

Washington Transportation Electrification Plan

Addendum



September 2022

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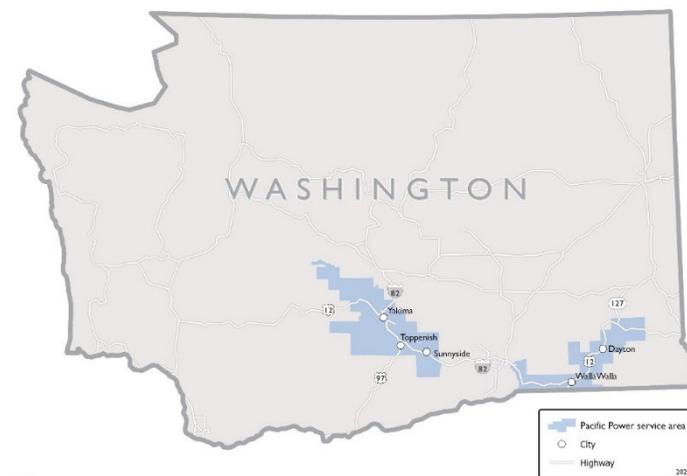
I. About PacifiCorp

PacifiCorp is a multijurisdictional, vertically integrated utility that serves nearly two million customers in six western states: California, Idaho, Oregon, Utah, Washington, and Wyoming. In Washington, PacifiCorp serves approximately 137,000 customers throughout Yakima, Walla Walla, Columbia, Benton, Cowlitz, and Garfield counties. The company’s generation and transmission systems span the West and connect customers to safe, reliable, affordable, and increasingly renewable electricity. Our integrated transmission system connects thermal, hydroelectric, wind, solar, and geothermal generating facilities with markets and loads. The diversity of this integrated system benefits all of PacifiCorp’s customers in all six states. PacifiCorp owns approximately 11,500 megawatts (MW) of generating capacity and about 16,500 miles of transmission lines.

PacifiCorp’s large regional footprint enables delivery of low-cost generation from some of the best wind and solar sites in the country and the Company remains actively engaged in finding ways to leverage the benefits of geographic diversity for our customers as we develop and implement plans to deliver the targets set forth in Washington’s Clean Energy Transformation Act (CETA).

Over the past 13 years, PacifiCorp has successfully reduced its greenhouse gas (GHG) emissions and improved reliability while simultaneously delivering energy cost savings to our customers. The company has achieved these results by collaborating with others and through the visionary and collaborative efforts of our own generation, transmission, information technology, and energy supply management teams. PacifiCorp has been a key player in the creation of an open and connected western grid. All these factors have brought PacifiCorp into a very favorable position to achieve Washington’s decarbonization goals.

PacifiCorp Service Area—Washington



II. Introduction

To enable the Commission's review and consideration of issuing an acknowledgment of PacifiCorp's 2022 Transportation Electrification Plan ("TEP"), PacifiCorp is providing this addendum to its TEP as filed in Docket UE-220359 to incorporate updates and clarify aspects of the plan.

PacifiCorp submitted its TEP in May of 2022. The Company has continued to engage with Commission Staff, customers, stakeholders, and industry partners to further refine its approach to addressing the rapidly evolving transportation electrification sector. That work has resulted in some refinement to the plan as originally submitted. This addendum is meant to clarify the following items:

- Provide an updated forecast in light of new policy shifts;
- Add in targets and goals associated with proposed programs;
- Highlight a more comprehensive reporting schedule;
- Discuss and clarify distribution system impacts; and
- Provide new language regrading interoperability standards as it relates to future programming.

III. Updated Forecast

To account for evolving public policy, market and stakeholder inputs realized since the Company initially filed its TEP in April 2022, PacifiCorp has modified its tariff filing to better reflect the current transportation electrification environment. The update of PacifiCorp's transportation electrification forecast is primarily the result of two policies that were recently adopted, which are summarized below.

- On August 16, 2022 the Federal government passed the Inflation Reduction Act¹ (IRA) maintained and extended the clean vehicle tax credit to incentivize the purchase of a qualified electric vehicles or plug-in hybrid vehicle and also created a new tax credit to incentivize the purchase of a previously owned electric vehicles or plug-in hybrid vehicle. The IRA also made provisions for investment in transportation electrification infrastructure.
- On August 25, 2022 the California Air Resources Board today approved a rule establishing a roadmap so that by 2035 100% of new cars and light trucks sold in California would be zero-emission vehicles, including plug-in hybrid electric vehicles. While the rule is not specific to Washington state, it is anticipated that California's overall market share of new vehicles will influence manufactured vehicles produced for other states, particularly those on the west coast.

