

# Washington State DOT's I-5 Electric Highway Public/Private Partnership

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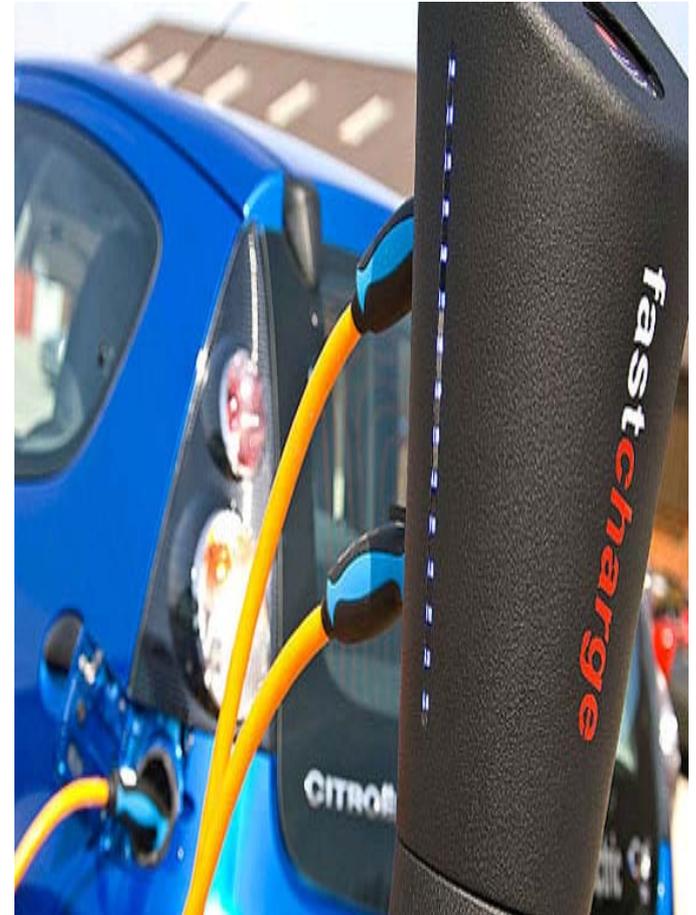
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**Washington State Transportation Commission**  
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# Presentation Overview

- The Transportation-Energy Imperative
- Why DOTs Should Help Transition Vehicles to the Electric Power Grid
- WSDOT's West Coast Green Highway Initiative
- Supportive State Actions



# The Transportation-Energy Imperative

**U.S. oil dependence weakens our national security, threatens our economy, and degrades the environment.**

## **National Security Costs of Oil Dependence:**

- \$67.5 billion to \$83 billion per year to secure global supply lines and infrastructure, using military force if required.
- The need to minimize disruptions to the flow of oil constrains our foreign policy options on uranium enrichment, hostile regimes and humanitarian issues.

