Regional Energy Working Group Meeting
Clean Transportation Update
January 24th, 2019
10% target in disadvantaged communities at no cost to property

- Installed, owned, operated, maintained and billed at no additional cost
  - ✔ Bill to Driver or Bill to Property options
  - ✔ Charges appear on SDG&E bill

- Hourly rate encourages charging during lowest cost | off-peak time period

- Integrates renewable energy with the grid
  - ✔ Efficiently integrates EV loads
  - ✔ Reduces need for more power plants

- 10% target in disadvantaged communities at no cost to property

- 1,000+ sites have requested chargers
# SDG&E’s Leadership Position

<table>
<thead>
<tr>
<th>Initiative</th>
<th>GHG Reductions (Metric Tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Port Electrification</strong>&lt;br&gt;Charging, circuits, load research meters and data loggers</td>
<td>4,102 MT lifetime net</td>
</tr>
<tr>
<td><strong>Electrify Local Highways</strong>&lt;br&gt;Level 2 and DC Fast Chargers at four Caltrans Park-and-Rides</td>
<td>2,663 MT lifetime net</td>
</tr>
<tr>
<td><strong>Dealership Incentives</strong>&lt;br&gt;EV education and incentives to increase EV sales and enhance the customer experience</td>
<td>2,517 MT one-time*</td>
</tr>
<tr>
<td><strong>Fleet Delivery</strong>&lt;br&gt;Charging for delivery vehicles</td>
<td>14,019 MT lifetime net</td>
</tr>
<tr>
<td><strong>Green Shuttle</strong>&lt;br&gt;Dedicated charging infrastructure</td>
<td>12,032 MT lifetime net</td>
</tr>
<tr>
<td><strong>Airport Ground Support Equipment</strong>&lt;br&gt;Load research, charging ports, metering equipment, and data loggers</td>
<td>25,130 MT lifetime net</td>
</tr>
<tr>
<td><strong>Residential Charging (pending)</strong>&lt;br&gt;To encourage efficient and grid integrated charging, rebate provided towards installation and charging equipment</td>
<td>663,126 MT lifetime net</td>
</tr>
<tr>
<td><strong>Medium Duty/Heavy Duty Application (pending)</strong>&lt;br&gt;Charging for medium-duty and heavy duty EV vehicles</td>
<td>476,552 MT lifetime net</td>
</tr>
<tr>
<td><strong>AB 1082 &amp; AB 1083 – Schools, Parks &amp; Beaches (pending)</strong>&lt;br&gt;Authorizes IOUs to file proposals to pilot EV charging infrastructure in schools and State parks and beaches</td>
<td>13,588 MT lifetime net</td>
</tr>
</tbody>
</table>

* Metric Tons of CO2 per year
Electrify Local Highways

• **Program Design:**
  – 4 Park and Ride locations:
    • National City
    • El Cajon
    • Chula Vista
    • Oceanside
  – 20 L2 & 2 DCFC per location

• **Program Budget:** $4M

• **Key Accomplishments & Next Steps:**
  – Initial Design complete and delivered to CALTRANS
  – Tier 2 Advice Letter for EV-TOU rate approved
  – Construction to take place in Q2 2019
Fleet Delivery

- **Program Design:**
  - Support approximately 90 all-electric delivery vehicles
    - Level 2 chargers
  - Enrolled customers:
    - UPS
    - Amazon
- **Program Budget:** $3.7M
- **Key Accomplishments & Next Steps:**
  - Construction to begin in Q1 2019

Green Shuttles

- **Program Design:**
  - Up to 5 shuttle locations
  - Combination of L2 and DCFC
  - Solar array & storage at one site
  - Public charging option
- **Program Participants:**
  - San Diego Airport Parking: under construction
  - Aladdin, San Diego International Airport and Workplace Shuttle under contract negotiation and site design
- **Key Accomplishments & Next Steps:**
  - One site under construction
  - Advice Letter for Public GIR was approved
  - Solar and Battery Storage EV Charging RFP completed
Airport GSE

• Program Design Phase 1:
  – Retrofit 16 ports in Terminal 2
  – Complete load management plan
    • Airport GSE Survey
    • Alignment with onsite solar generation

• Phase 2:
  – Collect data from Phase 1 installations for a 6 month period
  – Submit Tier 2 Advice Letter

• Program Budget: $2.4M

• Key Accomplishments & Next Steps:
  – Buy-in from American Airlines to retrofit existing equipment
  – Phase 1 construction to begin Q1 2019

Port Electrification

• Program Design:
  – 30-40 installations to support medium-duty/heavy-duty and electric forklifts within Port Tidelands
  – Enrolled customers:
    • Port of San Diego (Metro Cruise) (9 forklifts)
    • Pasha (3 MD trucks)
    • Dole (4 MD trucks)