As a result of these recently adopted policies the vehicle forecast for Pacific Power's Washington service area was increased to reflect a more aggressive adoption of electric vehicles during the planning horizon. Since the number of vehicles is a key component of estimated TEP cost and revenues, the following tables and figures from the previous TEP were updated in line with the revised forecast.

Figure 1: Historical (2013–2021) and Future (2022–2031) EV Penetration in Washington Service Area

¹ <https://www.congress.gov/bill/117th-congress/house-bill/5376/text>

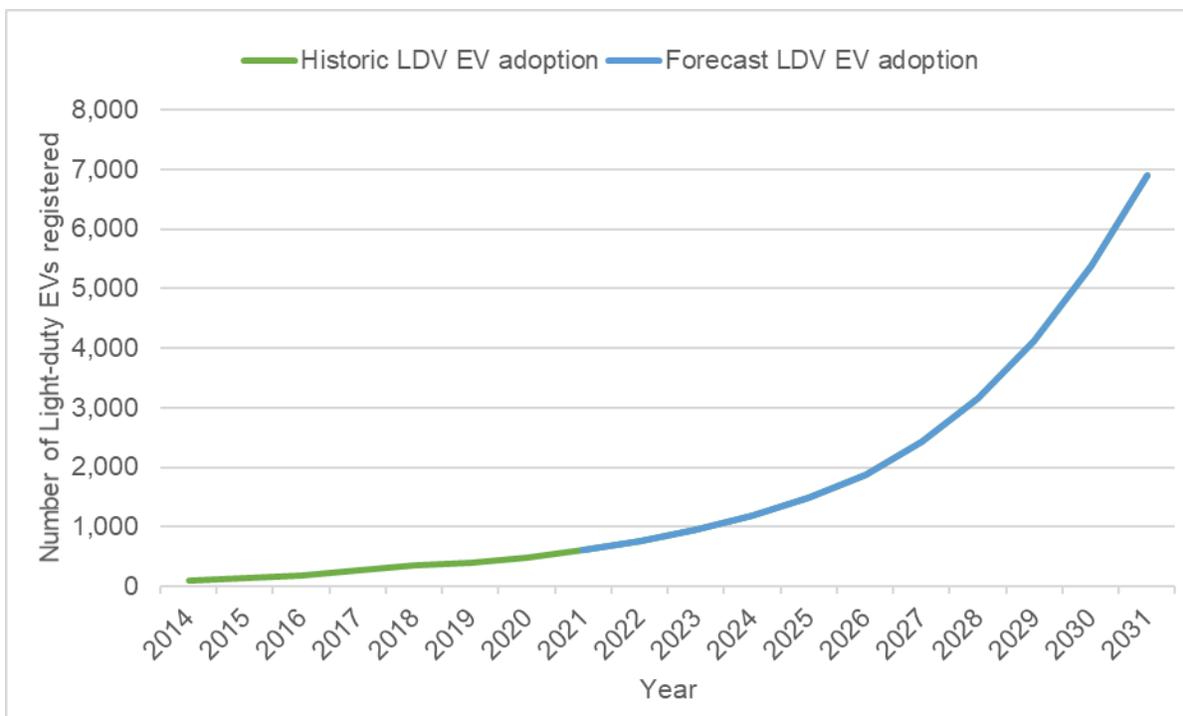


Table 1: Estimated Benefits of EV Growth in PacifiCorp’s Washington Service Area

Year	Total Number of Light-Duty EVs	Customer Benefits (O&M Savings)	Net Benefits ⁹	Regional Benefits (GHG Reductions in MT CO2e)
2022	765	\$1,255,266	\$148,671	2,051
2023	958	\$1,571,953	\$196,457	2,634
2024	1,192	\$1,955,917	\$258,157	3,345
2025	1,484	\$2,435,051	\$377,167	4,729
2026	1,884	\$3,091,399	\$525,743	6,370
2027	2,426	\$3,980,751	\$704,886	8,251
2028	3,160	\$5,185,149	\$1,006,601	11,394
2029	4,130	\$6,776,793	\$1,378,411	15,084
2030	5,377	\$8,822,958	\$1,932,194	20,420
2031	6,892	\$11,308,876	\$2,633,510	26,870
Total	6,892	\$46,384,113	\$9,161,797	101,148

Notes: Section V: Benefits and Costs discusses in-depth the methodology and calculations derived in Figure 3.

