]						
Incentives							
Program Operations							
O&M							
Evaluation							
Education and Outreach							
Infrastructure (MMC)							
CapEx							
Total	**506,869**	**805,057**	**2,822,702**	**685,121**	**544,657**	**1,827,854**	**3,057,631**

END CONFIDENTIAL

[48] All actuals exclude any revenue, and budgets are shown independent of their associated funding streams.

B.6 Portfolio Support

Table 65. Regulatory Reference for the Portfolio Support Program

Regulatory Reference	Ports (forecast through 2028)	Proposed Funding (2026-2028)
Division 87; UM 2165 Order No. 22-314; UE435, Order 24-454	N/A	$5,515,066 (MMC & O&M)

B.6.1 Program Description

The Portfolio Support initiative is not a customer-facing program but serves as the backbone for managing and supporting the entire portfolio of Transportation Electrification efforts. It encompasses essential functions such as data management, reporting, load forecasting enhancements, program ideation, TE Plan development, market analysis, and administrative coordination across all TE programs.

This work ensures efficient oversight of customer program EVSE assets and supports the tracking and reporting requirements outlined in Division 87. As of early 2025, commercial customer programs included 1,393 EV chargers deployed by 181 customers, with active vendor management of 14 Electric Vehicle Service Providers (EVSPs) to streamline and optimize operations.

The team also collects and analyzes energy usage data from program participants, providing critical insights to inform the design, evaluation, and continuous improvement of EV programs. In parallel, the team refines the AdopDER tool to improve forecasting of EV adoption and load growth across residential and commercial sectors.

B.6.2 2023–2025 TE Plan Milestones and Lessons Learned

In 2023 and 2024, PGE's Transportation Electrification (TE) portfolio support team spent less than forecasted, reflecting a focus on operational efficiency and maximizing funds for program implementation. Savings were achieved through streamlined data collection, the postponement of the EV forecasting model update, and fewer requests for grant writing support. Additionally, statewide campaign needs were covered by Clean Fuels dollars, allowing MMC funds to be redirected to residential electrical panel upgrade incentives, an investment that directly benefits customers and supports home readiness for EV adoption.

Looking ahead, maintaining high-quality charging data remains a challenge due to the evolving maturity and frequent turnover of EV service providers (EVSPs). PGE continues to partner with software vendors to strengthen data infrastructure and meet customer needs. As program data expands, new questions are emerging about usage trends across time-of-day, location types, and customer segments, including fleet operators and multifamily residents. This evolving insight will support smarter planning and more equitable benefit distribution, particularly for traditionally underserved communities.

In alignment with Order UE 435, all non-programmatic O&M costs that support the TE portfolio are now included in the 2026–2028 plan forecast. These costs, such as leadership support for program teams, market research, rate design, program ideation, and large load analysis, were excluded from

the 2023–2025 actuals but are now captured in full transparency. Importantly, these O&M budgets were reduced from 2024 levels to ensure that the majority of funds are directed toward program delivery and customer impact.

Across all portfolio activities, PGE remains committed to collaboratively and transparently developing programs that advance Oregon's transportation electrification goals, prioritize benefits to residential customers, and deliver equitable outcomes for communities statewide.

Table 66. Portfolio Support: Fit with Strategy, Benefits to Customers

Strategic Alignment and Benefits	Description
How the activity furthers PGE's long-term strategy to plan for, serve, and manage TE load, and specific steps theretoward	The Portfolio Support activities collectively support PGE's long-term strategy by ensuring that the infrastructure and programs are in place to manage the growing TE load effectively. Data analysis, portfolio oversight, vendor management, performance monitoring, and load forecasting improvements directly contribute to PGE's ability to plan for and serve the increasing demand for electric vehicle charging.
Summary actions for the next three years	▪ Maintain or improve data quality for program learnings through detailed analysis and audits of data quality. ▪ Integrate additional vendor API's for daily updates of PGE maintained ports of Municipal pole charging EVSP. ▪ Optimize the EV Qualified Products list and visibility for an improved customer experience to understand the options. ▪ Investigate and test data sources to improve EV adoption and load forecasting. ▪ Continued oversight of overall portfolio to ensure effective delivery of pilots and programs and reallocate funding as market needs change and funding fluctuate. ▪ Continued support of customer large load requests to support grid planning along with rate and program ideation to continue to serve and manage customers' load effectively.
If possible, how does this program lead to future rates, programs, or steps toward a program.	Data from customer program supported chargers is continually evaluated to determine if additional rate structures or changes are needed to effectively manage EV load.
How the activity benefits PGE customers by providing one or more of the following: ▪ Distribution or transmission management benefits ▪ Revenues to offset PGE's fixed costs charged to customers ▪ System efficiencies or other economic values benefitting customers long term ▪ Increased customer choice by increasing availability and access to public and private EV charging stations ▪ Other relevant benefits to customers	

Strategic Alignment and Benefits	Description
• Aggregating data for reporting and analysis allows PGE to evaluate various rate structures and grid pilots to provide grid benefits. • Portfolio Support provides subject matter expertise in data analysis and modernization to improve program efficiency in analysis and tracking of data generated from all programs.	

Table 67. Portfolio Support: Learning Objectives and Evaluation 2026-2028

Measurement and Verification	Description
Learning objectives	Improved forecasting models for EV adoption and load. Streamlined session data integration and EV asset management for program-enabled and PGE-owned ports, reporting on usage. LDV adoption model improvements to load forecasting.
Evaluation of effectiveness	N/A

Table 68. Portfolio Support: Three-Year Budget by Cost Category

BEGIN CONFIDENTIAL	Previously Approved			Current Funding Request			
Cost Category	2023 Actuals	2024 Actuals	2025 Forecast	2026	2027	2028	2026-28
OpEx	[redacted]						
Incentives							
Program Operations							
O&M							
Evaluation							
Education and Outreach							
Infrastructure							
CapEx							
Totals[49]	**683,604**	**117,790**	**474,500**	**1,812,811**	**1,812,737**	**1,862,917**	**5,488,466**

END CONFIDENTIAL

[49] All actuals exclude any revenue, and budgets are shown independent of their associated funding streams. Budgets by funding stream can be found in Appendix J.

B.7 Public Charging – Electric Avenue and Oregon Electric Byways

Table 69. Regulatory Reference to the Public Charging - Electric Avenue and Oregon Electric Byways Program

Regulatory Reference	Ports (forecast through 2028)	Proposed Funding (2026-2028)
UM 1811 UM 1938 Schedule 50	Electric Avenues (7 Sites): ▪ 26 DCFC ports, ▪ 14 Level 2 ports. Oregon Electric Byways (3 Sites): ▪ 5 DCFC ports, ▪ 4 Level 2 ports	1,879,551 (CFP & O&M)

B.7.1 Program Description

PGE's Electric Avenue (EA) includes seven public charging sites geographically dispersed throughout the PGE service territory. The original installation at WTC was completed in 2015 and the other six sites were installed in Beaverton, Milwaukie, Portland, Hillsboro, Salem and Wilsonville through UM 1938 from 2019-2020. The Oregon Electric Byways program includes three additional EV charging sites PGE received after the original charging provider was no longer financially able to keep them operational. From 2022 to 2024, upgrades were completed at the Oregon Electric Byways sites and six EA sites. These sites were underperforming in uptime or providing a poor charging experience for public charging users.

PGE's role in public EV charging is evolving. While we will continue to plan to ensure our grid can handle current and future EV load, our long-term strategy is to transition away from owning public charging infrastructure. Instead, we will focus on enabling the public charging market through grid distribution support and rates that incentivize off-peak charging. PGE does not anticipate expanding its current number of public charging sites and will seek opportunities to transfer existing sites to reliable public charging vendors as the chargers reach their end of life, expected between 2030 and 2033.

B.7.2 2023-2025 TE Plan Milestones and Lessons Learned

Electric Avenue usage grew in 2023, but charger reliability was a concern. To improve uptime, the program team scheduled charger replacements starting in 2024. That year, PGE upgraded six of its seven Electric Avenue sites, replacing older BTC Power stations with the Shell Recharge Network with ChargePoint hardware and software to address uptime and customer satisfaction. This resulted in a significant improvement: uptime increased from 76-95 percent, charging speeds improved, and usage surged by 455 percent from July to December 2024. These upgrades were funded by remaining Clean Fuels funds allocated for replacing underperforming public chargers at PGE Oregon Electric Byways sites, with supplemental funding from the TE portfolio within the Clean Fuels portfolio. The World Trade Center site, previously on Shell software and at risk of disruption due to Shell's plan to end support for non-Shell equipment by April 30, 2025, has now been successfully upgraded to OpConnect software. PGE selected OpConnect for its enhanced software and dashboard functionality, as well as its maintenance support.

The public charging sites leverage PGE's Schedule 50 pricing, which offers multiple advantages: it incentivizes off-peak energy consumption, alleviates pressure on distribution infrastructure, and provides affordable electric vehicle charging options comparable to home electricity costs. One of the program's goals was to implement a new Schedule 50 rate by Q1 2024; while this was ultimately implemented in Q1 2025, we will continuously evaluate its effectiveness over time. As of January 2025, Schedule 50 pricing was adjusted as follows:

- Monthly unlimited charging subscriptions are no longer available.
- Drivers who do not vacate after charging concludes will incur idle fees.
- Peak-time rate charges increased from 0.19 per kWh to 0.28 per kWh.
- The hours for peak-time fees narrowed from weekdays 3 p.m.–8 p.m. to weekdays 5 p.m.–9 p.m.
- Drivers who are PGE Income Qualified Bill Discount participants qualify for a discount in their per-kWh rates.

Throughout 2025 and beyond, PGE will continuously evaluate how tiered pricing affects managing public charging load. This ongoing evaluation may result in future price adjustments to optimize the tiered pricing structure for both Level 2 and DC Fast Charging stations, ensuring it remains effective and beneficial.

Table 70. Public Charging – Electric Avenue and Oregon Electric Byways: Fit with Strategy, Benefits to Customers

Strategic Alignment and Benefits	Description
How the activity furthers PGE's long-term strategy to plan for, serve, and manage TE load, and specific steps theretoward	PGE initially established public charging sites to accelerate the adoption of electric vehicles and to gather data on the impact of public charging on our grid, informing future planning. This aligns with the objectives outlined in the referenced stipulations and deferral filings.[50] The future vision is to support the public charging market through grid-friendly, demand friendly rates which can be supported through timely interconnection to the grid. As seen in California, the demand for public charging sites can sometimes outpace the grid buildout required to support the capacity needed which will require a new type of flexible interconnection which allows for variable capacity limits based on grid capacity available.
Summary actions for the next three years	▪ Maintain Electric Avenue and Oregon Electric Byways sites to maintain a 97 percent uptime. ▪ Evaluate effectiveness of updated Schedule 50 pricing for the following: peak charging reductions, idle fee impacts on site utilization, low-income discount utilization, and evaluate L2 pricing with Schedule 38 electricity costs. ▪ Potentially update Schedule 50 pricing if DCFC market prices shift or L2 peak pricing needs adjustment with base rate to balance Schedule 7 rates with Schedule 38 electricity prices.

[50] "UM 1811, PGE Application for Transportation Electrification Programs," Portland General Electric, 12/2016, https://edocs.puc.state.or.us/efdocs/HAA/haa144052.pdf

Strategic Alignment and Benefits	Description
	▪ Explore transferring ownership to third parties in 2030-2033 to reduce burden on rate payer dollars and allow private entities to fulfill market maturation.
If possible, how does this program lead to future rates, programs, or steps toward a program.	Utilizing Schedule 50 at these sites helps evaluate the effectiveness of the pricing tier of Schedule 38 for public charging vendors to reduce on-peak charging.
How the activity benefits PGE customers by providing one or more of the following: ▪ Distribution or transmission management benefits ▪ Revenues to offset PGE's fixed costs charged to customers ▪ System efficiencies or other economic values benefitting customers long term ▪ Increased customer choice by increasing availability and access to public and private Ev charging stations ▪ Other relevant benefits to customers	
• Distribution benefits: On peak pricing through Schedule 50 encourages customers to charge during off-peak or renewable heavy timeframes. • Offsetting costs: Electric Avenue/Oregon Electric Byways charging revenues and Oregon Clean Fuels credits from EV charging help offset PGE's maintenance and operations costs, reducing burden on customers. • Efficiencies: There are program and portfolio efficiencies due to limiting the number of charging vendors utilized across PGE owned chargers, reducing costs for maintenance and repair. • Customer choice: A wide range of convenient payment options are available, including contactless credit/debit cards, Apple Pay and Google Pay, various charging apps that display these stations, the ChargePoint app, ChargePoint RFID cards, and digital wallet integration with ChargePoint. • Accessibility: All Electric Avenue and Oregon Electric Byways sites are in urban and rural environments, providing access to underserved PGE communities. • Other Customer Benefits: Income Qualified Bill Discount (IQBD) customers will have an opportunity to benefit from discounted charging at the various Electric Avenue and/Oregon Electric Byways locations.	

Table 71. Public Charging – Electric Avenue and Oregon Electric Byways: Learning Objectives And Evaluation 2026-2028

Measurement and Verification	Description
Learning objectives	▪ Analyze energy consumption patterns and grid impacts of public EV charging. ▪ Understand charging behavior and associated grid impacts with variable pricing. ▪ Track usage and year over year public charging growth rates to support appropriate grid planning efforts. ▪ Assess performance and reliability of different types of charging equipment. ▪ Educate the public about EVs and charging technology; evaluate current state of public sentiments toward EV ownership to support continued grid planning. ▪ Test pricing models and payment systems for public charging. ▪ Determine Schedule 50 effectiveness in moving charging outside of peak hours. ▪ Investigate Schedule 50 L2 rates for cost effectiveness.
Evaluation of effectiveness	PGE will monitor site usage and growth along with utilizing load profiles for planning purposes. PGE will also survey customers in 2026 to monitor EV interest

Measurement and Verification	Description
	and public charging needs and determine trends in comparing to past survey results. Information and data for the Electric Avenue Pilot program for prior evaluations can be found in UM1938 filing. The latest evaluation is also available in the Portland General Electric's Transportation Electrification Pilot Programs- 2024 Annual Report.[51]

Table 72. Public Charging – Electric Avenue and Oregon Electric Byways: Three-Year Budget by Cost Category (Rolls up to Portfolio-level)

BEGIN CONFIDENTIAL	Previously Approved			Current Funding Request			
Cost Category	2023 Actuals	2024 Actuals	2025 Forecast	2026	2027	2028	2026-28
OpEx							
Incentives							
Program Operations							
O&M							
Evaluation							
Education and Outreach							
CapEx							
Totals[52]	475,077	90,531	649,230	644,889	609,720	624,942	1,879,551

END CONFIDENTIAL

B.8 Residential Smart Charging Pilot

Table 73. Regulatory Reference for the Residential Smart Charging Pilot Program

Regulatory Reference	Ports (forecast through 2028)	Proposed Funding (2026-2028)
Schedule 8	12,495 cumulative ports 3.85 MW's	$11,663,000 (MMC & Rates)

B.8.1 Program Description

The Residential Smart Charging Pilot offers rebates to eligible residential customers for the purchase, installation, and/or integration of technologies that help manage load associated with EV charging. Customers may enroll with either a qualified Level 2 EV charger or qualified vehicle telematics system, both technologies can pause charging to manage EV load. All participants earn

[51] "PGE's 2023 Final Transportation Electrification Plan," Portland General Electric, 2023, https://edocs.puc.state.or.us/efdocs/HAQ/um2033haq328284024.pdf

[52] All actuals exclude any revenue, and budgets are shown independent of their associated funding streams. Budgets by funding stream can be found in Appendix J.

seasonal rewards for meeting participation requirements which include charging their vehicle 13 times, participating in at least 3 demand response events and keeping their EVSE (if applicable) online 50 percent of the season. Demand response events occur every non-holiday weekday.

Customers are eligible for the following upfront rebates:

- Customers with a qualified Level 2 charger may receive a 300 rebate (1,000 for income-eligible customers) for the purchase and installation of a qualified Level 2 charger at their home. Customers who purchased and installed a qualifying Level 2 charger prior to it being added to the Qualified Products List or who did not purchase the charger themselves, may receive a 50 rebate.
- Customers that drive a qualified vehicle (i.e., Tesla's) but have a non-qualified EV charger can enroll through vehicle telematics and receive a 50 rebate.
- Customers who require an electrical panel upgrade to install a qualifying Level 2 charger may receive a 1,000 rebate (5,000 for income-eligible customers) for replacing their existing main electric breaker panel with a 200-amp (or higher) main breaker panel with a minimum of 30 slots and 40 circuits (equivalent or better). Sub panels do not qualify.

