

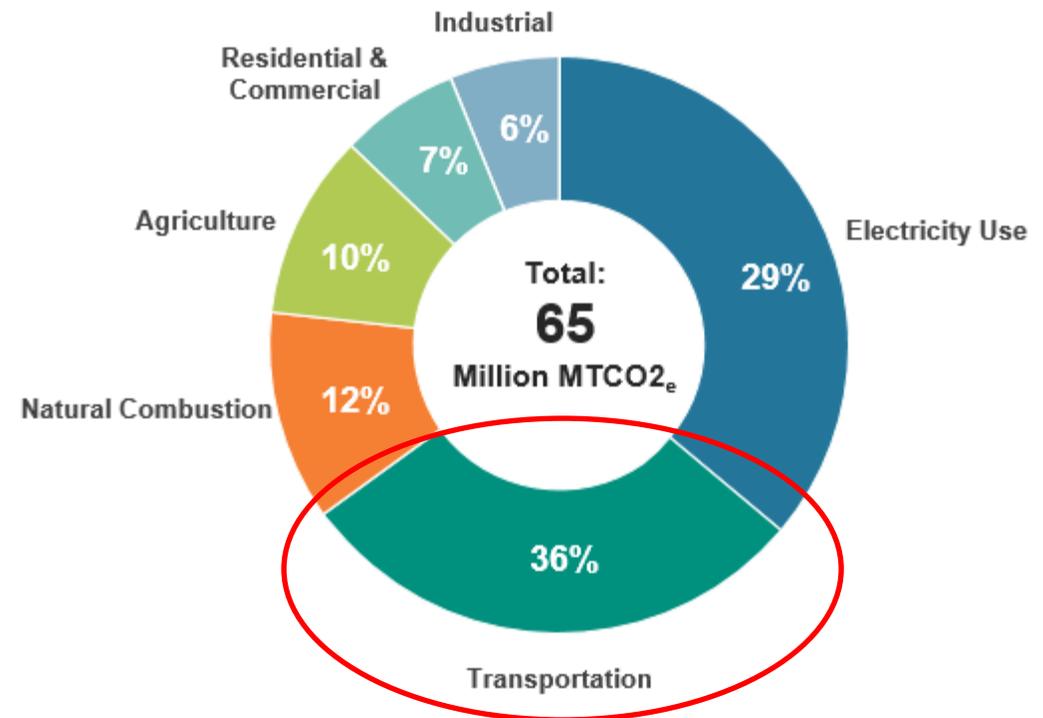
Transportation system electrification updates

Nov. 17, 2022, EQC meeting
Agenda Item C (Informational)

Background

- Vehicles contribute air quality pollutant emissions – particulate matter, CO, NO_x, and greenhouse gases

2019 GHG Emissions by Source



Charging Infrastructure

Environmental Quality Commission
November 17, 2022

*Amanda Pietz, Administrator
Policy, Data and Analysis Division
Oregon Department of Transportation*

Transportation Electrification



Electric Vehicles in Oregon

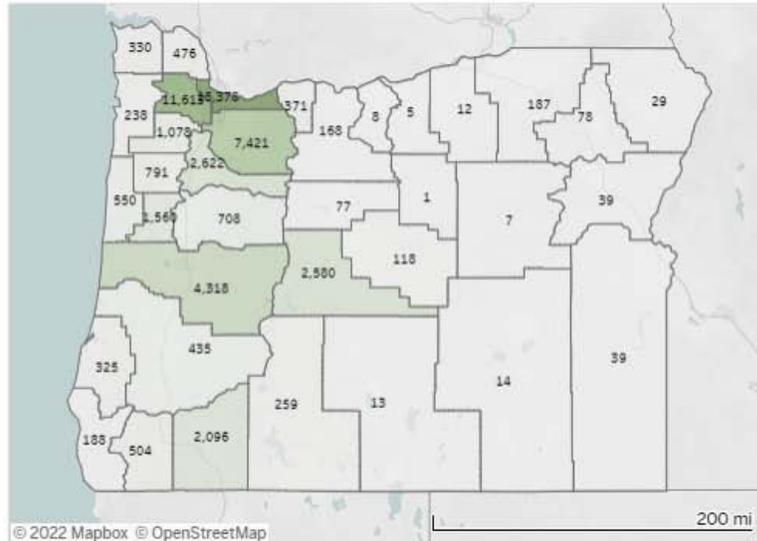
EV Registrations

EV Sales

Where Are Oregon's Zero-Emission Vehicles? Start here! → ?

- ZEVs in Oregon
- ZEV Registrations
- ZEV Charging
- Electricity vs. Gas
- Glossary
- About the Data

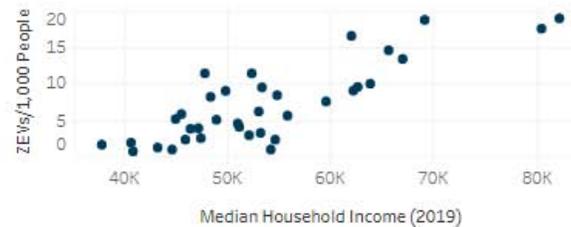
ZEVs by County as of July 2022



ZEVs by Type as of July 2022



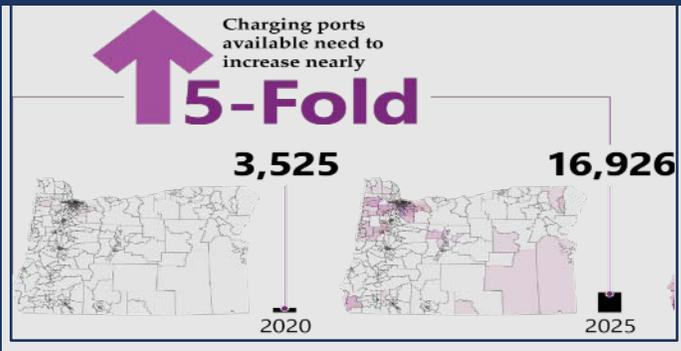
ZEVs/1,000 People vs. Income by County as of July 2022



*Out-of-state vehicles registered in Oregon are excluded from the map and scatter plot.

- Census Tract Map
- ZIP Code Map
- Utility Map





Public Charging Infrastructure



Light-duty

Focused Investments. Technology is ready and utilization increasing rapidly

Corridors, rural, BIPOC, workplace, multi-unit dwellings

Med & Heavy Duty

Emerging. Lower use today but new regulations will increase use soon. Infrastructure needed 5 years ahead.

Highest use corridors (e.g. I-5), pilot charging hubs, future proof light-duty sites

E-micromobility

Opportunistic. Rapid growth. Mostly served by at-home charging but should be enabled at charging stations.

