

Welcome to the TEINA Advisory Group Meeting #1

To maximize our time together, we will utilize the meeting procedures below.



WebEx meeting lines will open 5 minutes ahead of start time to allow participants to log-in early and be connected by meeting time.



At the beginning of each session, please type your name in the chat box to "sign-in" to the meeting.



Meetings will be recorded for note taking purposes.



Mute phones when not speaking to help reduce excess background noise.



During conversations, please feel free to use the chat box to ask questions and provide comments in addition to verbal comments.



Why You?

- Expertise
- Representing critical roles in EV & TE
- Equity voice
- Geographic balance

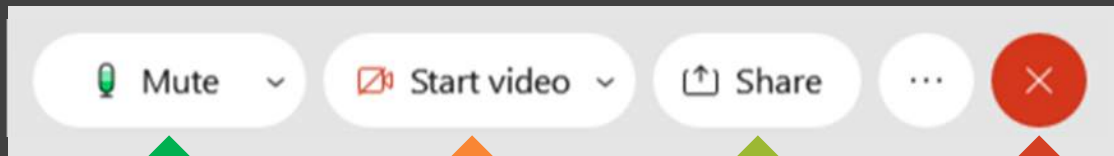


Agenda

- **Project Overview**
- **Advisory Group Overview**
- **Electric Vehicle Charging in Oregon**
- **Small Group Breakouts**
- **Public Comment**
- **Next Steps**



WebEx Navigation

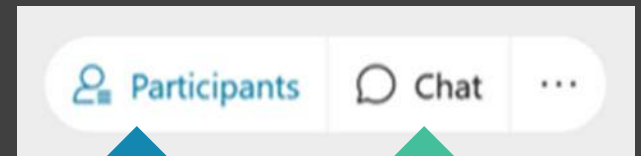


Mute
Unmute

Start/
Stop
Video

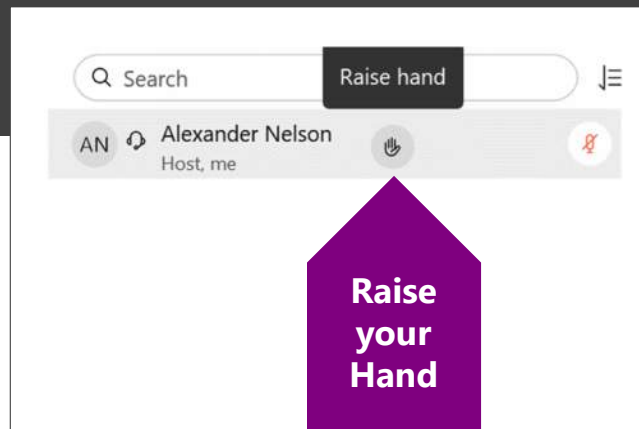
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Screen

Leave
Meeting

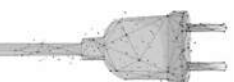


View
Participants

Send
a Chat



Raise
your
Hand



Roll Call Introductions – AG Members

Amanda Pietz, *ODOT*

Greg Alderson, *PGE*

Thomas Ashley, *Greenlots*

Philip Barnhart, *Emerald Valley EV Assoc.*

Chris Chandler, *Central Lincoln PUD*

Marie Dodds, *AAA*

Judge Liz Farrar, *Gilliam County*

Ingrid Fish, *City of Portland*

Stu Green, *City of Ashland*

Jamie Hall, *General Motors*

Zach Henkin, *Cadeo Group*

Joe Hull, *Mid-State Electric Cooperative*

Juan Serpa Muñoz, *EWEB*

Vee Paykar, *Climate Solutions*

Cory Scott, *PacifiCorp*

Charlie Tracy, *Oregon Trail Electric Co-op*

Dexter Turner, *OpConnect*



Roll Call Introductions – Project Team

Mary Brazell, *ODOT*

Zechariah Heck, *ODOT*

Jessica Reichers, *ODOE*

Wayne Kittelson, *Kittelson*

Stacy Thomas, *HDR*

Alexander Nelson, *HDR*

Chris Nelder, *Rocky Mountain Institute*

Lynn Daniels, *Rocky Mountain Institute*

Rhett Lawrence, *Forth Mobility*



Public Attendees and Comment Details



**Share name in chat
and “yes” if you intend
to provide verbal
public comment**

Team will share written public
comment received a day prior
to the meeting at the meeting:

Zechariah.HECK@odot.state.or.us

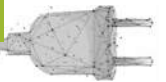


TEINA Project Overview

- Executive Order 20-04: ODOT to lead a Transportation Electrification Infrastructure Needs Analysis (TEINA)
 - Statewide
 - Focus: Light-duty cars, to achieve state EV adoption goals through 2035
 - Consider: All electric vehicle types and use cases – Delivery van, school bus, transit bus, freight, e-bikes
 - Special attention: Rural and Equity
 - Advisory Group, Agencies, Stakeholder outreach
 - Report due June 30, 2021

