



Edison Electric  
INSTITUTE

# Electric Companies and the EV Revolution

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NCSL Legislative Summit – Energy Policy Summit  
Monday, August 8, 2016  
Chicago, IL

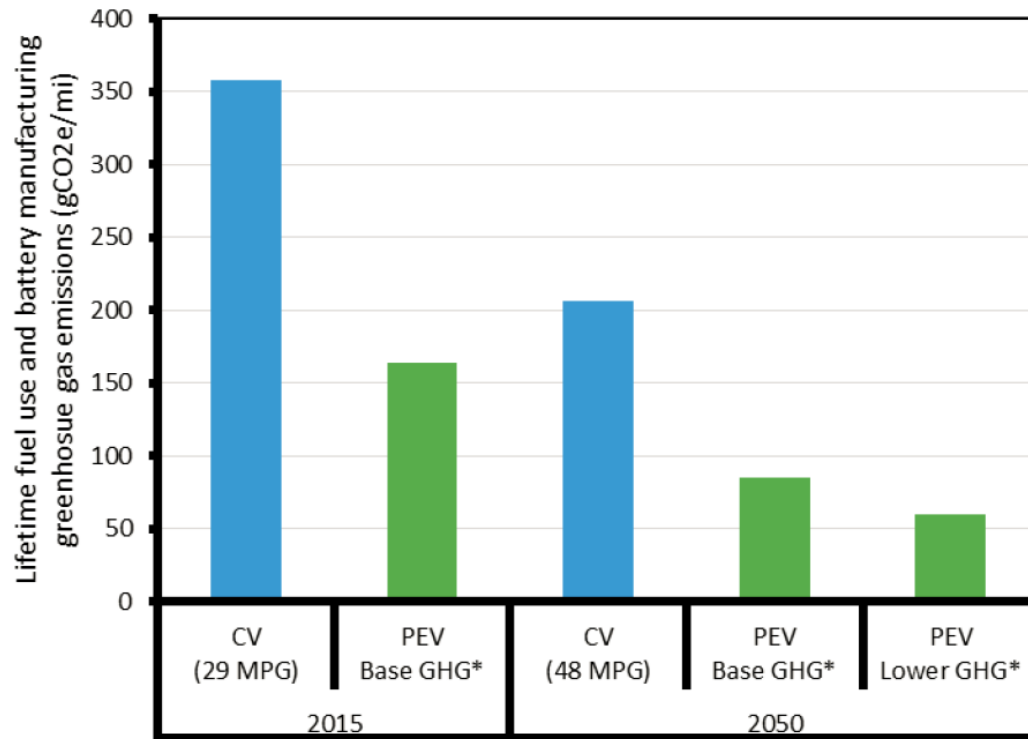
# Key Questions

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- Why electric transportation?
- Can the grid handle electric transportation?
- How can electric companies accelerate the transition, and manage it in such a way that it benefits all customers?

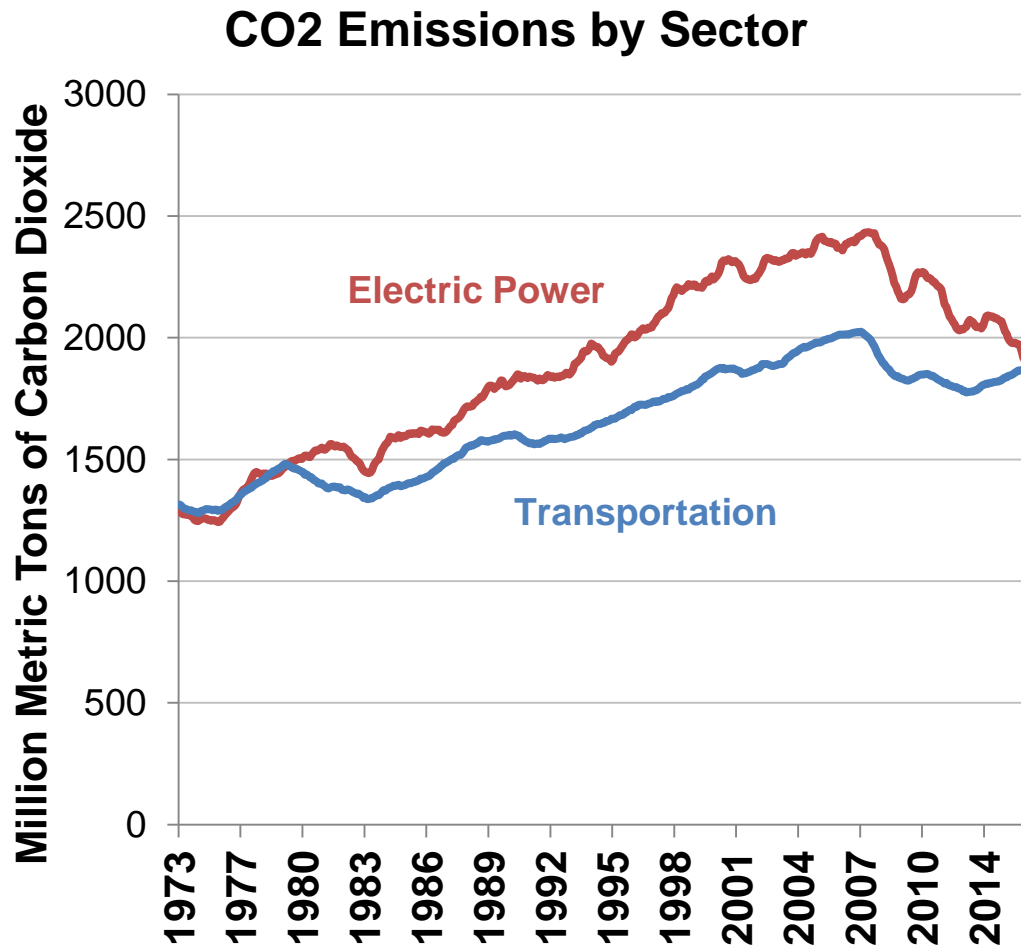
# Why electric transportation?

