PACIFIC POWER
A DIVISION OF PACIFICORP

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July 25, 2025

VIA ELECTRONIC FILING

Public Utility Commission of Oregon
Attn: Filing Center
201 High Street SE, Suite 100
Salem, OR 97301-3398

Re: UM 2056—PacifiCorp's Final Transportation Electrification Plan for 2026-2028

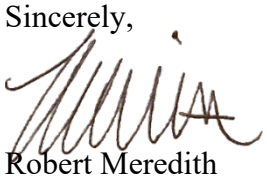
On May 1, 2025, PacifiCorp d/b/a Pacific Power (PacifiCorp or the Company) filed its draft 2026-2028 Transportation Electrification Plan (TEP) with the Public Utility Commission of Oregon (Commission). On June 9, 2025, Staff with the Commission conducted a workshop with stakeholder groups that included a presentation from the Company on its draft 2026-2028 TEP. On June 25, 2025, and June 27, 2025, respectively, Commission Staff and stakeholders filed comments on the Company's draft 2026-2028 TEP. On July 25, 2025, PacifiCorp filed its reply comments.

In this filing, PacifiCorp submits its final 2026-2028 TEP for Commission acceptance. PacifiCorp appreciates the thoughtful and constructive feedback from Commission Staff and stakeholders throughout the draft and comment process.

PacifiCorp's final 2026-2028 TEP meets the requirements of Oregon Administrative Rule 860-087- 0020 and highlights the Company's continued commitment to accelerating the adoption of electric transportation options, reiterates the Company's support for statewide transportation policy, reaffirms its commitment to removing barriers that may inhibit the adoption of electricity as a transportation fuel, and illustrates how the Company is reducing the emission of greenhouse gas from Oregon's transportation sector.

If you have any questions about this filing, please contact Amira Streeter, State Regulatory Affairs Manager, at (503) 260-4420.

Sincerely,



Robert Meredith
Director, Regulation

Enclosures

CERTIFICATE OF SERVICE

I certify that I delivered a true and correct copy of **PacifiCorp's Final TE Plan** on the parties listed below via electronic mail/Box in compliance with OAR 860-001-0180.

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Dated this 25th day of July 2025.



Carrie Meyer
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OREGON Transportation Electrification Plan

May 2025

PACIFIC POWER

TABLE OF CONTENTS

About PacifiCorp 6
Executive Summary 7
Current Conditions in PacifiCorp's Service Area 7
Future Growth 8
Transportation Electrification Portfolio Overview 8
Strategy to Support Transportation Electrification 9
Anticipated Performance of the Transportation Electrification Portfolio 11
Transportation Electrification Portfolio Budget 11
Benefit-Cost Analysis 11
Conclusion 12
1. Introduction 13
2. Current Conditions in PacifiCorp's Service Area 16
2.1 New State Policies and Program Drivers 16
Discussion of Recent EV Policies 18
2.2 Market Barriers 20
Customer Barriers 20
Industry Barriers 22
2.3 Existing Usage Patterns at Charging Stations 23
PacifiCorp-Owned Stations 24
2.4 Electric Vehicle Adoption and Forecasting 26
U.S. Energy Information Administration's Annual Energy Outlook 2023 26
Wood Mackenzie 2023 27
Bloomberg New Energy Finance Electric Vehicle Outlook 2024 27
PacifiCorp Oregon EV Forecast and Projections 28
2.5 Distribution System Planning Needs Summary 30
3. Description of Transportation Electrification Portfolio 31
3.1 Portfolio Learnings 31
3.2 Long-Term vision of the Transportation Electrification PorTfolio 36
3.3 Strategy to Support Transportation electrification 37
3.4 Strategy Alignment with Customer Programming 40
Residential 40
Nonresidential and Communities 41

EVSE Infrastructure 41
4. Performance Metrics 43
4.1 Environmental Benefits, Including Greenhouse Gas Emission Impacts 43
4.2 Electric Vehicle Adoption 43
4.3 Underserved Community Inclusion and Engagement 43
4.4 Equity of Program Offerings to Meet Underserved Communities 43
4.5 Distribution System Impacts and Grid Integration Benefits 43
4.6 Program Participation and Adoption 44
4.7 Infrastructure Performance 44
5. Potential Impact on the Competitive Market and Customer Choice 45
5.1 Current Investments to Date 46
5.2 Sustainable Role of the Electric Company 46
6. Transportation Electrification Portfolio Budget 48
6.1 Forecast of All Expenditures to Support Transportation Electrification 48
6.2 Forecast of All Funding Sources to Be Utilized 49
6.3 Benefit-Cost Analysis of Proposed Transportation Electrification Plan 50
7. Ratepayer Impact of the TRansportation Electrification Plan 54
8. Conclusion 55
9. Appendix A: Stakeholder Engagement 56
9.1 Stakeholder Engagement Process 56
9.2 Stakeholder Comments Received 56
Clean Energy Plan Engagement Series 57
Community Benefit and Impacts Advisory Group Meeting 57
Tribal Nations Community Benefits and Impacts Advisory Group 58
Joint Advocate Engagement 58
Regional Business Manager Discussion 59
State of Oregon’s Zero Emission Vehicle Interagency Working Group 59
10. Appendix B: Existing Usage Patterns at Charging Stations 61
10.1 EV Charging Data Summary 61
10.2 Data Showing Energy Usage, Energy Demand, and Energy Dispensed 62
10.3 Data Showing Session, Energy, Charging Time, and Plug-In Time 65
11. Appendix C: Distribution System Planning Needs 66
11.1 Distribution System Planning Objectives 66
11.2 Distribution System Planning Methodology 66

Step 1: Data Collection and Conditioning 66
Step 2: Data Aggregation 67
Step 3: Analyze 68
11.3 Key Assumptions and Data Limitations 68
11.4 Key Results of Distribution System Planning 68
12. Appendix D: Tribal Needs Engagement Findings 71
12.1 Tribal Engagement Methodology 71
12.2 Key Themes Among Tribes 71
12.3 Tribal Recommendations for Future Program Designs 72
13. Appendix E: TE Portfolio Impact Evaluation 74
14. Appendix F: Multifamily Market Assessment 75
15. Appendix G: Medium- and Heavy-Duty Vehicle Analysis 76
15.1 MHDV Model 76
16. Appendix H: Confidential Estimated Expenditure 79
17. Appendix I: Discussion of Proposed Tariff Changes 81
17.1 **Schedule 119 - Fleet Make Ready Pilot** 81
17.2 **Schedule 118 - Non-Residential Charging Pilot** 84
17.3 **Schedule 117 - Residential Charging Pilot** 87
17.4 **Rule 13 - Line Extensions** 90
17.5 **Schedule 60- Company Operated Electric Vehicle Charging Station Service** 90

LIST OF TABLES

Table 1: TE Policy Action in Oregon, 2022–2025 16
Table 2: PacifiCorp-Owned Charging Station Statistics (2024) 25
Table 3: AEO and DEQ EV Type Mapping 26
Table 4: Goals, Objectives, Strategies, and Tactics 38
Table 5: Estimated Portfolio Budget (in Thousands) 48
Table 6: Estimated Portfolio Budget with Anticipated Equity Spend (in Thousands) 48
Table 7: Estimated Portfolio Budget with Anticipated Equity Spend by Fund Type (in Thousands) 49
Table 8: Estimated Revenue by Funding Source and Anticipated Spend by Funding Source (in Thousands) 50
Table 9: Benefit and Cost Impacts by Test 50
Table 10: RIM Benefit-Cost Analysis 52
Table 11: TRC Benefit-Cost Analysis 52

Table 12: SCT Benefit-Cost Analysis 53
Table 13. Estimated TEP Rate Impacts (in Thousands) 54

LIST OF FIGURES

Figure 1: BloombergNEF 2024 EV Market Share Forecasts 28
Figure 2: LDV Forecast Comparisons During TE Planning Period (2026–2035) 29
Figure 3: Historical (2023–2024) and Forecasted MHDV Penetration During TE Planning Period (2025–2030) 30
Figure 4. High Satisfaction Percentages for Various Aspects of Rebate Program 32
Figure 5. Charger Rebate and TOU Rate Effectiveness 33
Figure 6. Residential EVSE Rebate Peak Charging between TOU and Non-TOU Customers 33
Figure 7. TOU Impacts on Charging Behavior 34
Figure 8: Evolution of Customer Programming 40
Figure 9. Oregon Public EV Charging Station Summary Data Q1-Q4 in 2024 61
Figure 10. Ports by Underserved Status in Oregon in 2024 61
Figure 11. Percent of Sessions by Energy Dispensed (kWh) 62
Figure 12. Monthly Energy Dispensed per Ports Available 62
Figure 13. Energy Demand by Time of Day. 63
Figure 14. Weekday vs. Weekend Port Utilization 63
Figure 15. Port Utilization by Charging Level 64
Figure 16. Daily Session Count in 2024 of EVSE per 1,000 Ports 64
Figure 17. Daily Session Count from 2023 to 2025 of EVSE per 1,000 Ports 64
Figure 18. Summary Table of EVSE Data by Charge Level in PacifiCorp's Oregon Service Area in 2024 65
Figure 19. Summary Table of EVSE Data by Use Case in PacifiCorp's Oregon Service Area in 2024 65
Figure 20. Summary Table of EVSE Data by Location Type in PacifiCorp's Oregon Service Area in 2024 65
Figure 21. Summary Table of EVSE Data by Geographic Type in PacifiCorp's Oregon Service Area in 2024 65
Figure 22. Summary Table of EVSE Data by Day Type in PacifiCorp's Oregon Service Area in 2024 65
Figure 23: Distribution System Planning Analysis Approach 66
Figure 24: Locations Where Significant Distribution Impacts Are Anticipated 69
Figure 25: Estimated Annual EV Load per Oregon Operating Area 70

ABOUT PACIFICORP

PacifiCorp d/b/a Pacific Power (PacifiCorp or the Company) provides safe and reliable electric service to more than 800,000 customers in Oregon, Washington and California. The Company supplies customers with electricity generated from a diverse portfolio of resources, including hydroelectric, natural gas, coal, wind, geothermal, and solar. Pacific Power is part of PacifiCorp, one of the lowest-cost electricity producers in the United States, with 2 million customers in six western states. For more information, visit www.pacificpower.net.

The Company is dedicated to helping customers and communities thrive by delivering an energy future that is reliable, affordable, sustainable, and safe. To do this, we work to protect and enhance the environment by conserving natural resources, reducing emissions, and protecting wildlife and habitat. We shape forward-thinking policies and innovative solutions to improve the livability of customers' hometowns and neighborhoods. We take pride in being an active member in the communities we serve, always striving to make the place our customers call home a better place to live.

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EXECUTIVE SUMMARY

The PacifiCorp Oregon Transportation Electrification Plan (TEP) for 2026–2028 aims to support the state's goals for reducing greenhouse gas emissions and increasing electric vehicle (EV) adoption. Key political drivers include the Advanced Clean Cars Rule II and Advanced Clean Trucks mandates, which require 100% zero-emission vehicles by 2035.[1] Despite potential reductions in federal funding, EV growth continues, supported by the affordability of used EVs and global market trends. Technologically, advancements like the anticipated 50%[2] decline in battery prices by 2026 and the increasing variety of EV models make EVs more accessible. EV sales surged in December 2024[3] after lagging in the early part of the year, but Oregon's market share still trails behind targets,[4] highlighting the need for continued utility support and programming. PacifiCorp's 2026–2028 plan provides a comprehensive strategy to enhance EV infrastructure in the PacifiCorp service area and support underserved communities, building off the lessons learned from the 2023–2025 TEP.

PacifiCorp's 2026–2028 plan

provides a comprehensive strategy to enhance EV infrastructure in the PacifiCorp service area and support underserved communities, building off the lessons learned from the 2023–2025 TEP.

CURRENT CONDITIONS IN PACIFICORP'S SERVICE AREA

Oregon is committed to increasing the adoption of EVs to reduce carbon emissions; developing charging infrastructure; and ensuring that the benefits of EVs are accessible to all customers. According to the U.S. Department of Energy's Alternative Fuels Data Center, the PacifiCorp service area hosts 108 direct current fast charging (DCFC) ports, about 40% of the total DCFC ports in Oregon. Level 2 charging in the service area is about 30% of the state count,[5,6] at approximately 1,100 ports.

[1] U.S. Environmental Protection Agency. *Advanced Clean Cars Rule II*. https://www.epa.gov/regulations/advanced-clean-cars-rule-ii.

[2] Goldman Sachs. (2024, October 15). *Electric vehicle battery prices are expected to fall almost 50% by 2026*. https://www.goldmansachs.com/insights/articles/electric-vehicle-battery-prices-are-expected-to-fall-almost-50-percent-by-2025.

[3] Khatib, M. (2025, February 27). *10.1 percent of all U.S. light-duty vehicles sold in 2024 were electric vehicles, a market record*. Atlas EV Hub. https://www.atlasevhub.com/featured/10-1-percent-of-all-u-s-light-duty-vehicles-sold-in-2024-were-electric-vehicles-a-market-record.

[4] Oregon Department of Energy. (2025, March 4). *Oregon Energy Strategy Policy Working Group: Transportation Electrification Breakout Session #2* [Video]. YouTube. https://www.youtube.com/watch?v=0bEK9adk9nY.

[5] U.S. Department of Energy. (2025). *Historical station counts* [Data set]. Alternative Fuels Data Center. https://afdc.energy.gov/files/docs/historical-station-counts.xlsx

[6] U.S. Department of Energy. (2025). Alternative Fueling Station Counts by State. Alternative Fuels Data Center. Retrieved from https://afdc.energy.gov/stations/states.

Yet market barriers still hinder the adoption and implementation of EV infrastructure. High up-front capital costs and project complexity are deterring commercial and multifamily electric vehicle supply equipment (EVSE) installations. At the same time, residential customers face uncertainty around the costs of installing Level 2 (L2) chargers, including the potential expense of updating electric panels. Split incentives create a disincentive for property owners to invest in EVSE installations, as owners bear the costs while tenants enjoy benefit.

Concerns around the availability of federal funding are influencing companies' desire to invest in EVSE projects. Ongoing supply chain constraints, such as long lead times for transformer orders and other equipment, are impacting project timelines and budgets. Market fluctuations and the exit of major EV service providers (EVSPs)[7] have also affected customer confidence and market growth.

PacifiCorp has attempted to address these barriers in the 2023–2025 TEP, but this future proposed portfolio works to address these challenges in further depth.

FUTURE GROWTH

Oregon's EV market has grown rapidly, with registrations increasing from over 10,000 in 2018 to nearly 110,000 by the end of 2024. Despite this growth, there is significant potential for further transformation. PacifiCorp's service area had over 27,000 EVs and plug-in electric vehicles (PHEVs) by the end of 2024. To forecast future EV adoption, PacifiCorp reviewed national trends from sources like the U.S. Energy Information Administration's (EIA's) Annual Energy Outlook (AEO), Wood Mackenzie, and Bloomberg New Energy Finance (BloombergNEF). These forecasts were adapted to reflect Oregon-specific conditions. PacifiCorp's forecast blends these sources, considering Oregon's aggressive EV targets.

PacifiCorp forecasts that by 2028, more than 70,000 light-duty vehicles (LDVs) will be part of the service area. By 2035, more than 260,000 LDVs will populate the area. Additionally, medium- and heavy-duty vehicles (MHDVs) are included in the forecast, with projections indicating over 20,000 MHDVs in PacifiCorp's service area by 2030. While per-vehicle impacts from MHDVs are more substantial than the impacts from LDVs, their overall adoption is lower and anticipated to make up 1% to 2% of overall load impact in the next three years.

TRANSPORTATION ELECTRIFICATION PORTFOLIO OVERVIEW

PacifiCorp's Transportation Electrification (TE) portfolio has successfully developed a robust market for EVSE and increased access to electric transportation, particularly through the E-Mobility Grants program, which supports underserved communities. High customer satisfaction was reported, especially among residential participants who received L2 charging equipment rebates. The TE portfolio also led to increased off-peak charging and positive household energy consumption changes.

While commercial and multifamily sectors showed lower participation, the incentives had a notable impact on decisions to install equipment. Benchmarking revealed that PacifiCorp's offerings are competitive, with growth

[7] Julian Spector, "Enel X Way Abandoned Its US EV Charging Customers. What Happens Next?," *Canary Media*, March 4, 2024, https://www.canarymedia.com/articles/ev-charging/enel-x-way-abandoned-its-us-ev-charging-customers-what-happens-next.

potential in the nonresidential incentive band. Nonresidential customers reported diverse benefits, including increased customer traffic and reduced emissions.

Overall, the portfolio is performing well with customers, but enhancements and streamlining are still needed to ensure greater participation. Enhancements to the 2026–2028 TEP include the following:

- **Supporting Income-Eligible Customers:** Removing the standard residential EVSE rebate and increasing incentives for income-eligible customers to install Level 2 and 240-volt charging systems.
- **Enhancing Nonresidential EVSE Adoption:** Streamlining the customer journey, increasing rebates, simplifying processes, providing technical assistance, and implementing a rebate reservation system.
- **Developing Infrastructure in Underserved Communities:** Using existing TE portfolio funds to build and upgrade EVSE infrastructure in underserved areas.
- **Promoting Off-Peak Charging:** Scaling up the transition to time-of-use (TOU) rates for residential EV owners and supporting demand response programs for managing EV charging.

STRATEGY TO SUPPORT TRANSPORTATION ELECTRIFICATION

The plan focuses on supporting underserved communities, increasing commercial participation, and promoting off-peak charging by proposing robust incentives, streamlining customer journeys, and building company-owned infrastructure in underserved areas. The overall goal of the 2026–2028 portfolio is to develop program options to increase high-value activities that result in new EV charging port installations.

- **Objective 1: Increase customer satisfaction when participating in TE programs.** To enhance customer satisfaction, PacifiCorp proposes several strategies, including increasing incentives for commercial and multifamily customers to reduce utility-side costs and encourage more EV charging port installations. The plan aims to simplify the participation process by establishing a single point of contact for commercial customers and providing up-front decision-making resources. Furthermore, PacifiCorp will work to ensuring high reliability at utility-owned charging sites and implement feedback loops to continuously improve customer experience.
- **Objective 2: Enable access throughout our service area.** PacifiCorp aims to ensure widespread access to EV infrastructure by using existing resources to build and maintain company-owned charging sites, particularly in underserved areas. The plan includes strategies to continue grant programs to support EV projects in underserved communities; ensure cost matching with grants; and integrate tribal needs into grant offerings. Additionally, the plan focuses on targeting large loads and underserved customers to increase participation, as well as providing income-eligible rates at public utility-owned charging stations. To enable better access, PacifiCorp proposes to explore unique delivery models for different customer classes to facilitate easier installation of EV ports.
- **Objective 3: Manage and reduce grid impacts associated with new TE load.** To manage and mitigate the impact of new EV load on the grid, PacifiCorp proposes developing resource guides and conducting educational campaigns on grid integration options and TOU rates to encourage off-peak charging. The plan suggests incorporating battery storage at key charging sites to enhance resiliency and provide grid benefits. It also suggests leveraging other program resources to support storage integration in project designs, and identifying future locations where EV growth may lead to capacity constraints. Developing

proactive investment proposals to address these needs and support future demand response programs is also part of the strategy.

By focusing on these strategies and tactics, PacifiCorp aims to create a robust and equitable TE portfolio that supports the growth of EV adoption, enhances customer satisfaction, and ensures the reliability and sustainability of the electric grid.

ANTICIPATED PERFORMANCE OF THE TRANSPORTATION ELECTRIFICATION PORTFOLIO

The plan includes a comprehensive set of performance metrics to ensure the effectiveness and impact of the TE initiatives. These metrics will track:

- **Environmental Benefits:** Monitoring overall vehicle counts and charging utilization to assess greenhouse gas emission reductions.
- **EV Adoption Rates:** Providing a robust portfolio of programs and pilots to support EV adoption, while tracking year-over-year adoption curves.
- **Inclusion and Engagement of Underserved Communities:** Engaging stakeholders and ensuring that program benefits reach underserved communities.
- **Equity of Program Offerings:** Ensuring equitable access to EV infrastructure, with a focus on income-eligible, multifamily, and small business customers.
- **Distribution System Impacts and Grid Integration Benefits:** Promoting off-peak charging and managed charging programs to optimize grid services.
- **Infrastructure Performance:** Monitoring the performance of program-enabled ports and utility-owned stations to ensure reliability, affordability, and accessibility.

TRANSPORTATION ELECTRIFICATION PORTFOLIO BUDGET

The estimated budget for the 2026–2028 TE portfolio is around $32.6 million, with a significant focus on equity spending and support for underserved communities. The plan outlines forecasted expenditures and funding sources, ensuring a balanced approach to funding TE initiatives. Approximately 68% of the total portfolio is allocated to equity spending, targeting underserved communities and ensuring that the benefits of transportation electrification are accessible to all.

BENEFIT-COST ANALYSIS

To understand the potential impacts to customers and society, PacifiCorp conducted three benefit-cost tests: Ratepayer Impact Measure (RIM), Total Resource Cost (TRC), and Societal Cost Test (SCT). These tests evaluate the costs and benefits of the TE portfolio from different perspectives:

- **RIM Test:** Assesses the costs and benefits to all Oregon PacifiCorp ratepayers, determining whether average utility rates will increase or decrease.
- **TRC Test:** Evaluates whether the portfolio will reduce the utility system's and host customers' collective costs.
- **SCT:** Examines the costs and benefits to Oregon as a whole, determining whether the portfolio provides net benefits for the state.

The results of these tests indicate that the TE portfolio is cost-effective, with benefit-cost ratios greater than 1.0 for all three tests. This demonstrates that the portfolio is expected to lead to more benefits than costs over its lifetime, providing value to ratepayers, customers, and society.

Rate impacts from TE efforts are subject to change based on Clean Fuel Credit (CFC) values and carryover from prior system benefits charge collections. Current projections suggest that both the system benefits charge and clean-fuel revenues are sufficient to fund TE expenditures in Oregon, minimizing or negating rate impacts to customers.

CONCLUSION

PacifiCorp's 2026–2028 TEP is designed to support the growth of EV adoption, enhance customer satisfaction, and ensure the reliability and sustainability of the electric grid. The plan includes a comprehensive set of performance metrics to track environmental benefits, EV adoption rates, inclusion and engagement of underserved communities, equity of program offerings, grid integration benefits, and infrastructure performance. With an estimated budget of $32.6 million, the plan emphasizes equity spending and support for underserved communities. Benefit-cost analyses indicate that the portfolio is cost-effective, providing net benefits to ratepayers, customers, and society. Overall, the plan aims to create a robust and equitable transportation electrification portfolio that aligns with Oregon's goals for reducing greenhouse gas emissions and increasing EV adoption.

Overall, the plan aims to create a robust and equitable transportation electrification portfolio that aligns with Oregon’s goals for reducing greenhouse gas emissions and **increasing EV adoption.**

1. INTRODUCTION

PacifiCorp filed its first TEP with the Oregon Public Utility Commission (the Commission) in February 2020, which the Commission accepted in June 2020.[8] More recently, the Commission issued Order No. 22-336,[9] which created permanent changes to Division 87 of the Oregon Administrative Rules addressing the TE planning process to be consistent with Executive Order 20-04 and 2021 HB 2165.[10] These rules are informed by a staff guidance document that was adopted on August 26, 2022, in docket UM 2165 in Order No. 22-314.[11] Oregon Revised Statute 757.357 gives the Commission the authority to direct electric utility investment and reporting on transportation electrification, and HB 2165 requires utilities to file programs that support it. PacifiCorp filed its updated draft TEP[12] in February 2023 and a final version in May 2023.[13] The Commission approved the final TEP in July 2023.[14] Aligned with Order No. 22-336, PacifiCorp must file TE plans every three years on or before May 1. This plan shares the proposed TE portfolio that will cover 2026–2028, adhering to Order No. 22-335.

The current landscape of EV adoption and infrastructure development federally and locally is shaped by various political, economic, technological, and social drivers. Oregon is an Advanced Clean Cars Rule II (ACC II) state, which mandates that auto manufacturers deliver 100% new zero-emission battery electric vehicles (BEVs) and PHEVs by 2035,[15] as well as an Advanced Clean Trucks (ACT) state, which requires original equipment manufacturers (OEMs) of MHDVs to sell an increasing percentage of zero-emission vehicles (ZEVs) or near-zero-emission vehicles from 2024 to 2035.[16] The recent Unleashing American Energy Executive Order may prevent momentum originally taken by states to build out critically needed EVSE infrastructure. This Executive Order put on hold funding from both the Infrastructure Investment and Jobs Act (IIJA) and the Inflation Reduction Act (IRA), which have provided significant grant support to states and on-the-hood rebates for taxpayers.[17]

However, economic and social drivers continue to influence customer decision-making in purchasing electric vehicles. Despite the potential disappearance of IRA funding incentives,[18] the EV market will continue to grow. Its pace toward global cost parity with fuel vehicles may be slowed, but countries such as China have already achieved cost parity. An undervalued used-EV market exits in the U.S. This is growing, making used EVs more affordable and more viable. It is anticipated that the used-EV market will continue to grow as cars reach their end-of-lease terms.

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[8] Oregon Public Utility Commission. *Order No. 20-200*, June 30, 2020. https://apps.puc.state.or.us/orders/2020ords/20-200.pdf.

[9] ———. *Order No. 22-336*, October 25, 2022. https://apps.puc.state.or.us/orders/2022ords/22-336.pdf.

[10] ———. *Order No. 20-004*, January 8, 2020. https://apps.puc.state.or.us/orders/2020ords/20-004.pdf.

[11] ———. *Order No. 22-314*, October 11, 2022. https://apps.puc.state.or.us/orders/2022ords/22-314.pdf.

[12] ———. *UM 2056 Staff Report: HAQ174652*, 2022. https://edocs.puc.state.or.us/efdocs/HAQ/um2056haq174652.pdf.

[13] ———. *UM 2056 Staff Report: HAH104112*, 2022. https://edocs.puc.state.or.us/efdocs/HAH/um2056hah104112.pdf.

[14] ———. *Order No. 23-257*, August 15, 2023. https://apps.puc.state.or.us/orders/2023ords/23-257.pdf.

[15] U.S. Environmental Protection Agency. *Advanced Clean Cars Rule II*. https://www.epa.gov/regulations/advanced-clean-cars-rule-ii.

[16] Oregon Department of Environmental Quality. *Medium- and Heavy-Duty Zero Emission Vehicle Program*. https://www.oregon.gov/deq/aq/programs/Pages/mdhdZev.aspx.

[17] Oregon Department of Transportation. (2025). *National Electric Vehicle Infrastructure Program in Oregon*. https://www.oregon.gov/odot/climate/Pages/NEVI.aspx.

[18] U.S. Department of Energy. (2024). *Inflation Reduction Act (IRA) and its impact on electric vehicles*. https://www.energy.gov/eere/electricvehicles/inflation-reduction-act.

An interesting factor currently observed by PacifiCorp is that larger EVSE providers (such as Enel X Way[19] and Shell Recharge[20]) either went out of business or restructured their offerings to the market. In response, utilities have had to reimagine their programs and incentives to ensure that the charging equipment can still be used. There may be further consolidation of EV providers in the market over the next few years. Another economic driver that affected the PacifiCorp portfolio was the decline in Clean Fuels Program credit (CFP) market prices, requiring adjustments to the budget and portfolio spend. While the market rebounded slightly at the end of 2024, the drop of more than $100 per credit shifted the overall focus and prioritization of the TE portfolio.[21]

Technological advancements are also playing a role in EV adoption. Battery prices are expected to fall by almost 50% by 2026,[22] suggesting that the EV market will stay strong globally. The International Energy Agency states that in 2023, nearly one in five cars sold was an EV. In 2013, there were only 16 EV models available. Today, the market hosts more than 150 models, including compact cars, large sedans, crossovers, SUVs, minivans, and pickups, many of which offer all-wheel-drive options. This expanded selection makes EVs accessible to a broader range of consumers, encouraging their adoption.[23] The North American Charging Standard (NACS) is becoming a more predominant DC fast charging (DCFC) connector type,[24] potentially shifting the industry trend from the Combined Charging System (CCS) to NACS.

In the U.S., after a slow start to 2024, EV sales surged to a record high by year's end nationwide. LDV sales increased nearly 17% from December 2023 to December 2024. Overall, EV sales surpassed 10% of all auto sales for the first time.[25] California continues to be a leader in EV adoption, with Washington and Oregon following close behind. While growth continues to occur in Oregon in the EV market, significant market uptake slowed in 2024. In Oregon, the current market share is about 15.1%, outpacing the national average. However, when lining up this percentage to Advanced Clean Cars I (ACC I) and AAC II, the Oregon EV market share is lagging and is not on target to meet the 2026 ZEV percentage requirement of 35% by 2026.[26] This means there are opportunities for utility programs to play a larger role in transforming the TE market.

> This TEP also proposes strategies for streamlining and simplifying the customer journey to make it easier for

[19] Canary Media. (2025, March 21). *Enel X Way abandoned its US EV charging customers. What happens next?* Canary Media. https://www.canarymedia.com/articles/ev-charging/enel-x-way-abandoned-its-us-ev-charging-customers-what-happens-next.

[20] Sensiba, J. (2025, January 11). *Shell shows us that third-party charging networks have a big problem*. CleanTechnica. https://cleantechnica.com/2025/01/11/shell-shows-us-that-third-party-charging-networks-have-a-big-problem.

[21] Oregon Department of Environmental Quality. (2025). *Monthly Credit Transaction Report*. Oregon Clean Fuels Program. https://www.oregon.gov/deq/ghgp/cfp/Pages/Monthly-Data.aspx.

[22] Goldman Sachs. (2024, October 7). *Electric vehicle battery prices are expected to fall almost 50% by 2026.* Goldman Sachs. https://www.goldmansachs.com/insights/articles/electric-vehicle-battery-prices-are-expected-to-fall-almost-50-percent-by-2025.

[23] Northeast States for Coordinated Air Use Management. (2025, March 10). *Zero Emission Vehicle Memorandum of Understanding (ZEV MOU) final report*. NESCAUM. https://www.nescaum.org/documents/NESCAUM_Report_ZEV_MOU_FINAL_03102025.pdf.

[24] Beckford, A. (2025, March 20). *The great NACS migration: Who is switching to Tesla's charging port? MotorTrend.* https://www.motortrend.com/features/tesla-nacs-charging-port-automaker-compatibility.

[25] Atlas Public Policy. (2025, February 24). *After a slow start to 2024, electric vehicle (EV) sales surged to a record high by year's end*. https://www.atlasevhub.com/weekly-digest/10-1-percent-of-all-u-s-light-duty-vehicles-sold-in-2024-were-electric-vehicles-a-market-record/.

[26] Oregon Department of Energy. *Energy Strategy Working Groups*. https://www.oregon.gov/energy/Data-and-Reports/Pages/Energy-Strategy-Working-Groups.aspx.

> customers to participate in programs that
> **support their decision to drive electric.**

With that, PacifiCorp is laying out a plan for 2026–2028 that attempts to address some of the above challenges. It also suggests strategies for streamlining and simplifying the customer journey to make it easier for customers to participate in programs that support their decision to drive electric.

2. CURRENT CONDITIONS IN PACIFICORP'S SERVICE AREA

The Company is committed to supporting the growth of EV adoption across the PacifiCorp service area. At the end of 2024, PacifiCorp had an estimated 27,000 EVs registered within our service area, a 38% growth from 2023 to 2024.[27] Tesla, Chevy, and Nissan still hold the largest market share in our service area, but nationwide, Tesla has seen its overall market share on the decline. Multnomah County, Deschutes County, Jackson County, Benton County, and Linn County are the top five counties within the service area for EV adoption. According to the U.S. Department of Energy Alternative Fuels Data Center, PacifiCorp's service area hosts 108 DCFC ports or about 40% of the total DCFC charging ports in our state. Level 2 charging in the service area is about 30% of the state count,[28,29] at approximately 1,100 ports.

This section provides an update on the new state policy and program drivers, current market barriers for customers, existing usage patterns, EV current state and future state, and a brief summary of anticipated distribution system planning needs.

2.1 NEW STATE POLICIES AND PROGRAM DRIVERS

The state of Oregon policymaking on TE has been active since PacifiCorp filed its first TEP in 2019. This section describes 10 new policies or programs that set the underlying context for PacifiCorp's current TEP.

Oregon's policy landscape for EVs targets the following goals:

- Increasing adoption of electric vehicles to reduce carbon emissions
- Developing charging infrastructure to support increased EV adoption
- Ensuring that the benefits of EVs are accessible to all customers, including low- and moderate-income households

This section describes recent policy actions in Oregon enacted in support of these goals. Table 1 provides an overview of Oregon's new policies and programs.

Table 1: TE Policy Action in Oregon, 2022–2025

Policy	Date Approved or Effective	Description
Electric Vehicle Rebate Rules - 2021	May 19, 2022	The purpose of this division is to establish a rebate program and eligibility requirements for the purchase or lease of new or used ZEVs in Oregon.

[27] Oregon Department of Energy. Oregon Electric Vehicle Dashboard. Ibid.

[28] U.S. Department of Energy. *Historical Station Counts* [Data file], 2025. Alternative Fuels Data Center. https://afdc.energy.gov/files/docs/historical-station-counts.xlsx.

[29] ———. *Alternative Fueling Station Locator by State*. https://afdc.energy.gov/stations/states.

Policy	Date Approved or Effective	Description
Advanced Clean Cars II Rulemaking	December 19, 2022	This rulemaking updates existing definitions and adds new definitions requiring auto manufacturers to deliver 100% new zero-emission BEVs and PHEVs by 2035.
Oregon Clean Fuels Program	January 1, 2023	This rulemaking updates this section with the program's new targets and with current references to the program's statutory authorization to reflect where it is enrolled in the Oregon Revised Statutes.
Oregon Department of Transportation Community Charging Rebates Program	June 13, 2023	The multiyear Community Charging Rebates (CCR) supports the installation of Level 2 EV charging station projects at multifamily homes, workplaces, and publicly accessible parking areas throughout Oregon. The rebates range from $3,500 to $6,250 per charging port or up to 75% of eligible project costs, whichever is less.
Electric Vehicle Charger Reliability and Accessibility Accelerator Program	September 13, 2023	The federal Electric Vehicle Charger Reliability and Accessibility Accelerator Program awarded Oregon a $10 million grant in 2024 for public EV charging port repairs and station upgrades. The funding can also be used to install more Level 2 or direct current (DC) fast-charging ports at select project sites.
Oregon Electric Vehicle Infrastructure Deployment Plan	September 29, 2023	The deployment plan required under the National Electric Vehicle Infrastructure (NEVI) Formula Program details five objectives: • Partner with the private sector • Develop and design competitive corridor RFPs • Build new and upgrade existing chargers • Target reliability • Expand coverage
Charge Ahead Rebate Program	April 3, 2024	The Charge Ahead Rebate Program provides income-eligible households a rebate toward the purchase or lease of eligible new or used ZEVs. This application process allows Oregon residents who meet the income eligibility criteria to get preapproved for a Charge Ahead rebate prior to purchase or lease.
Medium and Heavy Duty Zero Emission Vehicle Rebate	September 30, 2024	This order establishes a new rebate program for MDHD ZEVs. It also amends an existing rebate program for LD ZEVs.
Temporary: Advanced Clean Truck Rules	November 21, 2024	Temporary rules were adopted to incorporate recent California Air Resources Board changes to the ACT regulation, including: • An increase to the deficit makeup period from one model year to three model years

Policy	Date Approved or Effective	Description
		• Compliance to be based on reported sales of delivered vehicles instead of reported deliveries to ultimate purchasers • Several other minor updates to manufacturer reporting and certification requirements
Heavy Duty Engine and Vehicle Omnibus Rule	November 21, 2024	A temporary rule was adopted to pause implementation of the Low NOx Omnibus Rule until 2026 to avoid severe restrictions in the supply of new vehicles, based on manufacturer business decisions.

DISCUSSION OF RECENT EV POLICIES

Oregon has continued to update and adapt its policies related to electric transportation in recent years. Some actions have the effect of strengthening regulation aimed at decarbonization, while others are focused on ensuring smooth implementation of state policy. This section describes recent policy changes and their potential impacts.

MARKET SHARE AND POLLUTION MANDATES

The biggest policy driving adoption of passenger and light-duty electric vehicles in Oregon is the Advanced Clean Cars II regulation. This sets a requirement for automobile manufacturers to increase market share of ZEVs starting at 35% in 2026 to 100% by 2035. This rule also ensures that ZEVs have equivalent durability and warranty provisions.

The proposed Clean Truck Rules set a similar path for shifting the market for medium- and heavy-duty vehicles to ZEVs. It outlines increasing annual sales targets by vehicle class from 2025 through 2035. Sales targets range from 7% to 11% market share in 2025 and from 40% to 75% by 2035.

The Heavy Duty Engine and Vehicle Omnibus Rule adopted in November 2021 requires 75% fewer nitrogen oxide (NOx) emissions and 50% fewer fine particulate matter ($PM_{2.5}$) emissions in 2026 compared with 2023 engines. However, in 2024, a temporary ruling delayed implementation by one year due to the limited options available in the market for meeting the requirements.

Oregon revised its Clean Fuels Program effective January 1, 2023, to include an expansion of the annual average carbon intensity reduction targets to 20% below 2015 levels by 2030 and 37% by 2035. These modifications will support the state's adoption of the new standards, provide updates to existing rules for clarity and workability for regulated parties and Oregon Department of Environmental Quality (DEQ), and bring the program's rules up to date.

ELECTRIC VEHICLE INCENTIVES

The Electric Vehicle Rebate Rules and the Charge Ahead Rebate Program encourage the adoption of EVs by providing financial incentives for the purchase or lease of new or used ZEVs, making EVs more affordable and accessible for larger groups of people, specifically low- and moderate-income (LMI) households. The rule adopted on May 19, 2022, increased the rebate amount by $2,500 for LMI households, and reduced the standard rebate by

$500. In addition, the rebate eligibility was expanded to include nonprofits providing services to low-income households.[30]

The Medium and Heavy Duty Zero Emission Vehicle Rebate authorized the creation of rebates for vehicles over 8,501 pounds Gross Vehicle Weight Rating (GVWR). HB 4901 passed by the 2024 legislature created a new fund for dedicated Charge Ahead rebates for EVs, including MHDVs.

Inconsistency of EV rebate funding may slow the transition to electric vehicles in the near term by deferring the demand for EVs when rebates are not available. For instance, eligibility for the Oregon Clean Vehicle Rebate Program in 2024 was suspended on June 3 because the budget was exhausted by high demand (and as of March 2025 had not been resumed).[31] The dedicated funding from HB 4901 should provide more consistency for prospective EV buyers. At the federal level, there is potential for EV tax credits that are funded through the IIJA and IRA to be rolled back. Combined with the potential for tariffs to drive up costs of battery components.[32]

CHARGING INFRASTRUCTURE

The Community Charging Rebates program aims to increase access to Level 2 charging stations at publicly accessible parking locations and multifamily housing. Rebates can be used for purchasing, installing, and maintaining charging equipment. Seventy percent of rebate funds are reserved for projects located in priority communities, including disadvantaged and rural communities. Funding round 1 of the program will provide $1.75 million in rebates.

The Electric Vehicle Charger Reliability and Accessibility Accelerator program will award Oregon $10 million to repair broken EV charging ports at public EV charging stations throughout the state. The Federal Highway Administration identified 135 public EV charging stations in Oregon that have at least one broken EV charging port. The funding can also be used to install more Level 2 or DCFC ports at project sites. The grant is from the 2021 federal IIJA.

The National Electric Vehicle Infrastructure (NEVI) Program in Oregon is slated to receive $52 million over five years from the federal NEVI program. When the private matching requirement is included, the total grows to approximately $65 million. This would result in approximately 50 new or upgraded fast-charging stations.

NEVI funding is part of the 2021 IIJA. On February 6, 2025, the Federal Highway Administration suspended state EV charging infrastructure deployment plans under the NEVI program.[33] Thirteen new charging stations with obligated funding are set to proceed.

CONCLUSIONS

[30] Oregon Department of Environmental Quality. *Electric Vehicle Rebate Rulemaking 2021*. https://www.oregon.gov/deq/rulemaking/pages/evrebate2021.aspx.

[31] ———. (2025). *Oregon Clean Vehicle Rebate Program*. https://www.oregon.gov/deq/aq/programs/Pages/ZEV-Rebate.aspx. "The Oregon Clean Vehicle Rebate Program expects to reopen in 2025. Due to overwhelming demand and limited funding, the rebate eligibility period was suspended on June 3, 2024. Any vehicles purchased or leased outside of the 2024 open period (April 3 – June 3, 2024) are NOT eligible to apply for Oregon Clean Vehicle Rebates."

[32] E Source. *What's Ahead in Transportation Electrification: 2025*. https://www.esource.com/event/001251huir/whats-ahead-transportation-electrification-2025.

[33] Federal Highway Administration. *State Plan Approval Suspension (NEVI Program)*, 2024. https://www.fhwa.dot.gov/environment/nevi/resources/state-plan-approval-suspension.pdf.

Oregon has enacted a comprehensive set of policies to support the electrification of its transportation sector and continues to update policies to align with regional efforts, funding needs, and the evolving maturity of the EV market. The most directly impactful policies establishing fleetwide targets for automobile manufacturers—the ACC II regulation and proposed ACT rule—will drive the timeline for the transition to EVs in Oregon.

Several barriers to enacting Oregon policy may slow the growth of EV adoption in the state. Federal funding through the 2021 IIJA and 2022 IRA is woven into Oregon policy initiatives, and uncertainty about those programs may impact Oregon's policy goals. These factors include:

- Risk to federal EV tax credits funded through IIJA and IRA
- Possibility of tariffs on battery components impacting EV prices
- Uncertainty about NEVI funding delaying deployment of fast-charging infrastructure along key corridors
- Temporary budget constraint for the Clean Vehicle Rebate Program suspending rebates for six months
- Deferment of Heavy Duty Engine and Vehicle Omnibus Regulation by one year

Overall, Oregon will likely continue to see increasing adoption of EVs, even if the policy-enabled glidepath is somewhat delayed.

2.2 MARKET BARRIERS

Market barriers continue to exist for customers. While residential and commercial participation in the programs continues to grow, the commercial customer pipeline has taken significant time to build. Barriers to greater adoption in the commercial and multifamily sectors include costs, logistics, the complexities of nonresidential installations, and split incentives. Furthermore, industry-wide barriers continue to exist, causing challenges for the industry overall. The sections below describe specific market barriers.

CUSTOMER BARRIERS

This section discusses the customer-specific barriers shared during surveys gathered this year[34] and anecdotal conversations with customers. In addition, PacifiCorp has been participating in the Oregon Department of Energy Oregon Energy Strategy TE Policy Working Group[35], where conversations have been hosted regarding barriers.

Market Barrier	Description	Plan to Address Barrier
Up-front capital costs pose a significant barrier to charger adoption; staff time and project complexity can	Project complexity has a dampening effect on the uptake of commercial and multifamily EVSE installations due to physical (limited space), logistical (complex permitting process), and financial (high up-front capital investment cost and split incentives) challenges. Larger commercial and multifamily installations require	To support the challenge of high up-front costs, PacifiCorp has enabled ways to pay out incentive dollars prior to the final project construction. This currently exists in the Fleet Make Ready Pilot and Grant Programs. Multifamily customers can reserve funds. PacifiCorp proposes

[34] Oregon Transportation Electrification Portfolio Impact Evaluation. (2025).