• SB 1044 Goals for Light-duty ZEVs

- 2020 50,000 registered vehicles are ZEVs
- 2025 250,000 registered vehicles are ZEVs
- 2030 at least:
 - 25% registered vehicles are ZEVs and
 - 50% of new motor vehicles sold annually are ZEVs
- 2035 at least 90% of new vehicles sold annually will be ZEVs



Project Overview

TEINA Study Plan

- Existing Conditions
 - AG input, Stakeholder Listening Sessions
 - Literature Review
- Evaluate needs of 9 specific drivers & use cases
 - Rural
 - Urban
 - Local Industrial/Commercial
 - TNC (Uber, Lyft)
 - Micromobility (e-bikes, scooters)
 - Corridor LDV
 - Disadvantaged Communities
 - Transit & School Bus
 - Long-haul trucking
- Assess Future Trends & Develop 3 Scenarios
- Policy Options and Investment Actions
- Draft & Final Report
- Supplemental effort: Hydrogen



Project Schedule

	November	December	January	February	March	April	May	June
Stakeholder Engagement	█	█	█	█	█	█	█	█
Literature Review & Existing Assessment	█	█	█					
Future Trends and Modeling Scenarios		█	█	█				
Policy Options & Investment Actions			█	█	█			
Report Production & Briefing Materials					█	█	█	█
Advisory Group (AG) Meetings	█		█		█		█	

Upcoming Advisory Group Meetings

January 12th

March 9th

May 11th

Engagement & Outreach Strategies

Engagement

- Advisory Group
- Listening Sessions
 - Equity | Low Income (Urban; Rural)
 - Developers
 - Multi-Unit Dwellings
 - Farming | Ranching
 - Industry
 - Transit
 - Ride Share
 - Micro-Mobility
 - EV Charging Station Companies
 - OEMs
 - Freight & Delivery

Materials

- Stakeholder Emails (five total)
- Fact Sheet (in progress)
- Website:
<https://www.oregon.gov/odot/Programs/Pages/TEINA.aspx>



Advisory Group Roles

- Roles
 - Advisory Group
 - Facilitator
 - Project Team
- Meeting Accessibility
- Decision-Making
- Ground Rules

Transportation Electrification Infrastructure Needs Analysis (TEINA) Advisory Group

Roles, Responsibilities and Meeting Guidelines

Project Overview

The Oregon Department of Transportation (ODOT) Climate Office, in partnership with the Oregon Department of Energy (ODOE), is undertaking the Transportation Electrification Infrastructure Needs Analysis (TEINA) study to identify the charging needs and gaps across Oregon.

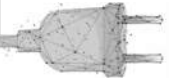
Convenient, accessible charging infrastructure is a critical driver in accelerating the widespread adoption of electric vehicles (EVs) and other types of electric transportation (such as electric buses, delivery vans, freight trucks, and e-bikes) and to achieve the state's greenhouse gas emissions reduction goals, particularly in the transportation sector. Governor Brown's Executive Order 20-04 directs ODOT to lead this study, in collaboration with other agencies and entities.

The study will:

- Highlight charging infrastructure needs for light-duty zero-emission vehicles (ZEV) in support of the statewide adoption targets for 2025, 2030, and 2035 included in Senate Bill 1044.
- Provide a near-term and long-term high-level overview of the charging infrastructure needs for other vehicle classes and use types, ranging from medium and heavy-duty trucks and buses to e-bikes and e-scooters.
- Develop a vision of the charging infrastructure needed to meet Oregon's transportation electrification (TE) goals over the next 15 years.
- Assess the unique needs for charging infrastructure to support transportation electrification in all parts of the state.
- Propose policy options and identify ways to expand charging infrastructure in Oregon to accelerate statewide transportation electrification.
- Position Oregon to develop an overall ZEV charging infrastructure strategy that can inform development of EV charging infrastructure in Oregon and support the state in meeting its transportation electrification and greenhouse gas emissions reduction goals.

This study will not:

- Identify specific sites or precise locations for EV and TE charging infrastructure.
- Propose policy options to address all barriers to transportation electrification, it will just focus only on the barrier of charging infrastructure.