## Relative Emissions for Passenger Cars



- Widespread transportation electrification reduces greenhouse gas emissions by 48% to 70%

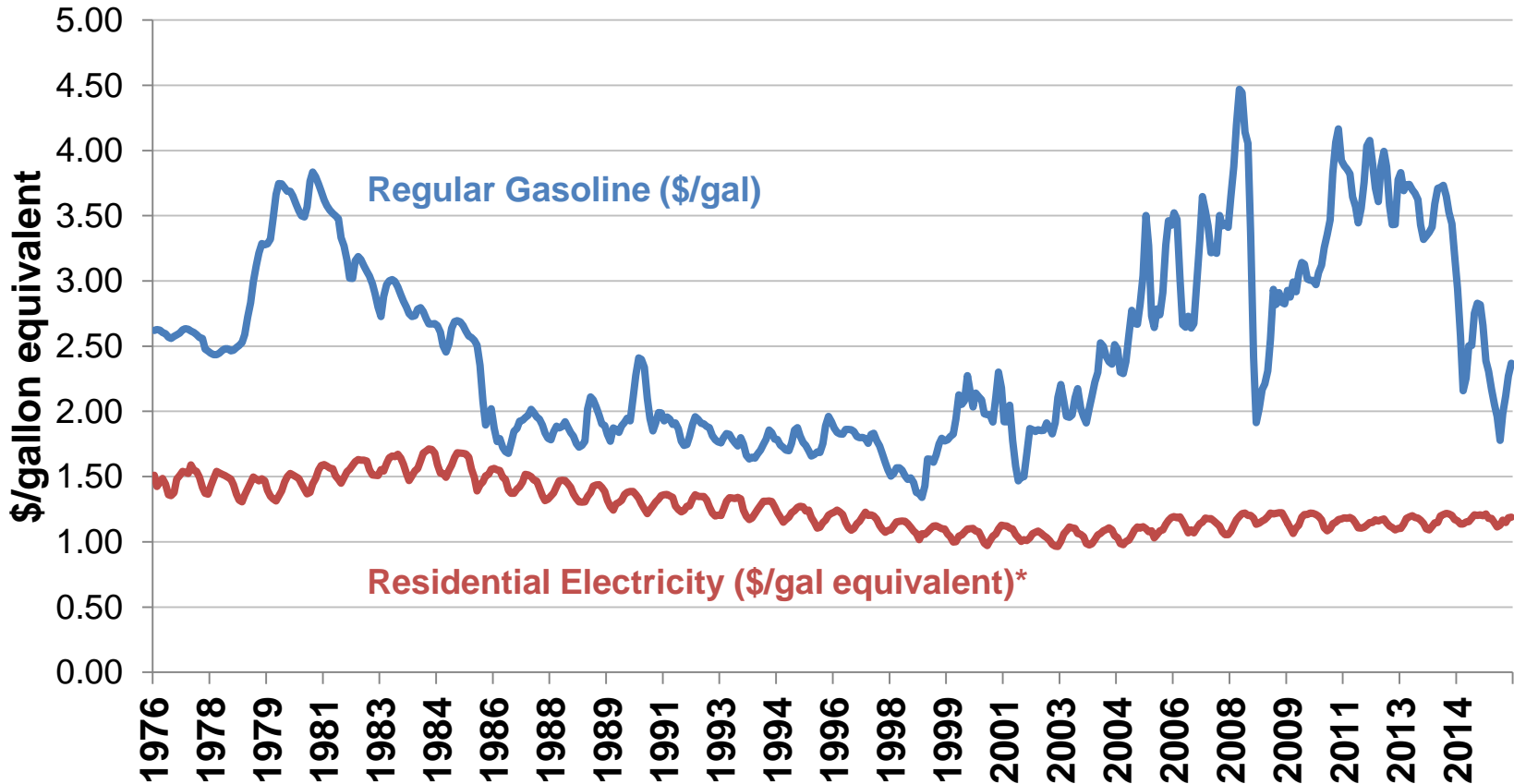
# Why electric transportation?