Add 110v outlets to public charging sites, remove other barriers to increase overall use



Making Every Mile Driven Clean

ODOT Commits: \$100+ million for EV Charging

- \$4 million: West Coast Electric Hwy Upgrades

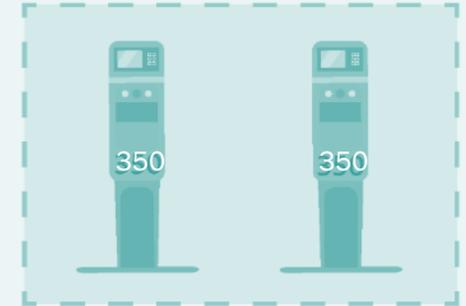
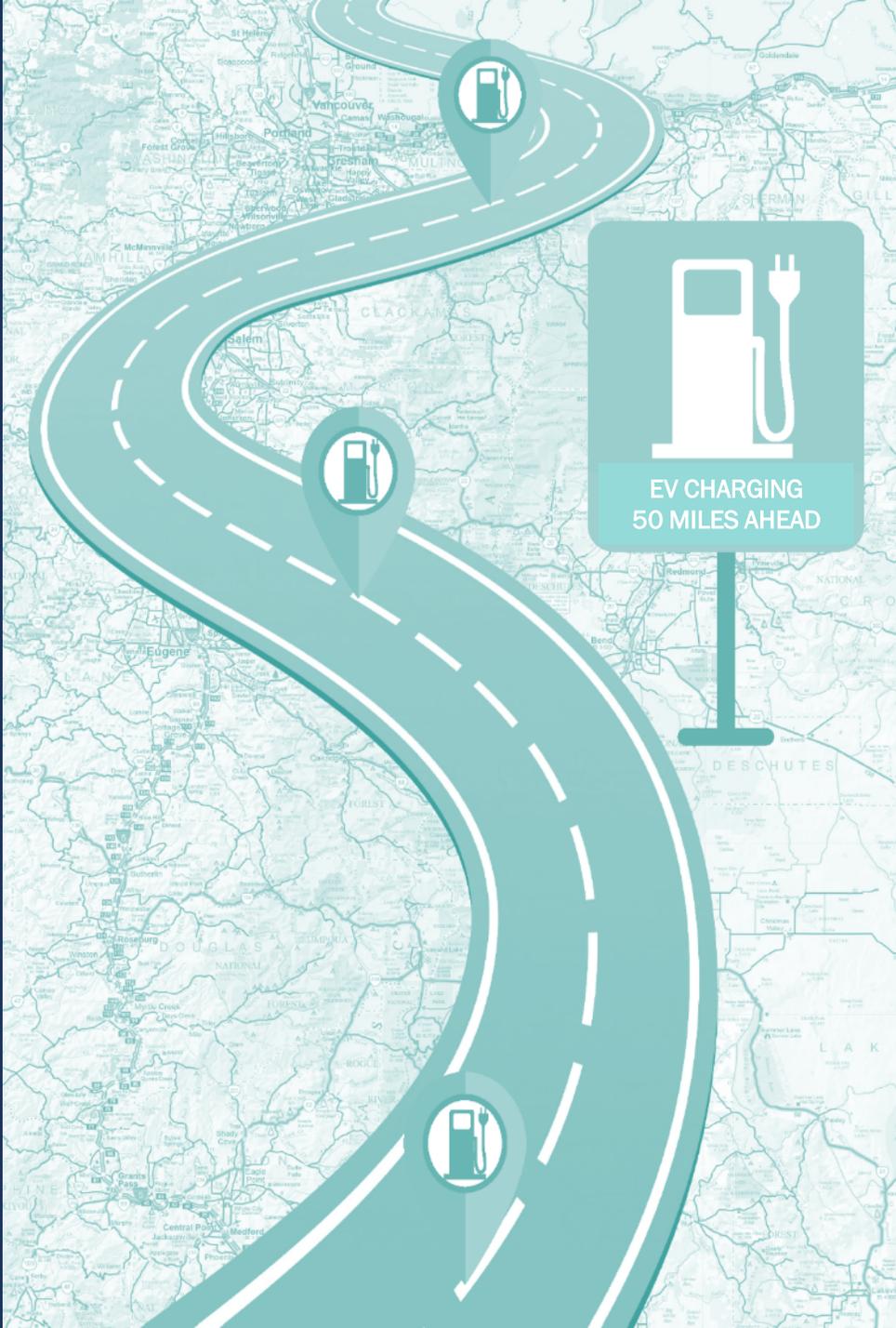
- \$65 million: National EV Infrastructure (NEVI) Program
- \$8 million: Community EV Charging Rebate Program
- \$23+ million: Additional Funds

Existing

Upcoming

National EV Infrastructure (NEVI)

