Electric Vehicles: Rebates, Adoption, and a Dealer Incentive for EV Sales

SANDAG Energy Working Group, 26 Oct 2017, San Diego CA
Brett Williams, Ph.D. – Principal Advisor, Clean Transportation
John Anderson, Analyst & Nick Pallonetti, Analyst Assistant

Thanks also to others at CSE
CSE Electric Vehicle Activities

Incentives Design & Administration

Fleet Assistance & Clean Cities

Consumer & Dealer Outreach

PEV, Alt.-Fuel, & ZEV Planning & Implementation

Stakeholder Engagement

2nd Life Battery Research & Vehicle-Grid Integration
Where can I get the data?: Transparency Tools

Public dashboards facilitate informed action

- >215,000 EVs and consumers
- >19,000 survey responses statistically represent >91,000 consumers
- >$470M in rebates processed
Outline

• Clean Vehicle Rebate Project (CVRP) Update
  – Overview
  – Program Changes & Funding Availability

• California & San Diego EV Market Update
  – EVs
  – EV consumers

• Select Evaluation Highlights
  – CVRP Impact
  – CT Dealer Incentive
# Statewide Monetary Incentives

<table>
<thead>
<tr>
<th>Vehicle Type</th>
<th>CVRP</th>
<th>Federal Tax Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen Fuel-Cell Electric Vehicles</td>
<td>$5,000</td>
<td>$7,500</td>
</tr>
<tr>
<td>Battery Electric Vehicles (&amp; i3 REx)</td>
<td>$2,500</td>
<td>$2,500–$7,500</td>
</tr>
<tr>
<td>Plug-in Hybrid Electric Vehicles*</td>
<td>$1,500</td>
<td>$2,500–$7,500</td>
</tr>
<tr>
<td>Zero-Emission Motorcycles</td>
<td>$900</td>
<td></td>
</tr>
</tbody>
</table>

* ≥ 20 electric-mile range only
### CVRP Vehicle Requirements

#### \( \geq 20 \) electric-mile range (as certified by CARB based on UDDS)

<table>
<thead>
<tr>
<th>Select currently available EVs &lt;20 e-mi</th>
<th>e-mi range</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017 Mercedes-Benz GLE550e</td>
<td>12</td>
</tr>
<tr>
<td>2017 BMW 330e</td>
<td>14</td>
</tr>
<tr>
<td>2017 Volvo XC90</td>
<td>14</td>
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</table>
CVRP Eligibility Requirements (legislative)

<table>
<thead>
<tr>
<th></th>
<th>November 2016 – present</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vehicle requirement:</strong></td>
<td></td>
</tr>
<tr>
<td>Electric range</td>
<td>Must be ( \geq 20 ) e-mi</td>
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<tr>
<td><strong>Consumer Income Cap</strong>:</td>
<td></td>
</tr>
<tr>
<td>Single filers</td>
<td>$150,000</td>
</tr>
<tr>
<td>Head-of-household filers</td>
<td>$204,000</td>
</tr>
<tr>
<td>Joint filers</td>
<td>$300,000</td>
</tr>
</tbody>
</table>

*Income cap is deferred for consumers of fuel-cell electric vehicles
Increased Rebate Amounts for Low-to-Moderate-Income (LMI) Consumers

- Additional $2,000 available to consumers with household incomes ≤ 300% of the federal poverty level (FPL)
- Prioritization of rebate payments to low income consumers

<table>
<thead>
<tr>
<th>Persons in household</th>
<th>Max Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$35,640</td>
</tr>
<tr>
<td>2</td>
<td>$48,060</td>
</tr>
<tr>
<td>3</td>
<td>$60,480</td>
</tr>
<tr>
<td>4</td>
<td>$72,900</td>
</tr>
<tr>
<td>5</td>
<td>$85,320</td>
</tr>
<tr>
<td>6</td>
<td>$97,740</td>
</tr>
<tr>
<td>7</td>
<td>$110,190</td>
</tr>
<tr>
<td>8</td>
<td>$122,670</td>
</tr>
<tr>
<td>Vehicle Type</td>
<td>CVRP</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>--------</td>
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<td>$900</td>
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Incentive Summary: San Joaquin (as of 1 Nov. 2016)

Incentive Dollars

- $17,000 for BEV <225% FPL
- $15,000 for PHEV <225% FPL
- $15,000 for BEV <300% FPL
- $13,000 for PHEV <300% FPL
- $11,000 for BEV <400% FPL
- $9,000 for PHEV <400% FPL

