West Coast Electric Highway

Presented by:
Art James – Oregon Department of Transportation
Tonia Buell – Washington State Department of Transportation

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Oregon Department of Transportation

Washington State Department of Transportation

WEST COAST ELECTRIC HIGHWAY

56 DC Fast-Chargers

12 in WA
44 in OR

Funding provided by US DOE through the ARRA program, and;

US DOT through the TIGER II program

Common Site Selection Criteria

- Availability of 3-Phase electrical power
- Located close to a State Highway
- Easy ingress/egress
- Connectivity capabilities to facilitate operation
- Ancillary services and public amenities (restrooms, food, travel info, etc.)
- Least cost site to maximize grant funds

DC Fast-Chargers

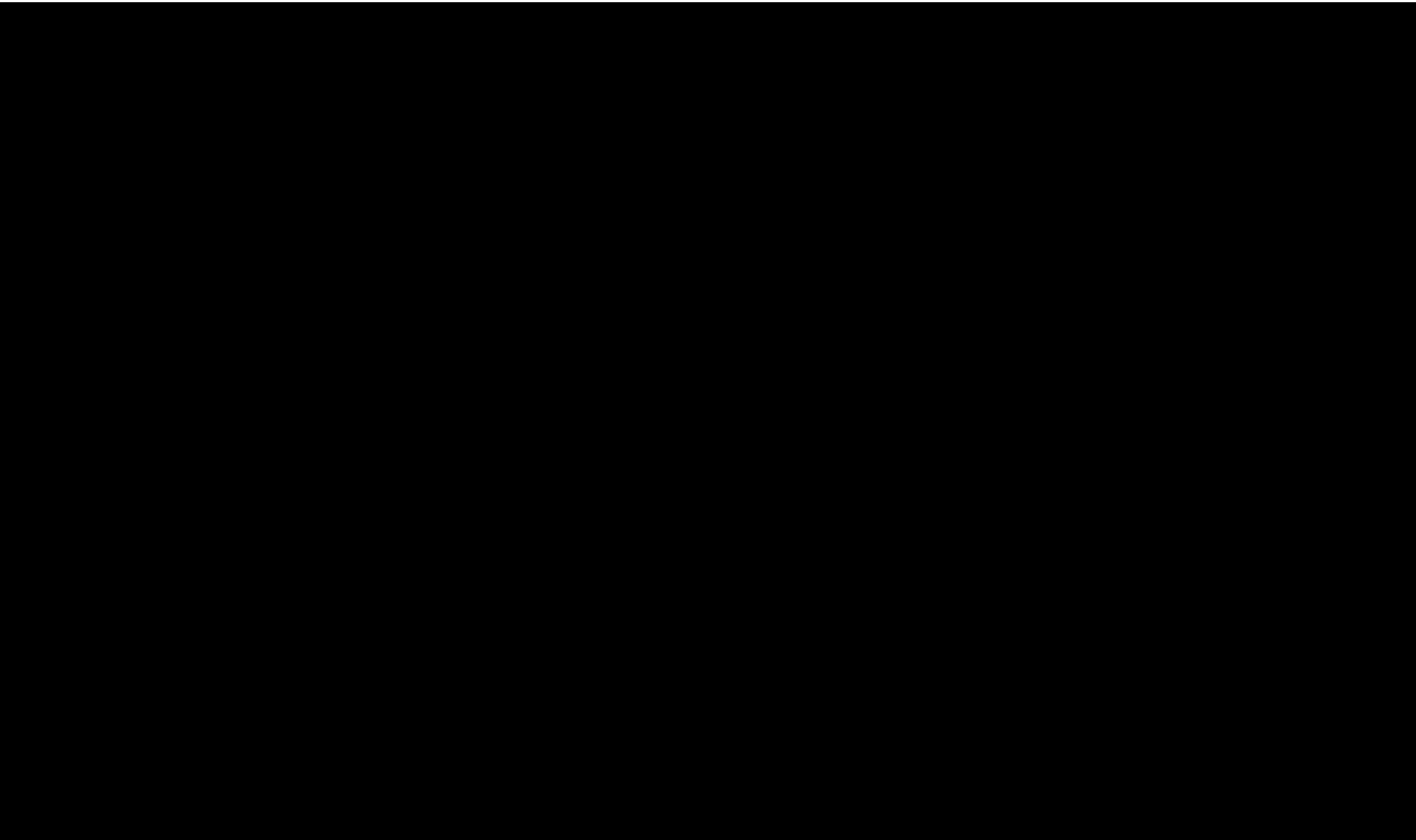
- Power supply: 480V or 208V, <u>3-Phase</u>
- Charging time: 20 - 30 minutes (4 miles/minute of charge)
- Cost: approx. $100,000 installed
- “CHAdeMO” connector

Wolf Creek 19th Century Stagecoach stop

Installation goes pretty fast .....