• Program Budget: $2.4M

• Key Accomplishments & Next Steps:
  – Port of San Diego Cruise Ship Terminal construction complete
  – Construction for Pasha to start 1/22
  – Design in progress for Dole
Dealership Incentives

- **Program Design:**
  - Outreach and Education campaign for EV dealerships in SDG&E service territory
  - Financial incentives provided to sales force for sale of 1,500 EVs and enrollment in EV rate

- **Program Budget:** $1.8M

- **Key Accomplishments & Next Steps:**
  - Hired Plug-In America to administer the program
  - Completed program pilot with four participating dealerships
  - Documented Lessons Learned and made program adjustments based on feedback from pilot
  - Completed outreach to dealerships for full program – 15 dealerships to participate
  - Launched co-branded Plugstar Website: [https://sdge.zappyride.com/](https://sdge.zappyride.com/)
  - Launched program competition for 15 participating dealerships
Medium-Duty / Heavy-Duty EVs

Program Design:

– Pursuant to SDG&E’s proposed settlement on MD/HD, we committed to a minimum of 3,000 EVs at a minimum of 300 sites.
– Customer driven adoption among vehicle classes
– Target of 30% of infrastructure budget to be spent on DACs
– Potential participants include UPS, Amazon, North County Transit District, Sysco, marine port and land port of entry

Program Schedule:

– Filed settlement in November 2018
– Five year enrollment and installation period with sixth year to complete installations
AB 1082 / AB 1083

AB 1082 / 1083 authorizes the IOUs to file proposals to pilot charging infrastructure in schools and State parks and beaches

**AB 1082: Schools / Educational Institutions**
- School can establish guidelines for use of the charging stations
- School authorized to require users to pay electricity costs

**AB 1083: State Parks / Beaches**
- California State Department of Parks and Recreation shall determine which parks and beaches are suitable for charging
- Parks shall not be required to incur any costs or liability related to the charging stations for the pilot’s duration

**Overall Goal**
- Prioritize disadvantaged communities
- Propose reasonable mechanism for cost recovery
- Each pilot budget not to exceed $10M
- Pilot duration not to exceed 2 years
- Decision expected by Q2 2019
CVRP Update, Electric Vehicle Adoption, and Select Analytical Highlights

SANDAG Energy Working Group, 24 Jan. 2019, San Diego CA

Brett Williams, PhD – Senior Principal Advisor, EV Programs, CSE
Nicholas Pallonetti – Analyst

With thanks to:
Jackie Vogel, John Anderson and others at CSE
Outline

• **Clean Vehicle Rebate Project (CVRP)**
  – Overview, Rebate Now, and Funding Available
  – Public Fleets
  – Stackable Incentives with CVRP

• **California & San Diego EV Market Update**
  – EVs
  – Consumers Rebated

• **Select Evaluation Highlights**
  – Behaviors Influenced
  – Market Implications

• **Watch This Space**
  – CALeVIP
  – EUEC

• **Summary**
Clean Vehicle Rebate Project (CVRP)
CVRP: Overview, Rebate Now, Funding
### Statewide Electric Vehicle Rebates

<table>
<thead>
<tr>
<th>Category</th>
<th>Rebate Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel-Cell EVs</td>
<td>$5,000</td>
</tr>
<tr>
<td>All-Battery EVs</td>
<td>$2,500</td>
</tr>
<tr>
<td>Plug-in Hybrid EVs</td>
<td>$2,500 (i3 REx)</td>
</tr>
<tr>
<td></td>
<td>$1,500</td>
</tr>
<tr>
<td>Zero-Emission Motorcycles</td>
<td>$900</td>
</tr>
</tbody>
</table>

**Additional Details:**
- e-miles ≥ 20 only;
- Consumer income cap and increased rebates for lower-income households
### Other Statewide EV Rebates (as of Jan. 2019)

<table>
<thead>
<tr>
<th>Type</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><strong>Fuel-Cell EVs</strong></td>
<td>$5,000</td>
<td>$2,500</td>
<td>$2,500 (i3 REx)</td>
<td>$900</td>
</tr>
<tr>
<td><strong>All-Battery EVs</strong></td>
<td>$1,500</td>
<td>$1,500</td>
<td>$1,500</td>
<td>$450</td>
</tr>
<tr>
<td><strong>Plug-in Hybrid EVs</strong></td>
<td>$5,000</td>
<td>$1,500</td>
<td>$1,500</td>
<td></td>
</tr>
<tr>
<td><strong>Zero-Emission Motorcycles</strong></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

#### Rebate Details:

- **Fuel-Cell EVs**: $5,000 for e-miles ≥ 120; $1,500 for e-miles < 120.
- **All-Battery EVs**: $2,500 for e-miles ≥ 40; $1,700 for e-miles < 40; $1,100 for e-miles < 20.
- **Plug-in Hybrid EVs**: $2,500 (i3 REx) for e-miles ≥ 20; $1,500 for e-miles < 20.
- **Zero-Emission Motorcycles**: $900 for e-miles ≥ 20 only; $450 for e-miles < 45.

