



California Plug-in Electric Vehicle Owner Survey

*SCAG PEV Coordinating Council
September 19, 2012*

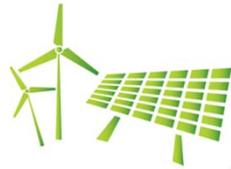


Outline

- Overview of CCSE & Transportation Programs
- California & SCAG PEV Adoption
- PEV Owner Survey Overview
 - ✓ Driver Demographics and Vehicle Use
 - ✓ Access to Public and Workplace Charging
 - ✓ Solar and PEV Adoption
 - ✓ Knowledge and Utilization of PEV TOU Rates



Center for Sustainable Energy[®] CALIFORNIA



Program Administration

Research & Analysis

Policy Support

Marketing, Education & Outreach



U.S. DEPARTMENT OF
ENERGY



PASADENA
Water & Power
SERVING THE COMMUNITY SINCE 1906



California ISO
Shaping a Renewed Future

California Environmental Protection Agency
Air Resources Board



California Solar Initiative Thermal



CLEAN VEHICLE
REBATE PROJECTSM



Airport Vehicle Rebate Program



Self-Generation Incentive Program



Multifamily Affordable Solar Housing Program

CCSE

Transportation Programs

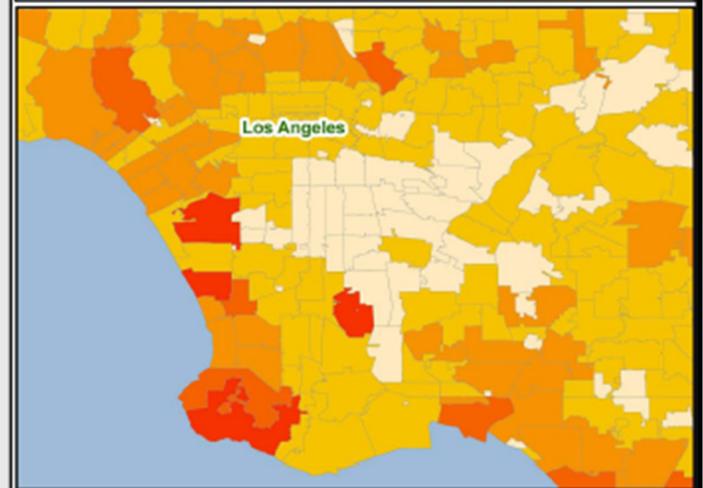
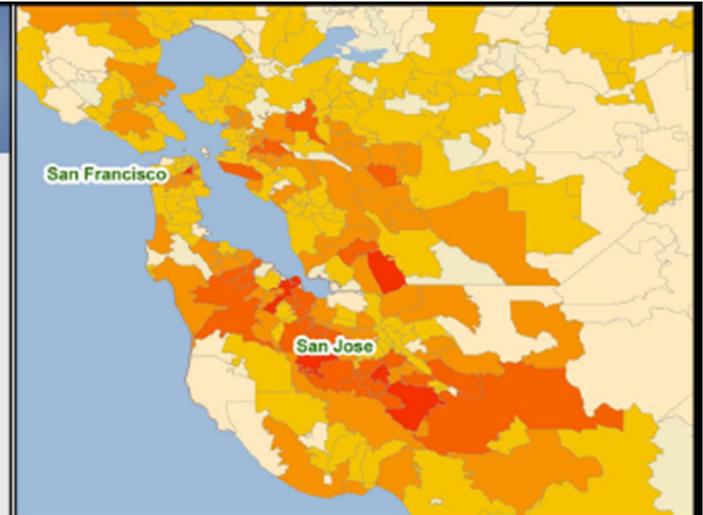
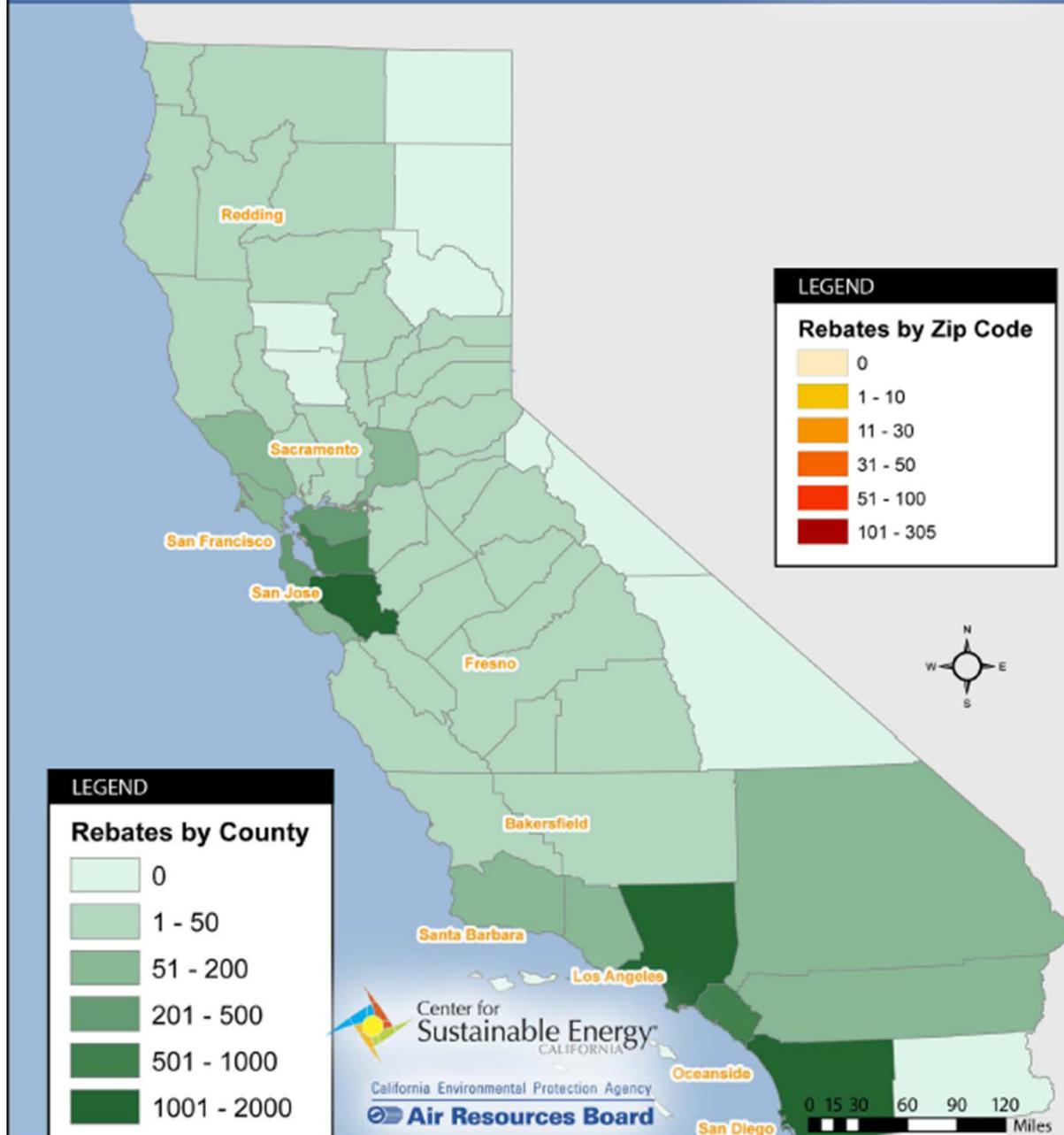


