



EVS27: Barcelona, Spain
November 19, 2013
West Coast Electric Highway:
*Building a Robust PEV Market
through Regional Collaboration*

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State of Oregon Chief EV Officer
Oregon Department of Transportation

West Coast Electric Highway: *Sustained Leadership, Initiative, & Commitment*

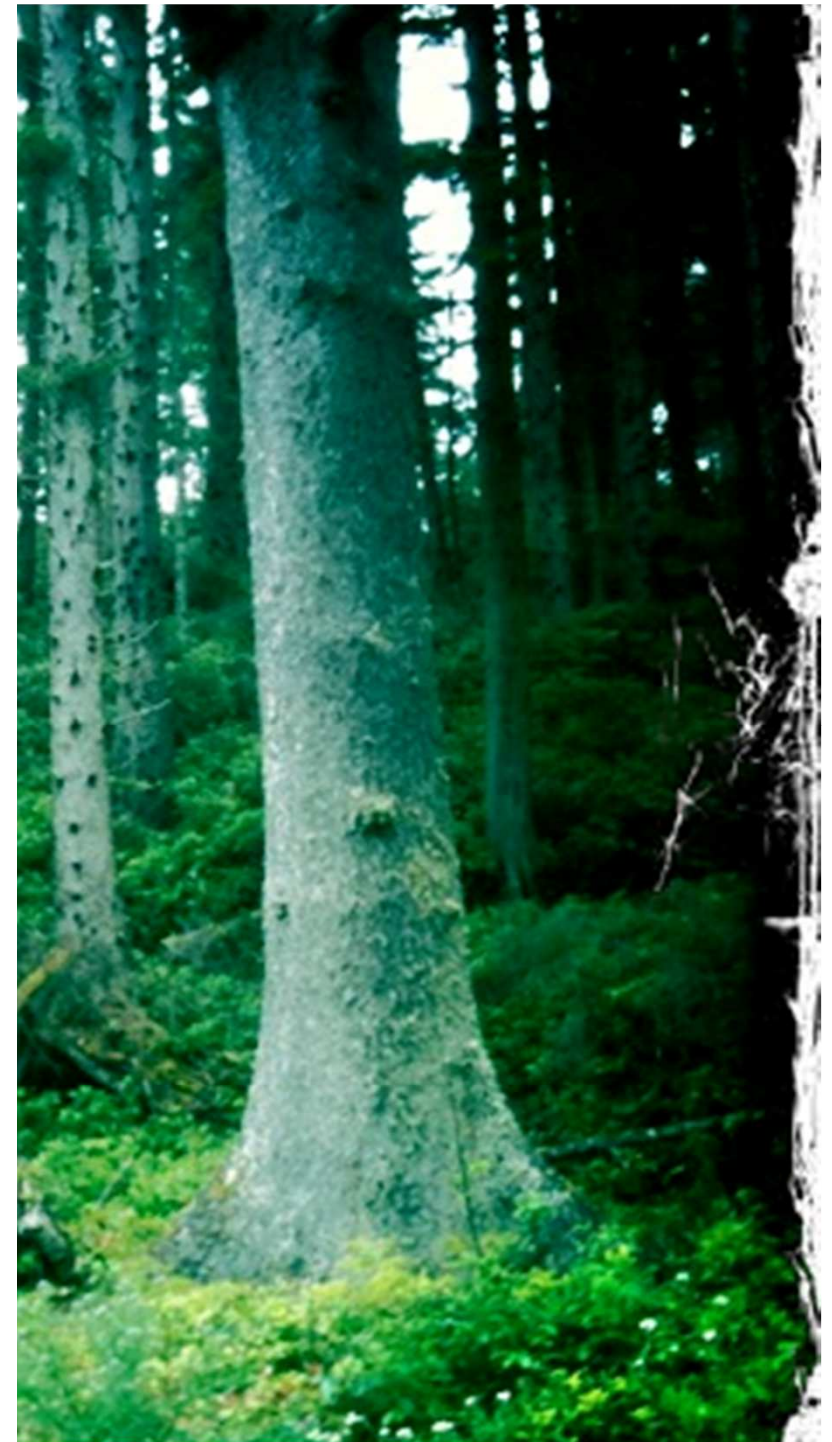


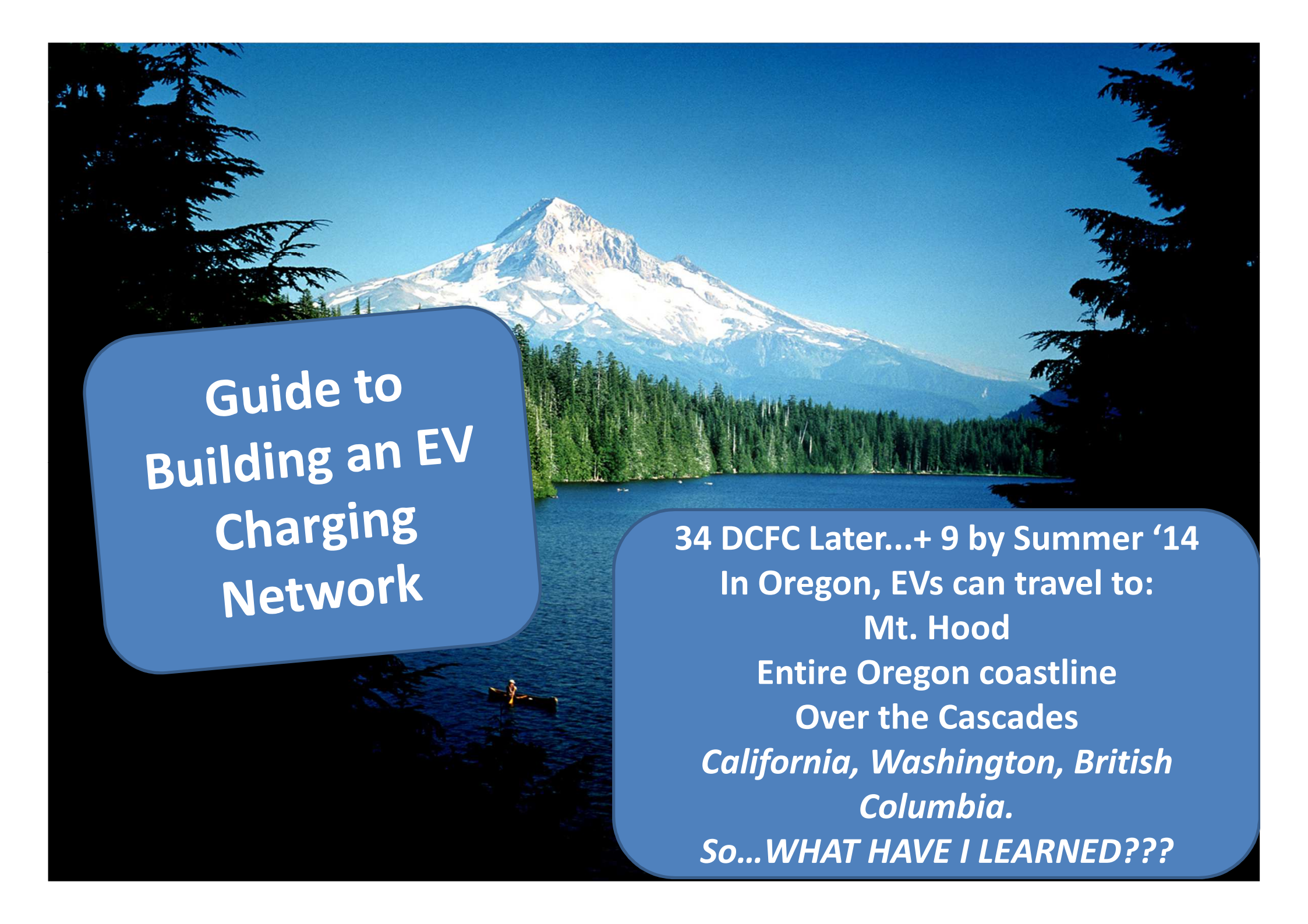
- *“West Coast Green Highway” Initiative: BC, WA, OR, & CA - Make the 1,350 miles of the West Coast’s “Main Street,” I-5, an alternative fuels corridor.*
- *First step: Create an Electric highway from “BC to Baja”*



WEST COAST ELECTRIC HIGHWAY

Drive cleaner. Drive smarter. Drive electric
and save!





Guide to Building an EV Charging Network

34 DCFC Later...+ 9 by Summer '14

In Oregon, EVs can travel to:

Mt. Hood

Entire Oregon coastline

Over the Cascades

*California, Washington, British
Columbia.*

So...WHAT HAVE I LEARNED???

My Overarching Policy: Visibility

The public needs to see these cars on the roads. They need to get behind the wheel. They need to find someone they know that has an EV. They need to SPREAD THE WORD-Even if they never buy an EV. They'll support electric transportation, because it's FAMILIAR.