[35] Oregon Department of Energy. *Energy Strategy Working Groups*. https://www.oregon.gov/energy/Data-and-Reports/Pages/Energy-Strategy-Working-Groups.aspx.

also impede EV charger adoption.	greater resources, planning, and site considerations than standard residential EVSE installations. Though the PacifiCorp Technical Assistance program can alleviate some of this burden (by offering site assessments and other services), surveyed staff noted that additional time and staffing resources are prioritized and committed to other business-centric needs besides EVSE installation.	investigating reservation options in this TE plan cycle and midpoint incentive checks for all commercial customers.
Customers do not have statewide assistance to understand EV policies, operations, and technologies.	Fleets aiming to switch to ZEVs face a steep learning curve. This includes navigating grant applications and reporting procedures, training drivers and staff, comprehending the optimal infrastructure for their requirements, and understanding utility rate structures. Additionally, there is no statewide technical assistance available.[36]	PacifiCorp continues to offer technical assistance at no cost to customers to support these challenges.
The TOU requirement deters customers.	Residential customers rated the TOU requirement the lowest of all the program elements and provided some anecdotes about their concerns. The TOU requirement may be a hindrance to other residential customers interested in networking capable L2 charging equipment but reluctant to opt in to TOU rates. Other friction points for residential customers tended to be confusion with the application and its requirements and the product-qualifying list and criteria.	In 2024, PacifiCorp removed the one-year requirement to participate in TOU when receiving a residential rebate. The 2026–2028 plan proposes continuing education around TOU and finding ways to increase program participation.
Residential customers are wary of additional costs associated with installing Level 2 chargers.	Cost and uncertainty around the L2 EVSE installation is another barrier to greater residential adoption. One-third (34%) of residential survey respondents reported additional electric infrastructure costs associated with their L2 installations, with over one-quarter (27%) indicating installation required panel upgrades.	As part of the program portfolio, the standard residential rebate program did not dictate which costs could be incurred during an L2 installation project. However, total project costs covered could only be at 75%.
Split incentives continue to plague multifamily and commercial properties.	Commercial and multifamily properties are faced with having to bear the costs of installation while tenants may reap the benefits (such as the convenience of on-site charging or lower fueling costs)—commonly known as “split incentives.”	PacifiCorp has been working to reach developers and property owners to support these initiatives.

[36] Oregon Department of Energy (2025). TE Policy Working Group For Oregon Energy Strategy. Discussion on barriers.

	Split incentives also occur when a tenant might be interested in installing EVSE but will not gain from the added value to the property that accrues to the property owner in the form of increased property value and attractiveness to future tenants, for example. Split incentives are a long-standing barrier to broader efficiency adoption for utility DSM programs.	
Funding availability may make customers reluctant to take on a project.	Though PacifiCorp program and state incentives can help offset some of the cost of EVSE installations, there remains some uncertainty around the availability of funding—especially federal funding. Given market and federal policy volatility, fewer companies are willing to invest a large amount of capital in EVSE projects that may not deliver a reliable return on their investment.	While PacifiCorp incentives are helping to offset a percentage of costs, the total incentive stack may not be enough to push the needle forward. Results from a recent benchmarking study support PacifiCorp's initiative to increase incentives for commercial customers. We will propose that solution in Section 3.

INDUSTRY BARRIERS

The industry is transforming and experiencing its own set of growing pains as movement toward a more mature market continues. Below highlights a few of the market barriers that impact the industry as well as PacifiCorp customers indirectly.

Market Barrier	Description	Plan to Address Barrier
Supply chain constraints are impacting product availability and projects in constrained areas.	PacifiCorp is not immune to the supply chain constraints that continue throughout the industry. Right now, transformer orders can take up to 18 months. If a customer is looking to add new load to an area that is already experiencing significant growth, it is likely to trigger engineering studies within the Company to investigate capacity availability. These sites could experience much longer development lead times, since new capacity would need to be built in the area. The customer would also experience these supply chain constraints.[37]	PacifiCorp realizes this is a major challenge for customers. For TE projects, PacifiCorp tries to work early with the customers (prior to finalization of site selection) to complete prefeasibility analyses of these sites. If the site comes back with major upgrade costs, the customer can decide to move to another location without embarking on a system impact study.
EVSPs are going out of business.	As discussed in the introduction, PacifiCorp has seen two major electric vehicle service providers go bankrupt or significantly alter their market offerings.	While PacifiCorp will continue to monitor ways to support customers if this trend continues. Requiring chargers to be Open

[37] Keefe, T. L., Hardin, K., & Nagdeo, J. (2024, December 9). 2025 power and utilities industry outlook. Deloitte Insights. https://www2.deloitte.com/us/en/insights/industry/power-and-utilities/power-and-utilities-industry-outlook.html.

	This has affected customers at PacifiCorp who invested in residential and commercial charging equipment. These types of market fluctuations cause delays in market growth, reduce connectivity to existing equipment, and erode customer confidence in the market as a whole.	Charge Point Protocol is a way to address this issue, allowing for software transition.
EV charging equipment experiences downtime.	Many charging stations are unreliable and challenging or pricey to fix. This stems from subpar design, untrustworthy companies, and a deficiency of skilled and qualified maintenance personnel, particularly in rural regions across the state.[38]	PacifiCorp continues to focus on uptime requirements for public charging ports as well as PacifiCorp-owned ports. PacifiCorp recently hired an operations manager for all company-owned ports to ensure better uptime results.
Consumers and EV dealers still do not fully understand the benefits of EVs.	Misconceptions about EVs are widespread, and many consumers, dealers, and communities are unaware of their health, environmental, and economic advantages. These end users also lack knowledge about their operational capabilities, available incentives to lower initial costs, and how to use charging infrastructure. Similarly, many people are unfamiliar with hydrogen and have concerns about its safety.[38]	PacifiCorp continues to run customer communication campaigns and host outreach and education events to untangle these misconceptions.
Historical planning for utilities does not allow for proactive investment.	Utilities tend to invest in new infrastructure based on existing and identified demand, rather than proactively anticipating future growth. They are reluctant to invest ahead of time without assurance from regulators that they will be able to recover their costs.[38]	PacifiCorp has been monitoring the ongoing dockets that cover proactive upstream utility investment planning.
Consumers lack awareness of load management options to reduce grid integration challenges.	Consumers hesitate to join managed charging programs because they do not trust corporations, and they have concerns about data privacy and vehicle availability. Additionally, load management strategies and technologies are not well understood or developed, and managed charging programs are neither widespread nor optimized to encourage participation.[38]	PacifiCorp has initiated a managed charging pilot to develop a deeper understanding of this barrier. In addition, the Company plans to engage customers in more education around TOU and support off-peak load shift.

2.3 EXISTING USAGE PATTERNS AT CHARGING STATIONS

[38] Oregon Department of Energy. (2025). TE Policy Working Group For Oregon Energy Strategy.

As of March 2025, throughout the PacifiCorp service area, there were 136 active charging ports and 71 EVSE funded through the Company's programs at more than 40 public stations. This data is drawn from PacifiCorp's newly created data dashboard, which summarizes key statistics about EVSE usage, energy consumption, port utilization, and other key metrics.

The initial results are summarized in this section and Appendix B. With time and increased collaboration and data sharing with network service providers (NSPs), the results summarized by the data dashboard will become more comprehensive and complete. About 50% of the EVSE ports have charging data from the NSP syncing to the data dashboard as of April 2025.

In 2024, there were at least 38,195 charging sessions at these stations. Energy usage was 654,209 kilowatt-hour (kWh), with 97,789 gallons of fuel saved and 281 metric tons (MT) of carbon dioxide (CO_2) saved. On average, Level 2 charging stations were used 17 times per month per port, and DCFC stations were used 30 times per month per port. Typically, chargers funded by PacifiCorp tend to have higher utilization during daytime hours, on weekdays, during the summer months than at other times. These patterns are discussed in more detail in Appendix B.

These stations are located in eight regions (and multiple municipalities) in PacifiCorp's service area:

- Central region (e.g., Bend and Madras)
- Eastern (Enterprise)
- Mt. Hood/Columbia Gorge (Hood)
- Northern Coast (e.g., Astoria and Seaside)
- Portland (Portland)
- Southern region (e.g., Grants Pass, Klamath Falls, and Medford)
- Southern Coast (e.g., Coos Bay and Otis)
- Willamette Valley region (e.g., Dallas and Mill City)

PACIFICORP-OWNED STATIONS

PacifiCorp owns five charging pods consisting of 25 ports (both Level 2 and DCFC ports) in its Oregon service area. This section provides a summary overview. The stations are located in five municipalities spread over four regions:

- Bend (Central region)
- Klamath Falls (Southern region)
- Madras (Central region)
- Mill City (Willamette Valley region)
- Otis (Southern Coast region)

Analyzing the existing usage data from public EVSE charging stations in PacifiCorp's service area indicates some important trends:

- Use of public charging stations is growing, as is the amount of electricity delivered.
- EVSE usage in Bend and Madras in the Central region accounts for the bulk of electricity delivered by public charging stations in PacifiCorp's service area; although Klamath Falls and other municipalities in the Southern region are experiencing significant usage.
- Most PacifiCorp-owned EVSE is being used from 9:00 a.m. through 9:00 p.m., indicating that midday charging by travelers away from their residences accounts for the majority of public charging station use.
- Weekday usage of PacifiCorp-owned EVSE is greater than weekend usage, indicating that business travelers are using these charging stations more than leisure travelers.
- Uptime for the public DCFCs in Oregon remained high in 2024, with an average uptime percentage of 97.4 across all five charging station locations (shown below in Table 2). Uptime for the Level 2 charging stations at the same locations averaged just a bit lower than the DCFCs, with an average uptime of 96 percent (see Table 2).

Table 2: PacifiCorp-Owned Charging Station Statistics (2024)

Station	Number of Transactions	Average Session Duration (hours)	Average Session Duration (minutes)	Average Charging Time per Session (hours)	Average Charging Time per Session (minutes)	Average Energy per Charge (kWh)	Number of Distinct User IDs	Average Uptime (%)
DCFC								
Bend	6,129	0.70	42	0.63	38	24.12	1554	94%
Klamath Falls	3,598	0.67	40	0.63	38	25.59	1003	99%
Madras	1,215	0.53	32	0.50	30	19.93	425	96%
Mill City	1,742	0.43	26	0.42	25	18.34	589	99%
Otis	2,440	0.50	30	0.47	28	19.91	913	99%
Level 2								
Bend	1,284	2.25	135	1.80	108	10.67	351	99%
Klamath Falls	469	2.30	138	1.97	118	11.45	105	99%
Madras	59	1.47	88	1.23	74	6.85	157	87%
Mill City	135	1.75	105	1.00	60	6.45	57	95%
Otis	60	0.92	55	0.70	42	3.99	31	100%

Notes: n = 17,131 transactions. 2024 data only. When blank, port type was determined based on EVSE ID and corresponding port type. Excludes transactions where total duration was less than 2 minutes, or charging duration was less than 2 minutes, or energy (kWh) equaled 0.

Analysis of future EVSE usage data in PacifiCorp's service area is recommended to better understand user patterns and assist in determining future needs for EVSE infrastructure.

2.4 ELECTRIC VEHICLE ADOPTION AND FORECASTING

While Oregon's EV market still represents a smaller share of the overall vehicle market, it has shown rapid growth over the past decade, with total EV registrations growing from a little over 10,000 in 2018 to almost 110,000 at the end of 2024.[39] Despite this growth, current EV adoption numbers indicate that there is still enormous opportunity for both the state and PacifiCorp to assist in further transforming the EV market.

PacifiCorp's service area had more than 27,000 EVs and PHEVs at the end of 2024, as shown in Figure 2. To get a prospective forecast of EV adoption, PacifiCorp developed a model to assess trends for LDVs and MHDVs. To develop a future vehicle adoption curve, the Company reviewed three national EV forecasts: U.S. Energy Information Administration's Annual Energy Outlook, Wood Mackenzie, and BloombergNEF. While these forecasts represent national trends, the adoption curves themselves can be applied to Oregon-specific parameters to reflect current market conditions in the state. Each of the national adoption curve sources is discussed below to help contextualize the various sources reviewed for this plan's EV adoption forecast.

U.S. ENERGY INFORMATION ADMINISTRATION'S ANNUAL ENERGY OUTLOOK 2023

Each year, the EIA publishes its AEO, providing projections of domestic energy markets under a variety of scenarios.[40] To create a forecast of future EV adoption, PacifiCorp used the reference case forecasts of national EV stock growth from AEO 2023, the most recent AEO version available at the time of the analysis.[41] The EIA uses the Transportation Sector Demand Module of its National Energy Modeling System to project LDV stock. This model is designed to "endogenously incorporate the effects of technological innovation, macroeconomic feedback, infrastructure constraints, and demand behavior in making the projections."[42]

Of the sources discussed, AEO 2023 is the only one that presents forecasted adoption separately for light-duty BEVs and PHEVs rather than simply for EVs in total, allowing the model to create separate forecasts of BEV and PHEV adoption. The mapping of the AEO to Oregon Department of Environmental Quality (DEQ) EV categories is provided in Table 3 and is shown in the workbook sheet titled "AEO Results by Category."

Table 3: AEO and DEQ EV Type Mapping

DEQ EV Category	AEO EV Category
BEVs	100 Mile Electric Vehicle

[39] Oregon Department of Energy. (2025, April). *Oregon Electric Vehicle Dashboard*. https://www.oregon.gov/energy/Data-and-Reports/Pages/Oregon-Electric-Vehicle-Dashboard.aspx.

[40] Annual Energy Outlook 2023. Reference scenario ref2023.d020623a. Current and previous versions of the AEO are available online at https://www.eia.gov/outlooks/aeo/ (last visited March 2025).

[41] *Annual Energy Outlook 2023*, "Table 39. Light-Duty Vehicle Stock by Technology Type" and "Table 45. Transportation Fleet Car and Truck Stock by Type and Technology" https://www.eia.gov/outlooks/aeo/tables_ref.php (last visited March 2025).

[42] *Transportation Sector Demand Module of the National Energy Modeling System: Model Documentation*, July 2022 A Transportation Sector Demand Module of the National Energy Modeling System: Model Documentation (last visited March 2025).

	200 Mile Electric Vehicle
	300 Mile Electric Vehicle
PHEVs	Plug-in 10 Gasoline Hybrid
	Plug-in 40 Gasoline Hybrid

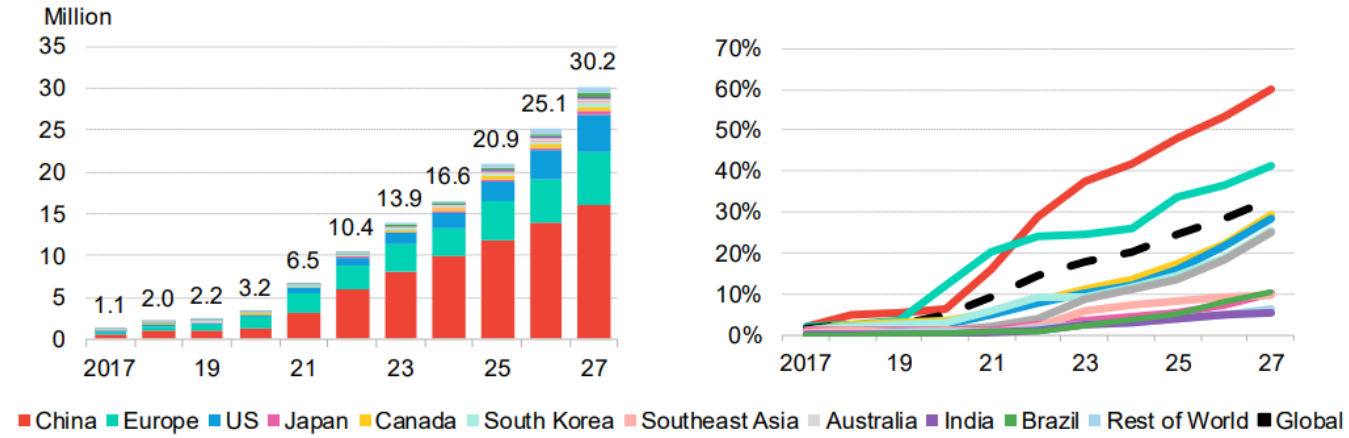
WOOD MACKENZIE 2023

Wood Mackenzie has intermittently published reports over recent years estimating EV adoption trends. These long-term forecasts primarily focus on three geographies (US, Europe, and China) and group the rest of the world together. The information and articles surrounding the forecasts themselves focus largely on TE's impacts on oil and gas producers, as well as their distribution lines.

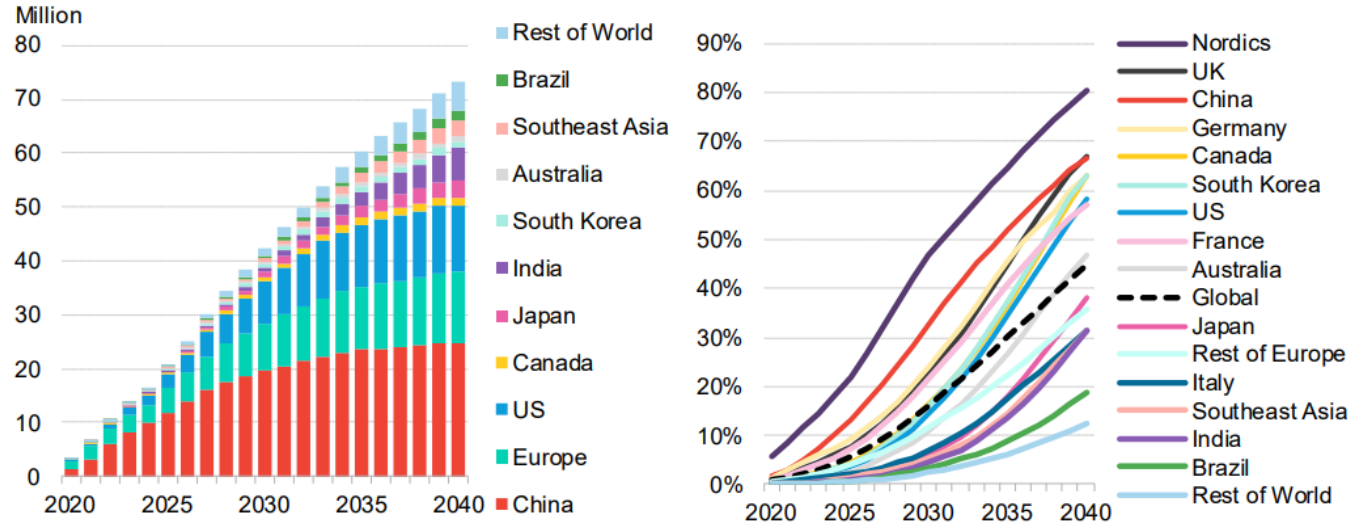
BLOOMBERG NEW ENERGY FINANCE ELECTRIC VEHICLE OUTLOOK 2024

BloombergNEF's annual Electric Vehicle Outlook provides long-term forecasts of EV adoption globally and for specific geographic markets, including the U.S. BloombergNEF's EV market share forecasts, by region, are provided in Figure 1. The US EV market share forecasts are not as aggressive as those for China or Europe, but they are expected to increase to over 29% of passenger vehicles by 2027 and nearly 60% by 2040.

Figure 1: BloombergNEF 2024 EV Market Share Forecasts[43]



Source: BloombergNEF. Note: Europe includes the EU, the UK and EFTA countries. EV includes BEVs and PHEVs.



Source: BloombergNEF

Source: BloombergNEF

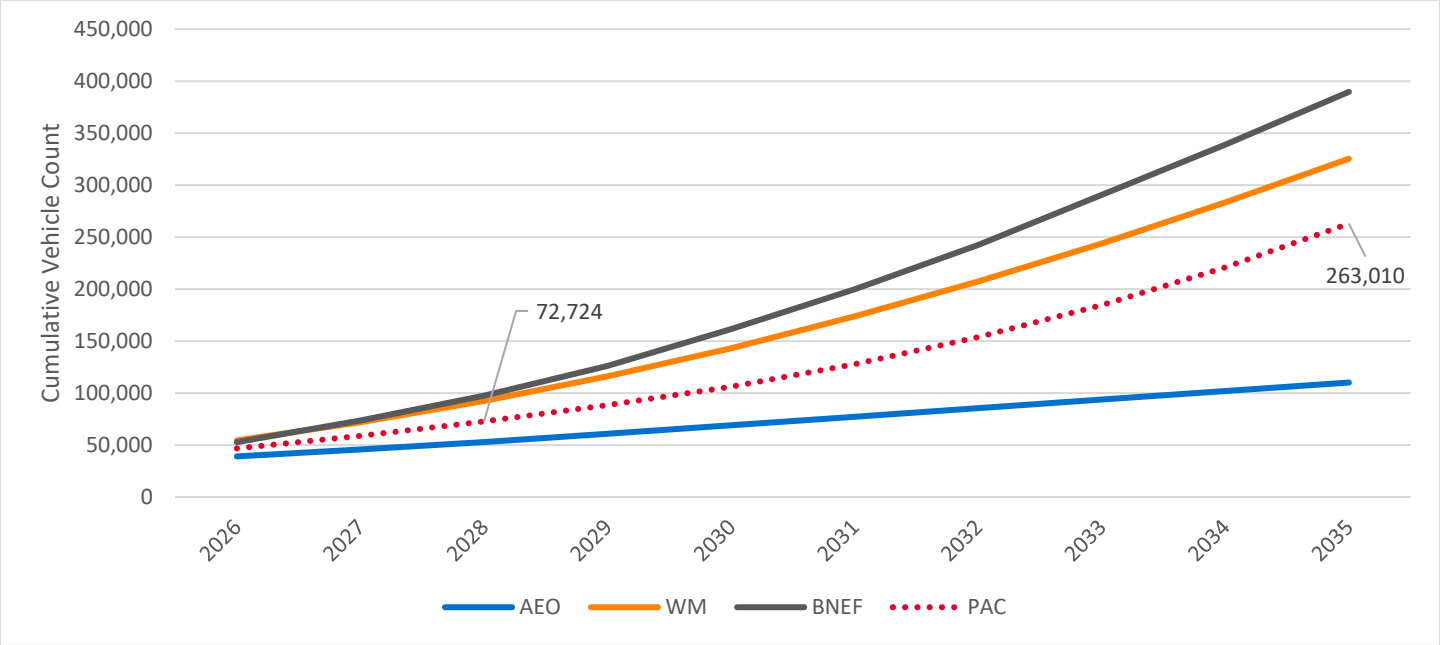
PACIFICORP OREGON EV FORECAST AND PROJECTIONS

The recommendation for Oregon relies on a blend of the AEO and Wood Mackenzie forecast sources. The Company's previous TEP assumed an average of the three scenarios using national forecasts of EV adoption from three industry sources. While much of PacifiCorp's Oregon service area is rural, where EV adoption typically lags, Oregon is a ZEV state and has adopted aggressive EV targets. Oregon's EO 17-21 and SB 1044 set targets to achieve 250,000 total EVs by 2025 and targets ZEVs to be 90% of new vehicles sold by 2035. Figure 2 summarizes

[43] Bloomberg NEF *Electric Vehicle Outlook 2024*, "Executive Summary", pages 2-3. https://assets.bbhub.io/professional/sites/24/847354_BNEF_EVO2024_ExecutiveSummary.pdf (last visited March 2025).

each of the forecast curves reviewed by PacifiCorp as well as the current forecast being used for this TEP, as shown via the dotted red line labeled "PAC." PacifiCorp forecasts there being over 72,000 LDVs by 2028 and over 263,000 by 2035.

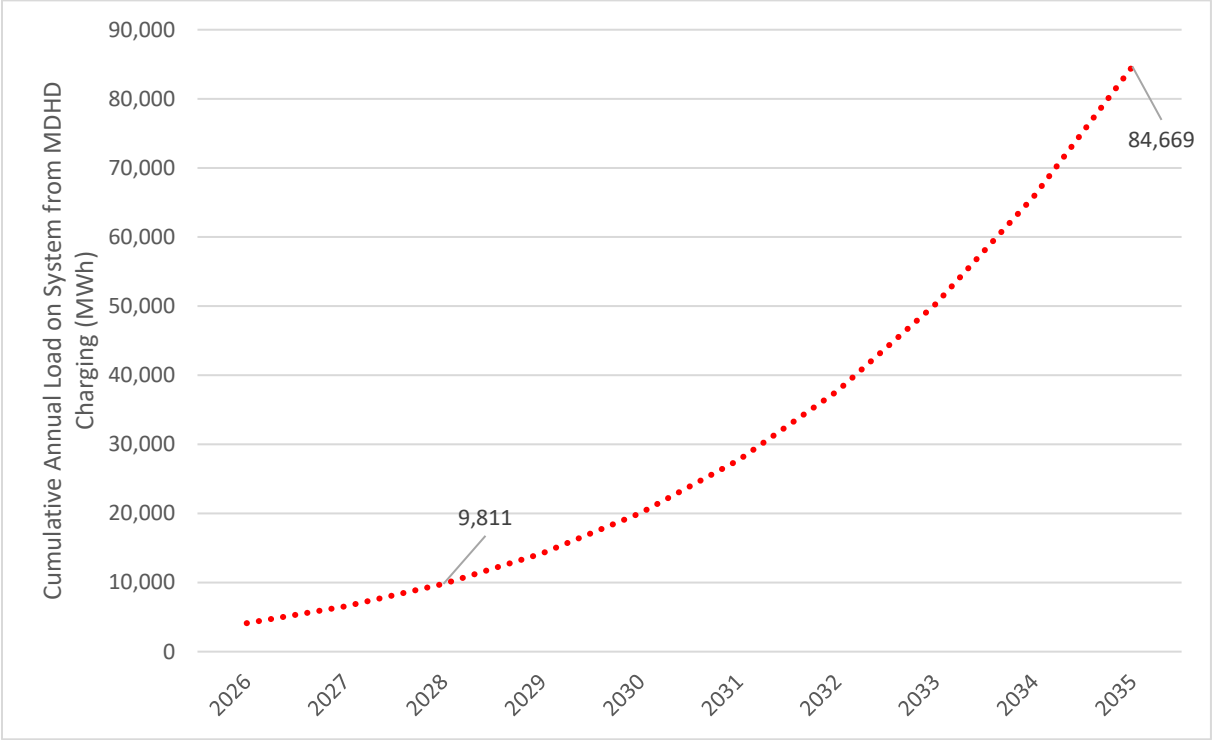
Figure 2: LDV Forecast Comparisons During TE Planning Period (2026–2035)



MHDVs are also included in the forecast for TE load impacts. In the near term, the Company relies on customer plans regarding the adoption of MHDVs over the next couple of years. Customer plans, along with the historically known adoption of MHDVs, form the starting point of the forecast for MHDVs. PacifiCorp then leveraged a 2024 MHDV study (see Appendix G). While per-vehicle impacts from MHDVs are more substantial than the impacts from LDVs, their overall adoption is lower and anticipated to make up <1% of overall commercial retail load impact in the next three years.

Overall, the Company is projecting that MDHD load on the system will total just over 9,800 MWh by 2028 and over 84,500 MWh by 2035 in PacifiCorp's Oregon service area. Figure 3 illustrates historic and forecasted adoption of EVs over the TE planning period for all vehicle types.

Figure 3: Historical (2023–2024) and Forecasted MHDV Penetration During TE Planning Period (2025–2030)



As the EV market evolves, the Company will update forecasts to reflect new trends.

2.5 DISTRIBUTION SYSTEM PLANNING NEEDS SUMMARY

PacifiCorp evaluated potential grid impacts associated with EV adoption across our service area. As detailed in Appendix C, projections for light-, medium-, and heavy-duty EV growth were used to estimate the added peak load on every transformer in the state of Oregon. Even under light adoption scenarios, the analysis revealed transformers facing accelerated replacement timelines or emerging overcapacity issues.

This EV adoption forecast has the potential to accelerate the need to upgrade equipment in areas where prior studies did not identify concerns. While typical load growth is accounted for within a standard five-year study conducted by area field engineers, the challenge with EV adoption lies in its steep S-curve trajectory. (The S-curve describes the pace at which people or markets accept and integrate a new technology.) The rapid and clustered nature of new EV demand may bypass traditional planning cycles, resulting in multiple simultaneous infrastructure needs across the system.

EV adoption is projected to be most concentrated in major metropolitan areas such as Portland and Corvallis. Additionally, demand is expected to increase at key transportation corridors and intermediary nodes, where long-haul and commuter travel create natural needs for charging infrastructure. Notable hotspots include Pendleton along the Portland–Boise corridor, and Medford within the I-5 corridor connecting the Pacific Northwest to California.

3. DESCRIPTION OF TRANSPORTATION ELECTRIFICATION PORTFOLIO

3.1 PORTFOLIO LEARNINGS

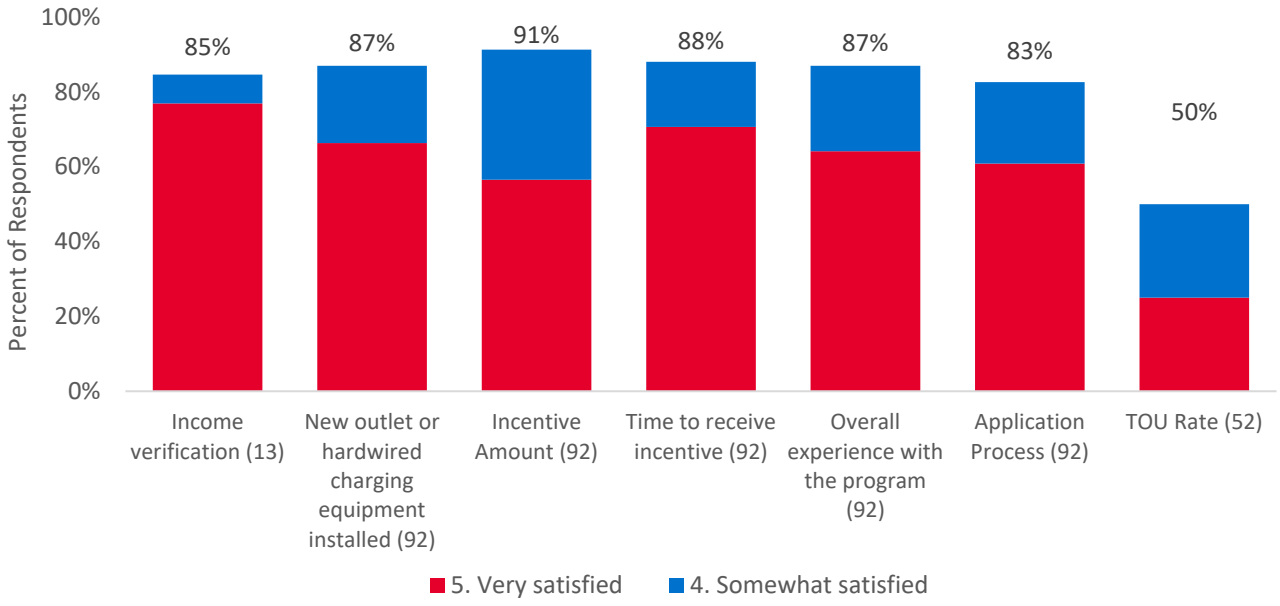
Over the last two years, the TE portfolio continued to absorb and grow from learnings internally and externally. PacifiCorp, with the support from a third-party evaluator, investigated the overall portfolio performance through customer surveys and benchmarking across the industry. Below are some highlights.

- **PacifiCorp's TE portfolio has supported the development of a robust market for EVSE and increased access to electric transportation options.** PacifiCorp's TE portfolio is actively working toward equitable transportation electrification. The E-Mobility Grant program expands electric transportation options to underserved communities, often serving as the only financial support for these projects. The E-Mobility Grant program has experienced strong demand, with 41 grants distributed in 2023 and 2024. PacifiCorp has established itself as a trusted source of information on TE through extensive outreach and education efforts. These efforts have resulted in successes such as the residential rebates program, which saw 1,315 customers installing ENERGY STAR–certified Level 2 charging equipment, exceeding original targets by over 50%.

  In contrast, certain elements of the TE portfolio did not meet planned targets. Barriers to greater adoption in the commercial and multifamily sectors included costs, logistics, the complexities of nonresidential installations, and split incentives. Further, commercial and multifamily properties often bear the costs of installation while tenants reap the benefits. Another type of split incentive—as this issue is commonly known—occurs if a tenant installs EVSE but gains no value from the investment in the form of increased property value or attractiveness to future tenants. Split incentives are a long-standing barrier to broader adoption of utility demand-side management (DSM) programs.

- **Participants in PacifiCorp's TE programs reported high satisfaction with their experiences.** Residential customers demonstrated strong engagement and responsiveness when invited to participate in a survey, resulting in the survey being closed early after exceeding the targeted completion rate within one day of launch. Participants, primarily residential customers who received Level 2 charging equipment rebates, expressed high satisfaction scores regarding their program experience. Upwards of 90% of participants indicated they were somewhat or very satisfied with their overall program experience (Figure 4. High Satisfaction Percentages for Various Aspects of Rebate Program). Furthermore, participants expressed high satisfaction ratings for the Level 2 equipment, the incentive amount, and the time taken to receive the rebate. Income-qualified customers rated the income-verification process highly, finding it easy to navigate. The TOU requirement received a lower satisfaction rating, with only half (50%) of participants being somewhat or very satisfied, and over 20% stating they were somewhat or very dissatisfied.

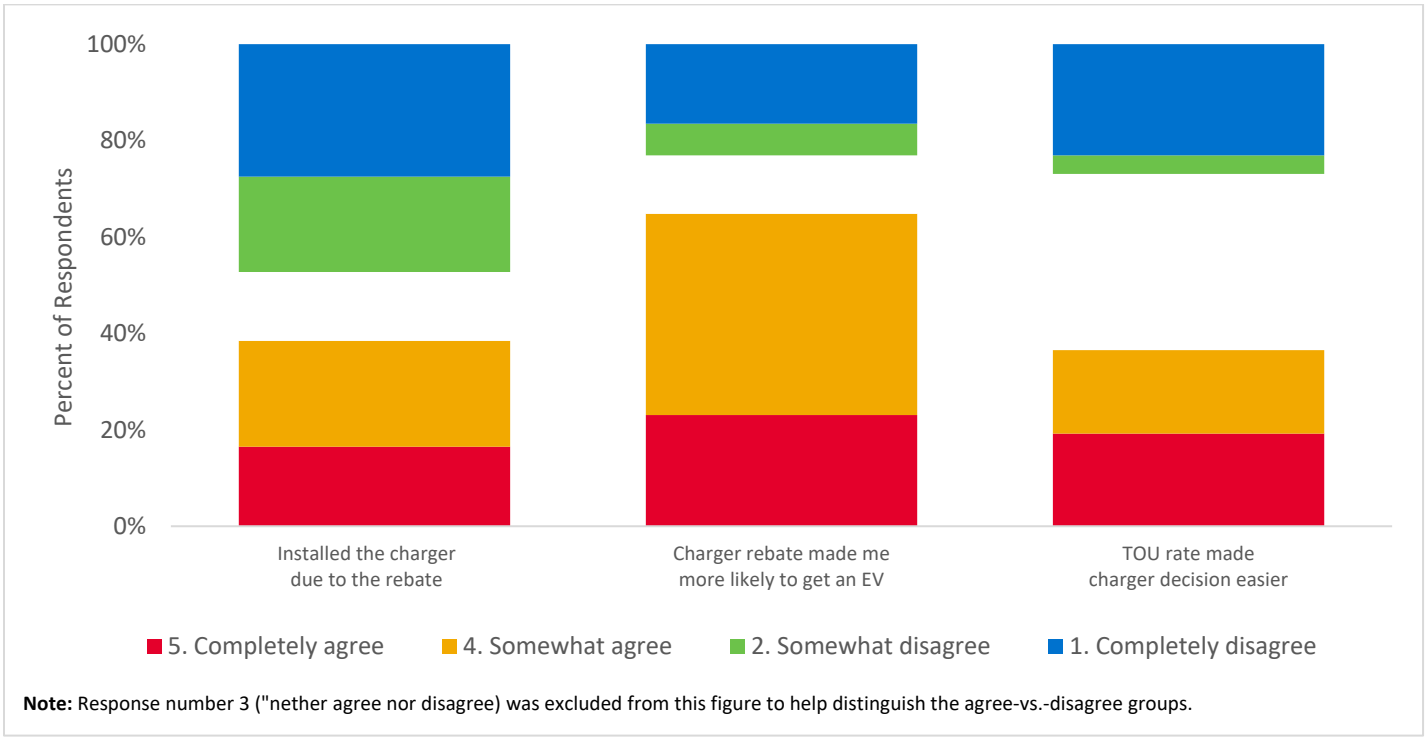
Figure 4. High Satisfaction Percentages for Various Aspects of Rebate Program



Note: Numbers in parentheses represent the number of responses for each category.

- **PacifiCorp's TE residential charger program had a moderate level of influence in customer decision-making and behavior.** While residential customers reported engagement and satisfaction with the program, the survey indicated only a moderate level of influence on their decision to purchase and install the L2 charging equipment. Only 38% of participants somewhat or completely agreed that the rebate was the reason they installed the charger (Figure 5. Charger Rebate and TOU Rate Effectiveness). Conversely, nearly half (47%) of customers indicated they would have installed the charging equipment even without the rebate, a group typically considered free riders.

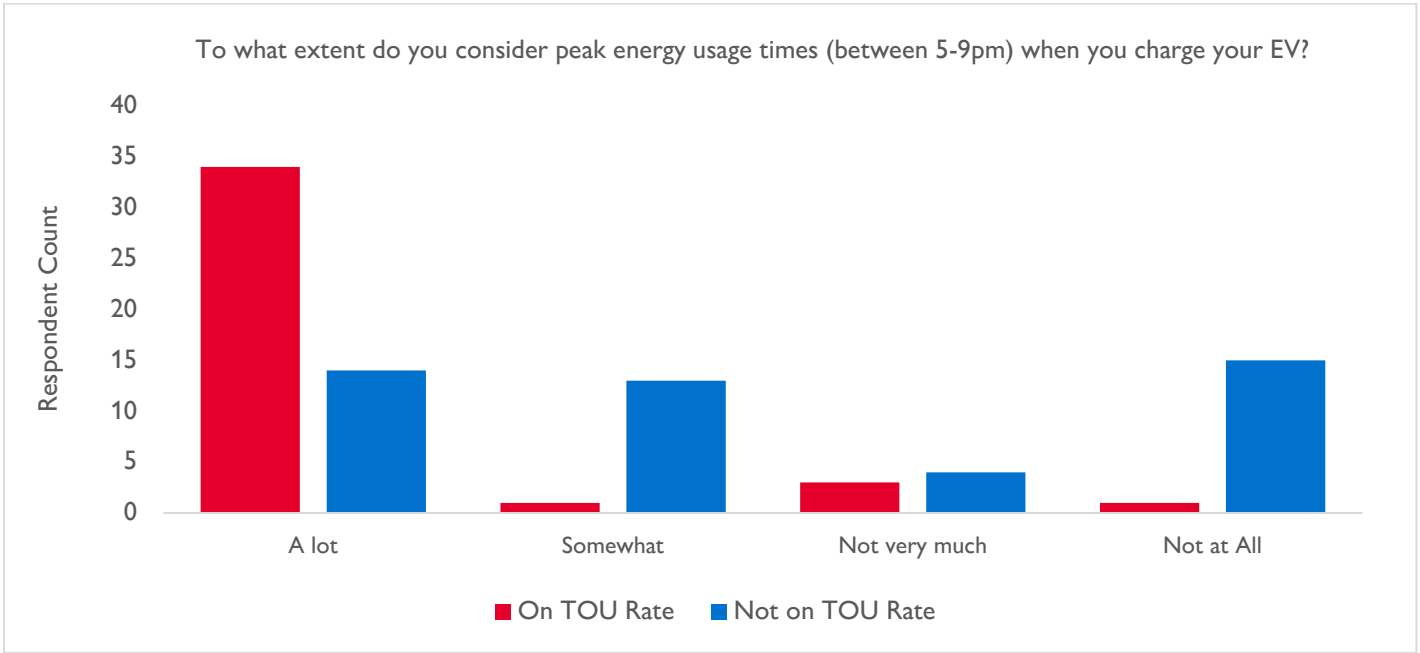
Figure 5. Charger Rebate and TOU Rate Effectiveness



Note: Response number 3 ("nether agree nor disagree) was excluded from this figure to help distinguish the agree-vs.-disagree groups.

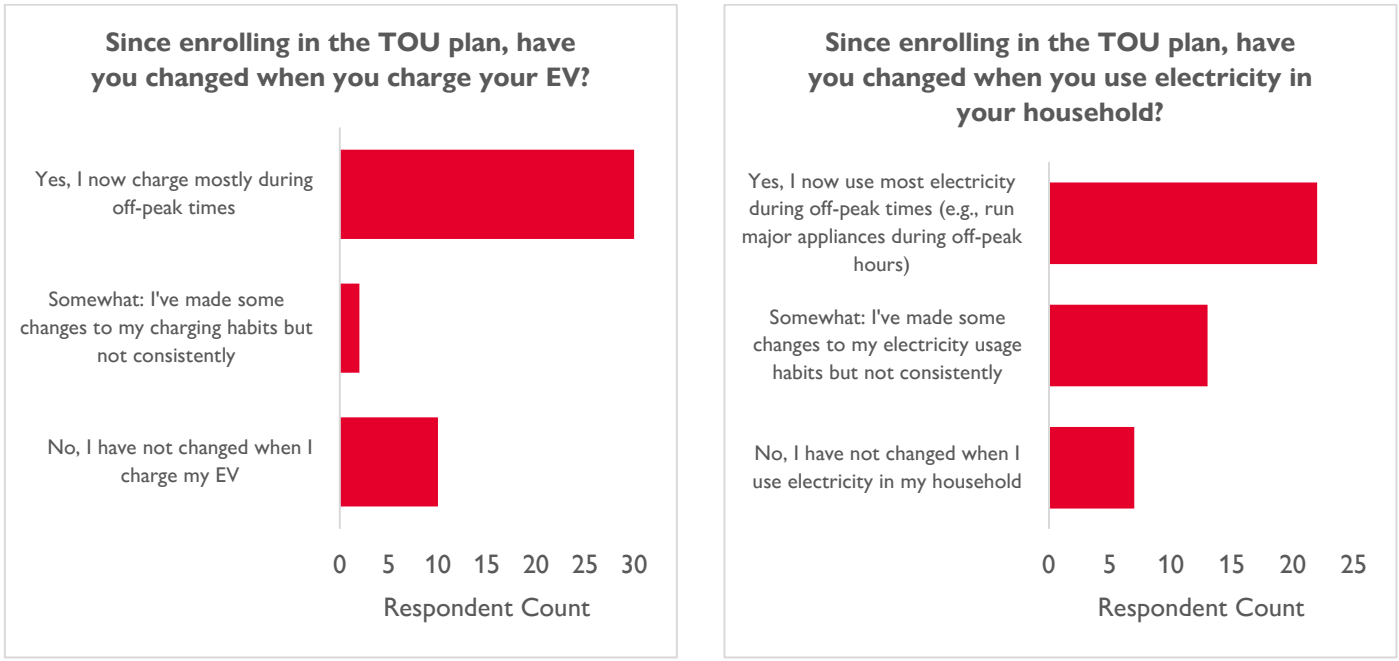
- **Despite the minority of customers disappointed with TOU requirements, the TE portfolio resulted in increased off-peak charging.** A majority (76%) of residential customers on a TOU indicated moving to TOU after receiving the Level 2 charging equipment. Residential customers on the TOU rate were almost three times as likely to consider charging during off-peak rates as customers not on TOU rates (Figure 6).