- Statewide Clean Vehicle Rebate Project
- PEV Planning (San Diego and San Joaquin)
- DOE Clean Cities- San Diego Coordinator
- “Second-Use” Electric Vehicle Battery Research Program (CEC and NREL)
- San Diego Airport Vehicle Incentive Program
- Sustainable Transportation Advisory Services

Clean Vehicle Rebate Project

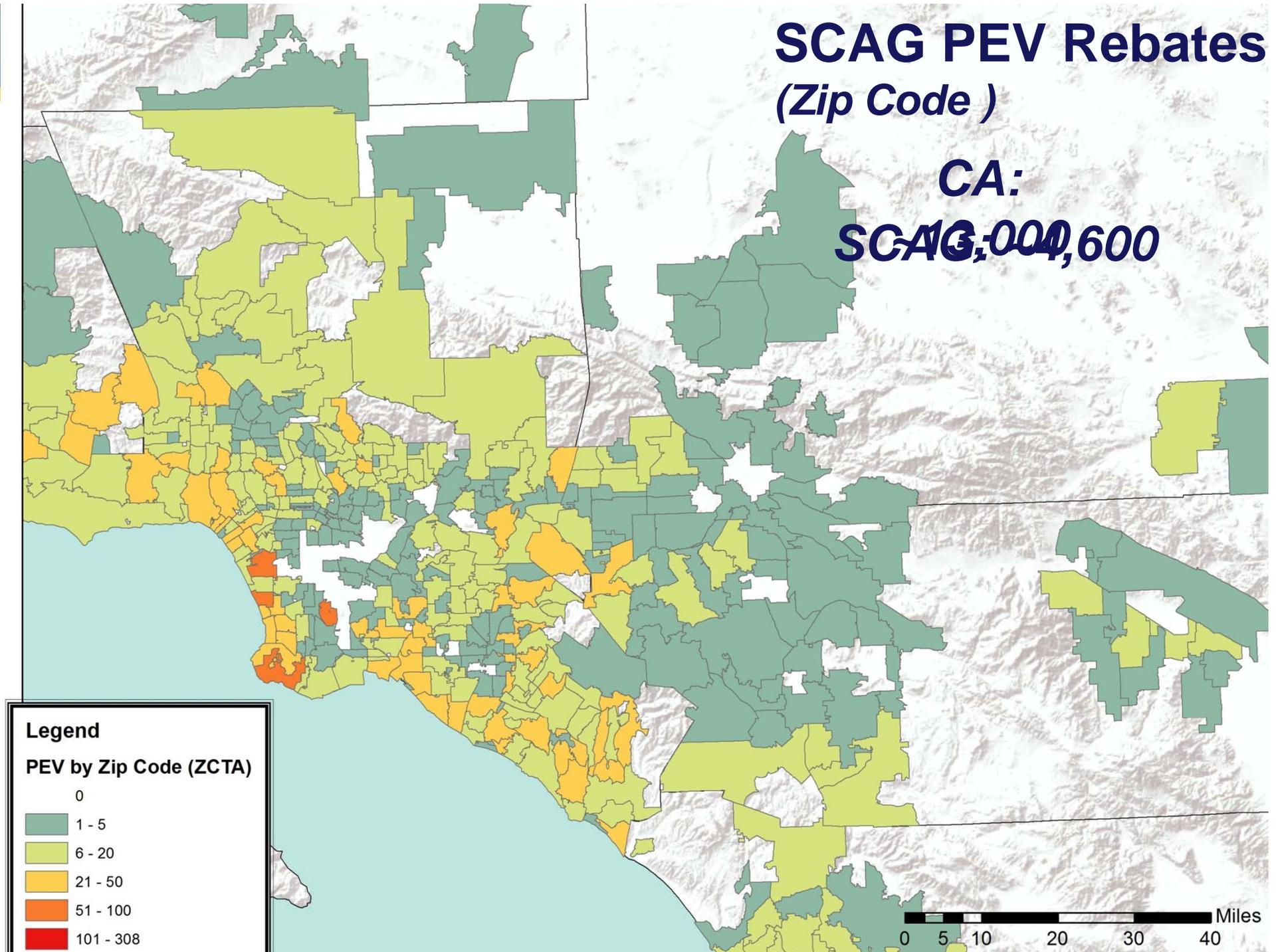
Rebates by County and Zip Code

through August 15, 2012



SCAG PEV Rebates (Zip Code)

CA:
~~SCAG~~,000,600



Legend

PEV by Zip Code (ZCTA)

