Electric Vehicles in a Carbon Constrained World: What Are They Worth?

Cutting Edge Utility Programs

Prepared for:

EV Roadmap 7 Conference

July 24, 2014
ICF: Where We Are Coming From

- **Plug-in Electric Vehicle Readiness**
  - San Francisco Bay Area
  - Delaware Valley (Philadelphia)
  - Coachella Valley

- **Direct support to utilities**
  - California Electric Transportation Coalition
  - Orlando Utilities Commission

- **MTC Climate Initiatives Program - EV Deployment Evaluation**
  - Carsharing, EVs in government fleets, EVs in tribal community, taxi application

- **DOE / NREL**
  - Alternative Fuels Data Center
  - Workplace Charging Challenge
  - Clean Cities Technical Response Service
Low Carbon Fuel Standards / Clean Fuel Standards

- Currently implemented in California and British Columbia
- Oregon and Washington are in the process of developing standards
- Utilities opt-in and generate credits for electricity used in EVs
LCFS Credits

Cap and trade and the LCFS

Source: Argus Media
Zero Emission Vehicle Program

- Oregon is one of nine states to adopt the CA ZEV Program
- These states are committed to having at least 3.3 million ZEVs on the road by 2025
- An estimated 5% of light-duty sales in 2018 and 10-20% of light-duty sales in 2025 could be PEVs
California Utility LCFS Programs

- All utilities are required by the regulation to use all proceeds as direct benefits for current or future EV customers. IOUs are required to gain CPUC approval for selling LCFS credits in addition to designing EV incentivizing rate structures.

<table>
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<tr>
<th>Utility</th>
<th>Description of Proposal to the CPUC</th>
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<tr>
<td>Pacific Gas &amp; Electric</td>
<td>On-bill credit to PHEV and BEV drivers; amount based on battery size</td>
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<tr>
<td>San Diego Gas &amp; Electric</td>
<td>Return credits to drivers (mechanism is yet to be determined)</td>
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<tr>
<td>Southern California Edison</td>
<td>Clean Fuel Reward to PEV adopters through dealers at the time of vehicle adoption</td>
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| Sacramento Municipal Utility District        | • Clean Fuel Reward at time of purchase  
• Support public charging infrastructure       |
| Los Angeles Department of Water and Power   | Provide rebates for PEV charging infrastructure                                                   |
Market Gaps and Barriers for EV Adoption

- Main barrier to expanded EVSE deployment in California: PUC Ruling which limits IOU involvement in the EV marketplace including prohibiting investment in EVSE

- Third party owning and operating of EVSE for the sole purpose of reselling electricity lacks a proven and sustainable business model

- Draft Market Barrier Solutions
  - Revisit ruling regarding utility investment in charging infrastructure
  - Decreased role of public investment in charging infrastructure deployment
  - Improved evaluation of charging infrastructure deployment
EMERGING REGULATIONS

Emerging Issues

- EPA has qualified electricity used to power EVs produced from biogas (e.g. from landfills) to generate cellulosic or alternative fuel RINs under the Renewable Fuel Standard on July 2, 2014.

- Biofuel providers can generate LCFS credits and RINs.

- Unresolved issue with generating RINs and RECs in addition to LCFS credits.
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