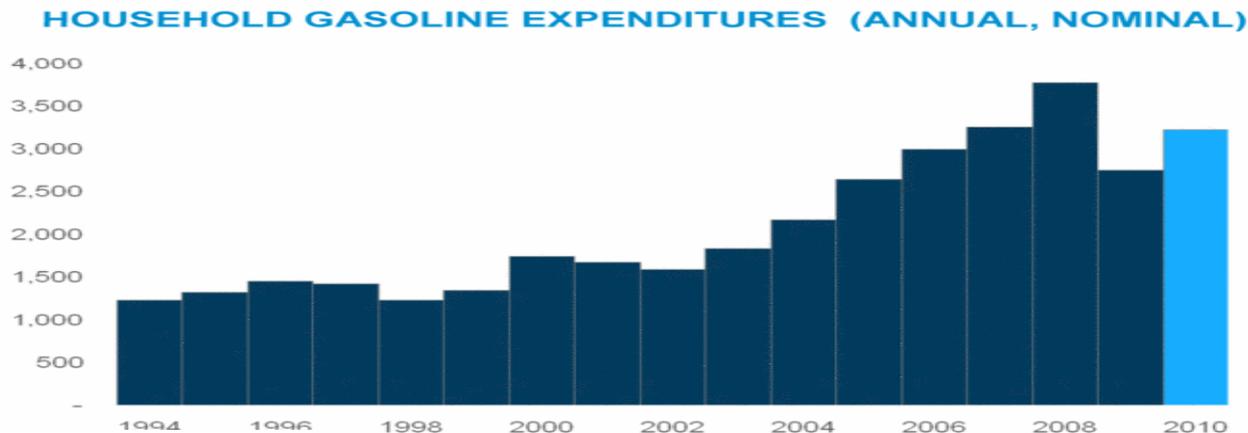


# The Transportation-Energy Imperative

## Economic Costs of Oil Dependence:

- Every recession over the past 35 years has been preceded by – or occurred concurrent with – an oil price spike.
- Annual household expenditures for gasoline were \$125/month in 2003. Sixty months later, the average American household was spending \$300/per month.

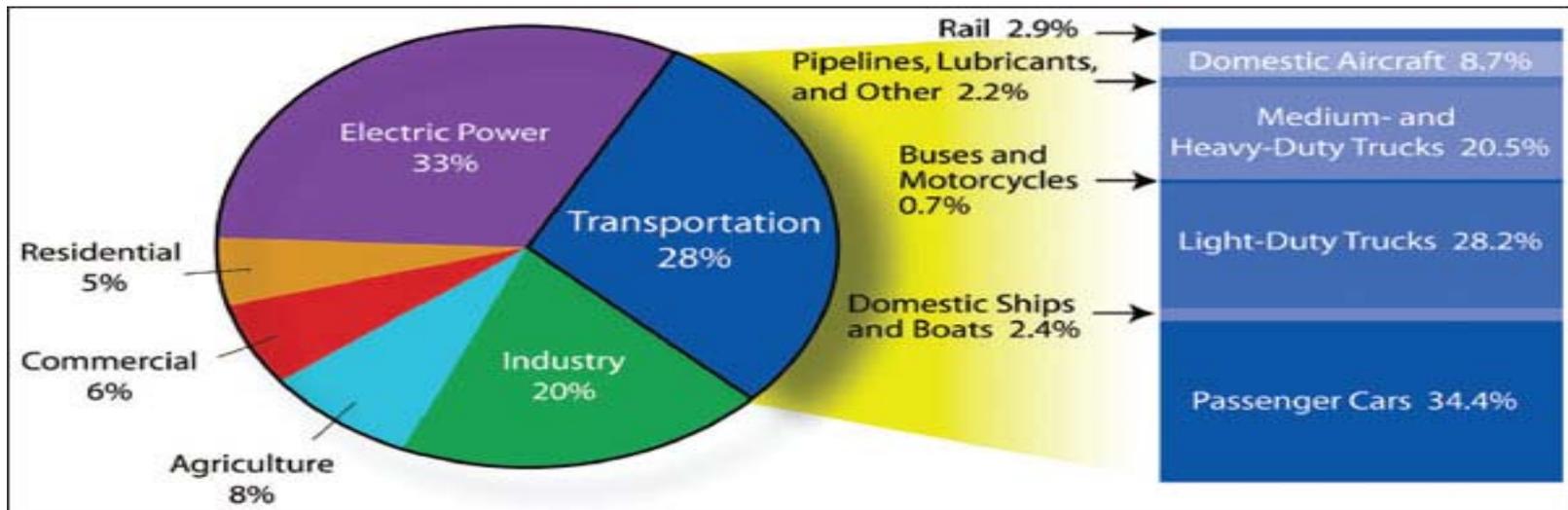
### US Oil Dependence: Economic Costs



# The Transportation-Energy Imperative

## Environmental Costs of Oil Dependence:

- 43 percent of all GHG emissions come from petroleum use – and 70 percent of this amount is from transportation.
- Passenger and light-duty vehicles constitute 62 percent of the transportation sector's GHG emissions.

