

# **The Role of Utilities in Transportation Electrification**

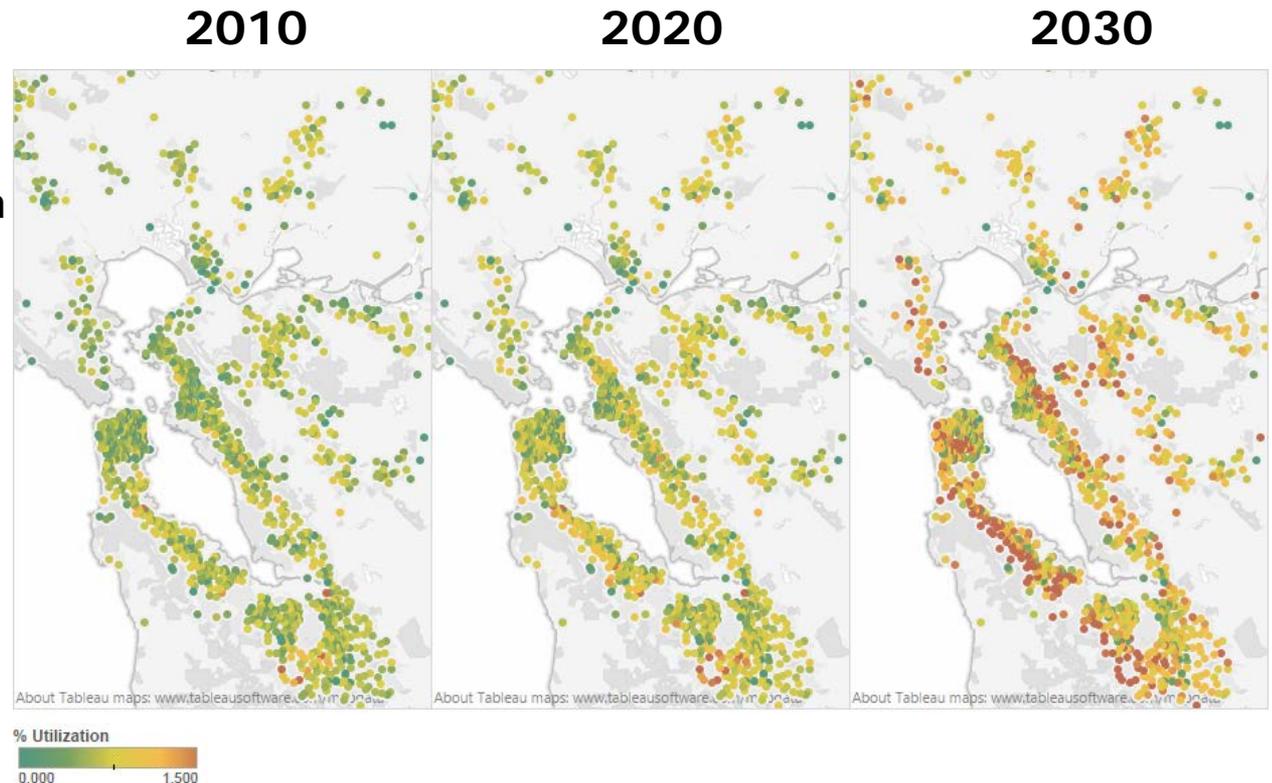
## **2015 Bay Area Battery Summit**

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California Electric Transportation Coalition

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# Grid Impact Overview

- Emphasis on quantifying distribution impacts
- Map PEV Clusters and load shapes to individual feeders and substations
- Utilities provided
  - equipment rating
  - peak day load shape
  - forecasted load growth
- Calculate upgrades required at each location
- Found minimal upgrade costs even at higher penetration scenarios



## Market Gaps and Barriers

## Potential Utility Role

### Consumer Costs

- Upfront vehicle costs
- Upfront charging infrastructure (EVSE) costs
- Vehicle operating costs

- Support for vehicle incentives and other complementary policies
- Utility investment in infrastructure and consumer education
- Rate structures that reflect grid benefits and reduce costs to customers

### Charging Infrastructure

- Lack of information on types and costs
- Little progress made in deploying charging at multi-dwelling units and in low-income population centers
- Lack of investment in workplace charging

- Provide unbiased information to consumers
- Utility investment in equity programs, multi-unit dwellings and workplaces

