Transforming Transportation with Electricity: State Action

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NCSL
NCSL OVERVIEW

- Bipartisan organization
  - Serves the 7,383 legislators and 30,000+ legislative staff of the nation's 50 states, commonwealths and territories

- Activities
  - Research and information on topics of interest to the states
  - Technical assistance and training
  - Opportunities for policymakers to exchange ideas
  - Lobbying at the federal level for states' interests
NCSL's Energy Program

- Alternative fuels & vehicles
- Emissions, climate change
- Energy efficiency, conservation
- Energy security
- Finance, funding
- Fossil Fuels (oil, gas, coal)
- Infrastructure
- Nuclear generation
- Renewable energy
- Transmission, distribution
- Utilities
OVERVIEW

- Benefits of electric vehicles
- Barriers to vehicle adoption
- Types of incentives
- Federal policies
- State policies
- Evaluating incentive structures
- Potential challenges
BENEFITS

- Diversify transportation fuels
- Energy Security
  - Reduce dependency on foreign oil
- Decrease emission
- Economic growth
  - Price stability

Source: U.S. Department of Energy
BARRIERS TO VEHICLE ADOPTION

- High purchase costs
- Range anxiety
- Access to charging stations
- Lack of public awareness and outreach
MARKET FOR ELECTRIC VEHICLES

- Approximately 180,000 plug-in electric vehicles sold since 2008
- Approximately 8,000 charging stations in the U.S. - more than half installed since 2012
- 22 vehicle models available in the U.S. by 2014

Source: hybridcars.com; Electrification Coalition
TYPES OF INCENTIVES

- Monetary
  - Credits, rebates, loans, grants, etc.
- Promoting charging infrastructure
- HOV/HOT lane access
- Parking exemptions
- Inspection/emissions exemptions
- Supporting public and private fleets
FEDERAL INCENTIVES

- $7,500 federal tax credit
  - Available until 200,000 qualified vehicles are sold by each automotive manufacturer.
- 30 percent, up to $30,000, towards alternative fueling equipment
STATE HYBRID & ELECTRIC VEHICLE INCENTIVES

- At least 40 states and the District of Columbia have enacted electric vehicle incentives
- More than 110 bills in 26 states encourage EV adoption were introduced in 2013
Top 10 Regions for EV Growth

based on registered EVs*

1. Atlanta, GA
2. Washington, D.C.
3. Portland, OR
4. Los Angeles, CA
5. Bay Area, CA
6. San Diego, CA
7. Chicago, IL
8. Seattle, WA
9. Miami, FL
10. Detroit, MI

*Growth from Q3 to Q4, 2013, state motor vehicle departments
California

- Clean Vehicle Rebate Project (CVRP), up to $2,500
- Number of Rebates Issued (50,519)
- Funded through increased vehicle and vessel registration fees, smog abatement fees and annual appropriations.
CALIFORNIA: MOTIVATIONS FOR PEV PURCHASE

- 38% said environment was the most important reason for purchasing a PEV
- 34% said saving money was the most important reason
- 57% said HOV lane access was extremely or very important

84% are displaying an HOV sticker on their vehicle.
### Tax Credit

**Colorado**
- $6,000 income tax credit
- Funded through the state's general fund
  - Estimates based on tax credit, current vehicle sales, and future projections

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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>State Revenue</td>
<td>(2.4 million)</td>
<td>(5.2 million)</td>
<td>(5.9 million)</td>
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<tr>
<td>General Fund - Income Tax</td>
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<tr>
<td>State Transfers</td>
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<td>(2.4 million)</td>
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<td>Transfer from the General Fund to the State Education Fund</td>
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<td>State Expenditures</td>
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<td>FTE Position Change</td>
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**Effective Date:** The bill was signed into law by the Governor and took effect on May 15, 2013.

**Appropriation Summary for FY 2013-14:** None.

**Local Government Impact:** None.

**Georgia**
- Low-Emission Vehicle: 10% of the vehicle cost or $2,500
- Zero-Emission Vehicle: 20% of the vehicle cost or $5,000

Georgia tax credits may not exceed an applicant's tax liability, but may be carried over for up to 5 years.
**CHARGING INFRASTRUCTURE**

**Maryland**
- Tax credit for the installation of charging equipment
  - The credit may not exceed the lesser of $400 or the state income tax imposed for that tax year.
  - The Maryland Energy Administration (MEA) is authorized to award a maximum of $600,000 in recharging equipment credits annually.