0

1 - 5

6 - 20

21 - 50

51 - 100

101 - 308

0 5 10 20 30 40 Miles

PEV Owner Survey Overview

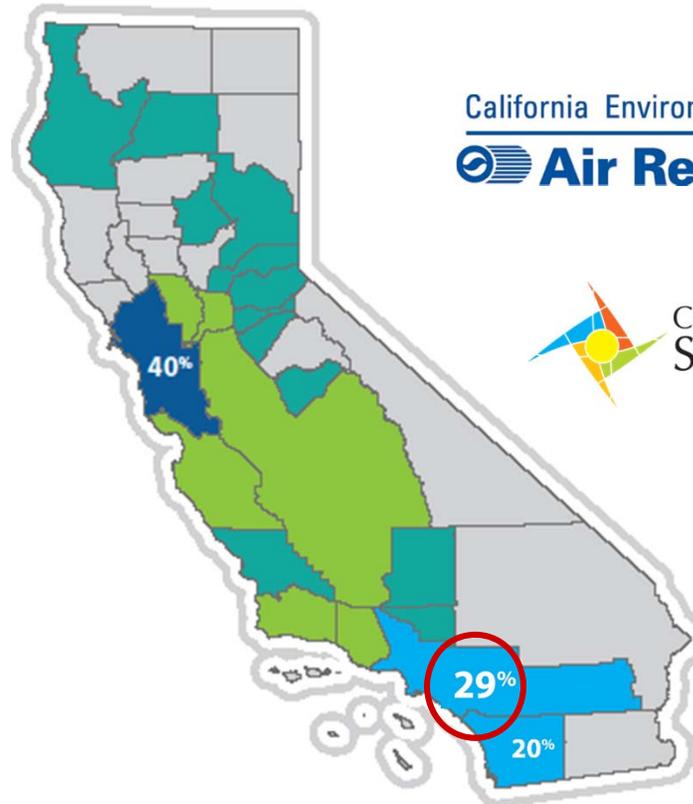
Survey population

2,526

Survey respondents

1,419

Distribution of
survey respondents



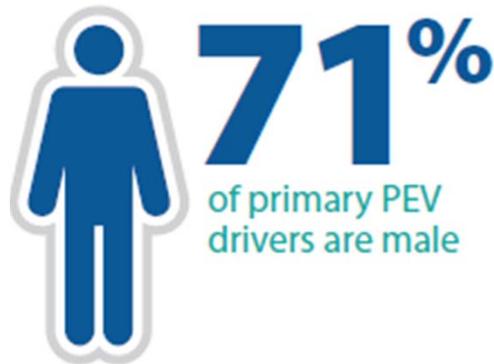
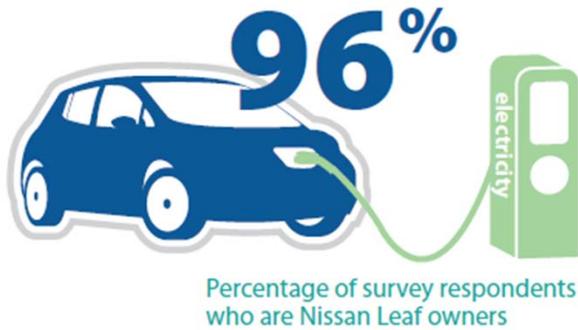
Survey Highlights:

Cohort: PEV Ownership of 6 months or longer

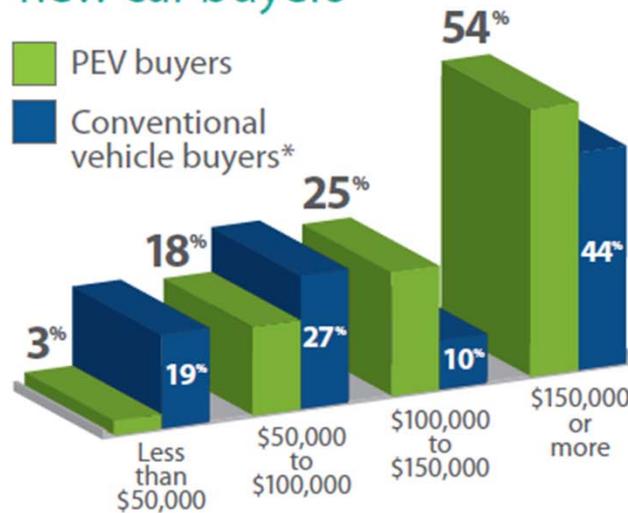
Administered: February – March 2012

Longitudinal: Tracking behavior every 6 months

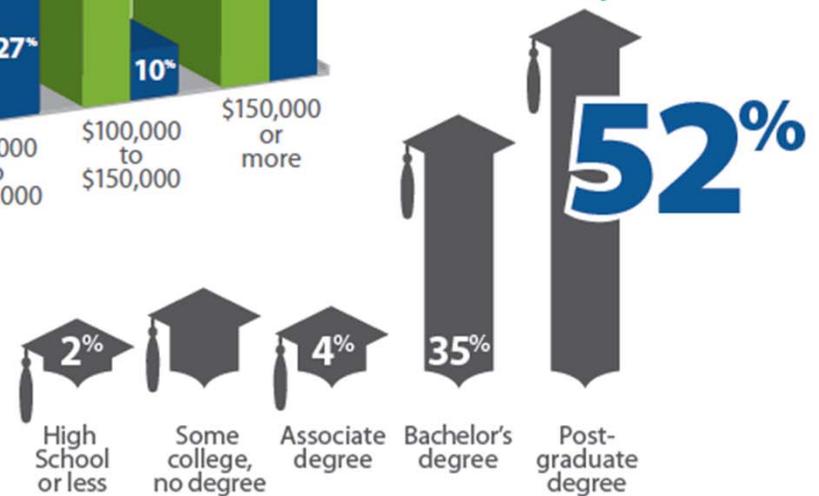
Driver Demographics



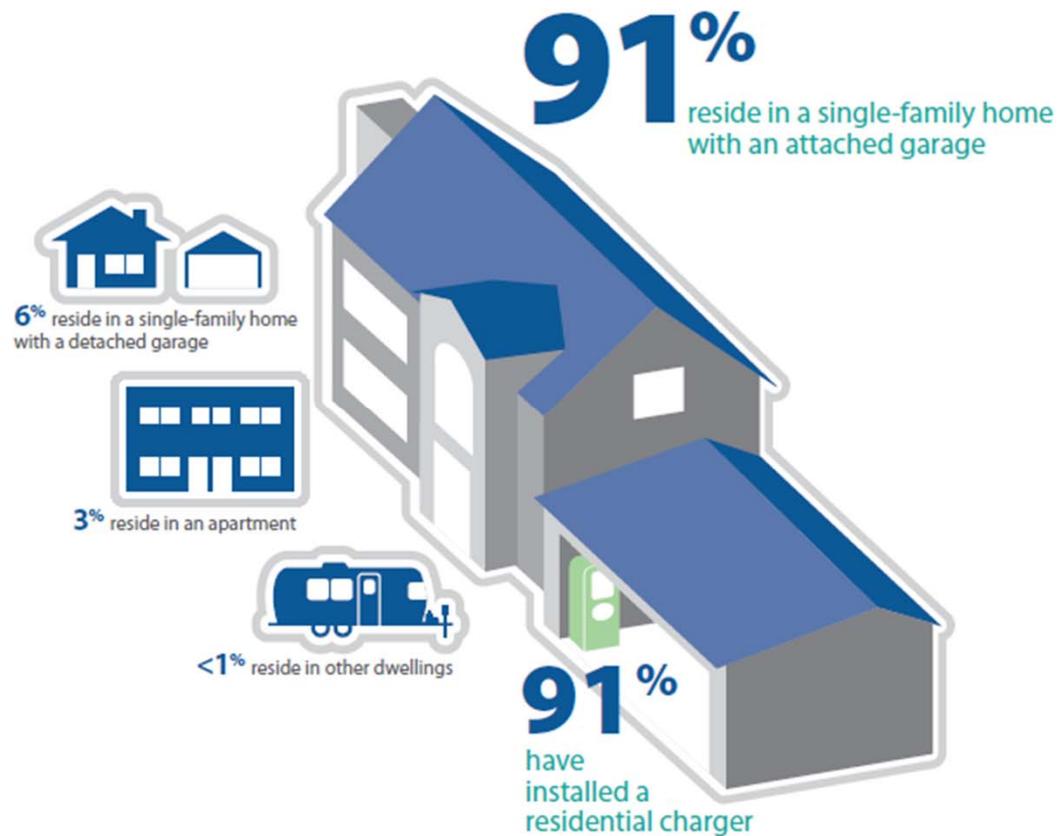
Household income of California new car buyers



Educational level of respondents



Household Characteristics

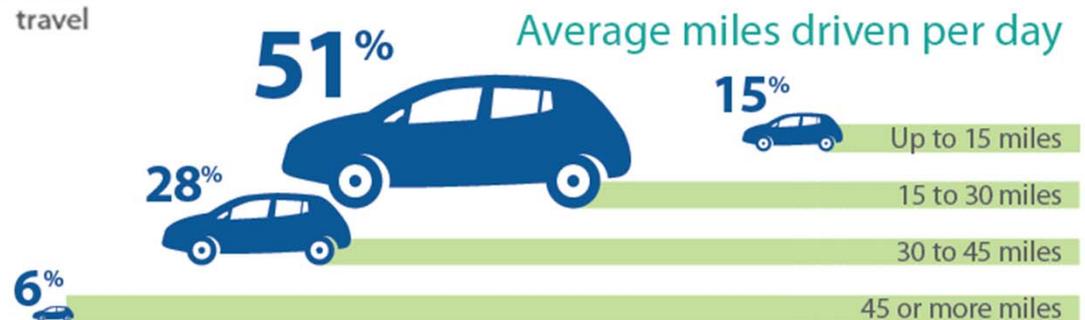
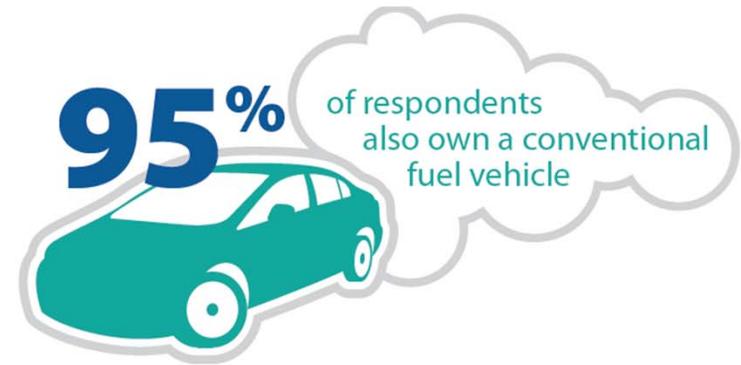
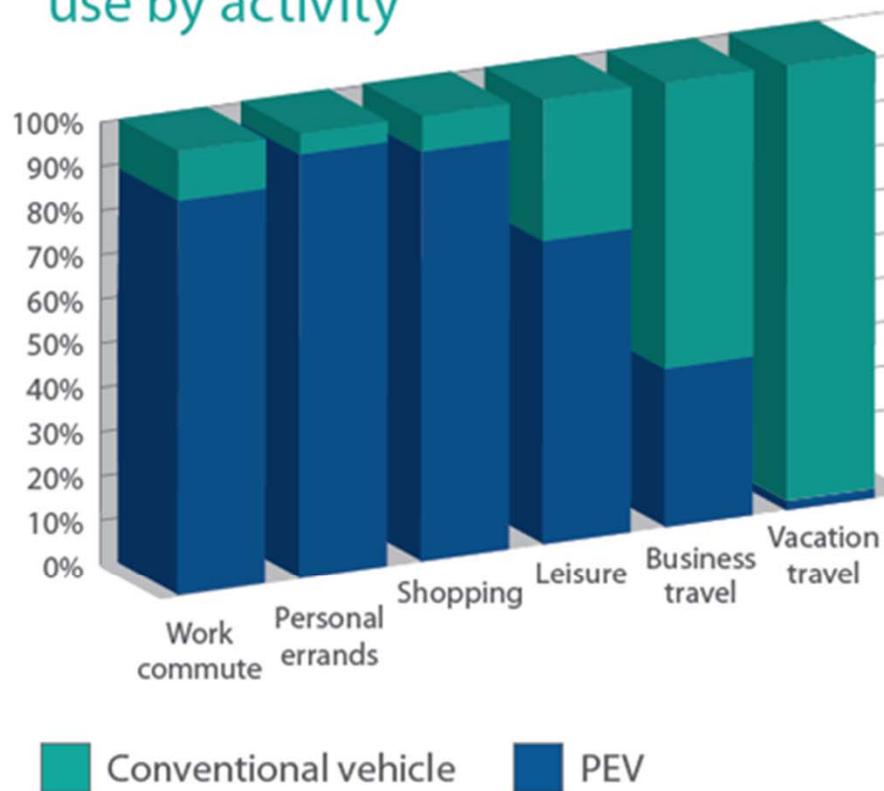


