

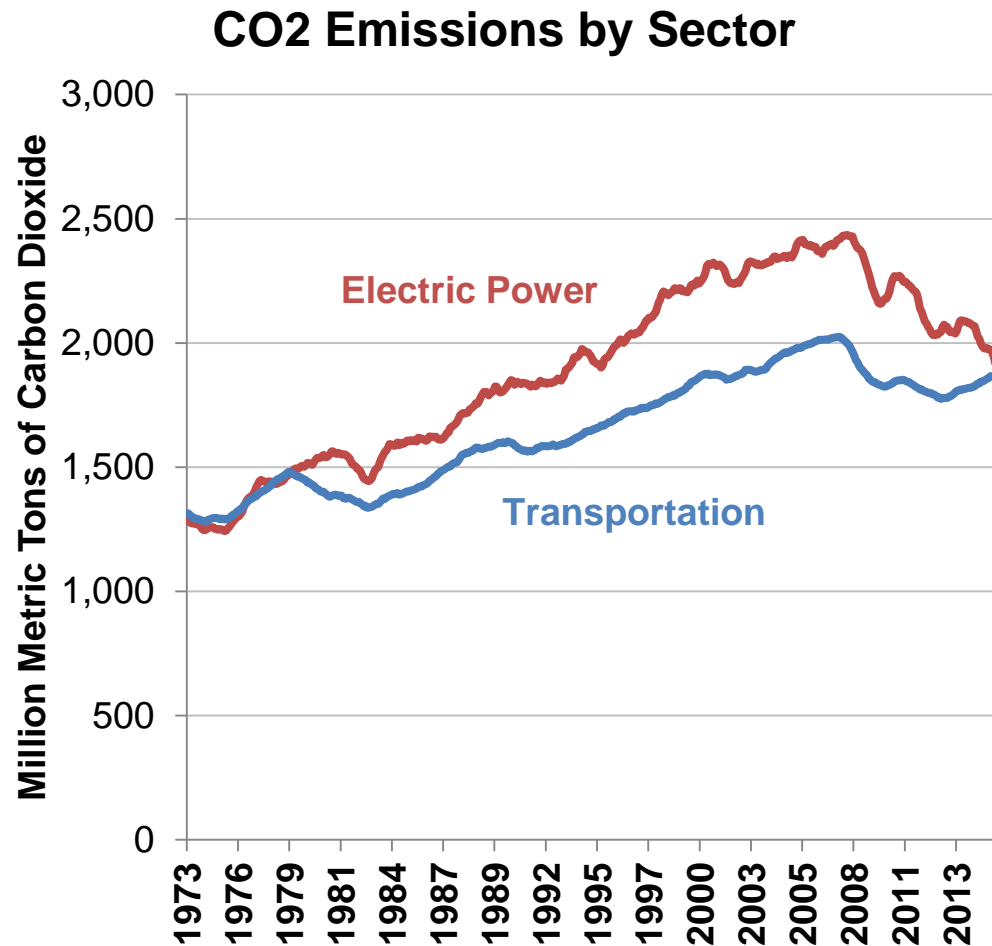


Edison Electric
INSTITUTE

Electric Transportation: Market Updates and Outlook

2017 NASEO Energy Policy Outlook Conference
February 10, 2017
Washington, DC

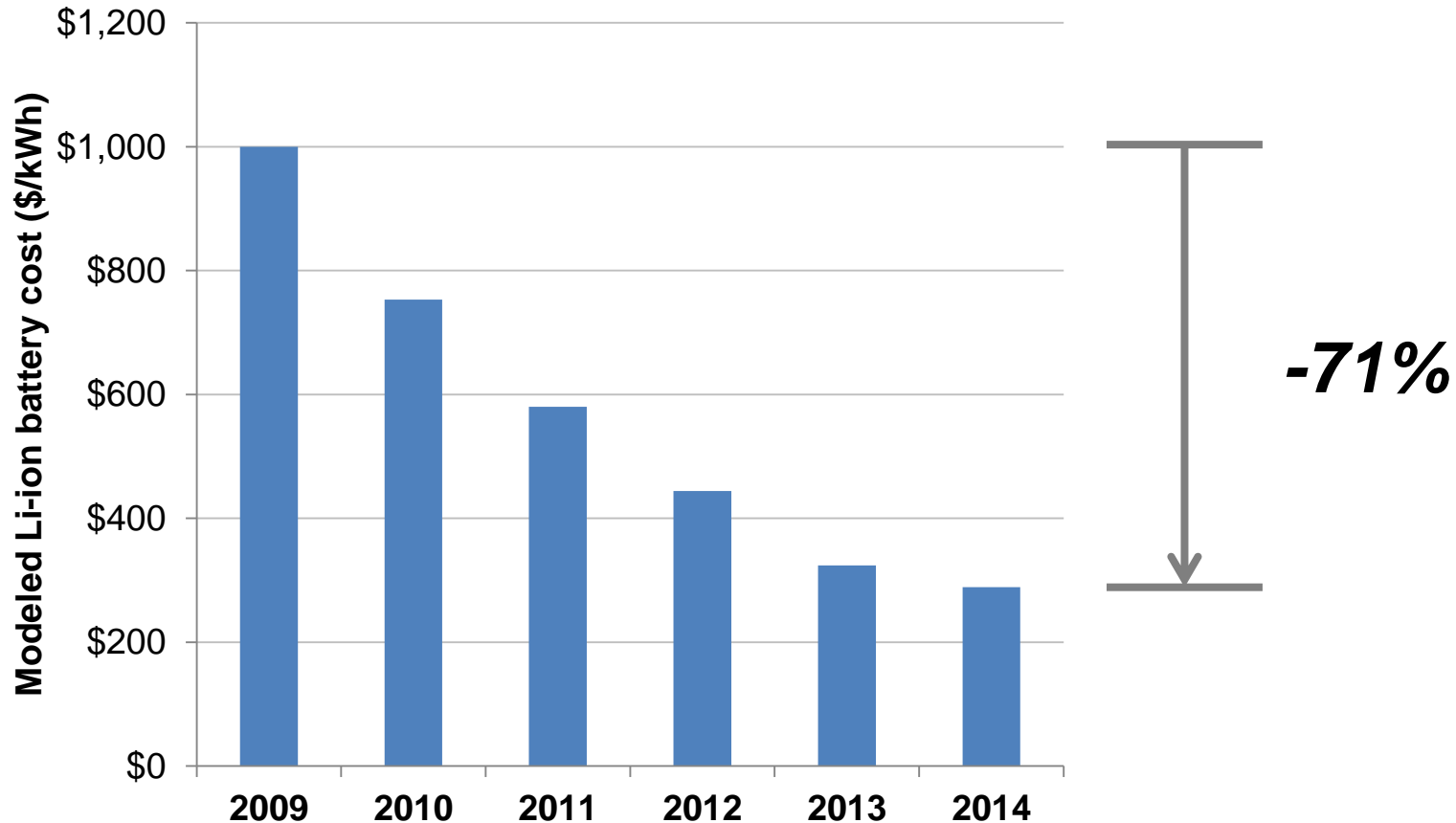
Inflection Point



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

Technology Cost Reduction