- Electric Power: more than 20% reduction from 2005 levels by end of 2015
- Transportation: decreased 10% 2005-2012, but increased 5% through 2015

# Why electric transportation?

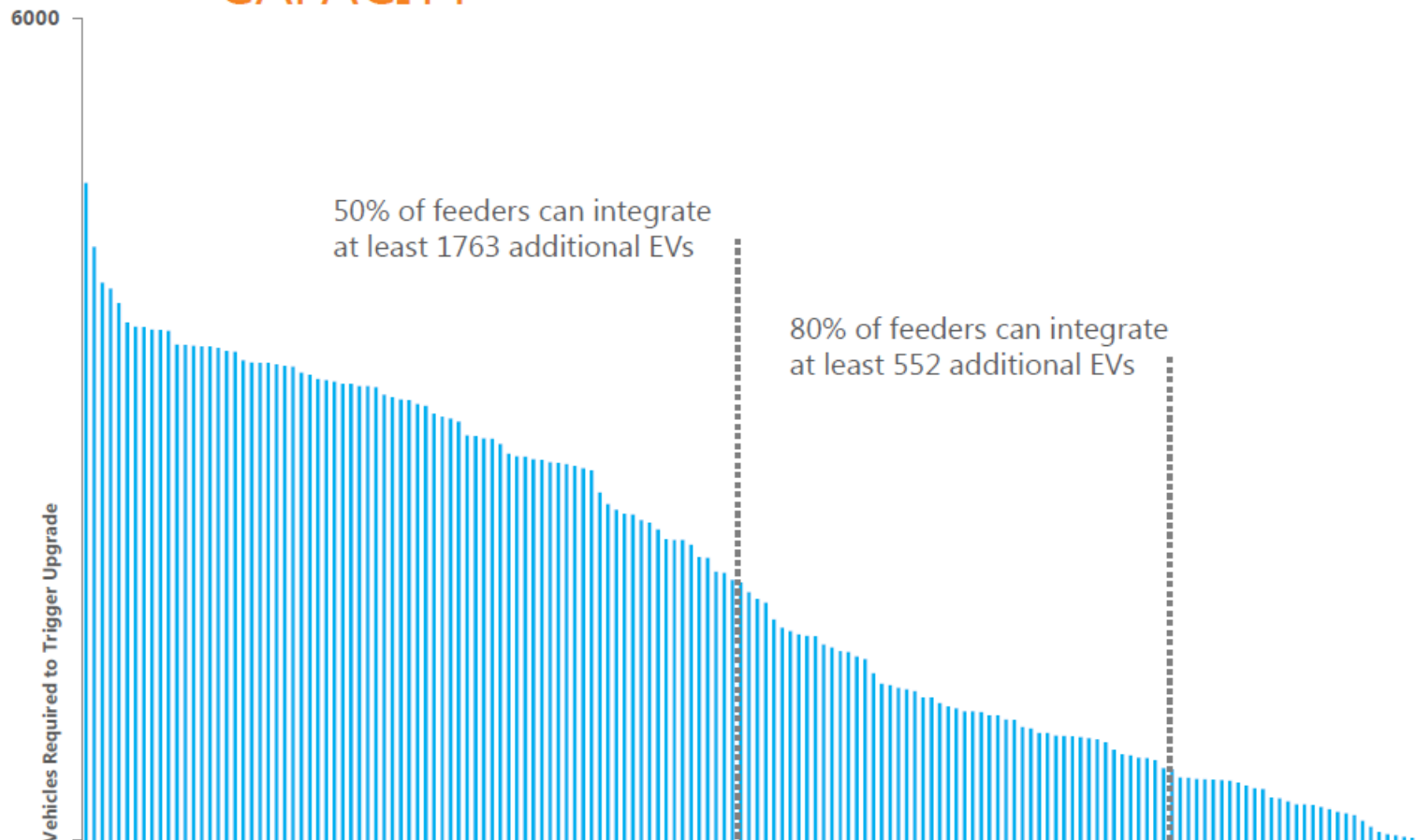
Gasoline vs. Electricity Price (real price, July 2016)



\*Equivalent electricity price assumes average vehicle fuel economy of 27.9 mpg, PEV efficiency of 0.33 kWh/mi