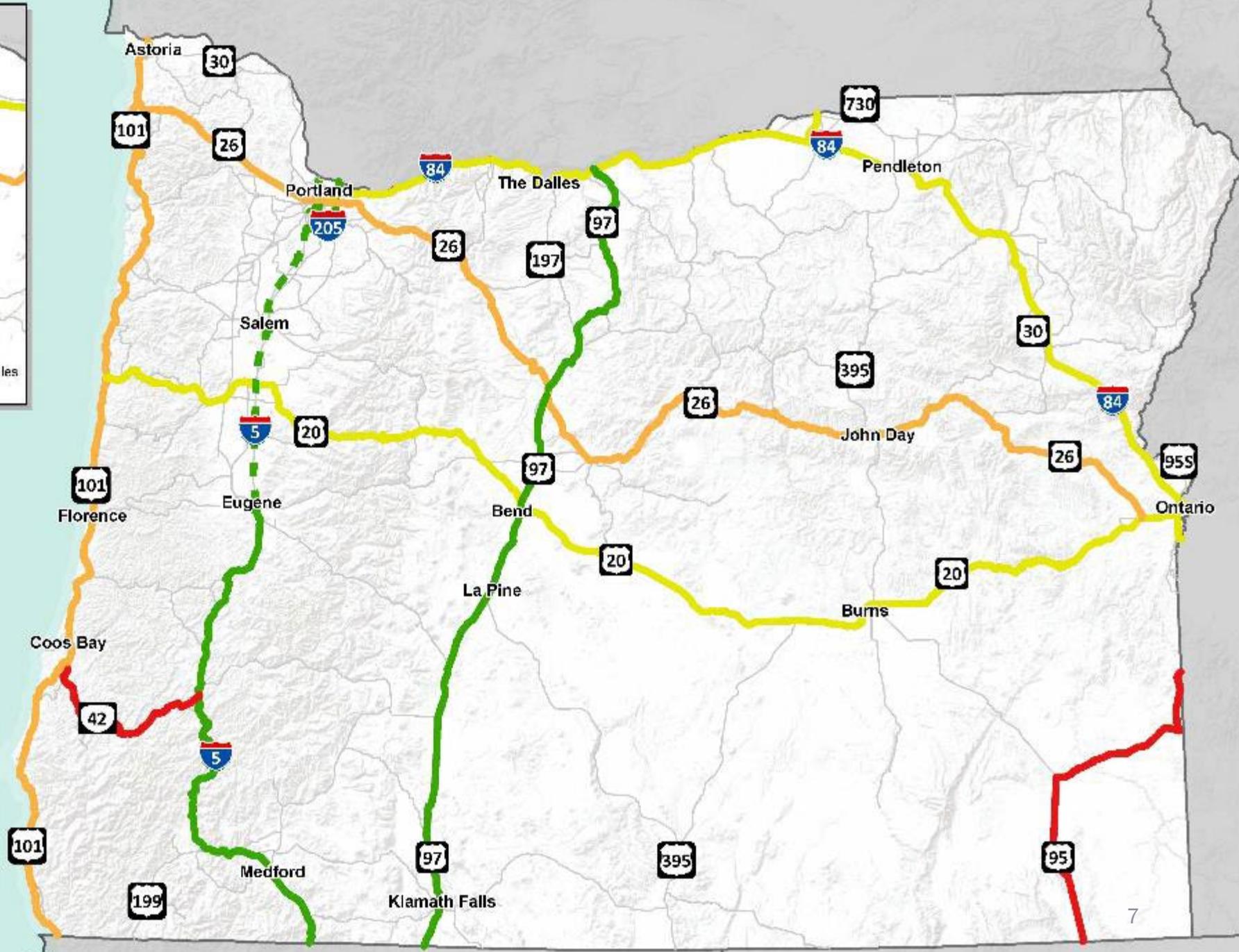
\$65M over next Five Years



Charging Stations Every 50 miles

Quad: 3x150 kW, 1x350 kW

Future proof for additional 350 kW chargers



Where will NEVI investments go?

ODOT: Community EV Charging Rebate Program

- \$8 million to support installations of Level 2 EV charging stations in strategic locations:
 - Stop and shop locations
 - Tourist Destinations
 - Multi-Unit Dwellings
- \$3,500 - \$4,500 per plug; up to 75% of total costs
- Launch expected in 2023



The Future of Charging Infrastructure

- Massive public and private sector investments
 - ODOT and Federal Government
 - Private Sector
 - Utilities
 - More
- The infrastructure will be there to meet future needs!



Home > News > Chevron, Texaco stations to integrate ultra-fast EV chargers via FreeWire

Chevron, Texaco stations to integrate ultra-fast EV chargers via FreeWire

The supplier has announced a program to equip the company's owned and independent branded sites with its e-mobility solutions.

Last update: October 4, 2022



Home / News / Trucking / Electric Trucks / Daimler Truck, BlackRock and NextEra Energy's \$650M bet on electric infrastructure

Electric Trucks Infrastructure News Top Stories Trucking

Daimler Truck, BlackRock and NextEra Energy's \$650M bet on electric infrastructure

First stations target battery-electric followed by making hydrogen fuel available

Alan Adler - Tuesday, February 01, 2022



Daimler Truck North America, BlackRock Renewable Power and NextEra Energy Resources plan a \$650 million joint venture to build charging infrastructure for electric and hydrogen fuel cell medium- and heavy-duty trucks. (Image: Daimler Truck North America)

Home > Newsroom > Portland General Electric L.

Portland General Electric to provide rebates to customers who install EV chargers at home

New pilot program available now for PGE customers who own or lease an electric vehicle, up to \$1,000 available to income-eligible customers

Feb. 02, 2021

Portland, Ore., – Recognizing that cost is often a barrier to electric vehicle ownership, Portland General Electric (NYSE: POR) today announced a pilot program that provides up to a \$500 rebate for residential customers who own or lease an electric vehicle to install a charger at home. Income-eligible customers could qualify for up to a \$1,000 rebate. The new rebate pilot program also rewards customers who allow

Exclusives Autos Alt. Transport Autonomy Energy Tesla Shop

This oil giant and Hertz are building a massive fast-charging network for EV rentals starting at LAX

Peter Johnson - Oct. 28th 2022 2:59 pm PT



Questions?