Figure 6. Residential EVSE Rebate Peak Charging between TOU and Non-TOU Customers



As shown in Figure 7, since enrolling in the TOU plan, almost three-quarters (71%) of residential survey respondents now charge mostly during off-peak hours, with an additional 20% reporting that they already charged off-peak prior to TOU enrollment. The adoption of TOU rates has also had positive spillover effects on general household energy consumption, as over half (52%) of respondents now use most of their household electricity during off-peak hours.

Figure 7. TOU Impacts on Charging Behavior



- **PacifiCorp's TE programs are needed in the commercial and multifamily sectors but have not yet gained wide uptake in those markets.** While residential programs have demonstrated strong participation, exceeding the TE plan's annual targets, the commercial and multifamily programs have experienced lower participation rates. Therefore, this evaluation did not receive sufficient survey completions to provide findings to help guide and inform the program. However, commercial, technical assistance, grants, and multifamily survey respondents reported that the TE program and incentives had twice the level of influence on their decision to install equipment compared to residential participants. Surveyed nonresidential customer segments reported additional benefits from their charging equipment, such as increased customer traffic for businesses and reduced operations and maintenance costs for fleet vehicles.

Process evaluation findings from 2024 research showed that most grant recipients would not have considered the same projects without the support of PacifiCorp's program.

- **Benchmarking of regional TE programs revealed that PacifiCorp's offerings are in the upper tier based on breadth and depth of support.** The Company's residential L2 charger rebates, including the enhanced rebate for income-qualified participants, are relatively high compared to the median standard rebate offered by benchmarked utilities. For multifamily applications, PacifiCorp's L2 charger rebate for standard applications aligns with the median across benchmarked utilities. The Company's commercial sector L2 charger rebates are below the median compared to other utilities. Furthermore, they do not offer an increased rebate for priority areas or a specific rebate for DCFC chargers, although DCFC chargers are included on EPRI's Vetted Product List.
- **Nonresidential customers see benefits beyond providing charging to tenants and customers.** Nonresidential grant recipients recognized various benefits, such as electrified school buses and lowered fuel and vehicle maintenance costs, that can be achieved from installing EVSE. Grant recipients reported additional, more intangible benefits associated with installing EVSE, including increased community goodwill, reduced greenhouse gas emissions, and broader community benefits outside of their own organization. Commercial customers had different perspectives on EVSE opportunities. They noted that EV chargers could add value to their property and attract more customers who take advantage of "an EV station being located at our place of business." Technical assistance participants viewed comparable benefits from EVSE, from increased traffic to their business to the potential of an electrified fleet. Attracting more customers to their parking lot and reducing carbon emissions were also viewed as benefits of installing a charging system. Multifamily participants believed EVSE could enhance their property value while preserving existing and attracting new tenants.

These portfolio learnings have directed shifts and enhancements in the PacifiCorp proposed portfolio for 2026–2028. In the next section, PacifiCorp will provide an overview of how the portfolio is shifting to reflect these learnings.

3.2 LONG-TERM VISION OF THE TRANSPORTATION ELECTRIFICATION PORTFOLIO

As discussed in the previous section, learnings from the past two-plus years have influenced new aspects of the TE portfolio. The 2026–2028 portfolio focuses on engaging income-eligible customers and reducing free ridership; growing commercial participation by dismantling barriers; building company-owned infrastructure in underserved communities; and encouraging EV charging when it is most beneficial for the grid.

- **Scaling up support for income-eligible customers and reducing free ridership.** PacifiCorp proposes to deemphasize residential efforts, removing the standard residential EVSE rebate, in favor of emphasizing efforts to engage income-eligible customers. The Company will achieve this by increasing the overall incentive to install Level 2 and 240-volt charging systems through innovative delivery models.
- **Dismantling the barriers to EVSE adoption in the commercial, communities, and multifamily sectors.** PacifiCorp intends to scale up nonresidential efforts and remove the hurdles that prevent commercial customers from participating in EVSE programs. The Company plans to streamline the customer journey, including increasing this sector's rebates to align with regionally benchmarked rebates, simplifying the application and installation processes, providing more-comprehensive technical assistance, and implementing a rebate reservation system to provide greater funding certainty for participants.
- **Moving ahead with needed EVSE infrastructure development in underserved communities.** The 2024 Annual Report discussed PacifiCorp's inability to fund the public utility-owned infrastructure pilot with Company dollars. To ensure this work continues, PacifiCorp proposes to utilize existing TE portfolio dollars to build out this needed infrastructure in underserved communities and replace aging infrastructure, bringing it up to industry standards.
- **Focusing on charging when it is most beneficial for the grid.** Over 70% of EV charging at the sampled program-enabled and utility-owned ports occurs off-peak. PacifiCorp will feature this best practice as a key aspect of the portfolio. The Company proposes to scale up the residential transition to TOU rates through educational campaigns for EV owners, and to support future demand response programs that promote EV load management (managed charging programs) through programming and education.

PacifiCorp's long-term vision for the portfolio is to develop program options to increase high-value activities that result in installation of **electric vehicle ports**.

3.3 STRATEGY TO SUPPORT TRANSPORTATION ELECTRIFICATION

To develop program options that increase high-value activities resulting in EV ports, the Company has outlined a comprehensive plan with clear objectives, strategies, and tactics. See Table 4 for more detail.

Objective 1: Increase customer satisfaction when participating in TE programs

To increase customer satisfaction, PacifiCorp proposes to:

- Establish robust incentives to reduce utility-side costs. This includes increasing commercial and multifamily incentives to enable more ports and focusing incentives on utility-side upgrades.
- Ease participation through streamlined, simple customer journeys. Establish a single point of contact for commercial customers and provide up-front decision-making resources to bring customers into the program.
- Build customer confidence at utility-owned sites by ensuring an uptime at charging stations and building feedback loops for customers at these sites.

Objective 2: Enable access throughout our service area

To promote widespread access, PacifiCorp proposes to:

- Build company-owned infrastructure in underserved areas by leveraging existing resources to enable company-owned sites and constructing new owned sites.
- Support underserved communities in adopting EV technology and transforming their communities by continuing to offer grant programs, ensuring cost matching with grants, and integrating tribal needs into grant offerings.
- Target high-impact customers (large loads and underserved) to enable greater participation in customer programming and promote income-eligible rates at public utility-owned charging stations.
- Implement innovative delivery models for specific customer classes to ensure installation of ports that ease participation.

Objective 3: Manage and reduce grid impacts associated with new TE load

To manage and mitigate grid impacts, PacifiCorp proposes to:

- Educate customers on grid integration options and TOU by developing resource guides for integrating load management and conducting educational campaigns around TOU rates.
- Integrate storage at charging sites to enable resiliency and grid benefits by leveraging other program resources to ensure storage is considered in project designs.
- Understand future anticipated TE load and develop proactive investment proposals by identifying future locations where EV growth may lead to capacity constraints and how to support proactive planning.

Table 4: Goals, Objectives, Strategies, and Tactics

Goal	Develop program options to increase high value activities resulting in electric vehicle ports								
Objectives	Objective 1: Increase customer satisfaction when participating in TE program			Objective 2: Enable access throughout our service area			Objective 3: Manage and reduce grid impacts associated with new TE load		
Strategies	Establish more-robust incentives to reduce utility-side costs	Ease participation through a streamlined, simple customer journey	Continue to build customer confidence at utility-owned sites	Build company-owned infrastructure in underserved areas	Support underserved communities in adopting EV technology and transforming their communities	Target high-impact customers to enable greater customer participation	Educate customers on grid integration options and TOU	Integrate storage at key charging sites to enable resiliency and grid benefits	Understand future anticipated load and develop proactive investment proposals
Tactics	• Increase commercial and multifamily incentives to enable more ports • Focus incentives on utility-side upgrades	• Establish a single point of contact for commercial customers • Provide up-front decision-making resources to bring customers into programs	• Ensure uptime of at least 97% at charging stations • Build in feedback loops for customers at sites	• Leverage existing resources to enable company-owned sites • Build additional new owned sites	• Continue to offer grant programs to communities • Ensure cost matching occurs with grants • Integrate tribal needs into grant offerings	• Continue to support income-eligible customers through rebates • Target high-load and underserved customers to bring into the portfolio • Provide a low-income rate at public utility-owned	• Develop resource guides for integrating load management • Conduct educational campaign around TOU	• Conduct battery optimization studies at current EV sites • Include storage at two utility-owned EV sites • Leverage other programs to incentivize and support customers in adding battery storage to their sites	• Identify future locations where EV growth will lead to capacity constraints • Build out investment schedule for those sites • Investigate other proactive tariffs

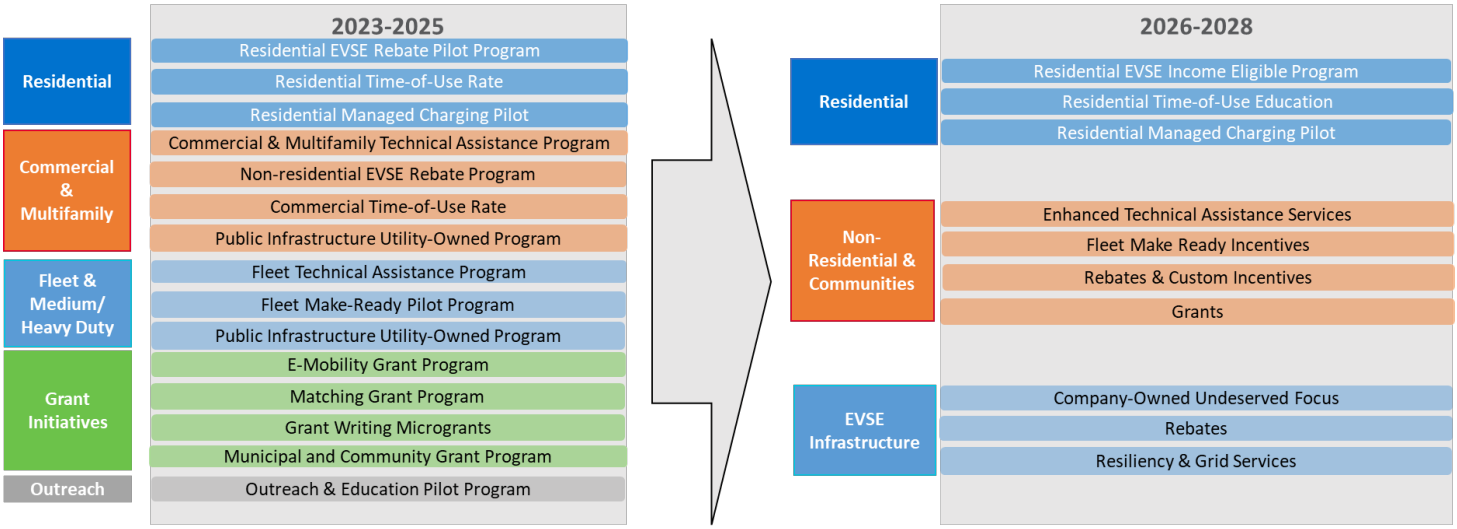
						charging ports[44]			

[44] Appendix I: Discussion of Proposed Tariff Changes include Schedule 60 Company Operated Electric Vehicle Charging Station Service which proposes an income-eligible discount for customers at PacifiCorp owned charging stations.

3.4 STRATEGY ALIGNMENT WITH CUSTOMER PROGRAMMING

Section 3.3 presented the overall strategy shifts that influence customer programming. The current customer pilots and programs will not be shifting; rather, they will be streamlined and refined to enable greater customer participation. To enable these shifts, current tariffs filed to support the TE portfolio will need to be changed. Appendix I includes a more detailed discussion regarding the proposed tariff changes on how this aligns with the proposed strategy.

Figure 8: Evolution of Customer Programming



RESIDENTIAL

Since 2023, the residential program activities have continued to expand participation. Over 1,300 rebates have been issued to residential customers for Level 2 chargers or 240-volt installations. Income-eligible participants make up 11% of the total portfolio. From the learnings discussed above, free ridership currently exists within the standard residential EVSE rebate pilot. Therefore, PacifiCorp is refocusing these activities on income-eligible customers and increasing incentive levels. The Company will also explore different and innovative delivery models to support greater uptake. This may take the form of partnering with trade allies and establishing a low-income direct-install program or investigating opportunities to develop midstream incentive programs that reduce the cost at the point of purchase. These models are often implemented in energy efficiency programs and can provide valuable program design options to reach income-eligible customers more effectively. Estimated port counts include approximately 200 Level 2 charging ports and 90 240-volt income-eligible projects. Draft redlines to current Schedule 117 provides the company's proposed changes to this tariff to reflect this programmatic enhancement (see Appendix I).

To ensure that residential EV drivers also charge during optimal times on the grid, PacifiCorp plans to continue to implement residential demand response programs that optimize grid services. This may continue as a managed charging pilot or take a different form in the future as results related to the residential managed charging pilot are revealed. Critical to this plan is the continued expansion and support of TOU education for all residential customers, especially EV drivers. As noted, over 70% of charging occurs off-peak. PacifiCorp considers this to be a

great result of the portfolio design, recognizing that improving customer satisfaction and understanding and supporting TOU still require additional support. The Company plans to run TOU educational campaigns.

NONRESIDENTIAL AND COMMUNITIES

As discussed above, greater focus and innovation are needed to support nonresidential and PacifiCorp communities in adopting EVSE infrastructure. To do this, PacifiCorp is refocusing the portfolio on the needs of these customers. By lifting requirements for submetering, making funds available for both utility-side and behind-the-meter costs, scaling incentives, and removing caps, PacifiCorp plans to see greater participation from these customers. In addition to this, nonresidential customers will be able to take advantage of increased incentives for standard commercial ports and enhanced incentives for multifamily unit dwellings (MUDs) and small businesses, while adding incentive for DCFC ports. These incentives will cover 75% of total project costs with up to $5,000 per port for MUDs and small businesses and up to $3,500 per port for nonresidential projects. Grants will continue to be an important part of the portfolio, as PacifiCorp sees reductions in federal grant support. Grants will remain as custom projects with cost-share requirements, but with larger dollars available, support can be spread further throughout the service area.

The customer journey for EVSE customers has not always been straightforward. To ease participation, PacifiCorp plans to develop a streamlined pathway to guide these customers from site investigation to site electrification. Enhanced technical services will be made available to customers to support questions that occur along the journey, such as what rate is best for them or how much it would cost to transition their entire fleet. The commercial customer will have support in navigating the internal interconnection process, contract development, site construction, and more.

With these enhancements, PacifiCorp plans to see increased adoption with approximately 800 Level 2 ports and 100 DCFC ports installed, in addition to supporting at least 45 participants through an enhanced services program. Technical assistance will remain part of the overall portfolio, estimating support services for approximately 240 customers. PacifiCorp predicts it will award approximately 70 grants over the next three years. To enable streamlining and enhancing incentives for commercial customers and communities, draft redlines and a discussion of proposed changes to the Schedule 118, Schedule 119 and Rule 13 tariffs are shown in Appendix I.

EVSE INFRASTRUCTURE

PacifiCorp has identified three paths to supporting EVSE infrastructure development: building and maintaining company-owned charging ports, offering rebates, and offering resiliency and grid services.

- **Company-Owned EVSE.** PacifiCorp continues to prioritize customer access to EV charging infrastructure throughout its service area. The Company owns and operates 25 public EV charging ports across Oregon that are publicly available. Most of those stations were installed in 2019 and provide power at about 60 kilowatts (kW). Understanding the importance of these stations, PacifiCorp proposes replacing a portion of them with industry-standard designs by 2028. In addition, the PacifiCorp service area still spans travel corridors that have limited access to charging, creating charging deserts for travelers. The Company plans to build out additional sites by 2028, extending the public utility-owned infrastructure pilot timeframe and ensuring that these new sites are located in underserved communities.
- **Rebates.** DCFC incentives for customers are still a gap in the portfolio. While the fleet make-ready pilot offers custom incentives, DCFC incentives are still needed for customers who are not moving toward fleet

electrification. PacifiCorp proposes offering a DCFC incentive that would support larger EVSE infrastructure installations up to $30,000 per port, not to exceed 75% of the project costs. The Company will work with customers to investigate pairing of these sites with battery storage.

- **Resiliency and Grid Services.** Battery storage can support solutions at many utility-owned and customer charging sites. With this in mind, PacifiCorp proposes conducting battery optimization studies at customer sites to accommodate future grid services and ensure resiliency at these locations. In addition, PacifiCorp will be working to encourage customers developing larger sites to consider the benefits of storage and to leverage funds (from programs in market through PacifiCorp) to add storage to those sites. Increased incentives may be available for those customers who add battery storage.

4. PERFORMANCE METRICS

The performance metrics defined by staff guidance for implementation of Division 87 TE planning rules and modification of Order No. 18-376 include overarching metrics that the portfolio and each new program application must adhere to. The purpose of these metrics is to monitor the utility via performance areas within TE plans, establish targets within TE plans, and track metrics within TEP reports. Discussed in staff guidance was the categorization of different types of metrics—performance, tracking, and baseline.

As part of this TEP, PacifiCorp shares a performance metric discussion, identifying how this TE portfolio will achieve the performance metrics defined below. As a reminder, PacifiCorp's 2023 and 2024 Annual Reports share current portfolio metric performance.[45]

4.1 ENVIRONMENTAL BENEFITS, INCLUDING GREENHOUSE GAS EMISSION IMPACTS

PacifiCorp tracks overall environmental benefits by looking at vehicle counts as well as charging utilization of utility-owned stations to understand total charging time and profiles. Using state and national sources, the Company investigates the greenhouse gas emission reductions as part of the TE portfolio. Since 2023, the portfolio impact has continued to grow.

4.2 ELECTRIC VEHICLE ADOPTION

PacifiCorp supports this key performance metric by providing a robust portfolio of programs and pilots for customers to support EV adoption. As noted in staff guidance, this TEP will not attribute EV adoption to these activities. But PacifiCorp will monitor EV adoption and ensure that pilots and programs are supporting ease of use, accessibility, and equity. The Company will accomplish this by tracking EV adoption over time and how year-over-year adoption curves have changed historically and are projected to change in the future.

4.3 UNDERSERVED COMMUNITY INCLUSION AND ENGAGEMENT

PacifiCorp continues to engage stakeholders throughout the year by offering education and portfolio updates. For development of this plan, the Company engaged stakeholders to share initial concepts and ideas. Appendix A details the engagement process undertaken to socialize this TEP. Throughout 2026–2028, PacifiCorp plans to continue to engage the joint advocates, Community Benefits and Impacts Advisory Group (CBIAG), Clean Energy Plan (CEP) customers and communities, Tribal Nations CBIAG, and other customers.

4.4 EQUITY OF PROGRAM OFFERINGS TO MEET UNDERSERVED COMMUNITIES

A key objective of the TEP is equitable access. In 2024, 97% of program-enabled charging ports provided benefits to underserved communities. The equity of the portfolio offerings continues to be a requirement of this TEP. The portfolio shows an increase in incentive values for equity-focused activities (income-eligible, multifamily, and small businesses). In addition, the grant-allocated funding has grown, which is required to be spent in underserved communities and benefit residential customers.

4.5 DISTRIBUTION SYSTEM IMPACTS AND GRID INTEGRATION BENEFITS

[45] Oregon Public Utility Commission. *UM 2056 Staff Report: HAH328264056,* 2022. https://edocs.puc.state.or.us/efdocs/HAH/um2056hah328264056.pdf.

As a result of general charging trends and the requirement of TOU participation for residential standard rebate customers, PacifiCorp saw over 70% of charging at program-enabled ports occurring during off-peak hours. This TEP proposes managed charging to continue through 2027 with an emphasis on grid services. In addition, customers will continue to be supported in enhanced technical services to charge during optimal times. And greater support for batteries at charging sites has been identified to enable grid integration benefits.

4.6 PROGRAM PARTICIPATION AND ADOPTION

PacifiCorp is monitoring pilot- and program-enabled ports and analyzing their usage by project type. The Company plans to ease participation for customers moving forward and continue to grow the overall project counts.

4.7 INFRASTRUCTURE PERFORMANCE

As of 2024, PacifiCorp-owned stations averaged an uptime over 97%, adhering to identified targets. With the development of the data dashboard, the Company plans to understand how program-enabled ports are performing across the portfolio and adhering to their uptime requirements and the TEP's goals for reliability, affordability, and accessibility. Funding has been expanding to support operations and maintenance (O&M) contracts to support uptime and adequacy for customers.

5. POTENTIAL IMPACT ON THE COMPETITIVE MARKET AND CUSTOMER CHOICE

PacifiCorp plays a key role in advancing electric transportation in Oregon, which is a pillar of the state's decarbonization policies. The Oregon state legislature and Oregon Public Utilities Commission have provided clear instruction for electric utilities' role in transportation electrification, as summarized in Order No: 22-336. The Legislature passed HB 2165[46] in 2021, which amended ORS 757.357. HB 2165 provides a list of factors for consideration of proposed TE programs and infrastructure measures, as well as the details of a monthly meter charge that electric utilities are required to collect from retail electric customers that must be spent to support and integrate TE.[47] Additionally, the Commission order states: "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."

For investments and other expenditures that are not infrastructure measures,[48] one criteria for the TE plan is that the investments are "reasonably expected to stimulate innovation, competition and customer choice in electric vehicle charging and related infrastructure and services."[49] Stated differently, PacifiCorp's investments are intended to serve the public good. As outlined in the TEP, PacifiCorp's proposed investments include public information, technical assistance, rates that complement EV charging, and EVSE ownership in underserved communities. These are actions that provide public benefit, that the private sector underinvests in,[50] and that address barriers to EV adoption. There is a strong case for utility EVSE ownership to provide benefits for underserved communities. Where there is a commercial incentive to build out charging infrastructure, the market may respond efficiently; however, PacifiCorp's ownership of public charging infrastructure is narrowly targeted at underserved communities, where private EVSE suppliers do not have a profit motive to invest.

Notably, underserved communities are at risk of not having access to the benefits of electric transportation if they do not have adequate charging infrastructure. To solve that dilemma, the consensus is that infrastructure investment should lead vehicle deployment.[51] In owning public charging infrastructure in underserved communities, PacifiCorp furthers the public good and does not impact the functioning of a competitive market for public charging. To refine the ways it supports TE, the Company engages in an expansive process of stakeholder engagement to shape and continue evolving its TE plan. This includes meetings with stakeholders through the

[46] Oregon Legislative Assembly. *House Bill 2165: Relating to Alternative Fuel Transportation* [Enrolled], 2021. https://olis.oregonlegislature.gov/liz/2021R1/Downloads/MeasureDocument/HB2165/Enrolled

[47] Oregon Public Utility Commission. *Order No. 22-336*. *Ibid.* (see footnote 3).

[48] Oregon Statute 757.357(6) (When considering a transportation electrification program and determining cost recovery for investments and other expenditures that are not infrastructure measures and that are related to a program proposed by an electric company under subsection (3) of this section, the commission shall consider whether the investments and other expenditures."). The term "infrastructure measures" is defined in Oregon Statute 757.357(1)(b)(A). The future proposed TEP does not include investments that are not infrastructure measures.

[49] Oregon Revised Statutes. *ORS 757.357 – Legislative Findings*. https://oregon.public.law/statutes/ors_757.357.

[50] Nordhaus, W. D. (2013). *The Climate Casino: Risk, Uncertainty, and Economics for a Warming World*. Yale University Press. https://yalebooks.yale.edu/book/9780300212648/the-climate-casino/.

[51] National Renewable Energy Laboratory. *The 2030 National Charging Network: Estimating U.S. Light-Duty Demand for EV Charging Infrastructure* (NREL/TP-5400-85654), 2023. https://www.nrel.gov/docs/fy23osti/85654.pdf.

CBIAG, CEP engagement series for Tribal Nations, and Tribal Nations CBIAG (see Appendix A for details). Additionally, PacifiCorp has engaged commercial, policy, and advocacy groups to shape its TEP.[52]

PacifiCorp is taking the following actions to enhance the competitive EVSE market and customer choice:

- **Defining the criteria and locations for utility-owned EVSE.** This knowledge will allow EVSE providers to plan their own development cycles. Currently, PacifiCorp owns EVSE in five locations throughout Oregon, with potential for an additional two to four sites.
- **Charging standard rates.** Utility-owned EVSE should be subject to the same rates and rate structures as private charging networks. Likewise, the price for charging should be comparable to the price in other locations, unless a separate policy (such as a municipal regulation) permits alternate pricing. PacifiCorp has established competitive rates through Schedule 60,[53] and the Company provided evidence during the last TEP cycle on how those rates were established.
- **Hosting a qualified products list.** PacifiCorp provides information about the process and products that qualify for EVSE rebates. This supports the competitive market by making the technical thresholds transparent, and it benefits customers by having a quality-focused process for determining rebate eligibility.
- **Developing reliability statistics that vendors must adhere to.** Requiring certain thresholds of reliability for funding support is key to ensuring that EVSE investments will serve the public. The NEVI Formula Program, for example, requires that any federally funded EVSE needs to achieve a minimum annual uptime requirement of greater than 97% for the charging ports.[54]

5.1 CURRENT INVESTMENTS TO DATE

Order 23-57,[55] issued by the Commission, stated that PacifiCorp is authorized to "own and operate charging infrastructure. … The expansion in investment that Pacific Power proposes is consistent with what the Commission has already authorized for Portland General Electric." To date, PacifiCorp has not made any investments in underserved communities beyond site development activities.

5.2 SUSTAINABLE ROLE OF THE ELECTRIC COMPANY

With the rapid increase in the number of EVs on the road, along with the adoption of aggressive targets for ZEVs in Oregon, electric utilities are positioning themselves as key fuel providers for the transportation system. This shift means they need to rethink what they have traditionally done so they can better support the growing EV population. The following are among the activities electric utilities could expand:

[52] PacifiCorp. *Oregon TEP Stakeholder Meeting Notes: September 23, 2022*. https://www.pacificpower.net/content/dam/pcorp/documents/en/pacificpower/savings-energy-choices/electric-vehicles/or_tep_stakeholder/OR_TEP_Meeting_Notes_Sept_23_2022.pdf.

[53] Pacific Power. (2023, March 1). *Schedule 60: Company Operated Electric Vehicle Charging Station Service*. https://www.pacificpower.net/content/dam/pcorp/documents/en/pacificpower/rates-regulation/oregon/tariffs/rates/060_Company_Operated_Electric_Vehicle_Charging_Station_Service.pdf.

[54] Federal Highway Administration. *National Electric Vehicle Infrastructure Formula Program*. *Federal Register*, 87(120), June 22, 2022. https://www.federalregister.gov/documents/2022/06/22/2022-12704/national-electric-vehicle-infrastructure-formula-program.

[55] Oregon Public Utility Commission. *Order No. 23-257*. *Ibid.* (see footnote 8).

- **Collaborate with other entities in transportation and energy planning to achieve TE goals.** There are numerous organizations—state and local government, academic institutions, for-profit businesses, and nonprofit organizations—that understand how the transportation sector operates. The Oregon Department of Transportation (ODOT) is leading the effort in that state. For example, ODOT's NEVI program, which was created under the IIJA in November 2021, was approved by the federal government in September 2022. Electric utilities will have to serve these large new loads. As such, it is key that utilities engage with state and local governments as well as other organizations to build a collaborative approach that will meet EVSE deployment goals without taxing the utility's distribution system.
- **Build in demand flexibility control.** Electric utilities will likely focus on ensuring that EVSE is integrated into the utility system in a way that allows the utility to monitor and control it. Utilities already do this with other end-use devices in distributed energy resource management systems (DERMS). This integration will allow electric utilities to offer charging customers more-attractive, time-sensitive rates for electricity, while ensuring reliable operation of the grid.
- **Offer incentives for EVSE operation and maintenance.** Utilities can offer incentives that give funding for individuals, communities, and organizations to manage and maintain EV chargers after they are installed. These operational incentives can include preventive maintenance, as all stations in a network should be regularly inspected. They can also support trade ally certification and training and workplace charging development.
- **Investigate opportunities to innovate interconnection.** With many new large load requests, especially in the Pacific Northwest, electric utilities should stay aware of innovative solutions to interconnect these loads quicker when capacity constraints may exist. PG&E's Flex Connect Pilot[56] leads the way in bringing on new load systemically.
- **Understand future load associated with TE and proactively plan.** EV popularity will continue to rise, potentially at a slower pace, and electric utilities should be prepared to accommodate the new load. The state of New York is investigating ways to get ahead of this load and proactively plan for areas that will experience significant growth.[57] By allowing utilities to plan projects in advance of their exigent need and propose those projects to public utility commissions outside the rate case cycle (typically 3 years), commissions may be able to mitigate those potential delays and greatly expedite the energization process for electrification projects.

TE is driving industry-wide changes at electric utility companies. To accommodate the disruption, utilities must upgrade the grid infrastructure and adopt new technologies and processes to manage the fundamentally different load that EVs will push onto the grid. Utilities must coordinate with various stakeholders to establish a robust and accessible charging network to support widespread EV adoption and contribute to clean and equitable outcomes.

[56] Pacific Gas and Electric Company. *Flexible Service Connection Pilot Overview*. https://www.pge.com/assets/pge/docs/clean-energy/electric-vehicles/flexible-service-connection-pilot-overview.pdf.

[57] New York State Department of Public Service. *Case 24-E-0364: Proactive Planning for Upgraded Electric Grid Infrastructure*. https://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterCaseNo=24-E-0364&CaseSearch=Search.

6. TRANSPORTATION ELECTRIFICATION PORTFOLIO BUDGET

6.1 FORECAST OF ALL EXPENDITURES TO SUPPORT TRANSPORTATION ELECTRIFICATION

The estimated portfolio budget is made up of portfolio-level costs as well as current pilots and programs that PacifiCorp will continue to offer to customers over the next three years (Table 5). The Company estimates a budget for 2026–2028 to be around $32.6 million, similar to the proposed spending from 2023–2025. In the first year, PacifiCorp anticipates spending around $9.2 million, then $11.9 million in the second year, and approximately $11.5 million in the third year. The TEP particularly focuses on commercial customers and grants to support nonresidential customers and communities to expand their charging infrastructure.

Table 5: Estimated Portfolio Budget (in Thousands)

Portfolio Budget	Total[a]	2026	2027	2028
Infrastructure Measures				
Portfolio-Level Costs	$1,397	$460	$466	$471
Residential	$1,003	$309	$341	$353
Commercial	$7,592	$1,963	$2,557	$3,072
Managed Charging	$852	$370	$482	-
Grants	$13,231	$4,578	$4,680	$3,972
Public Infrastructure	$8,528	$1,506	$3,342	$3,680
Total Program Costs	**$32,602**	**$9,185**	**$11,868**	**$11,549**

Note: [a] Values may not sum to total due to rounding.

PacifiCorp is currently estimating equity spend to be around 68% of the total portfolio. This is based on previous analysis completed to map undeserved communities in PacifiCorp's 2023–2025 TEP.[58] Furthermore, the portfolio continues to offer a range of support to the different sectors working toward TE. Table 6 breaks down the estimated equity spend by funding type and program type.

Table 6: Estimated Portfolio Budget with Anticipated Equity Spend (in Thousands)

Programmatic Type	Estimated $ Total Value 2026–2028 (thousands)	Estimated % of Portfolio	Estimated % Equity Spend	Sector Support				
				Res	Com	Multi-family	Fleet	MHDV
Infrastructure Measure								
Portfolio-Level Costs	$1,397	4%	0%	X	X	X	X	X

[58] Oregon Public Utility Commission. *UM 2056 Staff Report: HAH104112. Ibid.* (see footnote 7).

Residential	$1,003	3%	98%	X	X	X	X	
Commercial	$7,592	23%	97%	X				
Managed Charging	$852	3%	48%				X	
Grants	$13,231	41%	98%	X	X	X		X
Public Infrastructure	$8,528	26%	66%	X	X	X	X	X
Total Program Costs	**$32,602**	**100%**	**68%**					

With the overall portfolio equity spend estimated at 68%, a further breakdown shows that approximately 51% of the estimated system benefits charge dollars will be spent benefiting underserved communities within the entire TE portfolio. Portfolio-level costs have not been allocated an equity spend at this time.

Table 7: Estimated Portfolio Budget with Anticipated Equity Spend by Fund Type (in Thousands)

Programmatic Type	Clean Fuels	System Benefits Charge	Total
Portfolio-Level Costs			
Residential		$981	$981
Commercial		$7,357	$7,357
Managed Charging	$409		$409
Grants	$12,997		$12,997
Public Infrastructure		$5,629	$5,629
Grand Total	**$13,406**	**$13,966**	**$27,372**

6.2 FORECAST OF ALL FUNDING SOURCES TO BE UTILIZED

Over the next three years, PacifiCorp anticipates revenue from the systems benefits charge[59] as well as the Oregon Clean Fuels program (Table 8). In 2024, clean fuel credit prices hit an all-time low, bottoming out the market at around $20 per credit. Due to this, PacifiCorp chose to use a conservative estimate for future clean fuel credit sales.[60]

At this point, PacifiCorp is estimating that about $33 million in revenue from both sources, as well as additional revenue from charging at the current public-owned charging stations, will be allocated. This reduces any need to consider base rates in support of the ongoing TE portfolio. As discussed earlier, the Company was unable to support any capital company-owned infrastructure in 2023–2024 with capital dollars. This proposed budget illustrates this part of the portfolio funded through the system benefits charge. This will reduce ratepayer impact

[59] Oregon Public Utility Commission. *Docket UM 2056*. https://apps.puc.state.or.us/edockets/docket.asp?DocketID=23089.

[60] Clean fuels revenue, forecasted using price averages provided by the Department of Environmental Quality, significantly reduces the overall cost of the portfolio to be supported by PacifiCorp's customers.

and adheres to the requirements of HB 2165,[61] which stipulates that "'[i]nfrastructure measures' includes, but is not limited to, investments in, expenses related to or rebates for: ... [b]ehind the meter infrastructure that supports transportation electrification and is owned by an electric company or by a customer." Furthermore, flexibility in these funding sources for allocation to programmatic activities is necessary to ensure successful use of the entire portfolio of funding. For example, if grant applications in a year do not meet minimum point requirements, PacifiCorp requests the ability to allocate those funds to the commercial or public infrastructure portfolio to ensure port installation.

Table 8: Estimated Revenue by Funding Source and Anticipated Spend by Funding Source (in Thousands)

Funding Source	Estimated Revenue	Anticipated Spend			
		Y1	Y2	Y3	Total[a]
Clean Fuels	$15,911[b]	$5,408	$5,628	$4,444	$15,479
System Benefits Charge	$16,595	$3,782	$6,245	$7,111	$17,123
Public Charging Revenue	$578				
Total	**$33,082**	**$9,185**	**$11,868**	**$11,549**	**$32,602**

Note: [a] Values may not sum due to rounding. [b] PacifiCorp estimated a conservative value for future clean fuel credit sales and did not include incremental crediting. Value is estimated at $25 per credit.

6.3 BENEFIT-COST ANALYSIS OF PROPOSED TRANSPORTATION ELECTRIFICATION PLAN

To better understand the potential impacts to customers and society, the Company conducted three benefit-cost tests for program assessment. Each test—Ratepayer Impact Measure, Total Resource Cost, and Societal Cost Test—uses differing benefits and costs to examine overall impacts and trade-offs.

Each of these tests seeks to provide insight into different questions, so cost-effectiveness results should be viewed through the following lenses:

- **RIM Test:** The costs and benefits to all Oregon PacifiCorp ratepayers. This test examines whether average utility rates will increase or decrease.
- **TRC Test:** This test investigates whether the collective costs to the utility system and host customers be reduced by the portfolio.
- **SCT:** The costs and benefits to Oregon. This text looks at whether the portfolio provides net benefits for the state as a whole.

Whether a particular value stream is considered a cost or a benefit depends on the test used. The benefits and costs included in each test are summarized in Table 9 below.

Table 9: Benefit and Cost Impacts by Test

[61] Oregon Legislative Assembly. House Bill 2165: Relating to Alternative Fuel Transportation. Ibid. (see footnote 37).

Type of Impact	Impact	RIM	TRC	SCT
Utility	Energy	Cost	Cost	Cost
	Generation Capacity	Cost	Cost	Cost
	Transmission and Distribution Capacity	Cost	Cost	Cost
	Distribution Upgrades	Cost	Cost	Cost
	Revenues	Benefit		
Program	Administrative Costs	Cost	Cost	Cost
	Incentive Costs	Cost		
	Equipment Costs (Utility-Owned)	Cost	Cost	Cost
Societal	Avoided Greenhouse Gas Emissions			Benefit
Host Customer	Incremental Equipment Cost		Cost	Cost
	Tax Credits (Federal Only)		Benefit	
	Net O&M Costs		Benefit	Benefit

For the purposes of benefit-cost tests in this 2026–2028 TEP, PacifiCorp leveraged the expenditures and revenues planned for the portfolio in this time horizon, as presented in Sections 6.1 and 6.2 above.[62] To correspondingly update the benefit-cost analysis from the one presented in the Company's 2023–2025 TEP, the Company either kept changes made for the 2023 and 2024 Annual Reports, or added the following additional updates:

- Incorporated new forecast of EV growth (Section 2.4).
- Leveraged updated forecast of TE portfolio expenditures (Section 6.1)
- Updated forecast of the revenues associated with CFC (Section 6.2)
- Removed federal tax credits as a benefit from the SCT calculations as these credits are funded by ratepayers
- Refined the definition of fuel-savings-benefit calculations
- Included refreshed model inputs that resulted from PacifiCorp's 2025 Integrated Resource Plan (IRP)

Program impacts resulting from the full set of planned TE portfolio activities from 2026–2028 were calculated assuming a measure and vehicle life of 10 years. In other words, the benefit-cost analysis seeks to answer the question of whether the 2026–2028 expenditures incurred by the TE portfolio are expected to lead to more benefits than costs over their lifetime. Generally, a ratio greater than 1.0 is assumed to be cost-effective. Results for the RIM test, TRC test, and SCT are shown in Table 10, Table 11, and Table 12.

[62] Note that revenue and expenses shown in this benefit-cost analysis section are expressed in net present value units of 2024 USD ($).

This cost-benefit analysis below is at the portfolio-level and includes the costs and the benefits of the Public Utility Infrastructure Pilot.

Table 10: RIM Benefit-Cost Analysis

Benefits (Net Present Value) *		Costs (Net Present Value)	
Avoided Supply Cost (Managed Charging)	$417,785	Incentives	$13,966,027
Utility Revenue	$253,496,227	Equipment (Utility Owned)	$5,643,221
CFCs	$8,472,187	Program Administration	$8,832,887
		EVSE TTM	$2,415,334
		Increased Energy Supply	$59,260,912
		Increased Capacity Supply	$27,375,429
Total Benefits	**$262,386,199**	**Total Costs**	**$117,493,810**
Benefit-Cost Ratio	**2.23**		

Note: * Utility revenues and supply costs are based on generalized forward-looking planning estimates, which are subject to change over time. CFCs = Clean Fuel Credits, TTM = to the meter.

Table 11: TRC Benefit-Cost Analysis

Benefits (Net Present Value) *		Costs (Net Present Value)	
Avoided Supply Cost (Managed Charging)	$417,785	Equipment (Public Chargers)	$5,643,221
Tax Credits	$239,686,044	Program Administration	$8,832,887
Fuel Savings	$272,005,953	EVSE TTM	$2,415,334
Vehicle Maintenance Savings	$301,003,468	EVSE BTM/Charger	$28,825,321
CFCs	$8,472,187	EV Incremental Cost	$239,782,034
		Increased Energy Supply	$59,260,912
		Increased Capacity Supply	$27,375,429
Total Benefits	**$821,585,437**	**Total Costs**	**$372,135,138**
Benefit-Cost Ratio	**2.21**		

Note: * Utility revenues and supply costs are based on generalized forward-looking planning estimates, which are subject to change over time. BTM = behind the meter, CFCs = Clean Fuel Credits, TTM = to the meter.

Table 12: SCT Benefit-Cost Analysis

Benefits (Net Present Value) *		Costs (Net Present Value)	
Avoided Supply Cost (Managed Charging)	$417,785	Equipment (Public Chargers)	$5,643,221
Tax Credits	--	Program Administration	$8,832,887
Fuel Savings	$272,005,953	EVSE TTM	$2,415,334
Maintenance Savings	$301,003,468	EVSE BTM/Charger	$28,825,321
CFCs	$8,472,187	EV Incremental Cost	$239,782,034
Avoided Carbon Cost	$82,040,330	Increased Energy Supply	$59,260,912
		Increased Capacity Supply	$27,375,429
Total Benefits	**$663,939,723**	**Total Costs**	**$372,135,138**
Benefit-Cost Ratio	**1.78**		

Note: * Utility revenues and supply costs are based on generalized forward-looking planning estimates, which are subject to change over time. BTM = behind the meter, CFCs = Clean Fuel Credits, TTM = to the meter.

7. RATEPAYER IMPACT OF THE TRANSPORTATION ELECTRIFICATION PLAN

HB 2165 required electric companies to collect funding to support and integrate TE. This funding is currently being collected through the Company's System Benefits Charge (SBC), Schedule 291. In addition to SBC funding, the Company also receives Oregon Department of Environmental Quality CFCs, which can be used to fund TE program activities. During the period of the 2026-2028 TEP, SBC and clean fuel revenues are estimated to generate over $21 million to be spent on the TE portfolio. Table 13 details estimated rate impacts associated with TEP activities.

Table 13. Estimated TEP Rate Impacts (in Thousands)

	Collections Summary	2026	2027	2028
a	Current SBC Collections (0.25% of revenues)	$3,700	$4,000	$4,200
b	CFCs	$2,561	$3,219	$3,978
c	Company-Owned Station Revenue	$155	$190	$233
d	Prior Year Collections Carryover	$10,847	$8,078	$3,620
e	**Total Revenues (a+b+c+d)†**	**$17,263**	**$15,488**	**$12,031**
f	TE Plan - Allocated to SBC/CFC	$9,185	$11,868	$11,549
g	TE Plan - Allocated to Future Recovery	$0	$0	$0
h	**Total Expenditures (f+g)†**	**$9,185**	**$11,868**	**$11,549**
i	Remainder for Carryover (e-f)	$8,078	$3,620	$481
j	Incremental Costs for Future Recovery (g)	$0	$0	$0
k	*Rate Impacts from Potential Incremental Collections*	*0.00%*	*0.00%*	*0.00%*

Note: † Total may not sum correctly due to rounding. CFC = Clean Fuel Credit, SBC = System Benefits Charge.

Rate impacts from TE efforts are subject to change if CFC values are different from forecasted values or if carryover from prior SBC collections vary. The Company's strategy is to continue to support programming activities while minimizing or negating rate impacts to customers. Current projections suggest that both the SBC and CFC revenues are sufficient to fund TE expenditures in Oregon. However, there are other components of the SBC that are not considered in this analysis, and the reader should not infer that this is a depiction of what will occur in the future with respect to overall SBC collections.

8. CONCLUSION

In conclusion, PacifiCorp's 2026–2028 TEP is designed to support the growth of EV adoption, enhance customer satisfaction, and ensure the reliability and sustainability of the electric grid. The plan includes a comprehensive set of performance metrics to track environmental benefits, EV adoption rates, inclusion and engagement of underserved communities, equity of program offerings, grid integration benefits, and infrastructure performance.

Overall, the TEP aims to create a robust and equitable transportation electrification portfolio that aligns with Oregon's goals for reducing greenhouse gas emissions and increasing EV adoption.

With an estimated budget of $32.6 million, the plan emphasizes equity spending and support for underserved communities. Benefit-cost analyses indicate that the portfolio is cost-effective, providing net benefits to ratepayers, customers, and society. Overall, the TEP aims to create a robust and equitable transportation electrification portfolio that aligns with Oregon's goals for reducing greenhouse gas emissions and increasing EV adoption.