75% of respondents park their vehicle in a garage



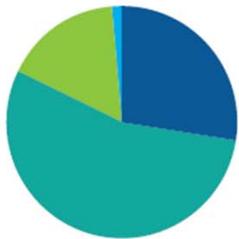
Vehicle Use

PEV vs. conventional vehicle use by activity



Public and Residential Charging

83% expressed varying levels of dissatisfaction with public charging infrastructure



- Extremely satisfied
- Satisfied
- Dissatisfied
- Extremely dissatisfied



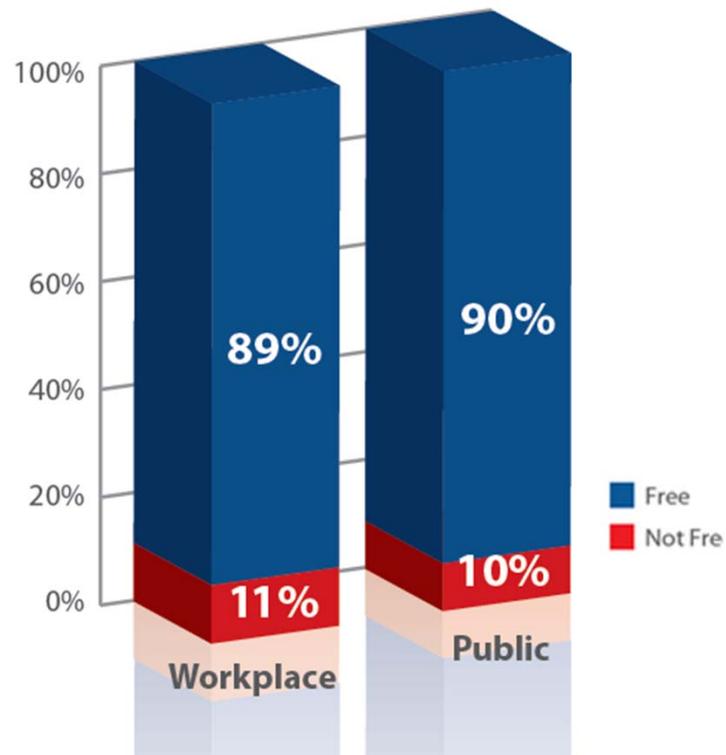
56% received a free or subsidized Level 2 charger



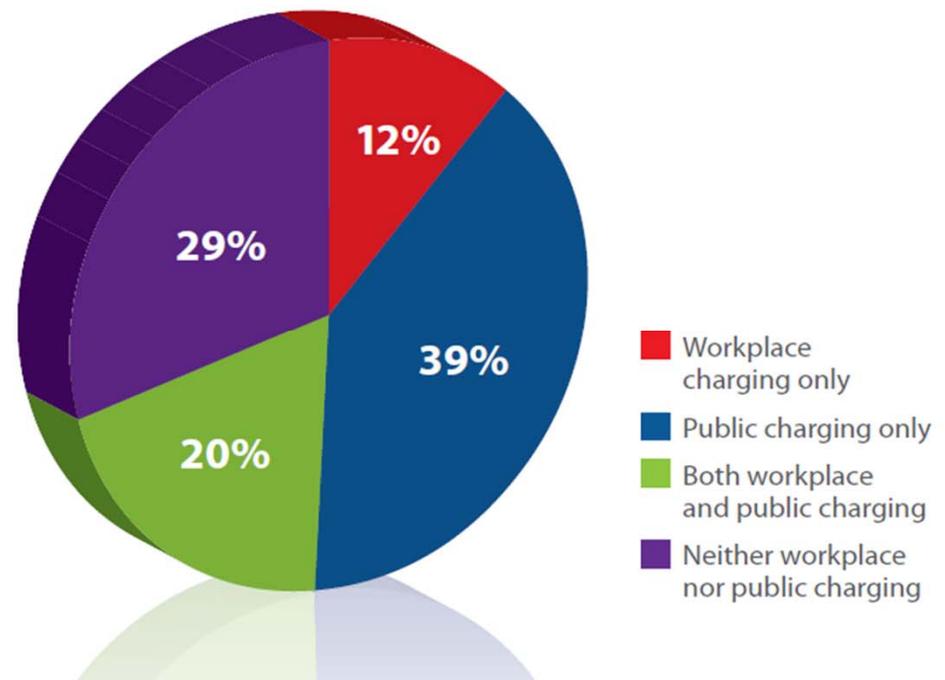
Importance of subsidy for decision to purchase a Level 2 charger