## Market Gaps and Barriers

## Potential Utility Role

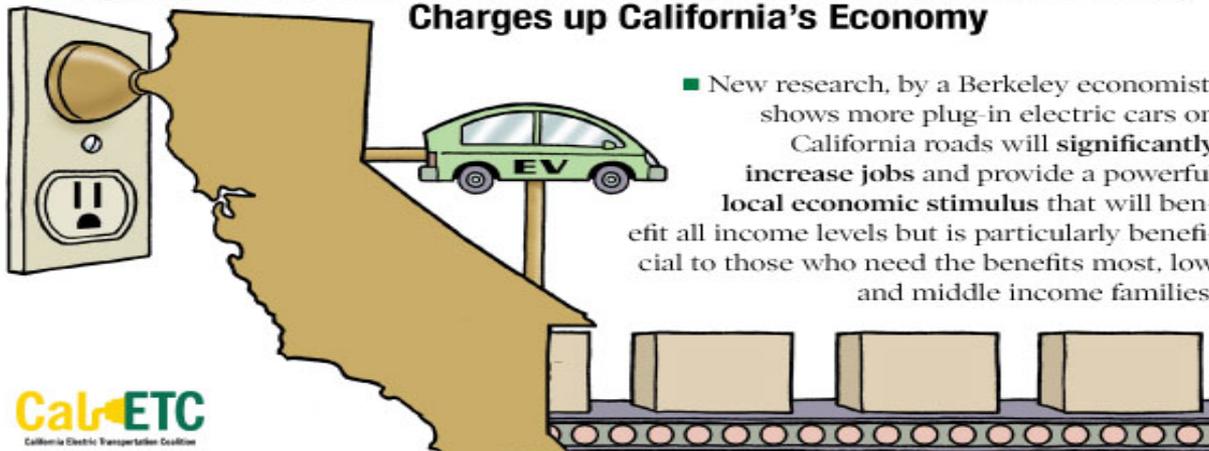
|   |   |   |
|---|---|---|
| <p>Sustainability of Third-Party Ownership of EVSE Networks</p> | <ul style="list-style-type: none"> <li>•Sustainability of revenue model has not been convincingly demonstrated</li> <li>•Demand for non-home charging is unclear</li> </ul> | <ul style="list-style-type: none"> <li>•Alternatives to additional public investment</li> <li>•Revisiting the CPUC ruling</li> </ul>  |
| <p>Consumer Education and Outreach</p>                          | <ul style="list-style-type: none"> <li>•General lack of PEV awareness</li> <li>•Total cost of vehicle ownership is poorly understood</li> </ul>                             | <ul style="list-style-type: none"> <li>•The utility acting as a trusted advisor in the PEV market</li> <li>•Educate consumers about the cost of electricity relative to gasoline</li> </ul> |
| <p>Research/Analysis</p>  | <ul style="list-style-type: none"> <li>•Lack of understanding of grid impacts and the market for electric vehicles</li> </ul>   | <ul style="list-style-type: none"> <li>•Analysis of grid impacts (utilities)</li> <li>•Jobs impacts (policy makers)</li> <li>•Market analysis (all)</li> </ul>                              |

## Clean Energy = Clean Cars

- Vehicles get cleaner as they age, air, climate change and toxic pollutants goals benefit
- EVs can benefit grid safety, reliability, efficiency and affordability
- Transportation provides natural nexus with other electricity sector goals:
  - increasing renewable resources in the grid;
  - distributed generation; and
  - storage

# Why? Jobs

## Plugging into Electric Vehicles Could Create Nearly 100,000 Jobs; Charges up California's Economy

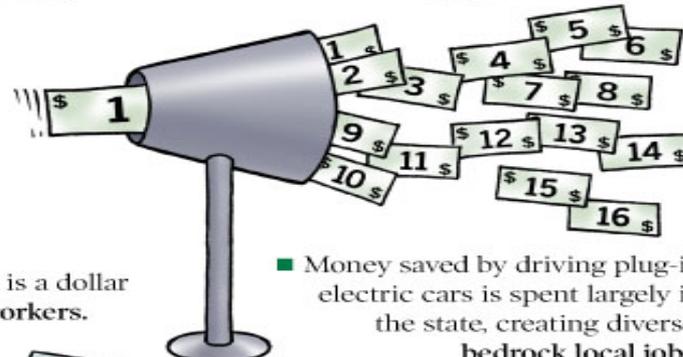


- New research, by a Berkeley economist, shows more plug-in electric cars on California roads will **significantly increase jobs** and provide a powerful **local economic stimulus** that will benefit all income levels but is particularly beneficial to those who need the benefits most, low and middle income families.



- Electricity fuel costs about the equivalent of \$1.50 per gallon of gasoline and, on average, every dollar saved at the gas pump and spent on the other goods and services that households want creates **16 times more jobs**.

- Simply put, a dollar saved on gasoline is a dollar earned by **10-100 times as many new workers**.