9. APPENDIX A: STAKEHOLDER ENGAGEMENT

9.1 STAKEHOLDER ENGAGEMENT PROCESS

As part of PacifiCorp's process to develop its 2026–2028 TEP, the Company engaged stakeholders through existing stakeholder forums to discuss current progress in the TE portfolio and future concepts. The idea for this engagement cycle was to use already-formed forums so as not to overburden stakeholders with continued requests for conversations.

Objectives in the stakeholder engagement process included:

- Harness existing forums and workshops to reduce burden on stakeholders by reducing meeting attendance
- Outline a process for feedback on the proposed plan that targets specific stakeholder groups to get feedback on topics that are relevant to them
- Integrate feedback to build better program concepts and enhancements into this new TEP

PacifiCorp talked to stakeholders through a series of virtual engagements over several months. The Company has a diverse group of stakeholders ranging from customers (residential, commercial, transit agencies, school districts, cities, counties, and more), advocacy organizations, product manufacturers, state agencies, regulatory bodies, Oregon nonprofits, and other utilities.

PacifiCorp engaged the following groups:

- Clean Energy Plan (CEP) engagement series[63], February 19, 2025
- Community Benefits and Impacts Advisory Group (CBIAG)[64], March 20, 2025
- Tribal Nations CBIAG[65], March 28, 2025
- Joint advocate engagement, February 21, 2025
- Regional business manager discussions, January 30, 2025
- State of Oregon's Zero Emission Vehicle Interagency Working Group (ZEVIWG), March 21, 2025

Detailed summaries on these sessions are described below.

9.2 STAKEHOLDER COMMENTS RECEIVED

Below are summaries of the discussions hosted with each stakeholder group. For those engagement sessions with formal questions posed by stakeholders, PacifiCorp has provided the Q&A below.

[63] Oregon Clean Energy Plan

[64] Oregon Community Benefits and Impacts Advisory Group

[65] Tribal Relations

CLEAN ENERGY PLAN ENGAGEMENT SERIES

The first CEP engagement series meeting of the year was held February 19, 2025. It focused on the four TE drivers: political, social, environmental, and technological. It also covered EV load and charging station growth within the PacifiCorp service territory. A top priority for the Company was to detail the 2026–2028 TE programs and solicit feedback about potential program objectives and barriers. There were 39 attendees representing the public, PacifiCorp, and other interested parties.

Timing	Question/Comment	PacifiCorp's Response
February 19, 2025	What is the anticipated 2030 EV load increase?	By 2030 EV will account for a total of 8% of residential load, an increase from today's 1%.
	What is PacifiCorp planning to do with regard to incentivizing charging to be off-peak and looking into vehicle-to-grid interactions?	Based on the goals the company is trying to achieve, the 2026–2028 plan will provide entrance to a lot of innovative programs into the market.
	Who are the customers served for PacifiCorp-owned charging stations? What does customer interaction look like?	The company-owned charging sites were developed from 2018 to 2022 in Bend, Klamath Falls, Madras, Otis, and Mill City. The idea was to bring corridor charging to areas not being developed as quickly then. Since installation, most of the charging occurred off-peak using those public utility chargers and they are right off the corridor, usually people who are traveling through. The chargers are publicly accessible, as they are mandated to be under the grants program. Fleet make-ready ports will not be publicly accessible and will be in private commercial space.
	What is the reality of implementing vehicle-to-grid interaction/home retail in the future?	California currently has residential programs running that are analyzing vehicle-to-grid interaction. The challenge is interconnection on the residential side and accounting for that back feed into the grid . There are a lot of standards being written around how residential interconnection defined and implemented. However, with these advances, more education is needed. In present-day Oregon, it may not be financially wise to develop a program that enables vehicle-to-grid interaction.

COMMUNITY BENEFIT AND IMPACTS ADVISORY GROUP MEETING

The second stakeholder meeting was held on March 20, 2025, a monthly engagement with the CBIAG. Six CBIAG members attended, each representing a different organization, and five members of the public. Like the CEP engagement series, this meeting focused on TE drivers, EV load growth, and the proposed TE programs. Additionally, the CBIAG meeting highlighted preliminary performance metrics as related to projects in underserved communities.

Timing	Question/Comment	PacifiCorp's Response
March 20, 2025	Do the IRA and IIJA rule changes also apply to recreational vehicles?	The IRA and IIJA rules only apply to traditional light-duty vehicles, recreational (fifth-wheel) vehicles are not included.
	What are the requirements for the fleet and grant-matching programs?	For the fleet program, customers must electrify at least two vehicles, which could be forklifts or lawn mowers. PacifiCorp then provides a custom incentive, capped at $100,000, for what it is required to build the infrastructure to charge those vehicles and future vehicles that may join

		the fleet. After the customer applies, funds are reserved for them and half is paid out at specific planning milestones, and the other half at energization. Regarding the matching grant program, anything related to EVs can apply to the program. As long as funding is secured, PacifiCorp will reserve their match to be released at specific planning milestones.
	Are there repercussions if PacifiCorp's forecast is not aligned and does not meet benchmarks?	There are no penalties associated with not hitting a certain adoption curve; however, the Company would pivot and reassess offerings.
	How can neighborhoods be nominated for charging stations?	Oregon Department of Transportation has a map that allows the public to document charging deserts and nominate areas for charging stations. PacifiCorp also ran an internal survey to gather community feedback and insight into potential sites of future development.
	Is there a sense of how federal changes will impact transportation electrification rates?	The TE program is funded through two main sources: 60% of funding comes from Clean Fuel [Credit] dollars, which is not ratepayer funded, and the System Benefits Charge, which can be impacted by rates, but minimally.
	Has there been any progress toward electric vehicle infrastructure on homes for renters?	There has been a small uptick in the multifamily program based on 40 incentives released last year, allowing $4,500 per port from PacifiCorp plus ODOT's incentive, which equals $10,000 per port for landlords or property developers. However, it has been a challenge recruiting multifamily customers. Most renters charge at utility-owned and [utility-]operated sites. The company is looking at implementing 1) income-based rate for DCFC charges and 2) right-of-way pole charging pilot program, which allows right-of-way charging similar to off-street parking.
	Are there any other considerations guiding transportation electrification work, other than the benefit to underserved communities?	The benefit to underserved communities is a part of HB 2021 definitions, which also considers air quality. The challenge is finding businesses in these specific areas to recruit into the portfolio.

TRIBAL NATIONS COMMUNITY BENEFITS AND IMPACTS ADVISORY GROUP

The third stakeholder meeting was held on March 28, 2025, a monthly engagement with the Oregon Tribal Nations. Four Tribal Nations members attended, representing different organizations. The focus of this meeting was to highlight the TE Tribal Needs Assessment, sharing key themes and potential program recommendations, objectives, and options. Tribal Nations members did not provide any program feedback at the March 28 meeting.

JOINT ADVOCATE ENGAGEMENT

The joint advocates discussion on February 21, 2025, highlighted significant growth in EV registrations and charging infrastructure in Oregon. By the end of 2024, LD EV registrations reached 27,703, with increases in DCFC and Level 2 charging ports. The 2023–2025 roadmap includes various residential, commercial, and fleet programs, along with grant initiatives and outreach efforts. Performance metrics show a high percentage of projects benefiting underserved communities. For 2026–2028, the plan considers political, social, environmental, and technological drivers, with projected growth in EV registrations and load concentrations in urban areas like Portland. Future programming focuses on developing new EVSE stations, proactive utility investments, demand response, TOU education, and improved customer experiences at public charging sites. Feedback provided by the

joint advocates included deeper understanding on how the portfolio is currently benefiting underserved communities and how the portfolio is impacted by current federal funding.

REGIONAL BUSINESS MANAGER DISCUSSION

The regional business manager discussion on January 30, 2025, focused on opportunities to connect with commercial customers in each manager's local region to talk about the PacifiCorp commercial TE offerings. The commercial offerings highlighted during the discussion included the Fleet Make-Ready pilot program, EVSE Rebate Pilot Program, and Grant programs.

During the discussion, the regional business managers provided recommendations for local community events or central community locations that are ideal for community outreach partnerships, educational campaign partnerships, and EV ride-and-drive events. As an action item from these discussions, the regional business managers were asked to connect with their local chamber of commerce to share the most relevant TE opportunities that could benefit their communities. When there was interest, the regional business managers connected the chamber of commerce's staff to the PacifiCorp TE team to discuss the opportunities further. These discussions are key for keeping the regional business managers and the local communities that they serve informed about TE program offerings.

STATE OF OREGON'S ZERO EMISSION VEHICLE INTERAGENCY WORKING GROUP

The ZEVIWG discussion hosted on March 21, 2025, delivered insights into how PacifiCorp engages with customers to support TE advancement. ZEVIWG involves staff from ODOT, the Department of Energy, the Department of Administrative Services, the Commission, and DEQ. The goal is to enable both public and private sectors to implement equitable, cost-effective, timely, and reliable ZEV charging and fueling infrastructure, thereby increasing ZEV adoption.

The group wanted to better understand how PacifiCorp approaches TE projects and the barriers customers face when they engage in a TE project. As part of the conversation, the following topics were discussed:

- **Feasibility Assessment:** Information needed from customers considering new EV charging infrastructure includes load, voltage, and phase details. Customers are encouraged to contact early, start a work order, and be open to switching spots. Engineering desk reviews and site visits may be necessary.
- **System Impact Study:** The process for initiating a system impact study typically takes between 30 and 60 days, but timing depends on complexity. Allowances are applied if the project proceeds.
- **Line Extension and Grid Upgrades:** Major system impacts like adding a substation can take between three and five years, minimum. Costs are calculated based on the customer's proportional share to serve their load, with line-extension allowances depending on service delivery and transmission vs. distribution delivery.
- **Overall Project Timeline:** Common challenges include equipment availability and the need for customer buy-in. There is no fast-track process; all requests are taken in the order they are received.
- **Battery Energy Storage Systems:** Policies support the installation of battery energy storage systems at EV charging stations, as they reduce connected load and expedite interconnection. The site host determines the system size, and a system impact study shows total available capacity.

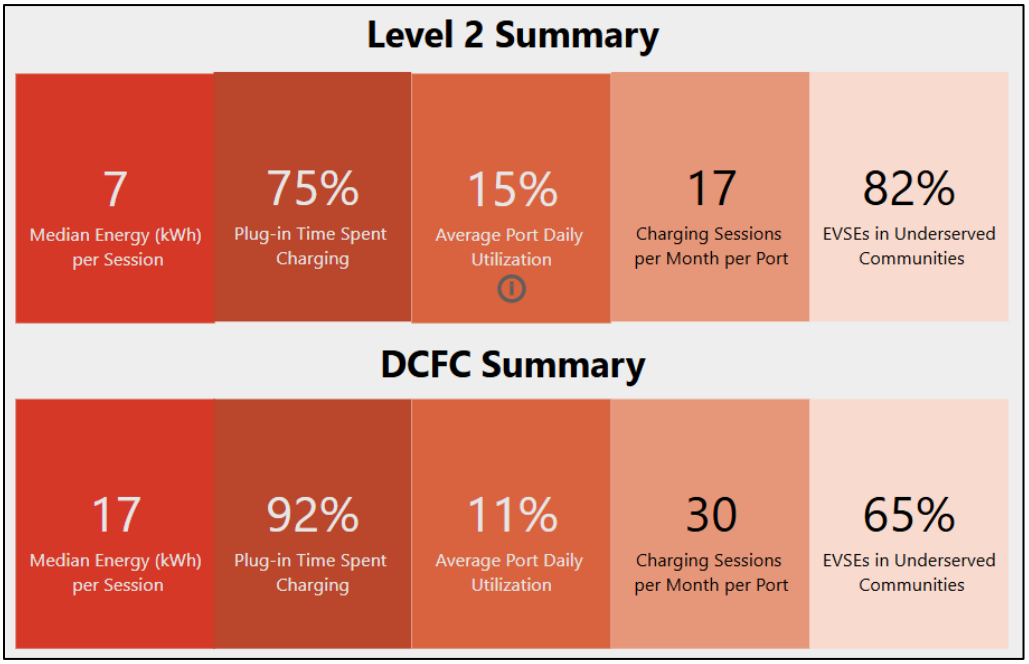
- **Demand Charge Strategies:** Demand charges for EV infrastructure projects are part of the rate schedule chosen by the customer. TOU rates offer significant reductions in demand charges, and tariff revisions are planned to reduce monthly bill minimums for smaller projects as part of the 2026–2028 TEP.
- **Incorporation of State Regulations:** Regulations advancing transportation electrification, such as ACC II and ACT, are reflected in utility plans through state-specific forecasts.

10. APPENDIX B: EXISTING USAGE PATTERNS AT CHARGING STATIONS

10.1 EV CHARGING DATA SUMMARY

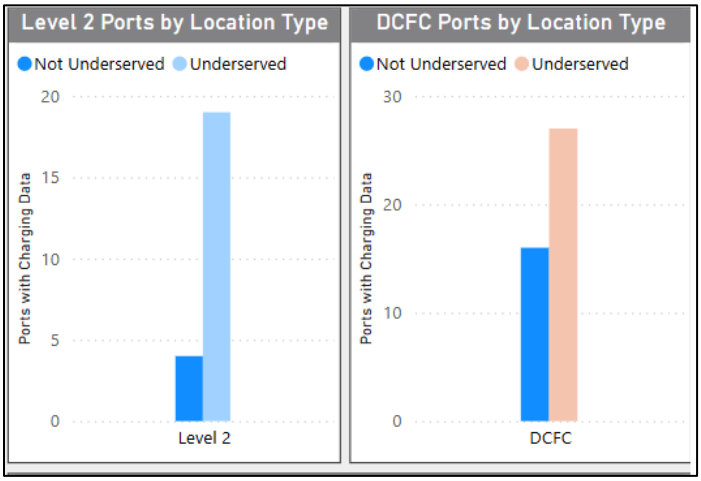
In the last year, there were at least 38,195 charging sessions at these stations. Energy usage was 654,209 kWh, with 97,789 gallons of fuel saved and 281 MT of CO_2 saved. Figure 9 shows high-level summary data from 2024 for both the public Level 2 and DCFC stations in Oregon

Figure 9. Oregon Public EV Charging Station Summary Data Q1-Q4 in 2024



More public EVSE ports are located in underserved areas compared to areas that are not considered underserved. Underserved communities are identified based on criteria described in the Oregon House Bill 2165.

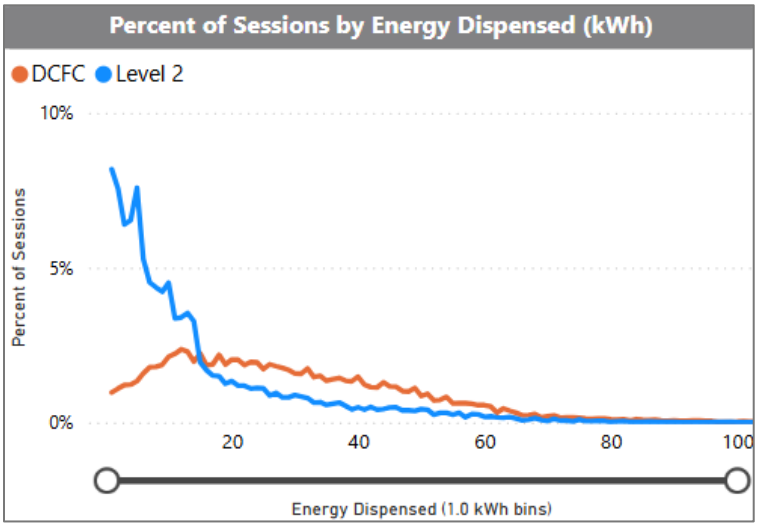
Figure 10. Ports by Underserved Status in Oregon in 2024



10.2 DATA SHOWING ENERGY USAGE, ENERGY DEMAND, AND ENERGY DISPENSED

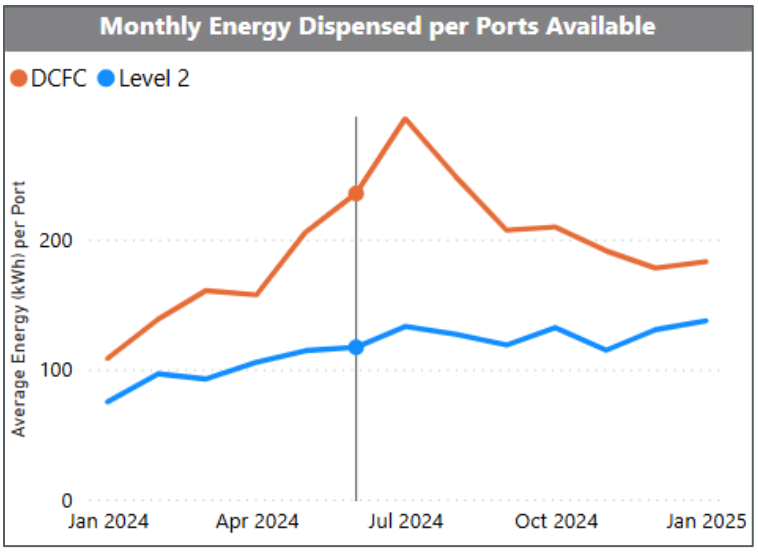
The following three charts demonstrate energy usage, energy demand, and energy dispensed over 2024 for both DCFCs and Level 2 stations. Figure 11 shows that the Level 2 chargers tend to have more sessions where there is less energy dispensed than the DCFCs.

Figure 11. Percent of Sessions by Energy Dispensed (kWh)



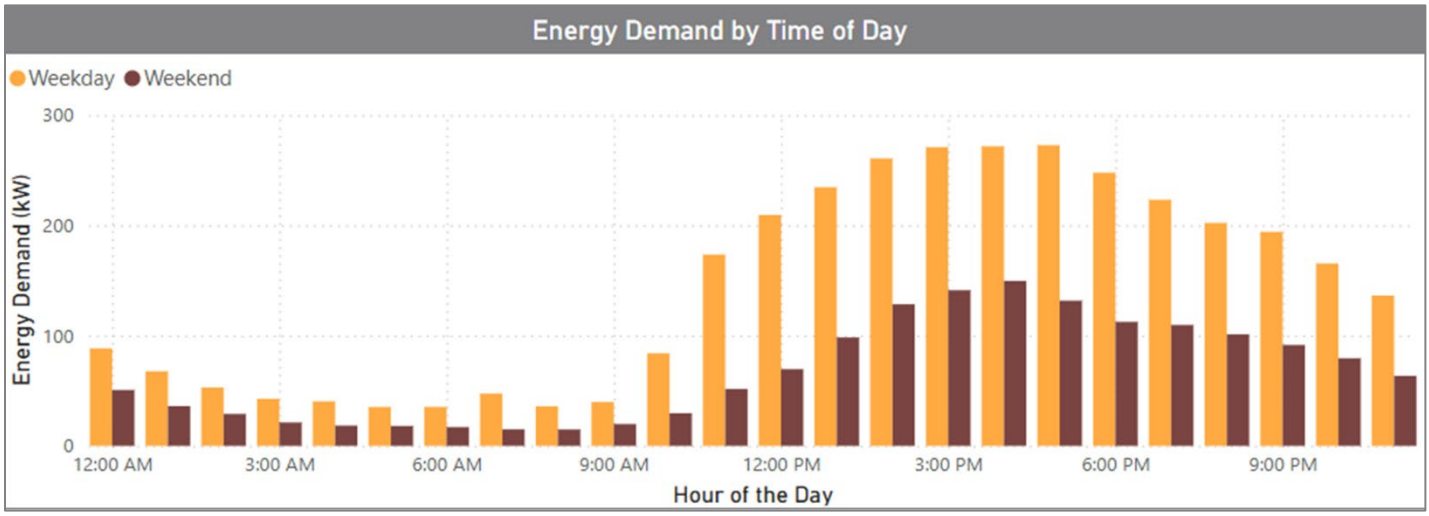
More energy was dispensed in the months between June 2024 and September 2024, as shown in Figure 12. The DCFCs in Oregon have significantly more energy usage per port than the Level 2 charging stations, averaging more than double the energy usage in July 2024.

Figure 12. Monthly Energy Dispensed per Ports Available



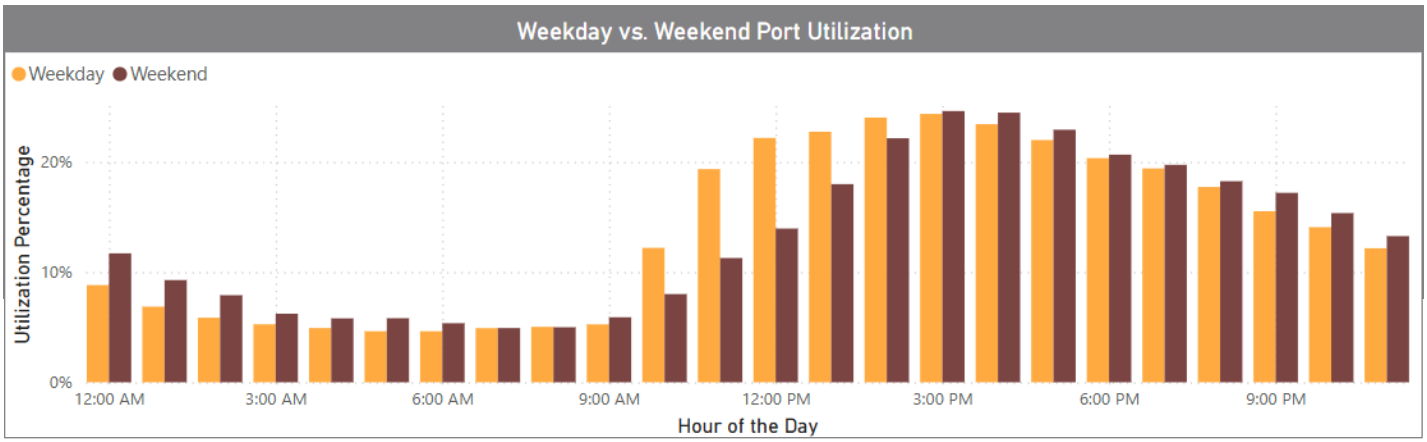
Additionally, EVSE usage tends to be at least 100 kW higher on weekdays than weekends, as shown in Figure 13. Both weekday and weekend usage follows the same trend of much higher EVSE energy draw between the hours of 11:00 a.m. and 10:00 p.m. compared to usage overnight.

Figure 13. Energy Demand by Time of Day.



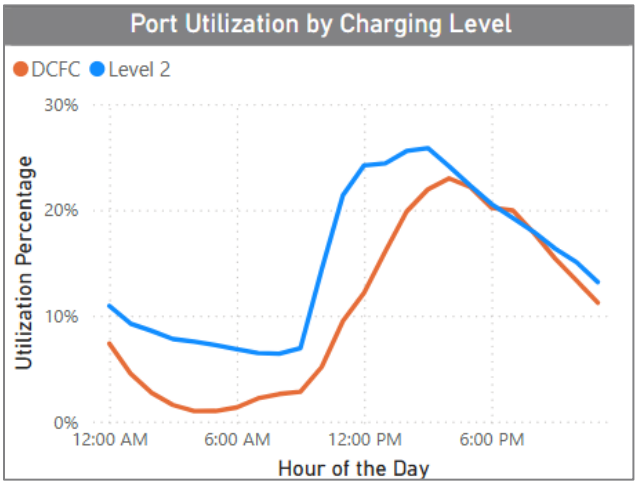
Port utilization is also higher during daytime hours both on weekdays and weekends (Figure 14). However, utilization more similar between weekdays and weekends compared to energy demand, which changes dramatically from weekdays to weekends.

Figure 14. Weekday vs. Weekend Port Utilization



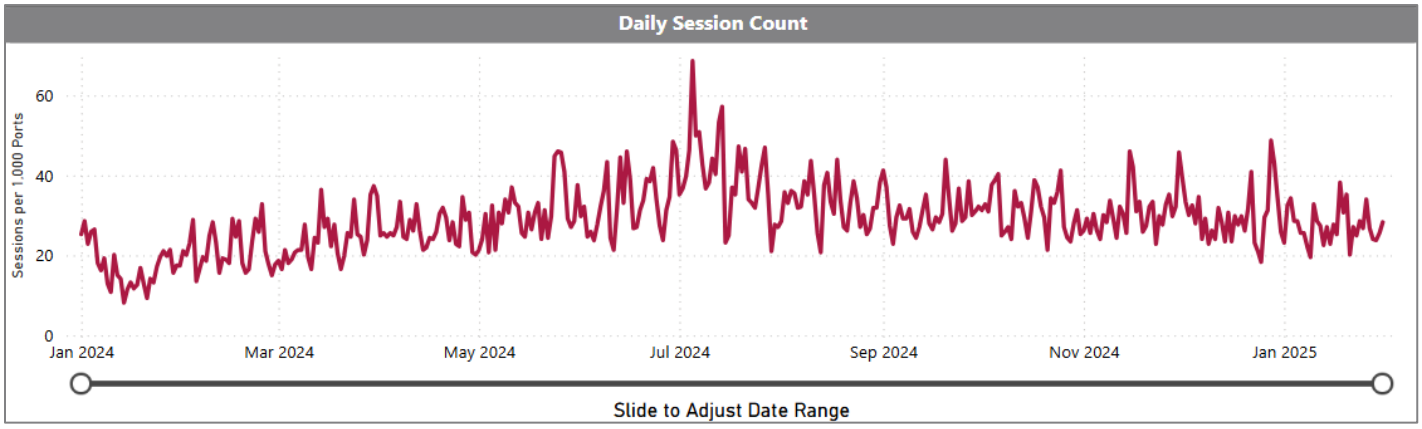
Port utilization by charging level shows that both DCFC and Level 2 chargers follow a similar trend of limited usage overnight, with utilization significantly increasing to just above 20% between 9:00 a.m. and 11:00 p.m. (Figure 15).

Figure 15. Port Utilization by Charging Level



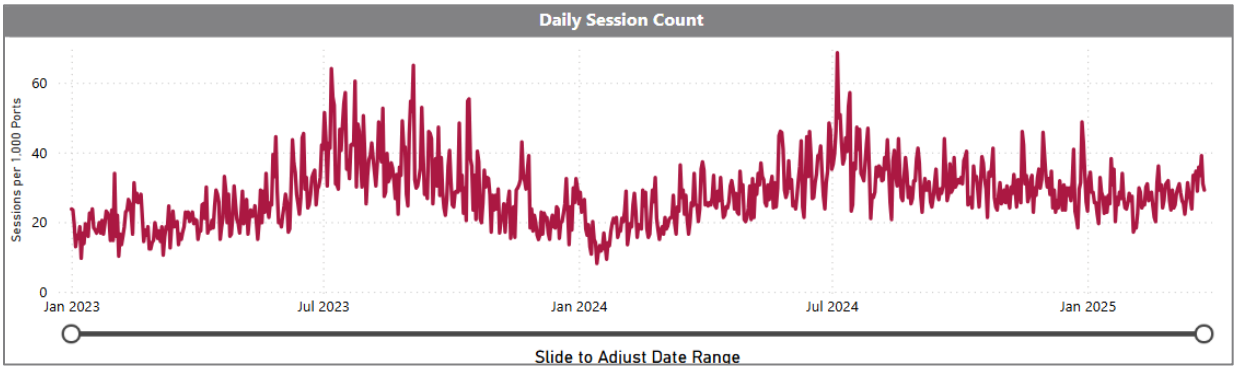
Energy dispensed corresponds closely with the daily session count of EVSE in the Oregon service area, as shown in Figure 16 below. EVSE charging sessions peaked in July 2024. There have also been several session peaks in winter of 2024 and January 2025, potentially showing a growth in the number of charging sessions over time.

Figure 16. Daily Session Count in 2024 of EVSE per 1,000 Ports



Analysis of data from January 2023 to March 2025 reveals a consistent trend of charging session peaks in both summers of 2023 and 2024, suggesting that more charging sessions occur during the summer months (Figure 17).

Figure 17. Daily Session Count from 2023 to 2025 of EVSE per 1,000 Ports



10.3 DATA SHOWING SESSION, ENERGY, CHARGING TIME, AND PLUG-IN TIME

Finally, the following data tables generated by PacifiCorp's data dashboard demonstrate session, energy, charging time, and plug-in time for the EVSE ports in Oregon. This information is displayed in Figure 18, Figure 19, Figure 20, Figure 21, and Figure 22.

Figure 18. Summary Table of EVSE Data by Charge Level in PacifiCorp's Oregon Service Area in 2024

BY CHARGE LEVEL

Charge Level	EVSE	Ports	Sessions	Total Energy (kWh)	Sessions/Port/Month	Energy (kWh)/Session	CT/Session	PT/Session	CT/PT
DCFC	25	49	38,134	716,097	31	19	0.5	0.5	90%
Level 2	48	89	33,233	405,253	15	12	2.3	3.1	74%
Total	**73**	**138**	**71,367**	**1,121,350**	**21**	**16**	**1.3**	**1.7**	**77%**

Figure 19. Summary Table of EVSE Data by Use Case in PacifiCorp's Oregon Service Area in 2024

BY USE CASE

Use Case	EVSE	Ports	Sessions	Total Energy (kWh)	Sessions/Port/Month	Energy (kWh)/Session	CT/Session	PT/Session
Light-duty Fleet Vehicles								
Medium and Heavy-duty Fleet Vehicles								
Micromobility								
Passenger Vehicles	37	68	42,290	707,366	25	17	0.7	0.8
Total	**37**	**68**	**42,290**	**707,366**	**25**	**17**	**0.7**	**0.8**

Figure 20. Summary Table of EVSE Data by Location Type in PacifiCorp's Oregon Service Area in 2024

BY LOCATION TYPE

Location Type	EVSE	Ports	Sessions	Total Energy (kWh)	Sessions/Port/Month	Energy (kWh)/Session	CT/Session	PT/Session	CT/PT
Not Underserved	11	21	21,623	355,797	41	16	0.6	0.8	80%
Underserved	26	47	20,667	351,569	18	17	0.8	0.9	90%
Total	**37**	**68**	**42,290**	**707,366**	**25**	**17**	**0.7**	**0.8**	**85%**

Figure 21. Summary Table of EVSE Data by Geographic Type in PacifiCorp's Oregon Service Area in 2024

BY GEOGRAPHIC CATEGORY

Geographic Category	EVSE	Ports	Sessions	Total Energy (kWh)	Sessions/Port/Month	Energy (kWh)/Session	CT/Session	PT/Session	CT/PT
	38	72	29,083	414,098	16	14	2.2	3.0	73%
Coastal	6	12	6,352	67,390	21	11	0.5	0.5	97%
Frontier									NA
Rural	17	34	17,884	335,715	21	19	0.6	0.7	88%
Tribal									NA
Total	**73**	**138**	**71,367**	**1,121,350**	**21**	**16**	**1.3**	**1.7**	**77%**

Figure 22. Summary Table of EVSE Data by Day Type in PacifiCorp's Oregon Service Area in 2024

BY DAY TYPE

Day Type	EVSE	Ports	Sessions	Total Energy (kWh)	Sessions/Port/Month	Energy (kWh)/Session	CT/Session	PT/Session	CT/PT
Weekday	73	138	48,783	754,439	14	15	1.4	1.8	76%
Weekend	73	138	22,584	366,911	7	16	1.2	1.5	78%
Total	**73**	**138**	**71,367**	**1,121,350**	**21**	**16**	**1.3**	**1.7**	**77%**

11. APPENDIX C: DISTRIBUTION SYSTEM PLANNING NEEDS

11.1 DISTRIBUTION SYSTEM PLANNING OBJECTIVES

Potential increased EV adoption could accelerate load growth, which would create grid needs ahead of existing projections. Ordinarily, load growth would be accounted for within a typical five-year study performed by the area field engineer. The concern with EV load is that the S-shaped adoption curve combined with the potentially large amount of load being brought online through existing study processes. These conditions could create multiple, simultaneous, urgent needs.

Therefore, PacifiCorp investigated the impact of EV adoption on the grid utilizing the most recent distribution system planning (DSP) analysis completed in 2022. The objectives of this analysis include:

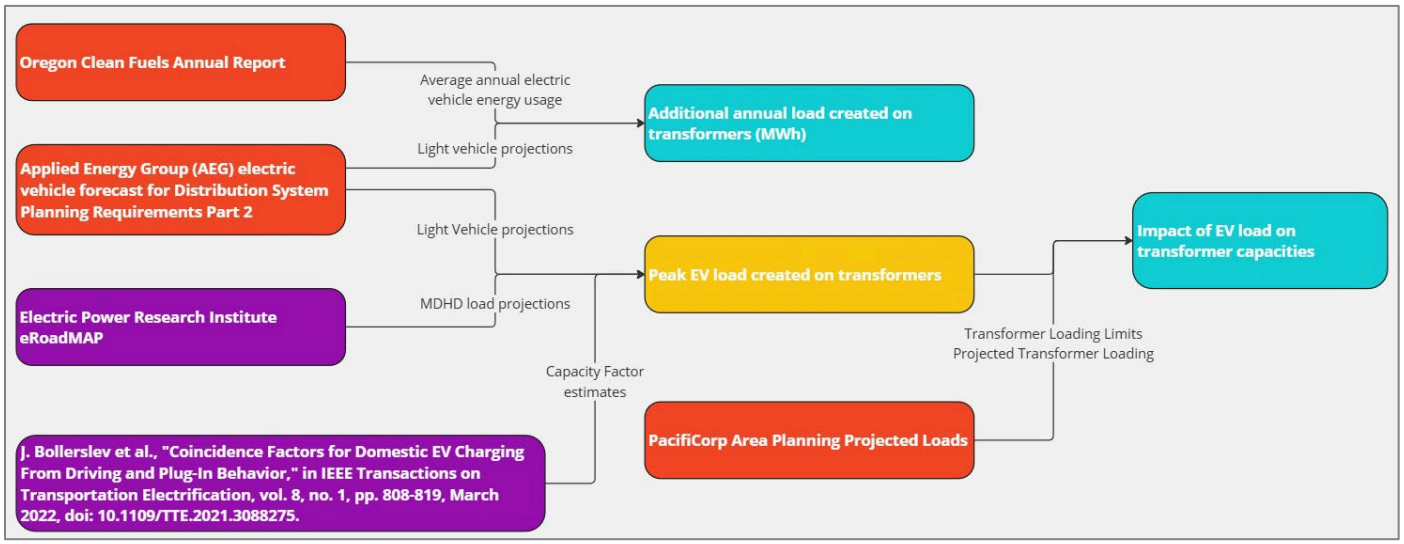
- Determine if current load forecasts are sufficient in understanding distribution system impacts
- Provide a reasonable estimate of the EV charging need on the distribution system

11.2 DISTRIBUTION SYSTEM PLANNING METHODOLOGY

Current load prediction methods look at aggregated electricity use for an area and predict future use based on year-over-year increases, with seasonal and meteorological normalizations. These predictions are made over a five-year cycle, and most forecasts show lower rates of growth (between 0% and 2%). As EV adoption is believed to operate on an S-curve, there is a concern that the middle, vertical portion of that curve could upset the planning process, causing unanticipated spikes of load growth that could occur in between the scheduled checks.

The current DSP EV load estimation process assumes that we are still in the early stages of the adoption S-curve, where overall numbers are relatively flat. This allows PacifiCorp to treat new EV load as additive rather than baked into load estimations that would include existing EV loads. PacifiCorp is currently developing more-sophisticated estimation models that will be adopted when this additive approach is no longer sufficient (Figure 23).

Figure 23: Distribution System Planning Analysis Approach



STEP 1: DATA COLLECTION AND CONDITIONING

- **EV Forecast Data:** In 2022, PacifiCorp commissioned Applied Energy Group (AEG) to forecast EV adoption for each of the states in its service territory. AEG produced a report that estimated the number of EVs that would be adopted each year in each state from 2023 to 2042.[66,67]. Subsequently, AEG was asked to adapt its state-level EV forecast to a granular output that extended AEG's existing light-duty EV projections to circuit resolution for all circuits within the state of Oregon. AEG considered three different cases for EV adoption: low, medium, and high. The high case was scaled to a BloombergNEF EV adoption study, while medium and low were derived from AEG's own process.
- **EPRI eRoadMap Data:** PacifiCorp references the EPRI eRoadMap to identify circuits and substations where higher medium- and heavy-duty load growth is predicted. Only areas anticipating a greater than 75 kW peak load within a quarter-square-mile area for the predictive 2030 year were included. These regions were mapped onto the distribution system and to PacifiCorp circuits, where they could be aggregated to overall transformer loading.
- **PacifiCorp Area Planning Loading Estimates:** PacifiCorp's Area Planning team provides estimates of seasonal substation and transformer loading and an inventory of transformer loading limits. These loading figures are derived from analysis of SCADA (supervisory control and data acquisition) current and voltage sensor measurements on the transformers and transmission lines feeding those transformers. Current loading patterns as established for the 2025 Transmission Planning Studies are used to project loading for up to 10 years into the future for all transformers in the service territory.

STEP 2: DATA AGGREGATION

EV peak demand on a distribution system is a coincident load where a large number of electric vehicles are charging at the same time. The number of vehicles undergoing simultaneous charging is never 100% in medium to large aggregations; in fact, it is usually much smaller. The highest percentage of vehicles undergoing charging at once is called the load factor. In this study, projected EV numbers were converted to peak load with an assumed greatest load factor of 25%. This is consistent with internal studies and sampling as detailed in Section 4.5. This peak load was added to area planning peak loads to obtain an updated peak load estimate for each transformer under consideration. MHDV peak estimates were added to these totals to create a final load projection figure.

While circuit data is available for most of the area evaluated in this study, all data was aggregated to the transformer level. Circuit aggregations prove useful in context. For a field engineer, who is familiar with the operation of the circuit and its neighbors, these estimates provide a useful guide on what system upgrades need to be made where and when. For large-scale estimations, circuit aggregations are not as useful.

Transfers between circuits are common and relatively cheap and may solve what appear to be major overcapacity issues with little effort. Relatively minor upgrades may be combined with other protection or wildfire needs into much larger projects, where shared resources can lower total combined costs. For transformer aggregations, any

[66] The kWh estimates provided are derived from the AEG and EPRI estimates. For the light-duty vehicles, this is a simple calculation where the number of vehicles for each transformer estimated from the AEG study is multiplied by 3,792 kwh/BEV.

[67] Oregon Department of Environmental Quality. *Clean Fuels Program: Fuel Supply Forecast*. https://www.oregon.gov/deq/ghgp/cfp/Pages/Fuel-Supply-Forecast.aspx.

upgrades are likely to be very expensive and have supply chain complications. While transfers may happen between transformers, it is often more difficult to coordinate.

The DSP team plans on updating the AEG study to continue the adoption of EVs in PacifiCorp's service area. More-detailed forecasts will be provided with the DSP filing in 2026.

STEP 3: ANALYZE

Once potential transformer loading and potential transformer EV load have been established, they can be added together to estimate the impact of EV load on transformer capacity. When EV load projections have been added to the transformer loading projections, they can be compared to the transformer loading limits to determine whether there is the potential for overcapacity.

Overcapacity problems can be either completely unanticipated or may be accelerating an already scheduled replacement. New transformer costs are estimated based on a formula derived from average transformer costs over the past five years. Costs per megawatt (MW) decrease as the size of the transformer increases, but larger transformers are almost always more expensive.

11.3 KEY ASSUMPTIONS AND DATA LIMITATIONS

The following items share key assumptions and data limitations as part of the analysis completed:

- Areas with low residential makeups did not have enough baseline data to create a projection, as did some areas that bordered neighboring states. Where possible, these gaps have been filled by interpolating neighboring circuits and scaling the results to residential customer counts.
- MHDV estimates are more punctuated, with large, concentrated loads placed on more industrial circuits. These are, by nature, more difficult to predict.
- Peak EV loading is assumed to occur at approximately the same time as peak loading for each transformer. EV loading is presumed to be highest in the late afternoon, when drivers return to their homes and plug their vehicles into personal chargers.[68]
- Morning peaks are often echoed by similar, lower evening peaks, and the overall loading in the evening may not be significantly lower than the peak. Winter loading is derated to 90% for the purposes of this study to accommodate this mismatch.

11.4 KEY RESULTS OF DISTRIBUTION SYSTEM PLANNING

The results show the following:

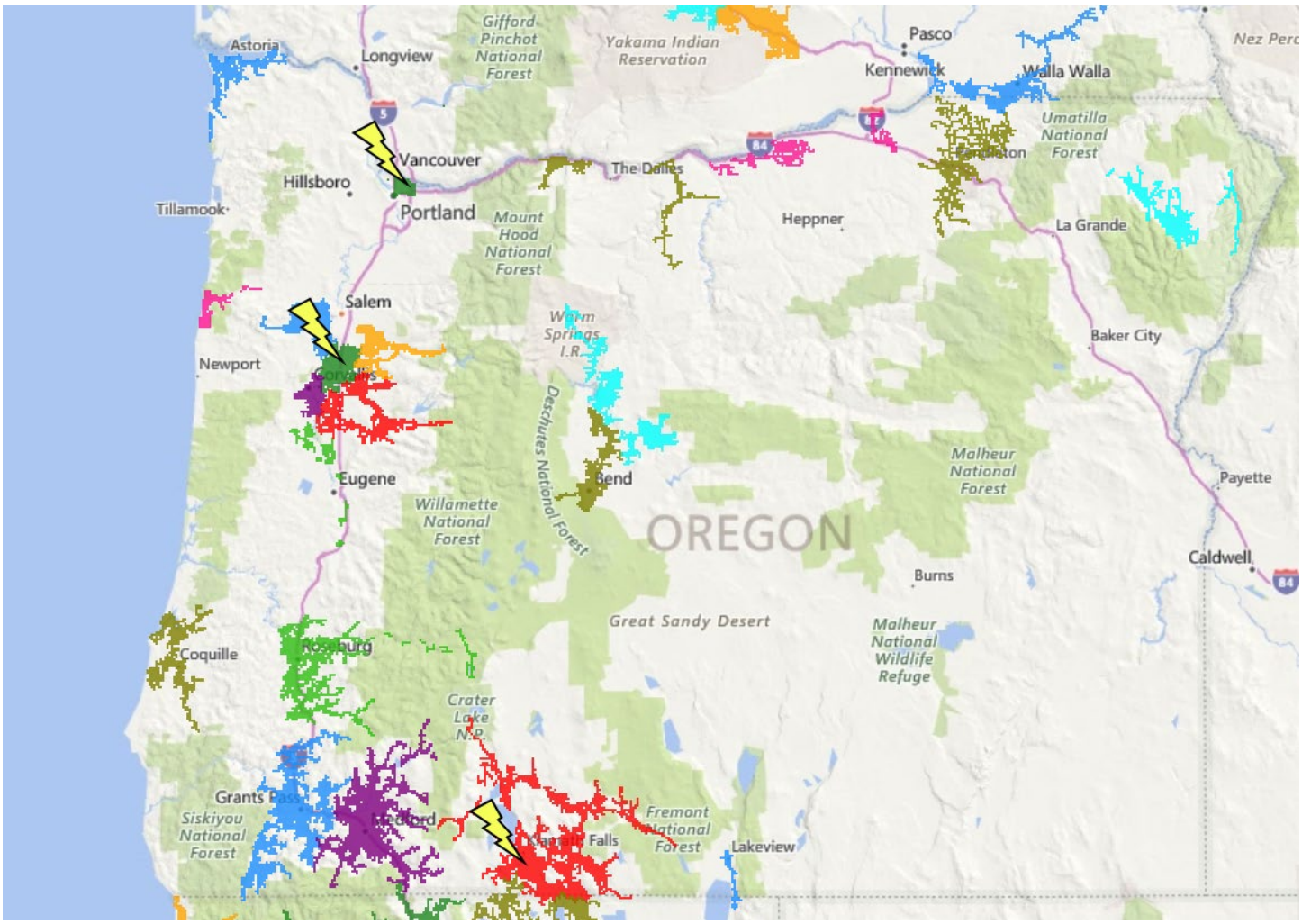
- In terms of total power usage, overall EV load is concentrated in Portland, Bend, Medford, and Albany, as shown in The largest predicted EV grid impacts take place in metropolitan areas within Oregon, with the

[68] This is a safe assumption for the majority of circuits in summer months, coinciding with typical residential load-usage patterns. But in the winter months, the loading peaks often occur in the morning and are less likely to coincide with typical EV loading patterns.

largest being seen in Portland, Corvallis, and Klamath Falls, although all urban areas are projected to see some impacts.