Table 2: Estimated Load Growth On System Due To EVs

Year	Total Number of Light-Duty EVs	Total MWh (at site)	Total Coincident MW (Winter)*	Coincident MW (Summer)*
2022	765	3,017	0.28	1.10
2023	958	3,720	0.35	1.37
2024	1,192	4,573	0.43	1.71
2025	1,484	5,660	0.53	2.12
2026	1,884	7,140	0.67	2.69

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2027	2,426	9,140	0.86	3.46
2028	3,160	11,846	1.12	4.50
2029	4,130	15,416	1.46	5.88
2030	5,377	20,001	1.89	7.65
2031	6,892	25,566	2.42	9.79

*Coincident peak impacts assume charging patterns remain the same over time. It's likely that managed charging and Time of Use rates will decrease coincident peak impacts from electric vehicles over time.

Table 3: Estimated Benefits of EV Growth in PacifiCorp's Washington Service Area

Year	Total Number of Light-Duty EVs	Customer Benefits (O&M Savings)	Net Benefits ⁶⁸	Regional Benefits (GHG Reductions in MT CO ₂ e)
2022	765	\$1,255,266	\$148,671	2,051
2023	958	\$1,571,953	\$196,457	2,634
2024	1,192	\$1,955,917	\$258,157	3,345
2025	1,484	\$2,435,051	\$377,167	4,729
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2030	5,377	\$8,822,958	\$1,932,194	20,420
2031	6,892	\$11,308,876	\$2,633,510	26,870
Total	6,892	\$46,384,113	\$9,161,797	101,148

Table 4: Estimated EV Customer O&M Savings

Year	Total Vehicles	Customer O&M Savings (\$)
2022	765	\$1,255,266
2023	958	\$1,571,953
2024	1,192	\$1,955,917
2025	1,484	\$2,435,051
2026	1,884	\$3,091,399
2027	2,426	\$3,980,751
2028	3,160	\$5,185,149
2029	4,130	\$6,776,793
2030	5,377	\$8,822,958
2031	6,892	\$11,308,876
Total	6,892	\$46,384,113

Table 5: Estimated Total Energy Consumption of EVs

Year	Total Number of Light-Duty EVs	Estimated Total Energy Consumption (MWh at site)
2022	765	3,017
2023	958	3,720

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2024	1,192	4,573
2025	1,484	5,660
2026	1,884	7,140
2027	2,426	9,140
2028	3,160	11,846
2029	4,130	15,416
2030	5,377	20,001
2031	6,892	25,566

Table 6: Forecasted Energy and Demand Impacts for EVs

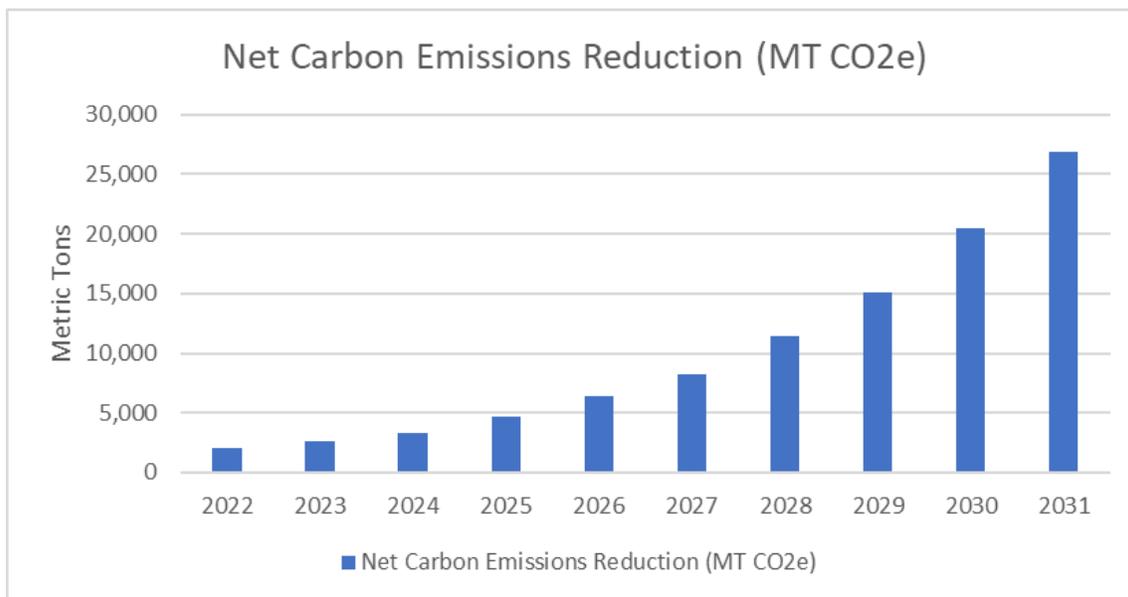
Year	Total Number of Light-Duty EVs	Estimated Total Energy Consumption (MWh)	Total Coincident MW (Winter)	Coincident MW (Summer)
2022	765	3,017	0.28	1.10
2023	958	3,720	0.35	1.37
2024	1,192	4,573	0.43	1.71
2025	1,484	5,660	0.53	2.12
2026	1,884	7,140	0.67	2.69
2027	2,426	9,140	0.86	3.46
2028	3,160	11,846	1.12	4.50
2029	4,130	15,416	1.46	5.88
2030	5,377	20,001	1.89	7.65
2031	6,892	25,566	2.42	9.79