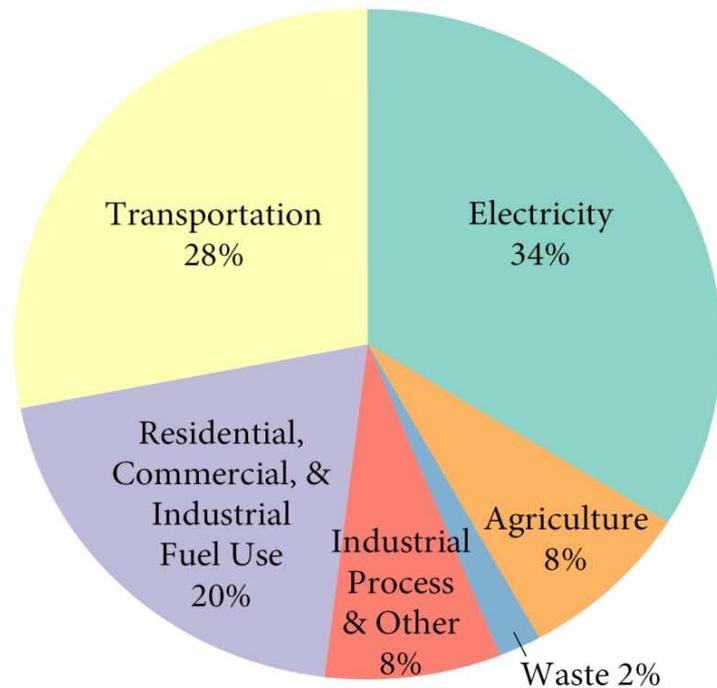


U.S. Co2 emissions, by sector (2007)

# Importance to State DOTs

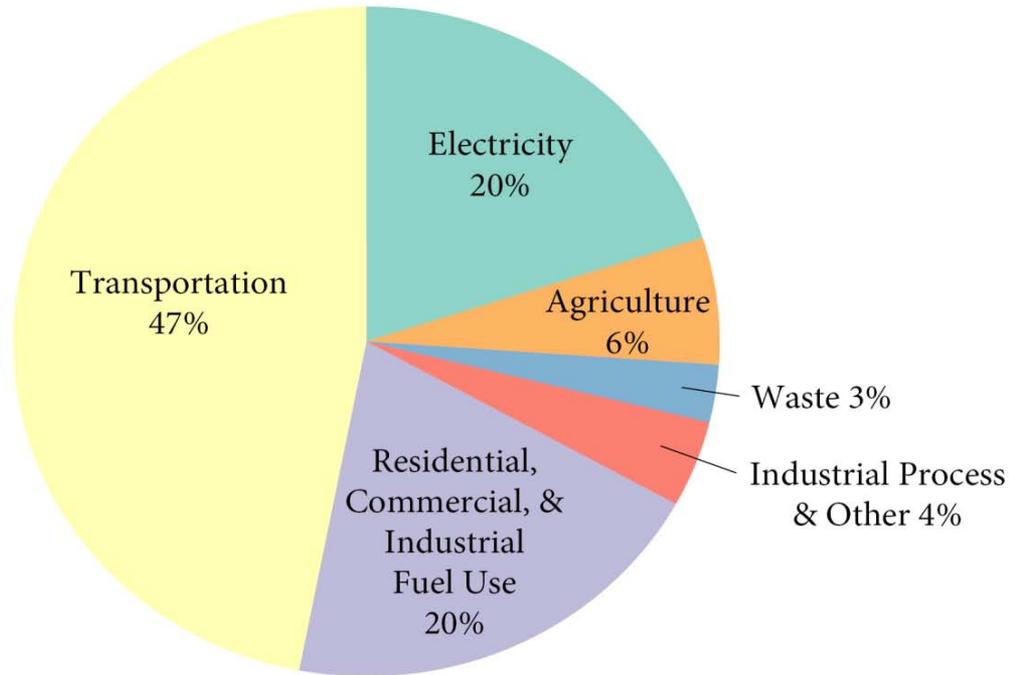
**GHG emissions from Washington State's transportation sector (47%) are nearly double the national figures.**