Incentives Total
- Drive Clean!
- Plus-up
- EFMP
- CVRP - LMI Kicker
- CVRP

Incentive Summary: San Joaquin (as of 1 Nov. 2016)
CVRP Rebate Funding

• Current (FY 2016–2017 funding):
  – Waitlist for standard rebates began June 2016
  – Increased Rebates for Low-/Moderate-Income (LMI) consumers unaffected

• FY 2017–2018 funding:
  – Will remove waitlist soon (November)
  – Waitlisted standard applications (Jun–Nov) will be paid in Q4 2016 and Q1 2017
  – $140 million allocated for CVRP
    • Proposed additional funding for LMI increased rebates
CA & San Diego EV Market Update
Getting Up to Speed

What electric cars are available? How are they selling?

- 334,393 CA sales
- 700,818 USA sales
- 13,478 CA charging stations
- 42 CA models available

Updated: October 5, 2017

Getting Up to Speed: More Choice

Plug-in hybrid EVs

All models pictured had > 100 national sales in Q1 2017 (http://insideevs.com/monthly-plug-in-sales-scorecard/)

All-battery EVs

Fuel-cell EVs
Plug-in Hybrid Electric Vehicles (PHEVs)

Depending on the model...

- **Range**: 180–640 miles total
  - 10–97 mi. on electricity plus
  - 83–615 on gasoline
- **If forget to charge**, acts like efficient gasoline hybrid
- **If charge frequently driving can be electric**
  - U.S. avg. commute: ~15 mi.
  - U.S. avg. daily driving: ~30 mi.
- **MSRP**: $27,100–$140,700

All models pictured had > 100 national sales in Q1 2017 (http://insideevs.com/monthly-plug-in-sales-scorecard/)
Range specs: FuelEconomy.gov
All-Battery Electric Vehicles (BEVs)

Depending on the model...
- Range: 81–315 electric miles
- 0 to 60 mph: 2.3–10.1 seconds
- Full torque when stoplight turns green
- No shifting, smooth acceleration to maximum speed
- MSRP: $28,995–$137,800

All models pictured had > 100 national sales in Q1 2017 (http://insideevs.com/monthly-plug-in-sales-scorecard/)
0-60 times: http://www.motortrend.com/cars/tesla/model-s/2017/2017-tesla-model-s-p100d-first-test-review/,
<table>
<thead>
<tr>
<th>Vehicle</th>
<th>Vehicle Category</th>
<th>Base MSRP</th>
<th>EPA Fuel Economy</th>
<th>EPA Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prius Prime</td>
<td>Midsize PHEV</td>
<td>$27,100</td>
<td>133 MPGe</td>
<td>25 e-mi 640 total mi</td>
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<tr>
<td>Hyundai Ioniq Electric</td>
<td>Midsize BEV</td>
<td>$29,500</td>
<td>136 MPGe</td>
<td>124 e-mi</td>
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<tr>
<td>Chevrolet Bolt</td>
<td>Small wagon BEV</td>
<td>$36,620</td>
<td>119 MPGe</td>
<td>238 e-mi</td>
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<tr>
<td>Chrysler Pacifica Hybrid</td>
<td>Minivan PHEV</td>
<td>$41,995</td>
<td>84 MPGe</td>
<td>33 e-mi 570 total mi</td>
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<tr>
<td>BMW 330e</td>
<td>Compact PHEV</td>
<td>$44,100</td>
<td>71 MPGe</td>
<td>14 e-mi 350 total mi</td>
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<tr>
<td>Mercedes-Benz GLE 550e</td>
<td>SUV PHEV</td>
<td>$66,300</td>
<td>43 MPGe</td>
<td>10 e-mi 460 total mi</td>
</tr>
</tbody>
</table>

e-mi = electric miles
Specs from fueleconomy.gov
EVs: How many? What Type? Where?