B.8.2 2023–2025 TE Plan Milestones and Lessons Learned

Evaluations conducted in 2023 and 2024 confirmed the pilot's effectiveness in shifting EV charging to off-peak hours through time-of-use rates and direct load control. However, they also revealed key opportunities for refinement that are now shaping the 2026–2028 phase of the program. One critical improvement involves the introduction of a dedicated control group for vehicle telematics, after finding that the original EVSE control group lacked the comparability needed for robust impact analysis. This change will enable more accurate measurement of telematics effectiveness beginning in 2026. Additionally, the pilot will address gaps in load control coverage, particularly between 8 and 10 p.m., a period that coincides with both the final hour of PGE's Time-of-Day rate and a high-risk window for grid constraints identified in PGE's Integrated Resource Plan. Customer feedback also underscored the value of panel upgrade rebates, with 62 percent of income-eligible recipients reporting they would not have installed a Level 2 charger without support. Yet, low comprehension of seasonal incentive participation requirements, only one-third of EVSE and half of telematics participants could identify them correctly, points to a need for simplified, more intuitive program design. Despite these challenges, the pilot continues to grow.

The pilot will fall short of its 2023–2025 target of 9,399 ports, and its original 2025 forecast of 8,150 ports due to recent market disruptions. Tesla's reauthorization requirement caused a 13 percent drop in connected vehicles, and Enel X Way's exit impacted 700 customers. The pilot plans to address this slower growth due to market disruption by increasing the Standard EVSE incentive

from 300 to 500 and the Bring-Your-Own-Charger incentive from 50 to 100 and expanding its Qualified Products List.

Table 74. Residential Smart Charging Pilot: Fit with Strategy, Benefits to Customers

Strategic Alignment and Benefits	Description
How the activity furthers PGE's long-term strategy to plan for, serve, and manage TE load, and specific steps theretoward	The Smart Charging Pilot directly aligns with PGE's strategic goal to serve and manage residential EV charging load. With 158,978 forecasted residential vehicles in PGE service area in 2028, scaling the pilot will provide greater flexibility for load management that contributes to PGE's Virtual Power Plant. Flexible load capabilities also benefit non-EV drivers by keeping costs down for all customers, as PGE is less reliant on the wholesale market to buy energy during higher cost peak system timeframes. Furthermore, flex load capability will help PGE manage the grid by varying charging times to meet the customer's charging needs during grid-friendly timeframes.
Summary actions for the next three years	▪ PGE currently forecasts that the pilot will end 2025 with approximately 7,500 vehicles and chargers enrolled and plans to grow the pilot to 12,495 cumulative vehicles and chargers by the end of 2028. ▪ Re-align vehicle telematics and EVSE enrollment criteria and incentives. ▪ Increase Standard EVSE incentive from 300 to 500 and the Bring-Your-Own-Charger incentive from 50 to 100 to respond to slowed pilot growth due to market volatility. ▪ Expand EV plug in window to implement optimized load management dispatch strategies to best address both local and system peaks. ▪ Incorporate learnings on load smoothing at the system and distribution level from Smart Grid Test Bed (SGTB) EV Charging Study into the Smart Charging pilot. ▪ Simplify participation requirements to incentivize off-peak charging and improve customer understanding. ▪ Expand customer choice by increasing the number of EVSE and vehicles with onboard telematics on the qualified products list. As the pilot switched DERMS providers for EVSE in 2025, additional EVSE became available to consider adding to the qualified products list. ▪ Continue to collaborate with SGTB on learnings for potential incorporation into pilot, e.g., Vehicle to Home, etc.
If possible, how does this program lead to future rates, programs, or steps toward a program.	Data obtained from the Smart Charging Pilot may assist in evaluating a potential rate structure to incentivize off-peak charging for customers who drive EVs and do not participate in the Smart Charging Pilot.
How the activity benefits PGE customers by providing one or more of the following: ▪ Distribution or transmission management benefits ▪ Revenues to offset PGE's fixed costs charged to customers ▪ System efficiencies or other economic values benefitting customers long term ▪ Increased customer choice by increasing availability and access to public and private EV charging stations ▪ Other relevant benefits to customers	
▪ Distribution benefits: In the Winter 2023/2024 season evaluation, 91 percent of Pilot participant charging occurred during off-peak hours. For the 2026–2028 time period, off-peak charging may increase as Pilot implements optimized load management dispatch strategies.	

Strategic Alignment and Benefits	Description
▪ Customer benefit: Rebates to bring down the initial cost of purchasing and installing Level 2 EVSE increases future availability of EV home charging. ▪ Increased customer choice: Additional chargers and vehicle manufacturers will be added to the qualified device list as they become available to allow more options and ability to earn incentives for managing charging load. ▪ Other relevant benefits: Higher rebate amount for income eligible customers creates equitable access to purchase and install home charging or upgrade the electrical panel to support EV charging. In 2024, 64 percent of the ports supported customers in underserved communities which included the income eligible customers.	

Table 75. Residential Smart Charging Pilot: Learning Objectives and Evaluation 2026-2028

Measurement and Verification	Description
Learning objectives	▪ Measure the flexible load capabilities which can provide the highest grid value and flexible load while minimizing customer price impacts. ▪ Evaluate how the per-participant demand reduction achieved through managed charging using vehicle telematics compares to reduction achieved using electric vehicle supply equipment (EVSE). ▪ Establish whether encouraging participants to plug in when they get home and let PGE manage their charging provides PGE with more load management flexibility and increases satisfaction relative to current messaging. ▪ Determine if the incentive offered encourages customers who have a choice to connect to the program via their qualified vehicle telematics system rather than their qualified EVSE. ▪ Discover whether the learnings from the Smart Grid Testbed EV Charging Study can be applied to the Smart Charging Pilot to effectively smooth load from EV charging at the system and distribution level.
Evaluation of effectiveness	Annual evaluations through a third-party will be completed to assess kw reduced, customer charging patterns, EVSE versus telematics differences, etc. Evaluator also performs customer surveys to gauge satisfaction and awareness of program features and experience.

The overall learning objectives above will be assessed on the growth anticipated from the program.

Table 76. Residential Smart Charging Pilot: Actuals for 2022-2025 and Original Forecasts for 2026-2028

Year	Participants Added	Total Participants	Demand Reduction (MW)
2022	1,757	2,230	0.52
2023	2,299	4,529	1.06
2024	1,621	6,150	1.45
2025	2,000	8,150	2.51
2026	1,402	9,536	2.94

Year	Participants Added	Total Participants	Demand Reduction (MW)
2027	1,640	11,157	3.44
2028	1,362	12,495	3.85

Table 77. Residential Smart Charging Pilot: Three-Year Budget by Cost Category[53]

BEGIN CONFIDENTIAL	Previously Approved			Current Funding Request			
Cost Category	2023	2024	2025	2026	2027	2028	2026-28
OpEx							
Incentives							
Program Operations							
O&M							
Evaluation							
Education and Outreach							
Infrastructure							
CAPEX							
Total	**1,845,405**	**2,545,493**	**4,961,702**	**3,602,490**	**4,039,826**	**3,990,657**	**11,632,973**

END CONFIDENTIAL

[53] All actuals exclude any revenue, and budgets are shown independent of their associated funding streams. Budgets by funding stream can be found in Appendix J.

Appendix C Commission Dockets Which Approved Funding of Transportation Electrification Activities

Table 78. Commission Dockets Which Approved Funding of Transportation Electrification Activities

	Funding Source	Approval Action	Year(s) Approved	Detail
Business & Multifamily Make-Ready Program	General Rate Base capital	UM 2033; Order No. 23-147	2023	Capital spend referenced in 2023 MMC budget
	MMC	UM 2033; Order No. 23-147	2023	2023 MMC Budget expansion of customer program
Fleet Partner Pilot	General Rate Base	Approval letter 6/1/21; Adv. No. 21-09	2021	Program application approved with tariff
	MMC	UM 2033: Order No. 23-147	2023	2023 MMC Budget expansion of customer program
Heavy Duty Charging Pilot	General Rate Base	Order No. 21-195; Adv. No. 21-03	2021	Approved 6/15/2021
Public Charging – Electric Avenue and Municipal Charging Collaboration	Deferral and General Rate Base capital	UM 1938; Order No. 21-475	2021	Electric Avenue
	General Rate Base capital	UM 2033: Order Nos. 22-381 and 23-147	2022 and 2023	Capital spend referenced in 2022 and 2023 MMC budgets
	MMC	UM 2033: Order Nos. 22-381 and 23-147	2022 and 2023	2022 and 2023 MMC Budgets
Business EV Charging Rebates	Deferral	UM 2003; Order No. 22-263; Adv. Nos. 20-19 and 21-15	2020 and 2021	Deferral program (expanded with 2022 MMC)
	MMC	UM 2033; Order No. 22-381	2022	2022 MMC Budget expansion of deferral program
EV Ready Affordable Housing Grants	MMC	UM 2033; Order No. 22-381	2022	2022 MMC Budget only

	Funding Source	Approval Action	Year(s) Approved	Detail
Residential Smart Charging Pilot	Deferral	UM 2003; Order No. 22-263; Adv. No. 20-18	2020	Deferral program (expanded with 2022 MMC)
	MMC	UM 2033: Order No. 22-381	2022	2022 MMC Budget expansion of deferral program
Portfolio Support	MMC	UM 2033: Order Nos. 22-381 and 23-147	2022 and 2023	2022 and 2023 MMC Budgets
	General Rate Base capital	N/A		Utility CapEx

Appendix D Division 87 Concordance

Table 79 provides a reference as to how this filing addresses Division 87 rules applicable to the portfolio of activities.

Table 79. Division 87 Concordance (Rules 1-3, for the Transportation Electrification Portfolio)

Division 87 Rule	Section(s) that Address the Rule
(1) This rule prescribes the required elements of an electric company's Transportation Electrification Plan (TE Plan). The objective of the TE Plan is to:	See below
(a) Integrate the electric company's transportation electrification actions into one document. The Plan shall include, but is not limited to, the electric company's portfolio of near-term and long-term transportation electrification actions, including applications for program(s), and infrastructure measure(s), planning and expenditure of the Monthly Meter Charge, and other transportation electrification actions such as PGE Clean Fuels programs.	The full filing will meet this requirement
(b) Act as a summary of the electric company's investments and activities, which may include investments and infrastructure for electric vehicles of various sizes, rate design, programs, and services, reasonably expected to achieve the objectives of Oregon Laws 2021, chapter 95. The TE Plan shall seek to address areas most affected by market barriers in the electric company's service territory, prioritize load management, and to provide benefits for underserved communities.	The full filing will meet this requirement
(2) An electric company must file for Commission acceptance of a TE Plan.	The full filing will meet this requirement.
(a) As used in this rule, "acceptance" means the Commission finds that the TE Plan meets the criteria and requirements of this rule and does not constitute a determination on the prudence of the individual actions discussed in the TE Plan. The Commission may accept the TE Plan subject to conditions. Acceptance, or acceptance subject to conditions, shall constitute approval of the electric company's program applications and TE Budget as filed in the TE Plan and its appendices. Non-acceptance means that the TE Plan does not meet the criteria or requirements of this rule.	
(b) An electric company must present a draft TE Plan to Commission staff and stakeholders for review and comment on or before May 1, every three years starting in the year 2025, or as otherwise directed by the Commission. The TE Plan shall include the three calendar years after the year the TE Plan is presented.	This filing is consistent with this requirement and direction given utilities in Commission Order No. 21-484[54] as adjusted in Orders No. 25-146 and 25-237, which extended the deadline for PGE's draft TEP filing.

[54] "OPUC Order No. 21-484," Oregon Public Utility Commission, 12/27/2021, https://apps.puc.state.or.us/orders/2021ords/21-484.pdf.

Division 87 Rule	Section(s) that Address the Rule
(c) The electric companies will work with Commission staff to propose a schedule to parties for draft TE Plan review, comment, and workshops.	PGE will work with Commission staff and stakeholders to propose an appropriate review process and schedule.
(d) After public review of the draft TE Plan, the electric company must file a final TE Plan with the Commission, noting how the electric company responded to parties' comments.	PGE will comply.
(e) Commission staff will present its recommendation on the electric company's TE plan at a public meeting. The Commission shall also consider party and electric company comments and recommendations on a TE Plan at the public meeting before issuing an order of acceptance. The Commission may provide direction to an electric company regarding any additional analyses or actions that the electric company should undertake in its next TE Plan.	n/a
(f) An electric company may propose TE Plan updates at any time between scheduled TE Plan filings. An electric company is required to file a TE Plan update for material changes to its TE Plan. Material changes are new TE program or infrastructure measure applications, or program or infrastructure measure changes that require new incremental customer dollars. Commission staff will work with parties to propose a schedule for public review of TE Plan updates.	PGE will comply in the event an update to the TE Plan or Budget is necessary during the 2026–2028 cycle.
(3) The TE Plan must include	See below
(a) The current condition of the transportation electrification market in the electric company's Oregon service territory, including, but not limited to:	
(A) A discussion of new state policies and programs since the last TE Plan filing;	Chapter 2
(B) Market barriers that the electric company can address and other barriers that are beyond the electric company's control, including any identified emerging challenges to transportation electrification, charging, and vehicle technology updates;	Chapter 1 Chapter 2
(C) Existing data reasonably accessible to the electric company on the availability, reliability, and usage patterns of charging stations;	Chapter 8
(D) Number of electric vehicles of various sizes in the utility service territory and projected number of vehicles in the next ten years;	Chapter 3
(E) Other transportation electrification infrastructure, if applicable; and	
(F) A forecast of public and private charging infrastructure needed in the company's service territory to support transportation electrification. The forecast should utilize a Commission-approved tool to estimate needed public charging infrastructure over the next ten years and include type, location and timing of needed infrastructure.	Chapter 3, Appendix E

Division 87 Rule	Section(s) that Address the Rule
(b) A summary of the electric company's transportation electrification portfolio of program(s) and future transportation electrification concepts and actions in its Oregon service territory for the next three years. The summary should include the company's long-term vision for its TE portfolio and strategy to support transportation electrification in its service territory. The TE Plan must incorporate project lessons learned and any other relevant information gathered from other transportation electrification infrastructure investments, programs, and actions to ensure that lessons learned are carried forward to the next TE Plan;	Chapter 6 Section 1.3 Appendix A Appendix B
(c) A discussion of how programs and infrastructure measures in the TE Plan holistically advance performance area categories that include, but are not limited to:	See below
(A) Environmental benefits including greenhouse gas emissions impacts;	Chapter 8 Appendix F
(B) Electric vehicle adoption;	Chapter 3 0
(C) Underserved community inclusion and engagement;	Section 1.3 Chapter 8 Chapter 9Appendix H
(D) Equity of program offerings to meet underserved communities;	Section 1.4 Chapter 8
(E) Distribution system impacts and grid integration benefits;	Chapter 5 Chapter 8
(F) Program participation and adoption;	Chapter 6 Chapter 8
(G) Infrastructure performance including charging adequacy which considers, but is not limited to reliability, affordability, and accessibility;	Chapter 8
(d) Supporting data and analysis used to develop the TE Plan, which may be derived from elements such as review of costs and benefits, rate design, energy use and consumption, overlap with other electric company programs, and customer and electric vehicle user engagement;	Appendix A Appendix B Appendix E.1.2 Appendix E.1.3 Appendix G Appendix H Appendix J Appendix K
(e) A discussion of the electric company's potential impact on the competitive electric vehicle supply equipment market, including consideration of alternative infrastructure ownership and business models, and identification of a sustainable role for the electric company in the transportation electrification market;	Chapter 1 Chapter 4

Division 87 Rule	Section(s) that Address the Rule
(f) Analysis of the estimated customer impact of the TE Plan over the next three calendar years; and	Chapter 7 Section 7.2
(g) The electric company's TE Budget. The TE Budget must include: (A) Annual budgets for the TE Plan for the three calendar years after the year the TE Plan is presented to Commission Staff and stakeholders. The annual budgets should include a discussion of the context of anticipated long-term expenditures for the next ten years, including but not limited to benefit-cost analysis "cost tests;"	Chapter 7
(A) A forecast of all expenditures to support transportation electrification grouped by program and/or infrastructure measure, and further divided into:	Chapter 7
(i) Capital expenditures; and	Chapter 7
(ii) Expenses, separating administrative costs, O&M on investments, incentives paid to program participants, and any other unique category as relevant;	Chapter 7
(B) A forecast of all funding sources to be utilized, including but not limited to, the Monthly Meter Charge, grants, Oregon Clean Fuels Program credits, base rates, and deferrals based on a reasonable estimate, including a discussion of how actual revenue might vary from the estimate;	Chapter 7
(C) A forecast of all spending on underserved communities, grouped by program and/or infrastructure measure and further divided into:	Chapter 8 Table 15
(i) Expenditures of funds collected through the Monthly Meter Charge as required by Oregon Laws 2021, chapter 95 Section 2;	Chapter 7 Chapter 9Appendix J Additional Budget Views
(ii) Spending from revenues other than the Monthly Meter Charge, including but not limited to grants, Oregon Clean Fuels Program credits, base rates, and deferrals;	Chapter 7 Chapter 9Appendix J
(D) The Commission's acceptance of the electric company's TE Plan will constitute approval of the TE Budget, which includes the Monthly Meter Charge budget as required by Oregon Laws 2021, chapter 95 Section 2.	N/A

Appendix E AdopDER Forecasting Methodologies

E.1 AdopDER Electric Vehicle Growth Forecast Explanation

PGE uses the AdopDER model to forecast EV and associated EVSE adoption across both short- and long-term planning horizons (1 to 20 years). For system planning, key outputs include projected energy and capacity needs resulting from transportation electrification.

