



Oregon's Electric Vehicle Initiatives

Presentation to
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Electric Vehicles (EVs) in Oregon

- There are currently only about **400** all-electric vehicles (EVs) registered in Oregon
- Mostly low speed, "Neighborhood Electrics"
- A new generation of highway-speed, safety-certified EVs will enter the marketplace in the next 18-24 months
- Within a decade, plug-in cars could account for as much as 20% of new vehicles sold in Oregon

Oregon Department of Transportation

EV Manufacturers that have come to Oregon

Nissan Leaf

Ford
(Transit Connect and Focus)

Th!nk

Navistar Workhorse

Chevy Volt

Mitsubishi iMiEV

Smart Electric

Oregon Department of Transportation

Oregon – Ideal market for EVs

- Average “Daily Miles Traveled” (DMT) less than twenty (20) miles in urban areas
- Oregon is the #1 state for per capita ownership of hybrid vehicles
- Urban Growth Boundaries promote compact development - perfect for EVs
- Strong interest in EVs – even in rural parts of Oregon



Why Charging Infrastructure?

- The biggest issue for drivers transitioning to EVs is the *RANGE* of the vehicles (“range anxiety”)
- 75-80% of charging will be residential
- The next largest percentage will be at work
- Public Charging Stations will provide reliability and certainty to EV drivers



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 I Charging Station

- Standard 120 volt outlet
- Up to 20 amps
- Upgrade to Level II possible



Level II Charging Station

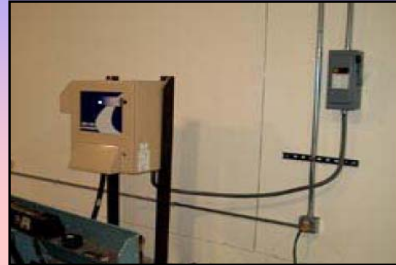
- 208/240 volt outlet
- Typically 30-50 amps but may be more
- Standardized SAE J1772 connector





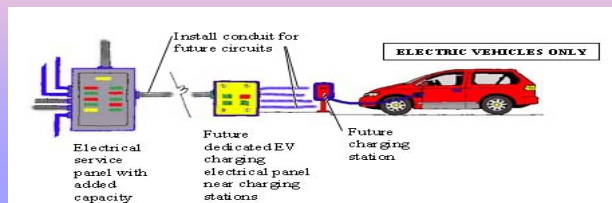
Level III Charging Station

- “Quick charge” or “Fast Charge” units
- 480 volt - 3 phase power
- Off-board Charger
- Connector standards under development
- DC voltage to vehicle



Impact on Local Governments

- Explore opportunities for fast-track permitting
- Fleet applications for EVs
- Encouraging public charging locations
 - Local ordinance for “EV-Only” Parking??
- Pass-through for BETC credits
- Other???





Transportation Electrification Grant

- US DOE awarded nearly \$100 million to eTec, an Arizona corporation
- Partnership with Nissan North America
- Will test EVs and charging infrastructure in:
 - Oregon (Portland, Salem, Corvallis, Eugene)
 - Washington (Seattle)
 - California (San Diego)
 - Arizona (Phoenix and Tucson)
 - Tennessee (Nashville, Knoxville)



Transportation Electrification Project Activities

- Deploy 940 Nissan “LEAF”s
- Deploy 2,200 charging stations
 - 940 residential (LEAF owners)
 - Approximately 1,200 Public chargers (malls, retail, fleets)
 - 50 – “Level 3” charge points
- *Many of the details are yet to be announced!*
- Check on progress at:



www.TheEVproject.com



Governors Work Group and other Initiatives

- Governor Kulongoski's Work Group recommendations released in January 2010
- State commits to deploying charging infrastructure and raising public awareness.
- State Building Codes agency streamlining regulations for EV charging stations
- State and Federal tax credits available → →



Other Incentives and Activities

- 2009 Legislature enacted a state tax credit of \$1,500 for EV purchases
- Together with federal incentive, EVs could receive up to \$9,000 credit promoting the adoption of electric vehicles.
- There are also both Federal and State tax credits for installing charging equipment (both businesses and residential) – can add up to as much as 85% of the cost!



Many Factors Will Effect EV Adoption Rates

- Price of Petroleum
- Ability of EV manufacturers to ramp up production and lower cost premium
- Consumer acceptance of range-limited vehicles
- Efficiencies of Battery Technologies
 - Like computer memory, will get smaller, lighter, hold more and less expensive



Thanks for your attention!

More information available at:

<http://www.oregon.gov/ODOT/HWY/OIPP/>

