



Electric Vehicle Charging Network

Presentation to the
Transportation Electrification Executive
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EVs are Coming

Nissan LEAF
 Ford Focus and
 Transit Connect
 Think
 Navistar “E-Star”
 Chevy Volt
 Mitsubishi iMiEV
 Electric SMART car
 Plug-in Prius



Why Charging Infrastructure?

- The biggest limitation for EV drivers is the *RANGE* of the vehicles – “range anxiety”
- A reliable network EV Charging Stations will encourage people to invest in new technologies
- Oregon is encouraging experimentation with various makers and business models for EV charging infrastructure
- “Chicken and Egg” phenomena →
- 75-80% of charging will be residential



EV Charging Stations

Level	Input Voltage	Typical Charging Time	Breaker Size (A)	Electrical Loads (kW)	Typical Locations
I	120 V	8 – 12 hours	15-20	2	Standard 120 volt plug; NEV/Motorcycle charging, Emergency charging
II	240 V	2 – 4 hours	30-50 Typical	3-6	Residential garages, parking lots, public garages, transit centers
III	480 V 3 phase	20 – 40 minutes		50-100	Rapid charging facility near high traffic volume arterials



Level 1 Charging Stations

- Standard 120V, 20 amps
- Upgradable to Level 2
- Currently deployed in:
 - Portland
 - Hillsboro
 - Lake Oswego
 - Lincoln City
 - Others





Charging Infrastructure Underway

- ***The EV Project*** funded by US DOE will install about 1,200 Level 2 Public Charging Stations in Oregon
- Also will deploy 23 “DC Fast-Charge” units in the project area
- Jointly developed “Deployment Guidelines” with ECOtality for installing EV Charging locations
 - > ***See Handout***





Other Ongoing Efforts

- Adopted sign to keep internal combustion engine (“ICE”) vehicles out of EV Charging spots
- Petitioned FHWA to use an alternative “wayfinding” sign
- State Electrical Code amended to fast-track permitting and inspection of EV charging stations





State EV Incentives

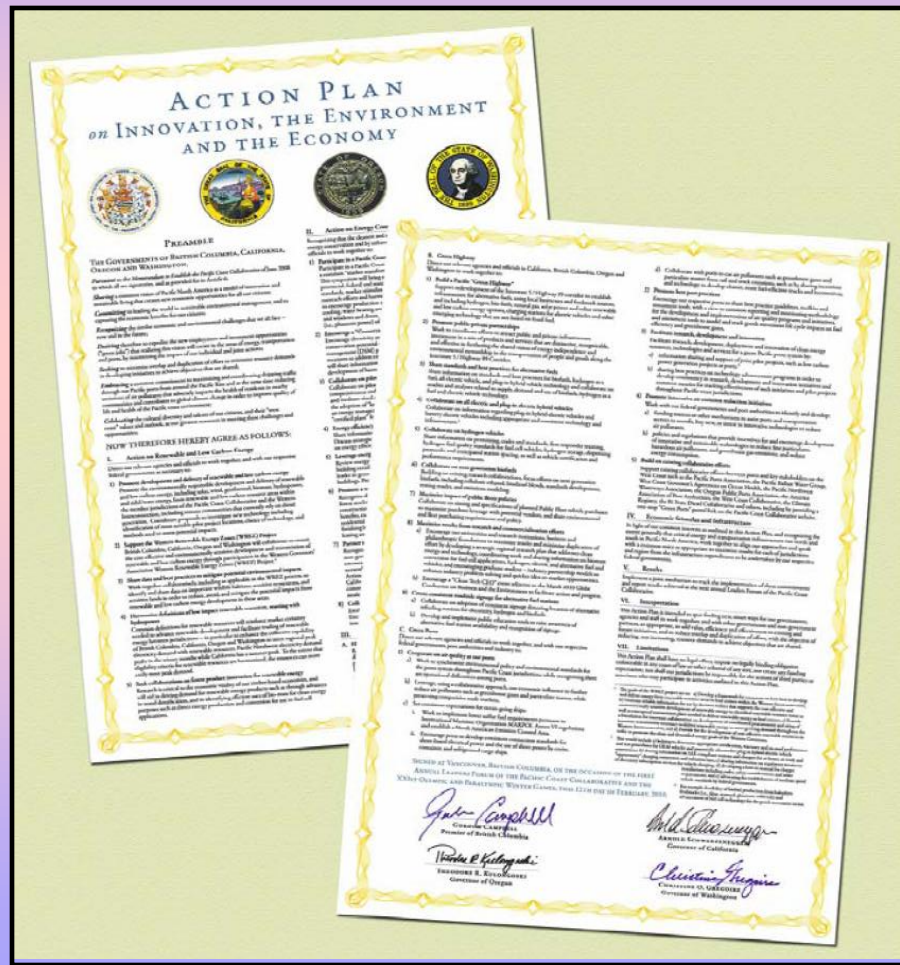
- 2009 Legislature enacted a state tax credit of \$1,500 for plug-in vehicles purchases
- Together with federal incentive, PIVs would receive up to \$9,000 credit
- Businesses eligible for 35% credit of the incremental cost of EVs over conventional vehicles
- Also credits for charging devices (for businesses and individuals)