Pacific Power Transportation Systems Electrification



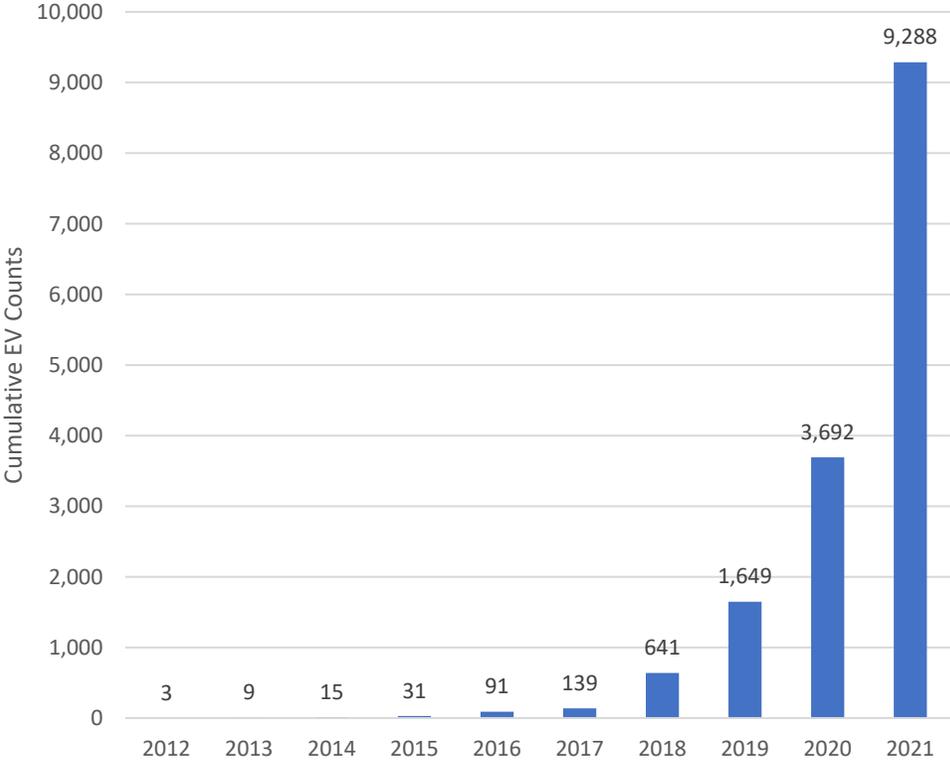
Nov. 17, 2022

Current State of Electric Vehicle Adoption & Charging Infrastructure

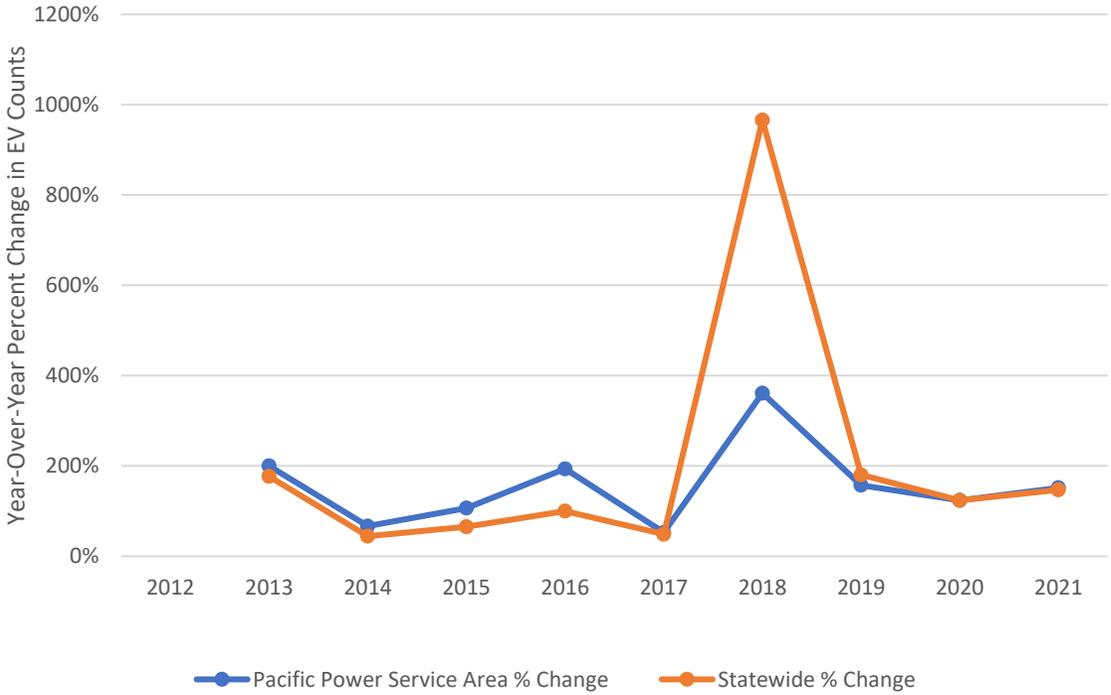


Electric Vehicle Adoption

Electric Vehicle Adoption Curve
PacifiCorp Service Area

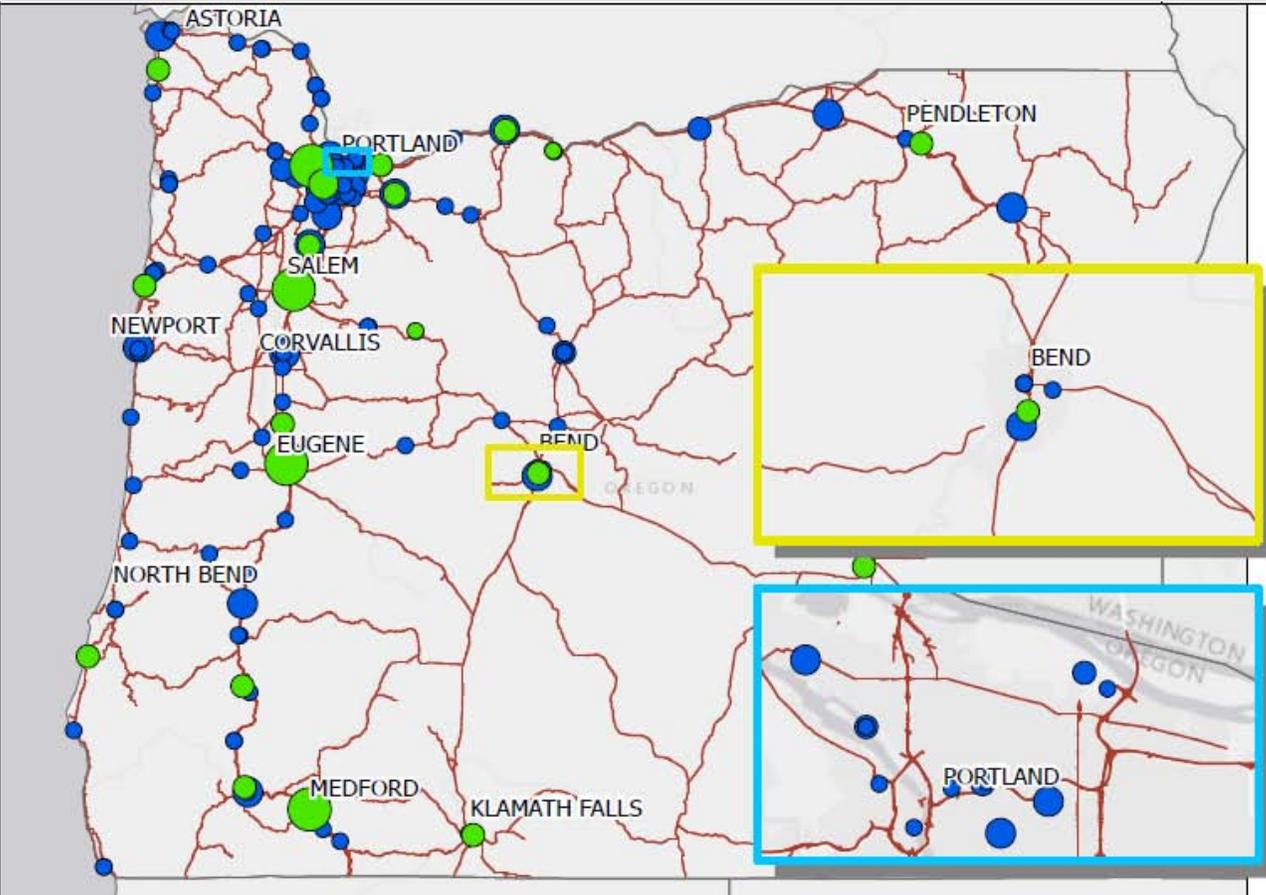


PacifiCorp Service Area % Change Compared to % Change
Statewide



Source: Oregon Department of Energy. (2022, June 20). Oregon Electric Vehicle Dashboard. Oregon.gov. <https://www.oregon.gov/energy/Data-and-Reports/Pages/Oregon-Electric-Vehicle-Dashboard.aspx>.