Employer. Colleagues. Friends. Family. Neighbors. Library. Community businesses. Respected large & small corporations using EVs in fleet. E-bikes. Doctor's office.

Determine Single Point of Contact



Single point of contact can coordinate with multiple regions/partners in order to ensure seamless network, avoid duplication, avoid conflicts, establish accountability, and provide consistency.

Agree upon a “brand” (Example: West Coast Electric Highway)

- Establishes reputation
- Creates brand recognition
- Public relates brand to reliability
- Makes it easier to convey messaging in collateral, earned media, etc.

Portray single “branding” that signifies the larger network in order to transmit a singular look and feel to the public

West Coast Electric Highway: Creating A Brand

Get plugged in!
Making the case for a shift towards electric transportation

Energy independence. National security. Economic stability. Clean environment. Moving toward other sources of energy, especially renewable sources, is an increasing priority for people and governments, including the states of Oregon and Washington. America's transportation sector, highly reliant on oil, offers a prime opportunity to make such a move. That's where electric vehicles (EVs) come in.

Oregonians spend \$7 billion per year for petroleum, money that mostly disappears from the state's economy. EVs, powered by locally generated electricity, keep the money near home.

About one-third of Oregon's greenhouse gas emissions (GHG) come from the transportation sector, including traditional, internal combustion engine vehicles. Replacing these vehicles with EVs can make a significant impact on reducing overall GHG emissions.

All of these variables have created the conditions for a nationwide effort to move to electric transportation, using a sustainable, reliable and cleaner transportation fueling source.

The West Coast Leading the Charge on Electric Transportation

Now let's drive on and explore!

A 100% electric vehicle can now coast the 540 miles of I-5, the major transportation vein through Oregon and Washington, without using a single drop of gasoline.

Fuel your curiosity and begin your gas-free journey in Seaside, Oregon. Plug in and charge your EV with the environment-friendly fast-charger at Seaside Village Shopping Center. You might want to grab a cup of coffee at Starbucks and check out some outdoor equipment right next door at REI for your upcoming adventures along the West Coast Electric Highway.

Head onto U.S. Route 2 from I-5 and head towards LaMerinda to visit and EV charging station at a home-based garage around the Seaside Village, indicated by a charging cup of fast-charger.

Fully charged and worry-free, you can continue your electric free trip along I-5 towards Oregon, starting as needed at the fast-chargers located every 40-60 miles. A highway sign will notify the EV driver of an available charger and the highway with the symbol to the left.

Make your first fast-charging stop in Oregon on Electric Avenue in the heart of Portland State University campus.

Heading about halfway off I-5, you will arrive at 40-60 in Seaside Village, indicated by the fast-charger icon. You can head straight over to Government Center and all the local ML, hotels, just about 50 miles on U.S. Route 26. You can rest assured that you can refuel with fast-chargers located every 40-60 miles.

Enjoy a 21st century refueling experience at the West Coast Electric Highway's first EV station in Seaside, Oregon, at the 5400, stopover stop.

Don't even an EV? Coming to Portland or Eugene from Seaside and back to Seaside is a gas-free free ride! You can test an EV on a highway and find out what it's like to drive along I-5. You can take your EV westward along I-5 to head back to Seaside to enjoy the world's most scenic beach setting on the Columbia River.

Drive west to head the United States 101 coastline, with over 100 miles of coastline EV roads. You can head fully charged from Seaside, Oregon all the way to Portland, home of the Sea Lion Cam.

Refuel, stretch, drive longer, and save money along the West Coast Electric Highway. What a great place to explore in your EV!

Charging 101

Level 1
Level 1 charging stations come with your car and can be plugged into any common 110 volt wall outlet giving you endless opportunities to charge whenever you go.

Level 2
Level 2 charging stations use the same type of 240 Volt circuits as an electric stove or dryer. This makes recharging your EV at home or in public convenient, easy, and inexpensive. The level 2 uses a J1772 connector standard that all new EVs in the market can access. This charging regimen is often called opportunity charging, because it calls for recharging during "opportunities" down time such as sleep, work, or play.