(Double click on video below)

To view video on YouTube, click the following link: https://www.youtube.com/watch?v=VBphe86A0Po



Site Selection Challenges

- Longest lead time - negotiating leases, utility easements and operating agreements
- Each new location required educating property owner, local government officials and 22 electric utilities
  - Often people's first reaction is to say "no"
- TIGER-funded sites required extensive soil testing and in some cases hazardous material removal
- Utility upgrades, trenching, boring, backfill resurfacing all added to costs
  - Plan for future expansion to avoid repeating these costs

Additional Considerations

- Connectors CHAdeMO vs. SAE Combo
- Few options for both

Recent Advancements

Common Signage for both Wayfinding and Parking

Future Considerations

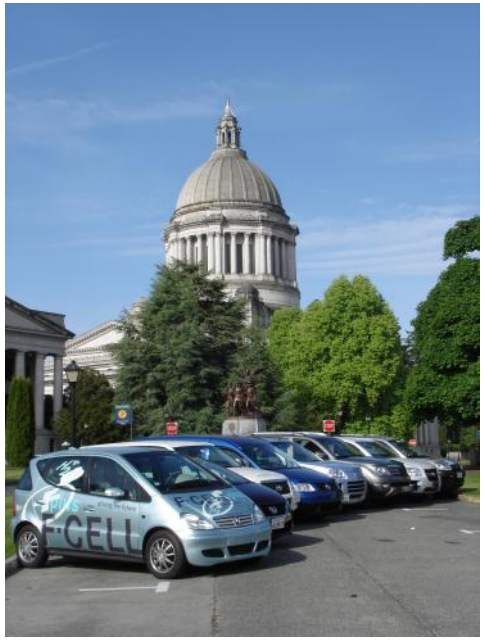
- Oregon pioneering a **Road Usage Charge** (RUC) to eventually replace gas tax
  - High mileage vehicles to pay their fair share
  - Other states likely to follow
- New federal six-year highway spending bill
  - a.k.a the **"Drive Act"**
  - Contains provisions (Sec. 1025) for the Secretary to designate:

"National Electric Vehicle and Natural Gas Fueling Corridors" throughout the country

Green Highway from BC to BC

West Coast Partnerships:

- Promotes petroleum reduction and sustainable transportation solutions on the I-5/Hwy 99 corridor.
- Provides travelers with EV charging and alternative fuel (CNG, Hydrogen, Biodiesel) infrastructure, from British Columbia, Canada to Baja California, Mexico “BC to BC.”
- Supports green highway goals of Pacific Coast Collaborative



Hydrogen fuel cell vehicles in Olympia, Washington on the Hydrogen Road Tour.
June 1, 2009

West Coast Electric Highway

WEST COAST ELECTRIC HIGHWAY

Purpose of Project: support broad consumer adoption of EVs – *commercialization.*

"Case Theory": Range anxiety is a significant factor in consumers' purchasing decision.

Strategy: Provide a basic network of DC Fast Chargers to help alleviate range anxiety.

West Coast Electric Highway: Create and promote both the *functional* and *emotional benefits* of having a "safety net" of EV charging opportunities.

SMITH CREATIVE GROUP

Logo Design by Smith Creative Group

Branding Archetype: The Hero
"Interstate Symbol" = reliable, long-distance travel
"Shield" = protection, safety, security
"Lightening Bolt" = fast, powerful, electric
"Green & Blue" = natural, sustainable; modern.

(double click to play video above)

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Regional Collaboration: EVs and EVSE

The EV Project
U.S. DOE funds to install Blink charging infrastructure in Puget Sound Region Anticipated $20M investment for 1,000 L2 for public and fleet charging, 1,000 L2 for home charging, 20+ DC public fast-chargers. Partially delivered.

ChargePoint America
Awarded $37m to install 5,000 charging stations in 37 regions, including eastern King County (Bellevue/Redmond).

Clean Cities
Western Washington Clean Cities Coalition was awarded $15m to install charging stations & buy fleet vehicles.

Cities and Counties
Energy Efficiency and Conservation Block Grants to purchase charging stations and fleet vehicles.

Regional Collaboration: EVs and EVSE

Sea-Tac Airport Electric Ground Service Equipment
Port of Seattle, Alaska Airlines, USDOE, FAA and partners replaced 45% of the fossil-burning ground support vehicles with electric-powered vehicles. The switch to moving baggage and planes with electric tugs and conveyors will save airlines $2.8 million in fuel and cut 10,000 tons of emissions annually.