In response to potential changes in federal policy and emerging market trends, PGE conducted an update to its EV forecast and scenario analysis in April 2025. Model enhancements were implemented to account for the potential impacts of the elimination of IRA EV tax credits and the delay of the Advanced Clean Cars II rule. Additionally, adoptions trends were recalibrated using historical actuals from the DMV.

Figure 8 shows a summary of the TE-related measures in AdopDER.

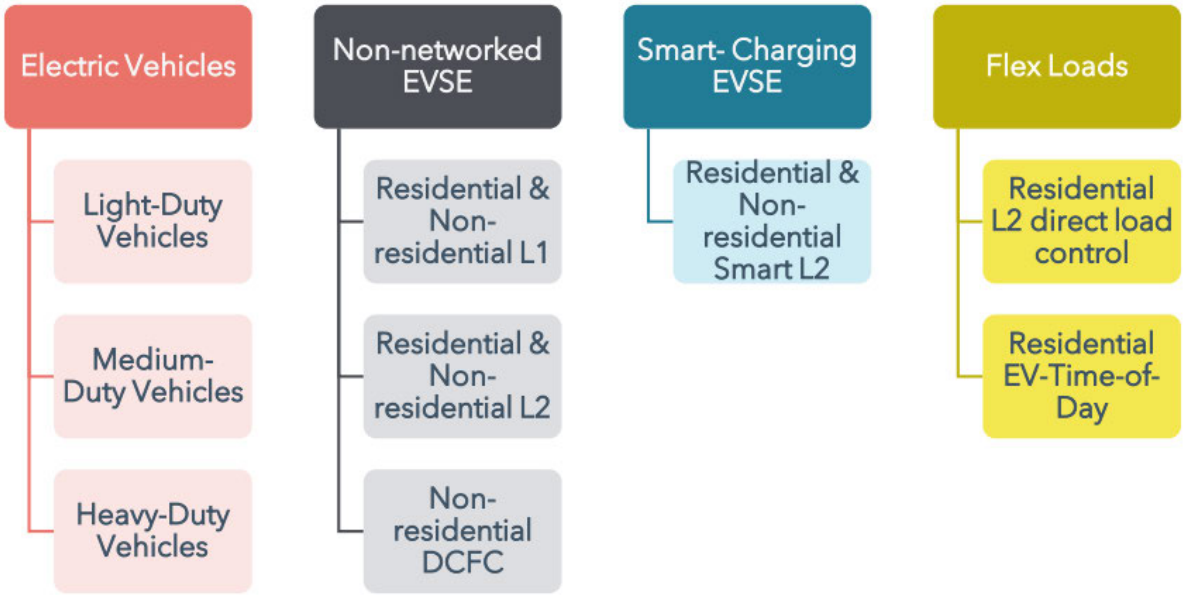


Figure 8. Summary of the Transportation Electrification-Related Measures in AdopDER

AdopDER's approach to forecasting EV growth is grounded in a robust methodology that identifies vehicles within PGE's service area and applies detailed vehicle stock turnover and econometric modeling to project growth trajectories based on underlying market drivers. The model combines a top-down econometric forecast of EV market share—which estimates the percentage of new vehicle sales that will be electric each year—with a bottom-up spatial allocation model that captures geographic clustering patterns essential for distribution system planning.

The top-down econometric model incorporates multiple variables calibrated to historical EV adoption. Forecast outputs are most sensitive to the following key drivers:

- EV market shares.
- Total incentives.

- Vehicle pricing.

The remainder of this section provides a detailed overview of each of these primary forecast drivers and describes how they are integrated into the overall AdopDER model flow for EV forecasting.

E.1.1 Electric Vehicle Market Shares

Vehicle availability has evolved significantly since the 2023 TE Plan, with an increase in both the number of available EV and Plug-in Hybrid Electric Vehicle (PHEV) models and notable fluctuations in market inventory levels. The U.S. market has experienced substantial growth in battery electric and plug-in hybrid offerings—particularly in the light- and medium-duty segments—expanding consumer choice across a range of vehicle classes and price points. Popular models such as the Ford F-150 Lightning, along with new entries like the Chevrolet Blazer EV, Equinox EV, and Silverado EV, have broadened the appeal of electrified options. Further expansion is expected with the introduction of additional models, including the second-generation Chevy Bolt, Rivian R2, and a growing portfolio of EV and PHEV platforms.

The market is progressing toward a phase where plug-in variants are becoming standard across many major brands and models, with pricing increasingly competitive with ICE counterparts. This trend indicates improved consumer accessibility and broader adoption potential, driven by greater availability of models that meet diverse needs in terms of performance, utility, and affordability.

However, enforcement of the Advanced Clean Trucks (ACT) II rule has been delayed until 2027 due to market challenges and federal policy uncertainties. Originally adopted in 2021, the rule mandates increasing sales of zero-emission medium- and heavy-duty vehicles, targeting 40–75 percent of new truck sales to be electric by 2035, depending on vehicle class. As a result, the Oregon Department of Environmental Quality (DEQ) will not enforce ACT sales targets for model years 2025 and 2026. DEQ also plans to initiate a formal rulemaking process in 2025 to consider permanent adjustments to the ACT rule, including additional flexibilities for manufacturers. Considering these developments, PGE has limited medium- and heavy-duty vehicle adoption forecasts to historical trends, excluding any acceleration driven by state policy.

In forecasting future EV adoption, AdopDER incorporates projected increases in model availability by applying rising EV market shares to new vehicle sales as part of the stock turnover process. While light-duty vehicles (LDVs) are expected to continue expanding in availability, medium- and heavy-duty vehicle (MDV/HDV) adoption is moderated due to policy delays and slower market development.

E.1.2 Available Incentives

AdopDER's modeling of federal and state incentives is calibrated to currently enacted policies and programs, while accounting for uncertainties in future implementation and funding. These uncertainties are reflected in the High and Low scenarios—for example, the potential removal of the $7,500 federal tax credit. Incentives are a critical driver of EV adoption and are treated as dynamic inputs to capture their impact on total cost of ownership and consumer decision-making.

In the Reference case, the federal EV tax credit of up to $7,500 is assumed to remain available through its legislated expiration in 2032, consistent with provisions under the Inflation Reduction

Act (IRA). This scenario reflects a stable policy environment that continues to support EV market growth through direct purchase incentives. However, not all EVs will qualify for the full credit due to eligibility requirements. Accordingly, AdopDER models the incentive as a partial credit, reflecting the average benefit likely to be realized by consumers. In contrast, the Low scenario assumes a more constrained policy environment, with the federal tax credit phased out beginning in 2026 to reflect the potential for mid-term federal policy reversals. The High scenario assumes the full $7,500 credit remains available through 2032 and is fully realized for each qualifying EV purchase.

At the state level, Oregon's Clean Vehicle Rebate Program remains a key component of the incentive structure. The standard rebate of $2,500 is modeled as available to eligible PGE customers across all scenarios; however, the model accounts for the potential reduction in program impact over time due to limited or inconsistent funding. In the reference and low cases, this is reflected through two distinct ramp-down periods for rebate availability.

E.1.3 Vehicle Pricing

Vehicle pricing is a critical input in AdopDER's EV adoption forecasts, as it directly impacts total cost of ownership, monthly affordability, and consumer purchasing decisions. In the reference case, AdopDER assumes vehicle prices follow current market trends, adjusted for inflationary pressures and anticipated financing conditions over the planning horizon.

In the reference case, AdopDER escalates base vehicle prices annually using standard inflation assumptions aligned with broader economic forecasts. Current average loan Annual Percentage Rates (APRs) for vehicle financing are incorporated and projected forward based on publicly available macroeconomic forecasts. This approach ensures that the forecast reflects gradual increases in nominal vehicle costs consistent with observed historical trends and anticipated economic conditions.

By applying an inflation-based price escalation and dynamic financing assumptions in the reference case, AdopDER captures a realistic trajectory for EV affordability under existing economic conditions. This methodology ensures that vehicle price evolution is neither artificially optimistic nor overly conservative, providing a balanced and supportable basis for TE planning.

Scenario sensitivities explore deviations from the reference case by testing the effects of accelerated vehicle cost declines due to technology advancements or competition. Conversely, the Low scenario models cost pressures stemming from supply chain disruptions, raw material price volatility, or financing tightening.

E.2 Spatial Penetration and Integration of Distributed Energy Resources (SPIDER)

To forecast electric vehicle (EV) market share, PGE uses Resource Innovations' proprietary SPIDER™ (Spatial Penetration and Integration of Distributed Energy Resources) modeling platform. SPIDER™ is a dynamic behavioral diffusion model that estimates EV adoption over time based on key inputs such including the stated vehicle pricing, the availability of federal and state incentives, and projected EV market shares. The resulting adoption curves are a critical input to AdopDER's

forecast, as they determine the probability that an eligible service point will adopt an EV in each year of the forecast horizon.

Using SPIDER™ enables PGE and its planning partners to directly address stakeholder questions regarding the impact of policy and economic drivers—for example, the expiration of federal tax credits or the effect of increased technology costs due to tariffs—by adjusting scenario inputs and observing resulting changes in adoption trajectories. Outputs from SPIDER™ are applied within AdopDER's stock turnover model to estimate future EV adoption across PGE's service territory.

E.2.1 Vehicle Stock Turnover Assessment

PGE utilizes the AdopDER model as its primary tool for forecasting EV growth and associated charging demand. AdopDER projects DER adoption and estimates corresponding load impacts that inform a range of critical business functions across the company. The model employs a bottom-up methodology, aggregating detailed site-level data to the feeder and bulk power system levels.

While AdopDER also models other DER types—such as solar PV and building electrification—this discussion is limited to components relevant to TE. AdopDER serves as PGE's official system of record for forecasting load growth attributable to TE activities.

AdopDER applies estimated market shares to the annual flow of vehicle purchases through a stock turnover model, which captures the replacement of aging vehicles based on assumed useful life. The model begins with vehicle registration data from ODOT, matched to PGE customer premises by fuel type and vehicle class. As new vehicles are added and older ones retire, AdopDER simulates EV adoption using econometric growth rates, behavioral choice modeling, and site-specific constraints on EVSE adoption. Additional methodological details are provided in Appendix G. The table below presents the current forecast for total vehicle stock and EV adoption, highlighting the increasing market share of EVs over time.

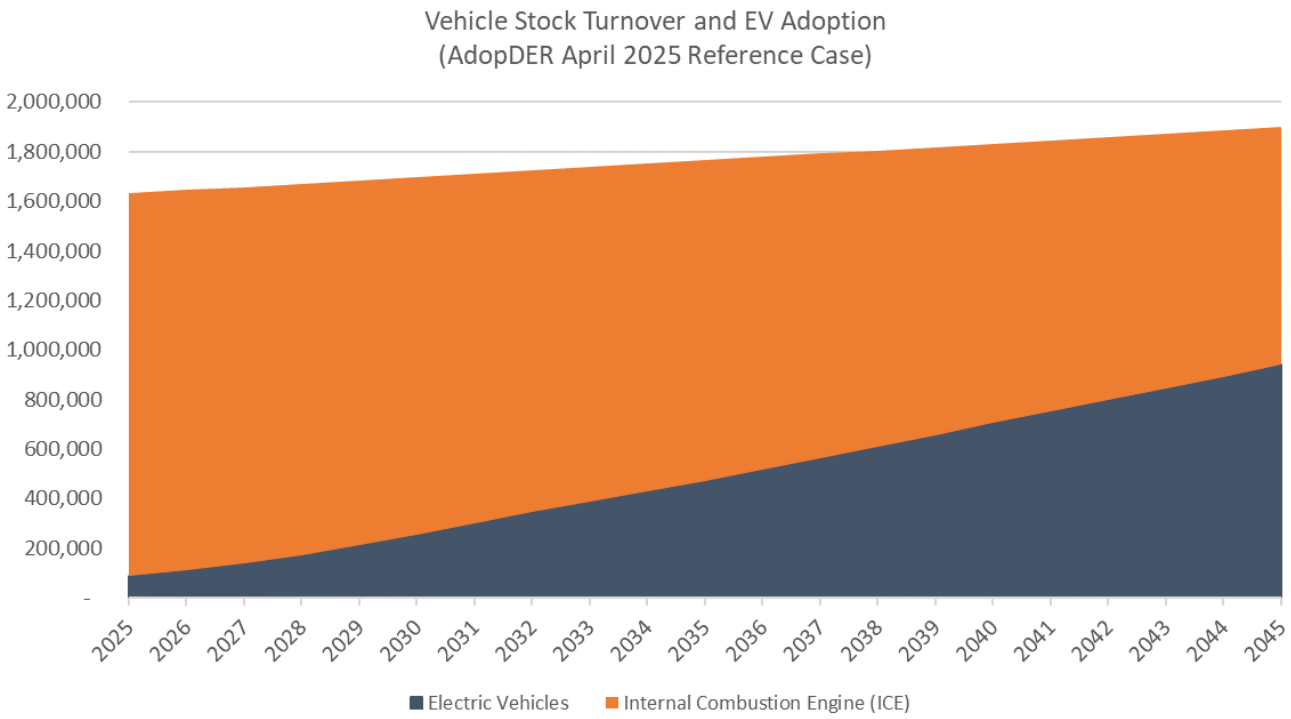


Figure 9. Vehicle Stock Turnover and Electric Vehicle Adoption

Due to everchanging assumptions, historical trends, and political and economic impacts, the outcome of EV transformation in a saturated ICE vehicle market has been greatly reduced when comparing to the 2023 TEP. Below is a figure showing the previous EV stock assessment forecast:

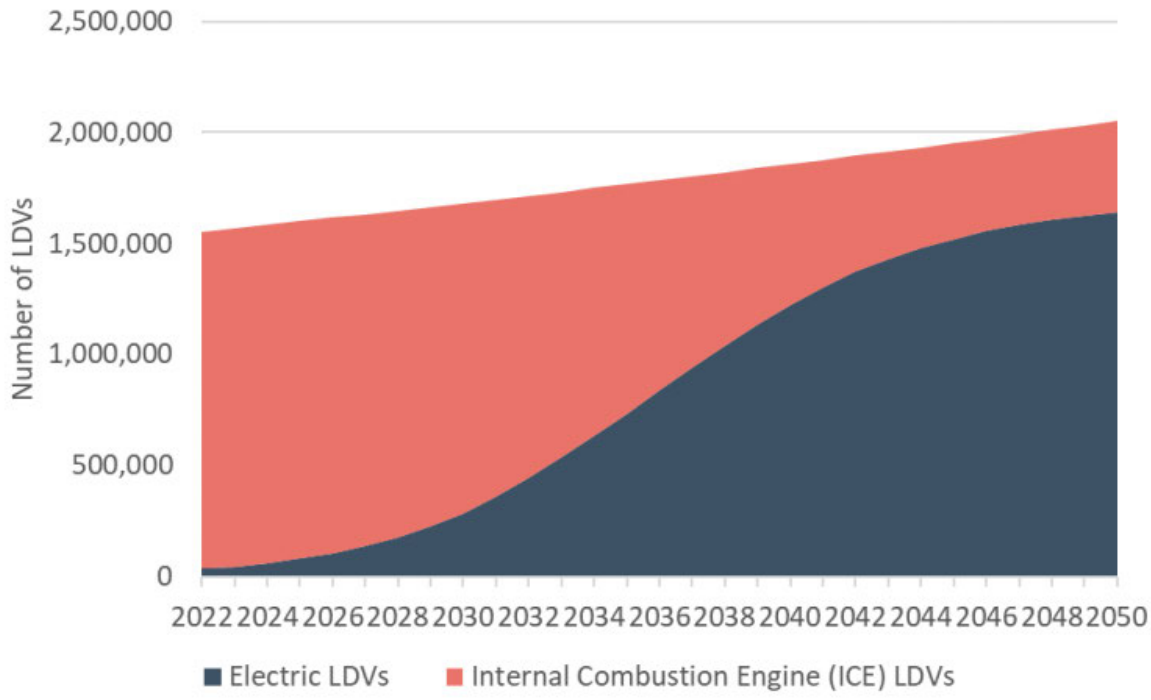


Figure 10. Previous Electric Vehicle Stock Assessment Forecasts

Appendix F Environmental Benefits and Greenhouse Gas Emissions Impacts Methodology

PGE calculated total annual VMT by applying these average mileage figures across all vehicle categories. For emissions analysis, we applied U.S. Environmental Protection Agency (EPA), GHG emission factors to determine metric tons of CO_2 equivalent ($MTCO_2e$) per mile for gasoline-powered LDVs, and diesel-powered MDVs and HDVs. We then adjusted these emissions by subtracting the carbon intensity of PGE's 2023 energy mix (0.32 $MTCO_2e$ per MWh, reported to Oregon DEQ to estimate net CO_2e reductions associated with EV adoption by 2028 for PGE's reference case forecast.