U.S. Greenhouse Gas Emissions



Source: Washington State Department of Ecology, 2005

Washington Greenhouse Gas Emissions

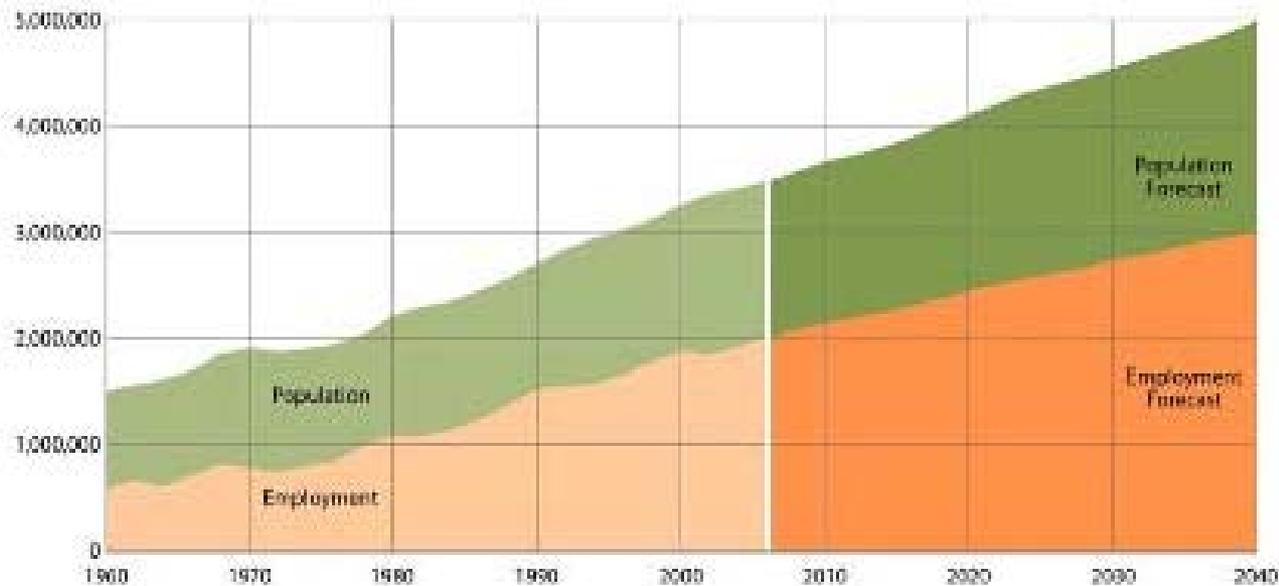


Source: Washington State Department of Ecology, 2005

# Importance to State DOTs

**Within the next 30 years, the central Puget Sound region is expected to grow by 1.5 million people – increasing travel demand by 40%.**

**Puget Sound region population and employment forecasts, 2040.**



# Importance to State DOTs

**In spite of these ominous forecasts, Washington's transportation system must meet stringent state laws for GHG and VMT reduction.**

## GHG Reduction Targets:

- To 1990 levels by 2020
- To 25 percent below 1990 levels by 2035
- To 50 percent below 1990 levels by 2050

## VMT Reduction Targets:\*

- By 2020, decrease by 18%
- By 2035, decrease by 30%
- By 2050, decrease by 50%

\*Statewide annual per capita VMT reductions, all fuel types.

