



# Achieving Targets Through 2030 Technologies & Fuels

**Sustainable Transportation Energy Pathways Symposium**  
**5/12/2015**





# Pacific Gas & Electric Company



## Energy services for over 15 MM people:

- 5.2 MM Electric customer accounts
- 4.4 MM Natural Gas accounts

70,000 square miles with diverse topography, climates and customers

20,000 employees

A regulated investor-owned utility

Independent Transmission System Operator

Ranked “Greenest” utility 2009 and 2010





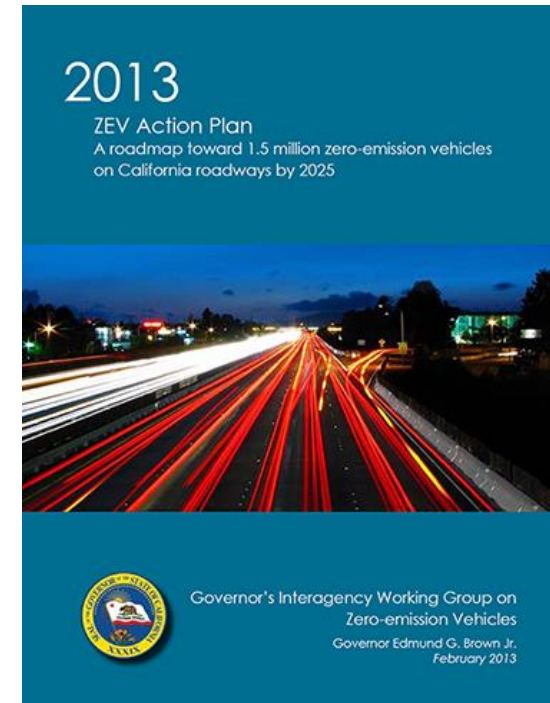
# Electric vehicle market is gaining momentum, and California is focused on accelerating adoption

## Electric Vehicle (EV) Market Conditions

- EV offerings are growing significantly each year (20+ models on the market today; 30+ planned for 2016)
- Sales growth limited by high vehicle cost and range anxiety
- EV adoption is outpacing infrastructure deployments

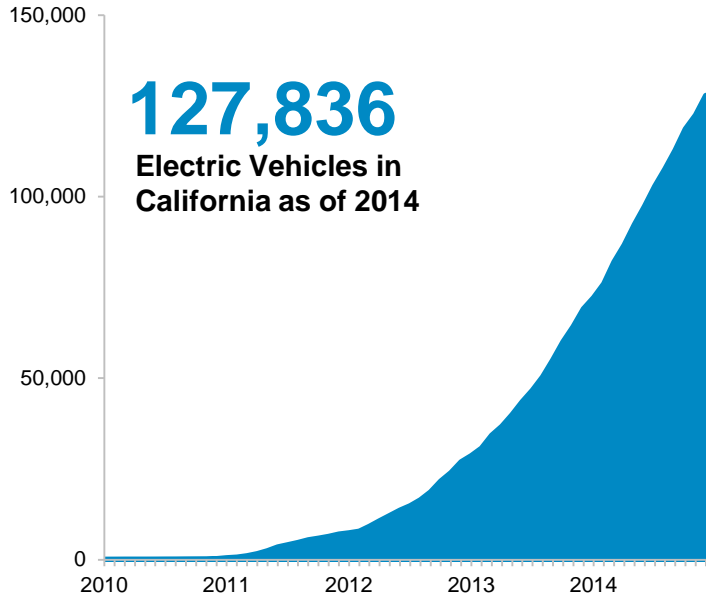
## State Focus on EV Adoption

- January 2013: Governor Jerry Brown issued the Zero Emission Vehicle (ZEV) Action Plan calling for 1.5 million ZEVs in California by 2025, and the infrastructure to support 1 million EVs by 2020
- December 2014: California Public Utilities Commission (CPUC) repealed 2011 prohibition on investor-owned utility (IOU) involvement in EV infrastructure market
- January 2015: Governor Brown's inaugural address proposed to reduce petroleum use in cars and trucks by up to 50 percent by 2030