Note: Total MWh and MW impacts are inclusive of medium- and heavy-duty vehicles and account for utility line losses.

Table 7: Forecasted Costs and Benefits for EVs

Year	Total Number of Light-Duty EVs	Estimated Total Energy Consumption (MWh)	Gross Billing Revenue	Estimated Net Benefits ⁸⁵
2022	765	3,017	\$270,445	\$148,671
2023	958	3,720	\$333,248	\$196,457
2024	1,192	4,573	\$410,509	\$258,157
2025	1,484	5,660	\$506,947	\$377,167
2026	1,884	7,140	\$640,556	\$525,743
2027	2,426	9,140	\$821,006	\$704,886
2028	3,160	11,846	\$1,064,954	\$1,006,601
2029	4,130	15,416	\$1,387,255	\$1,378,411
2030	5,377	20,001	\$1,801,490	\$1,932,194
2031	6,892	25,566	\$2,304,923	\$2,633,510

Figure 2: Annual CO₂ Emissions Reductions Associated with Light-Duty EV Operation in Washington



IV. Overall Targets by Program Type

After further discussions with staff and stakeholders, PacifiCorp proposes the following estimated targets by program type to help monitor and evaluate program success.

- Named Communities Grant Program. The named communities grant program anticipates about 8-10 grants to be awarded over the next five years with grants maxing out at about \$100,000/grant.
- Outreach and Education Program. The outreach and education program is comprised of technical assistance, customer communications, dealership engagement and a new educational campaign that will be focused on k-5 schools led by a partner program administrator. The below tables shares the anticipated targets.
- Workplace Multifamily Charging. The workplace multifamily program assumes a make-ready program design at this time comprised of incentives for level 2 chargers.
- Public Infrastructure Program. The public infrastructure program would be a combination of utility-owned level 2, level 2 right-of-way pole charging and direct current fast charging stations throughout the service area.
- Grid Integration initiatives. PacifiCorp proposes a managed charging program for residential customers that would be run over a three-year pilot period. The assumption here is that about 10% of the current registered light-duty vehicles in the territory would be participating in this program.

Table 8: Estimated Targets by Program Type

Programmatic Type	Budget	Estimated Percentage of Budget	Estimated Port Targets		Estimated Target Participants Reached
			Level 2	DCFC	

Named Communities Grant Program	\$1,134,000	32%			~8-10
Outreach and Education	\$562,000	16%			
<i>Technical Assistance</i>					~60-70 (commercial and fleet feasibility studies)
<i>Customer Communications (radio, digital, social, e-mail in Spanish)</i>					Radio: ~150-250 spots/year Paid Digital Ads: ~600,000-700,000 impressions/year Paid Social Media: ~500,000-600,000 impressions/year Bill Inserts: ~12,000-15,000 customers/year Emails: ~15,000-20,000 emails/year
<i>Dealership Engagement</i>					~2-3 Dealerships engaged with Chargeway Beacons
<i>Educational eREV campaign</i>					~4,000-5,000 students
Workplace/Multifamily Charging	\$588,000	17%	~25-33		
Public Infrastructure Program	\$858,000	24%	~4-7	~15-21	
Grid Integration Initiatives	\$378,000	11%			~100-150 participating residential customers (~5% of 2027 forecast)
Total	\$3,520,000	100%			

V. Reporting Structure Update

PacifiCorp will release periodic reports to TEP stakeholders focusing on major program progress or changes, expenses, and revenues, with the first report released in Q4 2023, which will be an interim report on progress to date of the TE plan activities. A more detailed report will be released by end-of-year 2025 and may include updates on EV adoption and forecasts by type, updates on load and grid impacts, product activities and progress, lessons learned, expenses to date, and cover comprehensively the last two years of the TE Plan. In 2026, another interim report will be released covering the previous year. By end of 2027, PacifiCorp will deliver a final TE Plan report that will cover the last five years comprehensively as we also develop a new TE Plan.