SGL/BMW Expand Carbon Fiber Plant in Moses Lake, WA
BMW and SGL Automotive Carbon Fibers are investing $200 million to expand the carbon fiber plant to triple production capabilities to 9,000 tons per year to meet the high demand for carbon fiber in automotive production for BMW's i-series line of cars.

State Agencies

- The state contract offers a variety of alternative fuel and plug-in electric vehicles for government fleet purchases.
- WSDOT installed the state's first DCQC in 2010, added 6 Nissan LEAFs and 2 Chevy Volts to its fleet, and is the first Washington State Agency to negotiate a lease agreement with Nissan.
- Commerce produced an EV Infrastructure guide for local governments.

Regional Collaboration: EVs and EVSE

Electric Public Transportation

- Sound Transit operates 20 miles of Link Light Rail and voters approved an expansion to add another 30 miles of track.
- Ben Franklin Transit converted a diesel fuel bus to a Zero Emissions Propulsion System (ZEPS) w/ 100-mile range through Complete Coach Works, reducing operating costs from $1.05/mile to $.07 /mile.
- Link Transit operates five 22-foot trolley buses in Wenatchee.

King County MetroPool

King County Metro's 100% electric vanpool and vanshare commuting program for large employers (Microsoft, Amazon) using 20 Nissan LEAFs. In 2013, saved 232 metric tons of tailpipe emissions and 10,000 gallons of fuel over traditional gas-powered vanpools. Added 5 LEAFs.

West Coast Electric Highway

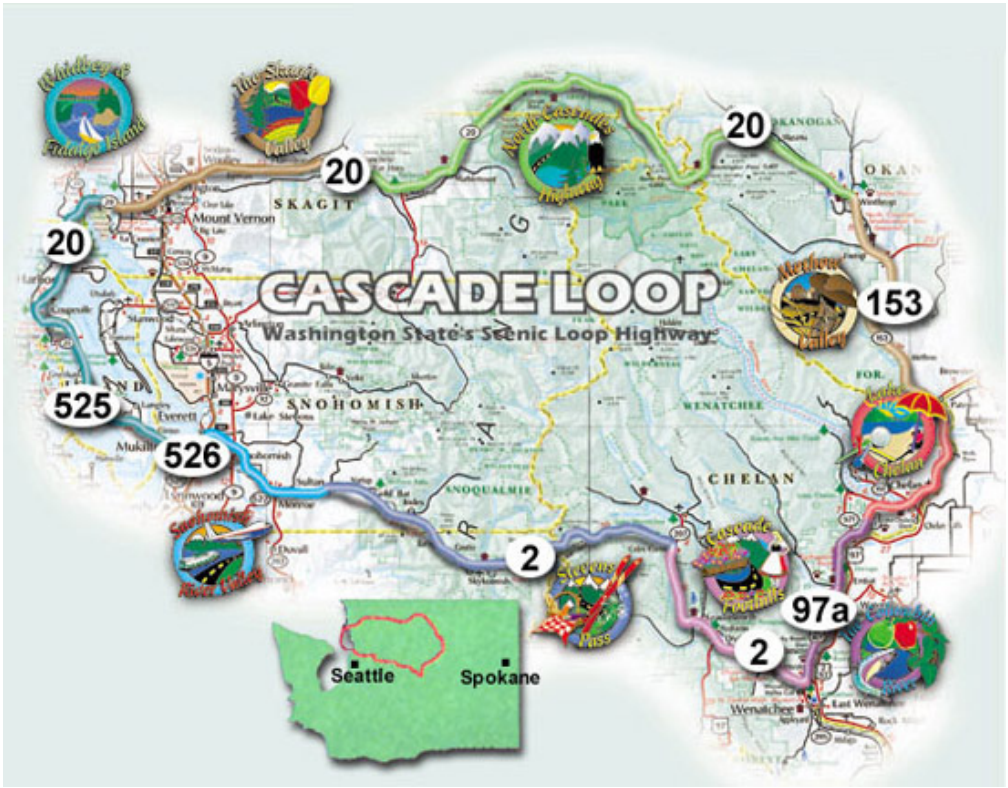
Multi-state network of highway electric-vehicle, fast-charge stations. Spans 585 miles through Washington and Oregon along I-5 from Canada to California with fast-charging stations every 25-45 miles.

Ground Breaking and Ribbon Cuttings

All Electric Road Rallies

International Event: Canada-USA kickoff of BC2BC All Electric Vehicle Road Rally, Summer 2013

Eco Tourism and Economic Development



Special Events and Outreach

Thank you.