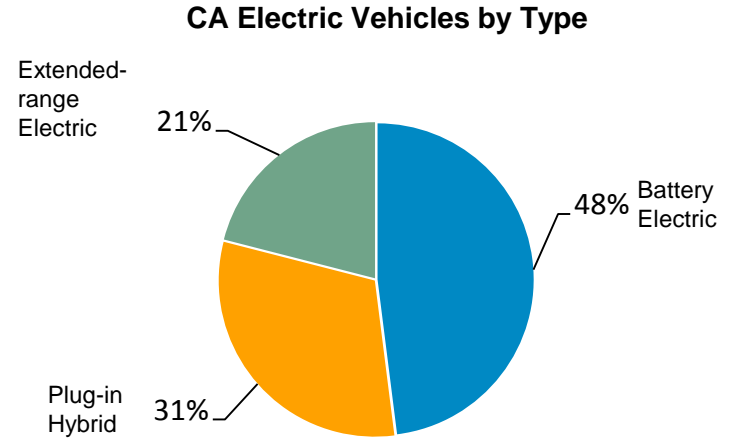




# California's Electric Vehicle Market EOY 2014



**45%**  
of all EVs in the U.S. are in California.



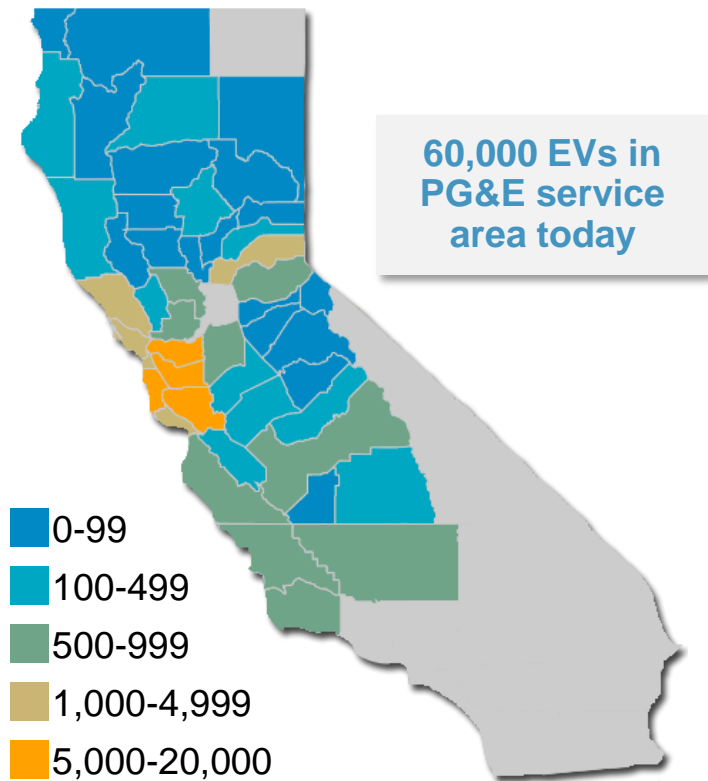
Source: EPRI, RL Polk Data 2014





# PG&E and California are seeing strong EV market growth, but infrastructure barriers to adoption still exist

Cumulative EV Sales by County<sup>1</sup>  
PG&E Service Area



PG&E's service area added 27,400 new EVs in 2014, effectively doubling in one year.

Adoption has been strongest around the Bay Area.

