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TRANSFORMING TRANSPORTATION WITH ELECTRICITY: STATE ACTION

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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



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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



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OVERVIEW

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



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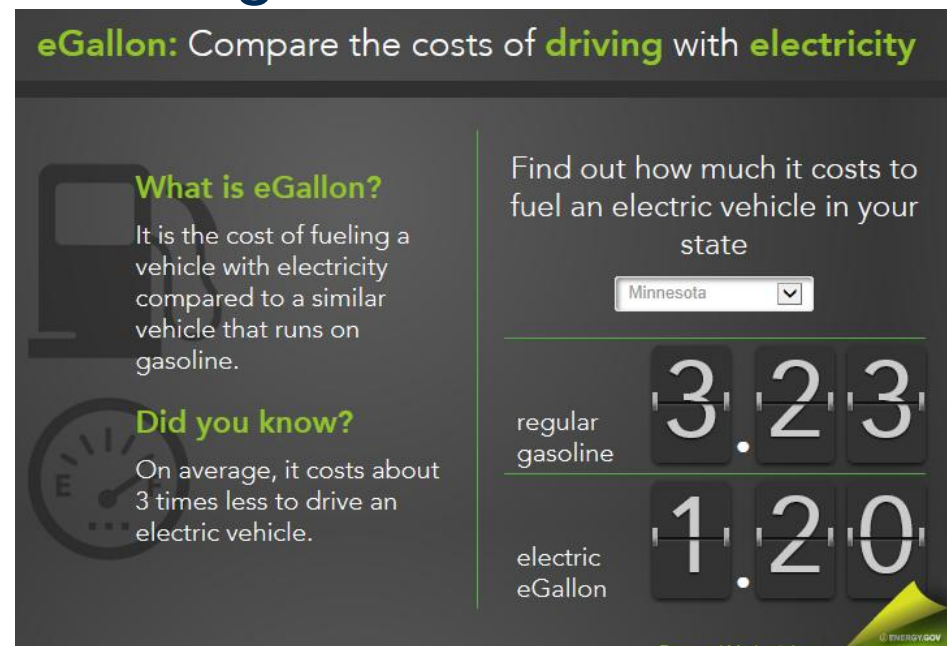
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BENEFITS

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

Source:
U.S.
Department
of Energy





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BARRIERS TO VEHICLE ADOPTION

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



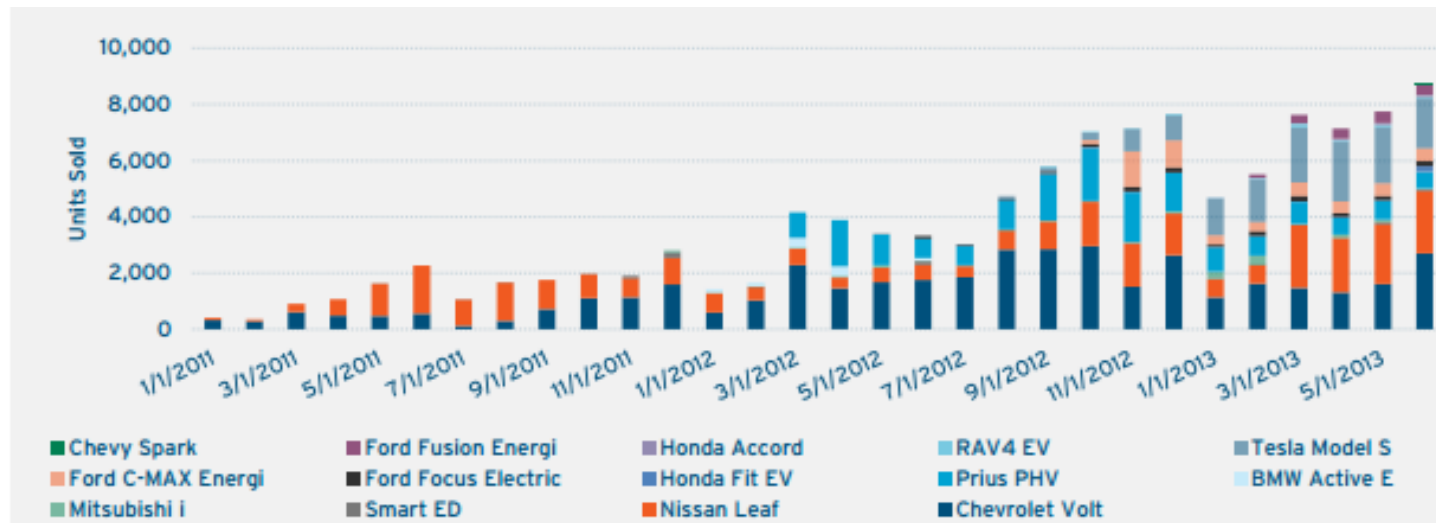
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MARKET FOR ELECTRIC VEHICLES