**Washington**
- State and local governments may lease land for installing, maintaining, and operating charging stations for up to 50 years.
- Publicly and privately owned charged at state office locations
CONVENIENCE INCENTIVES

Negligible costs to the state

- HOV lane access
  - beneficial in cities/congested highways
- Parking Incentives
  - Discounted parking, reserved parking spots
Governors of 8 states signed MOU

- 3.3 million vehicles on the road by 2025
  - Coordinate incentives
  - Common standards for signs
  - Harmonize building codes
  - Set purchase targets in public fleets
PRIVATE INCENTIVES

- Car insurance discounts
- Workplace charging
- Employer clean vehicle incentive
  - Bank of America will reimburse employees $3,000 for an electric vehicle purchase
- Utility rebates
  - Reduced rate for charging vehicles during off-peak hours
## Electric Vehicle Sales and Incentives

<table>
<thead>
<tr>
<th>State</th>
<th>2012 Sales</th>
<th>Rebate/Grant</th>
<th>Tax Credit/Exemption</th>
<th>EVSE (charging unit)/Installation</th>
<th>HOV/HOT Access</th>
<th>Free/Discounted Parking</th>
<th>Inspection Exemption</th>
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# Evaluating Policies

<table>
<thead>
<tr>
<th>Policy Option</th>
<th>Policy Effect on PEV Sales</th>
<th>DOE Policy Influence</th>
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<tbody>
<tr>
<td>Subsidies</td>
<td>Large</td>
<td>Moderate</td>
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<tr>
<td>Public Education—dealers</td>
<td>Moderate-Large</td>
<td>Moderate-High</td>
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<tr>
<td>Workplace Charging</td>
<td>Moderate-Large</td>
<td>Moderate-High</td>
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<td>HOV/HOT Lane Access</td>
<td>Moderate-Large</td>
<td>Low</td>
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<td>Fleets</td>
<td>Moderate</td>
<td>Moderate</td>
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<tr>
<td>Public Education—awareness</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
<tr>
<td>Role of Utilities</td>
<td>Moderate</td>
<td>Low-Moderate</td>
</tr>
<tr>
<td>Gas Tax/PEV Fees</td>
<td>Small-Moderate</td>
<td>Low</td>
</tr>
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# Empirical Studies

- Current studies on subsidies and interactions with other policies, but few focus on EV sales
- Hard to estimate PEV sales increase due specific incentives/policies
- Consumer purchase decisions are varied and complex

<table>
<thead>
<tr>
<th>Study</th>
<th>Quick summary</th>
<th>Sales increase?</th>
<th>Effective subsidies mentioned?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tal et al., 2013</td>
<td>Interviewed recent plug-in vehicle purchasers to examine motivations and vehicle usage</td>
<td>PEV purchase motives varied, but included: HOV access, fuel savings, etc.</td>
<td>Diverse motivations for PEV purchase</td>
</tr>
<tr>
<td>Gallagher &amp; Muellegger (2011)</td>
<td>HEV sales influenced by sales tax credit, fuel savings and income tax credit</td>
<td>1% decrease in price increases sales by 8%</td>
<td>Sales tax credit</td>
</tr>
</tbody>
</table>

Source: Slide provided by U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy
Electric vehicles represent the largest new electric load to appear in homes in a generation.

Studies by the U.S. Department of Energy suggest that the grid has enough excess capacity to support 150 million electric vehicles.
FUNDING TRANSPORTATION INFRASTRUCTURE

How will electric vehicles affect funding for transportation infrastructure?

Special fees
- Colorado, Nebraska, North Carolina, Virginia and Washington

Vehicle Miles Tax
- Oregon
  - 2015, 5,000-vehicle pilot program
- California, Minnesota, Nevada and Washington
  - Smaller pilot programs
CONCLUSION

- Many different types of federal, state, local and private incentives
- States that include a combination of incentives have noticeable sales penetration
- Current lack of rigorous studies evaluating electric vehicle policies
CONTACT DETAILS AND RESOURCES

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Kristine.Hartman@ncsl.org

NCSL Publications
- *Transforming Transportation with Electricity* (January 2014)
- *State and Hybrid Electric Vehicle Incentives* (November 2013)
- *Going Electric* (May 2011)

Additional Resources
- NCSL Energy and Environment Database
- NCSL Energy Program