“Green Highway” Initiative

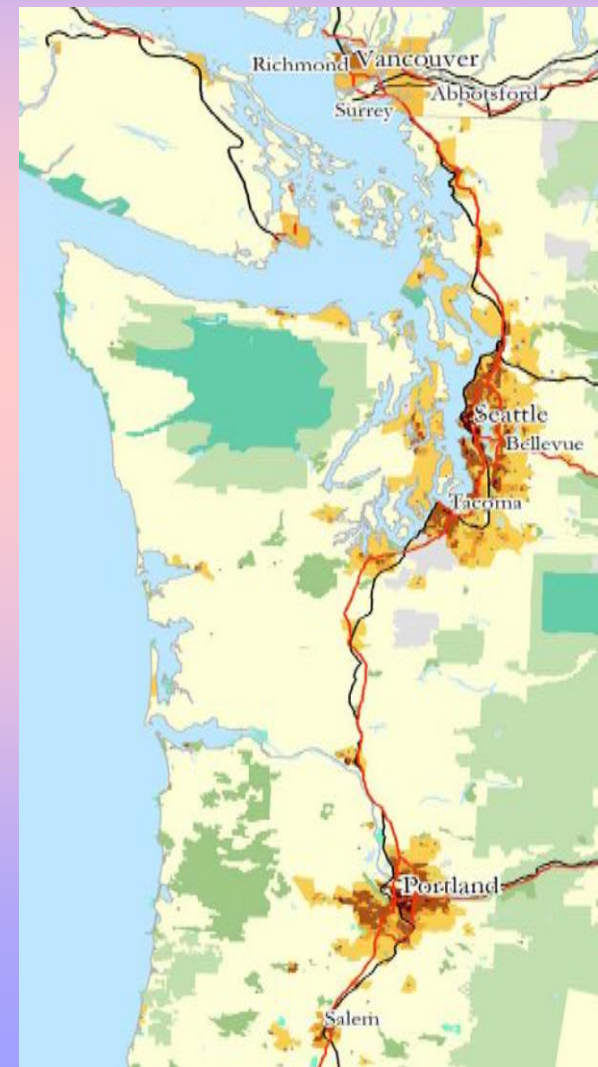
- Signed by Governors of Oregon, Washington and California and the Premier of British Columbia
- Executed in Vancouver, B.C. February 12, 2010





“Green Highway” Initiative

- Envisions being able to drive an EV from “*BC to Baja*”
- Network of 3-phase, 480V “fast chargers” at minimum intervals
- ODOT received \$700,000 in September to extend fast-charge network from Eugene to Ashland
- An additional \$2 million in TIGER funds received in October to expand the network





Thanks for your attention!

More information available at:

http://www.oregon.gov/ODOT/HWY/OIPP/inn_ev-charging.shtml