Benefits of Electric Transportation

Making the shift to electric transportation will:

- Lower the cost to refuel a vehicle by using electrons instead of oil
- Reduce environmental impacts from greenhouse gas emissions
- Reduce vehicle maintenance costs
- Help displace oil as the nation's dominant fuel source
- Utilize a reliable fuel with price stability and predictability
- Improve national security through energy

5 things to know before you go

- The West Coast Electric Highway is a network of more than 100 publicly-accessible EV DC fast-charging stations on I-5 at key locations near major travel destinations, and along heavily-traveled highway corridors radiating out from I-5 every 40-60 miles.
- It will take between 20-30 minutes to refuel at a fast-charger. EV drivers on the West Coast Electric Highway could refuel their vehicle at a charging station in less time than it takes to stretch their legs and refuel their own system with a large cup of coffee.
- 75-95 percent of present U.S. light-duty vehicles could be powered by existing off-peak generating capacity.
- Electric motors can convert up to 85% of the chemical energy in oil to power the wheels while internal combustion engines only get about 20% of the energy stored in gasoline to the wheels.
- 100 Oregon drivers traveled an average of 28.4 miles per day, well in the current 100-mile range on a charge that the EVs out in the replace today can get.

WEST COAST ELECTRIC HIGHWAY
Fast-Charging Network

Legend

- Publicly-accessible DC Fast-charger and Level 2-charger
- Publicly-accessible DC Fast-charger and Level 2-charger with public restrooms
- Publicly-accessible DC Fast-charger and Level 2-charger with public restrooms and bicycle racks
- Level 2-charging only public restrooms
- Publicly-accessible Level 2-charger
- Publicly-accessible Level 2-charger with public restrooms
- Publicly-accessible Level 2-charger with public restrooms and bicycle racks
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EV AMBASSADORS .COM
Sign up & Share your EV story!

WEST COAST ELECTRIC HIGHWAY
Drive cleaner. Drive smarter. Drive electric.

On Oregon's electric highway visit www.oregonelectrichighway.com
State of Oregon Chief EV Officer: ashley.n.horvat@odot.state.or.us
Washington's electric highway visit www.westcoastelectrichighway.com
Development and Communications Manager: tonia.buell@wsdot.wa.gov
Join on EVs and Clean Cities go to www.cleancities.energy.gov

WEST COAST ELECTRIC HIGHWAY
Drive cleaner. Drive smarter. Drive electric.

COLUMBIA - WILLAMETTE
CLEAN CITIES

Oregon Department of Transportation
WSDOT

Partners Developed: Logo, branding, brochure, & outreach plan.

Oh, the places we'll go.
Transportation Electrification for a Clean, Energy-Independent Future.

WEST COAST ELECTRIC HIGHWAY
Drive cleaner. Drive smarter. Drive electric.

Electric Highway Map inside >

Washington State Department of Transportation
Oregon Department of Transportation
CLEAN CITIES