March 2010 – December 2016 (unless stated otherwise)
In 2016, EVs were:
3.8% of new light-duty vehicle sales
4.3% of new comparable* car sales

<table>
<thead>
<tr>
<th>EV registrations</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017 (Q1-Q2)</th>
<th>Total</th>
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<td>2010</td>
<td>195</td>
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<td>2014</td>
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<td>2015</td>
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<td>61,813</td>
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<td>310,130</td>
<td>310,130</td>
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</tbody>
</table>

* includes: coupe, convertible, hatchback, sedan, sport utility, and station wagon body styles

Calculated from content supplied by R.L. Polk & Co.: Copyright © 2017, All rights reserved.
In 2016, EVs were: 
3.3% of new light-duty vehicle sales
3.7% of comparable* car sales

<table>
<thead>
<tr>
<th>EV registrations</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017 (Q1-Q2)</th>
<th>Total</th>
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<td>2017 (Q1-Q2)</td>
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<tr>
<td>Total</td>
<td>23,354</td>
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<td></td>
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</tbody>
</table>

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* includes: coupe, convertible, hatchback, sedan, station wagon, and sport utility body styles
New Registrations by Vehicle Category (thru 2016)

**Statewide**
- BEV: 51%
- PHEV: 45%
- BEVx: 4%
- FCEV: 0%

**San Diego**
- BEV: 57%
- PHEV: 40%
- BEVx: 3%
- FCEV: 0%
New Registrations by Vehicle Category (thru 2016)

**Statewide**
- **PHEV**: 27%
- **EREV**: 18%
- **BEVx**: 4%
- **Short/Med-Range BEV**: 34%
- **Long-Range BEV**: 17%
- **FCEV**: ~0%

**San Diego**
- **PHEV**: 25%
- **EREV**: 15%
- **BEVx**: 3%
- **Short/Med-Range BEV**: 40%
- **Long-Range BEV**: 17%
- **FCEV**: ~0%

**Categories**
- **PHEV**: Parallel hybrid or < 35 mi e-range
- **EREV**: Series hybrid and ≥ 35 mi e-range
- **BEVx**: ≥ 75 mi e-range and must deplete e-range before using engine
- **Short/Med-Range BEV**: <200 mi range
- **Long-Range BEV**: ≥200 mi range

**Note:** Calculated from content supplied by R.L. Polk & Co.; Copyright © R.L. Polk & Co., 2017. All rights reserved.
San Diego: Registrations (thru 2016)

- **Chevrolet**
  - 20% PHEV
  - 15% BEV
- **Tesla**
  - 15% BEV
- **Ford**
  - 10% PHEV
- **Nissan**
  - 15% BEV
- **Toyota**
  - 5% BEV
- **smart**
- **FIAT**
- **BMW**
  - 5% BEV
- **Volkswagen**
  - 10% BEV
- **Other**

*Calculated from content supplied by R.L. Polk & Co.: Copyright © 2017, All rights reserved.*
New Registrations by County (thru Dec 2016)
New Registrations by County & Normalized to Comparable Sales (2016)

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San Diego County Rebates by Census Tract

EV Consumers
# Data Summary (Rebates to Individuals Only)

## CVRP Consumer Survey

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Responses</td>
<td>n = 19,460</td>
<td>n = 11,611</td>
<td>n = 31,071</td>
</tr>
</tbody>
</table>

## CVRP Program Population (Application Data)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants survey was weighted to represent*</td>
<td>N = 91,081</td>
<td>N = 45,698</td>
<td>N = 136,779</td>
</tr>
</tbody>
</table>

*Note: Before Income Cap. These results are conservative.*
Vehicles Driven by Respondents

### 2013–15
- **Chevrolet Volt**: 19%
- **Tesla Model S**: 15%
- **Nissan LEAF**: 20%
- **FIAT 500e**: 9%
- **Other**: 24%
- **Toyota Prius Plug-in**: 13%

### 2015–16
- **Chevrolet Volt**: 19%
- **Tesla Model S**: 17%
- **Nissan LEAF**: 11%
- **Ford Fusion Energi**: 7.4%
- **FIAT 500e**: 10%
- **Other**: 35%

**Source:** CVRP Consumer Survey, 2013–15 edition
- Respondents: 19,460
- Purchase dates: 9/1/12–5/31/15
- Sampling weights applied

**Source:** CVRP Consumer Survey, 2015–16 edition
- Respondents: 11,611
- Purchase dates: 4/1/15–5/31/16
- Sampling weights applied
## Majority Characteristics of CVRP Participants

<table>
<thead>
<tr>
<th></th>
<th>CVRP 2015–2016 Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>40–59 years old</td>
<td>53%</td>
</tr>
<tr>
<td>$50–200k/y household income</td>
<td>58%</td>
</tr>
<tr>
<td>White/Caucasian</td>
<td>65%</td>
</tr>
<tr>
<td>Male</td>
<td>74%</td>
</tr>
</tbody>
</table>
### Majority Characteristics of Car Buyers