Using a similar approach and EPA data, we also estimated reductions in nitrogen oxides (NO_x) and particulate matter (PM 2.5). Sulfur dioxide (SO_2) reductions were not quantified, as transportation sources contribute minimally to SO_2 emissions and comprehensive EPA or DEQ data for transportation-related SO_2 are not readily available[5556].

[55] "Criteria Air Pollutants," U.S. Environmental Protection Agency, n.d. https://www.epa.gov/criteria-air-pollutants

[56] "AVoided Emissions and geneRation Tool (AVERT)." U.S. Environmental Protection Agency, n.d. https://www.epa.gov/avert

Appendix G Load Profiles

G.1 Use Case Load Profiles

G.1.1 Public Charging

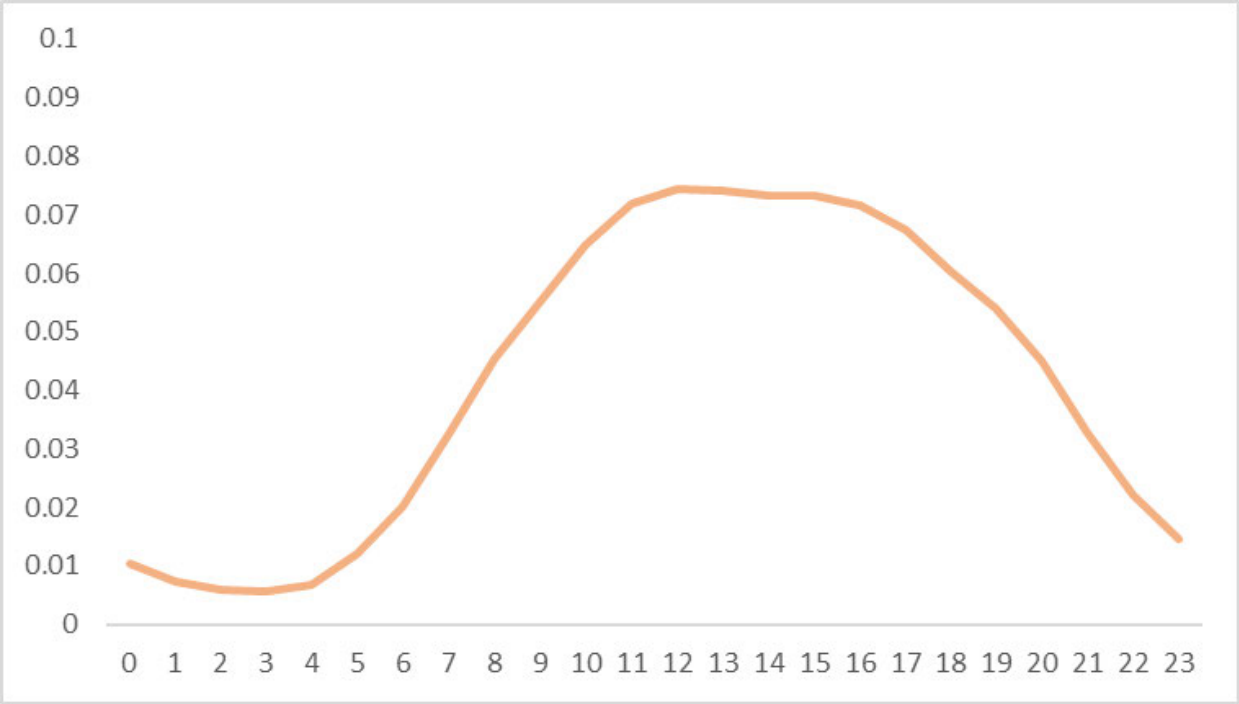


Figure 11. Non-PGE, Non-Program Public Charging Hubs – 34 Sites

The load profile for 34 non-PGE, non-program public charging up sites shows low overnight usage, a sharp increase starting around 6 a.m., and a sustained midday peak from late morning to early afternoon. Demand tapers off gradually in the evening, returning to low levels by late night. This pattern reflects typical, unmanaged public usage and highlights opportunities for load shifting to reduce peak demand.

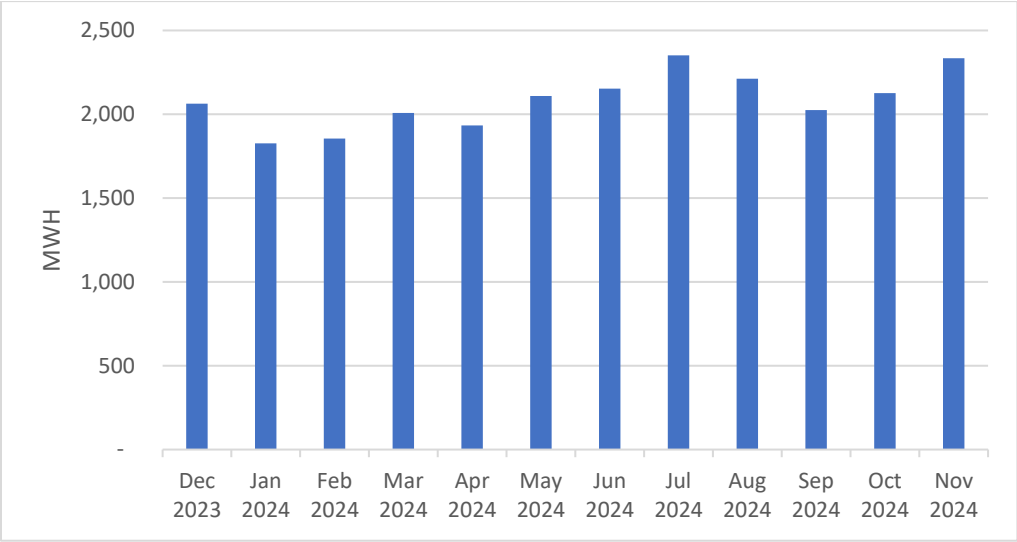


Figure 12. Non-PGE Public Charging Monthly Energy Consumption

Energy usage for non-PGE, non-program public sites by month shows that July and November have the most usage, dropping off from December to its lowest in January. This pattern illustrates the seasonality of public charging.

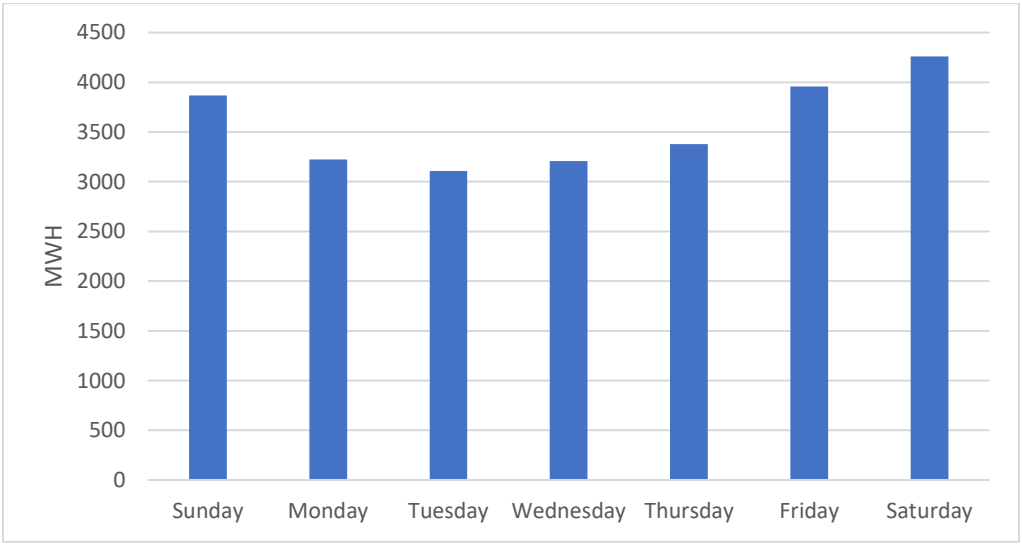


Figure 13. Non-PGE Public Charging Energy Consumption by Day of the Week 12/2023–11/2024

Energy usage for non-PGE, non-program public sites by day of week shows that usage remains consistently high throughout the week. Monday and Tuesday are the lowest. This will be monitored for change as workers return to their offices.

Figure 14. Program Recipient Charging

Energy usage and count of active ports for all program recipient charging shows steady growth since January 2023. Active ports have increased six times from 73 to 463. Energy has increased eight times from 20,000 kWh to 164,800 kWh in Oct 2024, before falling slightly to 141,000 kWh in Dec 2024.

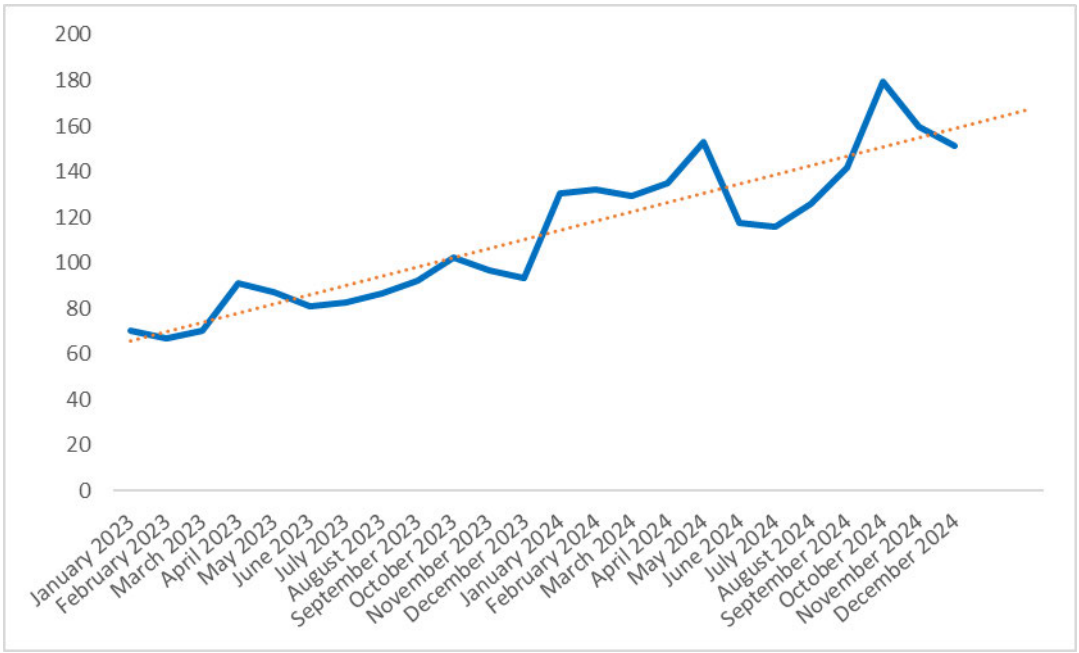


Figure 15. Program kWh, Ports Installed

Program port kWh per port grew two times from 70 kWh per port in January 2023 to 151 kWh per port in December 2024. The number of active ports and the energy dispensed through these ports are also increasing.

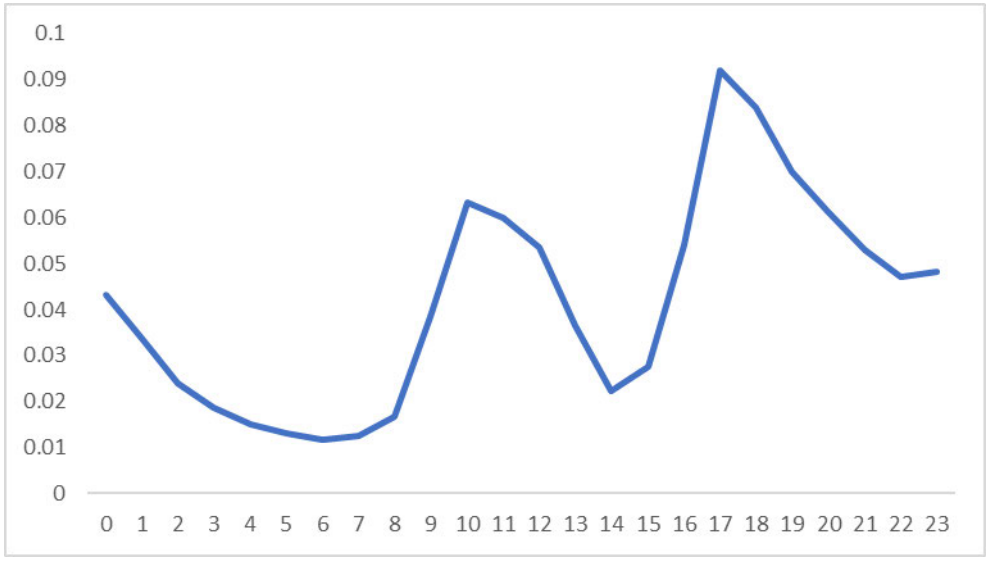


Figure 16. Program Fleet Use Case – 82 Sites

The load profile for 82 Fleet program sites shows two peaks, a smaller one at 10 a.m. and a higher peak at 6 p.m., with little usage from 4–7 a.m. and 2–3 p.m. This is typical of fleet charging patterns, especially with electrified school bus fleets that need to charge between use. The overnight, off-peak use is beginning to see usage from 10 p.m.–11 p.m., with opportunity to shift further load throughout the early morning hours.

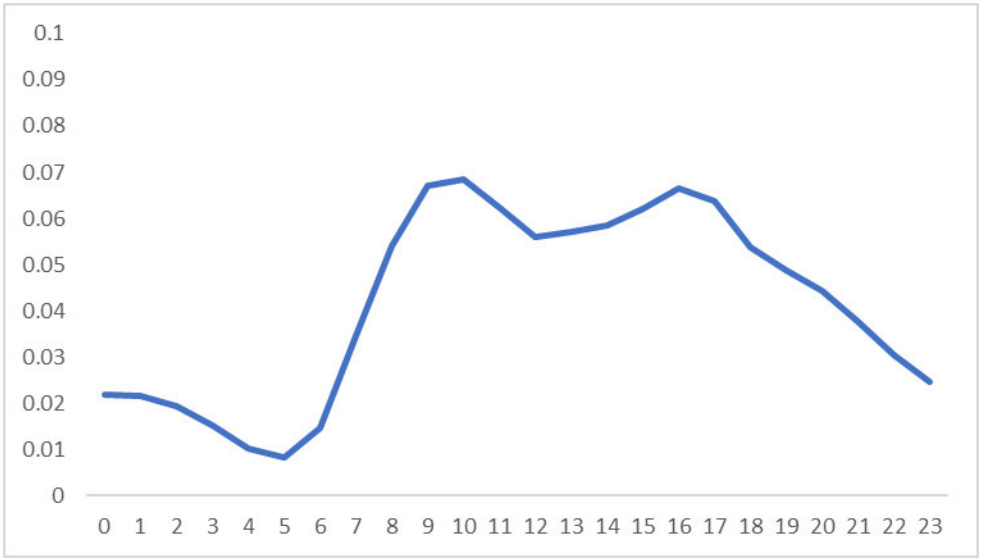


Figure 17. Program Fleet Mixed Use Case – 42 sites

The load profile for 42 Fleet Mixed-use program sites shows low overnight usage, rising sharply at 7 a.m. through to 6 p.m. with little variation, then falling steadily. Fleet Mixed sites share a potentially significant portion of use by the public and for workplace charging compared to typical Fleet sites.