Public and Workplace Charging



Reported cost for use of nonresidential charging



Access to public and workplace charging

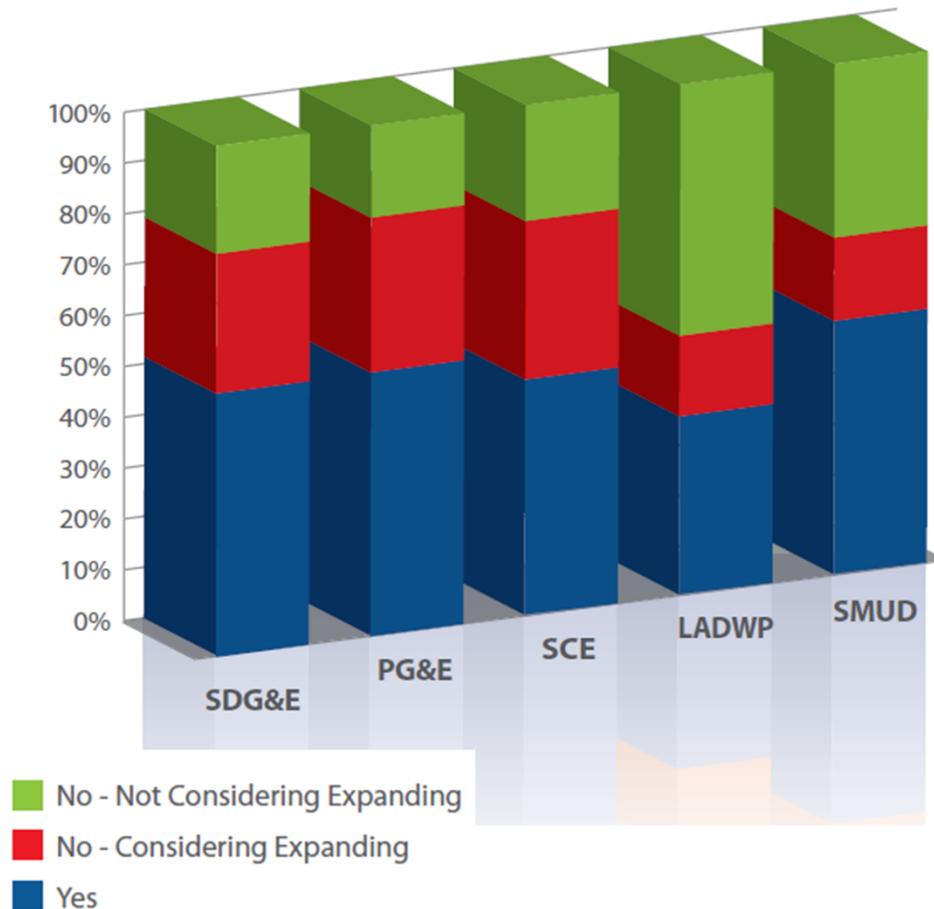
PEV Adoption & Solar PV Ownership



39%

Respondents: 1,396

PEV Adoption & Solar PV Ownership

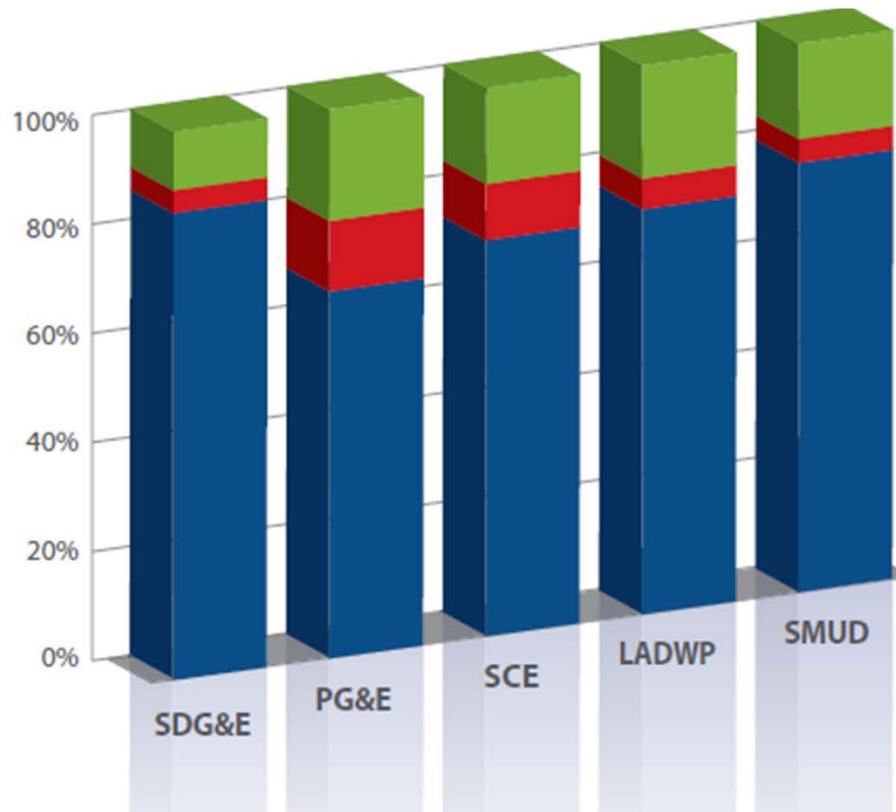


Survey Highlight:

- Average of 60% of respondents who did not initially size their PV system for their PEV state that they plan to expand their system within the coming year

Respondents who are considering sizing PV to offset PEV load by utility

PEV TOU Rates



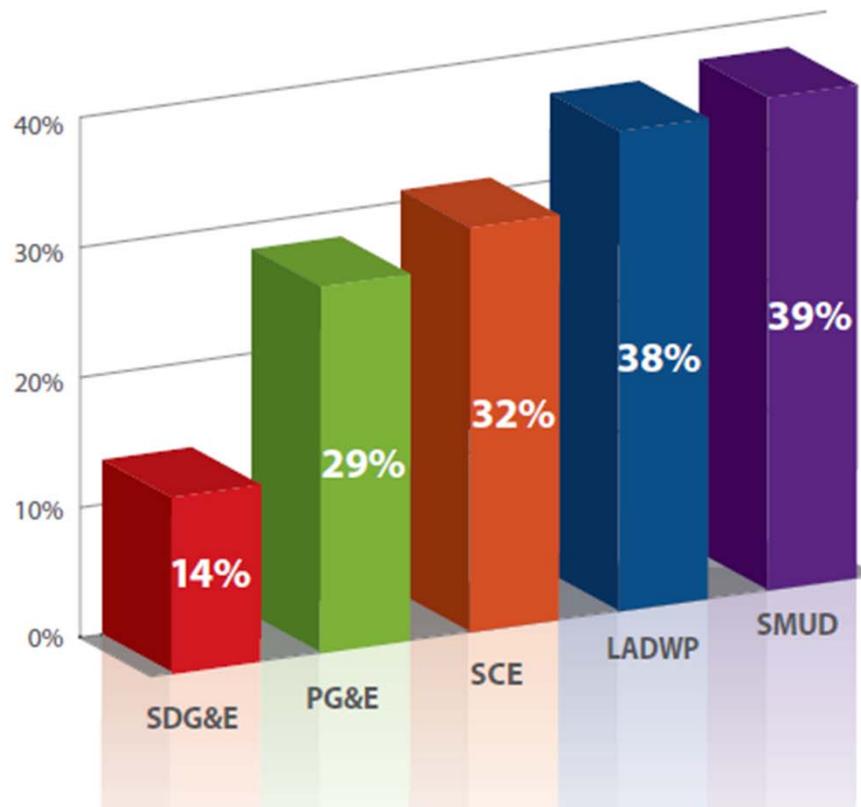
Survey Highlights:

- SDG&E customers most aware at 85%
- ~1/3 of customers across other utilities did not know TOU rates were offered



Survey respondents knowledge of TOU rates by utility

PEV TOU Rates

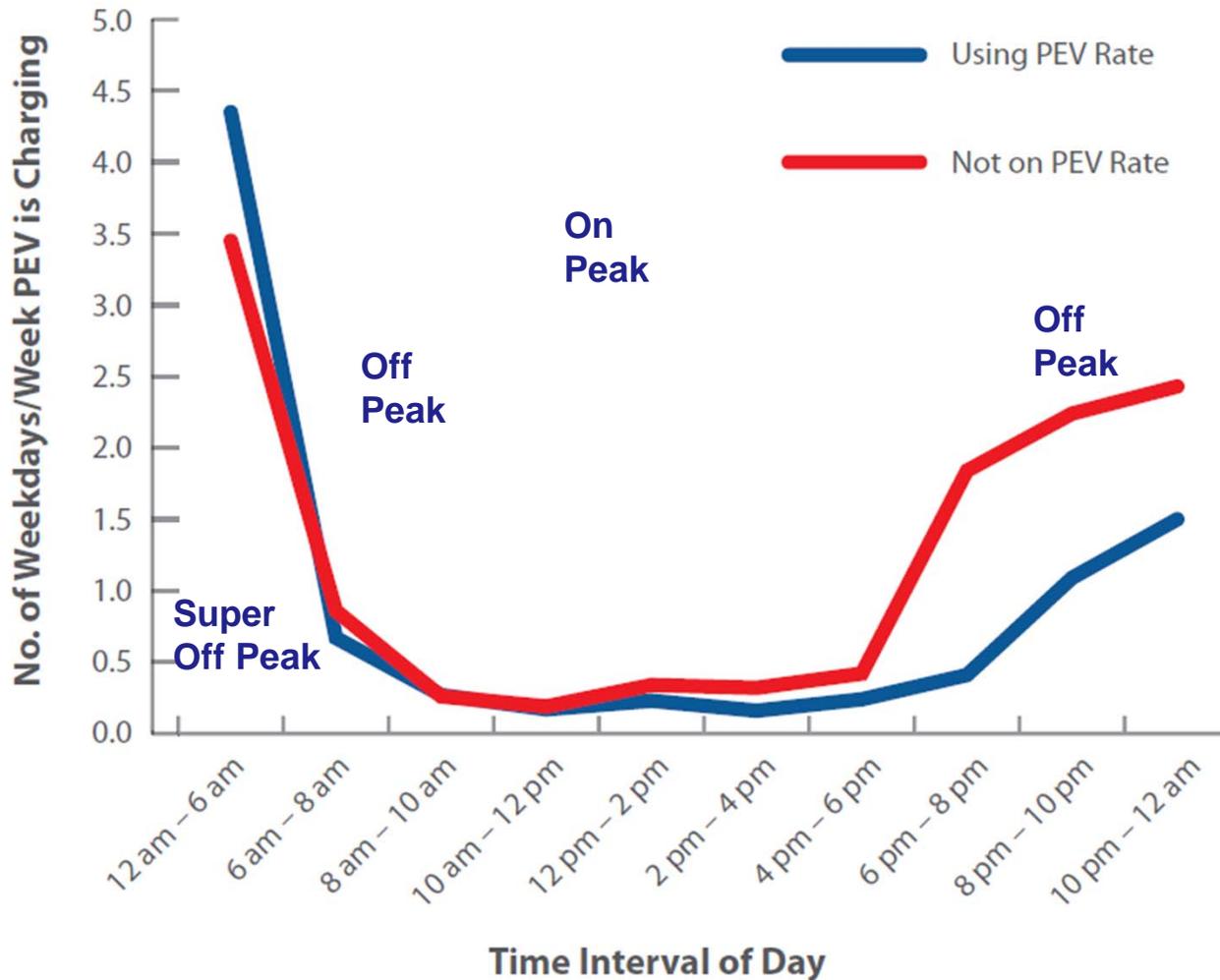


Survey Highlights:

- Excludes Solar Customers
- Likely charging on a standard domestic rate
- Between \$0.24 – \$0.34 per kWh
- The equivalent of \$2.70 – \$4.70/gallon

PEV survey respondents (non-solar owners) charging on a standard rate

PEV TOU Rates



Survey Highlights:

- PEV Drivers react to price signals
- Drivers on a TOU rate more likely to charge off-peak than those not on a TOU rate

Charging behavior of owners on a TOU rate vs. not on a TOU rate

Summary

- Longitudinal survey administered twice a year
- Cohort includes PEV owners of at least 6 months
- Well defined early adopter demographic that are energy/environmentally savvy
- Consumer desire for greater infrastructure deployment
- Utility rate design important in shaping charging behavior and manage PEV load

Questions?