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>40–59 years old</td>
<td>53%</td>
<td>52%</td>
</tr>
<tr>
<td>$50–200k/y household income</td>
<td>58%</td>
<td>58%</td>
</tr>
<tr>
<td>White/Caucasian</td>
<td>65%</td>
<td>76%</td>
</tr>
<tr>
<td>Male</td>
<td>74%</td>
<td>49%</td>
</tr>
</tbody>
</table>

California Household Travel Survey, 2012: weighted, n = 42,431
# Majority Characteristics: Comparison

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
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<tr>
<td>40–59 years old</td>
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<td>58%</td>
</tr>
<tr>
<td>White/Caucasian</td>
<td>65%</td>
<td>76%</td>
</tr>
<tr>
<td>Male</td>
<td>74%</td>
<td>49%</td>
</tr>
<tr>
<td>≥ Bachelor’s</td>
<td>83%</td>
<td>66%</td>
</tr>
<tr>
<td>≥ Postgraduate</td>
<td>50%</td>
<td>34%</td>
</tr>
<tr>
<td>Detached homes</td>
<td>80%</td>
<td>75%</td>
</tr>
</tbody>
</table>
## Majority Characteristics: San Diego

<table>
<thead>
<tr>
<th></th>
<th>CA (CVRP ’15–’16)</th>
<th>San Diego (CVRP ’15–’16)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>53%</td>
<td>52%</td>
</tr>
<tr>
<td>$50–200k/y household income</td>
<td>58%</td>
<td>61%</td>
</tr>
<tr>
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<td>74%</td>
<td>75%</td>
</tr>
<tr>
<td>≥ Bachelor’s</td>
<td>83%</td>
<td>82%</td>
</tr>
<tr>
<td>≥ Postgraduate</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>Detached homes</td>
<td>80%</td>
<td>82%</td>
</tr>
</tbody>
</table>

How can consumer research help us grow markets for electric vehicles?

• Disadvantaged Communities
  – (AEA pres 2016)
  – (CVRP DAC infographic, 2017)

• Information Channels
  – (EV Roadmap pres, 2016)

• Target Segments
  – (TRR 2016 research paper)
  – (AEA 2016 pres)
  – (TRB 2017 poster)
Most Important Reason Why Decided to Acquire

- Reducing environmental impacts (California: 25%, San Diego: 20%)
- Saving money on fuel costs (California: 20%, San Diego: 25%)
- (HOV) lane access (California: 15%, San Diego: 10%)
- Saving money overall (California: 20%, San Diego: 25%)
- A desire for the newest technology (California: 10%, San Diego: 5%)
- Increased energy independence (California: 15%, San Diego: 20%)
- Vehicle performance (California: 10%, San Diego: 5%)
- Vehicle styling, finish and comfort (California: 5%, San Diego: 10%)
- Convenience of charging at home or work (California: 2%, San Diego: 5%)
- Other (California: 5%, San Diego: 10%)

Respondents: 11,611
Purchase dates 4/1/15-5/31/16
Sampling weights applied
Do you charge your PEV at home?

Yes, I’m using a 120V outlet (typical household outlet)
Yes, I’m using a Level 2 (240V) charging station
Yes, I’m using a 240V outlet (e.g. dryer outlet)
No, I’m not charging at home
Yes, I’m using a Level 1 (120V) charging station
Other

Respondents: 11,611
Purchase dates 4/1/15-5/31/16
Sampling weights applied
Did you have to make any electrical upgrades to be able to charge your vehicle at home?

Respondents: 11,611
Purchase dates 4/1/15-5/31/16
Sampling weights applied
Where can I get the data?: Transparency Tools

Public dashboards facilitate informed action

- >215,000 EVs and consumers
- >19,000 survey responses statistically represent >91,000 consumers
- >$470M in rebates processed
Excerpts from:

California’s Electric Vehicle Rebates: Exploring Impact
BECC, 17 October 2017, Sacramento

Brett Williams, M.Phil. (cantab), Ph.D. – Principal Advisor, Clean Transportation
Kipp Searles – Analyst

Thanks to Nick Pallonetti, Michelle Jones, Jamie Orose, John Anderson, and others at CSE
Program Outcomes

Influenced Behaviors
Do EVs get used?