U.S. EV Battery Costs

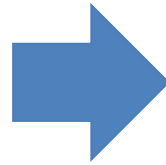


Improving Cost, Capability

BEV



2014 Spark
MSRP: \$27,495
Range: 82 miles

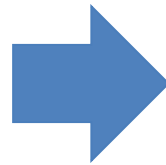


2017 Bolt EV
MSRP: \$37,495
Range: 238 miles

PHEV



2011 Volt
MSRP: \$41,000
Range: 380 mi. total (35 mi. electric)



2017 Volt
MSRP: \$33,220
Range: 420 mi. total (53 mi. electric)

Not Just Cars



Transit

Electric Buses Are in Service in 35+ Transit Agencies



Seaports

Long Beach Terminal Electrification Is Equal to 5,000 Homes

Airports

Seattle Sea-Tac Saves \$2.8 Million in Fuel per Year

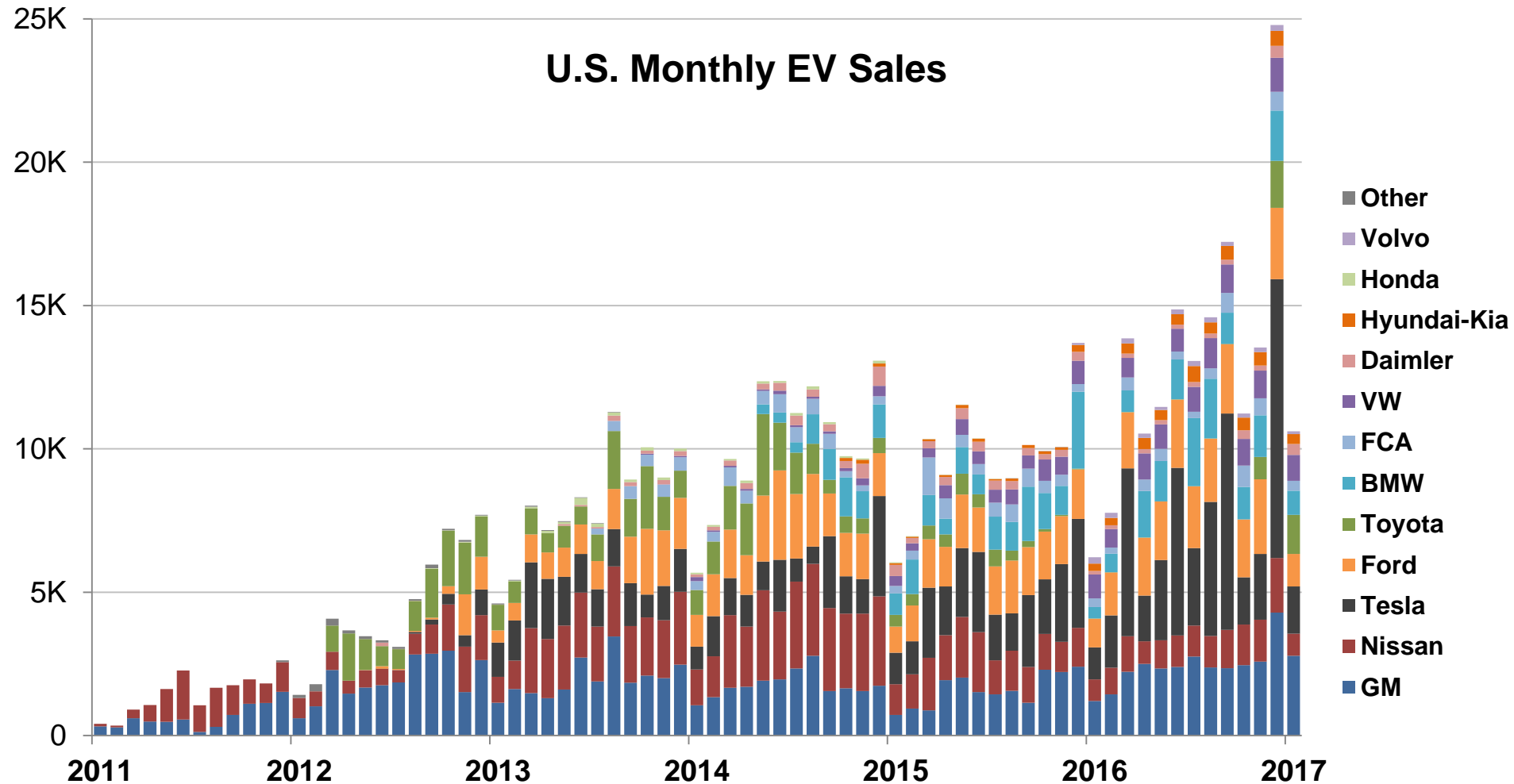


Fleet

In 2016, electric companies plan to invest more than \$128 million