DC Fast Charging Infrastructure: Oregon Statewide



PacifiCorp Service Territory

DC Fast Chargers

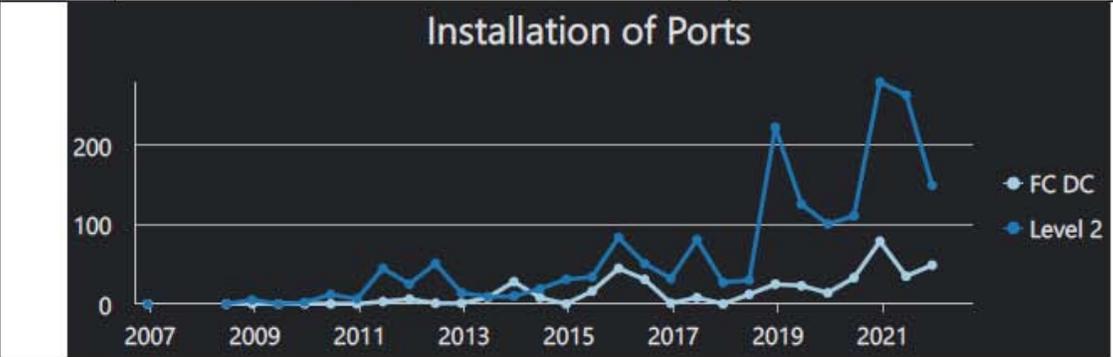
By Ports

- 1
- 2
- 3 - 4
- 5 - 8
- 9 - 12

Connection Type

- Tesla Compatible
- Non-Tesla

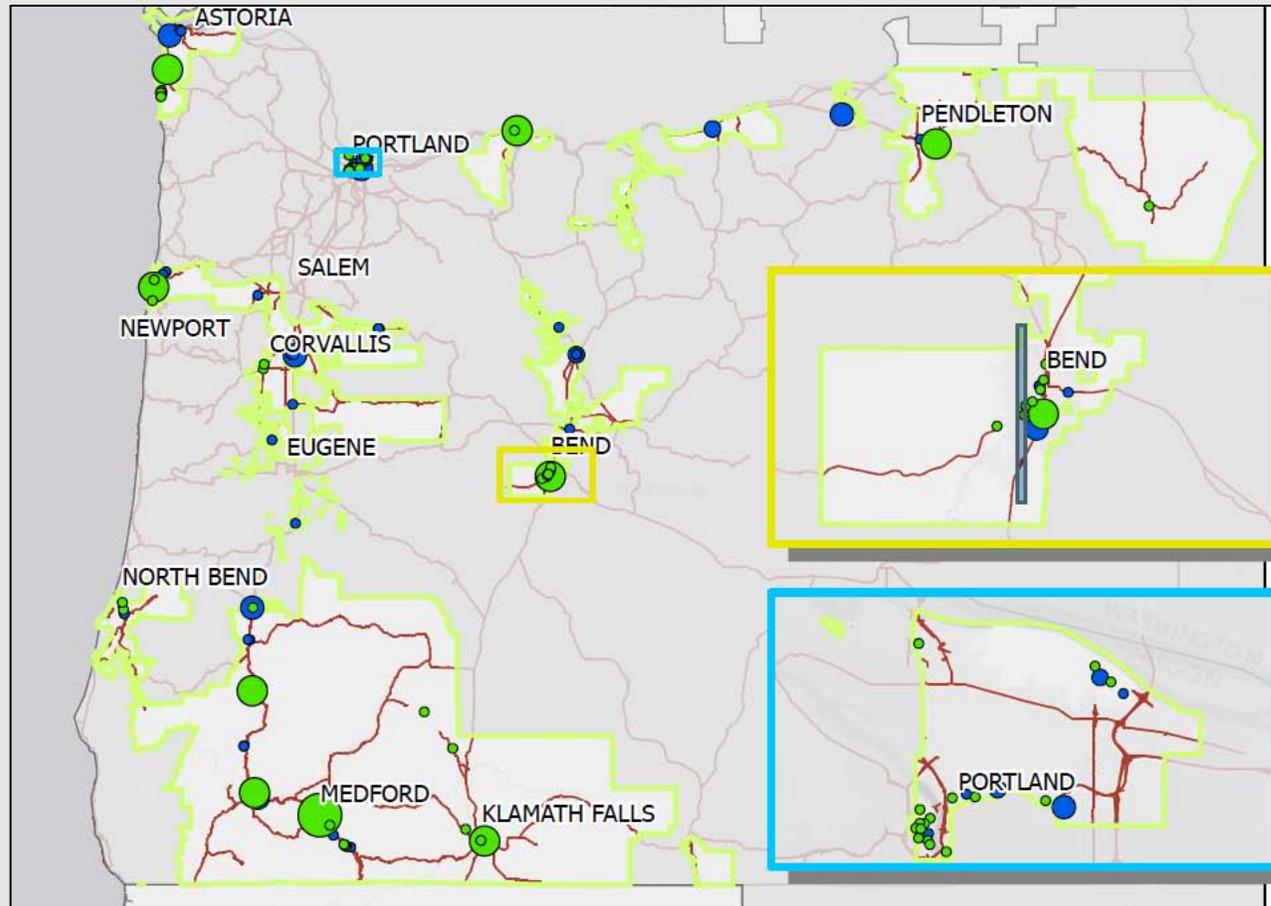
Dept. of Energy - Alternative Fuel Data Center, Oregon Dept. of Transportation, Esri, HERE, Garmin, USGS, EPA, NPS



- Total DC Fast Chargers Ports: 455

- Total Level 2 Ports: 1,924

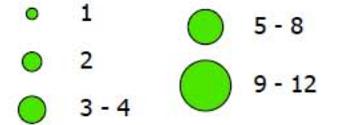
DC Fast Charging Infrastructure: PacifiCorp Service Area



PacifiCorp Service Territory

DC Fast Chargers

By Ports

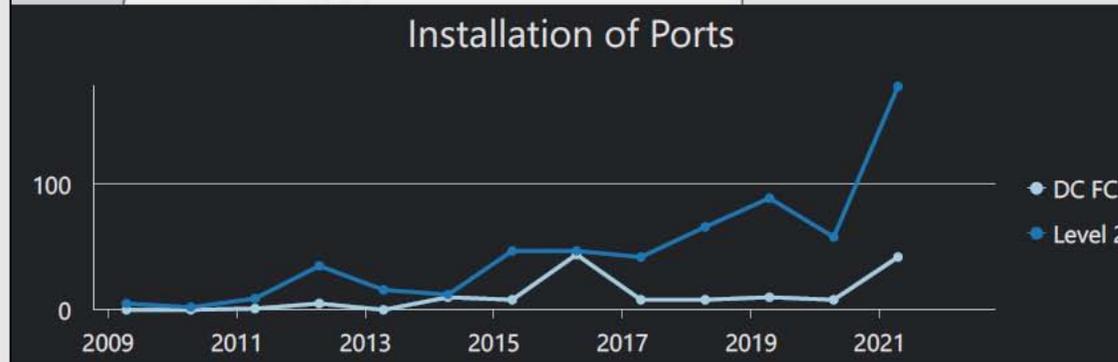


Connection Type



Dept. of Energy - Alternative Fuel Data Center
Oregon Dept. of Transportation, County of Clark, Oregon Metro, Bureau of Land