Replaced a vehicle with their rebated EV

- 2013–2015: 65%
- 2015–2016: 76%

Do EVs get used?

Replaced a vehicle with their rebated EV

- **2013–2015**
  - Plug-in hybrid EVs: 72%
  - Battery EVs: 59%

- **2015–2016**
  - Plug-in hybrid EVs: 85%
  - Battery EVs: 72%

What vehicles have rebates helped replace?

- Gasoline
- Conventional hybrid
- All-battery electric
- Plug-in hybrid
- Diesel

CVRP Consumer Survey. 2015–2016 edition: weighted, n=8,532
What are indicators of rebate influence?: Importance

How **important** was the State Rebate (CVRP) in **making it possible** for you to acquire your clean vehicle?

- **2013–2015**: 91%
- **2015–2016**: 89%

**Rebate “Important”** =
- Moderately Important +
- Very Important +
- Extremely Important

Difference statistically significant (Chi-2, ***)

[Image of bar chart showing percentage responses for different years]
What are indicators of rebate influence?: Importance

How important was the State Rebate (CVRP) in making it possible for you to acquire your clean vehicle?

- 2013–2015:
  - Very important: 46%
  - Moderately important: 28%
  - Extremely important: 16%

- 2015–2016:
  - Very important: 45%
  - Moderately important: 28%
  - Extremely important: 16%

What are indicators of rebate influence?: Essentiality

Would **not** have purchased/leased their EV **without** rebate

Rebate essentiality is growing; phase-out appears premature

Excerpts from:

Evaluating the Connecticut Dealer Incentive for Electric Vehicle Sales

BECC, 17 Oct 2017

Brett Williams, Ph.D. – Principal Advisor, Clean Transportation

Thanks to: lead author Clair Johnson, PhD; co-authors John Anderson & Nicole Appenzeller; and to K. Searles, C. Santulli, N. Pallonetti, & L. Parsons
## EV Incentive Programs: Rebate Design

<table>
<thead>
<tr>
<th></th>
<th>Fuel-Cell EVs</th>
<th>All-Battery EVs</th>
<th>Plug-in Hybrid EVs</th>
<th>Zero-Emission Motorcycles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$5,000</td>
<td>$2,500</td>
<td>$2,500</td>
<td>$2,500</td>
<td>$900</td>
</tr>
<tr>
<td>$2,000</td>
<td>$1,500</td>
<td>$1,500</td>
<td>$1,500</td>
<td>$750</td>
</tr>
<tr>
<td>e-miles</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥ 120</td>
<td>$2,000</td>
<td>$1,700</td>
<td>$1,100</td>
<td></td>
</tr>
<tr>
<td>≥ 40</td>
<td>$1,700</td>
<td>$1,100</td>
<td>$500</td>
<td></td>
</tr>
<tr>
<td>≥ 20</td>
<td>$1,100</td>
<td>$500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 20</td>
<td>$500</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Additional Notes:**
- **Fuel-Cell EVs**: e-miles ≥ 175
- **All-Battery EVs**: MSRP ≤ $60k only; dealer assignment; $300 dealer incentive
- **Plug-in Hybrid EVs**: e-miles ≥ 20 only; Consumer income cap and increased rebates
- **Zero-Emission Motorcycles**: MSRP ≥ $60k = $1,000 max.
How is the dealer incentive working?

Evaluating the Connecticut Dealer Incentive for Electric Vehicle Sales

April 2017

Prepared by
Center for Sustainable Energy

Download report here
Select Evaluation Findings
At your dealership, how much of the dealer incentive does the salesperson responsible for the sale receive?

- 27% of all respondents and 31% of sales employees were not aware of the dealer incentive.