**Conditions:**

- **MSRP ≤ $60k FCEVs, ≤ $50k BEVs, PHEVs**: $150 dealer incentive.
- **MSRP > $60k = $500 max.**: point-of-sale via dealer.
- **Consumer income cap and increased rebates for lower-income households**: MSR ≤ $50k, no fleet rebates.
## Other Statewide EV Rebates: Oct 2019 Designs

| Category               | Rebate
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fuel-Cell EVs</strong></td>
<td>$5,000</td>
</tr>
<tr>
<td><strong>All-Battery EVs</strong></td>
<td>$2,500</td>
</tr>
<tr>
<td><strong>Plug-in Hybrid EVs</strong></td>
<td>$2,500 (i3 REx) $1,500</td>
</tr>
<tr>
<td><strong>Zero-Emission Motorcycles</strong></td>
<td>$900</td>
</tr>
<tr>
<td>e-miles ≥ 20 only; Consumer income cap and increased rebates</td>
<td>$900</td>
</tr>
<tr>
<td>e-miles ≥ 175</td>
<td>$3,000</td>
</tr>
<tr>
<td>e-miles ≥ 100</td>
<td>$2,000</td>
</tr>
<tr>
<td>e-miles &lt; 100</td>
<td>$500</td>
</tr>
<tr>
<td>≥ 10 kWh</td>
<td>$2,500</td>
</tr>
<tr>
<td>&lt; 10 kWh</td>
<td>$1,500</td>
</tr>
<tr>
<td>MSRP ≥ $60k = $1,000 max., no fleet rebates</td>
<td></td>
</tr>
<tr>
<td>MSRP ≤ $60k only; dealer assignment; $150 dealer incentive ($300 previous)</td>
<td></td>
</tr>
<tr>
<td>MSRP &gt; $60k = $500 max.; point-of-sale</td>
<td></td>
</tr>
</tbody>
</table>
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>$36,420</td>
</tr>
<tr>
<td>2</td>
<td>$49,380</td>
</tr>
<tr>
<td>3</td>
<td>$62,340</td>
</tr>
<tr>
<td>4</td>
<td>$75,300</td>
</tr>
<tr>
<td>5</td>
<td>$88,260</td>
</tr>
<tr>
<td>6</td>
<td>$101,220</td>
</tr>
<tr>
<td>7</td>
<td>$114,180</td>
</tr>
<tr>
<td>8</td>
<td>$127,140</td>
</tr>
<tr>
<td>Vehicle requirement:</td>
<td>November 2016 – present</td>
</tr>
<tr>
<td>---------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Electric range</td>
<td>Must be ≥ 20 e-mi</td>
</tr>
</tbody>
</table>

**Consumer Income Cap***:

<table>
<thead>
<tr>
<th>Category</th>
<th>Income Cap</th>
</tr>
</thead>
<tbody>
<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
Rebate Now Preapproval Pilot in San Diego County

- Apply online
- Get pre-approved
- Go to eligible dealer in San Diego County
- Receive discount at time of sale
- Dealer finishes application and gets reimbursed electronically

CVRP Rebate Now: Participating Dealerships

Planning to use your preapproved rebate at a dealership? Learn more here.

The dealerships listed below are eligible to participate in the CVRP Rebate Now Preapproval Pilot. If you’ve applied for a preapproved CVRP rebate and are currently shopping for a clean vehicle, these dealerships below can apply your preapproved rebate amount toward your purchase or lease, reducing the amount you pay for your vehicle up front. This list is subject to change.

Please note that only the dealerships listed below can apply your rebate at the time of purchase or lease. You may still qualify for a CVRP rebate if you purchase or lease your vehicle elsewhere, either by applying for your rebate after your purchase or by applying for preapproval and claiming the preapproved rebate yourself. Please see our CVRP Rebate Now page for more details.

CVRP preapproval is currently available to San Diego County residents only, and only San Diego County dealerships are eligible to participate. Statewide rollout of the CVRP Rebate Preapproval option is expected to launch after a successful pilot.