- Figure 24 illustrates that the largest predicted EV grid impacts take place in metropolitan areas within Oregon, with the largest being seen in Portland, Corvallis, and Klamath Falls, although all urban areas are projected to see some impacts.

Figure 24: Locations Where Significant Distribution Impacts Are Anticipated



- MHDV demand is more concentrated in Portland, but there are hotspots of projected growth along major transportation corridors, particularly within Pendleton and Medford.
- MHDV load is far more concentrated than that of LDV. As a whole, MHDV is a much smaller aggregated load than LDV. However, MHDV charging centers can draw multiple MW of peak load, equaling or exceeding peak LDV load demands. Furthermore, this load is brought online all at once, compared to the relatively slower LDV adoption. This can create very sudden, unanticipated grid impacts. These facilities will come onto the system through individual system impact studies where upgrade costs are largely borne by the initiating entities. Traditionally, this takes place outside of the usual planning processes.

Figure 25: Estimated Annual EV Load per Oregon Operating Area

Op Area	2026 GWh			2027 GWh			2028 GWh			
	high	low	med	high	low	med	high	low	med	high
Medford	5.0	3.6	5.5	11.0	5.4	8.5	18.7	7.2	11.6	28.4
Albany	5.3	3.8	5.6	11.6	5.7	8.7	19.7	7.6	11.9	29.9
Roseburg	1.0	0.7	1.1	2.2	1.1	1.7	3.8	1.5	2.4	5.8
Junction City	0.6	0.4	0.7	1.3	0.6	1.0	2.2	0.9	1.4	3.4
Coos Bay	0.6	0.4	0.7	1.3	0.6	1.0	2.3	0.9	1.4	3.5
Dalreed-Arlington	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Madras	0.2	0.2	0.3	0.5	0.3	0.4	0.9	0.3	0.6	1.4
Hood River	1.2	0.8	1.3	2.6	1.3	2.0	4.4	1.7	2.8	6.7
Klamath Falls	0.8	0.6	0.9	1.8	0.9	1.4	3.0	1.2	1.9	4.6
Enterprise	0.1	< 0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.3
N OR Coast	1.5	1.1	1.7	3.4	1.6	2.6	5.7	2.2	3.5	8.7
Lincoln City	0.4	0.3	0.5	0.9	0.4	0.7	1.5	0.6	1.0	2.3
Bend	4.5	3.2	4.7	9.9	4.8	7.2	16.7	6.5	9.8	25.3
Grants Pass	2.1	1.5	2.4	4.7	2.3	3.6	8.0	3.1	5.0	12.2
Pendleton	0.3	0.2	0.4	0.7	0.3	0.5	1.2	0.5	0.7	1.8
Hermiston	0.1	< 0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.3
Redmond	1.0	0.7	1.1	2.3	1.1	1.7	3.9	1.5	2.4	5.8
Yreka	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.1	0.1
Crescent City	< 0.1	< 0.1	< 0.1	0.1	< 0.1	0.1	0.1	< 0.1	0.1	0.2
Lakeview	0.1	< 0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.3
Portland	9.1	6.6	8.9	19.4	10.0	13.6	32.7	13.3	18.3	49.0
Milton-Freewater	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total	33.8	24.2	35.7	73.9	36.7	55.0	125.7	49.0	75.0	190.0

12. APPENDIX D: TRIBAL NEEDS ENGAGEMENT FINDINGS

During 2024, Pacific Power engaged individually with sovereign, federally recognized Tribes that are served by the Company. The objective was to collaborate with Tribes to understand how to support Tribal Nations in removing any barriers that may inhibit them from pursuing TE.

This effort involved soliciting information regarding their current strategies and prospective plans for the incorporation of TE infrastructure. The Company's interest lies in understanding Tribal governance, individual transportation needs, and the opportunities that may advance TE, mutually benefiting the Tribes, the Company, and Oregonians.

Pacific Power conducted the following engagement activities that inform this summary of findings:

- Cow Creek Tribe of Umpqua Indians, April 1, 2024
- Klamath Tribes, September 13, 2024
- Confederated Tribes of Warm Springs, September 26, 2024
- Confederated Tribes of the Umatilla Indian Reservation, December 18, 2024 (informal discussion only with Kayak Transit)
- Coquille Indian Tribe (efforts to coordinate a discussion are underway)

12.1 TRIBAL ENGAGEMENT METHODOLOGY

Pacific Power developed a standard interview form and hosted in-person and virtual conversations with representatives from each Tribal Nation. The representatives were often Tribal employees in utility- or facilities-related positions or elected Tribal leadership.

Each needs assessment was individualized as conversations progressed, focusing on the items most relevant to each Tribal Nation. Pacific Power recognizes the individual sovereignty of each Tribal Nation and understands that each has a unique history, governance structure, and resources.

12.2 KEY THEMES AMONG TRIBES

This report summarizes the key themes across the Tribes that participated in this needs assessment. They offered high-level recommendations for future program designs that may support Tribal efforts to increase TE in Oregon. Not all themes may be applicable to any specific tribe.

- **Lack of Capacity:** Most if not all Tribal representatives expressed concerns about capacity as a barrier to moving forward with TE projects. Tribes have limited staffing, and staff members usually oversee a wide array of services at any given time. This makes planning for projects, securing resources, and implementing solutions challenging at all stages of an EV-related project.
- **Lack of Formal TE Goals:** Many of the Tribes interviewed lacked formal TE goals but have initiated some level of effort toward electrification. The lack of formal goals is not necessarily a barrier to initial electrification projects but may become an impediment if a project requires significant resources to move forward. Additionally, adoption of formal TE goals may take time, as each Tribe has its own political process.

- **Desire to Increase Electrification Efforts:** Despite the lack of formal goals, most Tribal representatives expressed an interest in TE projects. All Tribes identified at least one IT-related project they would like to see move forward if sufficient capacity and resources were available. Some of these projects were conceptual, while others were site specific and related to TE infrastructure.
- **Economic Interests as a Driver for TE Adoption:** Many of the Tribal representatives expressed an economic reason, in addition to a climate-benefiting reason, for pursuing TE projects. Often the Tribal interests related to the Tribal business ventures, viewing the installation of charging infrastructure as a potential means of attracting customers from other areas to their various businesses.
- **Strategic Transportation Locations Along Rural Transportation Corridors:** The Tribal governments that participated in the needs assessment are located along important rural transportation corridors in the state. Many have developed amenities and businesses—such as restaurants, lodging, convenience stores, and entertainment—to provide services along these roads. The first investments Tribal governments consider related to TE frequently involve strengthening their business interests to provide sustainable funding for the Tribe.
- **Hesitancy for Large-Scale Adoption of Tribal Fleets:** Many Tribal representatives are hesitant to plan for large-scale adoption of EVs for the Tribes' own uses. At least one Tribe was planning to purchase an EV through an incentivized program, but the majority did not own any electric vehicles, despite often having robust Tribal fleets. This hesitation stems from reasonable concerns, which include:
  - The high up-front cost of EVs
  - The lack of maintenance vendors within a reasonable distance
  - The limited range an EV can travel when it has to negotiate adverse weather conditions over difficult terrain

12.3 TRIBAL RECOMMENDATIONS FOR FUTURE PROGRAM DESIGNS

Tribal representatives shared thoughts on future program designs that can help in developing EVSE infrastructure to further cultivate mutually beneficial goals of reducing greenhouse gas emissions, furthering Tribal economic development, and increasing the availability of public charging throughout rural Oregon. They recommended the following:

- Program designs must be built to respect Tribal sovereignty and the unique governance structure, history, and resources of each Tribe
- Program offerings should be flexible and require minimal reporting
- Grants should be more less burdensome to apply for and administer
- Resources for TE should be paired with other energy-related needs to further develop staffing in a holistic way
- Procurement processes should be less of a barrier to Tribal governments in implementing projects due to a lack of administrative capacity, in addition to the capacity to develop projects

To make resources available to Tribes and capture these mutually beneficial opportunities, Tribes asked Pacific Power to establish a Tribal assistance program. This program should focus on building the capacity to plan,

identify, and seek resources, and to implement TE projects owned and/or operated by Tribal governments. Tribal governments should be able to apply for support through one of two methods, depending on their unique needs:

- **Capacity Grant:** A capacity grant opportunity should be offered to Tribal governments that could potentially cover the annual cost of one full-time employee. The application should not exceed two pages, and, if awarded, should be incorporated directly into the grant agreement. Tribal governments will be asked to provide a brief report to Pacific Power every quarter on progress and challenges related to their project.
- **Access to Contracted Planning Support Facilitated by Pacific Power:** The Company should contract for planning, development, grant seeking, and project management from a third-party consultant and offer this support to Tribes.
- **Minimum Budget Recommended:** Pacific Power should reserve enough funding in the budget over the three-year period of the TEP to make at least one offering available to each Tribal government in the Company's service area as incentives to support Tribal governments and their business entities.

13. APPENDIX E: TE PORTFOLIO IMPACT EVALUATION

PacifiCorp Oregon Transportation Electrification Portfolio Impact Evaluation

Final Report

Submitted by Apex Analytics LLC

April 25, 2025



Table of Contents

Executive Summary 3
Key Findings 3
Conclusions and Recommendations 8
1. Introduction 10
1.1 Study Objectives 11
1.2 Research Approach 11
1.2.1 Data Assessment 11
1.2.2 Program Benchmarking 12
1.2.3 Participant Surveys 12
2. Program Background 13
2.1 Residential EVSE Rebates 13
2.2 Commercial and Multifamily EVSE Rebates 14
2.3 Technical Assistance (TA) 15
2.4 Grant Program 15
2.5 Outreach and Education 15
2.6 Pilots 16
3. Impact Evaluation Findings 18
3.1 Data, Savings, and Cost-Effectiveness Assessments 18
3.1.1 Data Assessment 18
3.1.2 Savings Assessment 20
3.1.3 Cost-Effectiveness Assessment 21
3.1.4 Benchmarking 23
3.2 Residential EVSE Rebates 25
3.2.1 Survey Findings 25
3.2.2 Charging Behavior 26
3.2.3 Program Influence 28
3.2.4 Satisfaction 29
3.2.5 Challenges and Barriers 30
3.2.6 Bill Impacts 31
3.3 Non-Residential Programs 32

3.3.1 Non-Residential Survey Findings 33
3.3.2 Program Influence 33
3.3.3 Satisfaction 34
3.3.4 Challenges and Barriers 36
3.4 Outreach and Education 37
4. Conclusions and Recommendations 38

Executive Summary

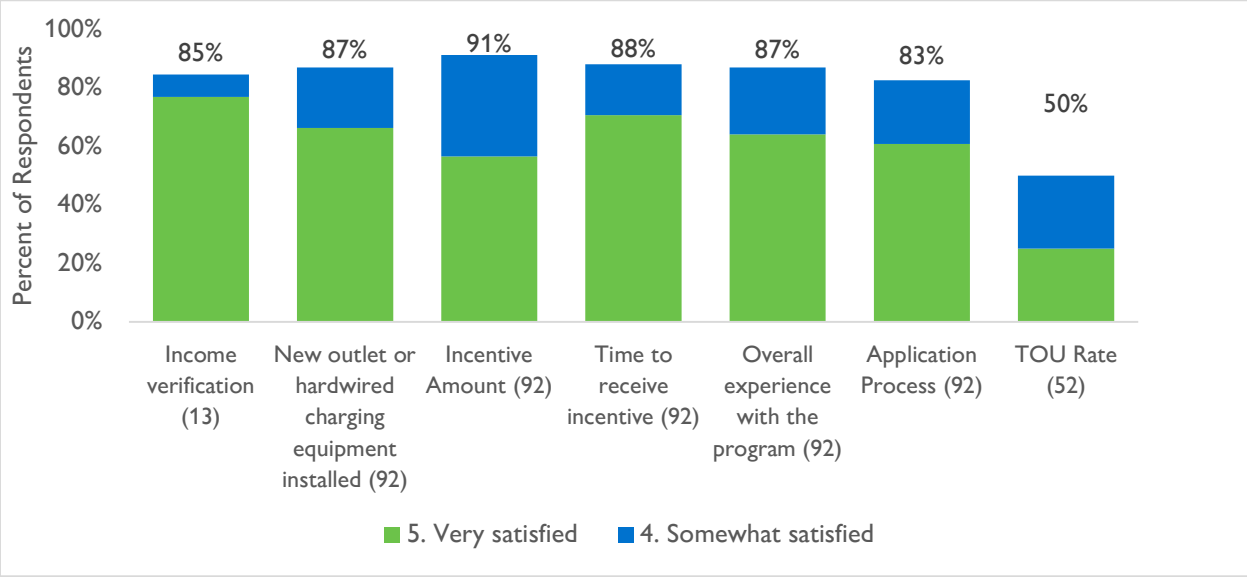
This executive summary presents findings from an impact evaluation completed by Apex Analytics (Apex) regarding PacifiCorp's Oregon Transportation Electrification (TE) portfolio from 2023 and 2024 program efforts. The evaluation included a review of program documents and tracking databases, surveys of a diverse range of PacifiCorp's TE program participants, an assessment of unit savings and cost-effectiveness, and a benchmark analysis of other regional (western) electric utility TE portfolios.

Key Findings

PacifiCorp's TE portfolio has supported the development of a robust market for electric vehicle supply equipment (EVSE) and increased access to electric transportation options. PacifiCorp's TE portfolio is actively working towards equitable transportation electrification. The E-Mobility Grant program expands electric transportation options to underserved communities, often serving as the only financial support for these projects. The E-Mobility Grant program has experienced strong demand, with 41 grants distributed in 2023 and 2024. PacifiCorp has established itself as a trusted source of information on TE through extensive outreach and education efforts. These efforts have resulted in successes such as the residential rebates program, which saw 1,315 customers installing ENERGY STAR®-certified Level 2 (L2) charging equipment, exceeding original targets by over 50%. In contrast, certain elements of the TE portfolio did not meet planned targets. Barriers to greater adoption in the commercial and multifamily sectors included costs, logistics, the complexities of non-residential installations, and split incentives.

Participants in PacifiCorp's TE programs reported high satisfaction with their experiences. Residential customers demonstrated strong engagement and responsiveness when invited to participate in a survey, resulting in the survey being closed early after exceeding the targeted completion rate within one day of launch. Participants, primarily residential customers who received L2 charging equipment rebates, expressed high satisfaction scores regarding their program experience. Upwards of 90% of participants indicated they were somewhat or very satisfied with their overall program experience (Figure 1). Furthermore, participants expressed high satisfaction ratings for the L2 equipment, the incentive amount, and the time taken to receive the rebate. Income-qualified customers rated the income-verification process highly, finding it easy to navigate. The Time of Use (TOU) requirement received a lower satisfaction rating, with only half (50%) of participants being somewhat or very satisfied, and over 20% stating they were somewhat or very dissatisfied. As one participant noted, "*The time of use rate is not helpful to me, and in retrospect, I would have forgone the rebate if that was a condition for it.*" PacifiCorp did not require auto-enrollment in TOU rates for income-qualified customers.

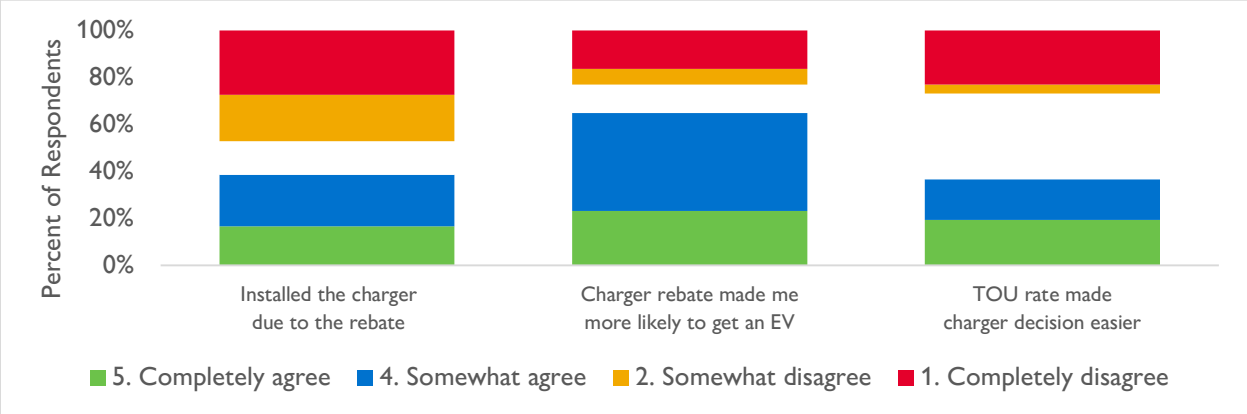
Figure 1. High Satisfaction Percentages for Various Aspects of Rebate Program



Note: Number in the parentheses represents the number of responses for each category

PacifiCorp's TE residential charger program had a moderate level of influence in customer decision making and behavior. While residential customers reported engagement and satisfaction with the program, the survey indicated only a moderate level of influence on their decision to purchase and install the L2 charging equipment. Only 38% of participants somewhat or completely agreed that the rebate was the reason they installed the charger (Figure 2). Conversely, nearly half (47%) of customers indicated they would have installed the charging equipment even without the rebate, a group typically considered freeriders. Interestingly, residential participants reported that the availability of a rebated L2 charger had a stronger influence on their decision to purchase an EV. This suggests potential spillover effects from the charging equipment program. Residential customers were generally indifferent ("neither agree nor disagree") regarding whether the TOU rate influenced their decision to install the charging equipment.

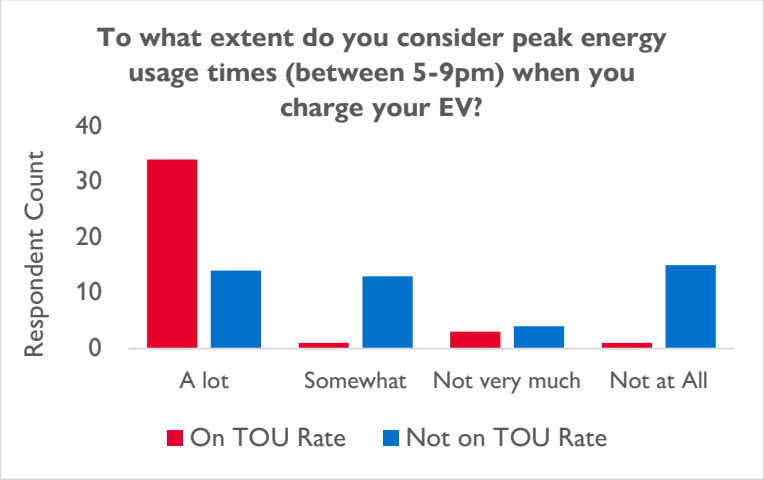
Figure 2. Charger Rebate and TOU Rate Effectiveness



Note: Indifferent (those indicating they neither agree nor disagree) were excluded from this figure to help distinguish the agree vs disagree groups.

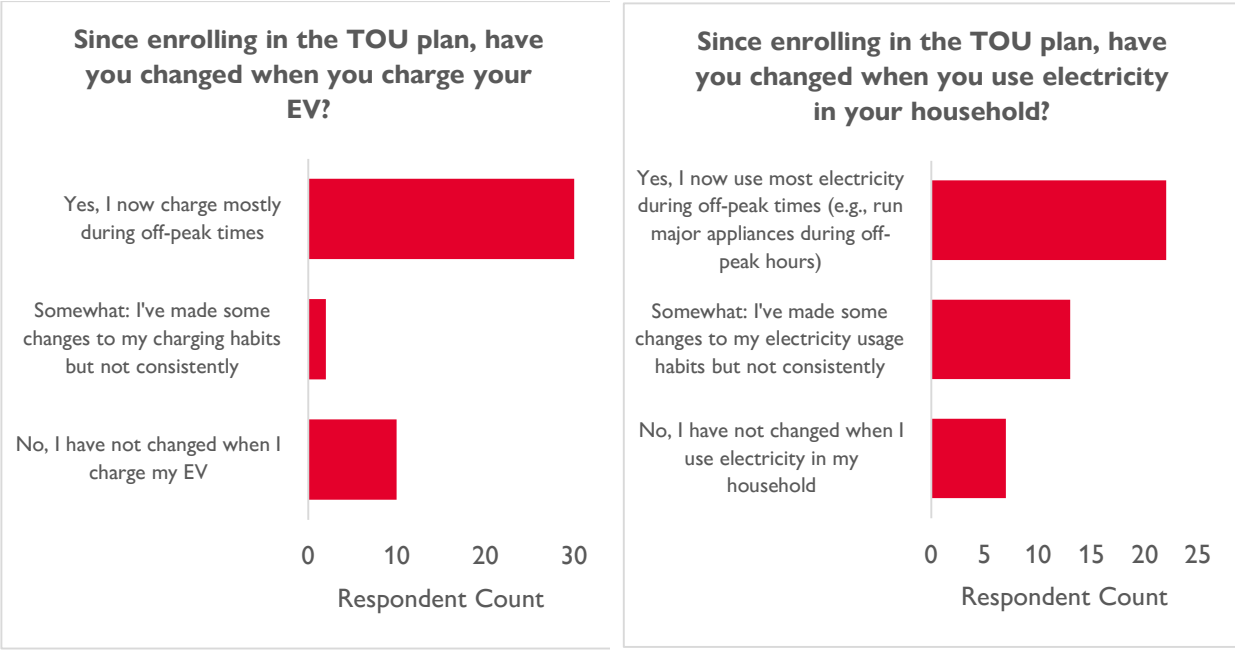
Despite the minority of customers disappointed with TOU requirements, the TE portfolio resulted in increased off-peak charging. A majority (76%) of residential customers on a TOU indicated moving to TOU after receiving the L2 charging equipment. Residential customers on the TOU rate were almost three times as likely to consider charging during off-peak rates as customers not on TOU rates (Figure 3).

Figure 3. Residential EVSE Rebate Peak Charging Between TOU and Non-TOU Customers



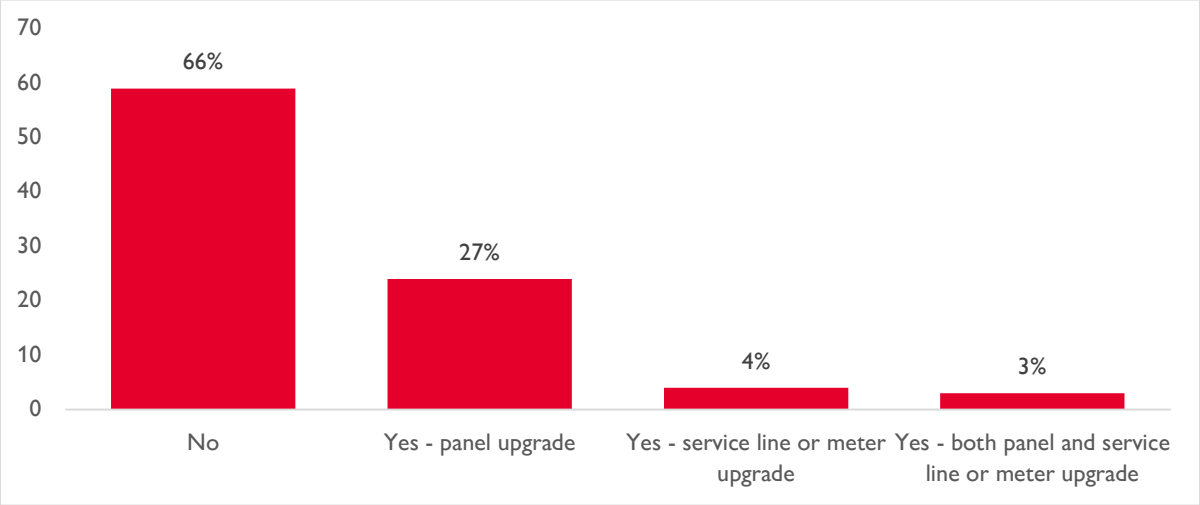
Furthermore, since enrolling in the TOU plan, almost three-quarters (71%) of residential survey respondents now charge mostly during off-peak hours, with an additional 20% reporting that they already charged off-peak prior to TOU enrollment (Figure 4). The adoption of TOU rates has also had positive spillover effects on general household energy consumption, as over half (52%) of respondents now use the majority of their household electricity during off-peak hours (Figure 4).

Figure 4. TOU Impacts on Charging Behavior



Even with the success of the residential EVSE program, residential customers still face challenges to broader EV and associated EVSE adoption. As previously noted, residential customers rated the TOU requirement the lowest of all the program elements and provided some anecdotes about their concerns related to TOU rates. The TOU requirement may be a hindrance to other residential customers interested in networking capable L2 charging equipment but reluctant to opt-in to TOU rates. Other friction points for residential customers tended to be confusion with the application and its requirements and product qualifying list and criteria. Cost and uncertainty around the L2 EVSE installation is another barrier to greater residential adoption (Figure 5). One-third (34%) of residential survey respondents reported additional electric infrastructure costs associated with their L2 installations, with over one-quarter (27%) indicating installation required panel upgrades.

Figure 5. Residential Installations Requiring Additional Work



PacifiCorp's TE programs are needed in the commercial and multifamily sectors but have not yet gained a wide uptake in those markets. While residential programs have demonstrated strong participation, exceeding the TE plan's annual targets, the commercial and multifamily programs have experienced low participation rates and have not met planned targets. Because of the low participation rates, this evaluation did not receive sufficient survey completions to provide significant findings to help guide/inform the program. However, commercial, technical assistance, grants, and multifamily survey respondents reported that the TE program and incentives had twice the level of influence on their decision to install equipment compared to residential participants. Additionally, process evaluation findings from 2024 research showed that most grant recipients would not have considered the same projects without the support of PacifiCorp's program. Surveyed non-residential customer segments reported additional benefits from their charging equipment, such as increased customer traffic for businesses and reduced operations and maintenance costs for fleet vehicles.

Benchmarking of regional TE programs revealed that PacifiCorp's offerings are in the upper tier based on breadth and depth of support. PacifiCorp's residential L2 charger rebates, including the enhanced rebate for income-qualified participants, are relatively high compared to the median standard rebate offered by benchmarked utilities. PacifiCorp also currently offers a Make Ready

rebate for residential applications, similar to 6 out of 17 utilities. For multifamily applications, PacifiCorp's L2 charger rebate for standard applications aligns with the median across benchmarked utilities. PacifiCorp's commercial sector L2 charger rebates are below the median compared to other utilities. Furthermore, PacifiCorp does not offer an increased rebate for priority areas or a specific rebate for DCFC chargers, although DCFC chargers are included on their approved-product list.

PacifiCorp's TE programs have demonstrated strong cost-effectiveness but would benefit from revisions to some assumptions. Apex reviewed the cost-effectiveness calculators used for the TE portfolio and found them to be comprehensive, well documented, and clearly structured, facilitating a thorough review with few questions regarding the input assumptions and approach. All input assumptions included citations, links to relevant sources, and notes or caveats about any concerns with a decision about the input. While there were some minor issues, Apex identified minimal errors and recommended updates only for minor calculation inaccuracies and the consideration of alternative sources for certain inputs. Apex tested our recommended changes to the cost-effectiveness inputs and found the portfolio net benefits remained strongly positive (updates did not change the positive net benefits for the portfolio).

Upfront capital cost poses a significant barrier to charger adoption though staff time and project complexity can also impede EV charger adoption. Technical Assistance (TA) participants provided insights related to customers considering non-residential EVSE yet may not be ready to initiate projects due to financial, logistical, physical, or other challenges. Of the twelve respondents completing the technical assistance survey, only one-third (n=4) indicated plans to install EVSE: two planned to apply for a PacifiCorp EV charging rebate and two reported plans to install EV chargers through the grant program. The remainder of TA respondents reported they were not planning to install EVSE due to costs (i.e., a lack of funding) or that they had other higher priorities at the time. The most frequently reported challenges for moving forward with EV charger projects were logistics (n=5) and time and/or staff bandwidth (n=5). Upfront costs (n=4), issues with parking space or infrastructure (n=3), and limited value proposition (n=2) were the next most mentioned challenges.

Though PacifiCorp program and state incentives can help offset some of the cost of EVSE installations, there remains some uncertainty around the availability of funding (not to mention the uncertainty around federal funding as well). As reported in a prior Apex Analytics Process evaluation, the lack of a reservation system for commercial and multifamily rebates was another barrier to uptake. Property owners may be reluctant to take on a project that depends on that funding, unless they are certain it will be available.

Project complexity has a dampening effect on uptake for commercial and multifamily EVSE installations due to physical (limited space), logistical (complex permitting process), and financial (high upfront capital investment cost and split incentives) challenges. Larger commercial or multifamily installations require greater resources, planning, and site considerations than standard residential EVSE installations. Though the TA program can alleviate some of this burden (by offering site assessments, information, among other resources), surveyed staff noted additional time and staffing requirements are prioritized to other business-centric needs besides being committed to

EVSE installation. Further, commercial and multifamily properties are faced with having to bear the costs of installation while tenants may reap the benefits (the convenience of on-site charging or lower fueling costs)—commonly known as "split incentives". Split incentives also occur when a tenant might be interested in installing EVSE but will not gain from the added value to the property that accrues to the property owner (increased property value, attractiveness to future tenants). Split incentives are a long-standing barrier to broader efficiency adoption for utility demand-side management (DSM) programs.

Non-residential customers see benefits beyond providing charging to tenants and customers. Non-residential grants recipients viewed a diverse set of benefits available from installing EVSE equipment including growing electric school bus fleets and lowering fuel and vehicle maintenance costs. Grants recipients reported additional, more intangible benefits associated with installing EVSE, like increased community goodwill, reducing greenhouse gas emissions, and how EVSE provides broader community benefits outside of their own organization. Commercial customers believed EVSE opportunities would create more value for their property and attract more customers "due to an EV station being located at our place of business". TA participants viewed comparable benefits from EVSE, from increased traffic to their business (n=7), followed closely by allowing fleet electrification (n=5). Attracting more customers to their parking lot and reducing carbon emissions were also viewed as benefits of installing a charging system.

Conclusions and Recommendations

Apex draws the following conclusions and associated recommendations from this research:

Conclusion 1: The residential L2 EV charging market's transformation is well underway. Participation in PacifiCorp's residential EVSE rebate program has been high, exceeding planned targets. Unfortunately, freeridership—customers likely to have installed the L2 charging equipment in absence of the rebate—is high as well. Passenger EV adoption continues to increase at an accelerated rate, exceeding regional projections, proving that the market appears to be shifting towards greater EV saturation. Further, PacifiCorp's residential EVSE program incentives are higher than the regional average.

- **Recommendation 1: Scale back or redirect incentives and program efforts.** PacifiCorp should consider scaling back residential efforts, including lowering (if not altogether withdrawing) this sector's rebates. Yet, program efforts should continue to support residential transition to TOU rates for EV owners and to support future managed charging programs. Transitioning residential incentives to lower levels or to a mid- or upstream delivery approach could help reduce incentive costs while allowing tracking of market activity. Continued awareness campaigns, outreach, and marketing can still support expansion of the residential EVSE market.

Conclusion 2: Barriers to EVSE adoption remain in the commercial and multifamily sectors. A moderate-to-high level of technical assistance participation proves that non-residential customers are interested in EVSE, but too many obstacles remain for broader market wide adoption. While non-residential interest in EVSE is strong, uptake remains low, particularly in the multifamily segment, where split incentives and complex installations are the rule rather than exception. The

commercial and multifamily sectors have experienced low participation rates and have not met planned targets. Participant surveys identified notable barriers for greater EVSE adoption, including costs, logistics, the complexities of non-residential installations, and split incentives. Additionally, uncertainty around rebate availability (from utility, state, and federal entities) for commercial and multifamily EVSE may deter property owners from undertaking projects.

- **Recommendation 2: Scale up non-residential program efforts and direct incentives.** PacifiCorp should consider scaling up non-residential efforts, including increasing this sector's rebates to align with regionally benchmarked rebates. For example, PacifiCorp should consider increasing the current $1,000 commercial EVSE rebate to the regional average of $3,500. Program efforts should support non-residential transition to TOU or EV rates, to support future managed charging programs. To increase uptake in these crucial sectors, PacifiCorp should consider strategies to mitigate these barriers. This could involve exploring enhanced incentives, simplifying the application and installation processes, providing more comprehensive technical assistance, and implementing a rebate reservation system (already under way) to provide greater certainty for potential participants.

1. Introduction

This report presents findings from an impact evaluation of PacifiCorp's Oregon Transportation Electrification (TE) Portfolio for the 2023 and 2024 program years. PacifiCorp submitted their most recent Oregon TE Plan reflecting program years 2023–2025.[1] PacifiCorp contracted with Apex Analytics (Apex) to conduct this evaluation. PacifiCorp offers three core programs focused on regional TE, including:

- **Electric Vehicle Supply Equipment (EVSE) Rebate Programs:** Provides rebates and support for residential market-rate, income-qualified, commercial, and multifamily customers.
- **E-Mobility Grants:** Provides funding to increase electric vehicle (EV) adoption in equity and underserved communities. Awarded more than $2 million to 22 organizations in Oregon for projects to expand electric mobility.
- **Technical Assistance (TA):** Provides no-cost support to help commercial customers evaluate vehicle options, charging systems, electric rates, and the potential incentives. This service includes on-site feasibility analysis and customized technical fleet advising. All non-residential customers in Oregon are eligible to apply for technical assistance.

This evaluation focused on four active ongoing TE offerings, including EVSE residential and commercial rebates, E-Mobility Grants, and TA programs. PacifiCorp's other TE support includes outreach and education, Public Utility-Owned EV Infrastructure Pilot, Managed Charging Pilot, and a Fleet Make Ready Pilot. The other components, including fleet make ready, awareness, and managed charging, are outside the scope of this evaluation.

- **Outreach and Education:** Seeks to raise EV awareness through marketing and outreach campaigns. Specifically, PacifiCorp offered ride and drives, EV event sponsorships, dealership engagement, online tools, EV outreach, and technical assistance.
- **Various Pilot Programs:** Public Utility-Owned EV Infrastructure Pilot provides equitable access to charging, enables new types of charging technologies for public access, and build partnerships with communities to co-locate infrastructure.[2] Fleet Make Ready offers advisory services and tailor-made incentives to support the upfront design and construction costs associated with electric vehicle charging infrastructure. Qualified participants can receive a custom incentive covering project design, engineering, permitting, and construction costs. PacifiCorp provides expertise and financial support for fleet transition projects. The Managed Charging Pilot actively manages EV loads through vehicle-and charger-enable protocols to shift charging load to off-peak times.

[1] 23-25 TE State of Oregon: Public Utility Commission of Oregon.

[2] The stated goal is to install 180 ports—mix of DCFC and Level 2 (L2) chargers—in underserved communities. Secondary corridors (areas not served by federal and state funding), recreational zones, multifamily housing, and right-of-way utility poles are the four use cases being explored.

1.1 Study Objectives

The study sought to understand energy and programmatic impact research objectives, each with more specific, associated research questions, as summarized in Table 1.

Table 1. EVSE Rebates Research Objectives, Questions, and Approach

	Research Objectives	Research Questions
	Assessment and verification of electric energy and greenhouse gas (GHG) impacts	Are L2 EVSE electric energy and GHG savings assumptions aligned with regional assumptions? Do data and project tracking capture the necessary and relevant attributes needed for verification and evaluation?
	Program attribution	Are customers' decisions to install EVSE due to the influence of the program and incentives?
	Incentives appropriateness	How do the EVSE incentives and program offerings compare to other regional and extra-regional utility EV programs?
	Customer awareness	Were participants aware of various education and outreach efforts, and if so, how influential were they in driving participation in the program?
	Program satisfaction	Are program participants satisfied with the program?
	Verification of cost-effectiveness inputs and results	Are cost-effectiveness calculations accurate?

1.2 Research Approach

Apex Analytics carried out three core research activities to address the objectives of this evaluation, as described below.

1.2.1 Data Assessment

Apex conducted a broad data assessment across program tracking, documentation, savings assumptions and cost-effectiveness calculators to understand program activities and objectives and to gather an initial assessment of program outputs and outcomes. Apex used this assessment to develop primary data collection instruments, with questions targeted to address knowledge gaps and understand any anomalies or variation in reported outcomes. Apex also developed sampling frames for each survey effort from program tracking documents. The data assessment also Included detailed review of L2 charger savings assumptions and associated inputs. Apex reviewed PacifiCorp cost-effectiveness calculators to verify the input assumptions used, to recommend alternative inputs that may be more regionally or temporally appropriate, and to verify

the overarching logic used to calculate the total system benefits and costs—what attributes were used to quantify benefits and costs for each of the three cost-effectiveness perspectives: Total Resource Cost (TRC), Societal Cost Test (SCT), and the Ratepayer Impact Test (RIM).

1.2.2 Program Benchmarking

Apex compiled regional comparison-utility TE portfolio efforts to understand elements where PacifiCorp's TE programs outperform or could expand or evolve to match those of other high achieving TE efforts. This effort included developing a summary dataset of comparable EV incentive programs. TE portfolio attributes covered in the benchmarking included a comparison of program segments, incentive levels, and program restrictions and requirements.

1.2.3 Participant Surveys

Hearing from customers who participated in PacifiCorp's TE programs was a critical component of this evaluation. Participants provide critical feedback to help program managers understand the influence of the program on behavior, customer adoption of EVs, and satisfaction with various program activities. Apex designed and programmed an online survey directed at TE program participants. Participants who completed the surveys received an average of $25 incentives offered through a Tango gift card. The outcomes expected from the surveys were to quantify the influence and attribution of incentives, gauge satisfaction with the program and with the L2 charger, and assess program awareness, charging, and driving behavior.

A summary of the TE participant survey efforts is summarized in Table 2 below. Residential EVSE rebate participants were eager to offer their feedback, exceeding our planned targets, while expectations were low for the other survey efforts given the lower participation rates. Despite the lower participation rates, the non-residential and multifamily surveys met our conservative response rate expectations, with 17 completed surveys across the non-residential programs.

Table 2. Participant Survey Details and Sampling

Segment	Survey	Target Audience	Available Contact List Sample**	Target Completed Sample Size	Actual Completed Surveys
Residential	EVSE Rebates: Residential	Residential customers installing EVSE (market rate and income-qualified)	1,230	70	92
Non-Residential	EVSE Rebates: Commercial	Commercial customers installing EVSE	13	2	2
	EVSE Rebates: Multifamily	Multifamily customers installing EVSE	7	2	2

Segment	Survey	Target Audience	Available Contact List Sample**	Target Completed Sample Size	Actual Completed Surveys
	E-Mobility grants	Customers receiving grants and installing EVSE equipment	10	2	1
	Technical Assistance	Commercial customers receiving technical assistance	73	10	12

***Does not represent annual or full program tracking participation counts.*

2. Program Background

PacifiCorp's Oregon TE portfolio is comprised of various programs, Pilots, and marketing and awareness campaigns focused on expanding regional vehicle electrification. PacifiCorp's TE portfolio is designed to address the performance metrics that the Oregon Public Utilities Commission has defined for utility TE Plans. The primary objectives PacifiCorp's TE seeks to address include GHG emissions reductions, accelerated EV adoption, increased availability of public EVSE, and shifting customers L2 EVSE charging use to off-peak periods. The remainder of this section summarizes each of the key programs in PacifiCorp's TE portfolio and how those activities are intended to contribute to the portfolio's long-term objectives.

2.1 Residential EVSE Rebates

PacifiCorp has provided hardwired L2 chargers and related equipment rebates to residential, income-eligible, commercial, and multifamily customers since June 2022, In 2023, residential customers were eligible for a rebate of 75% of the total cost of hardwired L2 charger installation (up to $500), and income-qualified customers were eligible for incentives covering the full installation cost (up to $1,000).

Table 3. Residential EVSE Rebate Amounts

	2023 Program Rebates	2024 Program Rebates	
Install Equipment	**Hardwired L2 Chargers**	**Hardwired L2 Chargers**	**240V Outlet**
Standard residential	75% of total cost of charger installation or $500	75% of total cost of charger installation or $500	75% of total cost of installation charge or $250
Income-qualified	100% of total cost of charger installation or $1,000	100% of total cost of charger installation or $1,500	100% of total cost of charger installation or $500

The program increased the incentive cap for income-qualified customers to $1,500 in 2024. The program also proposed adding incentives for installation of 240-volt outlets to be used for vehicle

charging. Residential customers choosing to install 240V home EV charging received lower incentives, at $250 for market rate and $500 for income-qualified customers. To receive a rebate, residential customers must install a charger listed on the program's qualified products list (QPL) and those that are not income-qualified must enroll in a time-of-use (TOU) rate.

By lowering the installation and equipment costs for EV charging equipment with these rebates, PacifiCorp seeks to increase access to charging at home. The program anticipates that greater availability of faster and more convenient charging options will both improve the experience of existing EV owners and reduce barriers to EV adoption.

Installation of L2 chargers also brings potential benefits to PacifiCorp's efforts to manage the electric grid with increasing EV demand. L2 charging can:



Be more efficient than L1 charging.



Encourage off-peak charging. The ability to charge more quickly can allow customers to conduct more of their charging during off-peak hours. The program also requires that standard rebate recipients enroll in a TOU rate to further encourage off-peak charging.



Enable managed charging. Program staff noted that the EVSE products that qualify for rebates will enable customers to participate in future managed charging programs.

2.2 Commercial and Multifamily EVSE Rebates

PacifiCorp offered commercial customers installing qualified EVSE incentives of 75% of the total project cost, up to $1,000 per port, with each customer eligible for incentives on up to six ports. While also eligible for incentives covering 75% of the total project cost, multifamily properties had a higher incentive cap, with potential to claim up to $3,000 per port, up to 12 ports. PacifiCorp further increased the multifamily incentive cap to $4,500 beginning in May 2023 (see Table 4). As with non-income-eligible residential customers, non-residential customers with usage of 30 kW or less who receive rebates are automatically enrolled onto a TOU rate.

Table 4. Commercial EVSE Rebate Amounts

Commercial and Multifamily EVSE Rebates	
Commercial	75% of total project cost or $1,000 per port (max 6)
Multifamily	75% of total project cost or $4,500 per port (max 12)

Multifamily and commercial EVSE installations are typically expensive, and PacifiCorp incentives cover a relatively small share of the overall installation cost. However, the incentives are sufficient to "get the conversation going," allowing PacifiCorp to provide input on and track installations.

Higher incentives for multifamily properties also allow PacifiCorp to support TE for renters, a frequently underserved group. Installation of EVSE on commercial properties also has the potential to benefit renters and other underserved customers who do not have access to EVSE at home. PacifiCorp amended the Multifamily program offering to increase participation and align with opportunities in the market. The program increased the maximum incentive to $4,500 (per port) and based on a 12-port maximum. Effective in 2024, PacifiCorp added an incentive reservation option for multifamily customers. The reservation allows multifamily property owners to apply for and reserve funds for one year in advance while completing EVSE installations.