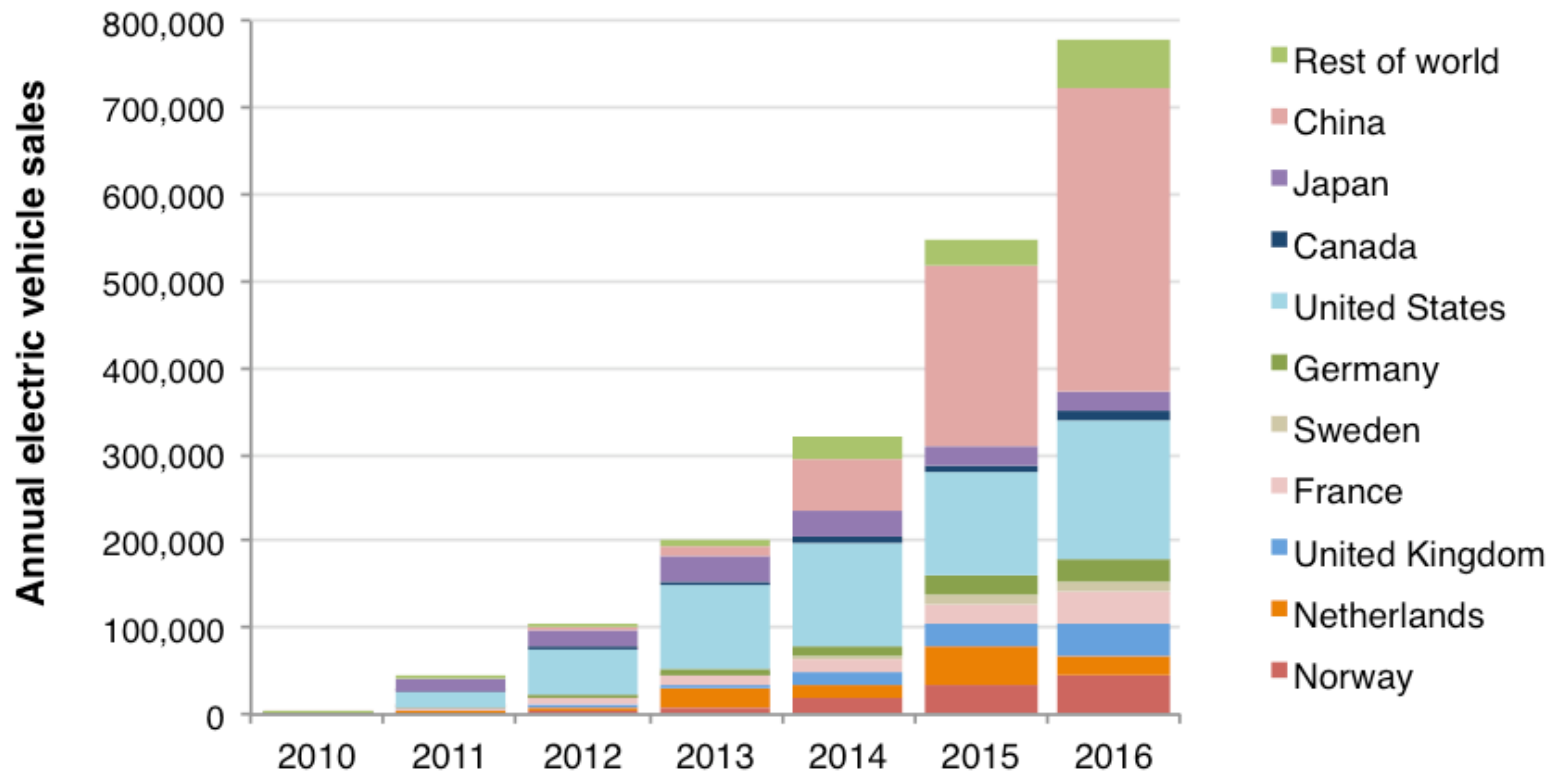
Sales Progress

U.S. Monthly EV Sales



Sales Progress

Global Annual EV Sales



Outlook: EV Product

More models, across more segments



SOURCE: Chrysler

More long-range BEVs



SOURCE: Tesla

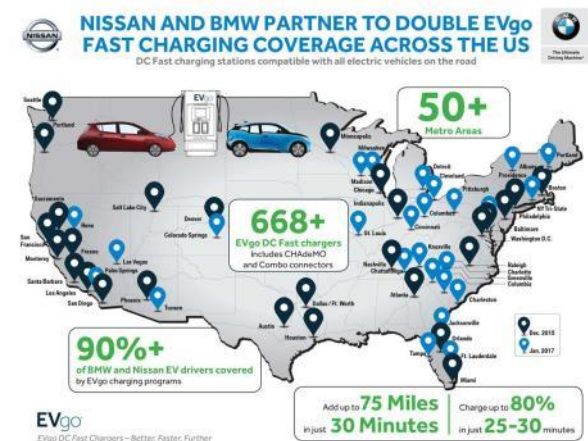
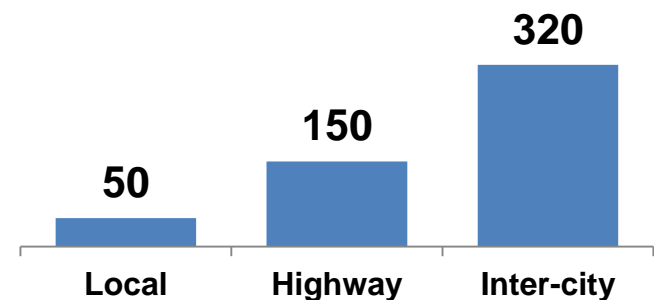
More announcements and investment