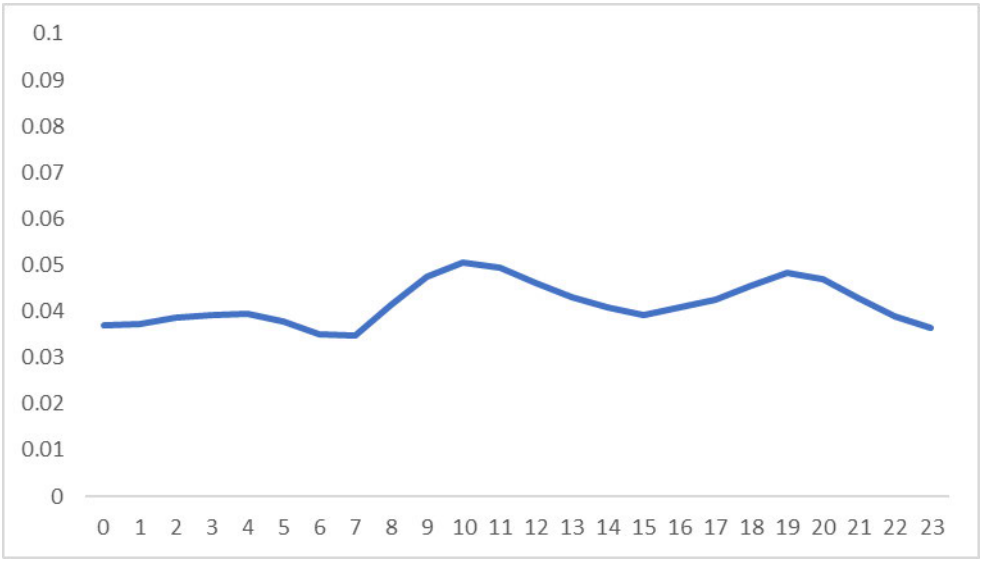


Figure 18. Program Multifamily Use Case – 68 Sites

The load profile for 68 Multifamily program sites shows relatively flat usage throughout the whole day, with slight increases at 9 a.m. and 7 p.m. Not apparent in the load profile, but through investigation, multifamily sites have few active users currently. This is expected to grow over time as the cost of electric vehicles come down and charging stations like these are more available.

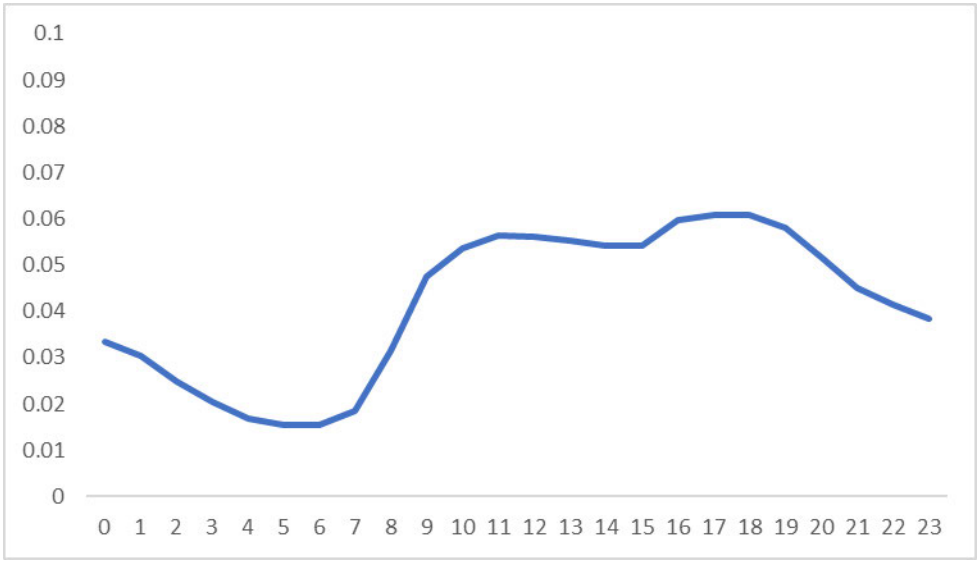


Figure 19. Program Public Use Case L2 – 44 Sites

The load profile for 44 program public sites shows mild overnight usage, a sharp increase starting around 6 a.m., and a sustained midday peak from late morning to early afternoon. Demand tapers off gradually in the evening. This pattern reflects typical, unmanaged public usage, though these sites have higher late-night usage than non-program public sites.

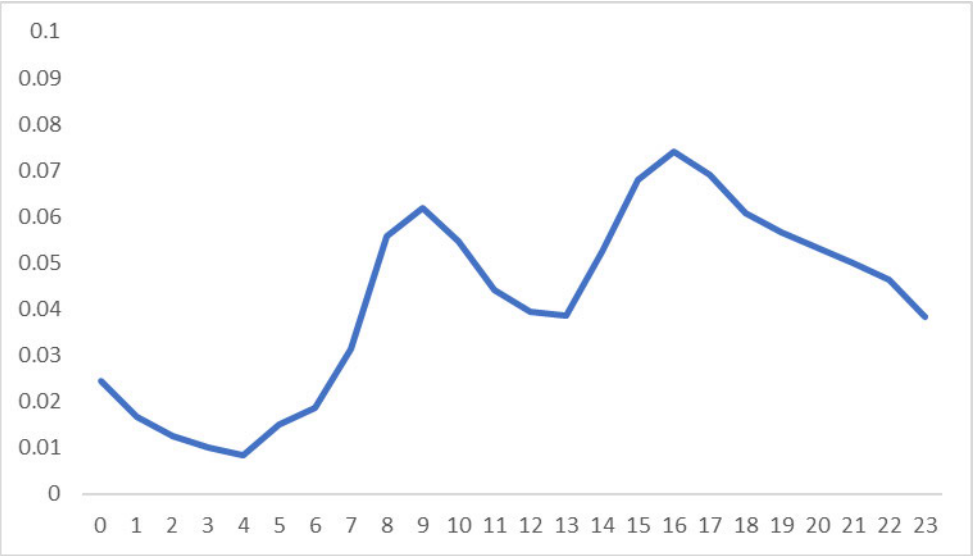


Figure 20. Program Workplace Use Case - 50 sites

The load profile for 50 workplace program sites shows mild usage in the early morning with a sharp rise starting at 6 a.m., dropping rapidly at 10 a.m., peaking again from 3 p.m. to 5 p.m., before dropping gradually from 6 p.m. to the remainder. This is typical of charging when arriving at work and potentially a second group charging before leaving.

Appendix H Underserved Community Maps

H.1 Underserved Map Methodology

In May 2021, then Governor Brown signed HB 2165 into law, amending ORS 757.357 to establish a new utility TE monthly meter charge with required expenditures on underserved communities and placing new importance on investment in charging infrastructure as distinct from programmatic activity in support of TE.[57] In 2023, PGE developed a service territory map of underserved communities. To develop the map, PGE reviewed the HB 2165 definitions for underserved populations and analyzed various possible datasets for each category.[58] We developed an estimate of the number of PGE premises within each census tract where residents met at least one of the HB 2165 criteria. We then determined what percentage of premise IDs within each census tract were part of an underserved community based on that minimum threshold.

Additionally, we assessed the overlapping nature of many of these indicators by developing a composite map, allowing us to identify which census tracts score highly under multiple HB 2165 criteria. This more nuanced view will allow us to better understand where to target certain programs based on the number of community members who may experience even greater barriers to EV adoption and access to charging than looking at each criterion in isolation. For example, the Business EV Charging Rebates program needs to locate communities who have both many renters, multi-family dwellings and low-income community members to support identifying public or workplace charging locations for customers who may face multiple systemic barriers to EV adoption. This will allow us to better engage with community members about needs relating to TE so we can more effectively manage deployment of resources in these communities.

H.2 Underserved Public Charging Locations

There has been growth in public charging in PGE's service areas, but additional growth is needed to meet future EV growth and reduce the number of vehicles per charging port. The map below identified public charging stations from the Alternative Fuels Data Center[59] and PGE overlaid the information with the underserved community map to identify areas where there are charging deserts which will help target additional public charging station locations to support through Business EV Charging Rebates.

[57] "PGE's 2023 Final Transportation Electrification Plan," Portland General Electric, 2023, https://edocs.puc.state.or.us/efdocs/HAQ/um2033haq328284024.pdf
[58] "DSP Part II Section 3.5.4 and Appendix N," Portland General Electric, n.d., https://portlandgeneral.com/about/who-we-are/resource-planning/distribution-system-planning/dsp-resources-materials
[59] "Electric Vehicles Charging Center," Alternative Fuels Data Center, n.d., https://afdc.energy.gov/fuels/electricity_infrastructure.html.

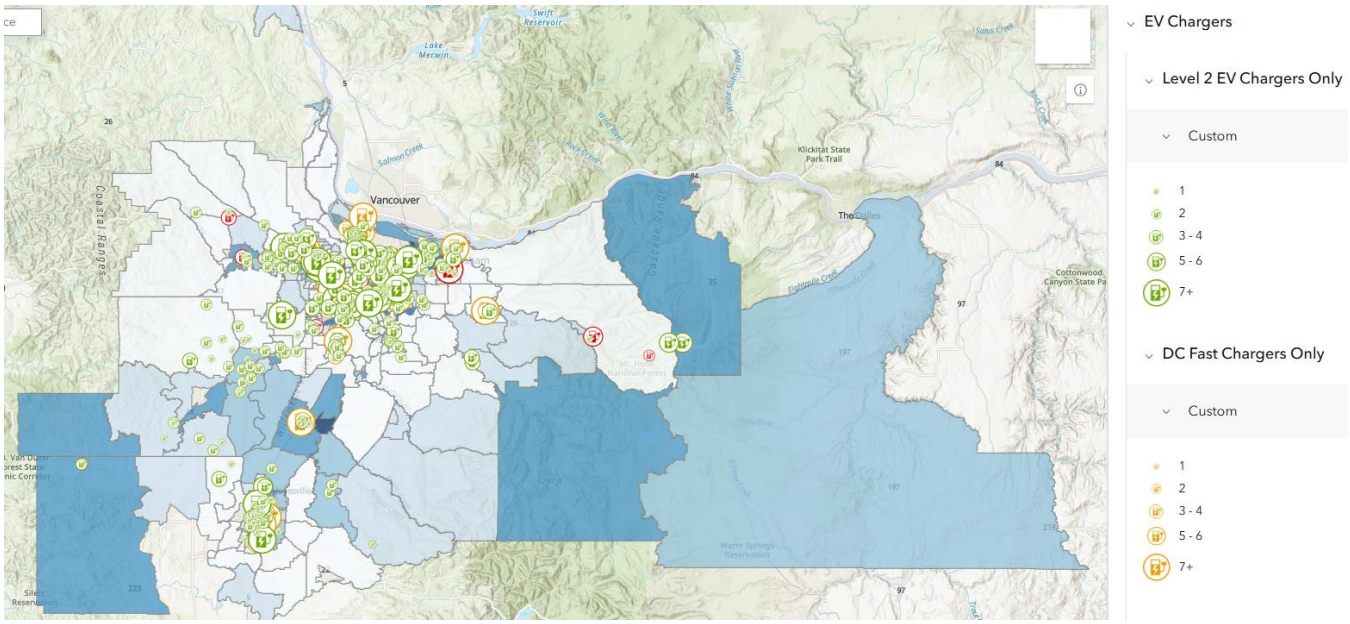


Figure 21. Map of Public Charging Stations

Appendix I Stakeholder Engagement

I.1 Stakeholder Engagements

Table 80 provides a list of stakeholder engagements since the last TE plan.

Table 80. Summary of Stakeholder Engagements

Timeframe	Meeting Purpose	Stakeholder Attendees
August 2024	External stakeholder meeting that PGE was invited to attend to share update on program progress and solicit interest in meeting on CFP future direction.	NWEC, CUB, GEI, Verde, Climate Solutions & OEC
September – October 2024	PGE requested stakeholder meetings to share thoughts on CFP direction and solicit input.	OEC, NWEC & Climate Solutions
December 2024	Demand Resource Advisory Group Quarterly meeting.	Staff
January 2025	DEQ meeting for input on future Clean Fuels Program shifts.	DEQ & PUC staff
January 2025	Attended regularly scheduled external stakeholder meeting to update on current TE program progress and present Clean Fuels Program shifts.	NWEC, CUB, GEI, Verde, Climate Solutions & OEC
May 2025	Workshop to share PGE strategy/direction for upcoming TEP, take Q&A and seek stakeholder input.	UM 2033 Service List, Advocates, Charging Industry & OPUC/DEQ Staff
May 2025	External stakeholder requested meetings to follow-up individually or in small group meetings with stakeholders to address questions or concerns from May workshop prior to draft filing.	NWEC, City of Milwaukie, Climate Solutions, PBOT, GEI at Lewis & Clark, Neighbors for Clean Air

I.2 Stakeholder Comments

The following table provides a detailed summary of the feedback received from a May 2025 feedback workshop with external stakeholders and how PGE has considered the feedback.

Table 81. Summary of Stakeholder Feedback

Topic	Summary of Comment	PGE Response
Business EV Charging Rebates	**What changes or improvements would you suggest for this program? Please respond with a short statement**	
	Consider dedicating minimum level of funding for DCFC to support customers w/o access to home charging. Consider expanding size of program and	Thank you for your valuable input. We are actively evaluating a strategic approach to optimize our program's budget allocation. This includes the potential introduction of an installation

Topic	Summary of Comment	PGE Response
	consider $55k/port as the floor for DCFC rebates.	rebate to complement our existing DCFC rebate offering. While a final decision is still pending, we are carefully considering this option to enhance the overall effectiveness and accessibility of the program.
	I would suggest limiting the investments in multifamily first, and then low-income second. Only invest in other businesses if program not filled with the first two categories	We appreciate your feedback and will take your suggestion into consideration.
	Require participation in managed charging programs in order to receive charger rebates	Thank you for your suggestion. PGE is actively developing comprehensive managed charging programs for commercial customers. While current rebate incentives don't require participation in these programs, we plan to integrate managed charging requirements as our demonstration initiatives evolve into pilots or full-scale implementations.
	I would hope to specifically have recommendations on cost effective rates for multifamily. It feels criminal to see rebates go to appts charging 65c/kWh	We appreciate your feedback on this matter and will explore solutions to potentially mitigate such scenarios as well as work to refine data on multifamily charging sessions if pricing differences occur between public charging and multifamily users.
	Redesign MFH incentives to allow for greater installations, incentivize access to as many residents as possible, not L2 in a communal set up. 10 years is too long to expect sites to send data.	Thank you for your feedback. We will take your suggestions for the Multifamily incentives into consideration. Currently, there are no penalties if a charger is retired prior to 10 years.
	Consider moving the bulk of funding toward the make-ready/installation, rather than the EVSE, to better align with the utility's role to serve load	Thank you for your suggestion, we have included an installation rebate for make-ready as part of the Rebates program in the 2026-28 TE Plan.
	Ensure eligibility for third-party providers for fleet-focused infrastructure	The program tariff only allows rebate incentives to be issued to the PGE customer of record who owns or leases the site, as they are responsible for maintaining the equipment and fulfilling participation terms.

Topic	Summary of Comment	PGE Response
	I wonder if the budget is possibly under-sized. (Hard to know how TE will evolve due to federal cuts to incentives/grants.)	Thank you for your feedback. The program's budget was increased significantly for the 2026 - 2028 TE Plan; however, if warranted and possible, we will explore avenues to support EV charging access further.
	Given how quickly things change and extenuating circumstances, 10 years of operation can be a difficult requirement to meet.	We appreciate your feedback on this program requirement and will take it into consideration as we continue to develop the program. Currently, there are no penalties if a charger is retired prior to the 10-year contract end date.
	earmark some funds to not just reach underserved census tracts, but more specifically reach underserved individuals. E.g. pocket of funds that go to public / affordable housing	Thank you for your suggestion. We are considering partitioning the programs funding for individual rebate types such as the DCFC rebate, which is exclusively available to projects in underserved communities.
	This is a very well done change. Increasing the amount for MFH ports and including make ready is an amazing addition!	Thank you for your support.
Clean Fuels Program	**What else did you want to see the Clean Fuels Program funds support? Please respond with a short statement**	
	I like the proposal. Hope to see a focus on the schedule 50 participation	Thank you for the support; we will be implementing outreach activities to promote the Schedule 50 in 2025 which can influence additional marketing efforts in 2026-2028.
	V2G demonstration in connection with microgrid testbed demos.	We will take this into consideration as future V2G demonstrations are scoped and developed.
	Load management solutions for MFH properties (not L2 networked chargers) and not make-ready/panel upgrades.	Thank you for the comment. We are currently leading a multifamily managed charging demonstration which will inform future efforts with regard to load management solutions and opportunities in this space.
	Really support the idea of adding technical assistance - this is a best practice among utilities around the country.	Thank you for the feedback and support.
	I suggest that CFP credit $$ should incentivize customers in the Smart Charging Pilot, based upon kWh usage. Keep incentivizing the customers that are generating the CFP credits by their activity.	Thank you for the comment and feedback. We are currently utilizing Monthly Meter Charge revenue to support the Residential Smart Charging Pilot.