2.3 Technical Assistance (TA)

In addition to incentives, PacifiCorp offers technical assistance to commercial customers interested in installing EVSE. The advising services include a site visit with analysis of EVSE technology options and a customized report recommending feasible equipment types, describing infrastructure needs, providing possible layout plans, and giving an initial estimate of installation costs.

PacifiCorp's TA program processed 82 new applications during 2023 and 83 new applications in 2024, representing a 50% increase relative to 2022. Of the new applications received in 2023 and 2024, 73 completed, proceeded, and received finalized TA reports. Additionally, 34% of TA applicants discovered the program as part of PacifiCorp's grant program. Participating customers received customized reports detailing site-specific preliminary conceptual designs, estimated construction cost estimates, and associated available funding avenues such as PacifiCorp's grants, rebate programs, and Oregon Department of Transportation (ODOT) Community Charging Rebate program information.

2.4 Grant Program

The E-Mobility Grant program provides funding to non-residential customers (including community-based organizations and municipalities) seeking to advance electrified transportation. The grant program prioritizes applicants that serve underserved communities. Funding is available for electrification infrastructure (such as chargers and related supply equipment), EVs, research and development, education and outreach, and other uses applicants might propose.

The program offers primary grant funding of up to 100% of eligible project costs, with 2023 grant awards ranging from $15,000 to $226,500 per recipient. In addition, the program provides support to customers applying for external funding opportunities. It offers matching grants for applicants completing larger projects that are applying for grants from other sources. PacifiCorp also offers microgrants that applicants can use to hire an external grant writer to apply for outside funding opportunities (not PacifiCorp grants).

2.5 Outreach and Education

PacifiCorp carries out a variety of outreach and education efforts with two broad objectives: to increase customer awareness of EVs and charging options and to direct interested customers to applicable rebate or grant programs. Through these outreach efforts, PacifiCorp seeks to establish

itself as a trusted source of information about EVs and charging options and help customers recognize EVs as a viable option for their transportation needs.

In addition to more traditional marketing and outreach approaches like bill inserts and online advertising, PacifiCorp's outreach and education efforts include:



Ride and drive events, typically held in conjunction with other community events, at which program staff are available to answer customers' questions and offer test drives in EVs. By experiencing driving an EV, the program hopes customers will view EVs as a viable option for their transportation needs.



Car dealer outreach, including installing Chargeway Beacons at dealerships, which are interactive displays that provide information on EVs and charging options, seeking to help customers recognize electricity as a viable fuel alternative to gasoline.



School-based programming informs middle- and high-school students about the benefits of EVs and potential careers in the electric transportation sector. The program also provides materials for students to bring home and share with their families. PacifiCorp anticipates that the program will increase the familiarity of students and their families with electric transportation.

Ultimately, PacifiCorp hopes that these efforts will lead customers to recognize electric transportation as a viable option, with both vehicles and charging infrastructure available that meet their needs.

2.6 Pilots

Though not evaluated as part of this study, PacifiCorp has actively pursued new and innovative approaches to supporting and expanding TE in the region. Future evaluation efforts should focus on understanding the impacts, processes, and help identify any improvements for these Pilots.

- **Fleet Make Ready Pilot**: This program in Oregon assists commercial fleet managers in adopting EVs by offering financial incentives (up to $100,000) for charging infrastructure installation. Eligible non-residential customers with commercial fleets must own or lease at least two EVs and commit to operating the infrastructure and sharing charging data for a decade. The program requires new, separately metered electrical connections and funds expenses like design, engineering, permitting, and construction, but not the charging equipment itself. PacifiCorp aims to fund 400 ports across 49 projects by 2030. The program launched in Q1 of 2024 where future evaluation research may assess Pilot achievements and processes.
- **Managed Charging Pilot**: This program focuses on residential customers initially, with plans to expand to multifamily customers. It aims to actively manage EV loads by shifting charging to off-peak times using vehicle and charger enabled protocols and TOU rates, potentially lowering charging costs for customers. The long-term goal is to integrate

managed charging into future demand response (DR) portfolios. PacifiCorp plans to reach about 1,000 vehicles, or 10% of the overall population, by the end of the three-year Pilot.

- **Public Utility-Owned EV Infrastructure Pilot:** Conducted between 2020 and 2023, this program placed DCFC/L2 charging pods in areas of need across the state. The next iteration of this will continue to support utility-owned EVSE infrastructure in underserved communities specially focused on secondary-corridors and resiliency strategies. The program shifted from a $/minute to a $/kWh charging model for company-owned chargers and exploring different pricing schemes for income-eligible customers based on feedback.
- **Tribal Grant Program:** PacifiCorp began engaging with Tribes in 2023 to develop a framework for a specific tribal grant program. In early 2024, PacifiCorp host one-on-one discussions with Tribes for needs assessments and to build a comprehensive engagement strategy.
- **EV Code Needs Assessment:** In 2023, PacifiCorp conducted a market needs assessment for a pilot program to help new construction customers exceed code requirements by providing additional EV-ready parking spaces.

3. Impact Evaluation Findings

This section presents findings from Apex's impact evaluation. Evaluation research activities included data, savings and cost-effectiveness assessment, benchmarking of other regional TE portfolios, and a participant survey across all core initiatives. A summary of the research activities with the associated objectives are summarized in Table 5 below.

Table 5. EVSE Rebates Research Objectives, Questions and Approach

	Research Approach	Research Objectives
	Database, savings, and cost-effectiveness assessments	Assess and verify electric energy and GHG impacts, verify cost-effectiveness inputs and results
	Benchmarking	Assess incentive levels and conduct a TE portfolio comparison
	Participant survey	Gauge program attribution (influence), satisfaction, and customer awareness

3.1 Data, Savings, and Cost-Effectiveness Assessments

Apex completed an assessment of PacifiCorp's data, savings, and cost-effectiveness to understand how data is captured, maintained and reported, to identify gaps or revisions to assumptions used in the analysis, and to help summarize the program for survey development, recruitment and reporting.

3.1.1 Data Assessment

PacifiCorp maintains well-documented TE portfolio data-related assets. Apex conducted a data assessment, starting from an initial data request through data reporting, to understand how data is captured, stored, and used to report on annual performance and to allow our team to summarize for reporting and to sample and then recruit for the participant survey. Though the end goal of this assessment was to allow our team to conduct the participant survey, PacifiCorp should consider using findings from the assessment to update standard file development and data tracking processes. The data assessment covers various elements of data collection, including the timing of providing data, the completeness, and degree of documentation allowing our team to understand the underlying data. Each of the data assessment elements are reviewed below.

Timing: Timing reflects organizational agility; if teams can provide data in a timely manner this translates into data collection process that is well organized and doesn't require scrambling to update data to provide it to evaluators. The PacifiCorp data team provided all data requested within one week of our data requests, and often the same or next day for any supplemental data requests

(which were minimal). PacifiCorp staff provided responses to all questions and follow-up requests, including customer contact information for survey recruitment, within one day of request.

Privacy and security: PacifiCorp reported all program activity but did not include any personally identifiable information in their tracking datasets. PacifiCorp provided separate customer email and contact lists to recruit for participant surveys. PacifiCorp uploaded and transferred all data securely.

Read-me or data dictionary: None of the program tracking excel files provided to our team included a data dictionary or a read-me worksheet. Typically, additional documentation is required to allow a third party (e.g., implementer, evaluator) to understand the underlying data elements, especially when the data provided is unclear. Thankfully, as noted immediately below, most of the data attributes were clearly labeled and populated with named values (as opposed to value labels that do not allow interpretation without references). A read-me or data dictionary is still a valuable inclusion recommended for all spreadsheet documents, as they can help both internal staff (i.e., new employees) or third-party implementors or evaluators assess and work with the dataset. Recommended elements to include in a read me worksheet include: date last updated, name of staff who manages data (to ask clarifying questions), list of individual worksheets and brief description of what each represents, and a list of fields that may be unclear or that are used for reporting purposes. For example, it is especially important to denote attributes used to summarize program year activity: date fields used to classify program year, participant status (is the record compete, in process, rejected, etc.), or other attributes that help classify program or participant segments. Finally, including any exporting, filtering, and any adjustments or logic used to extract the data provided in the dataset can help staff replicate (refresh) the data in the future.

Clarity of file naming, attribute labels and records: File naming followed best practices, and each file was clearly named, directly related to the program (i.e., TA, EVSE Rebates, etc.) or portfolio (e.g., Pipeline Tracker), and typically included a date of the file extract as well. Most of the attributes were clearly labeled, allowing our team to assess the underlying data.

Citations/References: The only documents which require citations/references were the cost-effectiveness documents. Program tracking did not reference any external data sources apart from internal tracking datasets. The cost-effectiveness files followed best practices for data management: they were very well documented and included comprehensive references for all input assumptions.

Crosswalks (keyed variables): With a portfolio of various programs and Pilots, it is particularly helpful to understand whether customers have sought different program areas for support. In the case of PacifiCorp's TE portfolio, knowing whether an organization used technical assistance or applied for an e-mobility grant and eventually submitted an application for EVSE equipment. For example, matching technical assistance program participants with EVSE rebate recipients required manually matching on company name and address, with some of the addresses requiring standardization to allow matching. **Periodic reconciliation of participation across programs (i.e., cross participation analysis) can help identify customers having taken next steps versus those that may need additional support.**

3.1.2 Savings Assessment

PacifiCorp does not claim traditional energy efficiency-induced energy nor demand savings from the TE portfolio at the time of reporting. During our teams cost-effectiveness assessment, we found the TE portfolio claims other benefits—including EV fuel and maintenance savings, tax and clean fuel credits, and demand impacts from managed charging programs. Apex believes PacifiCorp should claim efficiency savings stemming from the TE portfolio which include ENERGY STAR Level 2 (ES L2) chargers. In fact, the Regional Technical Forum (RTF) measure specification for a L2 EV charger is based on ES L2 chargers[3] (savings criteria and values are shown in Table 6**Error! Reference source not found.** below). The specification assumes a baseline of current practice mix of non-ES L2 chargers. ES L2 energy savings varies based on networking capability (PacifiCorp requires all L2 EVSE to be network capable, as defined in their QPLs). Savings also varies based on the segment installing the equipment (residential or a mix of commercial installations—employee, fleet or public systems).

Table 6. RTF ENERGY STAR L2 Charger Specifications

Segment	Networked	Incremental Capital Cost ($/unit)	Annual Savings (kWh/yr)
Residential	No	$89.51	7.44
Residential	Yes	$50.60	48.40
Commercial (Employee)	No	$89.51	11.14
Commercial (Employee)	Yes	$50.60	40.20
Commercial (Fleet)	No	$89.51	6.94
Commercial (Fleet)	Yes	$50.60	37.99
Commercial (Public)	No	$89.51	12.26
Commercial (Public)	Yes	$50.60	42.22

The only other savings component reported in PacifiCorp's documentation was the kW capacity savings from the managed charging program, which reflect the kW load shifted from peak to off-peak periods. Though our team was unable to fully validate all of the input assumptions, we do note that the RTF is currently working on updated recommendations related to managed charging load shifting impacts (see https://rtf.nwcouncil.org/demand-response-level-2-ac-electric-vehicle-charger/). The update development includes factoring in other variables like throttling and sales weighted maximum vehicle acceptance rates (kW). Other factors also impact the likely kW available during managed charging (i.e., DR) events, including amperage of the panel circuit,

[3] See RTF L2 chargers measure, located here: https://rtf.nwcouncil.org/measure/level-2-electric-vehicle-charger/

whether the installation is 240V or hardwired, and most importantly, whether the customer is already on a TOU rate. The TOU rate is particularly important, as prior research conducted by Apex coupled with findings from the participant survey suggests participants on a TOU rate have already shifted their charging to off-peak periods. PacifiCorp should consider these factors to help forecast future managed charging impacts.

3.1.3 Cost-Effectiveness Assessment

PacifiCorp, in the 2023-2025 TE portfolio plan, reported cost-effectiveness projections across the TE programs. PacifiCorp conducted three benefit cost tests for program assessment: the RIM, TRC, and SCT. Each of these tests seeks to provide results based on different perspectives. PacifiCorp used the most current available inputs for the analysis, including volume of EV growth, Clean Fuel Credits, costs and updated future expected costs, utility rates, discount and inflation rates, and fuel prices, carbon emissions reductions. PacifiCorp assumed a series of TE program benefit and cost streams, as summarized in Table 7 **Error! Reference source not found.**below.

Table 7. PacifiCorp's 2023-2025 TE Plan Cost-Effectiveness Logic

Type of Impact	Impact	RIM	TRC	SCT
Utility	Energy	Cost*	Cost*	Cost*
	Generation Capacity	Cost*	Cost*	Cost*
	Transmission and Distribution Capacity	Cost	Cost	Cost
	Distribution Upgrades	Cost	Cost	Cost
	Revenues	Benefit		
Program	Administrative Costs	Cost	Cost	Cost
	Incentive Costs	Cost		
	Equipment Costs (Utility-Owned)	Cost	Cost	Cost
Societal	Avoided GHG Emissions			Benefit
Host Customer	Incremental Equipment Cost		Cost	Cost
	Tax Credits (Federal Only)		Benefit	Benefit
	Net Operations and Maintenance Costs		Benefit	Benefit

**The Managed Charging program shifts existing load off peak, resulting in a benefit by avoiding additional capacity and high energy costs.*

To assess PacifiCorp's TE portfolio cost-effectiveness, Apex reviewed the individual program analysis files but focused primarily on the portfolio cost-effectiveness file, since this file included all individual program costs and benefits in a single file. To support the evaluation of the TE portfolio, Apex reviewed the cost-effectiveness calculators to identify any calculation errors, make recommendations for updated input assumptions, validate the populations (quantity of participants or equipment) aligned with program logic and ensure no critical benefit or cost streams were added that shouldn't have been included or missing and should have been included from the calculators. A summary of the TRC stream of benefits and costs is shown in Table 8 below. The 2023-2025 planned TE portfolio is highly cost-effective, with net benefits almost triple the associated costs of delivering these programs.

Table 8. TE Planned (2023-2025) Portfolio Total Resource Test Cost-Effectiveness Results

TRC Test			
Benefits		**Costs**	
Managed Charging - Reduced Supply costs	$171,928	Incentives	
Tax Credits	$96,313,217	Equipment (Public Chargers)	$4,974,270
Fuel savings	$356,627,984	Administrative	$12,898,667
Maintenance savings	$75,100,373	EVSE TTM	$2,296,986
Clean Fuel Credits	$19,604,203	EVSE BTM/Charger	$43,545,780
		EV- incremental cost	$97,860,948
		Increased supply costs - energy	$19,159,625
		Increased supply costs - capacity	$10,369,322
Total Benefits	**$547,817,704**	**Total Costs**	**$191,105,598**
Benefit/Cost ratio	**2.87**		

Overall, the cost-effectiveness calculators provided by PacifiCorp staff were well documented with minimal errors, contained only a few parameters where more current, updated input assumptions might be warranted, lacked one key benefit, and included several components that may require adjustments for future cost-effectiveness reporting. Apex team adjusted the underlying cost-effectiveness logic, reran the cost-effectiveness analysis and found that none of our recommended changes resulted in reversing the TRC from cost to not cost-effective—all programs and portfolio cost-effectiveness net benefits remained positive.

High Impact Corrections: High impact is defined as those corrections that would reverse a program or portfolio from net positive to net negative benefits (where costs exceeded benefits). We did not identify any high impact corrections.

Moderate Impact Corrections: Moderate impact is defined as corrections that would have a greater than tenth of a point swing in program cost-effectiveness (i.e., from 2.2 to below 2.1, or 2.3). Apex identified several potential moderate corrections. The first key recommendation is to consider adjustments to fuel and maintenance savings whereby benefits are applied to all regional EV adoption as opposed to those EVs directly impacted by the program. The second is to consider removal of the tax credits and clean fuel credits from the TRC test; tax credits are typically considered pass-through payments (ratepayers as taxpayers are ultimately the ones funding these credits).

Low Impact Corrections: Low impact is defined as corrections that would have a less than a tenth of a point swing in program cost-effectiveness (i.e., from 2.25 to below 2.22, or 2.28). Other minor adjustments included recommending updates to baseline gasoline fuel economy, annual kWh per vehicle consumption, and then incremental annual quantity of EVs. PacifiCorp staff were receptive to these recommendations and have already integrated them into the cost-effectiveness calculations.

Apex also identified several other TE plans that included cost-effectiveness sections, allowing a comparison of the resulting cost-effectiveness of other TE portfolios against PacifiCorp's. A

summary table of the various cost-effective results of the three other TE plans is reviewed in Table 9 below. Notable differences between the benchmarked utilities comparisons is that PacifiCorp's ratepayer test is lower while the societal test is higher. If the benchmarked utility reports included detailed analysis, including the components used to estimate the cost-effectiveness, then we could better understand the drivers behind the differences. Unfortunately, the comparison TE plans did not include detailed discussion of the logic and assumptions, so we are left merely observing and noting the differences.

Table 9. Benchmarked TE Portfolio Plans Cost-Effectiveness Results

	Results			
Entity	RIM	TRC	SCT	PCT
PacifiCorp	1.01	2.87	2.99	
PSC CO (2023)	1.85	1.58**	1.76	1.23
Xcel CO (2020)	2.79	1.30**	1.44	1.07
NYSERDA (2019)	1.10	1.03**	1.14	1.16

*** TRC was not reported, we applied a 10% reduction to the SCT based on professional judgment.*

3.1.4 Benchmarking

Apex identified 16 regional west coast utilities to compare TE portfolio activities. Apex documented the various TE programs, the incentive levels, differentiated between market rate (standard) and income-qualified offerings. The goal of this task was to assess how PacifiCorp's TE offerings compared to other TE portfolios to help close any gaps or to better align incentives and efforts with those of its peers.

PacifiCorp's residential EVSE rebates are higher than other benchmarked TE programs. A summary of the residential benchmarking review is shown in Table 10 below. Very few utilities, and only those in California, offer direct EV rebates (or rebates for used EVs); PacifiCorp, like other pacific northwest regional utilities, does not offer an EV rebate. A majority (10 of 16) utilities offered a L2 charger rebate for residential applications. PacifiCorp offers a high residential L2 charger rebate relative to other utilities: standard ($500) and income-qualified ($1,500). The median standard rebate for benchmarked utilities was $400 and income qualified was $850. One-third of the benchmarking TE utility portfolios (6 of 17) offered some form of Make Ready residential rebate. PacifiCorp offers a Make Ready rebate for residential applications similar to 6 of the 17 benchmarked utilities. These programs tended to be offered in income qualified applications only (4/6 utilities). Incentives range between $1,000 to the full cost.

Table 10. Residential TE Program Comparison

		Residential Rebates					
		EV		L2 Charger ($/port)		Make Ready	
Utility	State	Standard	IQ	Standard	IQ	Standard	IQ
PacifiCorp	OR	no	no	$500	$1,500	no	Full cost
PG & E.	CA	$1,000	$4,000	no	$700	no	$2,000
SCE	CA	$1,000	$4,000	no	no	no	$4,200

		Residential Rebates					
		EV		L2 Charger ($/port)		Make Ready	
Utility	State	Standard	IQ	Standard	IQ	Standard	IQ
SDG&E	CA	$1,000	$4,000	no	no	no	no
LADW&P	CA	$1,500	$4,000	$1,000	$1,500	no	no
SDCP	CA	no	no	no	no	no	no
CPA of SoCal	CA	no	no	no	no	no	no
SMUD	CA	no	no	$500	Full cost	no	Full cost
MEC	CA	no	$3,500	no	no	no	no
CCCE	CA	$2,000	$4,000	$400	$700	$2,000	$4,000
PCEA	CA	no	$2,000	no	no	no	no
PSE	WA	no	no	$300	$600	no	$2,000
SCL	WA	no	no	$400	no	no	no
PUD Snohomish	WA	no	no	$200	no	no	no
Avista	WA	no	no	no	no	no	no
PGE	OR	no	no	$300	$1,000	$1,000	$5,000
EWEB	OR	no	no	$500	no	no	no

PacifiCorp's commercial EVSE rebates are lower than other benchmarked TE programs. A summary of the commercial benchmarking review is shown in Table 11 below. A majority (13 of 16) utilities offered some form of a L2 charger rebate for commercial applications. PacifiCorp offers a low commercial L2 charger rebate relative to other utilities: standard ($1,000) and no larger rebate for installations in disadvantaged communities. The median standard rebate for benchmarked utilities was $3,500 and the qualified income (i.e., disadvantaged communities) was $5,000. Seven utilities offered some form of Make Ready commercial rebate. PacifiCorp introduced a Make Ready rebate for commercial applications in Q1 2024. Other utilities' Fleet Make Ready programs tended to be offered in income-qualified applications only (six utilities) and ranged from $2,000 to the full cost.

Table 11. Commercial TE Program Comparison

		Commercial Programs			
		Level 2 Charger ($/port)		DCFC Charger ($/port)	Make Ready
Utility	State	Standard	IQ	Standard	Standard
PacifiCorp	OR	$1,000	no	$1,000	no
PG & E.	CA	no	Full cost	no	Full cost
SCE	CA	no	no	no	Full cost
SDG&E	CA	$2,000	no	no	Full cost
LADW&P	CA	no	$5,000	$100,000	no
SDCP	CA	no	no	no	no
CPA of SoCal	CA	$3,500	$4,000	no	no

		Commercial Programs			
		Level 2 Charger ($/port)		DCFC Charger ($/port)	Make Ready
Utility	State	Standard	IQ	Standard	Standard
SMUD	CA	$4,500	no	$30,000	$6,000
MEC	CA	$3,500	no	no	no
CCCE	CA	$3,000	no	$100,000	$5,000
PCEA	CA	$5,000	no	no	$2,000
PSE	WA	$12,000	$12,000	no	no
SCL	WA	no	no	no	no
PUD Snohomish	WA	$1,000	no	no	no
Avista	WA	$5,000	no	no	$5,000
PGE	OR	$1,000	no	no	no
EWEB	OR	no	no	no	no

PacificCorp offers a similarly broad group of TE programs, Pilots, support, and services compared to other benchmarked TE programs. For example, a majority of the benchmarked utilities (14/16) utilities offered a L2 charger rebate specific to multifamily applications. PacifiCorp's rebate for standard multifamily applications ($4,500 per port) aligns with the median across utilities benchmarked. PacifiCorp continues to explore numerous Pilot programs, though comparing other utilities Pilots is challenging since other utilities do not commonly include Pilot projects on their websites. For utilities that do provide Pilot program details, PacifiCorp ranks in the top tier for exploring innovative Pilots that seek to expand TE opportunities across a very broad range of customers, with particular focus on underserved communities.

3.2 Residential EVSE Rebates

The Residential EVSE Rebates program in 2023-2024 exceeded participation expectations, drew high satisfaction from participants, yet offsetting these successes are relatively low program influence and some minor, ongoing challenges. Residential survey respondents were concerned with enrollment in TOU rates, some of the application process, and identifying whether their L2 chargers were qualified. Between January 2023 and December 2024, PacifiCorp provided 1,315 residential EVSE rebates.

3.2.1 Survey Findings

The residential EVSE participant survey sought to address four research objectives:

1. **Charging behaviors:** Contextualize energy and demand impacts of the program and assess participant charging behavior.
2. **Program influence:** Assess the effectiveness of program education and outreach.
3. **Satisfaction:** Evaluate participant satisfaction with the program.
4. **Challenges and Barriers:** Evaluate ongoing challenges and barriers to broader TE / EVSE adoption.

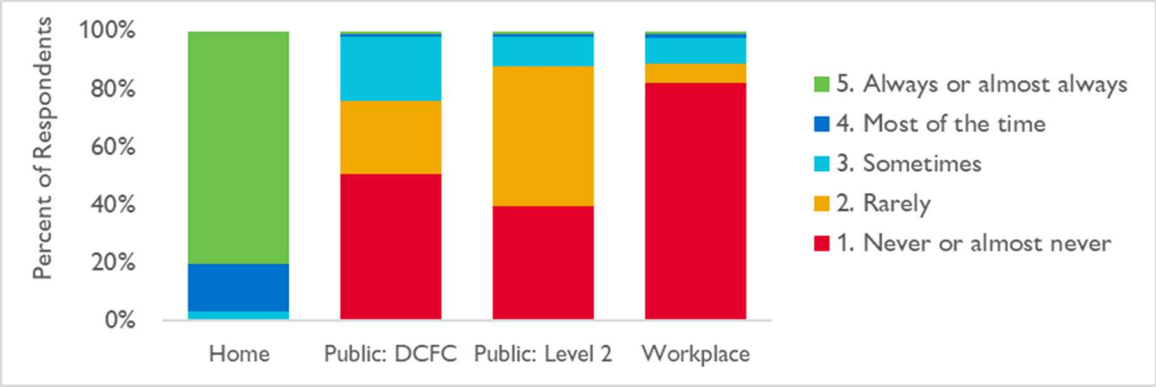
5. **Bill impacts:** Contextualize customer bill impacts of participation in the program.

A total of 92 customers (79 market rate and 13 income-qualified participants) responded to the survey, and survey results by objective are summarized below.

3.2.2 Charging Behavior

Consistent with well-established EV studies[4], PacifiCorp customers typically charge their EVs at home (Figure 6). More than 95% of customers reported charging their EV at home either most or all the time. Across the three other non-home charging locations (Public DCFC, Public L2, and workplace chargers), only 2 of the 92 customers reported charging at each of these locations all or most of the time. Respondents rated their workplace as the least likely location they charge (where they never or almost never charge). This lack of workplace charging is likely a function of a combination of no demand due to existing charging at home and possible lack of charging infrastructure rather than willingness to charge at work.

Figure 6. Customer Charging Location Frequency (n=92)

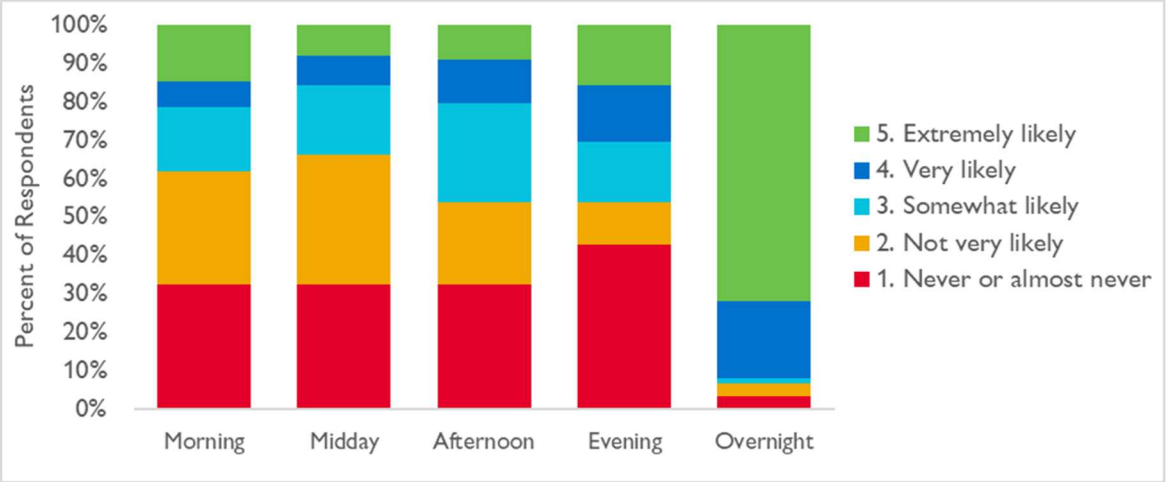


PacifiCorp residential customers predominantly charged their EVs overnight while at home (Figure 7). In fact, residential respondents were four times more likely to charge overnight than at any other time during the day. This finding is consistent given the customer group surveyed for this effort were customers who installed L2 EVSE and therefore have the infrastructure available to them to allow overnight charging. Other studies have shown similar charging behavior for residential customers, regardless of EVSE.[5]

[4] https://afdc.energy.gov/fuels/electricity-charging-home#:~:text=Most%20drivers%20of%20electric%20vehicles,AC%20Level%202%20charging%20equipment.

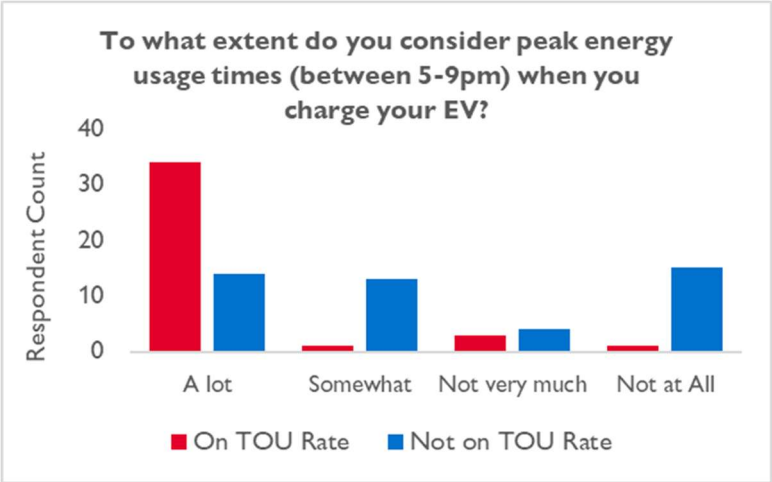
[5] https://afdc.energy.gov/fuels/electricity-charging-home#:~:text=Most%20drivers%20of%20electric%20vehicles,AC%20Level%202%20charging%20equipment..

Figure 7. Customer Likelihood of Charging Based on Time of Day (n=89)



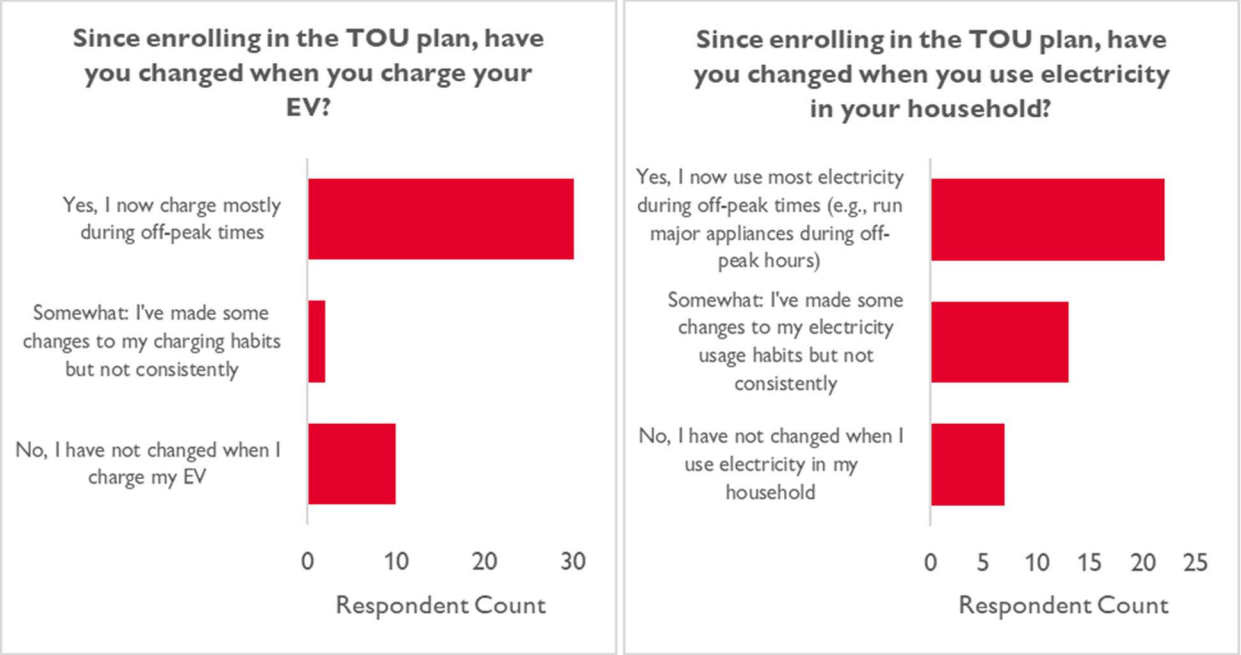
Rates play a critical role in customer charging behavior. Residential customers on TOU rates were much more likely to factor in peak energy rate times when they charge their EVs. Across all residential respondents, almost half (n=42, or 46%) were on the TOU rate plan. Comparing those who are on and not on a TOU rate, over twice as many customers reported considering peak energy usage "a lot" for charging their EV when on a TOU rate (Figure 8).

Figure 8. Customer Consideration of Peak Energy Demand when Charging (n=89)



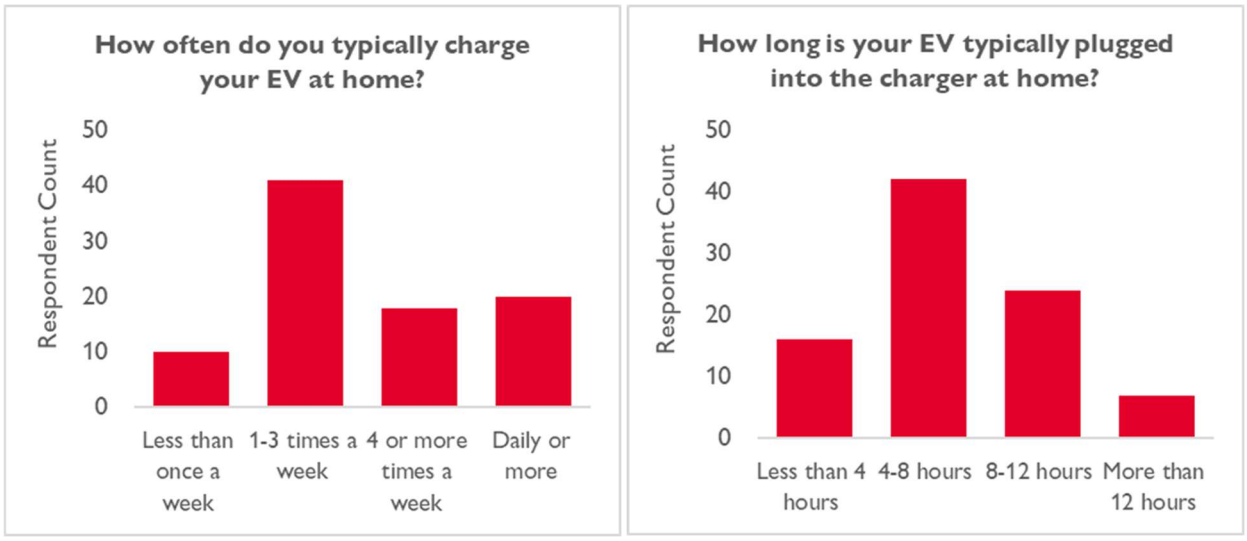
Customer charging behavior clearly changes when switching to TOU rates. Customers on the TOU rate plan were asked how they have changed their behaviors when charging their EV and more broadly about electricity use in their home. Most respondents indicated having changed their behaviors to charge their car and run major appliances during off-peak hours (Figure 9).

Figure 9. Reported Behavior Changes Due to TOU Rate



Residential customers typically do not charge every night; residential survey respondents reported charging one-to-three times per week at home, while over one-fifth (22%) reported charging daily (Figure 10). Residential customers also reported typically having their EVs plugged in between 4-8 hours at home (Figure 10).

Figure 10. Customer Charging Behaviors at Home (n=89)



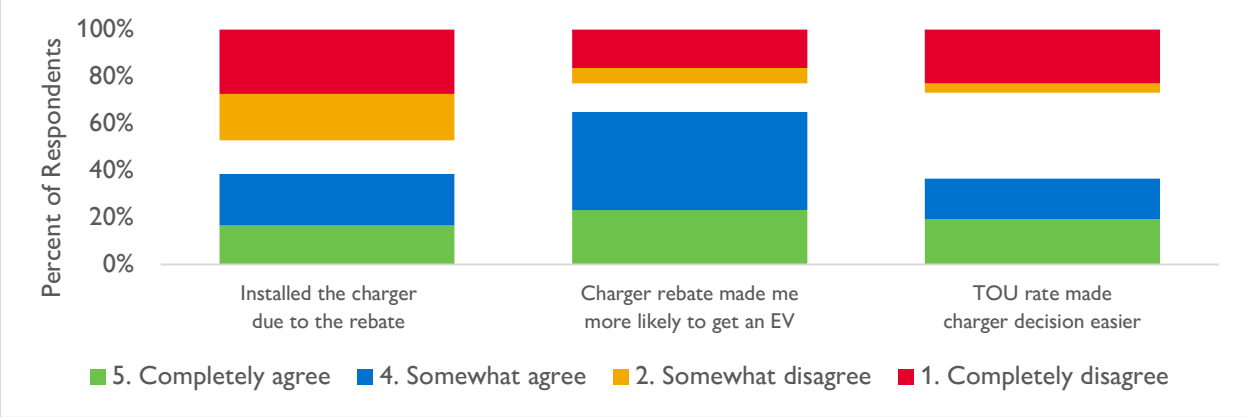
3.2.3 Program Influence

One of the goals of the participant survey was to understand the influence the program—and rebate—had on the customer decision to purchase and install the EVSE equipment. Customers were asked whether the program (i.e., charger rebate or TOU rate) affected their decision to install

a charger. In Figure 11, just over one-third (38%) of respondents stated they likely would not have installed the charger if the rebate and the program were unavailable. For these customers, the program was a critical element to their decision to install the L2 charger. A higher percentage – almost half (47%) of respondents said they likely would have still installed the charger even if the rebate and the program were unavailable (14% of respondents were neutral). To restate this another way, half the surveyed PacifiCorp residential participants would have purchased and installed an ENERGY STAR L2 charger without the program. This finding would indicate a relatively high degree of freeridership among residential customers for the L2 EVSE rebates. We should note that freeridership was much lower for income-qualified participants who rated program influence at over double the standard market rate participant (85%).

When asked if the rebate made them more likely to get a charger, 65% of customers somewhat or completely agreed (Figure 11). Many customers were neutral about the TOU rate impacting their decision to install a charger. 37% of customers neither agreed or disagreed with the TOU impacting their decision, while 37% reported it positively impacted their decision and 27% reported it did not impact their decision.

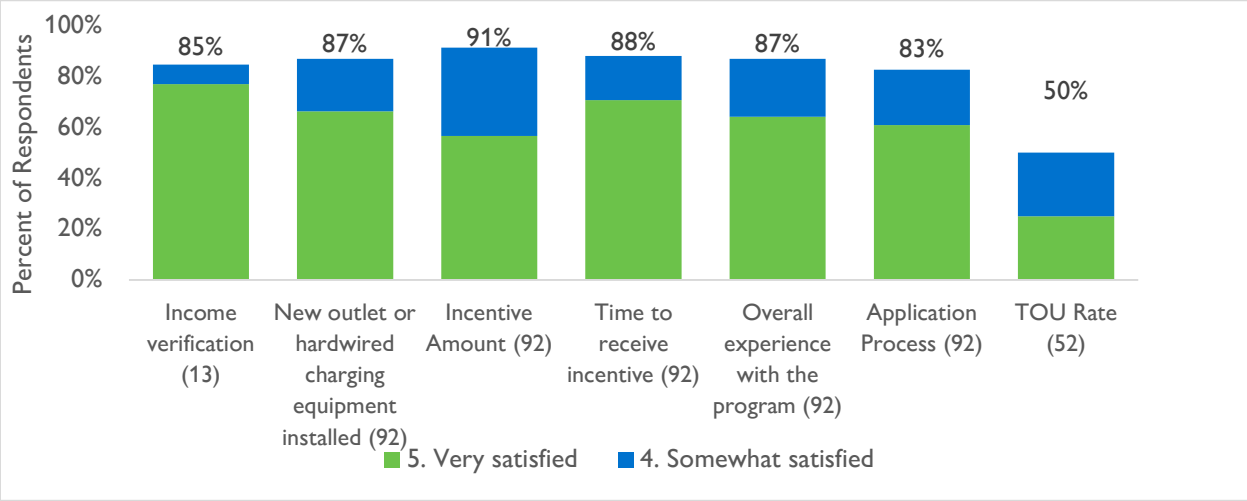
Figure 11. Influence of Program



3.2.4 Satisfaction

Overall, customers reported high satisfaction with most aspects of the L2 EVSE rebate program. Figure 12 displays respondent satisfaction by program category displaying the total percent of respondents either very or somewhat satisfied with each program element. Most program elements received upwards of 90% of respondents reporting high satisfaction. The TOU requirement was the only program element with a lower satisfaction level, with only half of the respondents somewhat or very satisfied with the TOU rate requirement.

Figure 12. Customer Satisfaction with Various Aspects of Rebate Program



Note: Number in the parentheses represents the number of responses for each category

3.2.5 Challenges and Barriers

Even with the success of the residential EVSE program, residential customers still face challenges to broader EV and associated EVSE adoption. Residential survey respondents provided open-ended feedback about their program experience, highlighting specific challenges or issues where respondents reported they were dissatisfied. Responses were sorted into themes highlighting three main challenges and are summarized in Table 12. Residential customers rated the TOU requirement the lowest of all the program elements and provided some anecdotes about their concerns related to TOU rates. The TOU requirement may be a hindrance to other residential customers interested in networking capable L2 charging equipment but reluctant to opt-in to TOU rates. Other friction points for residential customers tended to be confusion with the application and its requirements and product qualifying list and criteria.

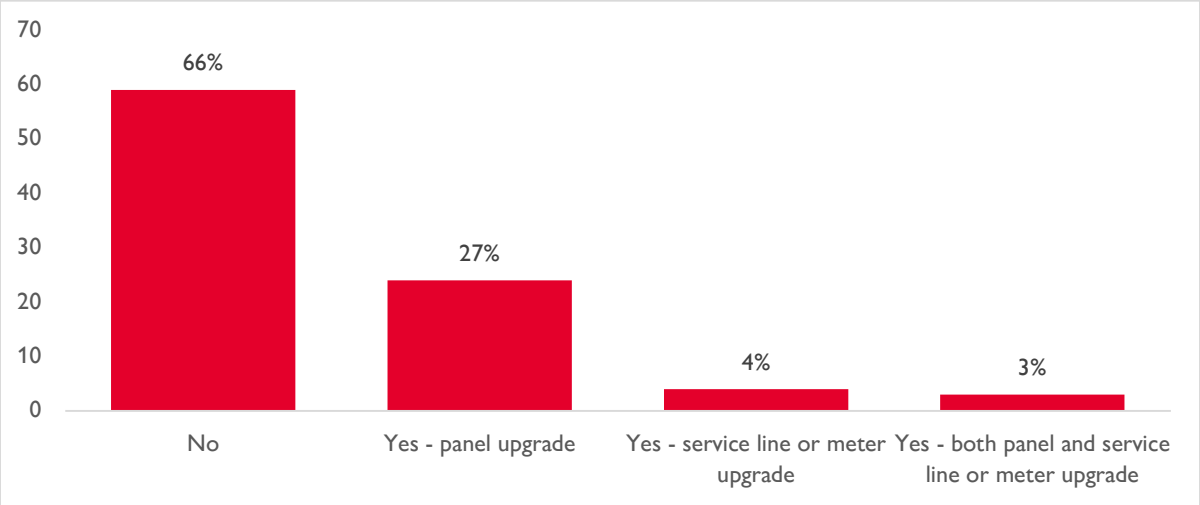
Table 12. Customer Feedback on Program Challenges

Challenge	Summary of Customer Feedback
TOU Rate and Bill Impacts (n=10)	Customers found that enrollment in the TOU rate was not clearly disclosed and there was not enough detail provided about the TOU rate. Some customers found significant increases to their bill even while attempting to use their appliances during non-peak periods. "*The TOU rate resulted in an overall increase in costs by over 16%. If I had to do it again, I would not be on a TOU rate*."
Process Complexity (n=10)	Customers had difficulty determining which EV chargers were covered under the program and found the website confusing. Some customers contacted customer service after encountering difficulties online. Customer service was found to be very helpful once connected with the right person, however sometimes it took significant back and forth to reach the right person. "*The website and information provided was incomplete and very confusing at the time. There was mention of the 240V rebate, but no instructions on how to apply for it. I talked with a Customer Service person who was very helpful, except neither one of us could make heads nor tails of the process (since there were no instructions or applications to download). I finally did get to the right department…and eventually the rebate got approved and paid*."