- Ford: \$4.5 billion investment in electrified vehicles by 2020, including electric SUV with at least 300 miles of range
- Hyundai: 4 plug-in hybrids and 4 all-electric cars on the market by 2020
- Audi: committed to achieve at least 25% of U.S. sales from electric vehicles by 2025; launching electric SUV in 2018

Outlook: Charging Infrastructure

- Trend: higher power charging
- Targeted to needs:
 - Home/workplace
 - Communities
 - Corridors
- New players and partnerships:
 - States
 - Automakers
 - Electrify America
 - Electric companies
 - EV charging companies
 - ***All of this is needed, and more***

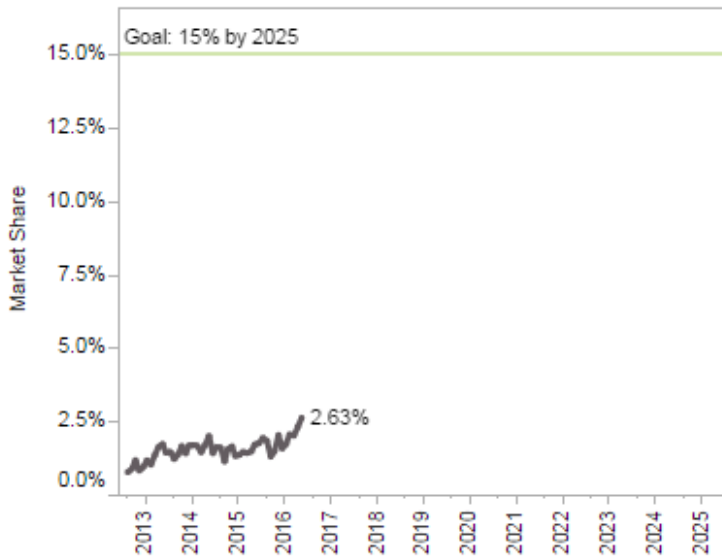
DC Fast Charge Power Levels (kW)



SOURCE: EVgo

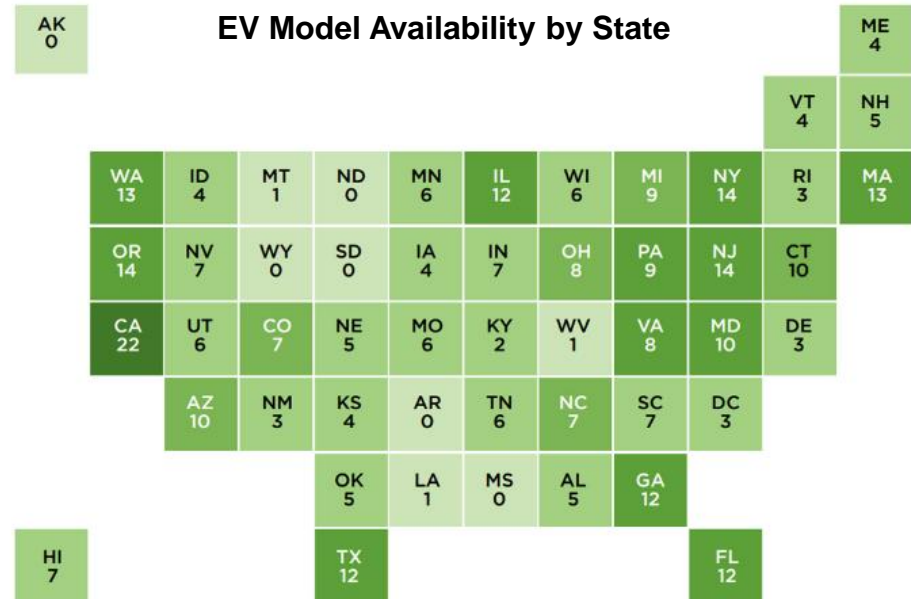
Outlook: Policy

Monthly ZEV Market Share (All ZEV States)



SOURCE: Auto Alliance

EV Model Availability by State



SOURCE: IHS AUTOMOTIVE.