Advisory Group Meetings

January 12th, 2021 (Meeting #2)

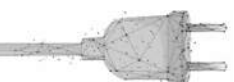
- Future Trends and Scenarios

March 9th, 2021 (Meeting #3)

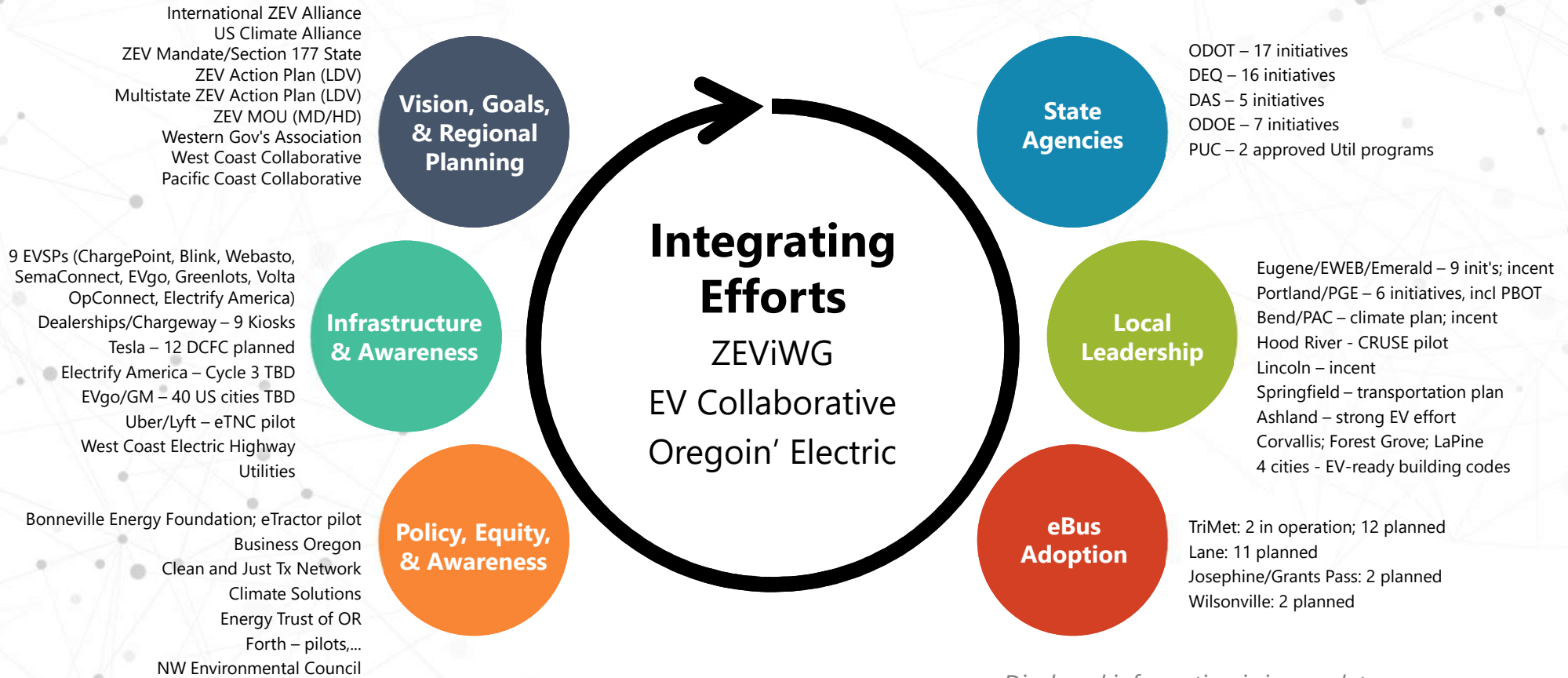
- Review scenario modeling outcomes
- Policy Options and Investment Actions

May 11th, 2021 (Meeting #4)

- Draft report



Oregon's EV Landscape



Displayed information is incomplete and subject to change.