Challenge	Summary of Customer Feedback
Charger Options (n=4)	Some customers were not satisfied with the charger choices and found the supplier selection to be limited. Several customers purchased chargers from businesses who have since gone out of business. "*The selection of EV Level 2 home charging kits via rebate was extremely limited when I made my purchase. Unfortunately, I wasn't able to secure a more reliable option like Tesla and instead had to settle for a lesser-known brand, JuiceBox. My goal was to have an efficient EVCS capable of programming charging sessions outside of peak times. However, after just a year and a half, JuiceBox has ceased providing support in the US, leaving me with a 'dumb charger' instead of the 'smart charger' I originally intended. Ultimately, the limited vendor options Pacific Power partnered with for rebates proved to be more hassle than they were worth*."

Cost and uncertainty around the L2 EVSE installation is another barrier to greater residential adoption (Figure 13). While the typical L2 charger equipment costs are currently $500-$1,500, secondary installation costs associated with electric panel upgrades or service upgrades can add thousands of dollars to L2 charger project costs. Though not all EV customers require home electric upgrades, many do and one-third (34%) of residential survey respondents reported additional electric infrastructure costs associated with their L2 installations. Over one quarter (27%) of residential survey respondents indicated their installation required panel upgrades.

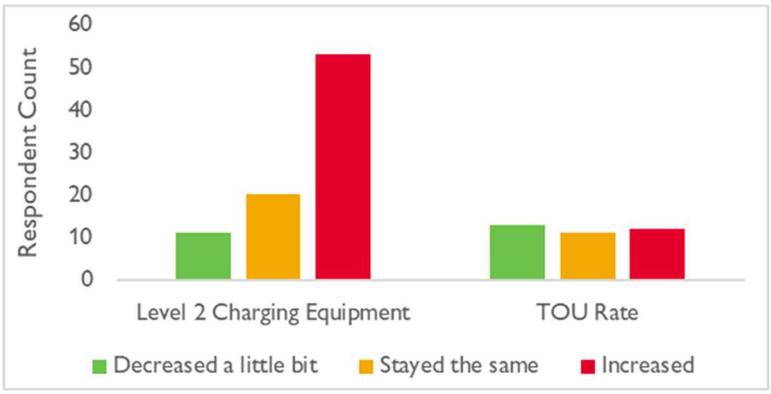
Figure 13. Residential Installations Requiring Additional Work



3.2.6 Bill Impacts

One of the primary financial benefits of EV's is the fuel cost savings for switching from fueling with gasoline at the pump to charging with electricity. As a result of installing the L2 charger, unsurprisingly, most customers reported household energy costs increasing (Figure 14). Within those reporting an increase in costs, 60% reported it increased "a little bit" and the remaining 40% reported it increasing "a lot". Residential EV respondents were also asked about the bill impacts of switching to TOU rates, where respondents reported more inconsistent impacts: a similar proportion of customers reported energy costs decreasing, increasing, or staying the same (Figure 14).

Figure 14. Customer Perceived Impact of Level 2 Charger and TOU Rate on Household Energy Costs



Focusing on the perceived impact of the TOU rates on household energy costs, Figure 15 segments responses by customer's satisfaction with the TOU rate. More customers reported being satisfied with the TOU rate when they saw a decrease in household energy costs, while customer dissatisfied with the TOU rate more frequently saw an increase in household energy costs.

Figure 15. Customer Perceived Impact on Household Energy Costs by Satisfaction with TOU Rate



3.3 Non-Residential Programs

Commercial and Multifamily EVSE rebate uptake has been slower than residential uptake. Primary challenges include the size and complexity of commercial EVSE installations, which can require additional support.

Between January 2023 and December 2024, PacifiCorp provided 15 standard commercial EVSE rebates and 7 multifamily EVSE rebates. PacifiCorp's TA Program provides no-cost support to help commercial customers evaluate vehicle options, charging systems, electric rates and the potential incentives. This service includes on-site feasibility analysis and customized technical fleet advising. All nonresidential customers in Oregon are eligible to apply for technical assistance. The E-Mobility Grant served as a sole funding source for many organizations' TE initiatives. The grant program supported recipients through streamlined applications and flexible project funding.

3.3.1 Non-Residential Survey Findings

Limited sample sizes due to lower-than-anticipated participation levels resulted in limited non-residential survey responses. Though our team had originally anticipated having additional research objectives, similar to the residential survey effort, the lower program participation counts and resulting smaller sample sizes required consolidation across the non-residential responses for reporting and inability to produce meaningful insights for some of the other objectives. The non-residential survey therefore addressed the following more limited objectives:

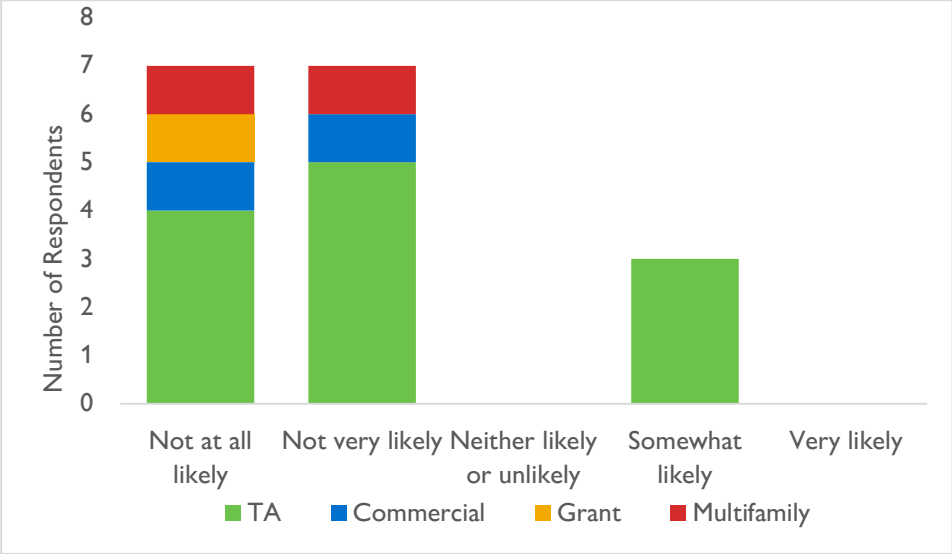
1. **Program influence:** Assess the effectiveness of program education and outreach.
2. **Satisfaction:** Evaluate customer satisfaction with the program.
3. **Challenges and Barriers:** Understand remaining barriers to broader EVSE adoption

With a $25 incentive and multiple email outreach attempts, Apex received 17 total responses across the non-residential groups. Non-residential groups included customers under the TA program (12 responses), commercial program (2 responses), multifamily program (2 responses), and grant program (1 response). The survey results are described below, followed by a discussion of the challenges and barriers customers experienced with these programs. Unlike the residential survey analysis, sample size limitations prevented us from analyzing customer charging behaviors and bill impacts.

3.3.2 Program Influence

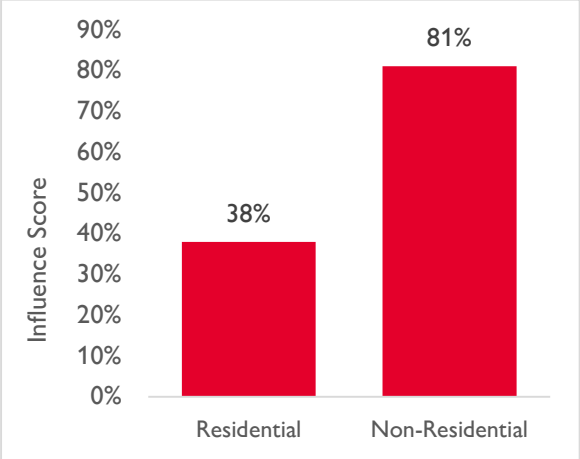
Non-residential survey responses were aggregated across all groups (Technical Assistance, commercial, grant, and multifamily programs) to assess program and rebate influence in their decision to either access the benefits of the program through other means (for technical assistance) or install the EVSE equipment (for grant, commercial, and multifamily participants). Of the 17 responses, 14 reported they likely would not have been able to receive the program benefits elsewhere (Figure 16). This contrasts with the residential program where less than half of respondents reported they would not have been able to install EVSE without the program. While EVSE uptake in the commercial and multifamily sectors did not meet planned targets in 2024, this result shows that the program influence in commercial and multifamily sectors is high for customers that participate in these programs.

Figure 16. Program Influence Across TA, Commercial, Grant, and Multifamily Programs



Though Apex is not recommending PacifiCorp adopt quantified attribution adjustments to their programs, Apex calculated influence rating based on applying a score to each influence ranking (using the influence ranking from 1-5, where 1 represents zero influence, and a 5 represents 100% influence – see Figure 17 below). Applying this logic to the residential and non-residential survey respondents results in a non-residential influence score that is over double (81%) that of the residential respondents (38%). The program influence survey results tend to be the rule, and not the exception, for other TE programs – TE programs, and residential L2 EVSE in particular, typically have higher levels of freeridership.

Figure 17. Comparison of Residential and Non-residential Program Influence Score

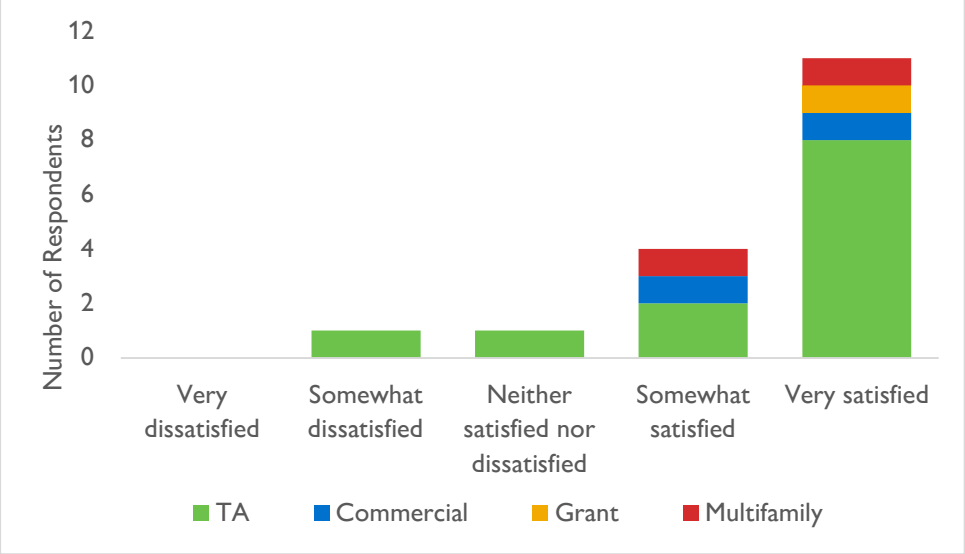


3.3.3 Satisfaction

Similar to the residential survey respondents, non-residential participants reported high satisfaction with PacifiCorp's TE programs. Across all non-residential programs, 15 of the 17 ***respondents reported being*** somewhat or very satisfied (Figure 18) ***with their experience***. ***The***

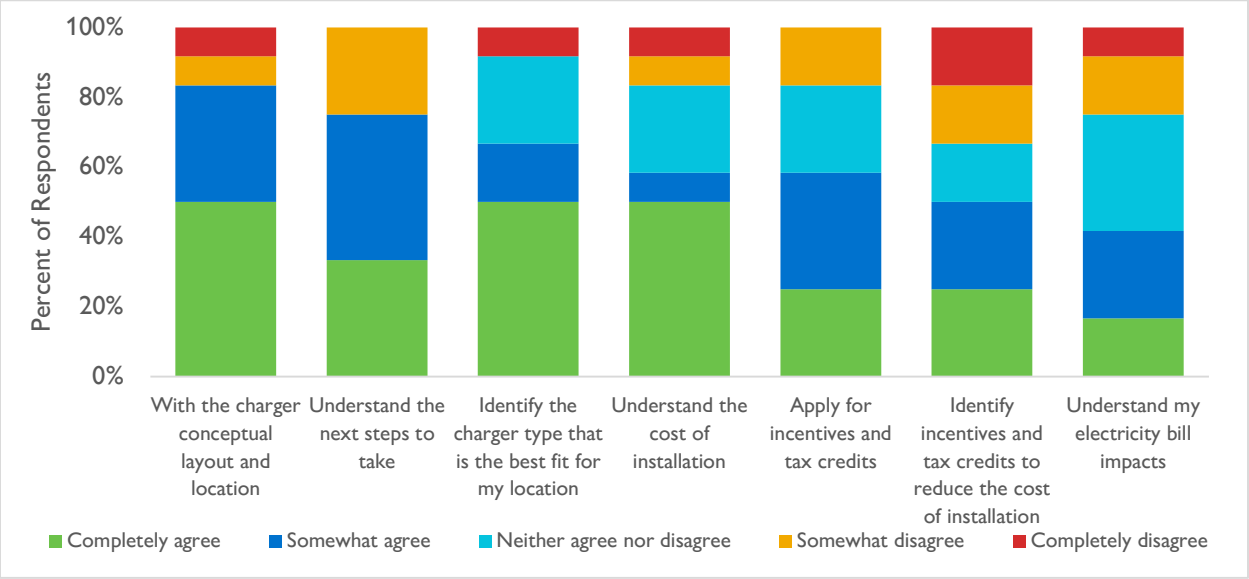
only respondents rating lower satisfaction levels were those participating in the technical assistance program. Technical Assistance participants reporting lower satisfaction were concerned with logistics management and timelines and had concerns with upfront costs. Attracting additional customers to their business was reported as a primary driver of non-residential program participation. Within the TA program, the most frequently reported reasons for participating in the program included increasing traffic to their business (n=7) and enabling fleet electrification (n=5). Reducing carbon emissions was also viewed as a secondary benefit of installing a charging system. Commercial and multifamily participants reported also being interested in pursuing EVSE infrastructure to attract additional customers or tenants. **Customizing program messaging to reflect these EVSE benefits may increase program interest in the non-residential sector.**

Figure 18. Customer Satisfaction Across TA, Commercial, Grant, and Multifamily Programs



With the TA program's larger response rate, Figure 19 dives deeper into customer satisfaction for specific elements of the TA program. The stacked columns are ordered from left to right by elements with the highest to lowest satisfaction. Customers most often felt the technical assistance helped them understand the conceptual charger layout/location and next steps to take to implement a charger system. Non-residential respondents were less satisfied about how the program helped them understand the impacts on their electricity bill or helped identify incentives or tax credits that would help them offset the cost. **Based on these responses and customers' reported concern over the cost impacts (both upfront and operational) of installing EVSE, the program could consider changes to the TA program to help customers better understand available incentives and utility bill impacts.**

Figure 19. TA Program Satisfaction – Detailed Program Elements



3.3.4 Challenges and Barriers

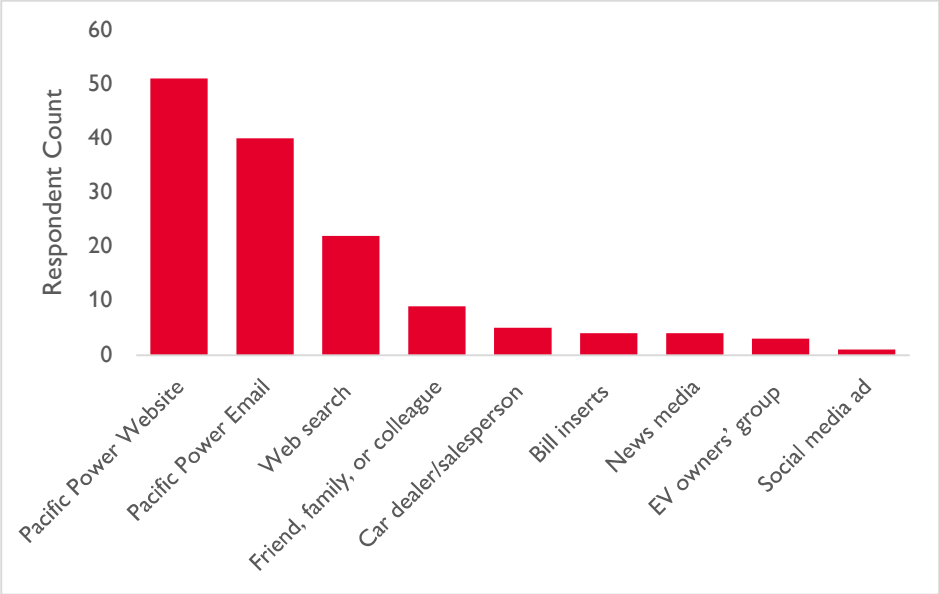
Within the TA program, only one-third (n=4) of the twelve respondents indicated plans to install EVSE infrastructure after receiving technical assistance. The remainder of TA respondents reported they were not planning to install EVSE due to upfront costs (i.e., a lack of funding) or that they had other higher priorities at the time. The most frequently reported challenges for moving forward with EV charger projects were logistics (n=5) and time and/or staff bandwidth (n=5). The next most mentioned challenges were upfront costs (n=4), issues with parking space or infrastructure (n=3), and limited value proposition (n=2). Commercial and multifamily projects tend to have higher complexity compared to residential projects due to both physical reasons (e.g., limited space or electrical infrastructure) or logistical reasons (e.g., complex permitting process). Larger commercial or multifamily installations require greater resources, planning, and site considerations than standard residential EVSE installations. **While high upfront cost is a known and common barrier for commercial EVSE projects, complex logistics and staff bandwidth are equally impeding. Programs that provide technical assistance to help navigate installation complexities throughout bid procurement and construction can help reduce the burden on customers' in-house staff.**

Within the multifamily program, a respondent noted that locating a nearby authorized servicer was a challenge: "[We] had some trouble with the installation, [and a] unit needed to be sent in for repair. The closest authorized servicer was over 4 hours away. We got the full maintenance plan and warranty per the program requirements, just that the company ChargePoint's contractors get a little thin in Eastern Oregon and scheduling becomes difficult". While this may be a unique circumstance, having a contractor network spread across PacifiCorp's region will help maintain customer satisfaction as equipment issues inevitably come up. Notably, the two multifamily properties that responded to the survey were relatively small properties, with six tenants at one property and five tenants at the other property.

3.4 Outreach and Education

Findings from a recent process evaluation found that PacifiCorp's outreach and education efforts have positioned the utility as a brand neutral, trusted messenger for EVs. While the process evaluation deemed PacifiCorp's outreach and educational efforts successful, the process evaluation also found that the diversity and extensiveness of outreach activities led to some coordination challenges. Based on customer responses, PacifiCorp's TE participants' most common source of the charger rebates program awareness was the Pacific Power website (47% of respondents), Pacific Power emails (38% of respondents), and web search (21% of respondents). All other outreach methods were reached by 5% or less of respondents. PacifiCorp conducts broader general population survey research to understand the extent of their outreach and educational campaigns.

Figure 20. Source of Participant Program Awareness and EVSE Rebates



4. Conclusions and Recommendations

PacifiCorp's 2023-2024 Oregon TE portfolio has successfully fostered EV charging infrastructure and increased electric vehicle access, particularly through residential rebates and grants for underserved communities. Residential customer satisfaction is high, though the mandatory TOU rate received mixed feedback. While residential programs exceeded targets and encouraged off-peak charging, commercial and multifamily sector adoption lagged due to costs, logistics, and split incentives. Benchmarking reveals PacifiCorp's residential rebates are competitive, but commercial offerings and the absence of certain rebate types present opportunities for improvement. The TE portfolio demonstrates strong cost-effectiveness, though some input assumptions could be refined. Overcoming barriers like upfront costs and project complexity remains crucial for broader adoption in non-residential sectors, where perceived benefits extend beyond just providing charging. Apex draws the following conclusions and associated recommendations from this research:

Conclusion 1: The residential L2 EV charging market's transformation is well underway. Participation in PacifiCorp's residential EVSE rebate program has been high, exceeding planned targets. Unfortunately, freeridership – customers likely to have installed the L2 charging equipment in absence of the rebate, is high as well. Passenger EV adoption continues to increase at an accelerated rate, exceeding regional projections, proving that the market appears to be shifting towards greater EV saturation. Further, PacifiCorp's residential EVSE program incentives are higher than the regional average.

- **Recommendation 1: Scale back or redirect incentives and program efforts.** PacifiCorp should consider scaling back residential efforts, including lowering (if not altogether withdrawing) this sector's rebates. Yet, program efforts should continue to support residential transition to TOU rates for EV owners, and to support future managed charging programs. Transitioning residential incentives to lower incentive levels or to a mid- or upstream delivery approach could help reduce incentive costs while allowing tracking of market activity. Continued awareness campaigns, outreach and marketing can still support the expansion of the residential EVSE market.

Conclusion 2: Barriers to EVSE adoption remain in the Commercial and Multifamily sectors. A moderate-to-high level of technical assistance participation proves that non-residential customers are interested in EVSE, but too many obstacles remain for broader market wide adoption. While non-residential interest in EVSE is strong, uptake remains low, particularly in the multifamily segment, where split incentives and complex installations are the rule rather than exception. The commercial and multifamily sectors have experienced low participation rates and have not met planned targets. Participant surveys identified notable barriers for greater EVSE adoption, including costs, logistics, the complexities of non-residential installations, and split incentives. Additionally, uncertainty around rebate availability (from utility, state, and federal entities) for commercial and multifamily EVSE may deter property owners from undertaking projects.

- **Recommendation 2: Scale up non-residential program efforts and direct incentives.** PacifiCorp should consider scaling up non-residential efforts, including increasing this

sector's rebates to align with regionally benchmarked rebates. For example, PacifiCorp should consider increasing the current $1,000 commercial EVSE rebate to the regional average of $3,500. Program efforts should support non-residential transition to TOU or EV rates, to support future managed charging programs. To increase uptake in these crucial sectors, PacifiCorp should consider strategies to mitigate these barriers. This could involve exploring enhanced incentives, simplifying the application and installation processes, providing more comprehensive technical assistance, and implementing a rebate reservation system (already under way) to provide greater certainty for potential participants.

14. APPENDIX F: MULTIFAMILY MARKET ASSESSMENT

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Energy Sustainability Consulting



PacifiCorp Market Potential Assessment

Multifamily Housing EV Infrastructure

Contents

Methodology 2
Market Research 2
Data Analysis 2
Results 3
Market Research 3
Data Findings (Oregon) 5
Recommendations 10
Market Research 10
Data Findings 11
Outreach Efforts 12
Conclusions 15
Bibliography 16

PacifiCorp enlisted CLEAResult Energetics Energy Sustainability Consulting to help assess the multifamily housing (MFH) market in Pacific Power territories in Oregon in support of their EV charging incentives. This includes information on the number of MFH properties, comparable programs, and marketing strategies. The CLEAResult Energetics team has divided this document into three main sections: methodology, results, and recommendations. Methodology will briefly discuss the process of our data analysis; results will cover the findings of the analysis; and recommendations will provide insights and actionable suggestions for PacifiCorp to implement with their Multifamily Housing EV Incentive program.

Methodology

Market research was conducted by reviewing information as close to the source as possible, using reviews of public-facing websites, archived website content, filings submitted to state Public Utilities Commissions, and direct interviews with utility staff to build out comprehensive pictures of past and current multifamily incentive programs. Two main types of data were used in the construction of the data analysis: GIS shapefiles from the state of Oregon, US Census Bureau, and PacifiCorp; and tabulated property data from Experian and ATTOM property assessor data.

Market Research

The project team consulted 12 programs from 11 utilities from around the United States to better understand their multifamily housing (MFH) electric vehicle charging incentive offerings, uptake rates, and coverages. These utilities represented a range of electricity providers, from large investor-owned utilities to regional community-choice aggregators, to small municipal power companies. Where possible, the team sought direct communication with these utilities to ensure the highest degree of accuracy and granularity; when the team was unable to make contact, the most recent published reports examining program implementation were used.

The information was then entered into a comprehensive matrix listing the utility, service territory, funding amounts, program operation dates, and other critical information to facilitate easy reference for any proposed program modifications.

Data Analysis

The project team leveraged a diverse set of proprietary data to understand the numbers of properties of each type and their locations. Property record data from both ATTOM and Experian were leveraged to associate specific buildings with the number of their units. The most straightforward and accurate method of association came from categorical property type data reported into property assessor databases, though this data tended to vary in its resolution between cities, counties, and states. This categorical property data is listed below in Table 1.

Table 1: Listing of property categories observed in Washington state/Oregon multifamily properties in PacifiCorp territory.

Property Categories from Assessor Data (ATTOM)
MULTI-FAMILY DWELLINGS (GENERIC, ANY COMBINATION)
DUPLEX (2 UNITS, ANY COMBINATION)
TRIPLEX (3 UNITS, ANY COMBINATION)
APARTMENT HOUSE (5+ UNITS)
APARTMENTS (GENERIC)
QUADPLEX (4 UNITS, ANY COMBINATION)
RESIDENTIAL INCOME (GENERAL/MULTI-FAMILY)
APARTMENT HOUSE (100+ UNITS)
HIGH-RISE APARTMENTS
GARDEN APT, COURT APT (5+ UNITS)

For example, the cities of Roseburg and Klamath Falls (Oregon) did not typically utilize the duplex/triplex/quadplex categories, instead categorizing the vast majority of their multi-family dwellings under the "Multi-Family Dwellings (Generic, Any Combination) category. Furthermore, the number of rooms or units present at each property was commonly left blank, making it difficult to accurately determine property types.

Ultimately, three primary sources of data were used to classify properties: site geospatial location; Experian building-level property data, and ATTOM building-level assessor data. This data was aggregated to the property level where appropriate – in other words, a complex composed of 10 individual triplex buildings will be represented on the project maps by a single "3+" marker. This was achieved by buffering each building with a shared owner out to a distance of 150 feet, merging buffers which overlapped (i.e. generating a single polygon from any individual buildings within 150 feet of each other which shared a common owner and street name), then finding the centroid of each resulting polygon. Where property classifications were not available for entire counties, the team used imputation to reduce the number of unclassified properties, first leveraging property assessor data to determine if buildings were 2-4 units or more than 5 units. These two property classifications were then summed by county, and census-tract-level housing stock proportions for duplex units and 3-4 unit properties were then assigned to the 2-4 unit property counts, assuming a 50:50 split for 3 and 4-unit properties, as the housing stock proportion reported a single number for combined 3-and-4-unit properties. Benton, Douglas, Jefferson, and Klamath Counties used this process to estimate breakdowns for significant portions of their housing stock.

Results

Market Research

The utilities surveyed reflect a diverse range of program designs, but all of them have some shared commonalities. Without exception, all programs offer incentives that cover Level 2 networked chargers, and nearly all cover installations of "make ready" infrastructure - the trenching, conduit, and wiring that allow for quick expansion of infrastructure in future phases.

Funding Amount

The amount of incentive dollars projects in each territory were eligible to claim varied from a high of $10,000 per Level 2 port to a low of $2,000 with a mean incentive dollar/port amount of $4,648. PacifiCorp's Oregon program sits just below this mean at $4,500 per port. These findings are illustrated below in Figure 1. PacifiCorp's per port incentive on its own falls below the mean incentive; however, customers are encouraged to apply for the Oregon Department of Transportation (ODOT) Community Charging Rabate Program. Multifamily property owner customers can stack the rebates covering up to $10,000 per port for eligible project costs.

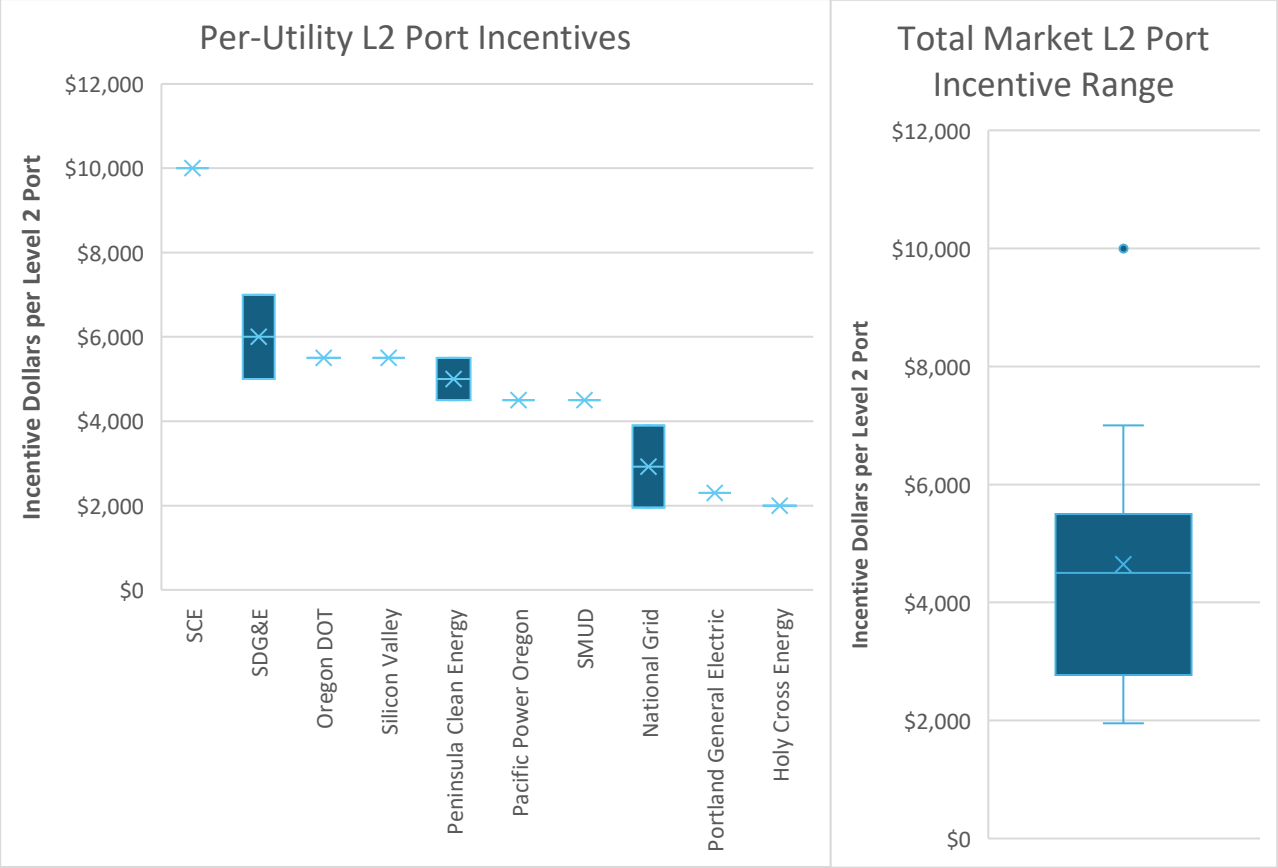


Figure 1: Box-and-whisker charts showing the range of Level 2 per-port incentives by utility (left) and overall (right).

The programs vary in their maximum offered incentives – some limit on a basis of installed ports, others on a total incentivized dollars or percentage of cost. Most programs were willing to incentivize port counts up to a maximum of between 10 and 20, though utilities offering higher per-port rebates limited the project size to significantly lower numbers. One of the utility programs researched capped their program incentive at $40,000, or 4 ports. PacifiCorp's incentive falls between the average maximum port count and allows for a maximum of 12 rebates per site.

Eligible Technologies

Many of the utility-sponsored incentive programs initially maintained their own lists of eligible equipment. Several of the large investor-owned utilities have now standardized to versions of the EPRI Vetted Product list, which provides a centralized set of pre-vetted charging stations and networks to ensure conformity to common certifications and standards.

Networked Level 2 chargers are universally eligible for incentives under each of the programs examined – a key component in ensuring that stations are able to be monitored remotely for maintenance issues and usage. However, 4 of the 12 programs examined also allowed the installation of non-networked chargers, smart outlets, and level 1 (120V) chargers, which allows for significantly more flexibility in the technology installed if a site wishes to either provide a simpler charging experience or reduce the expenses of network charges and upfront costs. One program allowed only smart outlets in addition to networked Level 2 charging stations; one allowed Level 1 and non-networked Level 2 stations; and the remaining 2 did not incentivize any other technologies other than networked Level 2 chargers.

Make-ready infrastructure was covered in some capacity by 8 of 12 incentive programs, with stubouts, electrical infrastructure (transformer, electrical panels, service orders), and trenching all commonly covered. Incentive amounts varied widely, though there were some commonalities – two utilities offered $5,000 for panel upgrades (an additional one offered $1,000). One utility offered a flat $20,000 per site for utility upgrades, which covered anything “front-of-meter” that would require upgrades, including transformers.

Uptake Rate

Approximate program uptake rates were calculated by dividing the number of rebates issued by the number of eligible multifamily customers in the utility’s service territory. This number indicates the overall success rate of the program, which results from a combination of factors, including utility outreach, local incentives, and program design.

The first utility interviewed reported a 1.25% uptake rate and the second reported a 4%. The first uptake was tied to a program that targeted a specific set of customers - not the broader market - but was also fully subscribed and rapidly exhausted its fundings. The utility performed targeted outreach to eligible customers. Based on other program observations, the consultant team suspects that the 1.25% adoption rate would likely have been higher if the budget for the program was larger. The other utility interviewed provided targeted outreach and technical assistance for candidate properties, further helping with program uptake. Based on this, CLEAResult Energetics decided that 1.25% is a good target for program adoption, while 4% would be an exceptional case dependent on both strong utility commitment as well as higher consumer EV adoption. PacifiCorp’s multifamily rebate uptake rate is currently at 0.17% indicating that based on these uptake rates there is still a large market that PacifiCorp has yet to reach.

Data Findings (Oregon)

Overall, PacifiCorp territory in Oregon has approximately 6,500 multi-family properties, consisting of

triplexes or larger buildings, throughout the state. Significant MFH populations exist in Multnomah and Jackson Counties, Oregon, as shown below in Table 2.

Table 2: Oregon State counts of properties, by county and type.

Counties (Oregon)	Triplexes	Quadplexes	5+ Units	Unknown 2-4 Unit	Totals
Benton County*	7	7	395	10	418
Clatsop County	54	96	190	9	349
Coos County	66	64	124	13	267
Crook County	0	0	5	27	32
Deschutes County	147	244	214	19	624
Douglas County*	175	175	229	98	676
Gilliam County	0	0	8	0	8
Hood River County	7	15	29	13	64
Jackson County	142	360	429	0	931
Jefferson County*	4	4	7	0	15
Josephine County	4	1	251	18	274
Klamath County*	6	6	100	6	118
Lane County	13	34	24	59	130
Lincoln County	25	30	64	6	125
Linn County	93	156	350	5	604
Marion County	6	25	63	8	102
Multnomah County	274	334	799	42	1,449
Polk County	14	35	83	42	174
Sherman County	0	1	1	0	2
Umatilla County	34	66	3	57	160
Wallowa County	0	0	2	8	10
Grand Total	**1,070**	**1,652**	**3,370**	**440**	**6,532**

*Indicates counties which required imputation from large numbers of "Unknown 2-4 Unit" designations and lack of data in crucial categories. Imputation was done by assessing census tract-level breakdowns of housing stock types, aggregating to county levels, then applying ratios to the "Unknown 2-4 Unit" numbers to approximate breakdowns.

Taking the total number of properties and applying the observed moderate (1.25%) and exceptional (4%) uptake rates from two of the existing programs, a rough expected range can be set for the potential number of applicants in each county, as shown below in Table 3 and Figure 2.

Table 3: Projected range of adoption rates for each Oregon county, based on observed uptake rates across similar programs.

Counties (Oregon)	Moderate Uptake (3+)	Exceptional Uptake (3+)
Multnomah County	18	58
Jackson County	12	37
Douglas County	8	27
Deschutes County	8	25
Linn County	8	24
Benton County	5	17
Clatsop County	4	14
Josephine County	3	11
Coos County	3	11
Polk County	2	7
Umatilla County	2	6
Lane County	2	5
Lincoln County	2	5
Klamath County	1	5
Marion County	1	4
Hood River County	1	3
Crook County	0	1
Jefferson County	0	1
Wallowa County	0	0
Gilliam County	0	0
Sherman County	0	0
TOTAL	**82**	**261**

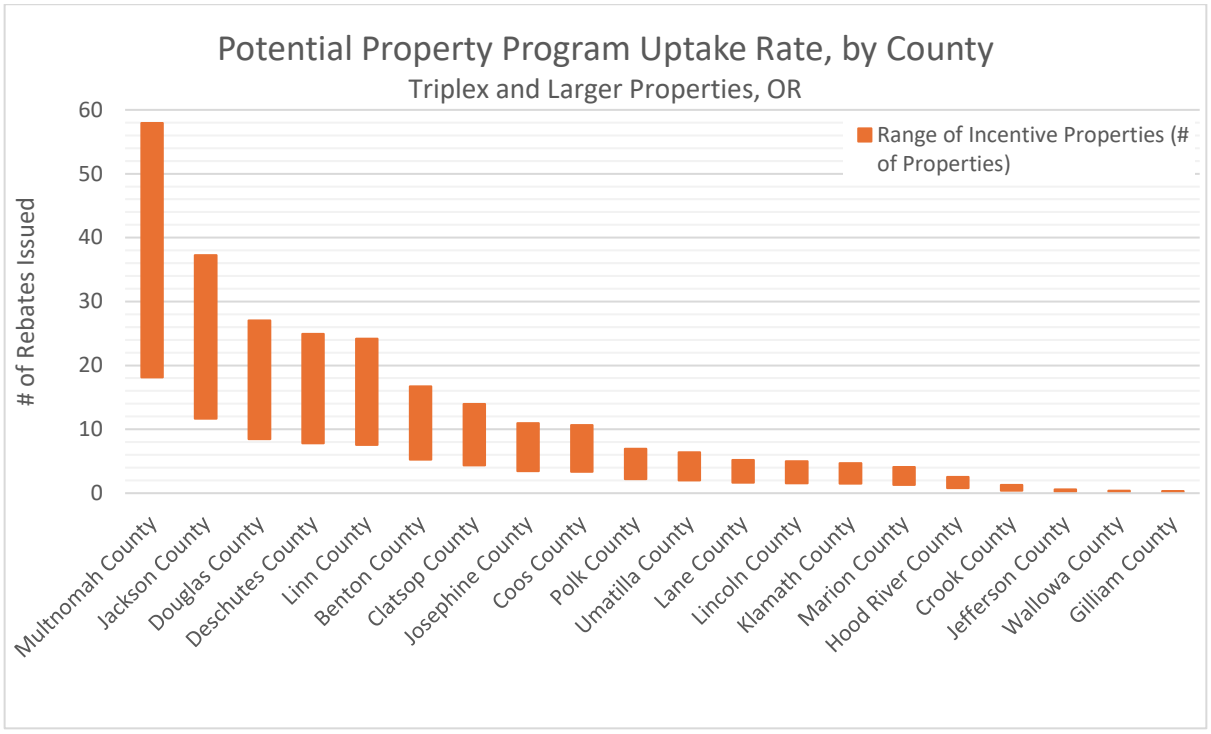


Figure 2: Chart showing the moderate and exceptional [low/high] ranges of estimated program uptake rates, by Oregon county, using uptake rates derived from market research.

Following this approach, Multnomah and Jackson Counties emerge as strong potential locations for early-stage outreach campaigns, followed by Douglas and Deschutes Counties. Cumulatively, these four counties make up the majority (56%) of the housing property records that were included in the final count of this project.

As shown below in Figure 3, across PacifiCorp territory in Oregon, larger multifamily properties (5+ unit buildings) are common, making up 52% of 3+ unit properties, with significant proportions of MFH stock in Multnomah and Jackson Counties.

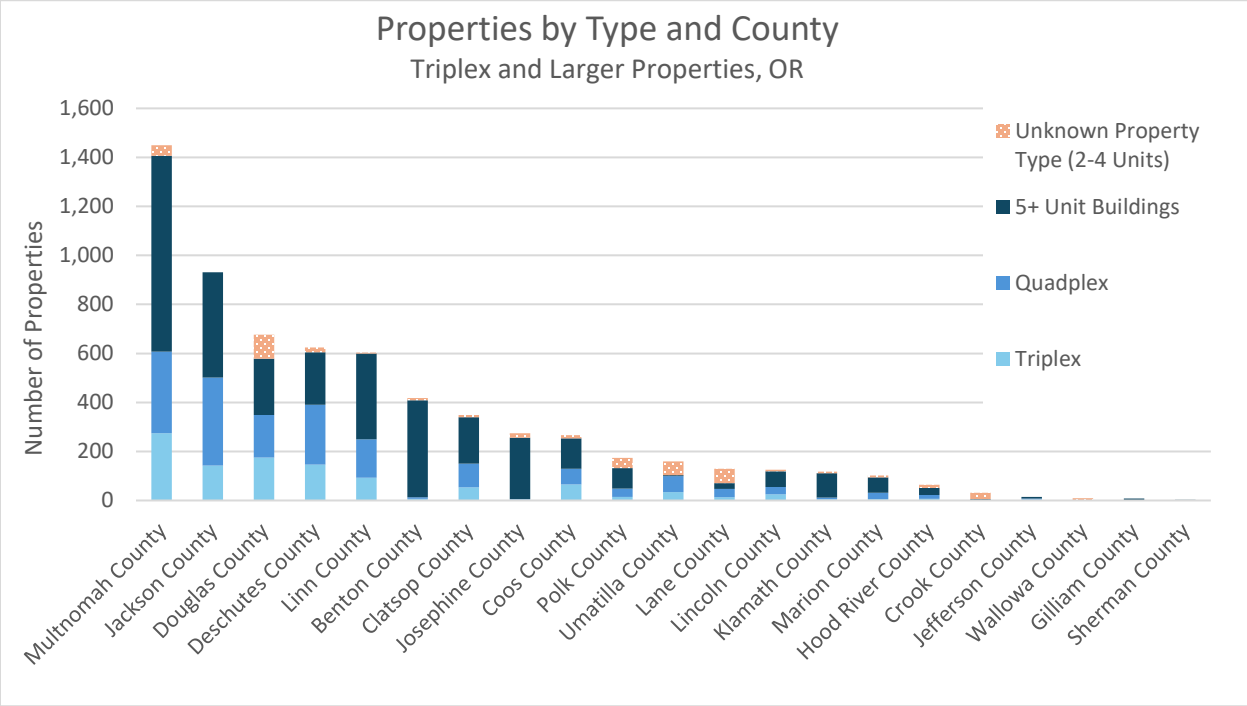


Figure 3: Chart of property type counts, by county, excluding duplexes.

Quadplexes (4-unit properties) are similarly common in Multnomah and Jackson Counties, as well as Deschutes and Douglas Counties, making up around 25% of properties statewide, while triplexes are least common at around 16% statewide. Due to the previously mentioned variance within the dataset resulting from differences in city-level data reporting, approximately 7% of properties did not have a clear number of units associated: where possible, units bearing these nonspecific notations were assigned unit counts based on ancillary data provided in the dataset.

A potential characteristic to consider is the registrations of plug-in vehicles in each county. Figure 4 illustrates the plug-in hybrid vehicle (orange) and battery electric vehicle (blue) registrations in each county, with counties sorted from highest to lowest number of eligible 3+ unit properties.