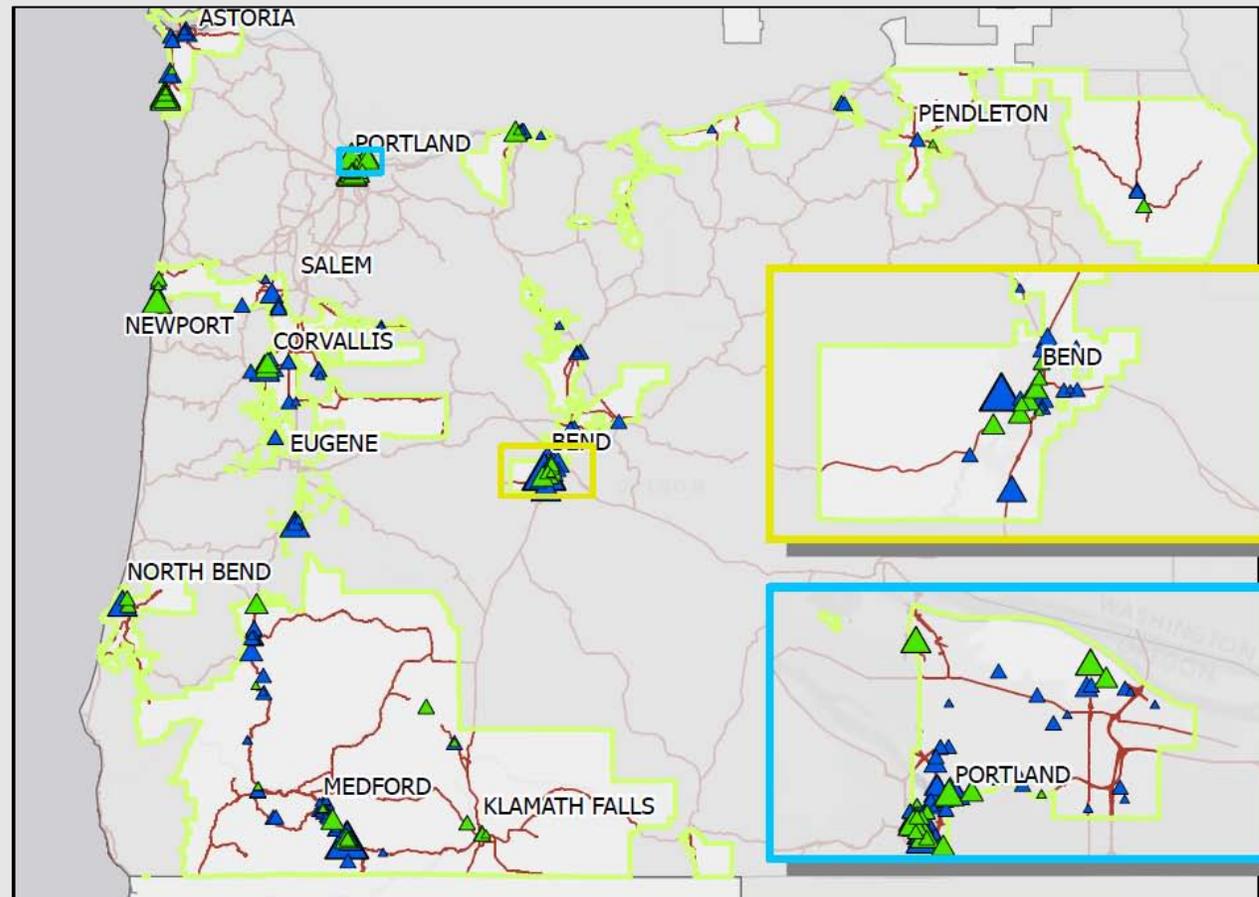
Installation of Ports



- Total DC Fast Chargers Ports: 173

- Total Level 2 Ports: 663

Level 2 Charging Infrastructure: PacifiCorp Service Area



PacifiCorp Service Territory

Level 2 Chargers

By Ports

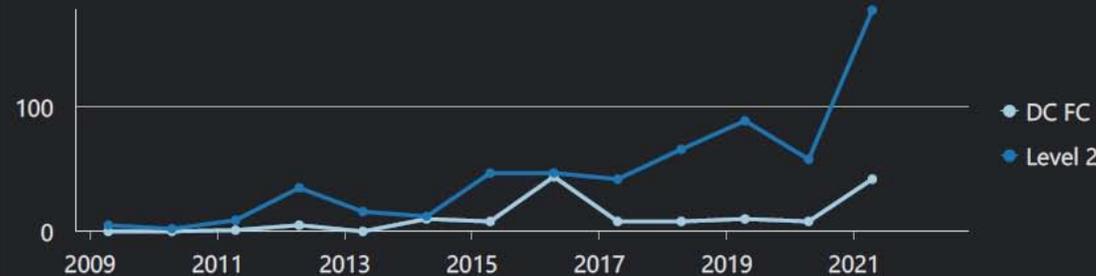
- ▲ 1
- ▲ 2
- ▲ 3 - 4
- ▲ 5 - 8
- ▲ 9 - 12

Connection Type

- ▲ Tesla Compatible
- ▲ Non-Tesla

Dept. of Energy - Alternative Fuel Data Center,
Oregon Dept. of Transportation, County of Clark, Oregon Metro, Bureau of Land