Barriers to TE Adoption

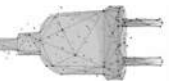
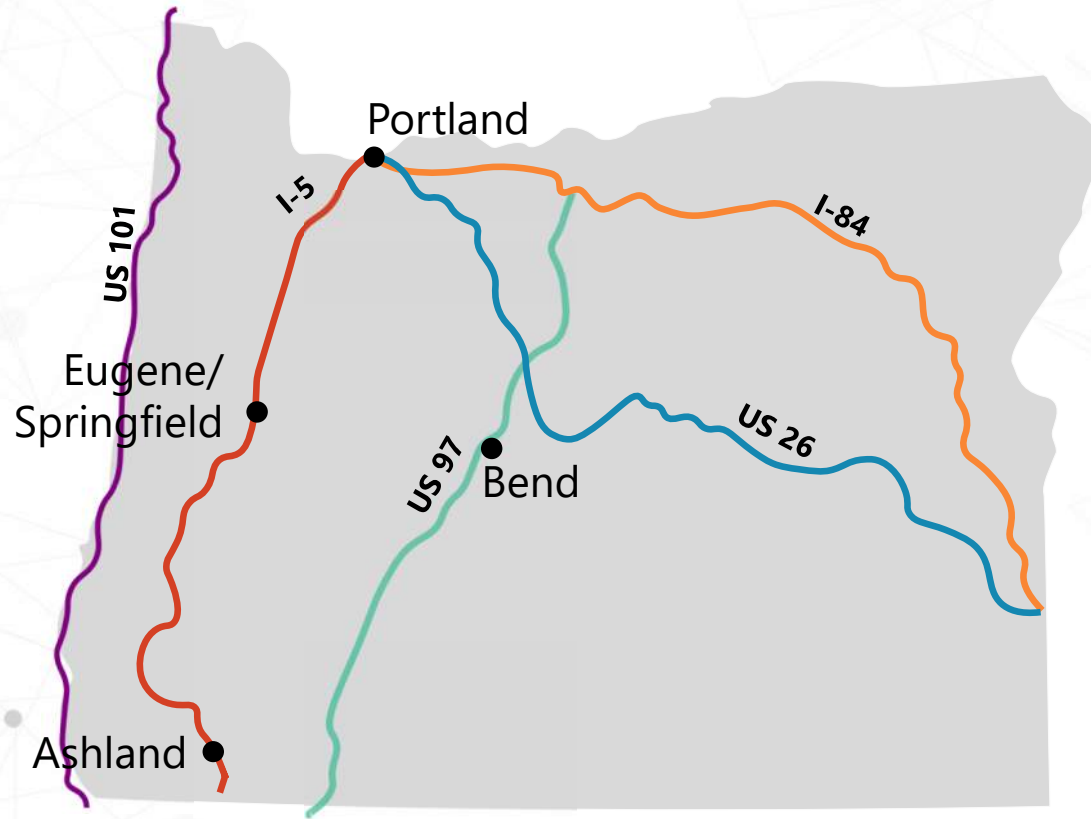
State