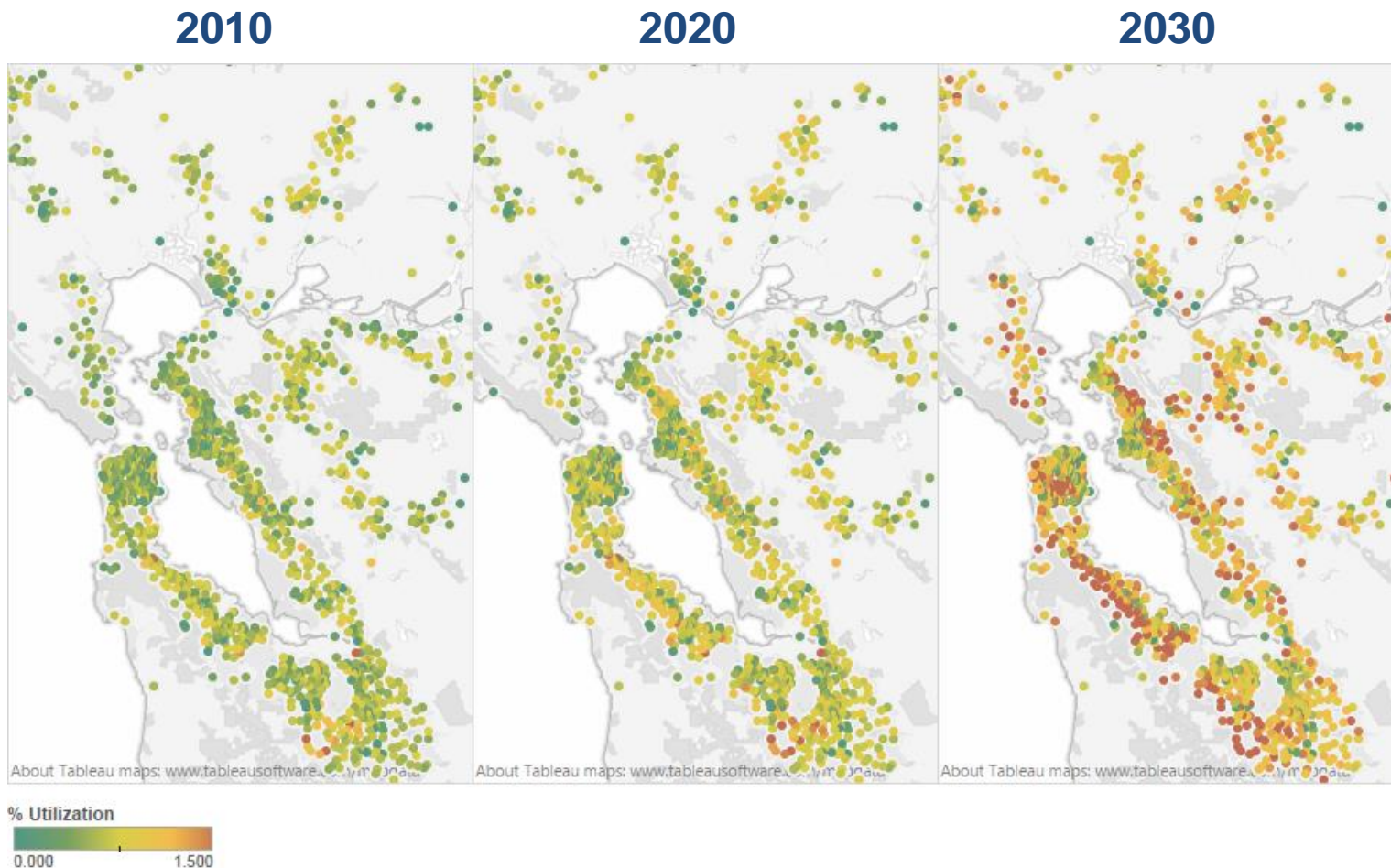
# Can the grid handle electric transportation?