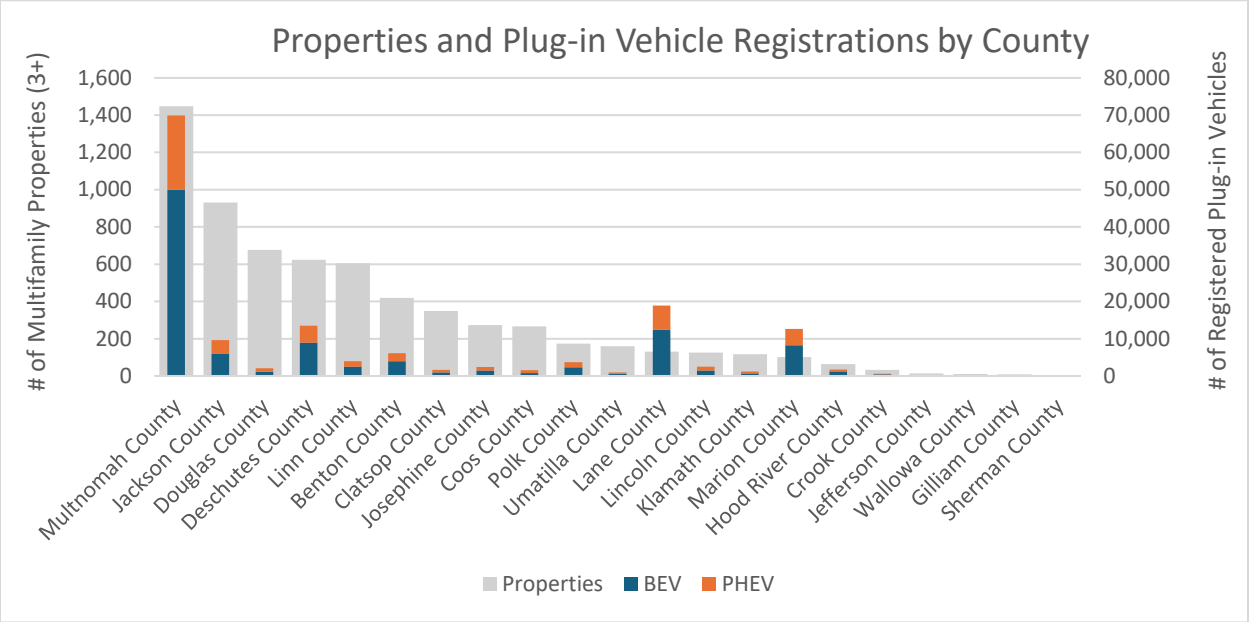


Figure 4: 3+ unit properties (gray) plotted with plug-in vehicle registrations in each county.

Recommendations

Based on the findings of the market research and data analysis, the project team has compiled a list of recommendations around the program, incorporating qualitative information and advice from other utilities, insights from data patterns and clusters, and CLEAResult Energetics' experience within the EV infrastructure and policy field.

Market Research

A key communication from multiple utilities was that multifamily housing properties do not typically have extra funds available for cost sharing (Ele25; National Grid, 2024). In other words, if a utility does not pay 100% of the costs, sites will need to leverage public funding. This extra step and perceived additional effort may preclude some properties from applying to the program. In Oregon's case, the incentives offered by ODOT can provide some cost share, and applicants may need to be explicitly made aware of this opportunity. Alternatively or additionally, PacifiCorp could consider eliminating the need for cost share if a project comes in below the per-port incentive amount. A project not using its full incentive amount would free up additional capital which could be put toward reducing the cost share. A third option may be for PacifiCorp to collect repayment of cost share from the sale of Clean Fuel Standard or Clean Fuels Program – sites may be able to claim credits generated from the usage of charging stations and sell them on the spot market, generating a revenue stream that would otherwise not be present.

The provision of technical assistance was identified as a critical factor toward programs' success, especially given the complexity of identifying project costs and trying to layer utility rebates with other public funding (Opinion Dynamics, 2024; CLEAResult, 2020). PacifiCorp should continue to promote this

technical assistance to multifamily property owners and managers to help guide them towards successful project execution and rebate submittals.

National Grid (2024) noted that their 1-4 unit segment encountered issues around the definition of what constituted a single-family home versus a "2-4 unit" structure, specifically noting that duplexes with ground-to-roof wall separations were considered single-family homes by the programs, but that customers frequently viewed duplexes as 2-unit buildings. The utility advocated for the preemptive identification and explanation of similar potentially confusing situations.

The unique benefit-payment structure associated with landlord-tenant relationships was also highlighted, noting the existence of a "split-incentive" challenge where a landlord or owner pays for an amenity that primarily benefits their residents (National Grid, 2024). National Grid highlighted the need for additional outreach and education in overcoming this barrier.

One of the utility programs analyzed for this assessment achieved a high multifamily housing uptake rate by implementing an unusual structure with their pilot program. The utility elected to maintain ownership of and responsibility for the charger and infrastructure – this degree of control allowed the utility to directly control and throttle chargers as necessary (Energetics, Inc., 2021). In exchange, the utility implemented a dynamic rate and direct-to-driver billing on the stations, which would have been difficult without utility ownership. The program installed 898 individual ports across 100 multifamily sites. Their evaluation report notes that the simplification of the ownership structure also serves to reduce risks to and effort on the part of site hosts, and this may have contributed to the pilot program achieving a nine-point improvement in uptake rate among multifamily housing properties, as compared to the next-closest incentive program - 39% versus 30% of total ports installed (Pacific Gas and Electric Company, 2020). Full utility ownership removed additional barriers to electrification at multifamily sites, although it came with higher per-ports costs.

Data Findings

Based on the findings, the consultant team noted that PacifiCorp should continue prioritizing outreach within Multnomah County, given the high numbers of multifamily housing of all property types, but may also find interest in Jackson and Douglas Counties. Jackson and Douglas, respectively, have the second- and third-highest numbers of multifamily housing while simultaneously having the fifth- and eleventh-highest rates of plug-in vehicle ownership in Oregon. Douglas County, in particular, may represent a significant location, as the low plug-in vehicle registration rate and high number of multifamily housing properties may indicate a lack of EV infrastructure and centralized living situations as a potential limiting factor for adoption. Conversely, in regions such as Marion and Lane Counties, their relatively low number of multifamily properties (15th and 12th overall, respectively) coupled with their high number of electric vehicle registrations (2nd and 4th overall) may indicate that adoption is proceeding well even without targeting multifamily homes.

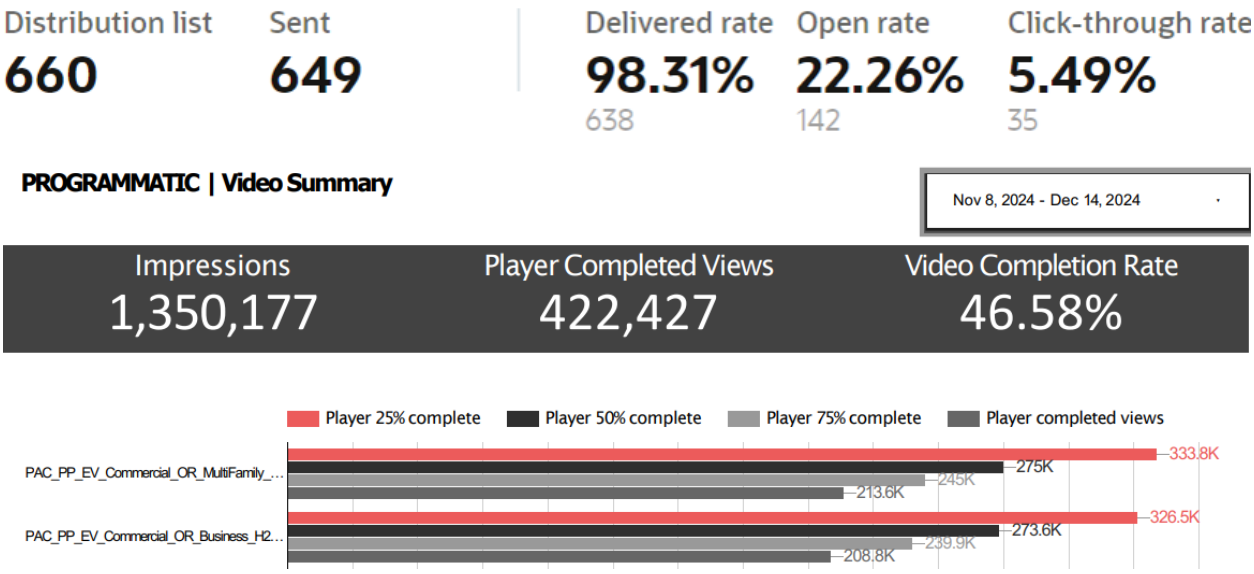
Duplexes represent a significant additional effort for the multifamily housing incentive program, with nearly 14,000 additional properties across PacifiCorp territory in the state. The bulk of these units are

concentrated in Multnomah, Jackson, Deschutes, and Linn Counties, providing additional rationale to continue focusing efforts within these regions. Opening the program up to duplexes could be considered only if there is no additional uptake from the originally prioritized property types.

Outreach Efforts

Outreach is an important aspect of program success to educate potential customers about the program. PacifiCorp has run extensive digital marketing campaigns for EV programs in both Oregon and Washington Territories. This includes email campaigns, static images, and video messaging. Digital advertising can be geographically targeted, although complex borders in the Portland metropolitan area mean that advertising may not be restricted to only PacifiCorp customers.

As a part of PacifiCorp's primarily web-based market outreach, an email campaign was sent to 649 individuals on PacifiCorp's mailing list. As shown in the below figure, just over 22% of the recipients opened the email, and 5.5% clicked the link to PacifiCorp's website. These engagement rates fall in line with typical email marketing performance, with the click-through rate exceeding industry average (Campaign Monitor, 2022). Recipients who followed the link in PacifiCorp's email were presented with a 30-second informational video, though less than half of the those that clicked on the video watched it to completion. This video was accessible to other website visitors who were not part of the email campaign, expanding the reach beyond the originally targeted group.

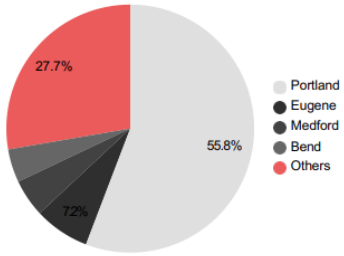


As demonstrated in the chart below, 55.8% of visitors to the incentive program's website were from the Portland geographic area, followed by Eugene, Bend, Medford, and Corvallis. These locations align with the ideal target counties mentioned earlier. Given their strong engagement with the incentive program, future marketing efforts should consider focusing on PacifiCorp-serviced locations in these areas.

TOP GEO BY IMPRESSIONS

City	State	Impressions	Clicks	CTR
Portland	Oregon	1,611,552	965	0.06%
Eugene	Oregon	256,556	125	0.05%
Bend	Oregon	171,233	75	0.04%
Medford	Oregon	134,428	85	0.06%
Corvallis	Oregon	98,696	50	0.05%

TOP GEO BY CLICKS



An investigation into other industry sources for similar incentive programs revealed a broad range of outreach strategies, ranging from direct contact with property owners, to widespread television commercials. These strategies varied in cost to the organization, impact on customers, and level of targeting. Given PacifiCorp's budget and unique spread of target customers, it is important to balance both cost and targetability. The matrix below compares each outreach strategy based on its cost to PacifiCorp vs. its expected impact.

Table 4: Matrix table of outreach strategies, listing channel, expected cost to the utility, and its impact

Outreach Channel	Description/Notes	Cost to PacifiCorp	Expected Impact/ Targetability
Utility Bill Promotions	Including a brief promotion at the bottom of each paper or digital bill can effectively notify MFH owners of the benefits of the incentive program. By linking to their website with more information, PacifiCorp could guarantee that they are reaching their intended audience without much additional effort.	Low	High
Mailers	Sending personalized, physical mail that highlights specific costs and incentives for each property provides a direct and targeted approach for MFH property owners/managers.	Medium	High
Phone Call Campaign	Engaging with property owners/managers via one-on-one phone calls allows for in-depth conversations and clarification of questions.	Medium	High
Targeted Email Campaign	Sending mass informational emails to property owners/managers, including a newsletter or other relevant information, is an efficient way to provide program details.	Low	High
Text Message Campaign	Sending quick and direct text messages provides a low-cost and immediate way to connect with property owners/managers.	Low	High

Webinars	Hosting informational sessions online will allow property owners/managers to learn about the program, albeit in a less targeted way.	Low	Medium
Informational Sessions	Holding Lunch & Learns, or joining the agenda items for existing community group meetings (HOA meetings, chambers of commerce, apartment associations, local govts, tenant advocacy groups, property management orgs., etc.) provides a platform to engage directly with groups in established settings.	Low	Medium
Outreach Booths	Staffing booths at existing in-person public events (county fairs, Ride and Drive events, auto shows, community festivals, charity drives, etc.) provides strong visibility of the incentive program, but does not target MFH owners/managers in particular.	Medium	Medium
Additional Social Media Promotions	PacifiCorp has created an existing 30-second video, which serves as an effective marketing outreach strategy. By producing and posting another video across social media platforms (Facebook, Instagram, LinkedIn, YouTube etc.), PacifiCorp can broadly reach the public and target specific demographics, but cannot target a scattered range of MFH owners/managers.	Medium	Medium
Radio/ TV Commercials	Airing TV and radio commercials would guarantee a very broad reach and can generally be geographically targeted, though many viewers will not be part of the target audience.	High	Low

Similar campaigns noted that their most effective strategies consisted of a newsletter email campaign, combined with print mailers (San Diego Gas and Electric, 2020; Silicon Valley Clean Energy, 2024). This strategy requires minimal outreach costs, since both of these methods can be executed with relatively low funding, aside from expenses of materials and employee time. One of the programs assessed highlighted the effectiveness of their targeted phone campaign, particularly targeting locations likely to install 10 or more EV chargers (CLEAResult, 2020). This campaign allowed them to focus on ideal locations for EV charger installations, but required more time and effort compared to other strategies. During the program outreach relied on monitoring website traffic, offering surveys and fact sheets to visitors, and hosting Ride-and-Drive events (Southern California Edison, 2022).

Typically, it is recommended that incentive programs such as this one spend no more than 10% of their budget on marketing (US Dept. of Energy, 2015). The consultant team would expect that for each $1-2 million spent by an incentive program, outreach costs would amount to approximately $100,000-200,000. Given the dispersed nature of PacifiCorp customers, spending at 10% of the program budget outreach and marketing seems very appropriate. Approximate costs for each outreach strategy have been estimated using the formulas below, based on an average employee time rate of $100/hour. While

utilizing marketing firms or contractors would likely streamline the market outreach process, these organizations would implement multiple of the above strategies for a flat fee, which would likely be higher than that cost of selecting individual approaches performed by project staff.

It is important to note that the previously listed campaigns by other utility providers did not include cost details, but it is evident that they prioritized strategies that are higher impact and lower cost. In line with this, CLEAResult Energetics recommends that PacifiCorp perform highly targeted outreach, beginning with MFH residences in Multnomah, Jackson and Douglas counties. The first step should be to compile a list of MFH properties and their owners/managers for each of these counties. These properties should then be engaged using a combination of the highly-targeted methods detailed above (utility bill promotions, mailers, and direct phone/email/text campaigns), with a focus on prioritizing large-scale properties when possible. Once the outreach to the MFH residences in the key counties is complete, PacifiCorp should evaluate the effectiveness of this outreach based on how many properties responded positively. These outreach strategies should then be replicated for the remaining counties in PacifiCorp's territory, although slightly diminishing returns are to be expected in areas with smaller MFH populations. If the territory of PacifiCorp expands or PacifiCorp's budget for this program increases, some of the strategies that are slightly costlier or are less targetable may be considered, due to their broader target range.

Conclusions

Multi-family properties are spread through PacifiCorp territory in Oregon, with about 6,500 unique properties consisting of 3+ units each. More than two-thirds of these properties are in Multnomah, Jackson and Douglas counties. Outreach is needed in these areas and broadly throughout the territory to ensure that eligible customers are aware of the program, as well to grow awareness of technical assistance available through the utility. This technical assistance is important because MFHs are challenging places to install charging, and TA supports getting projects to the rebate stage. Program rebates of $4500 per port installed are within the range offered by other utilities. Increased outreach supports rebate uptake while growing overall awareness of the opportunity for MFH charging. While PacifiCorp has already implemented initial web-based outreach strategies, the dispersed nature of their service area requires investing in a highly-targeted approach, particularly in the identified key counties. By compiling a list of MFH properties in these counties and engaging them through targeted utility bill promotions, mailers, and direct communication, PacifiCorp can maximize their engagement and potential customer uptake, potentially adding over charging at up to 260 MFH properties.

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15. APPENDIX G: MEDIUM- AND HEAVY-DUTY VEHICLE ANALYSIS

15.1 MHDV MODEL

In 2023-2024, the Company hired The Cadmus Group to develop a model to project energy and demand impacts from charging MHDVs within PacifiCorp's six-state service area. Key outputs of the model are 24-hour load shapes for the years 2023 through 2050, segmented by vehicle type and class category and displayed in kWh. The model is based on S&P Global vehicle registration data for 2019–2023 for all MHDVs (electric and internal combustion), Class 4–8 in PacifiCorp's service area. Vehicle segmentation in this projection is broken into two types:

- **Vehicle Type:** Based on the vehicle type data received from S&P Global, which breaks down the MHDV space into 17 distinct vehicle categories based on vehicle body type as informed by the manufacturer.
- **Simplified Vehicle Category:** Aggregation into four categories based on vehicle type and GVWR: MHDV-Medium, MHDV-Heavy, Bus, and Tractor Truck. The simplified vehicle categories were developed in conjunction with PacifiCorp based on segmentation presented by Northwest Power and Conservation Council.[69]

Critical vehicle population characteristics were determined using a variety of data sources and categorized by state, vehicle type, and vehicle class. Those population characteristics include:

- **2023 Vehicle Population:** This data was provided by S&P Global as Vehicle in Operation (VIO) data and broken into state, zip code, vehicle type, and vehicle class. After filtering for PacifiCorp's service area, the data was used directly in the stock turnover function of the model.
- **Annual New Registrations:** S&P Global was going to provide this information, but after validation, it was determined that the registration data did not align with what was expected in the MHDV segment. The Company instead turned to the National Renewable Energy Lab's (NREL's) truck stock characterization in its MHDV projection,[70] validated by overall commercial vehicle sales data from Statista.[71]
- **Vehicle Population Growth Rate:** This data, broken out by MHDV class, was also sourced from NREL's truck stock projection in its MHDV study and validated by National Grid's MHDV vehicle population projection.[72]
- **Annual Vehicle Miles Traveled (VMT):** VMT data, broken out by state, vehicle type, and vehicle class, was sourced for a variety of datasets. Where vehicle classes aligned, state-level VMT data was sourced from the Bureau of Transportation Statistics (BTS) 2021 Vehicle Inventory and Use Survey (VIUS),[73] as it provided real-world survey data by specific vehicle class. For vehicle classes and types not directly included in the

[69] Northwest Power and Conservation Council. *2021 Power Plan: Transportation Model*. https://www.nwcouncil.org/2021powerplan_transportation-model/.

[70] National Renewable Energy Laboratory. *Decarbonizing Medium- & Heavy-Duty On-Road Vehicles: ZEV Cost Analysis* (NREL/TP-5400-82081), 2022. https://www.nrel.gov/docs/fy22osti/82081.pdf.

[71] Statista. *Commercial Vehicle Sales in the United States, 2001–2023*. https://www.statista.com/statistics/265914/commercial-vehicle-sales-in-the-united-states.

[72] National Grid. *Electric Transportation Benefits and Strategies Report*. https://www.nationalgrid.com/document/148616/download.

[73] U.S. Bureau of Transportation Statistics. *Vehicle Inventory and Use Survey: Selected Tables, 2021*. https://www.bts.gov/browse-statistical-products-and-data/surveys/vius/selected-tables-2021.

BTS VIUS dataset, a combination of data from the Department of Energy (DOE) Alternative Fuel Data Center (AFDC),[74] The National Household Transit Survey,[75] and the Fire Apparatus Manufacturers' Association[76] were utilized.

- **Vehicle Efficiency Data:** If available, real-world EV efficiency data was sourced from Cadmus's MHDV charging installation evaluation work and CALSTART's EV data.[77] Where real-world EV data was not available, internal vehicle engine (ICE) for the DOE AFDC[78] vehicle efficiency was utilized to estimate electric vehicle efficiency using the assumption that an EV's efficiency (mi/kWh) is approximately one-tenth of an ICE vehicle's efficiency (mpg).

To project market adoption of EVs in the MHDV vehicle space, Cadmus developed innovation diffusion curves based on a logistic function paired with a stock turnover model. The innovation diffusion curve—or S-curve—formula is shown below.

$$Sales\ \% = \frac{L}{1 + e^{-k(x - x_0)}}$$

$L = Maximum\ Sales\ Share$
$k = Adoption\ Parameter\ (Steepness)$
$x = Year$
$x_0 = Crossover\ Year\ (50\%\ of\ Maximum\ Sales\ Share)$

The sales percentage produced by the S-curve is applied to the vehicle registration data by vehicle category and state to estimate future EV saturation in the MHDV vehicle space. A greater sales percentage will mean a greater number of MHDV EVs are entered into the stock turnover function for a given year, resulting in a greater number of EVs projected to be in operation and greater overall demand and energy impact. For each simplified vehicle category, Cadmus chose one of four S-curve scenarios. Those scenarios include the following, sorted from lowest to highest adoption curves:

- **Low:** The Low scenario was developed to project very limited EV adoption in the MDHD space, correlating to a scenario where aggressive EV policy is not adopted and EV technology does not meet current market expectations. This scenario is characterized by adoption not picking up for many years and maximum sales share being much lower than any other scenario.
- **Mid:** The Mid scenario was developed to project EV adoption that is less aggressive than the ACF or ACT and ACF policy environments, but still representative of successful technology innovations and widespread adoption of EVs in the MDHD space.

[74] U.S. Department of Energy. *Alternative Fueling Infrastructure: Public Charging Station Counts* [Data], 2024. https://afdc.energy.gov/data/10309.

[75] Oak Ridge National Laboratory. *National Household Travel Survey: Average Vehicle Miles Traveled by Age and Type*, 2009. https://nhts.ornl.gov/tables09/fatcat/2009/avmtvs_VEHAGE_VEHTYPE.html.

[76] Fire Apparatus Manufacturers' Association. *Survey Results: Electrification Trends in Emergency Vehicles*, 2017. https://www.fama.org/wp-content/uploads/2017/12/1514564588_5a466bec19c41.pdf.

[77] CALSTART. *Medium- and Heavy-Duty EV Deployment Data*. https://calstart.org/projects/medium-heavy-duty-ev-deployment-data/.

[78] U.S. Department of Energy. *Public EV Charging Infrastructure Projections* [Data], 2024. https://afdc.energy.gov/data/10310.

- **Advanced Clean Trucks:** The ACT scenario was developed to exactly correlate to the sales goals set by California regulators.[79] The S-curve for this scenario matches the sales percentages laid out in the ACT regulation within 4% and has a maximum sales percentage of 75%.
- **Advanced Clean Fleets (ACF) and ACT:** The ACF and ACT scenario presents a more aggressive scenario than ACT alone. It is intended to project an adoption scenario where both regulations are in place. Because ACF is a population-based regulation as opposed to a sales-based regulation, this S-curve was fitted to match the California Air Resources Board's (CARB's) estimated impact of ACF and ACT.[80]

[79] RMI. *Understanding California's Advanced Clean Truck Regulation*. https://rmi.org/understanding-californias-advanced-clean-truck-regulation/.

[80]California Air Resources Board. *Advanced Clean Fleets Regulation Summary*. https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-fleets-regulation-summary.

16. APPENDIX H: CONFIDENTIAL ESTIMATED EXPENDITURE

Estimated Expenditure	Measure Type	2026	2027	2028
Commercial Program	**Infrastructure**	**$1,963**	**$2,557**	**$3,072**
Admin		[redacted]	[redacted]	[redacted]
Evaluation		[redacted]	[redacted]	[redacted]
Incentives		[redacted]	[redacted]	[redacted]
Marketing		[redacted]	[redacted]	[redacted]
Residential Program	**Infrastructure**	**$309**	**$341**	**$353**
Admin		[redacted]	[redacted]	[redacted]
Evaluation		[redacted]	[redacted]	[redacted]
Incentives		[redacted]	[redacted]	[redacted]
Marketing		[redacted]	[redacted]	[redacted]
Grants	**Infrastructure**	**$4,578**	**$3,350**	**$3,972**
Admin		[redacted]	[redacted]	[redacted]
Evaluation		[redacted]	[redacted]	[redacted]
Incentives		[redacted]	[redacted]	[redacted]
Marketing		[redacted]	[redacted]	[redacted]
Managed Charging	**Infrastructure**	**$370**	**$482**	**$0**
Admin		[redacted]	[redacted]	[redacted]
Evaluation		[redacted]	[redacted]	[redacted]

Estimated Expenditure	Measure Type	2026	2027	2028
Incentives		[redacted]	[redacted]	[redacted]
Marketing		[redacted]	[redacted]	[redacted]
Portfolio	**Infrastructure**	**$460**	**$466**	**$501**
IT Dashboard		[redacted]	[redacted]	[redacted]
Grant BluePrint		[redacted]	[redacted]	[redacted]
New Program Development		[redacted]	[redacted]	[redacted]
Potential Studies		[redacted]	[redacted]	[redacted]
REC Purchases		[redacted]	[redacted]	[redacted]
Tool Development		[redacted]	[redacted]	[redacted]
Public Infrastructure Pilot	**Infrastructure**	**$1,506**	**$3,342**	**$3,680**
Admin		[redacted]	[redacted]	[redacted]
Capital		[redacted]	[redacted]	[redacted]
Evaluation		[redacted]	[redacted]	[redacted]
Marketing		[redacted]	[redacted]	[redacted]
O&M		[redacted]	[redacted]	[redacted]
Total**		**$9,185**	**$10,537**	**$11,579**

17. APPENDIX I: DISCUSSION OF PROPOSED TARIFF CHANGES

Pacific Power proposes revisions to its Oregon Transportation Electrification Rate schedules and Rule 13 to increase its flexibility for providing incentives and making its offerings more accessible to a broader customer base. The proposed changes to the tariffs are aimed at ensuring flexibility in product lists; targeting the greatest need for more incentive dollars to be allocated; helping customers with utility-side meter costs; and identifying that the submetering requirement had caused certain projects to discontinue due to the cost of submetering and the limited gain of being on a different rate. These tariffs are intended to remove unnecessary barriers to participation in Pacific Power's electric vehicle programs.

Below is a high-level summary of the proposed tariff changes, as shown in redlines in the proposed tariff adjustment documents themselves.

17.1 Schedule 119 - Fleet Make Ready Pilot

PacifiCorp proposes amendments to Schedule 119 to ease participation for fleet make ready customers in the PacifiCorp Fleet Make Ready Pilot. This includes: 1) clarifying the role of qualified products list as determined by PacifiCorp; 2) removing a cap on the incentive amount for customers to support projects that need greater assistance; 3) allowing incentive dollars to cover costs beyond behind-the-meter costs and cover utility-side upgrade costs; and 4) removing the requirement of submetering for fleet make ready sites when costs are prohibitive.

PACIFIC POWER
A DIVISION OF PACIFICORP

OREGON
SCHEDULE 119

TRANSPORTATION ELECTRIFICATION
FLEET MAKE READY PILOT

The Purpose

To provide eligible Customers with incentives to install Electric Vehicle (EV) charging infrastructure to support fleet electric vehicles at fleet and commercial sites.

Available

In all territory served by the Company in the State of Oregon.

Applicable

To Nonresidential Customers that own/lease two electric vehicles during the project period. The Pilot will be open to all classes of fleet EVs (Classes 1 through 9) including on-road and off-road EVs. A scoring system will also be used to confirm customer eligibility, providing a transparent framework to ensure fairness when determining eligibility. The criteria in this scoring system align with the program objectives to serve the above customer segment, prioritize small businesses, and customers in Environmental Justice Communities as defined by Oregon House Bill 2021.

Definitions

Activation Date - date that PacifiCorp first determines an EVSE is Operational.

Electric Vehicle Supply Equipment (EVSE) – the device, including the cable(s), coupler(s), and embedded software, installed for the purpose of transferring electricity between the electrical infrastructure at the Site and the EV.

Electric Vehicle Service Provider (EVSP) – provider of connectivity across a network of EVSE(s).

Customer – As defined in Rule 1 Definitions.

Point of Delivery – As defined in Rule 1 Definitions.

Make-Ready Cost – the cost to design and construct and/or upgrade the Make-Ready Infrastructure.

Delivery – As defined in Rule 1 Definitions.

Behind-The-Meter Make-Ready Infrastructure – the infrastructure at the Site to deliver electricity from the Point of Delivery to the EVSE(s), including any panels, conduit, wires, connectors, civil work, meters, and any other necessary hardware.

Make-Ready Port – Make-Ready Infrastructure constructed in a way that supports the future installation of EVSEs with the corresponding number of ports. For example, a site constructed with Make-Ready Infrastructure for five dual-port EVSEs would have ten (10) Make-Ready Ports.

Operational – an EVSE installed at the Site is able to transfer energy between the Site wiring and the EV, with any applicable payment methods (e.g., credit card, phone app, subscription card), and transmitting operational data (e.g. energy usage, session start/end times) to the Qualified EVSP.

(continued)

Definitions (continued)

Qualified EVSE – list of qualified EVSE(s), as determined by PacifiCorp and/or the Electric Power Research Institute EVSE products list.

Qualified EVSP – list of qualified EVSP(s), determined by PacifiCorp.

Eligibility

Customers are nonresidential Customers that use or operate fleets of at least 2 EVs (including, but not limited to, commercial, non-profit, public, school or transit fleets). Customers must own or lease the Site to be eligible.

Enrollment

The enrollment period for Customers will be open until available funds for the pilot have been fully reserved. Customers may apply at https://www.pacificpower.net and apply.

Incentive

Customers will pay for the project, less a custom incentive to cover all costs associated with Make-Ready Infrastructure, including both the behind-the-meter make-ready infrastructure costs as well as front-of-the-meter make-ready infrastructure costs. The customer incentive will be calculated by adding up construction labor, materials, upgrade costs, less a calculated custom incentive that included the following cost categories. Construction labor, materials, utility side costs, and behind-the-meter equipment costs will be estimated based on quantity takeoffs from the customer's behind-the-meter plans and other costs associated with EVSE installation.

Special Conditions

1. Customers will own and maintain all EVSE charging equipment. This includes Level 2 charging stations, DCFC charging stations, required software to operate, and EVSE housing. All required behind the meter system upgrades will be owned and maintained by the Customer.
2. The Site Owner may be required to grant an easement to PacifiCorp to maintain PacifiCorp-owned facilities.
3. Customers will authorize and require the Qualified EVSP to provide operational data (e.g. charging session data, energy interval data) to PacifiCorp or the Customer will provide this data to PacifiCorp. The Customer agrees to allow PacifiCorp and its agents and representatives to use data gathered as part of the pilot in regulatory reporting, ordinary internal business use, industry forums, case studies or other similar activities, in accordance with applicable laws and regulations and to participate in PacifiCorp led research such as surveys.

17.2 Schedule 118 - Non-Residential Charging Pilot

PacifiCorp proposes amendments to Schedule 118 to facilitate customer participation in commercial programming. The proposed amendments include fixing language to be more general for non-residential customers, increasing incentives for all commercial customers, including a new customer type for small businesses, allowing the ability to make initial- and post-install payments to customers to help with upfront cost constraints, and removing port count limits and time of use requirements for small commercial customers.

PACIFIC POWER
A DIVISION OF PACIFICORP

OREGON
SCHEDULE 118

TRANSPORTATION ELECTRIFICATION
NONRESIDENTIAL CHARGING PILOT

Purpose

The purpose of the Transportation Electrification Nonresidential Charging Pilot is to improve the access and economic viability of charging for all Nonresidential Customers by providing an incentive to help offset the costs associated with the purchase and installation of qualifying electric vehicle supply equipment (EVSE).

Available

In all territory served by the Company in the State of Oregon

Applicable

To Nonresidential Customers

Customer Participation

Customer participation is voluntary and is initiated by following the participation procedures on the Company website. The Company shall have the right to qualify participants, at its discretion, based on criteria the Company considers necessary to ensure the effective operation of the measures, utility system, and program budget.

Program Description

PacifiCorp proposes to offer a cash or on-bill incentive for nonresidential customers installing qualifying charging infrastructure. This program will also offer targeted incentives for installing charging to increase charging access for renters. Non-residential customers earn a per-port incentive for installing qualifying Level 2 (L2) electric vehicle charging equipment at their location and increased incentives for being a multifamily property or small business.
This Pilot provides a Standard EVSE Installation Rebate (Standard Rebate) for Nonresidential Customers who purchase and install a Level 2 (L2) charger. For Nonresidential Customers who meet the requirements as a Small Business (SB) or Multi-Family Housing (MFH) will receive an increased eligible installation rebate to purchase and install a L2 charger.

Qualifying EVSE and Costs

Qualifying EVSE will be determined from either a Company Qualified Products List or reference national qualifying product lists such as the Electric Power Research Institute EVSE products list. The costs covered under this Pilot include licensed electrician labor, materials, and permits. Participants may be required to provide copies of contractor invoices, required permits, and proof of purchase and installation of a qualifying L2 charger to participate in the Pilot.

Incentive Reservations

Qualifying Customers may apply to reserve incentive funds based on the project's total number of ports. Reserved incentive funds will remain reserved until the project is completed or canceled. Projects that are not completed within 18 months without a written explanation for the delay will be canceled. Incentives will be returned for projects that are canceled. Incentive funds for projects where fewer than the proposed number of ports are installed will be reduced to the total number of installed ports and the remaining incentive funds will be returned to the available reservation funds. Incentives may be paid in two installments.

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Incentive Amounts

The Pilot will provide a one-time rebate for the purchase and installation of a qualified L2 EVSE:

Standard EVSE Installation Rebate	Up to $3,500 per port; and 75 percent of EVSE total charger and installation costs paid
Small Business and MFH Eligible EVSE Installation Rebate	Up to $5,000 per port; and 75 percent of EVSE total charger and installation costs paid
Direct Current Fast Charging Installation Rebate	Up to $30,000 per port; and 75 percent of EVSE charger and installation costs paid.

Special Conditions

1. To be eligible for an incentive, Nonresidential and small business Customers must submit a Program Administrator approved application(s), provide all required documentation, and receive pre-approval.
2. Equipment purchased or installed prior to receipt of the Company's pre-approval may not be eligible for incentives.
3. Incentives will be available on a first come first served basis until incentives are expended.
4. Eligible Customers must consent to provide charger usage data.
5. The Company and its agents reserve the right to inspect installations.
6. Applications may be subject to charger, incentive and/or per project caps.

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17.3 Schedule 117 - Residential Charging Pilot

PacifiCorp proposes amendments to Schedule 117 to remove the residential standard rebate from the tariff and to make an income eligible tariff due to free ridership within the current pilot. This pilot is being changed from an incentive available to any customer instead to one that is only for income-eligible customers. This change would clarify the role of the EVSE qualified products list as determined by PacifiCorp, remove the residential standard rebate, and increase the income eligible incentive amount for both the Level 2 and 240 V rebates.

PACIFIC POWER
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OREGON
SCHEDULE 117

TRANSPORTATION ELECTRIFICATION
RESIDENTIAL CHARGING PILOT

Purpose

The purpose of the Transportation Electrification Residential Charging Pilot (Pilot) is to improve the access and economic viability of home charging for Residential Customers by providing an incentive to help offset the costs associated with the purchase and installation of qualifying electric vehicle supply equipment (EVSE).

Available

In all territory served by the Company in the State of Oregon.

Applicable

To Residential Customers otherwise receiving Delivery Service under Schedule 4, in conjunction with Supply Service Schedule 201.

Customer Participation

Customer participation is voluntary and is initiated by following the participation procedures on the Company website. The Company shall have the right to qualify participants, at its discretion, based on criteria the Company considers necessary to ensure the effective operation of the measures, utility system, and program budget.

Program Description

This Pilot provides an Income-Eligible EVSE Installation Rebate for Residential Customers who purchase and install a Level 2 (L2) charger at their residence. This Pilot provides a lower valued rebate for income-eligible residential customers who install a 240 Volt (V) outlet to plug a L2 charger at their residence. For Residential Customers who meet the income qualifications outlined in Income Eligibility[1], Income-Eligible EVSE Installation Rebates (Income Eligible Rebate) are available.

Qualifying EVSE and Costs

Qualifying EVSE will be determined by referring to the Electric Power Research Institute EVSE products list or meet the requirements set by the Company. The costs covered under this Pilot include licensed electrician labor, materials, and permits. Participants will be required to provide copies of contractor invoices, required permits, and proof of purchase and installation of a qualifying L2 charger to participate in the Pilot. Qualifying costs are the same for a 240 V outlet except for the purchase of a L2 charger.

Incentive Amounts

The Pilot will provide a one-time rebate for the purchase and installation of a qualified L2 EVSE or a 240 V outlet.

[1] Find information regarding income eligibility requirements. Oregon rebates for home chargers

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PACIFIC POWER
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OREGON
SCHEDULE 117

TRANSPORTATION ELECTRIFICATION
RESIDENTIAL CHARGING PILOT

Incentive Amounts (continued)

Income Eligible Rebate

L2 Charger	Rebate Up to $2,000 capped at 100 percent of qualified costs	Income
240 V Outlet Rebate	Rebate Up to $500 rebate for installation of a 240 V outlet, capped at 100 percent of qualified costs	

Eligibility

Low-income qualified customers demonstrate eligibility through participation in low-income programming, including the Oregon Energy Fund, Low Income Home Energy Assistance Program, or the Oregon Energy Assistance program. Information on these programs is available at: https://www.pacificpower.net/my-account/payments/bill-payment-assistance.html

Special Conditions

1. To be eligible for an incentive, Customers must submit a Program Administrator approved post-purchase application and meet all Program requirements.
2. Incentives will be available on a first come first served basis until budget funds are exhausted. The Company and its agents reserve the right to inspect installations.
3. Applications may be subject to charger and per project caps.

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17.4 Rule 13 - Line Extensions

PacifiCorp proposes two amendments to Rule 13. The first proposed change is for nonresidential EVSE charging to support EV commercial customers who have low utilization of EV charging equipment by creating a more flexible monthly contract minimum billing requirement. The second is to reduce the contract minimum bill term for customers that accept the standard line extension allowance for nonresidential customers of one-times estimated annual revenue, instead of the two-times estimated annual revenue line extension allowance available to EVSE customers. Changes made to Rule 13 are intended specifically to encourage projects to move forward and support the State's Transportation Electrification goals.

Customers in Pacific Power's service area tend to have low load factors of usage at their charging stations (1-3 percent), due to being in rural, less populated areas. Also, fleet customers are often not able to scale quickly and struggle to pay the monthly contract minimum billing when taking the full two-times estimated annual revenue line extension allowance. The large contract minimum bills often do not support the business case for customers to electrify their fleets. The Company's proposed solutions to this issue include delaying the monthly contract minimum billing requirement for Transportation Electrification customers and allowing Transportation Electrification customers to reject the two times estimated annual revenue Extension Allowance, and receive a one times estimated annual revenue Extension Allowance in exchange for a shortened contract minimum billing term length of five years. If the Company's proposal is accepted, the Company may delay charging a contract minimum billing for Transportation Electrification customers requiring up to 1,000 kW. The delay may extend up to a period of five years or until the customer reaches a load factor of thirty percent of the load request included in the line extension application, whichever happens first.

17.5 Schedule 60- Company Operated Electric Vehicle Charging Station Service

PacifiCorp proposed to provide discounted rates for income-eligible customers to improve access and serve PacifiCorp underserved customers more directly. Traditionally lower-income residents live in multi-unit dwellings (MUDs) or areas without access to at-home EV charging or private parking and must use street parking.[8] The transportation burden tends to be higher for lower income groups. The residents who don't have their own private parking tend to pay higher prices for public charging than most other EV owners who can charge their vehicles at home.[9] This income-eligible rate discount is an effort to promote more access to transportation electrification for certain classes of utility customers and builds on the Company's existing efforts to promote equity as demonstrated in Tariffs 117 and 7 in Oregon.[10]

PacifiCorp proposes a discount to be applied for customers who are income-eligible, which will result in a 40% discount on charging stations over 19.2 kW (DC Fast Charging). The proposed On-Peak rate would be 28¢ per kWh for charging stations over 19.2 kW (DC Fast Charging). The proposed Off-Peak rate would be 18¢ per kWh for charging stations over 19.2 kW (DC Fast Charging). These customers will also qualify for the off-peak rate at all times, for charging stations under 19.2 kW (Level 2), with the rate set at 7 ¢ per kWh. Customers would apply to PacifiCorp, receive a discount code with proof of income eligibility, and input the discount code into the EVSE software registering their account so payments can be discounted at the time of each EV charging session.

Additionally, PacifiCorp proposes removing the Off -Peak Period from Schedule 60 due to some implementation difficulties and most charging at PacifiCorp stations already occur Off-peak. The Company-Owned public EVSE in Oregon are operated by an EVSP who is unable to automate holiday rates and off-peak rate transitions. As such, each holiday change must be made manually and can cause inconsistencies in rate offerings.

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OREGON
SCHEDULE 60

COMPANY OPERATED ELECTRIC VEHICLE CHARGING STATION SERVICE

Available

In all territory served by the Company in the State of Oregon.

Applicable

To electric vehicle charging service provided from Company operated electric vehicle charging stations.

Billing

Any individual using Company operated electric vehicle charging stations for the purpose of recharging the battery of an electric vehicle shall pay for such service at the rates described below, plus the applicable adjustment(s) as specified in Schedule 90.

Charging Stations under 19.2 kW (Level 2)	
On-Peak, per kWh	15 ¢
Off-Peak, per kWh	7 ¢

Charging Stations over 19.2 kW (DC Fast Charging)	
On-Peak, per kWh	47 ¢
Off-Peak, per kWh	30 ¢
On-Peak, per kWh (Income Eligible)	28 ¢
Off-Peak, per kWh (Income Eligible)	18 ¢

On-Peak Period

5:00 p.m. to 9:00 p.m.

Off-Peak Period

All other times

Provisions

1. Operation, repair and maintenance of electric vehicle charging stations on this rate schedule will be responsibility of the Company.
2. Inoperable electric vehicle charging stations will be repaired as soon as reasonably possible, during regular business hours or as allowed by Company's operating schedule and requirements, provided the Company receives notification from a Consumer or a member of the public by notifying PacifiCorp's customer service (1-888-221-7070).
3. The Company may at its discretion install, relocate, modify, or remove electric vehicle charging stations. Potential modifications to Company operated electric vehicle charging stations may include adding, removing, or changing electric vehicle supply equipment available for charging service.
4. The Company may include an idle fee if the individual occupies DC Fast Charging Station for more than 10 minutes after the completion of the recharging event. The Company shall base this fee on a rate of 10¢ per minute.

Income Eligible Pricing

1. Income qualified customers pay a discounted price for charging service and demonstrate eligibility using the parameters listed on the Resources tab on the PacifiCorp website: https://www.pacificpower.net/savings-energy-choices/electric-vehicles/home-charger-rebates.html.

PACIFIC POWER
A DIVISION OF PACIFICORP

OREGON
SCHEDULE 60

COMPANY OPERATED ELECTRIC VEHICLE CHARGING STATION SERVICE

Page 1

Customer Participation

Customer participation is voluntary and is initiated by following the participation procedures on the Company website. The Company shall have the right to qualify participants, at its discretion, based on criteria the Company considers necessary to ensure the effective operation of the measures, utility system, and program budget.

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