**0.7%** of 2014 new vehicle sales in USA were electric vehicles

**3.2%** of 2014 new vehicle sales in CA were electric vehicles

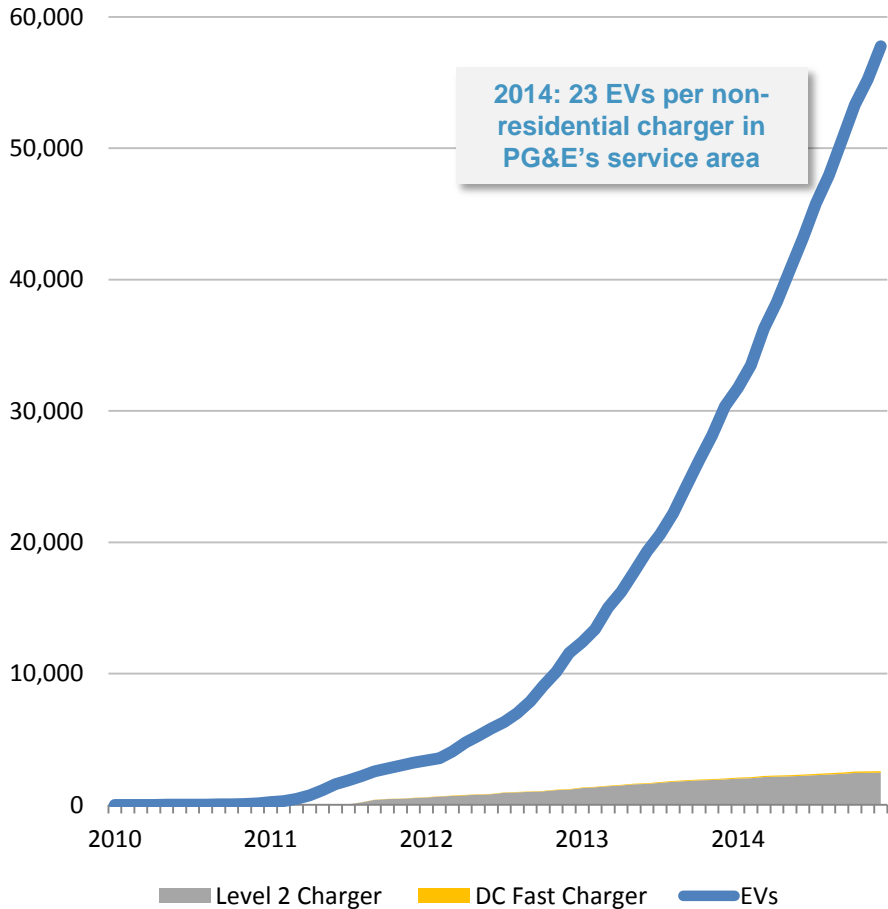
**4.5%** of 2014 new vehicle sales in PG&E service area were electric vehicles

1. EPRI, R.L. Polk Data, Dec. 2014



# Public charging infrastructure is not keeping pace with EV adoption in California

Cumulative EV registrations<sup>1</sup> and charger deployments<sup>2</sup> in PG&E service area



## Key EV challenges today

- Higher upfront cost of EVs relative to conventional vehicle
- Range anxiety and lack of available charging infrastructure
- Charging availability for customers in multi-unit dwellings and workplaces
- Lack of easily-accessible customer information about EVs
- High infrastructure upgrade costs for commercial and fleet customers

Utility can play key role in addressing

1. EPRI, R.L. Polk Data, Dec. 2014  
2. PlugShare © data, 2014



# PG&E EV Infrastructure and Education Program Guiding Principles



**Support California climate policy**



**Enable customer EV adoption**



**Make electricity widely available as a transportation fuel**



**Utilize EV load for system benefit**



# PG&E program designed to accelerate EV adoption through charging infrastructure and education



## Proposal Overview

- Deploy 25,000 Level 2 chargers and 100 DC fast chargers
- 5 year program to build, own, and maintain 25% of the 2020 EV charging infrastructure need
- Deliver turnkey charging solutions with integrated education to accelerate EV adoption
- Target commercial and public locations, with approx. 10% of installations in disadvantaged communities
- Offer approved PG&E time-of-use rate to EV drivers

## Operational details

- No upfront cost to site host
- 3rd parties contracted for charger installation, O&M, & billing
- Site hosts receive outreach tools and to drive awareness & help accelerate adoption
- Platform enables future smart charging to support renewables integration and drive grid benefits