## AVAILABLE FEEDER CAPACITY



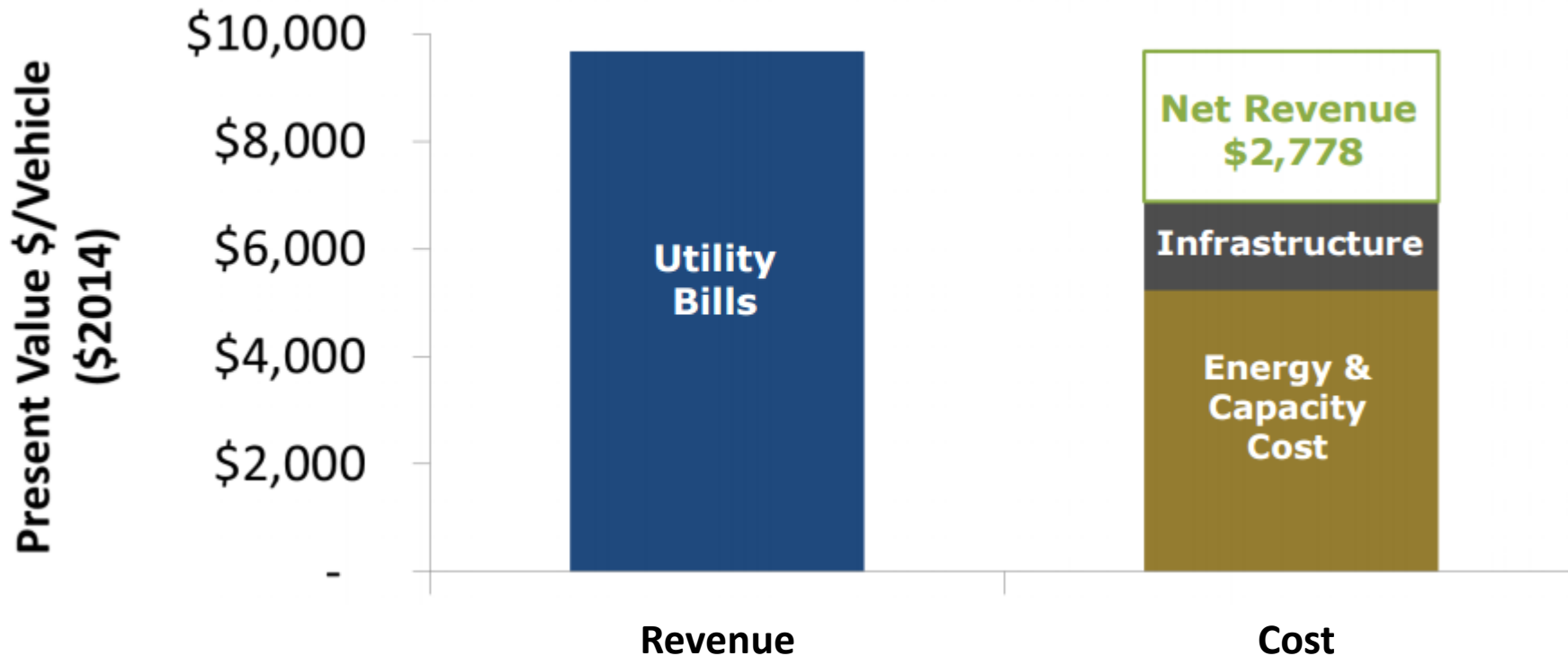
SOURCE: Seattle City Light

# Can the grid handle electric transportation?



# Can the grid handle electric transportation?

Net Revenues from PEV Charging Load  
Illustrative results for California Utilities



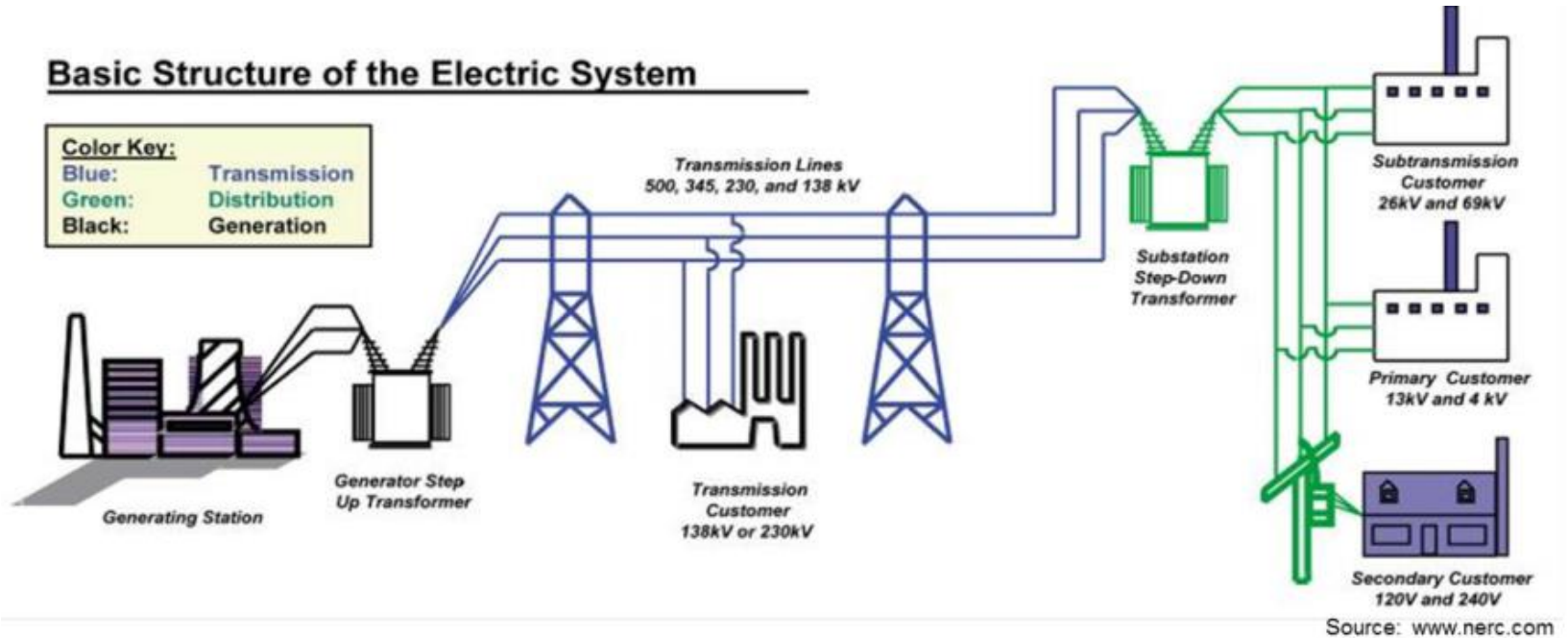


# How can electric companies accelerate electric transportation?

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<i>What</i>	<i>How</i>	<i>Who</i>
<b>Vehicles</b> Affordable Available	<ul style="list-style-type: none"><li>• Technology cost</li><li>• Models in key segments, markets</li><li>• Incentives</li></ul>	<ul style="list-style-type: none"><li>• Automakers</li><li>• Governments</li></ul>
<b>Charging Infrastructure</b> Affordable Available	<ul style="list-style-type: none"><li>• Grants/loans</li><li>• <b>Electric company programs</b></li><li>• Business models</li></ul>	<ul style="list-style-type: none"><li>• <b>Electric companies</b></li><li>• Equipment/service providers</li><li>• Governments</li></ul>
<b>Consumers</b> Awareness Interest	<ul style="list-style-type: none"><li>• Word of mouth</li><li>• Dealers</li><li>• Campaigns</li><li>• Advisory services</li></ul>	<ul style="list-style-type: none"><li>• Automakers</li><li>• <b>Electric companies</b></li><li>• Governments</li><li>• All stakeholders</li></ul>