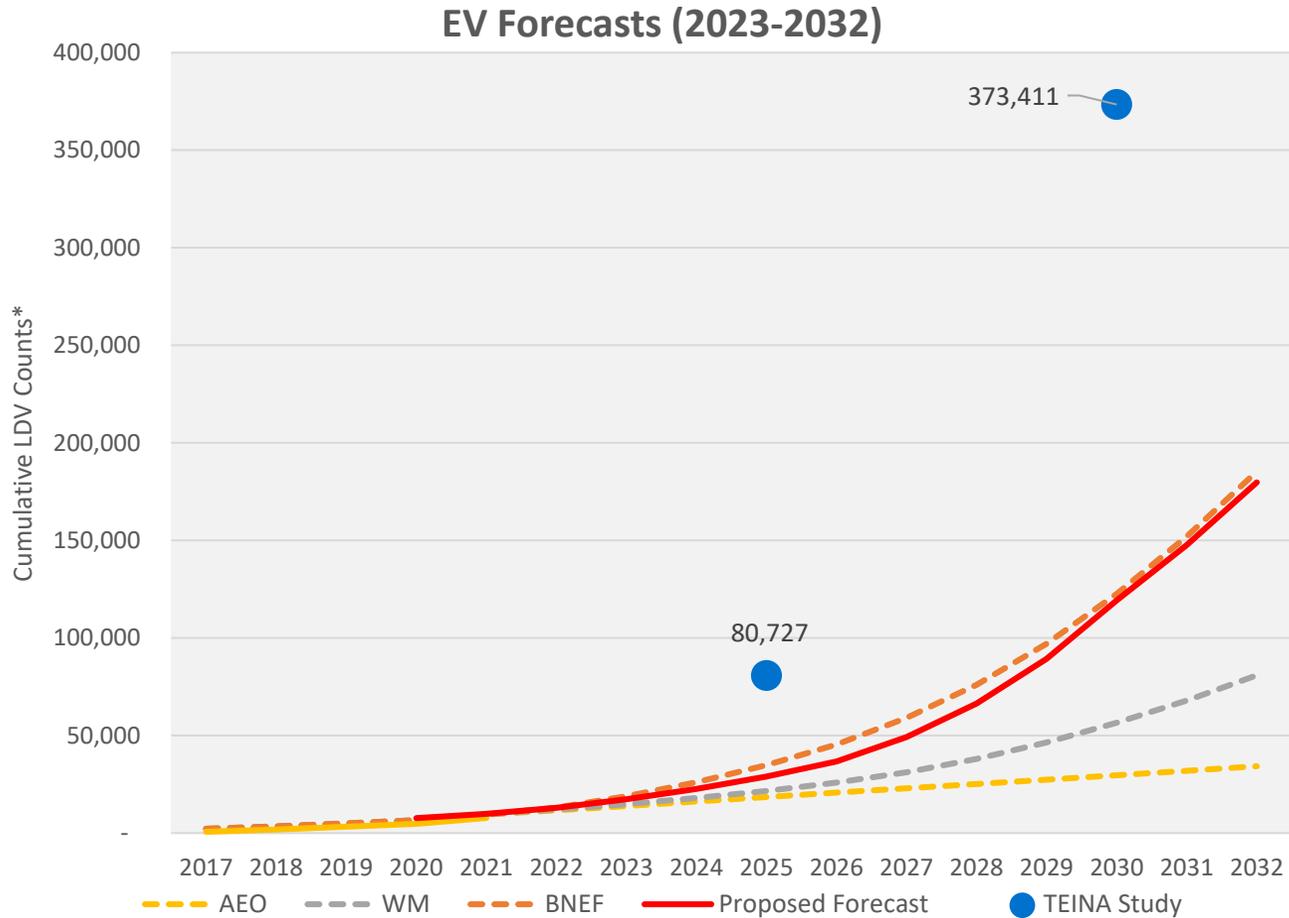
Installation of Ports



- Total DC Fast Chargers Ports: 173

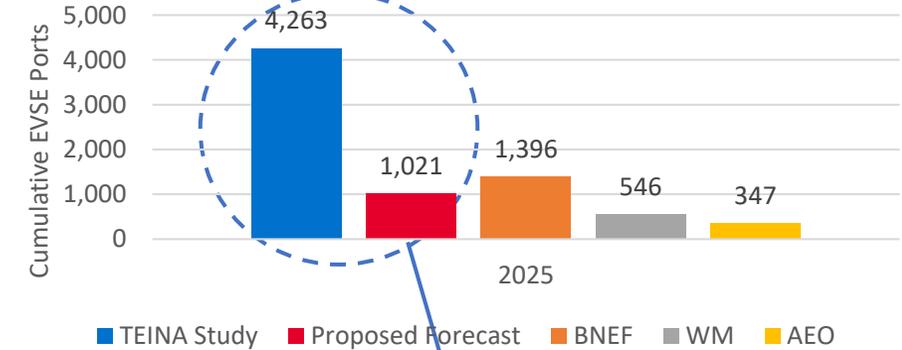
- Total Level 2 Ports: 663

Estimated Cumulative EVSE Needs in PacifiCorp Service Area by 2025

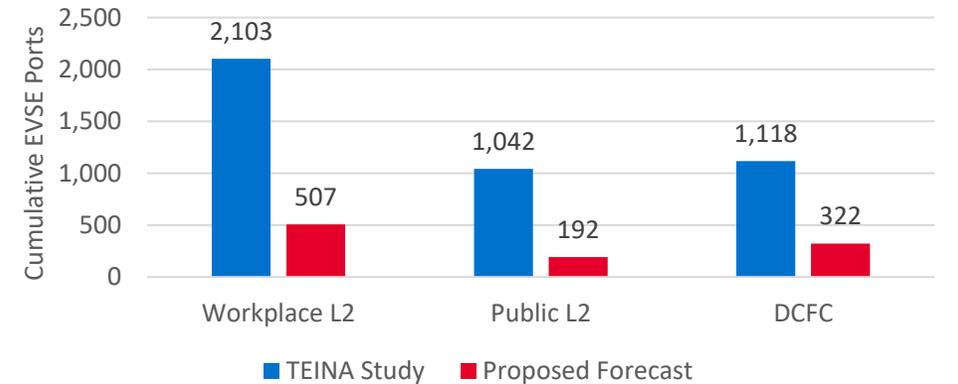


*Currently, only considering the light-duty vehicle forecast

Cumulative EVSE Needs** in PacifiCorp's Oregon Service Area by 2025, by Forecast



EVSE by Type



**Estimated EVSE count based on consistent TEINA model assumptions EVSE to LDV ratios.

Goals & Objectives

Goal: To be a trusted advisor for equitable acceleration of the transportation electrification sector across all our communities in the West

**Objective 1:
Elevate
Awareness of
Transportation
Electrification**

**Objective 2:
Electrify Equitably
Enabling Access
Throughout Our
Territory**

**Objective 3:
Manage Grid
Impacts
Effectively**

**Objective 4:
Reduce Costs to
Customers**

Customer Programs Draft Roadmap 2023–2025

Residential

Commercial & Multifamily

Fleet & Medium/ Heavy Duty

Grant Initiatives

Outreach

2023	2024	2025
	Residential EVSE Rebate Pilot Program	
	Residential Time-of-Use Rate	
★	Residential Managed Charging Pilot Program	
	Commercial & Multifamily Technical Assistance Program	
	Non-residential EVSE Rebate Program	
	Commercial Time-of-Use Rate	
★	Public Infrastructure Utility-Owned Program	
	★ Support EV Code Ready Enhancement	
	Fleet Technical Assistance Program	
★	Fleet Make-Ready Pilot Program	
★	Public Infrastructure Utility-Owned Program	
	E-Mobility Grant Program	
	Matching Grant Program	
	Grant Writing Microgrants	
	★ Municipal and Community Grant Program	
	Outreach & Education Pilot Program	

★ New Activity

Estimated TE Portfolio Size

Program Type	Estimated Total Value (\$) 2023–2025	Potential Forecasted Maximum Guardrails	Estimated Percentage of Portfolio	Clean Fuels	Sector Support				
					Residential	Commercial	Multifamily	Fleet	Medium & Heavy Duty
Rebates	\$25–\$41 million	\$23–\$66 million	23%		✓	✓	✓		
Make Ready			10%			✓	✓	✓	
Planning, Grid Integration & Load Management			3%	✓	✓	✓	✓	✓	
Public Infrastructure Utility-Owned			14%		✓	✓	✓		✓
EVSE Code Support			4%	✓		✓	✓		
Outreach and Education			10%	✓	✓	✓	✓	✓	✓
Grant Programs			36%	✓	✓	✓	✓	✓	✓

*The estimated ranges are based on varying levels of clean-fuels revenue. With market volatility, PacifiCorp has identified programs that can be ramped up and down