- 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



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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



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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



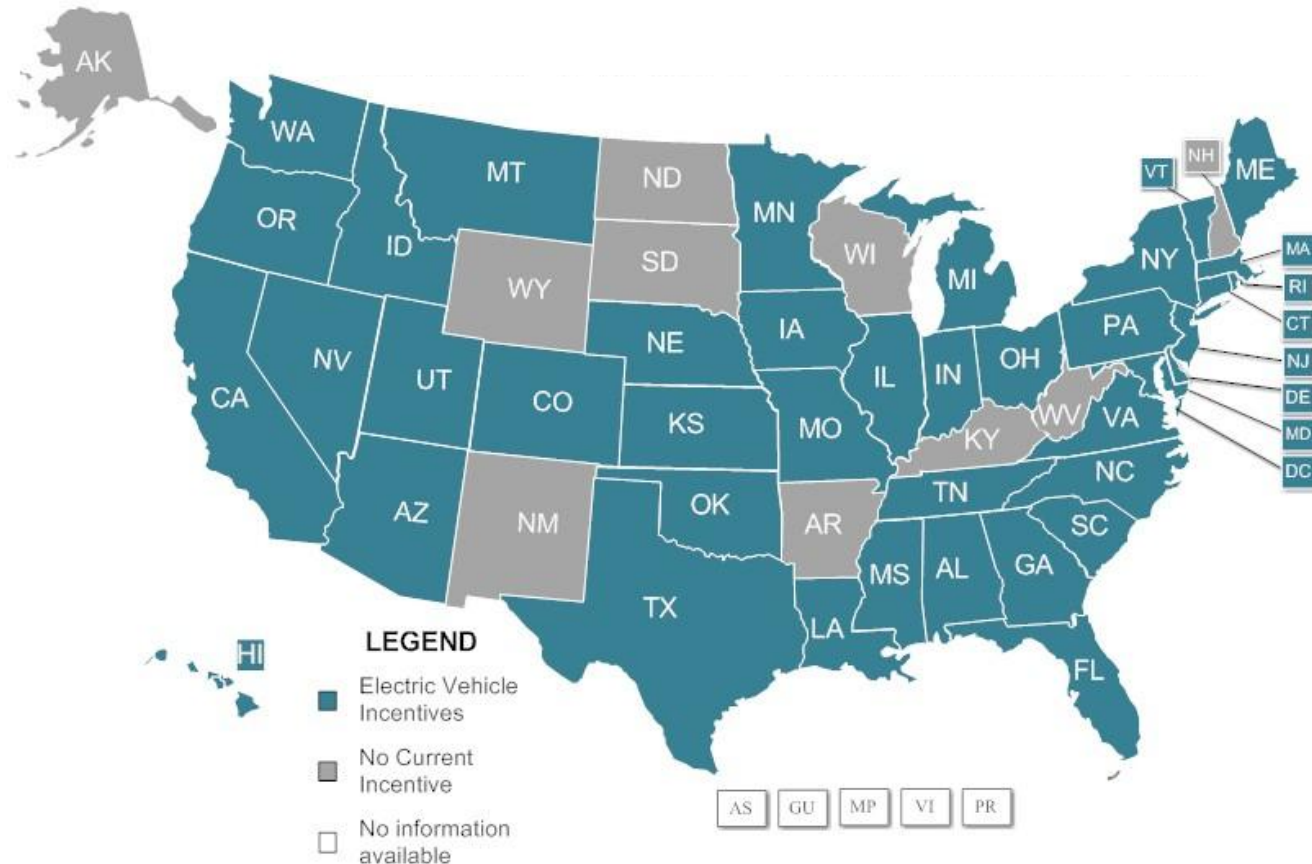
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STATE HYBRID & ELECTRIC VEHICLE INCENTIVES