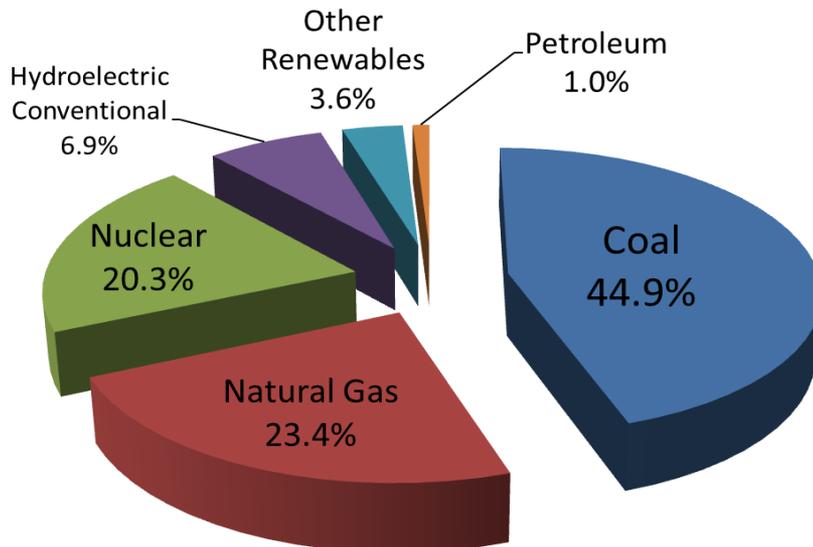
# Alternative Fuel: Electric Power Grid

## Fuel Source: Electric Power Grid

### Advantages:

- Diverse and domestic
  - Prices are stable
  - Substantial spare capacity
- Network infrastructure already in place
  - Electric miles cheaper than gas
  - Electric miles are cleaner than gas
  - 65 percent of present U.S. light-duty vehicles could be powered by existing off-peak generating capacity

2009 U.S. Electricity Generation by Source



# WSDOT's West Coast Green Highway

**West Coast Green Highway Initiative:** public/private partnerships to promote sustainable transportation solutions in the I-5 corridor, “BC-to-Baja”



## **WEST COAST GREEN HIGHWAY**

- Alternative Fuels Pilot Project
- **I-5 Electric Highway**
- NewMobility HUBs
- Solar and Wind Highway Facilities