Awareness
Cost
Infrastructure
Equity

National

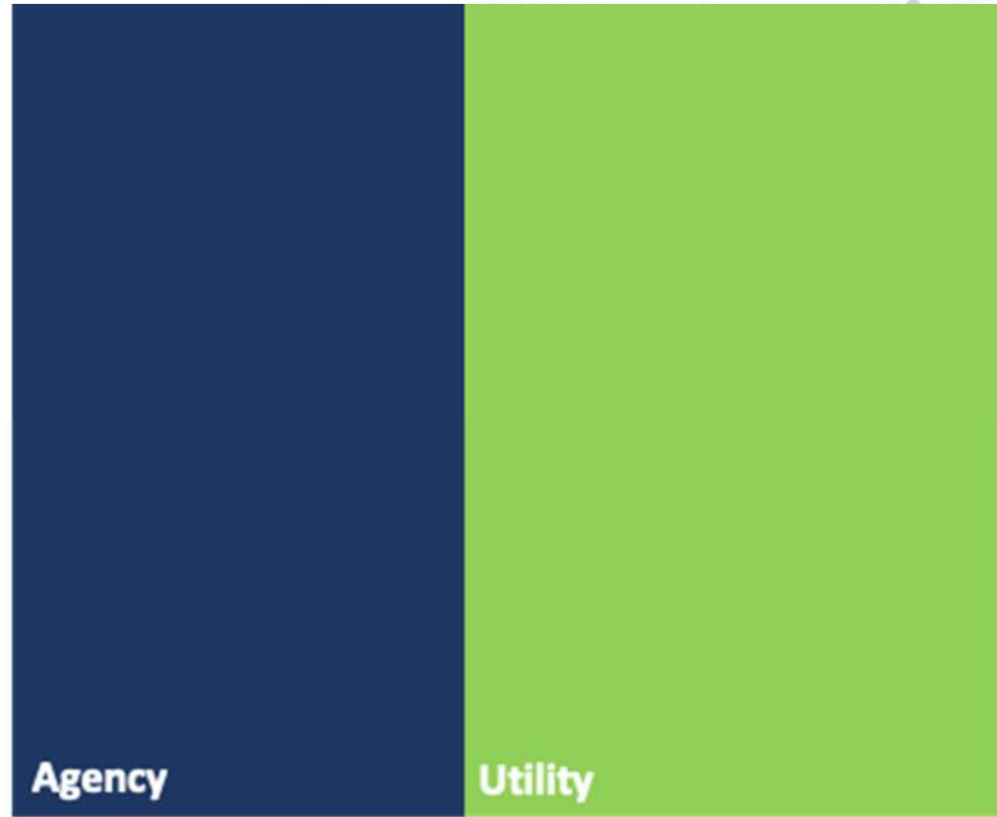
Product
Interoperability
Reliability

TE Corridors & Key Cities



LDV Infrastructure Activities

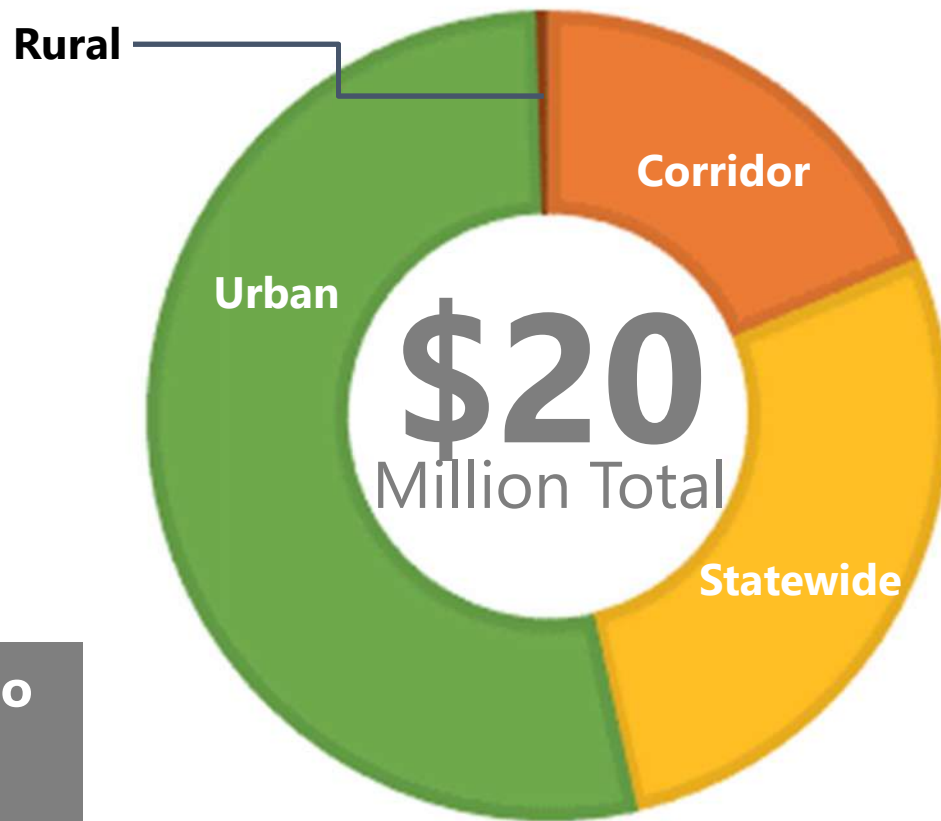
Annual Funding
~ \$20M



*Displayed information is incomplete
and subject to change.*



LDV Infrastructure Investment By Geography



Little funding to date focused exclusively in rural areas

Displayed information is incomplete and subject to change.



What We Heard From You – Interviews of AG Members

More funding is needed to achieve TE goals.

Desired Outcomes

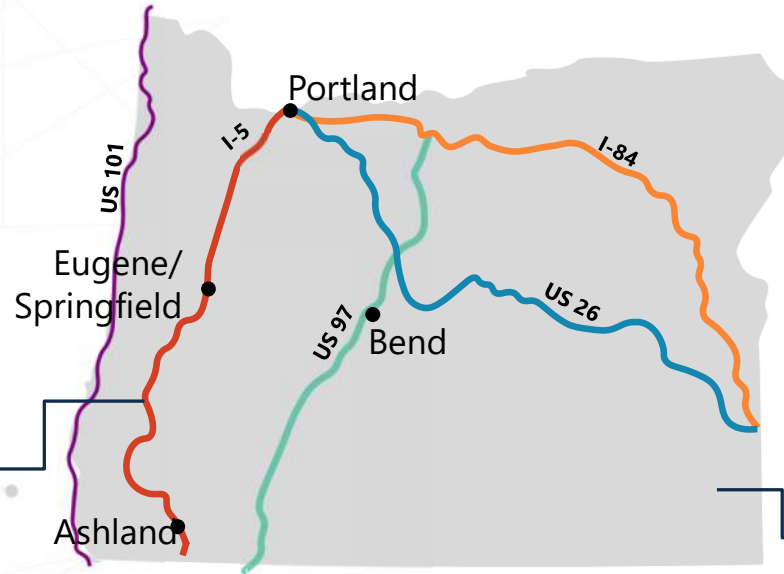
- Actionable recommendations with milestones.
- Identify who needs to do what.
- Emphasize messaging differences.

State and Cities

- Engage cities and counties early.
- Expand beyond residential at-home charging. Invest in other use cases.
- Public charging can drive EV adoption.