- 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





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Top 10 Regions for EV Growth

based on registered EVs*



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

-chargepoint+



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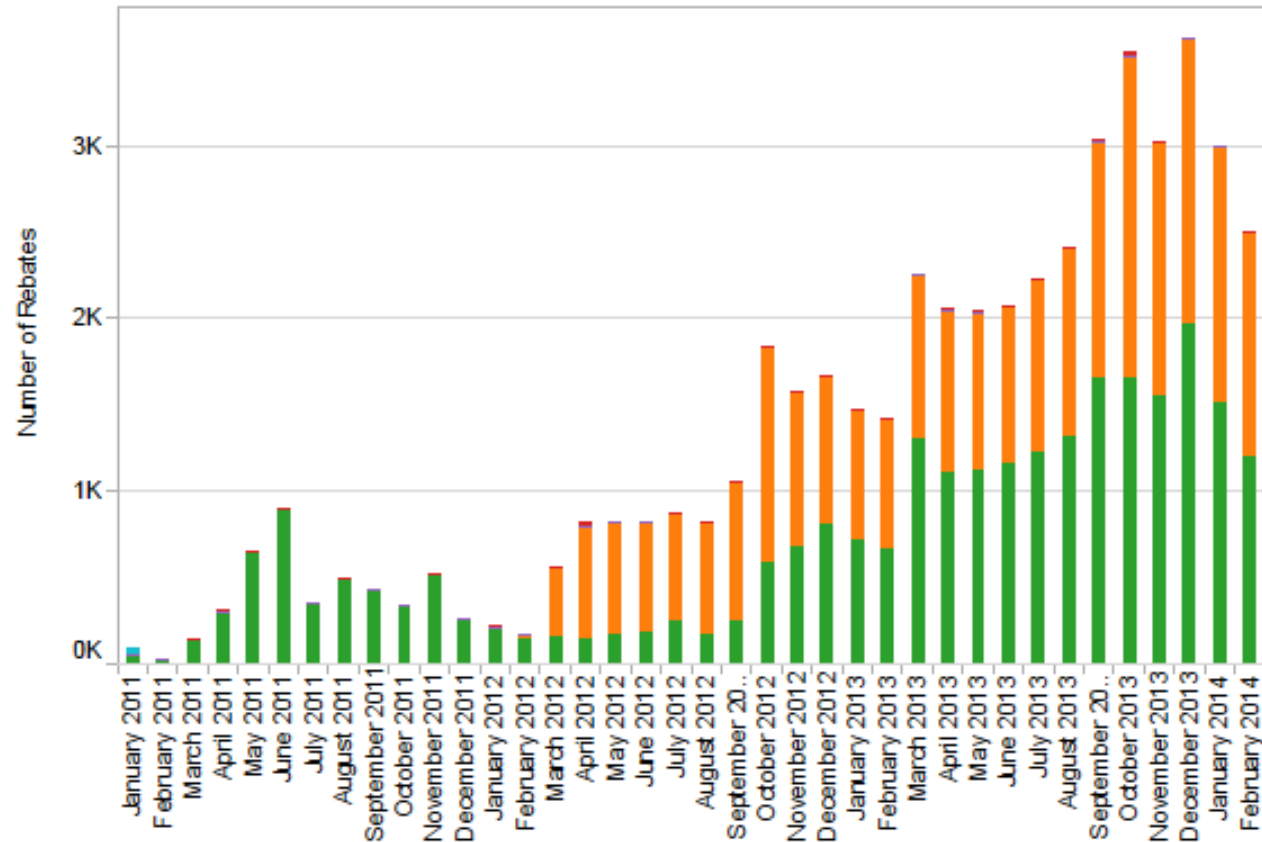
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REBATES

California

- Clean Vehicle Rebate Project (CVRP), up to \$2,500
- Number of Rebates Issued (**50,519**)
- A.B. 118 (2007)
- Funded through increased vehicle and vessel registration fees, smog abatement fees and annual appropriations.