# WSDOT's West Coast Green Highway

“ 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 Barack Obama  
3/19/2009

## WSDOT's I-5 Electric Highway

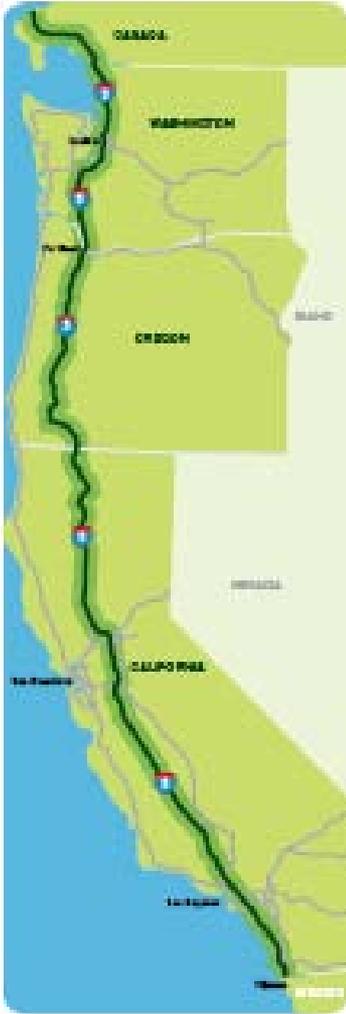


**President Barack Obama**

Goal: 1 million electric vehicles by 2015

# WSDOT's West Coast Green Highway

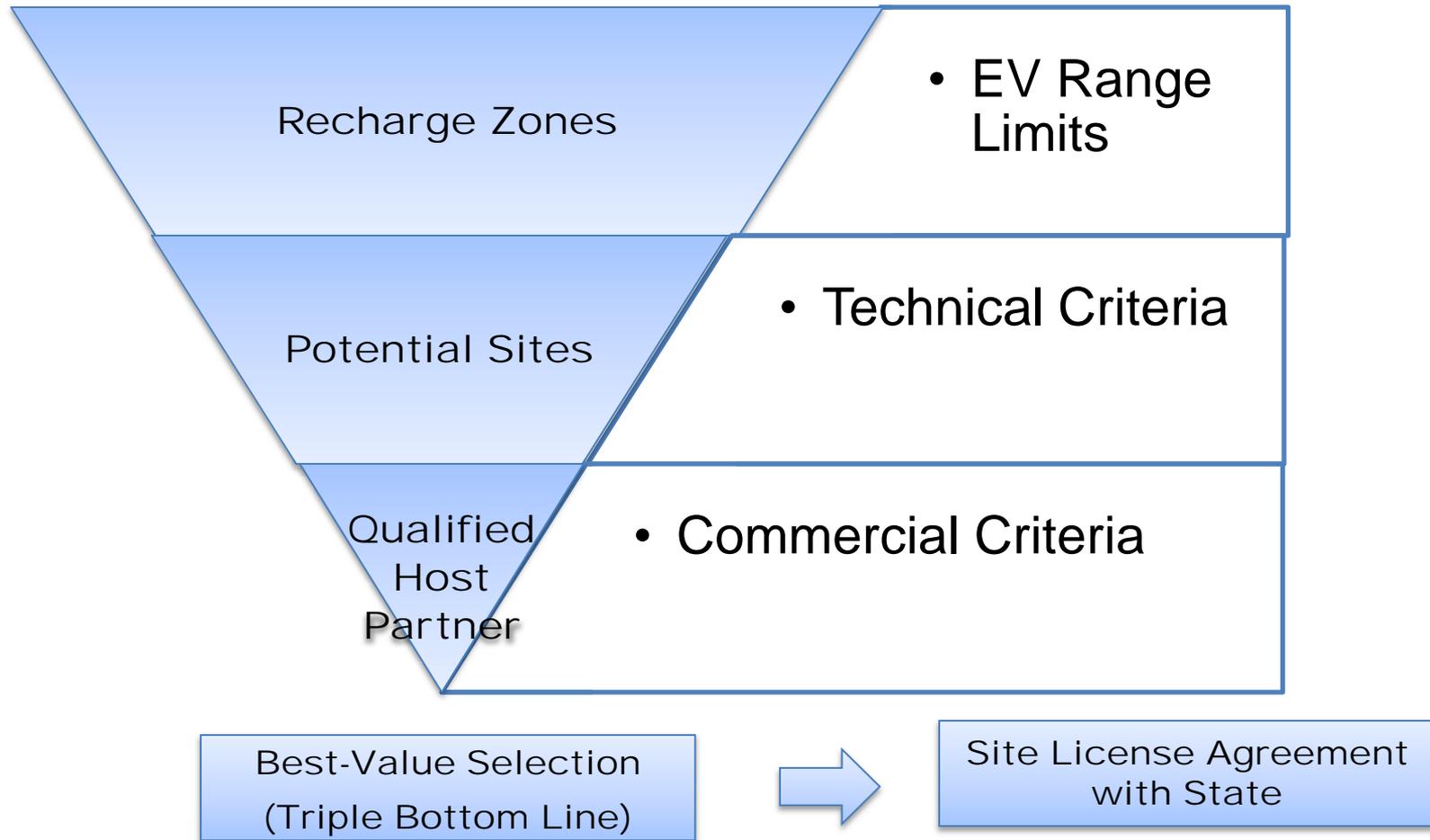
## WSDOT's I-5 Electric Highway Project



- Develop safety net of EV Fast-Charging stations throughout I-5 Corridor
- Seek partnerships with retail businesses located in critical recharge zones
- Coordinate EV infrastructure investments with other planned investments in Puget Sound Region
- Collaborate with Oregon and California on joint EV infrastructure development and funding

# WSDOT's West Coast Green Highway

## Screening and Site Selection Process



# WSDOT's West Coast Green Highway

## Two-Stage Deployment: Essential Charging and Corridor Completion



- Complete DC Fast-Charge network along I-5
- 2 Gateway Rest Areas (Level 2 charging for public education & demonstration)
- Additional recharge zones based on data analysis
- Potential expansion east-west (I-90, SR 2)