Corridors

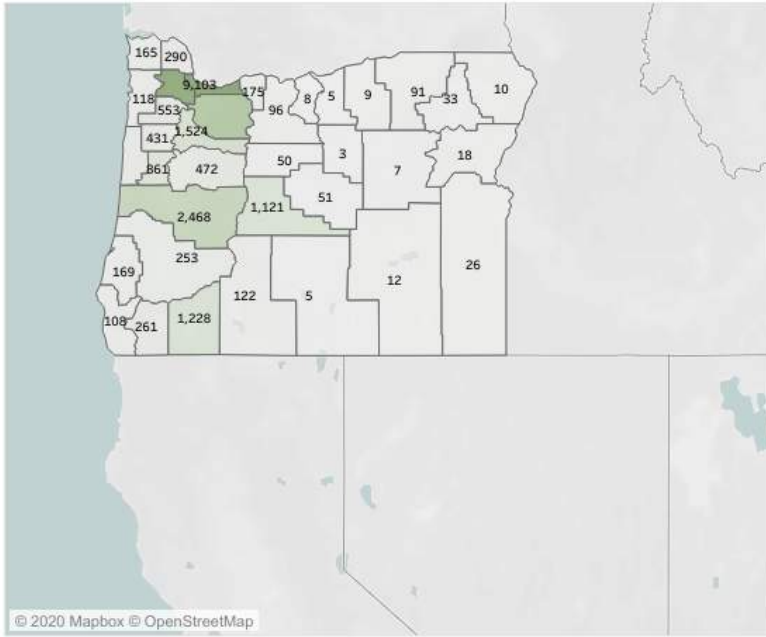
- Charging is not profitable today.
 - Opportunity for utility rate design to enable business case.
 - State/utilities invest in areas with need but low utilization.
- Emphasize user experience.



Rural

- Clean Fuels Program is incredible for Oregon. Rural COUs/PUDs rely on it to support transportation electrification.
- Economic development is main driver and message

ZEVs by County



© 2020 Mapbox © OpenStreetMap

Census Tract Map

Utility Map

ZEVs by Type

BEV
20,251

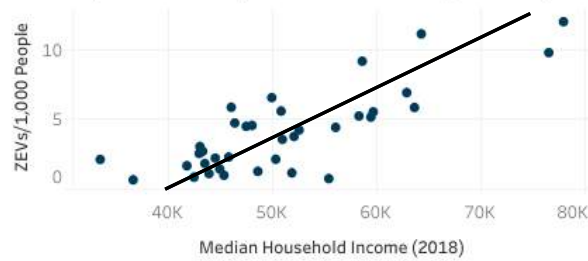
PHEV
11,726



Total ZEVs
31,977



ZEVs/1,000 People vs. Income by County

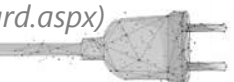


ZEV Locations

- Total number of BEV and PHEV
- ZEV by county
- Population by county
- Med household income

Displayed information is for the period through July 31, 2020

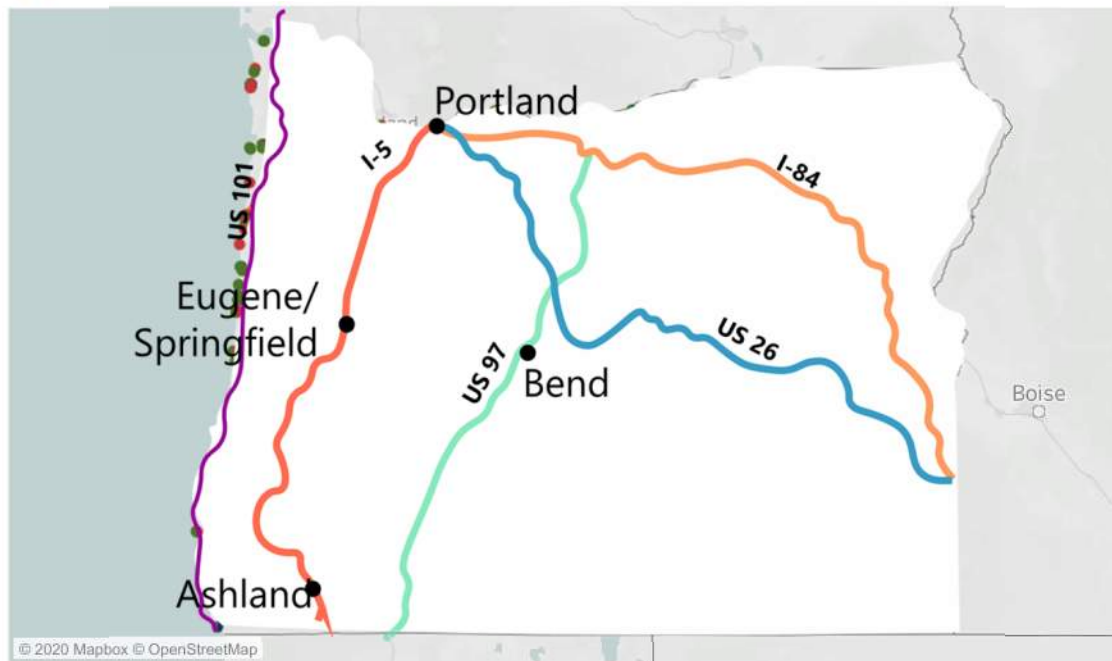
Source: Oregon Department of Energy (<https://www.oregon.gov/energy/Data-and-Reports/Pages/Oregon-Electric-Vehicle-Dashboard.aspx>)





[Questions? Ask Energy](#)

Where Can I Charge a ZEV?