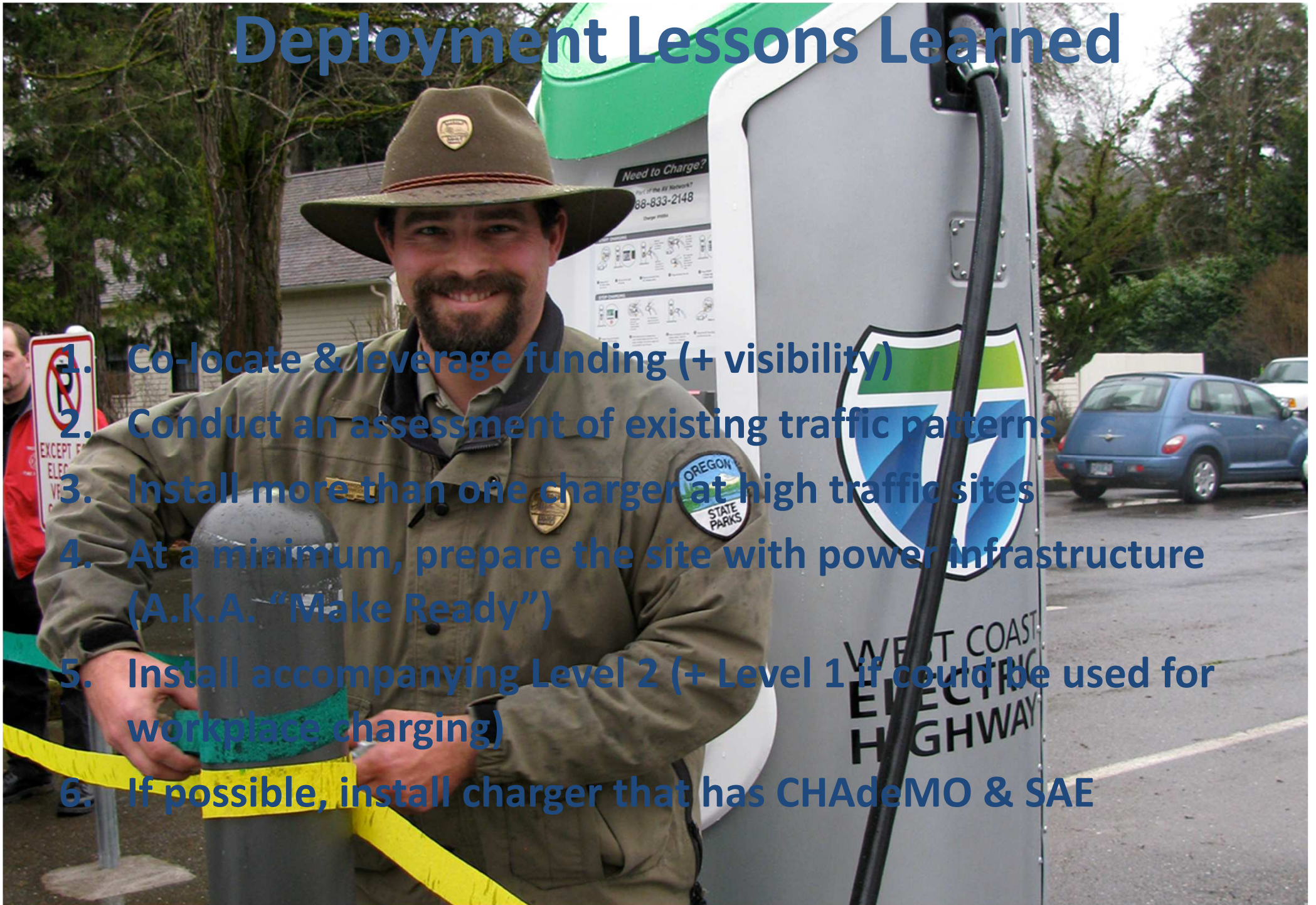
Establish Parameters

GOAL: Develop host site specifications to filter potential host sites, which all regions must utilize.

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- A photograph showing four men in business attire performing a ribbon-cutting ceremony. They are standing in front of a white electric vehicle charging station with a green top. A red ribbon with the words "GRAND OPENING" is stretched across the front. The man on the far right is using large scissors to cut the ribbon. The other three men are holding the ends of the ribbon. The background shows some greenery and a building.
1. Location Relative to the Interstate/Interurban Highway
 2. Site Accessibility
 3. Site Layout
 4. Site Facilities
 5. Site Hours of Operation and Staffing
 6. Site Parking
 7. Site Shelter
 8. Signage
 9. Combination or Cooperative Sites

Deployment Lessons Learned

1. Co-locate & leverage funding (+ visibility)
2. Conduct an assessment of existing traffic patterns
3. Install more than one charger at high traffic sites
4. At a minimum, prepare the site with power infrastructure (A.K.A. "Make Ready")
5. Install accompanying Level 2 (+ Level 1 if could be used for workplace charging)
6. If possible, install charger that has CHAdeMO & SAE



Deployment Lessons Learned

1. Engage the utility as soon as possible (THINK 3-PHASE POWER, 480V)
2. Create a list after conduct audit of all possible choices that fit parameters of 2-3 top choices
3. Keep city, local permitting involved along the way
4. Make contact with chamber and any other stakeholders once you've done the research for consultation within reason
5. Ensure you're locating best site for EV driver and centrally located to spur local economic activity
6. Post the host site options on a virtual platform for public comment
7. KEEP PUBLIC/EV Community engaged throughout, open process, document everything
8. Keep file for future install leads that didn't work out, you NEVER know



A scenic landscape photograph of a lake, likely Crater Lake, with snow-covered mountains in the background and a large, gnarled tree in the foreground on the left. The sky is blue with some clouds.

Wait, wait...don't tell me...

1. OCPP

2. Open architecture

3. Build in as much flexibility as possible to the contract, in order to remain nimble

Visibility: Tourism

EV Tourism Initiative : ODOT & Travel Oregon

GOAL: To develop an EV Tourism Industry in Partnership with Travel Oregon, Travel Portland, and other Tourism Industry partners.