Additional incentive uses, e.g.:
- Written into the vehicle profit (upon which commission is based)
- To cover the cost of participating in CHEAPR
- To pay for free charging at the dealership
- To defray the cost of a customer’s charging installation

Question only asked of respondents who said they were aware of the dealer incentive. "I don’t know" responses (n=4) excluded. Respondents=55.
Recommended *Minimum* Levels for the Dealer Incentive

<table>
<thead>
<tr>
<th>What is the minimum dealer incentive amount</th>
<th>Mean</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>salespeople</em> would need to receive personally to motivate them to increase their EV sales? (n=76)</td>
<td>$233</td>
<td>$0</td>
<td>$500</td>
<td>$200</td>
</tr>
<tr>
<td>Additionally, what is the minimum dealer incentive amount that would motivate your <em>dealership</em> to increase your EV sales? (n=73)</td>
<td>$565</td>
<td>$0</td>
<td>$5,000</td>
<td>$500</td>
</tr>
</tbody>
</table>
To what extent are you motivated by the current dealer incentive to do each of the following?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Not at all motivated</th>
<th>Slightly motivated</th>
<th>Moderately motivated</th>
<th>Very motivated</th>
<th>Extremely motivated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spend time learning about EVs</td>
<td></td>
<td></td>
<td>3.20</td>
<td></td>
<td>3.75</td>
</tr>
<tr>
<td>Spend time teaching other staff about EVs</td>
<td></td>
<td></td>
<td>3.20</td>
<td></td>
<td>3.88</td>
</tr>
<tr>
<td>Spend time with a customer to teach them about EV ownership and use†</td>
<td></td>
<td></td>
<td>3.24</td>
<td>*</td>
<td>4.38</td>
</tr>
<tr>
<td>Try to convert customers interested in conventional vehicles to EVs†</td>
<td></td>
<td></td>
<td>3.15</td>
<td></td>
<td>3.85</td>
</tr>
<tr>
<td>In general, try to sell more EVs</td>
<td></td>
<td></td>
<td>3.33</td>
<td></td>
<td>4.00</td>
</tr>
</tbody>
</table>

† Fourth and fifth statements only appeared to sales employees; respondents=40
*Statistically significant difference ($p < 0.05$)
Key Takeaways

• Plug-in EV purchases/leases in SD are eligible for $1,500 (PHEV) or $2,500 (BEV) rebates
  – $3,500 or $4,500 if a lower-income consumer
• Funds are available, waitlist ending soon
• EV consumers are no longer guinea pigs
• EV product choices are growing
• Policies supporting both EV purchases and sales are having a positive impact
We work nationally in the clean energy industry and are always open to exploring partnership opportunities.

Thank You for Your Attention

What would you like to know more about?
What decisions are you facing?
brett.williams@energycenter.org
See you next year?
Additional Participant Evaluation Examples

• Progress in **Disadvantaged Communities** *(AEA pres 2016)*
• **Information Channels** *(EV Roadmap pres, 2016)*
  – Exposure & importance of various channels, consumer time spent researching various topics
• **Infographics**
  – Overall *(CVRP infographic, 2016)*
  – Disadvantaged Communities *(CVRP DAC infographic, 2017)*
• **Characterization of Participating Vehicles and Consumers** *(CVRP research workshop pres, 2015)*
• **Program Participation** by Vehicle Type and County *(CVRP brief 2015)*
• **Dealer services**: Importance and Prevalence *(EF pres 2015)*

http://energycenter.org/resources?combine=&resource=All&technology=248&target=All
Zero Emission Vehicle Dashboard


<table>
<thead>
<tr>
<th>ZEV Sales</th>
<th>ZEV Market Share</th>
<th>ZEV Goals</th>
</tr>
</thead>
</table>

Filters

- ZEV Regulation Region
  - ALL
  - California
  - East Coast
  - West Coast
  - Other

- Registration Type
  - Retail
  - Other Fleet
  - Government Fleet

- Registration Month
  - Jan 2011
  - Jul 2017

ZEV Sales by State

<table>
<thead>
<tr>
<th>Category</th>
<th>Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEV</td>
<td>318,487</td>
</tr>
<tr>
<td>FCEV</td>
<td>2,048</td>
</tr>
<tr>
<td>PHEV</td>
<td>314,675</td>
</tr>
<tr>
<td>All</td>
<td>635,210</td>
</tr>
</tbody>
</table>

Monthly Sales by ZEV Category

Top States by ZEV Market Share

Data Sources

Program:

• CVRP Consumer Survey 2015-16 edition (n=11,611)
  – Weights applied to make responses represent 45,698 program participants along the dimensions of vehicle model, county, and buy vs. lease
• CVRP Consumer Survey 2013-15 edition (n=19,460)
  – EV purchase/lease dates 9/2012–5/2015
  – Weights applied to make responses represent 91,081 program participants along the dimensions of vehicle model, county, and buy vs. lease
• Applications (n=179,719)

Market:

• EV Registration Data (Polk, N=292,738)