- Connector Types
- CHADEMO (DCFC)
 - CCS (DCFC)
 - TESLA (Level 1/2 or DCFC)
 - J1772 (Level 1/2)

- Connector Types
- All
- Network
- All
- Access Type
- All
- City
- All
- DC Fast?
- All

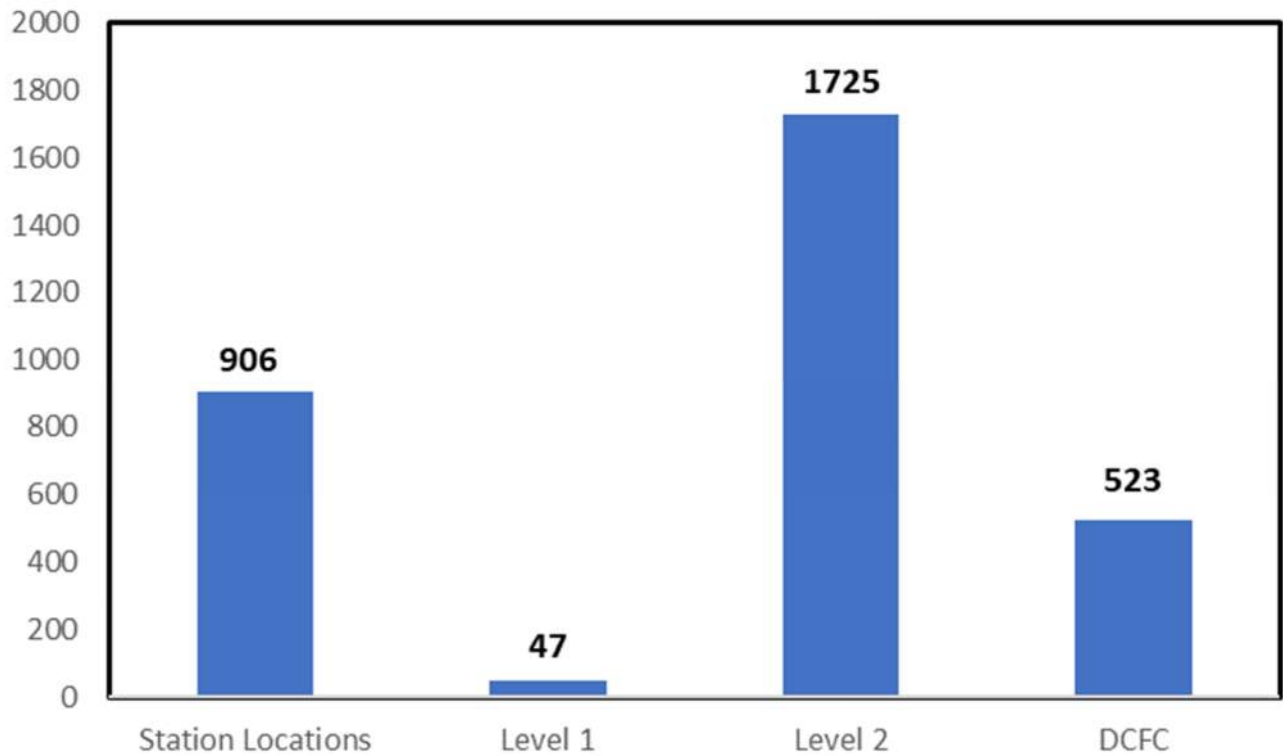
Connector Type Info

ZEV Charging

- Charger locations by
 - Type (DCFC or L2)
 - Network (Evgo/EA/...)
 - City
- Charger distributions
 - Along major travel routes (US 101, I-5)
 - Concentrate in Portland area

Displayed information is for the period through July 31, 2020
 Source: Oregon Department of Energy