California Center for Sustainable Energy

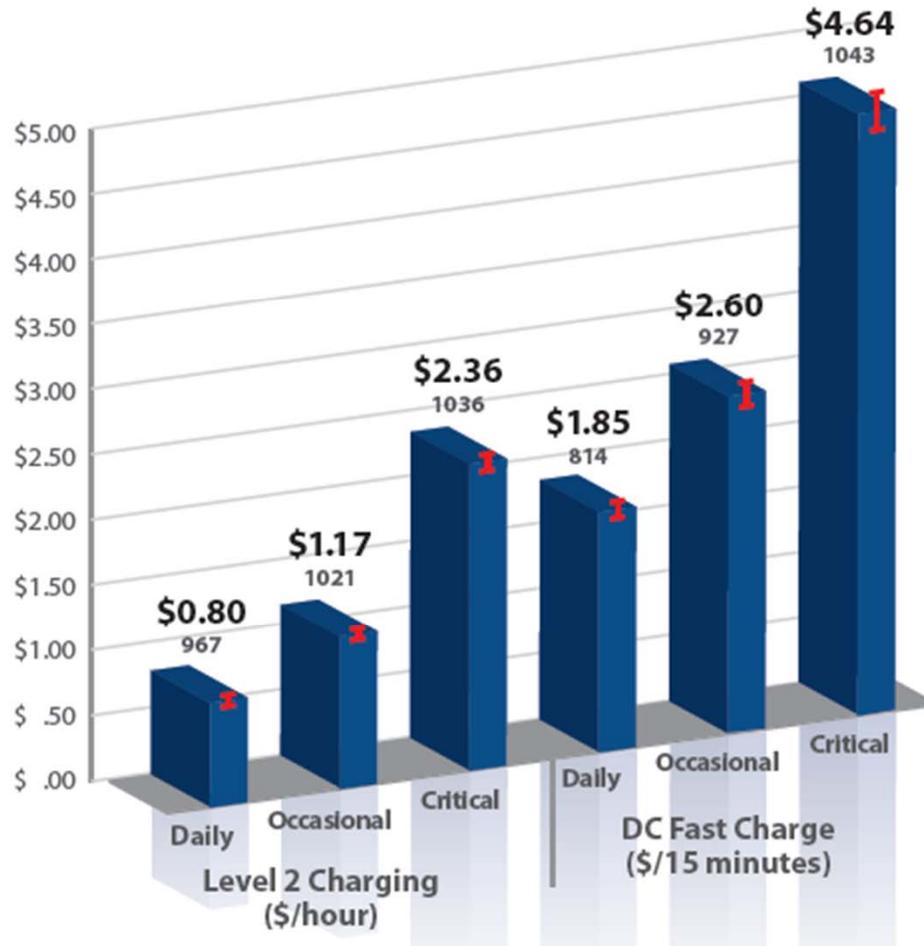
www.energycenter.org

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- Back Up Slides

Willingness to Pay



Keep in mind...

- 90% reported public charging was free
- Lack of public charging pricing models
- Limited infrastructure installed
- Importance of subsequent survey rounds

Mean \$

(N) Responses

95% confidence interval (χ^2)

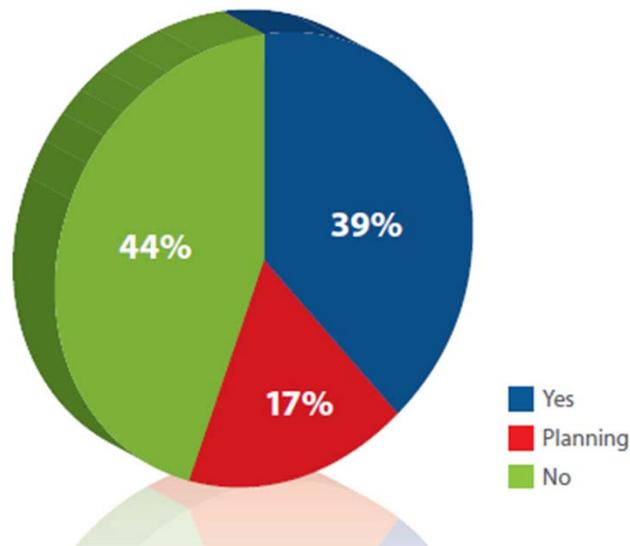
Stated willingness to pay for Level 2 and DC fast charging

Plug-in Electric Vehicle Owner Survey

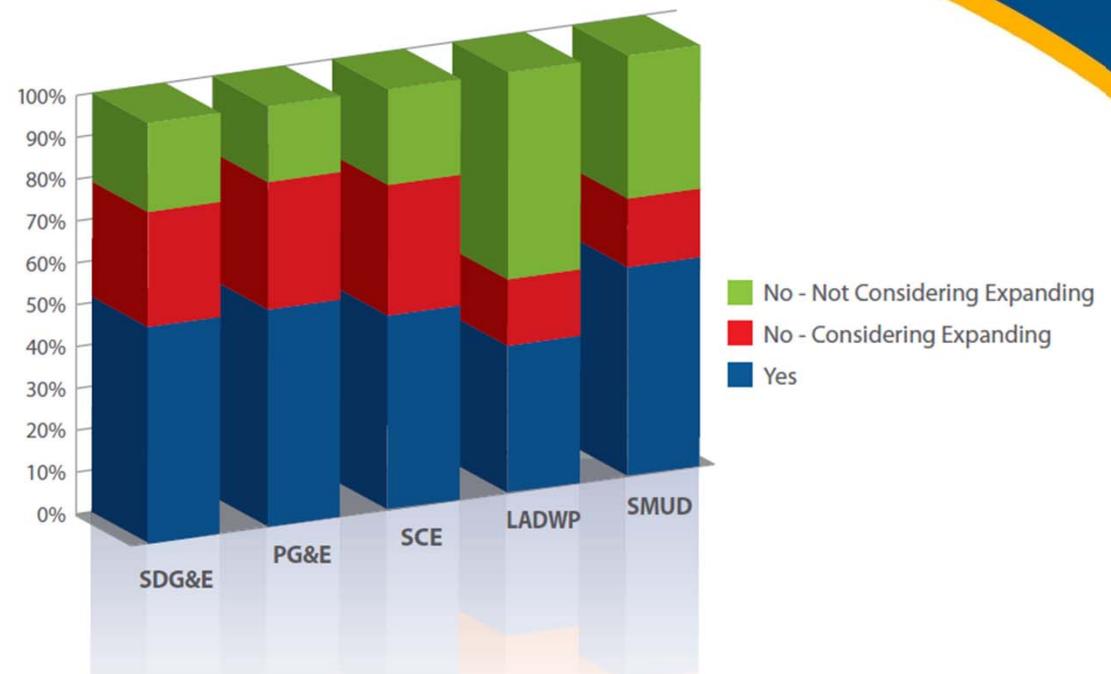
Survey Overview:

- Administered: February – March 2012
- Survey sent to 2,554 CA PEV vehicle owners
- 1,396 unique respondents
- Cohort: PEV Ownership of 6 months or longer
- Longitudinal: Tracking behavior every 6 months

PEV Adoption & Solar PV Ownership



Percent of respondents with a PV system

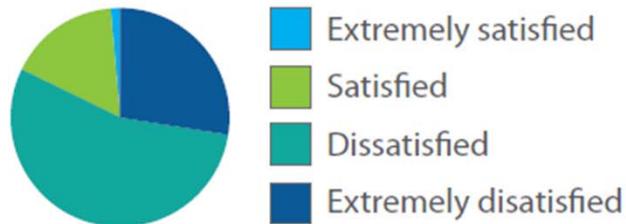


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Attitude towards public charging infrastructure

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