CVRP Rebates by Month



Vehicle Category

■ ZEV
 ■ PHEV
 ■ ZEM
 ■ NEV
 ■ CZEV

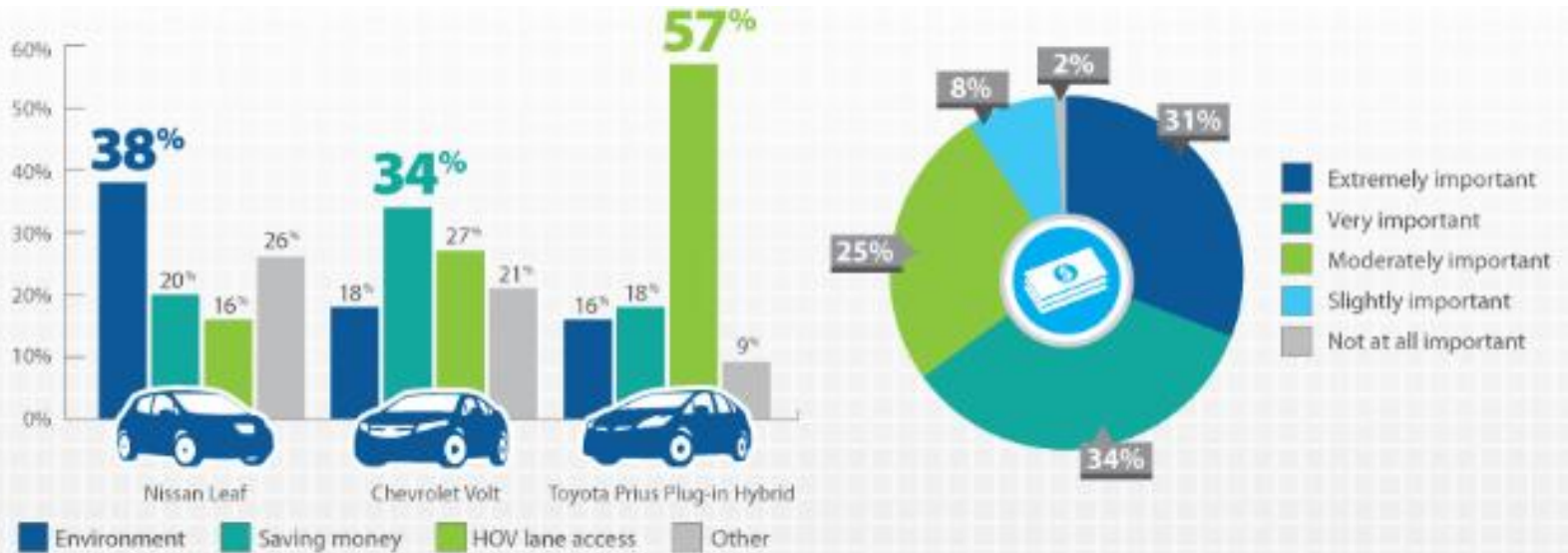


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CALIFORNIA: MOTIVATIONS FOR PEV PURCHASE



59% said having HOV lane access was extremely or very important in their decision to purchase a PEV



84% are displaying an HOV sticker on their



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

Fiscal Impact Summary	FY 2012-2013	FY 2013-2014	FY 2014-2015
State Revenue			
General Fund - Income Tax	(\$2.4 million)	(\$5.2 million)	(\$5.9 million)
State Transfers			
Transfer from the General Fund to the State Education Fund		(\$2.4 million)	
State Expenditures			
FTE Position Change			
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.



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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





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CONVENIENCE INCENTIVES

Negligible costs to the state

- HOV lane access
 - beneficial in cities/congested highways
- Parking Incentives
 - Discounted parking, reserved parking spots