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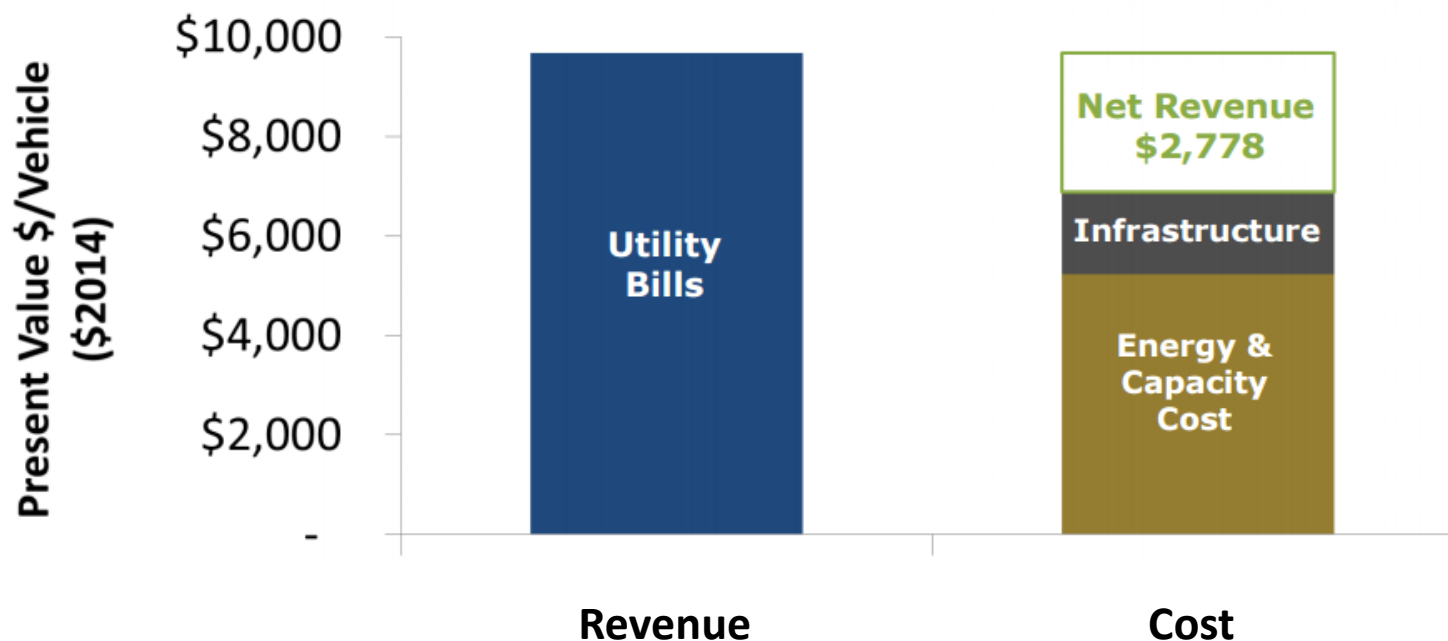
SOURCE: Union of Concerned Scientists

Watch list:

- ZEV Mandate
- State activity to drive adoption
- Federal Tax Credit
- Fuel economy standards

Opportunity for Electric Companies

Net Revenues from PEV Charging Load Illustrative results for California Utilities



Expanding Role



Readiness

Grid impact
Connecting customers
Education



Market Transformation

Infrastructure deployment
Proactive education & outreach
Policy/regulatory framework



Vehicle-Grid Integration

Grid services
Smart charging
Advanced load management

Key Takeaways

- Electric transportation is real
- The question isn't if, but how quickly can we scale?
- Electric companies can help accelerate the transition
 - Improved system utilization puts downward pressure on rates
 - Patient capital can break the “chicken or egg problem,” expand the pie for all players
 - Deploy at scale with expected safety, reliability, affordability, for all customers
- Now is the time to build on momentum

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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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