VI. Distribution Grid Impacts Clarification

PacifiCorp's traditional Distribution System Planning study process includes developing load forecasts that look at the historical peak loading on a feeder to develop a growth rate that is applied over the study period (typically 5 years into the future). Since the load on the feeder can include residential and commercial EV's (EV

baseline growth), these are incorporated into the calculation of the load growth rate that is applied to the feeder each year during the planning study.

After the load forecast is completed, load flow analysis is performed on the feeder with the projected future load based on the load growth rate applied to determine if any grid needs are found (overcapacity, voltage, etc.). If a grid need is found a project is proposed to address the grid need.

Table 9 is primarily meant to provide an overview of how the EV load forecasted for a specific zip code is applied to a feeder. For example, the EV forecast for the specific zip code that includes feeder 5Y631 projected an increase of 1,168 kW of load by 2027, however there are 26 feeders in this specific zip code so when the load is divided among all feeders it is only 45 kW added to 5Y631. The magnitude of this load increase on the feeder is typical to what could be added to a feeder each year in the Distribution Planning Study process as described previously. This impact of 45kW, 78kW and 216kW respectively have limited to no anticipated impact on the system as most of the future EV load is small in comparison to the total anticipated load on the feeder.

Table 9: Potential Estimated Feeder Load Due to EV Growth

Location-Substation	Feeder Type	Feeder Name	2021 EV Totals		2027 Estimated EV Totals		Total EV Load Anticipated with Future EVs (kW)
			BEV	PHEV	BEV	PHEV	
Yakima-Wiley	Urban	5Y631	7	15	104	237	1,665
	Suburban	5Y382	3	6	39	89	622
	Rural	5Y860	11	25	176	401	2,810

Table 10: Potential Future EV Anticipated Load on Feeder

Location-Substation	Feeder Type	Total Load Anticipated on Feeder (kW)	Total Load Added to Feeders From EVs (kW)	% Future Anticipated of Load
Yakima-Wiley	Urban	6,087	64	~1%
	Suburban	7,954	78	~1%
	Rural	8,049	216	~3%

*Total load is inclusive of all customers served from the feeder

VII. Interoperability

PacifiCorp understands the importance of ensuring that programs adhere and adopt national and international standards when it comes to interoperability of EV charging stations. Specifically, PacifiCorp is looking to the recent National Electric Vehicle Infrastructure Formula Program recent rulemaking² regarding interoperability as well as open communications. PacifiCorp plans to adhere to these standards as programs are developed and implemented over the next five years requiring that chargers conform to ISO 15118 as well as uphold the Open Charge Point Protocol standards.

² Federal Highway Administration. June 2022. National Electric Vehicle Infrastructure Formula Program Proposed Rule. [Federal Register :: National Electric Vehicle Infrastructure Formula Program](#)

- “Proposed § 680.108 outlines minimum interoperability standards for charger communication with EVs. This section outlines and would promote industry standards for charging infrastructure consistent with standards outlined in ISO 15118, incorporated by reference in § 680.120. ISO 15118 is an international standard for EV-to-charger communication. ISO 15118 allows for several innovative techniques that are not yet widely adopted in the domestic EV charging marketplace, but that are of significant interest in the industry for future adoption such as Plug and Charge and smart charge management. As stated in the definitions section, Plug and Charge is a method of initiating charging and payment for charging upon plugging an EV into a charger. Smart charge management is another innovative technique that can provide tremendous benefits to include load management and grid resilience.”
- “Open Charge Alliance upholds OCPP specifically to address interoperable communication standards between chargers charging networks. As stated in the discussion regarding § 680.108, FHWA recognizes that smart charge management and Plug and Charge are newer technological capabilities not yet widely adopted in the industry and, as such, proposed regulations would require the capability to support these methods through compliance with OCPP, rather than requiring these methods outright. The FHWA recognizes that OCPP is a widely used industry standard for EV charger communication but solicits comments regarding the reference to OCPP and requests information on any alternative standards, including whether a performance standard would be more appropriate and, if so, what such a performance standard might look like.”

Appendix A: Stakeholder Feedback