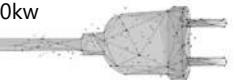


Statewide Public Charging Overview

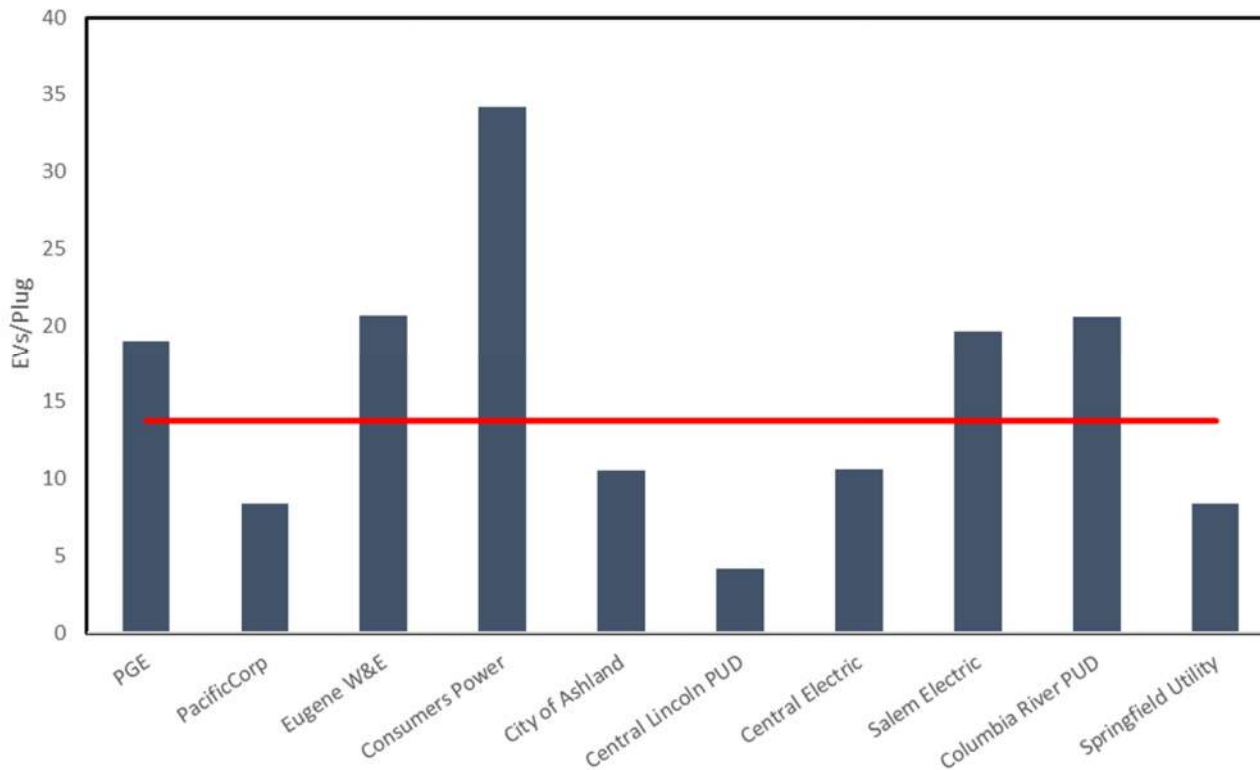
- 2,300 all types of plugs
- The majority of the existing chargers are Level 2
- Less than 30% of locations have DCFCs

*Displayed information is for the period through July 31, 2020
Source: Oregon Department of Energy*

Definitions: L1 power level: 1.75 kw; L2 power level: 6.6 kw;
DCFC power level: 24kw – 350kw



Utility Territories with the Highest Number of Registered ZEVs



Displayed information is for the period through July 31, 2020
 Source: Oregon Department of Energy

Note: there are 3 types of DCFC – Tesla, CHAdeMO (Nissan Leaf), and SAE CCS (Chevy Bolt). Hence the numbers for DCFC need to be understood in light of the fact that not all EVs can use each of the # DCFC ports

Number of ZEVs per Plug

- State Overall
 - **14** ZEVs/plug
- Level 2
 - **18** ZEVs/Plug
- DCFC
 - **60** ZEVs/Plug



Three Scenarios

1

Base case
extend trends that
existed before COVID

2

**Rapid return to
normal**
by 2022, we have
vaccine/therapies
and a fast return to
former trends.

3

Slow recovery
the pandemic rages on
for a few more years
before we get it under
control, and economic
activity remains
depressed through 2025,
then quickly recovers.



Questions for Breakout Group Discussions

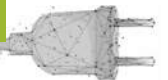
Scenarios

- Do they make sense? Are they realistic?
- Are they helpful? Will they help guide government and other stakeholders to understand the real challenges and options they will face over the next 15 years as they try to meet the SB 1044 targets?

Charging Infrastructure

Who's going to build the charging infrastructure and what are the roles of the various participants? Be as specific as possible about what each of these entities will need to do to help achieve the SB 1044 goals, and what impediments will need to be cleared to enable them to do their parts:

- Utilities (IOUs, co-ops, PUDs and munis)
- Charging network service providers (EVSPs)
- Oregon city/county/state governments
- Automakers



Small Group Breakouts



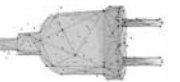
**Small groups with
a meeting facilitator**



**30 minutes for
conversation**

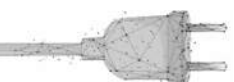


**60 second
warning when
breakout sessions
are about to end**



Next Steps

- Key Project Work
 - Finalize Existing Conditions
 - Complete Stakeholder Listening Sessions
 - Develop Straw Man Scenarios
- Future Advisory Group Meetings
 - Tuesdays, 8:30 am – 10:30 am
 - January 12th
 - March 9th
 - May 11th
- Updates to ODOT Climate Office Web



Thank You!