The screenshot displays the Travel Oregon website interface. At the top, there's a navigation bar with links like 'SEE -AND- DO', 'TRIP IDEAS', 'CITIES -AND- REGIONS', 'ASK OREGON', 'SEASONAL FEATURES', 'PLACES TO STAY', 'TRAVEL DEALS', and 'GETTING -AROUND- OREGON'. Below this is a secondary navigation bar with 'Oregon Stories', 'Itineraries', 'Scenic Byways', 'Grant's Getaways', and 'Travel Interests'. The main content area features the title 'Mt. Hood and Columbia River Gorge EV Itinerary' by Eileen Garvin, dated April 4th, 2013. A large photograph of the Columbia River Gorge is shown, with a caption identifying the 'Vista House, built in 1916, on Crown Point in the Columbia River Gorge National Scenic Area. (Photo credit: Larry Geddis)'. To the left and right of the main image are stylized tree illustrations. Below the photo, there's a paragraph about the Mt. Hood Loop Day Trip and a 'Portland' section starting with 'Start your day in downtown Portland at Electric Avenue'. At the bottom, there's a social media bar with icons for Facebook, Twitter, YouTube, and others, along with a 'STAY IN TOUCH - SUBSCRIBE' button and a 'FREE TRAVEL GUIDES' button. A 'SHARE' button is also visible on the right side of the page.

Sign In / Create Account Search Oregon... search


SEE -AND- DO TRIP IDEAS CITIES -AND- REGIONS ASK OREGON SEASONAL FEATURES PLACES TO STAY TRAVEL DEALS GETTING -AROUND- OREGON

Oregon Stories Itineraries Scenic Byways Grant's Getaways Travel Interests

- Trip Ideas > Itineraries -

Mt. Hood and Columbia River Gorge EV Itinerary

by Eileen Garvin - April 4th, 2013



Vista House, built in 1916, on Crown Point in the Columbia River Gorge National Scenic Area. (Photo credit: Larry Geddis)

The Mt. Hood Loop Day Trip is an excellent way to experience the rugged wilderness, verdant farmland and charming small towns that lie just outside of the vibrant metropolis of Portland.

Portland

Start your day in downtown Portland at [Electric Avenue](#) on the Portland State University campus. While getting up, choose from a host of delicious downtown breakfast spots like [Tasty n Alder](#). Blue

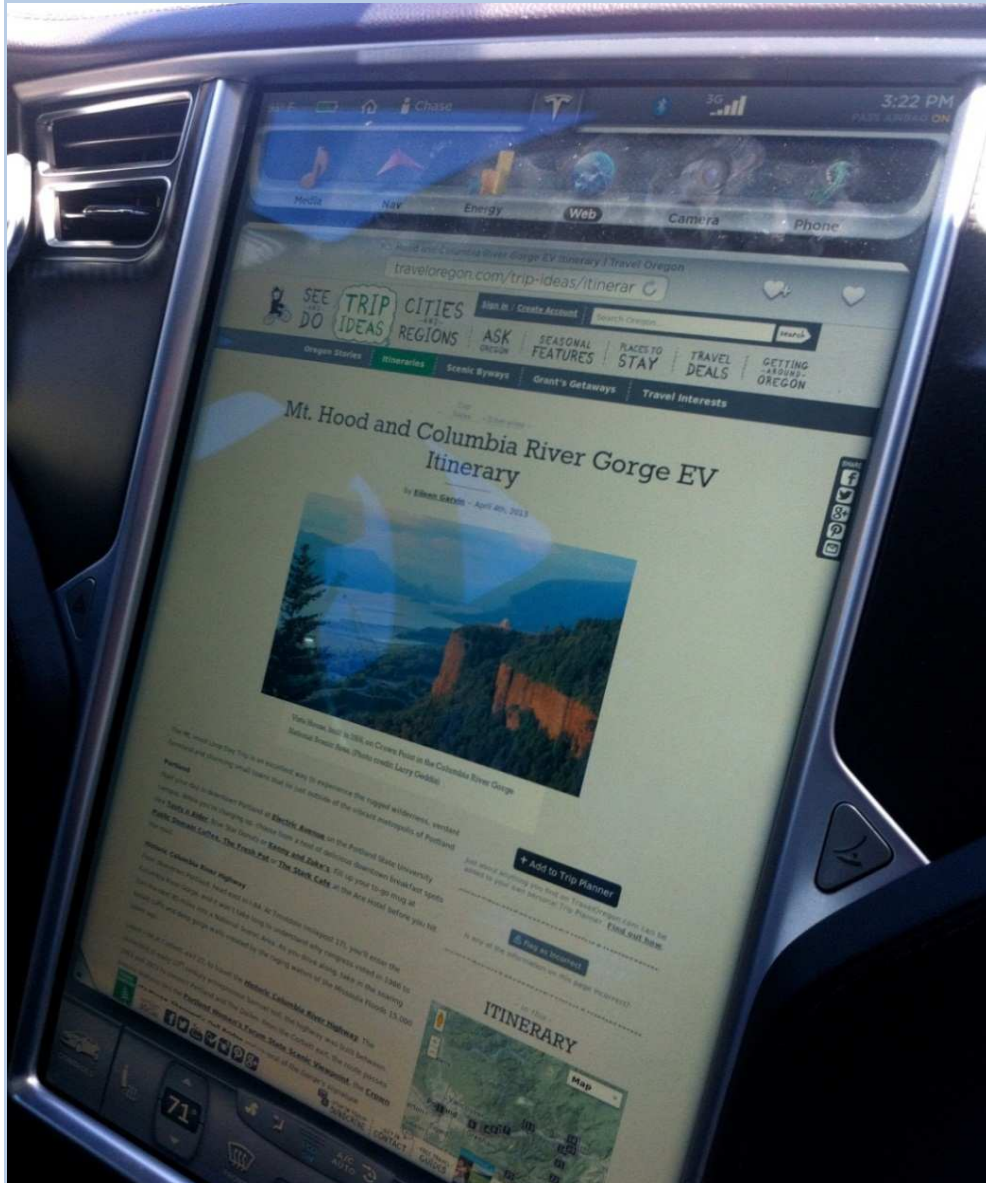
[+ Add to Trip Planner](#)

