



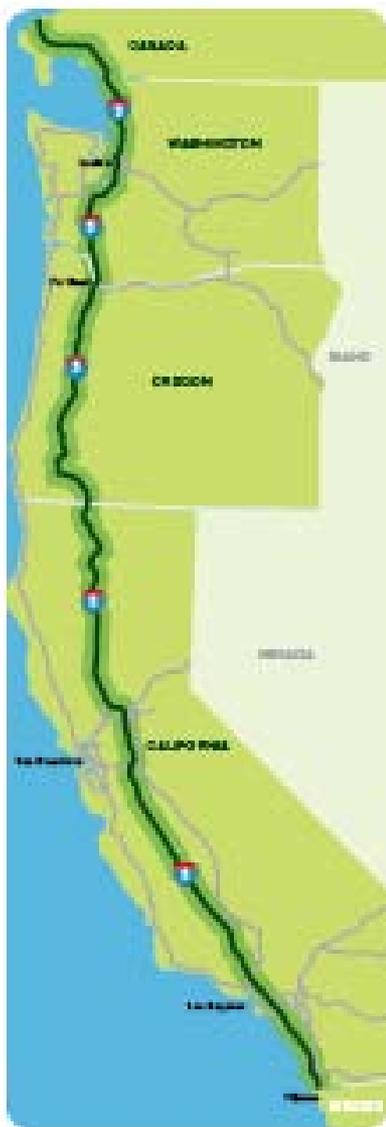
WEST COAST
ELECTRIC
HIGHWAY

***Pacific NW Collaboration to Develop
the
West Coast Electric Highway***

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Commissions
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West Coast Electric Highway



Presentation Overview

- Why Electric?
- Project Purpose
- Collaborative Efforts
- Project Outcomes
- Washington's Network





West Coast Green Highway Initiative



- Public/private partnerships to promote petroleum reduction and **sustainable transportation solutions** on the I-5/Hwy 99 corridor
- Provide travelers with electric vehicle charging and alternative fuel infrastructure, from British Columbia to Baja California (BC to BC)
- Tri-State initiative (Washington, Oregon, and California) with agreement with BC Province
- Partnership with state DOTs, existing businesses and fuel providers, emerging technologies, and travelers
- Unique west coast driving experience with consistent infrastructure, branding and signage.



2008 WSDOT Alternative Fuels Corridor Economic Feasibility Study:

“The primary challenge to Alternative Fuels commercialization is how to build a market – simultaneously – for *new vehicle technologies, new fuels, and new infrastructure* to support them.”

Comparative Costs for Alternative Fueling Stations

	Land & Building	Fueling Equipment	Supply Chain
Gasoline	\$ 1,348,500	\$ 571,000	Established
Biodiesel	“ “ or Co-located	\$ 127,000*	Limitations
Hydrogen	“ “ or Co-located	\$ 318,000	Not Established
Electricity	Kiosk format	\$ 50,000 - \$100,000**	Grid

* Number of pumps scaled for smaller initial demand

** Upper range includes utility connections and necessary upgrades



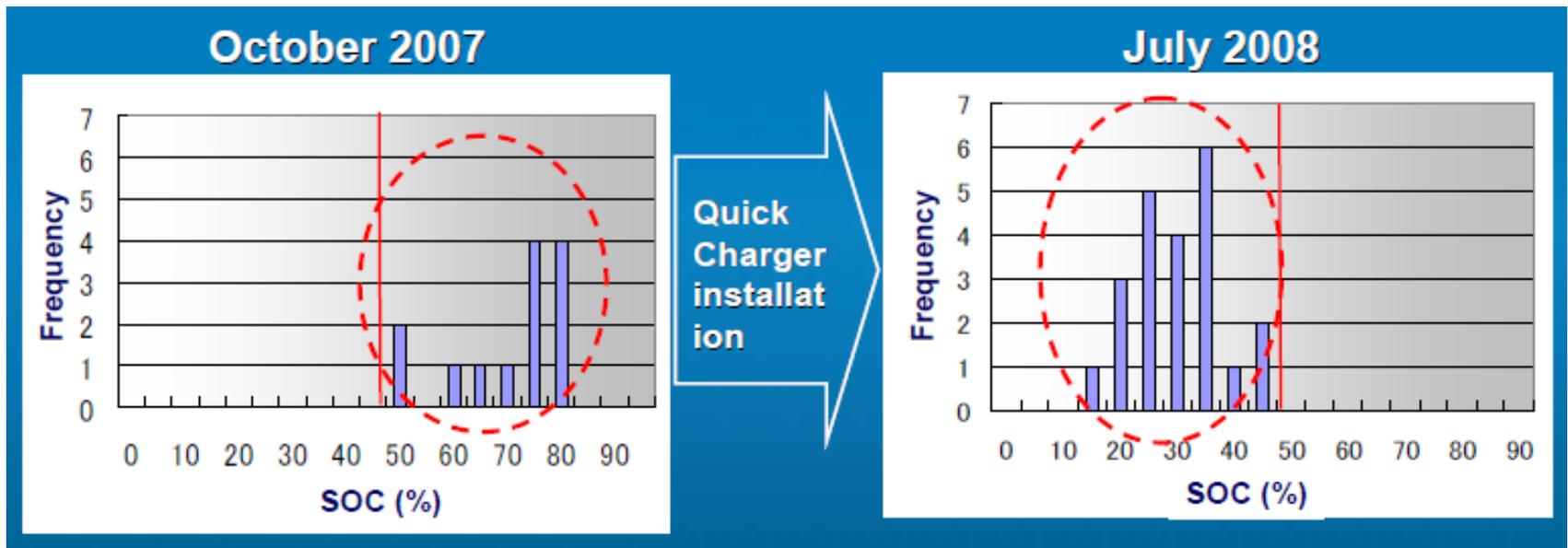
Strategically-located Fast Charge stations alleviate range anxiety