**Estimated percentage by programmatic type includes administration and portfolio operating support costs

House Bill 2021



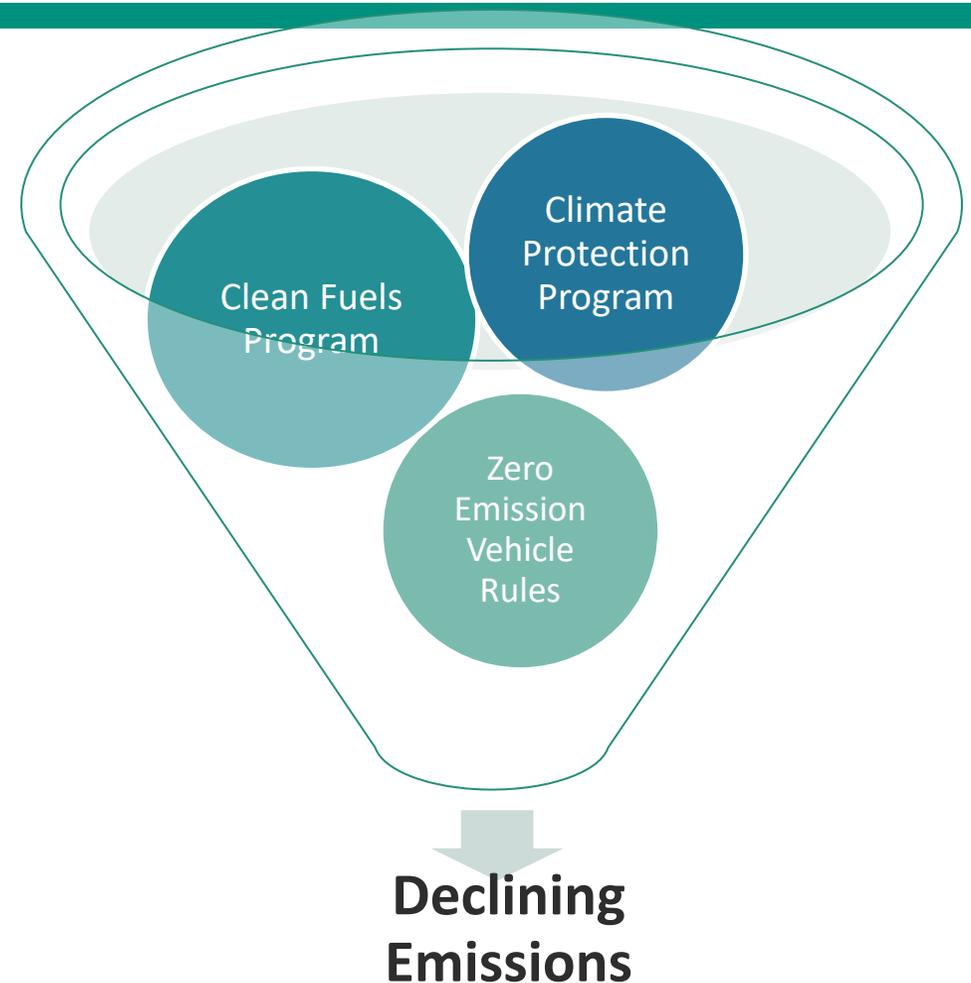
QUESTIONS?



Contact Information:
Kate Hawley, EV Senior Product Manager
kate.hawley@pacificorp.com

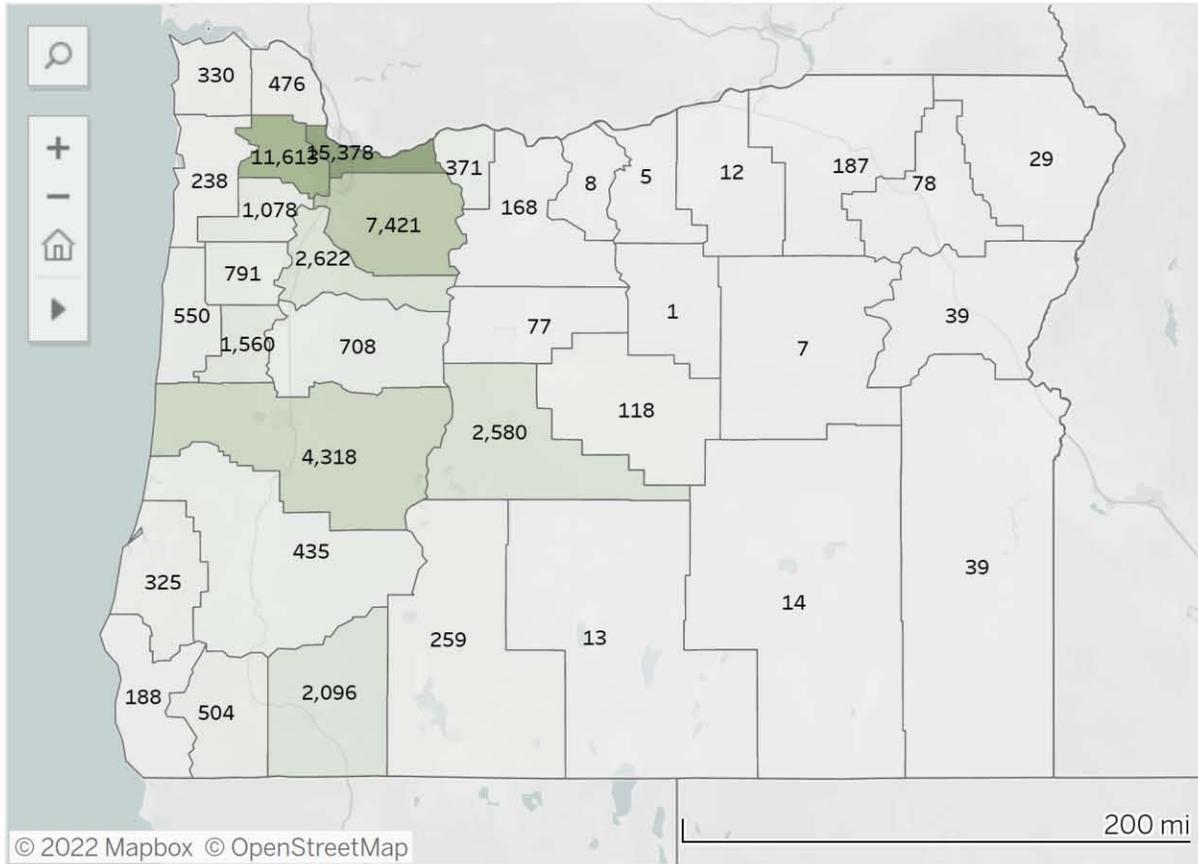
EQC actions to reduce transportation GHG emissions

- Climate Protection Program
- Clean Fuels Program
- Zero Emission Vehicle rules
 - LEV/ZEV for light-duty vehicles
 - Advanced Clean Trucks for medium and heavy-duty vehicles



EV Registrations in Oregon

ZEVs by County as of July 2022



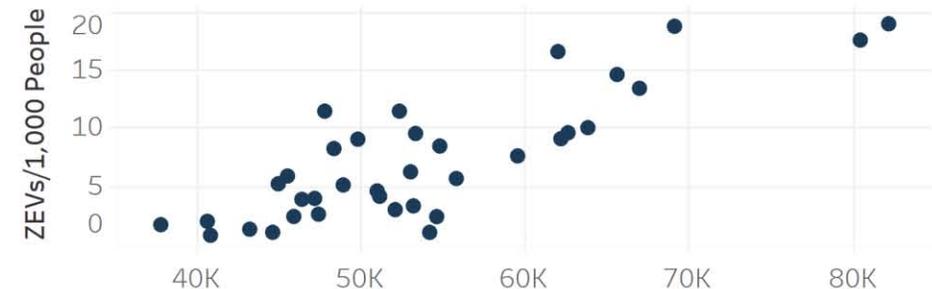
ZEVs by Type as of July 2022



Total ZEVs
54,935



ZEVs/1,000 People vs. Income by County as of July 2022



*Out-of-state vehicles registered in Oregon are excluded from the map and scatter plot.

Oregon Clean Vehicle Rebate Program



[Program Overview](#)

[Electric Vehicles](#)

[Dealers](#)

[Resources](#)

[Login](#)

- **Rebate program to encourage Oregon residents to purchase or lease electric vehicles**

- **\$5,000 - \$7,500 for low- and moderate-income households for electric vehicles**

- **Up to \$2,500 for all other households**

- **\$62.9 million distributed; over 25,000 rebates issued**

Receive up to **\$7,500** off the purchase or lease of a new or used electric vehicle!

[Learn More](#)

Thank you!

- Additional comments or questions from commissioners?