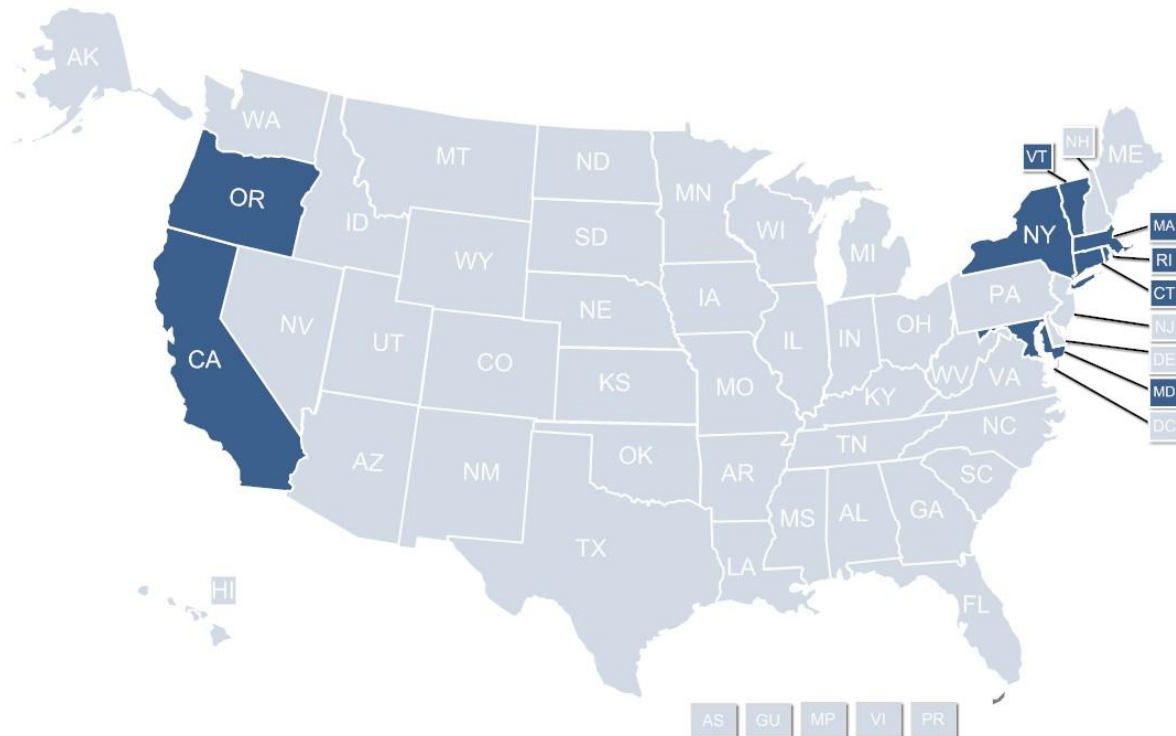
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OTHER STATE ACTION

- 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





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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



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Electric Vehicle Sales and Incentives

	Sales	Current Federal, State, & Local Incentives					
State	2012 Sales	Rebate/ Grant	Tax Credit/ Exemption	EVSE (charging unit)/ Installation	HOV/HOT Access	Free/Discounte d Parking	Inspection Exemption
CA	26088	X		X	X	X	
MI	3710		X	X			X
WA	3206	X	X				X
FL	3204			X	X		
NY	3040	X			X		
TX	2657	X		X		X	
MD	1824		X	X			
IL	1794	X		X			X
NJ	1634		X	X	X		
OH	1420	X					
VA	1352	X	X		X		X
ME	236	X					
VT	184		X				
WV	135						
RI	126						
MS	91						
ND	51						
WY	22						



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EVALUATING POLICIES

Policy Option	Policy Effect on PEV Sales	DOE Policy Influence
Subsidies	Large	Moderate
Public Education—dealers	Moderate-Large	Moderate-High
Workplace Charging	Moderate-Large	Moderate-High
HOV/HOT Lane Access	Moderate-Large	Low
Fleets	Moderate	Moderate
Public Education—awareness	Moderate	Moderate
Role of Utilities	Moderate	Low-Moderate
Gas Tax/PEV Fees	Small-Moderate	Low

Source: U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy



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

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



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CHALLENGES TO THE GRID

- 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



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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



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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



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CONTACT DETAILS AND RESOURCES

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NCSL Publications

- *Transforming Transportation with Electricity (January 2014)*
- *State and Hybrid Electric Vehicle Incentives (November 2013)*
- *Transportation Energy for the Future: A Guide for Policymakers (March 2012)*
- *Going Electric (May 2011)*

Additional Resources

- [NCSL Energy and Environment Database](#)
- [NCSL Energy Program](#)