Source: Tokyo Electric Power Company (TEPCO)



Strategically-located Fast Charge stations build range confidence



**Drivers returned EV's with
> 50% SOC**

Source: Tokyo Electric Power Company (TEPCO)

**Drivers returned EV's with
< 50% SOC**

Benefits of Electric Highway



Advancing mass commercialization of electric vehicles

The Electric Highway is a public-private partnership among government agencies, private retailers, utilities, equipment manufacturers, and EV drivers. The state's electric highway:

- provides mobility choices for drivers
- connects communities
- reduces greenhouse gas emissions
- advances energy independence
- creates green jobs and supports a green economy
- meets state EV legislation (HB 1481);
- helps support the federal goal of 1 million EVs by 2015



“This ‘green freeway’ you’re planning... would link your states with a network of rest stops that allow you to do more than just grab a cup of coffee, but also charge your car.”

- President Obama
3/19/2009





Project Purpose: *Commercialization of Electric Vehicles*



- **EV charging network:** 12 public charging locations in critical recharge zones outside of The EV project (I-5, US 2 and I-90) to make DC fast charging available every 25 to 60 miles.
- **Charging equipment:** Both AeroVironment DC fast charger (CHAdeMO) and Level 2 EVSE (J1772) at each location.
- **Locations:** Private retail locations such as shopping malls, restaurants, and fueling stations. Plus, two “gateway” safety rest areas along I-5.
- **Funding:** Seed funding of \$1.5 M through Washington State Department of Commerce, State Energy Program, US Department of Energy.
- **Target completion date:** Fall, 2012



US Dept of Energy's Transportation Electrification Project: \$200+ million for EV Infrastructure

THE Project



Nation-wide:

- 14,000** Level 2 (240V) chargers
- 300 - 400** DC Fast Charger (480V) ports
- 5,700** Nissan LEAF cars
- 2,600** Chevrolet Volt cars
- 60+** project partners
- 1,200** new jobs by 2012 and
- 5,500** new jobs by 2017
- 18** major cities and metropolitan areas

Supporting regional vision for innovation and sustainable transportation



 **Pacific Coast**
COLLABORATIVE

Leadership now
for a sustainable tomorrow

Alaska
British Columbia
California
Oregon
Washington





Regional Effort

- Equipment Specifications
- Highway Signs
- Branding and Marketing
- Unique EV Driver Experience

Oregon I-5 Green Highway Project

10 DC fast charge stations
US Department of Energy,
Oregon Department of Energy,
State Energy Program ~ \$1m

Oregon EV Corridor Connectivity Project

30+ DC fast charge stations
US Department of Transportation
TIGER II (Transportation Investment
Generating Economic Recovery) \$3.4m





Consistent EV Driving Experience

Fast-Charge Site Criteria:

- Within ½ mile of highway interchange
- Safe and convenient access
- Parking spaces
- Restrooms and drinking water
- Shelter and lighting
- 480V 3-phase electric power supply
- Customer amenities (food, traveler information)



**WEST COAST
ELECTRIC
HIGHWAY**

Recognizable Highway Signs and Branding

Federal Highway Administration interim approval to test alternate EV charging station symbol. Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) D9-11b (Alternate)

Washington's Electric Highway



In Washington, the state's electric vehicle charging network includes fast public charging locations in critical recharge zones outside of The EV project.

At each private retail location, electric vehicle drivers will find both fast and Level 2 charging equipment operated and maintained by AeroVironment.

- **Along I-5**, six fast-charging stations are open, with two locations north of Everett and four locations south of Olympia.
- **Along US 2**, four fast-charging stations are open, reaching out to Wenatchee and creating the nation's first EV-friendly scenic byway.
- **Along I-90**, construction is planned for two fast-charging stations reaching east to Cle Elum.

In addition, two safety rest areas along I-5, Custer SB and Gee Creek, are now equipped with Level 2 charging. Nonprofits Adopt a Charger and the Seattle Electric Vehicle Association provide the electricity.



Collaborative EV Efforts Underway in Washington

The EV Project

ECOtality \$20M in U.S. DOE funds to install charging infrastructure in Puget Sound, 1,000 public and fleet charging stations, 20+ fast-chargers, 1,000 private charging stations for Nissan LEAF owners

Charge America

Charge Northwest/Coloumb awarded \$37M to install 5,000 charging stations in 37 regions, including eastern King County (Bellevue).

Clean Cities

Western Washington Clean Cities Coalition awarded \$15M to install charging stations and purchase fleet vehicles.

Cities and Counties

Local governments are using Energy Efficiency and Conservation Block Grants to purchase charging stations and fleet electric vehicles.

Washington State Plug-In Electric Vehicle Task Force

Forum in Washington state for the discussion and coordination of strategies to support the electrification of transportation.

For more information, contact:



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ODOT Slides start here.

Remaining WSDOT slides are backup info only – not to be presented.