



New Electric Vehicles coming to a neighborhood near you

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OUTLINE

- Introduction
- Types of Vehicles
 - Hybrid
 - Full
 - NEV/LEV
- Energy
 - Short term
 - Long term
- Applications
- Sustainability



Introduction

- Electric Vehicles
 - Public Transportation
 - MAX
 - Portland Street Car
 - Trolley Buses –Vancouver BC and San Francisco
 - Originally part of the Electric Utility Company
 - Future Intercity Passenger Rail-Oregon Electric line
 - Private Vehicles –focus of this talk



Vehicles

- What are we really talking about?
- Not ATV, Golf carts,
- NEV, MSEV or LEV
 - WHY?
 - Speed, crash and use restrictions
 - Oregon Laws –community specific
 - Have their place but not on main roads



Electric Vehicles

What we already have today- Gas Electric
Hybrids

- Toyota Prius -50 mpg, 500 miles
- Toyota Prius plug in-100 150
- Honda, Chevy and FORD also have gas/electric hybrids



Full Electric Vehicles

- TESLA
- Nissan Leaf
- Other manufacturers following in future years
- Already deployed in Japan and elsewhere
- So what are we waiting for?



Other Full Electric Vehicles

- Mitsubishi
- Ford
- GM Volt
- TESLA
- Toyota



Another Layer

- Autonomous Vehicles
 - Shuttle buses: Shared Ride
 - Small cars: single or two person vehicles



smart





Full Electric Vehicles

- Key Issues
- Deployment of Fueling stations (Level 1 and Level II or primary concern)
 - Where and who gets the first stations ?
 - What do you do if you don't have a garage?
 - How should they be distributed





NEV's, LEV's MSEV's should I be worried?

- Mass of vehicle
- Crash Characteristics
- Maximum speed
- Safety Equipment
- Licensing
- Operating Restrictions





Energy

- Renewable versus non renewable
- Hydroelectric, solar wind, and wave
- Non renewable most of the US Electric Grid
 - Coal fired electric generation
 - Boardman
 - Wyoming Coal Fields



Sustainability

- Carbon Foot print
 - Tail Pipe Emissions
- Batteries
 - Battery life
 - Battery materials
 - Battery recycling



Other Factors

- What we can not ignore are autonomous vehicles
- Vehicle density
 - London, Beijing and Boston
- Parking
- Congestion



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Discussion