Topic	Summary of Comment	PGE Response
Commercial Managed Demo	**What changes or improvements would you suggest for this program? Please respond with a short statement.**	
	Incentivize participation by performance - how manageable and reactive is each of these loads	Our incentives will be primarily based on participation (e.g., customer does not exceed # opt-outs in a #-month period, or amount of kWh shifted off-peak, etc.). These demos will reveal the effectiveness and uptake of each Managed Charging approach and will inform how we price future incentives to achieve the flexible load needed.
	Focus on distribution optimization, prioritize direct, authorized integrations with automakers, prioritize recurring incentives.	A couple use cases will be distribution-focused, precisely because the large commercial EV loads can affect the distribution system (overloads on local feeders/substations). We are prioritizing direct integrations with EV OEMs or EVSE Charge Management Systems (CMS), depending on which equipment is used to manage charging.
	Please look at different customer payment models as a outcome of the pilot. We have found that commercial projects are keen to pass cost to the user in high /kWh costs that make them unreasonable for	The customers own and manage the chargers, so they are in control of pricing. The majority of these demonstrations will be located at private commercial sites which would not affect public charging users.
	For success, needs strong user stakeholder engagement.	We agree; the customers (Fleet/Workplace/Multifamily site operators) will be engaged from end-to-end (project scoping, implementation, and final reports). Many of the desired learnings are about the customer experience, so this is essential.
	Learnings around types of charging integration and challenges	Many of our learning objectives are about the ideal system architecture, compatibility with customer-owned hardware/software, and seamlessness/reliability from the top down.
	I'm curious how this program may overlap with resiliency charging hubs. I envision chargers, solar arrays and battery systems together on sites. Curious about DCFC could be DC-coupled to batteries.	We predict these Managed Charging solutions will unlock ability to manage other onsite loads, as well. It is possible we'll include batteries or solar in these demonstrations if already located on-site – however, testing priority will focus on the EV-only features first.

Topic	Summary of Comment	PGE Response
	Work to ensure the assets are deployed in a non-wires capacity to maximize grid benefits and asset acquisition deferral (locationally targeted). Will these all be fleet? Or include public?	Commercial demonstrations encompass Fleet, Workplace, Multifamily. Public chargers could be involved depending on the flexible load potential. We agree that deferred infrastructure investments are a key learning.
	Could consider adding and piloting flexible connection as well	Flexible Interconnection will be included as a use case. We are investigating how dynamic/real-time we could set schedules for Flexible Interconnection agreements, but plan to test some version of it.
	This seems like a reasonable approach. It would be ideal to have a mechanism to scale managed charging programs for specific customer segments prior to the next program phase, prior to 2028/2029.	Each demonstration will produce a final report with recommendations for a future pilot program (if it is recommended). Timelines will differ per demonstration, but most will close out in 2027/28.
	No changes per se, don't know enough, but would like to see more communication about this kind of tool/strategy and the advancement towards VPP deployment.	We agree these demonstrations will reveal the VPP potential for commercial segments. We aim to share learnings at industry conferences, through annual reports, other engagements as requested and pass down best practices to customers and vendors.
	I feel that these funds would be better served in the Business Charging rebate, Drive Change Fund, or other existing rebate programs.	Thanks for your feedback, we agree those are valuable customer programs. These demonstrations are more targeted to advancing the VPP and grid resilience which may flow from rebate programs in the future.
Fleet Partner	**Do you support proposed 2026-2028 changes to Fleet Partner? If no, please share your recommended changes in a short response.**	
	Why is there reduced port installation under the current plan as compared to last plan?	PGE has seen decreased fleet applications and commitments in 2024 and 2025. Market conditions indicate that fewer fleets will be electrifying over the next several years, reducing the number of ports the program is projected to enable.
	It seems that if other factors are reducing demand, this means a need for more support to encourage fleet electrification. Understood though, if vehicles not available/affordable.	Market conditions indicate that fewer fleets will be electrifying over the next several years, but we will monitor market conditions to determine if adjustments are warranted. We benchmark our program incentives against other utility programs regularly, as well, and the recent benchmarking activity shows that our fleet make-ready

Topic	Summary of Comment	PGE Response
		incentives are consistent with other utility programs.
	Disappointed, but understand	Thank you for your understanding of the market impacts to the program.
	It's curious to give less support during a recession. LDV fleets should still have plenty of need for support, even in a freight recession.	PGE has seen decreased fleet applications and commitments in 2024 and 2025 including fleets with LDV's. Market conditions indicate that fewer fleets will be electrifying over the next several years but we will monitor market conditions to determine if adjustments are warranted.
	Great program!	Thank you for the recognition.
	I hope that PGE has some opportunity for increasing the budget later as needed if some market uncertainties resolve favorably.	Market conditions indicate that fewer fleets will be electrifying over the next several years but we will monitor market conditions to determine if adjustments are warranted.
	Fleet charging will be an essential part of MHD electrification, esp. with projected ACT roll backs. And the PGE service territory will be essential to promoting health benefits from MHD EV	Fleet Partner remains committed to educating customers about the benefits of fleet electrification and assisting customers along their electrification journey.
	City of Portland is putting a larger emphasis on freight decarb and fleet transition with new projects & we were hoping to connect more companies with this program - would love to chat more offline!	Please contact the program at FleetPartner@pgn.com. The program is here to support fleet customers in their electrification journey.
	This seems like a drastic cut in funds dedicated to this program, while what we're hearing is that more technical assistance and make-ready incentives are needed for fleets.	Technical advisory services remain a key component of Fleet Partner. Market conditions indicate that fewer fleets will be electrifying over the next several years but we will monitor market conditions to determine if adjustments are warranted. We benchmark our program incentives against other utility programs regularly, as well, and the recent benchmarking activity shows that our fleet make-ready incentives and technical advisory services are consistent with other utility programs.
Municipal Pole Charging	**Do you support proposed 2026-2028 changes to Municipal Pole Charging? If no, please share your recommended changes in a short response.**	
	While challenging, PGE should seek to increase the number of pole charging beyond the 180 goal from the prior plan	Thank you for your support of this program. Unfortunately, the program has encountered several challenges, including a limited supply of suitable

Topic	Summary of Comment	PGE Response
		poles and locations. Additionally, we've faced difficulties with software vendors and incurred unexpected costs, making the program more expensive than initially projected. As a result, expanding the program beyond the current 180 units would be difficult under present conditions.
	Thank you for maintaining commitment to this demonstration project despite difficulties and slowdowns.	Thank you for your support.
	Understand the challenges from the last iteration, but very much support adding new chargers if municipalities request / support. Esp. considering reduction in other public charging options.	Thank you for your comment. We have thoroughly engaged with all municipalities that have suitable infrastructure for this program. While we remain open to future changes in stance, we are currently focusing our efforts on collaborating with the cities that have expressed an interest in moving forward. The other municipalities have clearly communicated their decision to not participate at this time.
	Would love to see continued expansion of this program - I remain hopeful that there are more opportunities for pole chargers in Portland, especially as we've recently gotten over regulatory/permit hurdles!	Thank you for your support of this program. PGE is committed to our collaboration with the City of Portland to accelerate the deployment of pole-mounted EV chargers. We aim to significantly increase installations throughout 2025.
	I'd like to see more information about the costs of this infrastructure, even with your explanation that this would go beyond 2028 (potentially) still seems high in my lay opinion. More info please.	The funding in the 2025 TE Plan is reserving funds to maintain pole chargers through 2031.
	Consider expansion of this program for the viable poles that don't yet have charging	Thank you for your comment. Unfortunately, the program has encountered several challenges, including a limited supply of suitable poles and locations. Additionally, we've faced difficulties with software vendors and incurred unexpected costs, making the program more expensive than initially projected. As a result, expanding the program beyond the current 180 units would be difficult under present conditions.

Topic	Summary of Comment	PGE Response
Portfolio Support	**Do you support proposed 2026-2028 changes to Portfolio Support? If no, please share your recommended changes in a short response.**	
	Rates will be important to TE management moving forward	Thank you for your comment.
	Makes sense.	Thank you for your comment.
Public Charging - Electric Avenue	**Do you support proposed 2026-2028 changes to Public Charging - Electric Avenue? If no, please share your recommended changes in a short response.**	
	There is a need to add HD charging in PGE territory beyond Electric Island	Thank you for your response, we will continuously analyze and investigate the HD charging needs throughout PGE territory.
	you are doing great work with this	Thank you.
	Ensure costs won't increase if move to third party. Better evaluate the challenges of the last iteration.	Third-party ownership is in the research phase. As research continues, pricing impacts to customers will be evaluated as one factor in considering other ownership models.
Residential Smart Charging Program	**What changes or improvements would you suggest for this program? Please respond with a short statement.**	
	If I understand correctly, not sure a $25 credit is sufficient to accelerate participation or reflect the value to PGE in meeting load	Thank you for the feedback. We are proposing increased enrollment rebates to incentivize program participation.
	Preference for direct, telematics integration for most benefit (current incentives are not so aligned). Distribution optimization will provide more value than blanket DR "windows" (same as rates??)	Thank you for your comments. The pilot allows customers with direct control telematics enabled vehicles and direct control enabled chargers to participate in the Pilot. As we optimize dispatch strategies, we will look at the effects of EV charging on both the distribution system and system level.
	Incorporate interactive V2G demonstration element.	We will take this into consideration as future V2G demonstrations are scoped and developed. Residential V2G is currently being explored in PGE's SmartGrid Testbed.
	The vast majority of EV impacts are at the distribution level. Adding distribution-optimization would dramatically reduce upgrade needs and costs for EVs, improving affordability for all customers.	We appreciate your feedback. As we optimize dispatch strategies, we will look at the effects of EV charging on both the distribution system and system level.
	Income restrictions should be applied to home chargers given most home owners have the financial ability to buy L2 EVSE. If not, the rebates should	Thank you, we will take your suggestion to limit the pilot's upfront incentives to specific income levels into consideration. The program does require DR program enrollment as a

Topic	Summary of Comment	PGE Response
	require TOU rate and forced DR program opt-in.	condition of receiving the upfront rebate incentives.
	I suggest that customers should receive an incentive for per/kWh dispensed. Clean Fuel Credit $$ should incentivize customers to keep fueling with electric. Useful for PHEVs especially.	We appreciate your feedback, and will take your suggestion into consideration. We are exploring residential rate development through portfolio support in 2026-2028
	V2G integration pilots would be great to see	We will take this into consideration as future V2G demonstrations are scoped and developed. Residential V2G is currently being explored in PGE's SmartGrid Testbed.
	Moving towards consistent active management vs. just demand response events can maximize the impact of managed charging programs. Expanding eligible auto and EVSE OEMs promotes equitable access.	Thank you for your comments. The pilot is looking to optimize its dispatch strategies in 2026-2028. The pilot recently added one charger manufacturer to its qualified product list and is working toward adding more chargers and EV OEMs in 2025 onward.
	That data desire is reasonable in theory but in practice it cab gave a substantial cost in equipment selection and ongoing connection fees that is one of the big factors in the increased user costs in multifamily units. We see that as a significant issue that continues to widen the EV access dived between those with res EV charging access and those living in MF housing.	Business EV Charging pilot provides higher incentives for multi-family charging to help offset the costs of networked chargers.
	Creativity in incentive design so res rates are not drastically different from Res Smart Charging	We will take this into consideration moving forward.
	I would like to encourage going to a usage based incentive rather than a flat rate paid twice yearly. This would be financed by Clean Fuel Program credit monetization. PGE should be encouraging on-going fueling of EVs. This could matter most with customers with PHEVs, who have fuel choices.	Thank you for your comment. We are exploring residential rate options in portfolio support financed by MMC in 2026-2028 but there is potential to explore CFP funding for equitable electrification if needed.
Charging Resiliency Hub Demonstration	**What changes or improvements would you suggest for this program? Please respond with a short statement.**	
	I am not sure that EV charging is higher priority in resiliency context as compared to keeping lights on etc. Also, concerned this may operate in a silo and not be integrated with other state resiliency.	This demonstration is intended to go beyond enhancing EV charging availability. The charging hubs would not only provide power to electric vehicles in island mode during outages but also contribute to grid health by leveraging their integrated battery

Topic	Summary of Comment	PGE Response
		systems. This dual functionality showcases a more resilient and efficient approach to EV infrastructure.
	Worth exploring	Agreed, thank you.
	Would it be possible to design as mobile systems so that they can be moved to emergency areas?	PGE is still investigating, but it would be unlikely that these hubs would be mobile, based on the need to have this tied to the grid, as well as the size and weight of the battery backup system.
	Open mindedness to incorporate fleet infrastructure	Fleet vehicles would be able to use these charging stations for emergency power but we have separate Fleet charging incentives to encourage on-site fleet electrification.
	This might be possible for one or two sites. Just with costs of batteries	As we define the specifications, we will understand how many sites we can deploy in the given demonstration budget.
	Make sure reducing costs to customers. explore battery integration, microgrids, other resources that might be provided during emergency situations.	We plan to conduct a competitive RFP to assess the latest technology and achieve the most cost competitive proposals.
	Per the conversation during the meeting, it would be helpful to align this program with other resilience projects, build off the organizing and funding for those projects.	We are exploring collaboration with other existing projects to leverage faster deployment and more efficient use of multiple funding streams.
	I worry projects will potentially be very costly, and $2M may end up serving only one or two hubs. I would recommend making it broader, and not require solar/BESS, but just charging	This demonstration is intended to provide backup power in the event of a PSPS event, which requires battery storage. We are researching the most cost effective solutions for batteries.
Strategic Grid Investments	**What changes or improvements would you suggest for this program? Please respond with a short statement.**	
	Would be helpful to understand how this differs from status quo when new a EV charging project needs to be energized. Would this upgrade be done on behalf of one customer or multiple customers?	The demonstration is focused on constrained capacity areas with high and continued interest from TE customers. Strategic Grid Investments demonstration locations are intended to benefit multiple customers from multiple EV use cases.
	Suggest that the program prioritize GETS opportunities before expansion	We will make sure to evaluate all options before confirming that an infrastructure upgrade is necessary.
	Managed charging is demonstrated to be more cost-effective	Thank you for this feedback. The TE team continues to investigate managed

Topic	Summary of Comment	PGE Response
		charging as part of a separate demonstration.
	Focus on underserved areas to enable more public or MFH charging expansion, helping to increase EV adoption.	Rural and historically underserved areas will be prioritized in the criteria for selecting projects.
	Ensure care to avoid looking to narrowly at existing/known fleet depots (support emerging business model of third-party charging hubs)	The site selection process will be rigorous and data driven to determine which data sources best support predicting locations most likely to lead to new TE load.
	Tracking timeline of implementation	Projects selected will be limited to ability execute within three years.
	Study the investments into storage versus transmission investments. utilize utility-owned DER to reduce transmission upgrades.	Ongoing efforts around DER and storage are underway. Thank you for the suggestion to monitor those when considering projects for strategic investments.
	I want to learn more about how this can be a resource, integration with VPP etc. how can this support the grid. will this be a non-wires solution or is it just being used to bring on more resources?	This is an effort to confirm ability to use additional data sources to identify grid upgrades needed to enable TE load in areas that are constrained and where high interest from TE customers is shown.
	Should consider how/when to use state electrification targets (i.e., ACT) to determine where strategic grid investments will be needed	Thank you for the suggestion. The team will investigate the use of state electrification targets while determining where investments are needed.
	Would be interested in seeing how those areas of high TE interest are determined. Transparency is important, especially as programs like this grow over time. Which they should.	Final data sources and selection criteria isn't finalized but will include factors such as: proximity to a highway corridor, creation of a minimum of two MW of new capacity, expected benefits to LDV and MHD public charging and MHD fleet depot charging, cost of upgrades versus MWs of new capacity created, existing EV load requests in the area.
	Look into smart panels that would work line a VPP inside the home and manage customer loads and expand utilization of existing grid infrastructure.	Thank you for this suggestion. All options to optimize existing grid infrastructure will be considered.