Just about anything you find on TravelOregon.com can be added to your own personal Trip Planner. [Find out how.](#)

TRAVEL OREGON -LET'S GET SOCIAL f t y p g+ STAY IN TOUCH - SUBSCRIBE -GET IN- CONTACT -FREE TRAVEL- GUIDES TRAVEL OREGON- NETWORK -INTERNATIONAL- VISITORS

Travel by EV: Quieter. Faster. Cleaner. Smarter. *Better.*

Leave Oregon like you found it.



EV Ambassadors Initiative:

ODOT & Citizens' Utility Board

EV Host Site Ambassador: Astoria, Oregon



Jay Flint, Executive
Director

www.evambassadors.com



EV Ambassadors:

Citizens' Utility Board & ODOT



Drive cleaner. Drive smarter. Drive Electric and save!



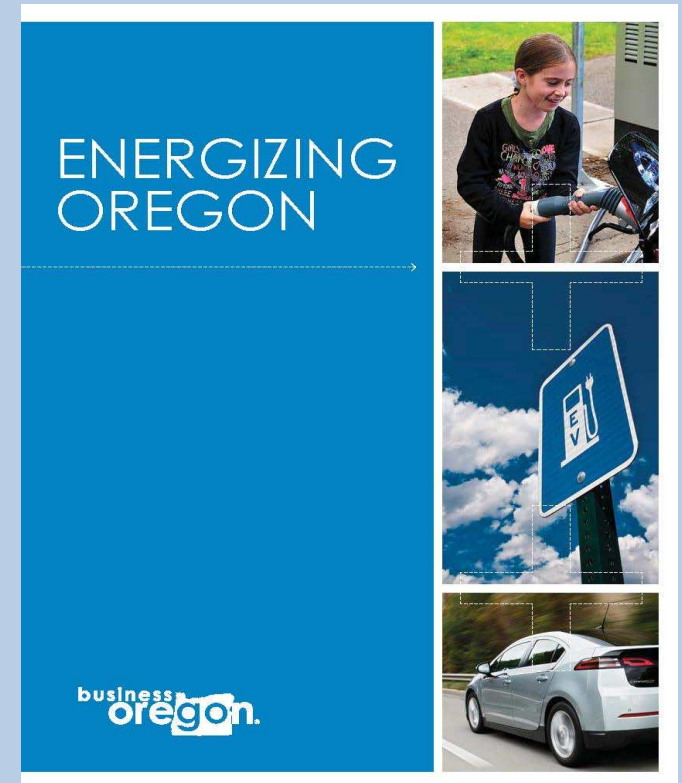
Key Recommendation: EV Highway Signage-ODOT petitioned FHWA