# WSDOT's West Coast Green Highway

Showcasing emerging technologies and Washington-based companies



Real-time travel information



Renewable energy technologies



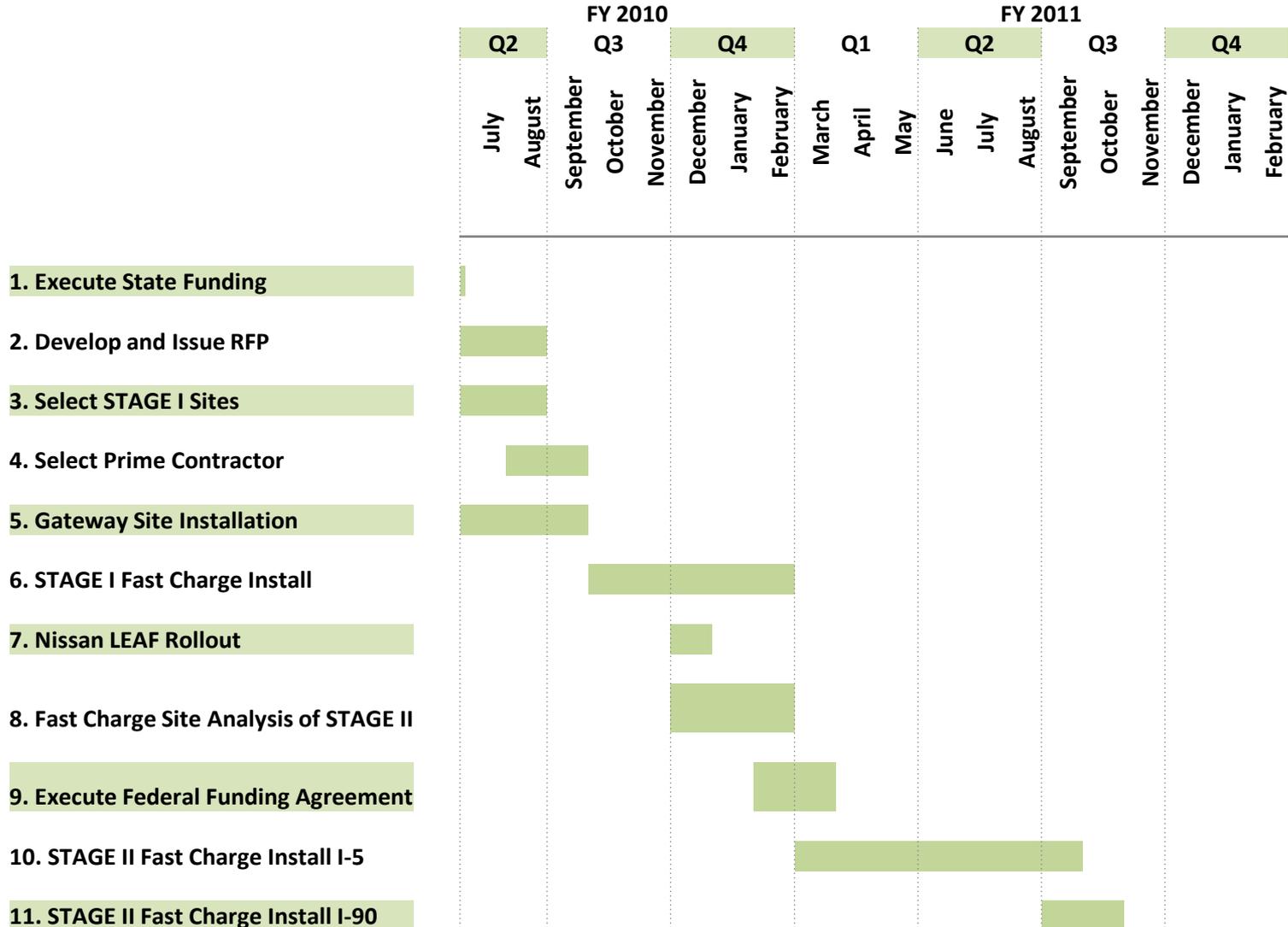
Education: Clean & Smart Transportation



Vehicle-to-Grid Capabilities

# WSDOT's West Coast Green Highway

## I-5 Electric Highway Project Development Schedule



# Supportive State Actions

## State and Local Government Assets:

- Under-utilized rights-of-way
- Park-and-Ride lots, transit centers
- Public office buildings with power supply
- Public parking stalls
- Public vehicle fleets
- Local signage (way-finder and location-based)
- Coordinated funding opportunities (grants, foundations, P3's)
- Leadership

# Questions?

For more information on Washington State DOT's  
I-5 Electric Highway Public/Private Partnership,  
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