Appendix J Additional Budget Views

Summary views of budgets and program support are provided in Table 6, and Table 7. Below are additional perspectives on the budgets to show the type of funding source pertinent to each program.

Table 82. Detailed Portfolio Spending on Underserved Communities by Funding Source

	Previously Approved TE Plan			Current Funding Request			
Programs–000s	2023 Actuals	2024 Actuals	2025 Forecast	2026	2027	2028	2026-2028 Total
Business EV Charging Rebates	552	1,411	2,973	4,326	4,515	3,600	12,441
GRC/Base Rates	0	5	985				
MMC	391	907	1,989	4,326	4,515	3,600	12,441
Deferral	161	499	–	–	–	–	–
Grants	–	–	–	–	–	–	–
Clean Fuels	–	–	–	–	–	–	–
Clean Fuels Program	8,399	15,106	15,006	10,501	13,128	15,172	38,800
GRC/Base Rates	–	–	–	–	–	–	–
MMC	–	–	–	–	–	–	–
Deferral	–	–	–	–	–	–	–
Grants	–	–	–	–	–	–	–
Clean Fuels	8,399	15,106	15,006	10,501	13,128	15,172	38,800
Commercial Managed Demonstrations	–	–	357	584	582	217	1,382
GRC/Base Rates	–	–	–	65	67	69	200
MMC	–	–	357	519	516	148	1,182
Deferral	–	–	–	–	–	–	–
Grants	–	–	–	–	–	–	–
Clean Fuels	–	–	–	–	–	–	–

	Previously Approved TE Plan			Current Funding Request			
Electric Avenue & OR Electric Byways	475	91	712	645	610	625	1,880
GRC/Base Rates	-	-	291	299	309	317	926
MMC	0	-	-	-	-	-	-
Deferral	475	91	-	-	-	-	-
Grants	-	-	-	-	-	-	-
Clean Fuels	-	-	421	346	300	308	954
Fleet Partner	2,913	3,233	1,862	1,433	1,425	1,102	3,960
GRC/Base Rates	2,846	3,101	1,772	1,374	1,366	1,043	3,784
MMC	67	132	90	59	59	59	176
Deferral	-	-	-	-	-	-	-
Grants	-	-	-	-	-	-	-
Clean Fuels	-	-	-	-	-	-	-
Heavy Duty Charging Pilot	-	-	-	-	-	-	-
GRC/Base Rates	-	-	-	-	-	-	-
MMC	-	-	-	-	-	-	-
Deferral	-	-	-	-	-	-	-
Grants	-	-	-	-	-	-	-
Clean Fuels	-	-	-	-	-	-	-
Municipal & Public Charging	507	805	2,823	685	545	1,828	3,058
GRC/Base Rates	460	410	-	-	-	-	-
MMC	47	395	2,783	685	545	1,828	3,058
Deferral	-	-	-	-	-	-	-
Grants	-	-	40	-	-	-	-
Clean Fuels	-	-	-	-	-	-	-

	Previously Approved TE Plan			Current Funding Request			
Portfolio Support	342	59	237	896	940	921	2,758
GRC/Base Rates	61	-	-	349	583	636	1,568
MMC	281	59	237	547	357	285	1,190
Deferral	-	-	-	-	-	-	-
Grants	-	-	-	-	-	-	-
Clean Fuels	-	-	-	-	-	-	-
Residential Smart Charging	1,107	1,527	2,977	2,161	2,424	2,394	6,980
GRC/Base Rates	-	-	-	70	72	75	217
MMC	160	1,526	2,977	2,091	2,352	2,320	6,763
Deferral	947	1	-	-	-	-	-
Grants	-	-	-	-	-	-	-
Clean Fuels	-	-	-	-	-	-	-
Charging Resiliency Hub	-	-	-	273	2,381	730	3,384
GRC/Base Rates	-	-	-	-	-	-	-
MMC	-	-	-	273	2,381	730	3,384
Deferral	-	-	-	-	-	-	-
Grants	-	-	-	-	-	-	-
Clean Fuels	-	-	-	-	-	-	-
Strategic Grid Initiatives	-	-	-	749	1,236	1,269	3,253
GRC/Base Rates	-	-	-	-	-	-	-
MMC	-	-	-	749	1,236	1,269	3,253
Deferral	-	-	-	-	-	-	-
Grants	-	-	-	-	-	-	-
Clean Fuels	-	-	-	-	-	-	-

	Previously Approved TE Plan			Current Funding Request			
Customer Programs	14,295	22,232	26,948	22,253	27,785	27,857	77,896
GRC/Base Rates	3,367	3,517	3,048	2,158	2,397	2,139	6,694
MMC	946	3,019	8,433	9,249	11,960	10,238	31,447
Deferral	1,583	591	-	-	-	-	-
Grants	-	-	40	-	-	-	-
Clean Fuels	8,399	15,106	15,427	10,846	13,428	15,480	39,754
PGE Fleet & Workplace	-	-	10,666	6,719	1,583	1,600	9,902
GRC/Base Rates	-	-	10,666	6,719	1,583	1,600	9,902
MMC	-	-	-	-	-	-	-
Deferral	-	-	-	-	-	-	-
Grants	-	-	-	-	-	-	-
Clean Fuels	-	-	-	-	-	-	-
Grand Total	14,295	22,232	37,614	28,972	29,368	29,458	87,798
GRC/Base Rates	3,367	3,517	14,227	9,197	4,049	3,810	17,056
MMC	946	3,019	8,433	9,249	11,960	10,238	31,447
Deferral	1,583	591	-	-	-	-	-
Grants	-	-	-	-	-	-	-
Clean Fuels	8,399	15,106	15,427	10,846	13,428	15,480	39,754

Appendix K Cost-benefit Model: Detailed Description

For the TE Plan we calculate benefit-cost ratios using three tests: RIM, TRC, and SCT.

For TE, RIM is the best indicator of impacts to the utility rates as it includes the impact of incremental energy usage from the TE program activity. Depending on the magnitude of each, the incremental program costs added to revenue requirements and the incremental energy usage can reduce a tariff rate in /kWh.

RIM Benefits: For each program the Benefits include the incremental tariff revenue from the incremental energy usage as well as revenues from any Clean Fuels credits generated from owned chargers. Since Monthly Meter Charge (MMC) funds do not require cost effectiveness, any cost funded by MMC receives an equal amount in Benefits. So, one dollar of cost funded by one dollar of MMC would have a BCR of 1.0. Since residential EV CFP credits are not a cost, any cost funded by residential EV CFP revenue receives an equal amount in benefits. So, one dollar of cost funded by one dollar of residential EV CFP revenue would have a BCR of 1.0.

RIM Costs: The key costs for administering programs include: Program Operations, Incentives, on-going O&M, Evaluations and Outreach and Education. Costs also include the incremental cost of energy and capacity supply from the incremental energy used by the program participants. Costs also include the capital carrying costs from CAPEX not funded by MMC or CFP. Capital items funded by MMC and CFP are capitalized as fully depreciated assets that do not earn a return on rate base.

TRC: The TRC considers values of both the utility and host-customer participants of TE program. One key difference to RIM lies in the benefits. The TRC does not include incremental tariff revenue but does include Net Participant Vehicle Savings. Net Vehicle Savings considers the incremental value of an EV over a gasoline or diesel vehicle over the life of the vehicle. The four vehicle costs include: purchase price, tax credits, fuel cost, and maintenance cost. Another key difference in the Costs is the treatment of incentives. For the TRC, the TE program incentive is a cost to the utility but a benefit to the host-customer so the value nets to zero.

SCT: The SCT includes all of the same costs and benefits as the TRC. It also includes three additional benefits. The primary benefit derives from reduced CO_2 emissions through EV energy usage as compared to CO_2 emissions from gasoline or diesel use. The avoided cost of CO_2 is quantified using the Taby] over time, or to incentive payments designed to induce lower [energy] use at times of high wholesale market prices or when system reliability is jeopardized."[60]

Flexible Load, or Flex Load is a dynamic form of DR capable of providing valuable grid balancing services. Grid balancing services are necessary for integrating high levels of renewable or variable energy resources. To supply grid balancing services, these demand-side resources must be available to grid operators throughout the day and capable of supplying several different types of energy products beyond peak load shifting.

[60] "National Assessment and Action Plan on Demand Response," Federal Energy Regulatory Commission, n.d. https://www.ferc.gov/industries/electric/indus-act/demand-response/dr-potential.asp.

Managed Load (also Managed Charging), in the context of Transportation Electrification, balances vehicle energy needs and energy control objectives. Managed charging can ensure that vehicles are properly powered when needed, while supporting a more reliable and resilient grid.[61]

[61] "Managed Electric Vehicle Charging," U.S. Dept. of Energy's Federal Energy Management Program, n.d. https://www.energy.gov/femp/managed-electric-vehicle-charging#:~:text=Managed%20electric%20vehicle%20(EV)%20charging,more%20reliable%20and%20resilient%20grid

Appendix L Substantive Changes Between Draft and Final Filing

This section provides a recap of substantive changes based on stakeholder comments to the draft TE Plan. The table will be filled out after the draft filing and input from stakeholders on the draft TE Plan.

Table 83. Substantive Changes between Draft and Final Filing

Description of Change	Location in Document
Completed in Fall 2025	

Appendix M Glossary

Aggregation and Automation: While a single vehicle charge might seem small, when optimized and managed together, these vehicles can offer significant benefits to the electrical system. PGE aims to aggregate thousands of EVs across customer segments to create meaningful grid resources. This involves developing and integrating with advanced software platforms that can automatically respond to grid signals and optimize charging across the entire fleet of connected vehicles and chargers. PGE envisions integrating EV charge management from third-party providers into our Enterprise Distributed Energy Resource Management System (DERMS) to create a fully automated and intelligent grid management solution.

Behind-the-meter pertains to components of the electrical system on the "customer side" of the electric meter, where the customer bears responsibility for design, construction, and maintenance (e.g., the electrical panel/switchgear, wiring to an electric vehicle charger).

Bi-directional Charging explores how vehicle-to-grid (V2G) technologies can help maximize the grid value of managed EVs load. EVs with bi-directional capabilities essentially become mobile battery units. When parked and plugged in, they can store excess energy during off-peak hours and feed it back to the grid during high-demand periods. PGE is exploring and implementing V2G technologies.

Data Analytics invests in data collection and analysis capabilities to understand charging patterns and predict grid impacts. Quantify specific values (avoided costs) for managed charging use cases and incorporate economics into optimization model and grid planning practices.

Demand Response (DR) is a concept that reflects "Changes in [energy] usage by end-use customers from their normal consumption patterns in response to changes in the price of [energy] over time, or to incentive payments designed to induce lower [energy] use at times of high wholesale market prices or when system reliability is jeopardized."[62]

Distribution System Impacts and Grid Integration Benefits is the amount of usage from PGE customers, internal fleet and workplace charging further delineating the amount of off-peak usage and managed charging forecasted to result from portfolio investments

Environmental Benefits and GHG Emissions Impacts refers to overall GHG and emissions reductions estimated from the forecast EV adoption count

Equity of Program Offerings is the amount of forecasted expenditures and ports benefitting underserved communities

EV Adoption is the overall EV adoption forecasted in PGE's service territory; PGE customer programs and internal fleet and workplace electrification support EV adoption

Flexible Load, or Flex Load is a dynamic form of DR capable of providing valuable grid balancing services. Grid balancing services are necessary for integrating high levels of renewable or variable energy resources. To supply grid balancing services, these demand-side resources must be

[62] "National Assessment and Action Plan on Demand Response." Federal Energy Regulatory Commission, n.d.,https://www.ferc.gov/industries/electric/indus-act/demand-response/dr-potential.asp.

available to grid operators throughout the day and capable of supplying several different types of energy products beyond peak load shifting.

Gradual Technology Rollout conducts small-scale demonstrations to evaluate new technologies and approaches, then phases in successful solutions, building a solid foundation first, and expanding as systems prove reliable and beneficial. Regularly assesses the performance of implemented systems and adjusts based on real-world data and emerging technologies.

Infrastructure Development invests in expanding the charging network, focusing on areas with high flexible-load potential. Directs vehicles and chargers to be capable of two-way communication and control. As grid management systems are defined and implemented, refines charger qualification requirements so new installations are capable of integration and follow industry-standard communication protocols and cybersecurity measures.

Infrastructure Performance is the infrastructure deployed furthering customer value and reliability, accessibility, and affordability of charging options

Managed Load (also Managed Charging), in the context of Transportation Electrification, balances vehicle energy needs and energy control objectives. Managed charging can ensure that vehicles are properly powered when needed, while supporting a more reliable and resilient grid.[63]

Optimization PGE's vision extends to optimizing both the bulk power system and specific distribution network needs. Bulk system optimization can provide system-wide flexibility to balance supply and demand, flatten load curves, reduce reliance on peaking plants, and support the integration of variable renewable energy sources. Optimization of EV loads will allow PGE to alleviate stress on specific feeders or substations and implement flexible service connections that dynamically adjust site-level load limits based on the feeder's capacity.

Program Participation and Adoption refers to the number of customers and ports forecasted to be participating in the portfolio and the additional port counts expected from investments

Underserved Engagement is PGE's plans to engage and receive input from underserved communities through the plan period

[63] "Managed Electric Vehicle Charging," Federal Energy Management Program, n.d., https://www.energy.gov/femp/managed-electric-vehicle-charging#:~:text=Managed%20electric%20vehicle%20(EV)%20charging,more%20reliable%20and%20resilient%20grid.

M.1 Acronyms

Acronym	Description
ACT	Advanced Clean Trucks
AdopDER	Distributed Energy Resources Forecasting Tool
aMW	Average Megawatt
APR	Annual Percentage Rate
BCR	Benefit-cost Ratio
BESS	Battery Energy Storage Systems
BEV	Battery Electric Vehicle
CAPEX	Capital Expenses
CEP	Clean Energy Plan
CFP	Clean Fuels Program
CO_2	Carbon Dioxide
DCF	Drive Change Fund
DCFC	Direct Current Fast Charge
DEQ	Department of Environmental Quality
DMV	Department of Motor Vehicles
DOE	Department of Energy
DR	Demand Response
DSP	Distribution System Plan
DTNA	Daimler Truck North America
EPA	Environmental Protection Agency
EPRI	Electric Power Research Institute
eRoadMAP	An interactive, public-facing map developed by PGE and EPRI and other utilities
EV	Electric Vehicle
EVSE	Electric Vehicle Supply Equipment
FERC	Federal Energy Regulatory Commission
GHG	Greenhouse Gas
GridFAST	An EPRI-led online platform
HB	House Bill

Acronym	Description
HDV	Heavy Duty Vehicle
IIJA	Infrastructure Investment and Jobs Act
IRA	Inflation Reduction Act
IRP	Integrated Resource Plan
kWh	Kilowatt Hour
LDV	Light Duty Vehicle
LOLH	Loss of Load Hour
MCS	Megawatt Charging System
MDV	Medium Duty Vehicle
MHD	Medium and Heavy Duty
MMC	Monthly Meter Charge
$MMTCO_2e$	Million Metric Tons of Carbon Dioxide equivalent
NEVI	National Electric Vehicle Infrastructure
NO_x	Nitrous Oxide
O&M	Operations & Maintenance
OAR	Oregon Administrative Rules
ODEQ	Oregon Department of Environmental Quality
ODEQ	Oregon Department of Environmental Quality
OEM	Original Equipment Manufacturer
OPUC	Oregon Public Utility Commission
ORS	Oregon Revised Statutes
PBOT	Portland Bureau of Transportation
PHEV	Plug-in Hybrid Vehicle
PM	Particulate Matter
RIM	Ratepayer Impact Measure
SCT	Societal Cost Test
SO_2	Sulfur Dioxide

Acronym	Description
SPIDERT™	Spatial Penetration and Integration of Distributed Energy Resources
TCO	Total Cost of Ownership
TE	Transportation and Electrification
TEP	Transportation and Electrification Plan
TRC	Total Resource Cost
VMT	Vehicle Miles Traveled

CERTIFICATE OF SERVICE

I hereby certify that I have this day caused the **Portland General Electric Company's 2026-2028 Transportation Electrification Plan** to be served by electronic mail to those parties whose email addresses appear on the attached service list for OPUC Dockets UM 2033 AND UM 2165.