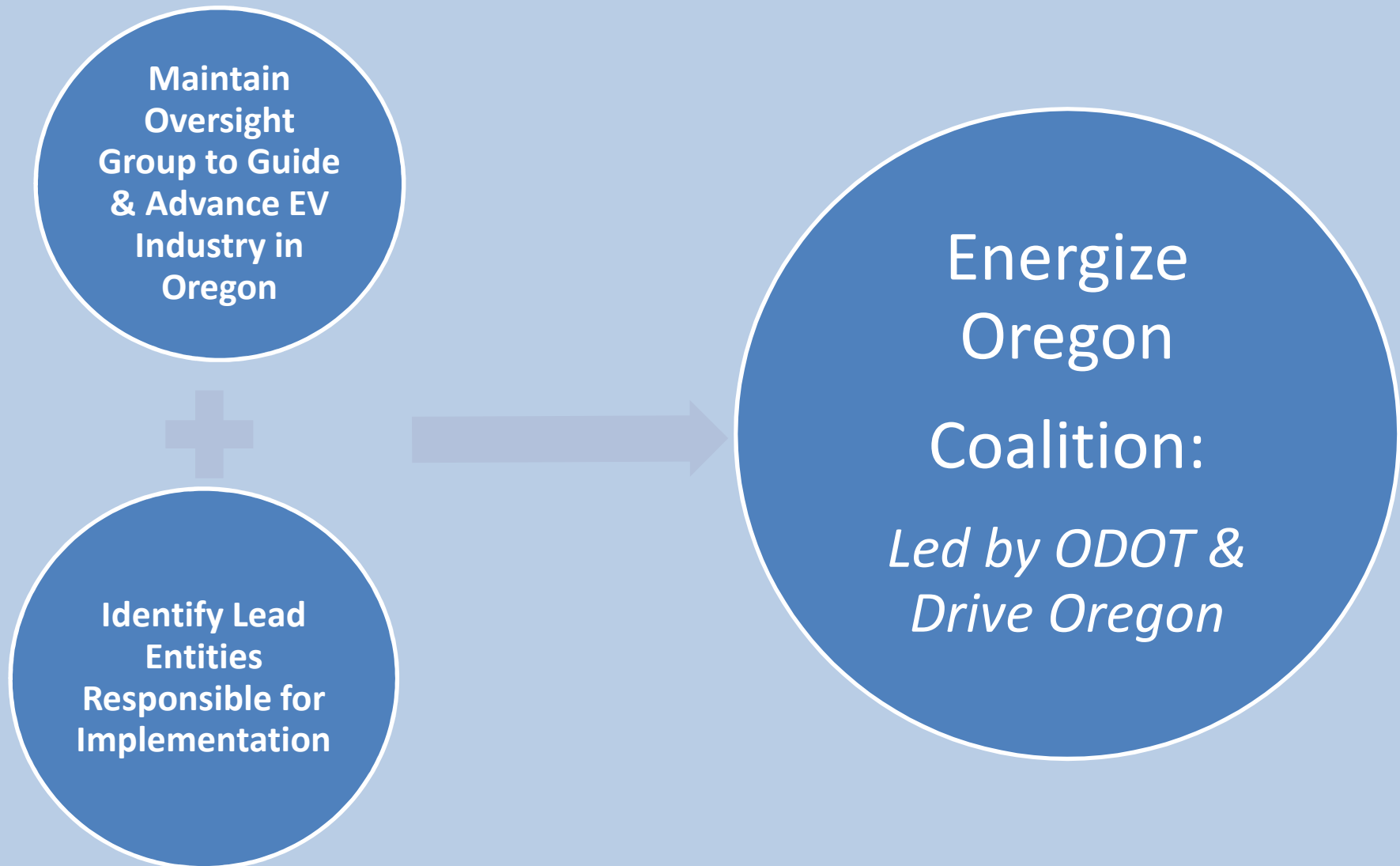
“Energizing Oregon”

Oregon’s Statewide EV Plan

- Action-oriented plan with a specific set of recommended actions.
- Energize Oregon Coalition: Serves as an implementation arm of the plan with public (ODOT) and private (Drive Oregon) co-chairs.
- Divided into 5 Key Challenges & Recommendations Categories:
 1. *Organizational*
 2. *Deployment*
 3. *Policy & Inducements*
 4. *Utilities*
 5. *Outreach, Education, & Communications*



Key Recommendation: *Organizational*



Travel Oregon by EV.

Quieter. Faster. Cleaner. Smarter. *Better.*
Leave a lighter footprint so you can return to
explore again!



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