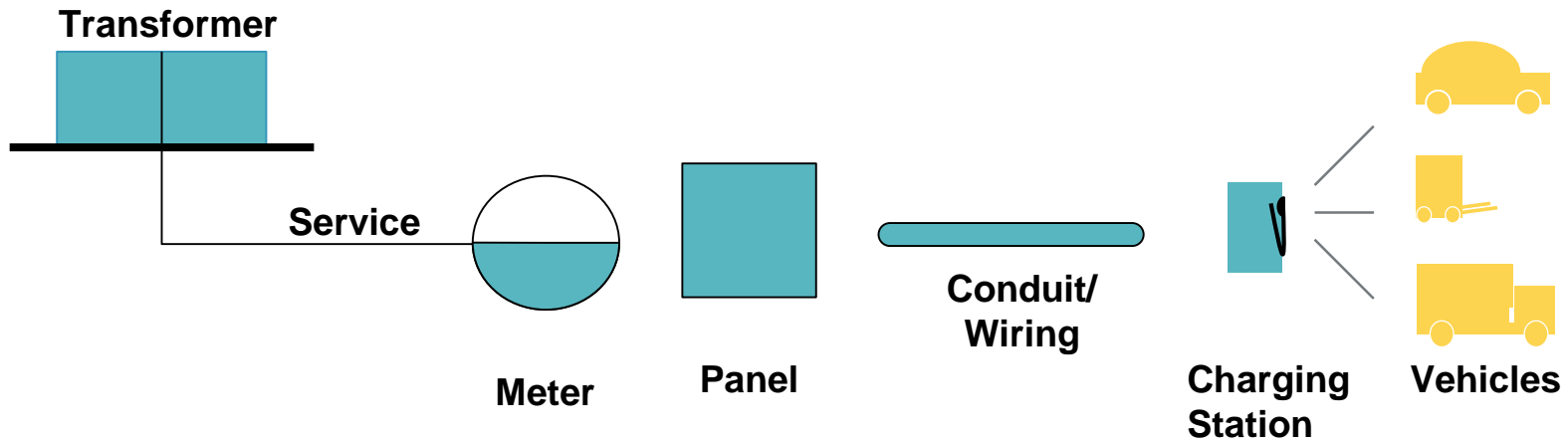
# How can electric companies accelerate electric transportation?



## Electric Power Grid

- Ubiquitous
- Safe, affordable, reliable
- Increasingly clean
- Modernization underway

# How can electric companies accelerate electric transportation?



Service Connection	Supply Infrastructure	Charger Equipment
Electric company	Customer	

## Charging Infrastructure

- More needed to serve market
- Challenging business case
- Multiple networks, standards
- Complicated for users, customers

# How can electric companies accelerate electric transportation?

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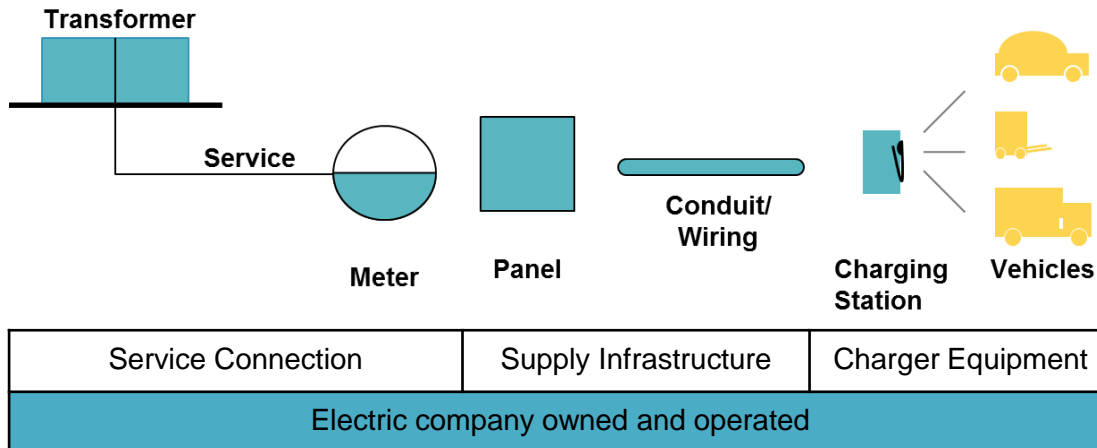
## Example: California

- CPUC Decision 11-07-029 (July 14, 2011): blanket prohibition on electric company ownership of charging infrastructure
- CPUC Decision 14-12-079 (December 18, 2014): prohibition lifted, accept applications on case-by-case basis
- SB-350 (September 11, 2015): “widespread transportation electrification” added to principle goals of electric companies, requires CPUC to direct electric companies to file applications