Dated this 18th day of July, 2025.

/s/ Danielle McCain
Danielle McCain
Associate Regulatory Analyst
danielle.mccain@pgn.com

UM 2033 SERVICE LIST

PACIFIC POWER	825 NE MULTNOMAH ST, STE 2000 PORTLAND OR 97232 oregondockets@pacificorp.com
JEFF ALLEN FORTH	1732 NW QUIMBY ST, STE 240 PORTLAND OR 97209 jeffa@forthmobility.org
JARED BALLEW CHARGEPOINT	jared.ballew@chargepoint.com
GRAHAM BATES OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY	graham.bates@deq.oregon.gov
NEIL BAUNSGARD THE ENVIRONMENTAL CENTER	16 NW KANSAS AVE BEND OR 97703 neil@envirocenter.org
DAN BOWERSON ALLIANCE OF AUTOMOBILE MANUFACTURERS	2000 TOWN CENTER STE 325 SOUTHFIELD MI 48075 dbowerson@autoalliance.org
MARY BRAZELL OREGON DEPARTMENT OF TRANSPORTATION	355 CAPITOL ST NE SALEM OR 97301 mary.brazell@odot.state.or.us
CORY BULLIS FLO	cbullis@flo.com
CAROLINE CILEK **(C)** **(HC)** GREEN ENERGY INSTITUTE	carolinecilek@dwt.com
CHARLIE COGGESHALL EQ RESEARCH	1155 KILDAIRE FARM ROAD, STE. 202 CARY OR 27511 regtrackdsire@gmail.com
JOSH COHEN SWTCH ENERGY	444 SOMMERVILLE AVE SOMERVILLE MA 02143 josh.cohen@swtchenergy.com
AMANDA DALTON DALTON ADVOCACY INC	8 N. STATE ST, STE 103 LAKE OSWEGO OR 97034 amanda@daltonadvocacy.com

EVA DECESARO PORTLAND GENERAL ELECTRIC	eva.decesaro@pgn.com
EVAN ELIAS OREGON DEPARTMENT OF ENERGY	550 CAPITOL ST NE 1ST FL SALEM OR 97310-0830 evan.m.elias@energy.oregon.gov
INGRID FISH CITY OF PORTLAND - PLANNING & SUSTAINABILITY	ingrid.fish@portlandoregon.gov
MICHAEL FREELS OREGON DEPARTMENT OF ENERGY	michael.freels@energy.oregon.gov
NOAH GARCIA EVGO	noah.garcia@evgo.com
STEFENIE GRIGGS	stefenie.t.griggs@odot.oregon.gov
JENNIFER HILL-HART OREGON CITIZENS' UTILITY BOARD	610 SW BROADWAY STE 400 PORTLAND OR 97205 jennifer@oregoncub.org; dockets@oregoncub.org
JAMIE JOHNSON GREEN ENERGY INSTITUTE	jamiejohnson@lclark.edu
GERIK KRANSKY OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY	gerik.kransky@deq.oregon.gov
MICHAEL ORMAN OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY	michael.orman@deq.oregon.gov
RACHEL SAKATA OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY	rachel.sakata@deq.oregon.gov
MATY SAUTER CITY OF PORTLAND	maty.sauter@portlandoregon.gov
JEANETTE SHAW FORTH	1732 NW QUIMBY ST, STE 240 PORTLAND OR 97209 jeanettes@forthmobility.org

JONI SLIGER OREGON DEPARTMENTOF ENERGY	550 CAPITOL ST NE 1ST FL SALEM OR 97301 joni.sliger@energy.oregon.gov
DAVID E VAN'T HOF DAVID VAN'T HOF LEGAL AND STRATEGIC SERVICES	3424 NE 42ND AVE PORTLAND OR 97213 vanthofd30@icloud.com
AMY WEBSTER GREEN ENERGY INSTITUTE	 amywebster@lclark.edu
KELLY YEARICK FORTH	 kellyy@forthmobility.org
AWEC	
CORRINE OLSON **(C)** **(HC)** DAVISON VAN CLEVE	1750 SW HARBOR WAY, STE. 450 PORTLAND OR 97201 coo@dvclaw.com
TYLER C PEPPLE **(C)** **(HC)** DAVISON VAN CLEVE	107 SE WASHINGTON ST STE 430 PORTLAND OR 97214 tcp@dvclaw.com
CHARGEPOINT	
MATTHEW DEAL CHARGEPOINT INC	254 E HACIENDA AVE CAMPBELL CA 95008 matthew.deal@chargepoint.com
SCOTT DUNBAR KEYES & FOX	1580 LINCOLN ST, STE 880 DENVER CO 80203 sdunbar@keyesfox.com
MAL SKOWRON CHARGEPOINT	254 EAST HACIENDA AVE CAMPBELL CA 95008 mal.skowron@chargepoint.com
EV.ENERGY CORP	
JOSEPH VELLONE EV.ENERGY CORP	2100 GENG ROAD STE 210 PALO ALTO CA 94303 joseph.vellone@ev.energy
NW ENERGY COALITION	
ANNABEL DRAYTON NORTHWEST ENERGY COALITION	811 FIRST AVE NO. 305 SEATTLE WA 98104 annabel@nwenergy.org

ODOT	
BOBBI CUMMISKEY ODOT	bobbi.jean.cummiskey@odot.oregon.gov
BRETT HOWELL ODOT	brett.howell@odot.oregon.gov
OREGON CITIZENS UTILITY BOARD	
MICHAEL GOETZ **(C)** **(HC)** OREGON CITIZENS' UTILITY BOARD	610 SW BROADWAY STE 400 PORTLAND OR 97205 mike@oregoncub.org
Share OREGON CITIZENS' UTILITY BOARD OREGON CITIZENS' UTILITY BOARD	610 SW BROADWAY, STE 400 PORTLAND OR 97205 dockets@oregoncub.org
PGE	
PORTLAND GENERAL ELECTRIC	pge.opuc.filings@pgn.com
BRENDAN MCCARTHY **(C)** **(HC)** PORTLAND GENERAL ELECTRIC	121 SW SALMON ST 1WTC1301 PORTLAND OR 97204 brendan.mccarthy@pgn.com
STAFF	
JP BATMALE **(C)** **(HC)** PUBLIC UTILITY COMMISSION OF OREGON	201 HIGH ST SE SALEM OR 97301 jp.batmale@puc.oregon.gov
BETSY BRIDGE **(C)** **(HC)** OREGON DEPARTMENT OF JUSTICE	1162 COURT STREET SALEM OR 97301-4520 betsy.bridge@doj.oregon.gov
ERIC SHIERMAN **(C)** **(HC)** PUBLIC UTILITY COMMISSION OF OREGON	201 HIGH ST SE SUITE 100 SALEM OR 97301 eric.shierman@puc.oregon.gov
TESLA INC	
PATRICK BEAN TESLA	pbean@tesla.com
FRANCESCA WAHL TESLA	6800 DUMBARTON CIRCLE FREMONT CA 94555 fwahl@tesla.com

WEAVEGRID

AMANDA MYERS WISSER
WEAVEGRID

amanda.myers.wisser@weavegrid.com

UM 2165 SERVICE LIST

PACIFIC POWER	825 NE MULTNOMAH ST, STE 2000 PORTLAND OR 97232 oregondockets@pacificorp.com
JARED BALLEW CHARGEPOINT	jared.ballew@chargepoint.com
PHILIP N BARNHART PHILIP N. BARNHART	phil@philbarnhart.com
JOHN BOROSKI PORTLAND GENERAL ELECTRIC	121 SW SALMON ST - 1WTC1711 PORTLAND OR 97204 john.boroski@pgn.com
MARY BRAZELL OREGON DEPARTMENT OF TRANSPORTATION	355 CAPITOL ST NE SALEM OR 97301 mary.brazell@odot.state.or.us
JOHN CHARLES CASCADE POLICY INSTITUTE	520 SW 6TH AVE STE 940 PORTLAND OR 97204-1535 john@cascadepolicy.org
CAROLINE CILEK GREEN ENERGY INSTITUTE	carolinecilek@dwt.com
STEVEN CORSON PORTLAND GENERAL ELECTRIC	121 SW SALMON ST - 1WTC1711 PORTLAND OR 97204 steven.corson@pgn.com
MATTHEW DEAL CHARGEPOINT INC	254 E HACIENDA AVE CAMPBELL CA 95008 matthew.deal@chargepoint.com
ANNABEL DRAYTON NORTHWEST ENERGY COALITION	811 FIRST AVE NO. 305 SEATTLE WA 98104 annabel@nwenergy.org
EVAN ELIAS OREGON DEPARTMENT OF ENERGY	550 CAPITOL ST NE 1ST FL SALEM OR 97310-0830 evan.m.elias@energy.oregon.gov
DEXTER GAUNTLETT PANASONIC	dexter.gauntlett@us.panasonic.com

SYMONE HINTON FLIXBUS	symone.hinton@flixbus.com
LAURA JAMES PACIFIC POWER	laura.james@pacificorp.com>
MATT LARKIN IDAHO POWER COMPANY	PO BOX 70 BOISE ID 83707-0070 mlarkin@idahopower.com
RILEY MALONEY IDAHO POWER COMPANY	rmaloney@idahopower.com
BRENDAN MCCARTHY PORTLAND GENERAL ELECTRIC	121 SW SALMON ST 1WTC1301 PORTLAND OR 97204 brendan.mccarthy@pgn.com
LAUREN MCCLOY NW ENERGY COALITION	811 1ST AVE SEATTLE WA 98104 lauren@nwenergy.org
SEHPHRA NINOW CENTER FOR SUSTAINABLE ENERGY (CSE)	sephra.ninow@energycenter.org
ARIC OHANA ENVOY TECHNOLOGIES	8575 WASHINGTON BLVD CULVER CITY CA 90232 aric@envoythere.com
STEFANIE REITER PORTLAND GENERAL ELECTRIC	stefanie.reiter@pgn.com
CHRIS ROGERS SEMA CONNECT	chris.rogers@semaconnect.com
CARRA SAHLER LEWIS & CLARK LAW SCHOOL	10101 S TERWILLIGER BLVD PORTLAND OR 97219 sahler@lclark.edu
CARLA SCARSELLA PACIFIC POWER	825 MULTNOMAH STREET STE 2000 PORTLAND OR 97232 carla.scarsella@pacificorp.com
MARK SELLERS-VAUGHN CASCADE NATURAL GAS CORPORATION	8113 W GRANDRIDGE BLVD KENNEWICK WA 99336 mark.sellers-vaughn@cngc.com

JEANETTE SHAW FORTH	1732 NW QUIMBY ST, STE 240 PORTLAND OR 97209 jeanettes@forthmobility.org
JESSICA SHIPLEY RAP ONLINE	 jshipley@raponline.org
JONI SLIGER OREGON DEPARTMENTOF ENERGY	550 CAPITOL ST NE 1ST FL SALEM OR 97301 joni.sliger@energy.oregon.gov
PHILLIP TUCKER No Business Name	 philip.tucker@us.panasonic.com
ELIZABETH TURNBULL PORTLAND GENERAL ELECTRIC	 eturnbull@franklinenergy.com
AWEC	
CORRINE OLSON DAVISON VAN CLEVE	1750 SW HARBOR WAY, STE. 450 PORTLAND OR 97201 coo@dvclaw.com
TYLER C PEPPLE DAVISON VAN CLEVE	107 SE WASHINGTON ST STE 430 PORTLAND OR 97214 tcp@dvclaw.com
CENTER FOR SUSTAINABLE ENERGY	
KINSHUK CHATTERJEE CENTER FOR SUSTAINABLE ENERGY (CSE)	 kinshuk.chatterjee@energycenter.org
DC GLOBAL WARMING COALITION	
STUART LIEBOWITZ DC GLOBAL WARMING COALITION	 dcglobalwarmingcoalition@gmail.com
ENERGY SOLULTIONS	
RYAN BIRD ENERGY SOLUTIONS	 rbird@energy-solution.com
FLO	
CORY BULLIS FLO	 cbullis@flo.com

IDAHO POWER	
TIM TATUM IDAHO POWER COMPANY	PO BOX 70 BOISE ID 83707-0070 ttatum@idahopower.com
DONOVAN E WALKER IDAHO POWER COMPANY	PO BOX 70 BOISE ID 83707-0070 dockets@idahopower.com; dwalker@idahopower.com
OREGON CITIZENS UTILITY BOARD	
ROBERT JENKS OREGON CITIZENS' UTILITY BOARD	610 SW BROADWAY, STE 400 PORTLAND OR 97205 bob@oregoncub.org
Share OREGON CITIZENS' UTILITY BOARD OREGON CITIZENS' UTILITY BOARD	610 SW BROADWAY, STE 400 PORTLAND OR 97205 dockets@oregoncub.org
PACIFIC NORTHWEST NATIONAL LAB	
CHRISTINE HOLLAND, PHD. PACIFIC NORTHWEST NATIONAL LABORATORY	christine.holland@pnnl.gov
PACIFIC POWER	
KATE HAWLEY PACIFIC POWER	kate.hawley@pacificorp.com
PGE	
PORTLAND GENERAL ELECTRIC	pge.opuc.filings@pgn.com
PORTLAND GENERAL ELECTRIC	
ADAM GARDELS PORTLAND GENERAL ELECTRIC	121 SW SALMON ST - 1WTC1711 PORTLAND OR 97204 adam.gardels@pgn.com
RAP ONLINE	
DAVID FARNSWORTH RAP ONLINE	dfarnsworth@raponline.org

SLALOM CONSULTING

JEREMY LITOW
SLALOM CONSULTING
jeremy.litow@pgn.com

STAFF

BETSY BRIDGE
OREGON DEPARTMENT OF JUSTICE
1162 COURT STREET
SALEM OR 97301-4520
betsy.bridge@doj.oregon.gov

ERIC SHIERMAN
PUBLIC UTILITY COMMISSION OF OREGON
201 HIGH ST SE
SUITE 100
SALEM OR 97301
eric.shierman@puc.oregon.gov

TESLA

NOELANI DERRICKSON
TESLA
nderrickson@tesla.com

WASHINGTON UTILITY AND TRANSPORTATION COMMISSION

ANDREW RECTOR
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION
andrew.rector@utc.wa.gov

WEAVEGRID

AMANDA MYERS WISSER
WEAVEGRID
amanda.myers.wisser@weavegrid.com

WINDERMERE REALTY TRUST

CATHLEEN WOODRUFF
WINDERMERE REALTY TRUST
cwoodruff@aol.com

CERTIFICATE OF SERVICE

I hereby certify that I have this day caused the **Portland General Electric Company's CONFIDENTIAL 2026-2028 Transportation Electrification Plan** to be served by electronic mail to those parties whose email addresses appear on the attached service list for OPUC Dockets UM 2033.

Dated this 18th day of July, 2025.

/s/ Danielle McCain
Danielle McCain
Associate Regulatory Analyst
danielle.mccain@pgn.com

UM 2033 SERVICE LIST

CAROLINE CILEK **(C)** **(HC)** GREEN ENERGY INSTITUTE	carolinecilek@dwt.com
AWEC	
CORRINE OLSON **(C)** **(HC)** DAVISON VAN CLEVE	1750 SW HARBOR WAY, STE. 450 PORTLAND OR 97201 coo@dvclaw.com
TYLER C PEPPLE **(C)** **(HC)** DAVISON VAN CLEVE	107 SE WASHINGTON ST STE 430 PORTLAND OR 97214 tcp@dvclaw.com
OREGON CITIZENS UTILITY BOARD	
MICHAEL GOETZ **(C)** **(HC)** OREGON CITIZENS' UTILITY BOARD	610 SW BROADWAY STE 400 PORTLAND OR 97205 mike@oregoncub.org
PGE	
BRENDAN MCCARTHY **(C)** **(HC)** PORTLAND GENERAL ELECTRIC	121 SW SALMON ST 1WTC1301 PORTLAND OR 97204 brendan.mccarthy@pgn.com
STAFF	
JP BATMALE **(C)** **(HC)** PUBLIC UTILITY COMMISSION OF OREGON	201 HIGH ST SE SALEM OR 97301 jp.batmale@puc.oregon.gov
BETSY BRIDGE **(C)** **(HC)** OREGON DEPARTMENT OF JUSTICE	1162 COURT STREET SALEM OR 97301-4520 betsy.bridge@doj.oregon.gov
ERIC SHIERMAN **(C)** **(HC)** PUBLIC UTILITY COMMISSION OF OREGON	201 HIGH ST SE SUITE 100 SALEM OR 97301 eric.shierman@puc.oregon.gov