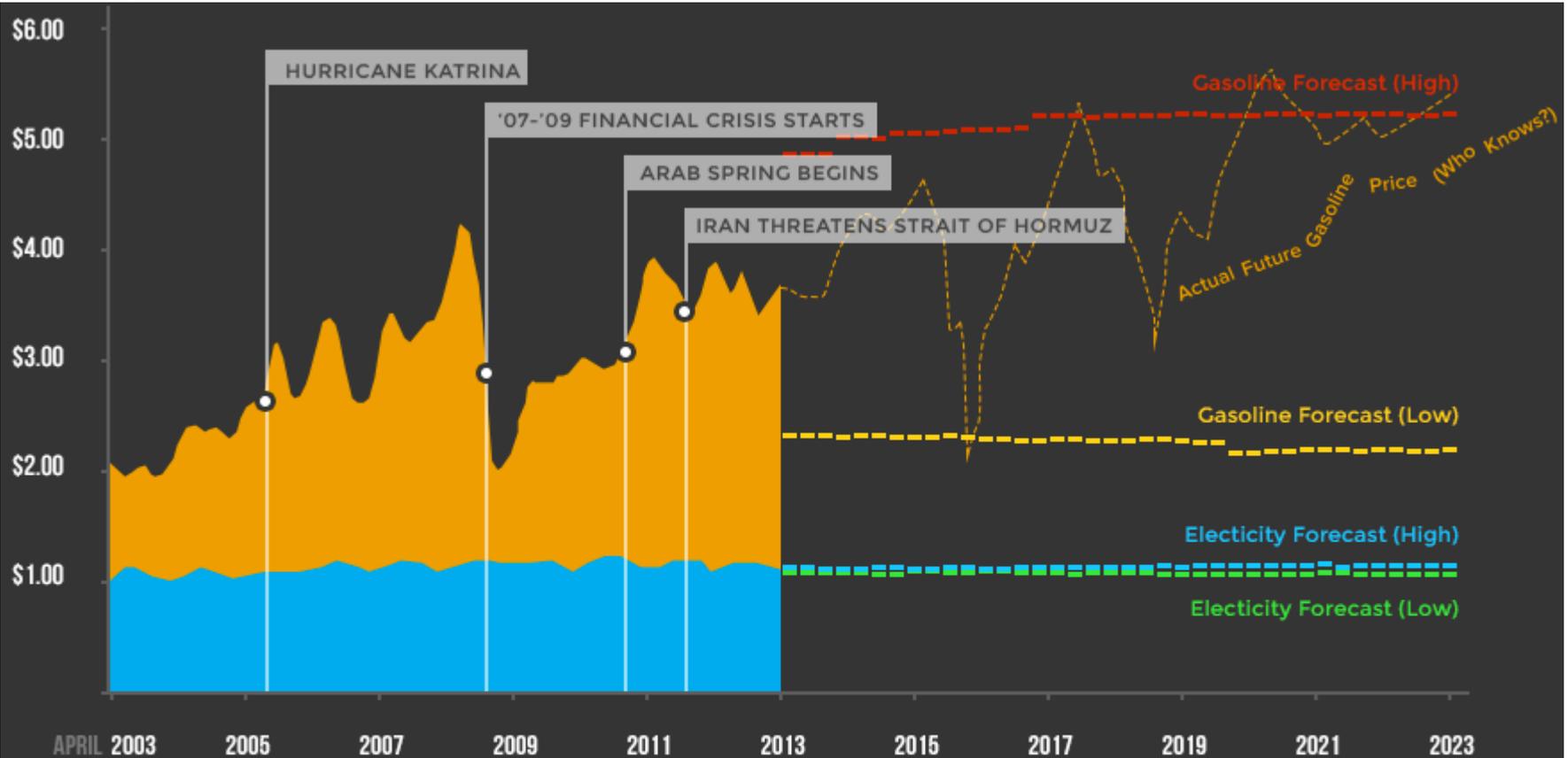


- Money saved by driving plug-in electric cars is spent largely in the state, creating diverse, **bedrock local jobs**.



- **Deployment of plug-in cars** reduces our dependence on foreign oil and will have a **significant, measurable benefit** for California's economy.

- **Individual Californians** gain from those driving plug-in electric cars whether they buy new cars or not. Average real wages and employment increases across the economy and incomes grow faster for low-income groups than for high-income groups.



GASOLINE (\$/Gallon)

ELECTRICITY (\$/eGallon\*)

\* an "eGallon" is the cost of fueling a vehicle with electricity compared to a similar vehicle that runs on gasoline.

Data source: Energy Information Administration

# Key Recommendations for Accelerating TE

- Invest: the state must invest
  - Direct vehicle incentives
  - Goods and people movement projects
  - Local government support
  - Infrastructure investment
- Recognize: TE supports multiple energy and transportation policy goals
  - Reduce climate change, air and toxic pollution
  - Support renewable electricity, storage, distributed generation
- Empower: utilities have a vital role
  - Leverage the existing infrastructure, the grid, and modernization of the grid
  - Invest in infrastructure
  - Consumer education
  - Purchase vehicles
  - Accelerate the TE market

# Questions?

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