# How can electric companies accelerate electric transportation?

## Example: San Diego Gas & Electric

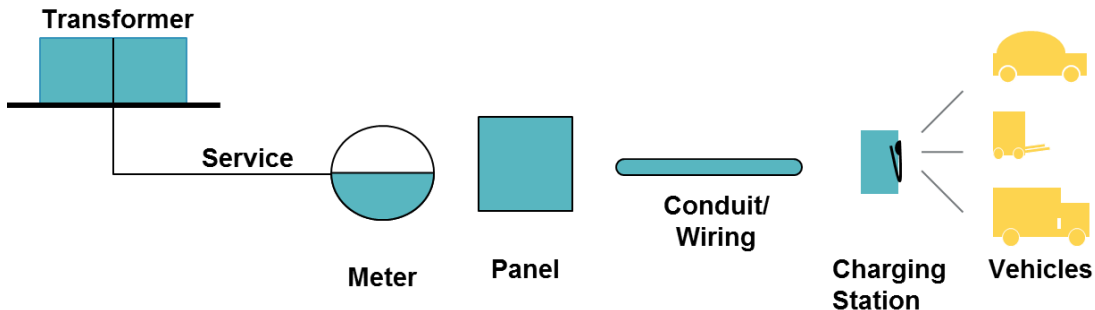
- “Power Your Drive” program
- Install 3,500 charging stations at multi-unit dwellings and workplaces
- Dynamic rate encourages smart charging



# How can electric companies accelerate electric transportation?

## Example: Southern California Edison

- “Charge Ready” program
- Install up to 1,500 charging stations at long-dwell locations in Phase 1
- Rebate for charging equipment

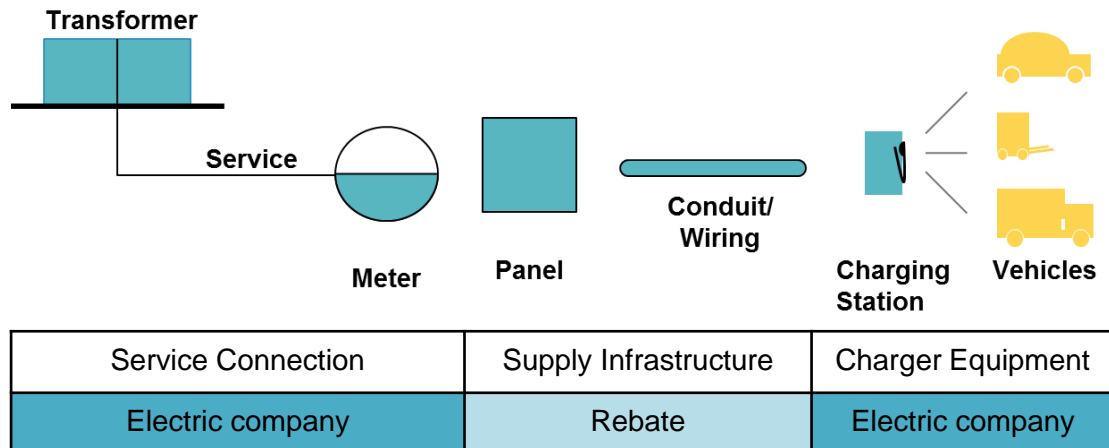


Service Connection	Supply Infrastructure	Charger Equipment
Electric company owned and operated		Rebate

# How can electric companies accelerate electric transportation?

## Example: Avista Utilities (Washington State)

- HB 1853 (May 11, 2015): clear policy directive
- Install 265 charging stations at long-dwell locations, plus 7 DC fast chargers
- Rebate to reimburse premises wiring upgrades
- \$100 dealer incentive for data acquisition



# How can electric companies accelerate electric transportation?

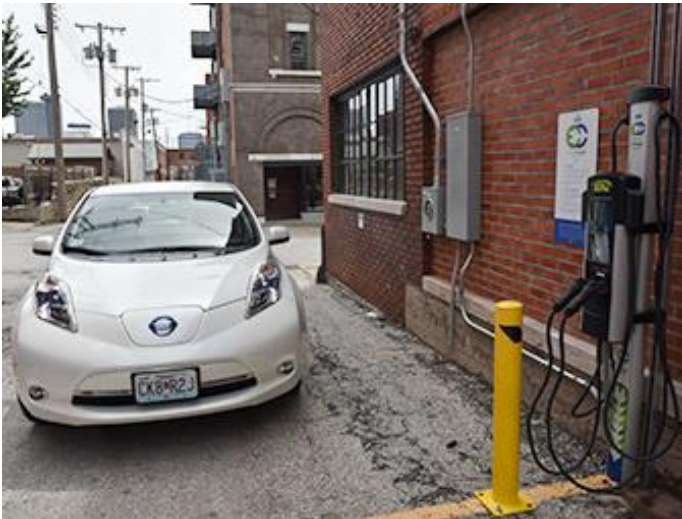
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- Example: Oregon
  - SB 1547: Clean Electricity and Coal Transition Plan (3/8/2016)
  - Requires PUC to direct electric companies to file applications to accelerate transportation electrification, which may include charging infrastructure
  - Applications expected before the end of the year
- Example: Utah
  - SB 115: Sustainable Transportation and Energy Plan (3/29/2016)
  - Requires PUC to authorize electric company program to incentivize electric vehicle infrastructure
  - Action required before July 1, 2017