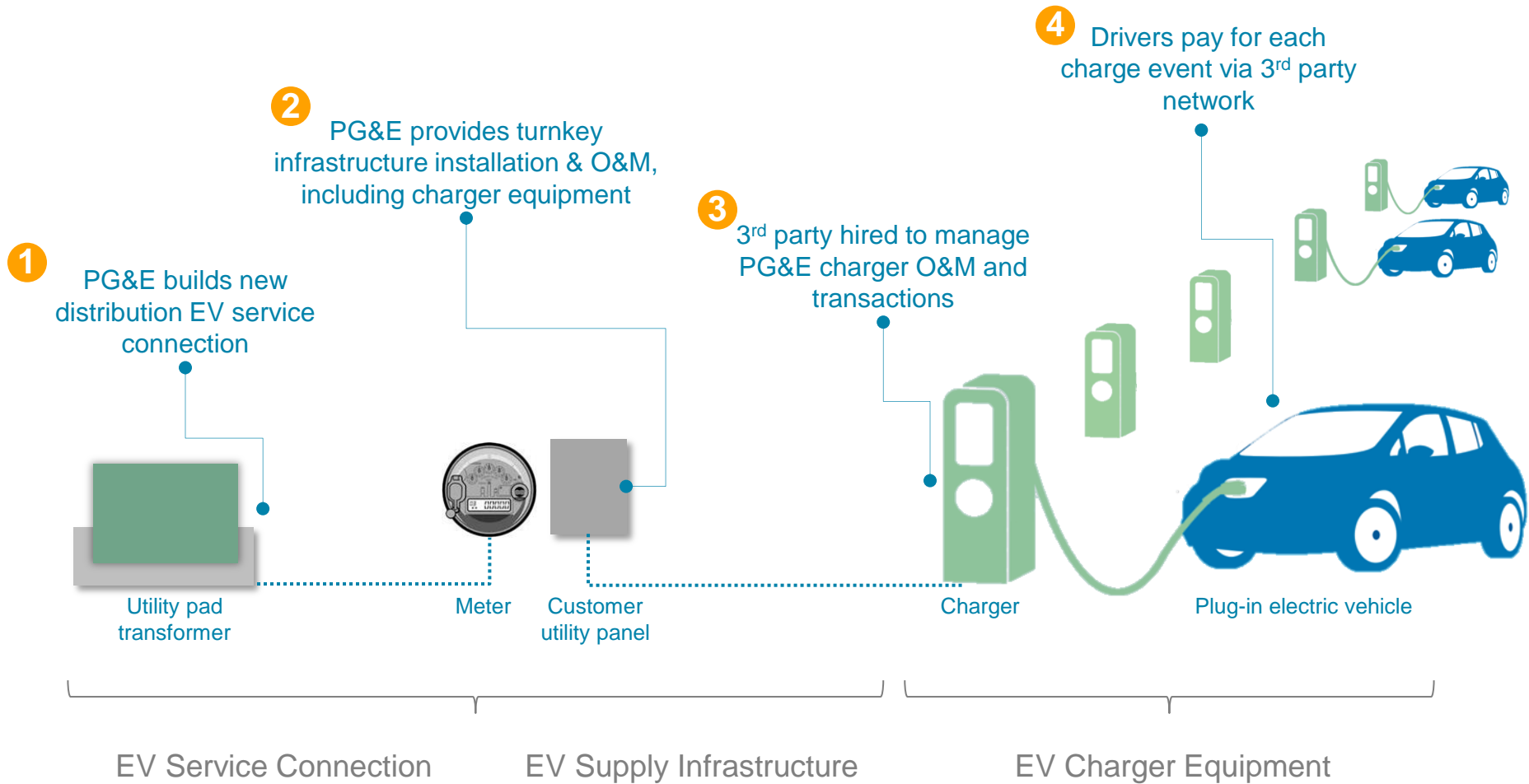
## Program Timeline

- CPUC application filed February 9, 2015; anticipate 12+ month regulatory proceeding
- Request for proposals for operation contractor(s) and site host acquisition begins upon regulatory approval
- Infrastructure installation ramp-up begins in late 2016; scheduled to be completed in late 2021





# PG&E delivers turnkey infrastructure installation, partners with 3<sup>rd</sup> parties for charger operations



**Thank You!**