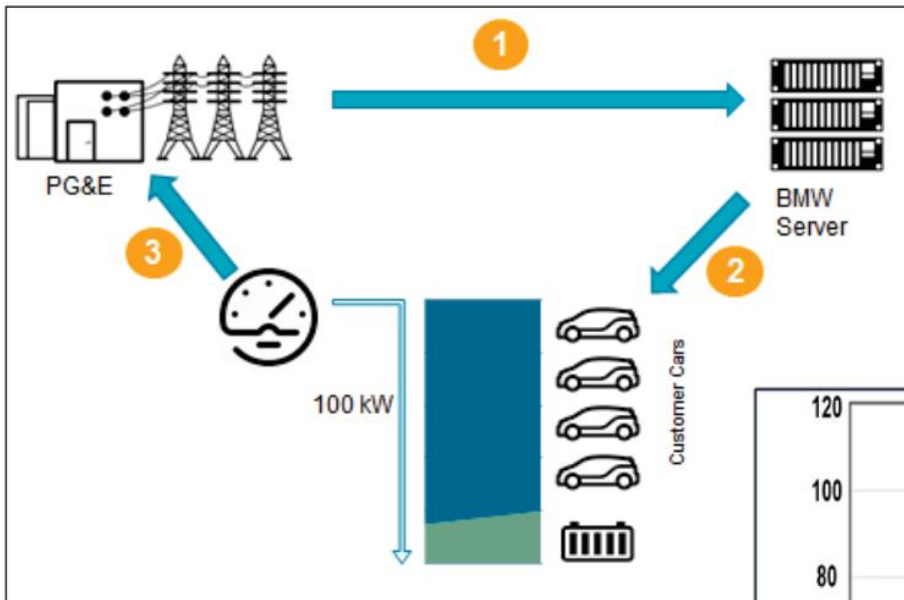


# How can electric companies accelerate electric transportation?

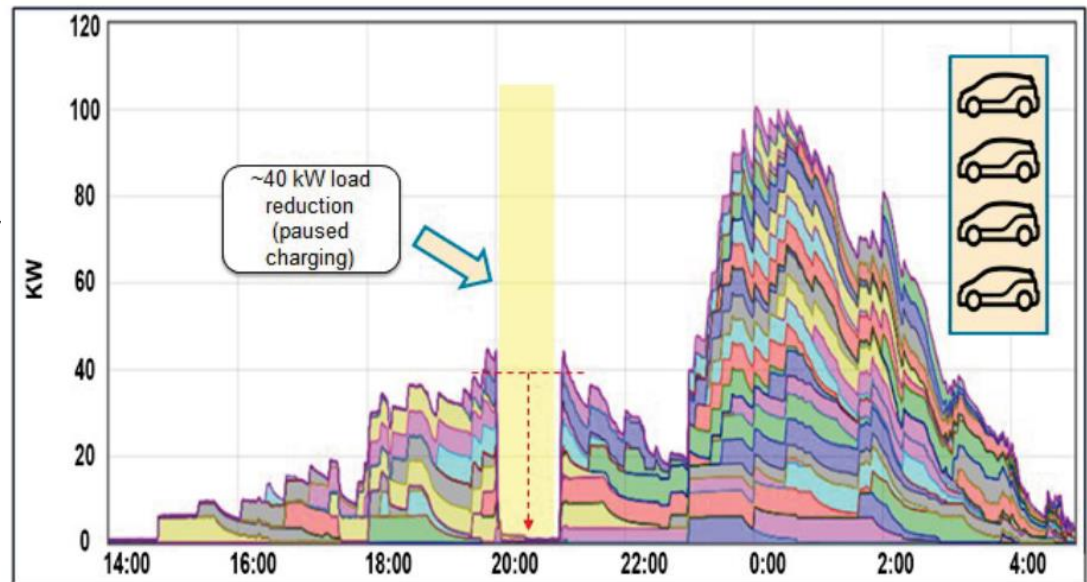
- Example: KCP&L
  - “Clean Charge Network”
  - Up to 1,200 charging stations
- Example: Georgia Power
  - “Get Current. Drive Electric”
  - 20+ Community Charging islands



# How can electric companies accelerate electric transportation?



PG&E and BMW  
iChargeForward pilot project



# Recap

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- Electric transportation has significant public benefits
- The grid can handle major transportation electrification with minimal cost
- Electric companies can help accelerate the transition
  - Improved system utilization puts downward pressure on rates
  - Patient capital can break the chicken and egg problem, expand the pie for all players
  - Deploy at scale with expected safety, reliability, affordability, for all customers
  - Flexibility: determine what is best for your market
- Now is the time to get started

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With \$100 billion in annual capital expenditures, the electric power industry is responsible for millions of additional jobs. Reliable, affordable, and sustainable electricity powers the economy and enhances the lives of all Americans.

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