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Dealership Name</th>
<th>Address</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMW</td>
<td>BMW of Escondido</td>
<td>1557 Auto Park Way Escondido, 92029</td>
<td>(760) 745-8008</td>
</tr>
<tr>
<td>BMW</td>
<td>BMW of Vista</td>
<td>1713 Maravilla Dr Vista, 92081</td>
<td>(760) 307-8202</td>
</tr>
<tr>
<td>Chevrolet</td>
<td>Bob Staff Chevrolet</td>
<td>7801 Avienda Rd La Mesa, CA 91942</td>
<td>(619) 577-8989</td>
</tr>
<tr>
<td>Chevrolet</td>
<td>City Chevrolet</td>
<td>2111 Morena Blvd San Diego, 92110</td>
<td>(818) 276-0171</td>
</tr>
<tr>
<td>Chevrolet</td>
<td>Courtesy Chevrolet</td>
<td>750 Caminito Del Rio Carlsbad, 92008</td>
<td>(858) 207-4221</td>
</tr>
</tbody>
</table>
Funding Availability (as of 1/22/2019)

Based on real-time data

$73,675,837

$27,358,981

LMI Increased rebate applications are prioritized and will not be subject to a waitlist, even if general funding runs out.

*Please note: General Funding is also available for Increased Rebates for Low-to-Moderate Income Consumers if Reserved Funding is depleted. For more information on funding, please visit the Low Carbon Transportation Investments and AQIP Funding Plan webpage.
CVRP: Public Fleets
Public Fleet Rebate Program Features

Public agencies include Local, State, and Tribal government entities:

• Eligible for up to 30 rebates annually
• Single application for multiple vehicles
• Can reserve rebates up to 18 months in advance
• Or apply up to 18 months after delivery (all of CVRP)
Increased Rebate for Public Fleets in Disadvantaged Communities

### Vehicle Types and Rebate Amounts

<table>
<thead>
<tr>
<th>Vehicle Type</th>
<th>Standard Amount</th>
<th>Increased Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel-cell electric vehicle</td>
<td>$5,000</td>
<td>$7,000</td>
</tr>
<tr>
<td>Battery or range-extended electric vehicle</td>
<td>$2,500</td>
<td>$4,500</td>
</tr>
<tr>
<td>Plug-in hybrid electric vehicle</td>
<td>$1,500</td>
<td>$3,500</td>
</tr>
<tr>
<td>Zero-emission motorcycle</td>
<td>$900</td>
<td>n/a</td>
</tr>
</tbody>
</table>
What are Disadvantaged Communities (DACs)?

- Census tracts with high levels of exposure and vulnerability to pollution
- Census tract scores come from CalEnviroScreen
  - Pollution burden:
    - Air pollution; pesticide use; water contamination and threats; traffic density; cleanup and solid-waste sites; and hazardous waste.
  - Population characteristics:
    - Poverty; unemployment; linguistic isolation; educational attainment; asthma ER visits; low birth weights; and the prevalence of children and the elderly.
- California Senate Bill 535 (2012)
  - Mandates 10% of the Greenhouse Gas Reduction Fund (GGRF) is invested in DACs
- California Assembly Bill 1550 (2016)
  - Increased DAC investment to 25%
Rebates by Census Tract

CVRP Rebates Overall

CVRP Rebates in DACs

Zoom in to see the boundaries between census tracts.

Zoom in to see the boundaries between census tracts.

https://cleanvehiclerebate.org/eng/cvrp-rebate-map
CVRP Transparency Tools

Interactive data dashboards and downloads:

- Rebate statistics
- Rebate maps
- Survey results
Stackable Incentives
Create “Lease a new EV for less than $25/month” meme in San Diego?

AA analysis of October 2018 lease deals in the San Joaquin Valley, after taking into account the federal tax benefit, state rebate (CVRP) and regional rebate (Drive Clean).
CA & San Diego EV Market Update
March 2010 – September 2018 (unless stated otherwise)
EVs Sold, EVs Rebated
Getting Up to Speed

What electric cars are available? How are they selling?

Updated: January 11, 2019

Electric Vehicle Choices: Major 2018 Models

Plug-in hybrid EVs

All-battery EVs

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

Depending on the model...

- Range: 180–640 miles total
  - 9–97 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: ~12 mi.
  - U.S. avg. daily driving: ~32 mi.
- MSRP: $24,950–$184,400

As of 1/2019. Range specs: FuelEconomy.gov
Daily driving: Federal Highway Administration, 2017 National Household Travel Survey (http://nhts.orl.gov)
All-Battery Electric Vehicles (BEVs)

Depending on the model...

- **Range**: 84–335 electric miles
- **0 to 60 mph**: 2.5–~8.9 seconds
- **Full torque when stoplight turns green**
- **No shifting, smooth acceleration to maximum speed**
- **MSRP**: $29,990–$140,000

Cumulative Rebates by Automaker (thru Q3 2018)

- Chevrolet
- Tesla
- Other Brand
- Nissan
- Toyota
- Ford
- FIAT

Issued rebates and approved applications
California: Cumulative PHEV, BEV, FCEV Registrations

<table>
<thead>
<tr>
<th>Year</th>
<th>PHEV</th>
<th>BEV</th>
<th>FCEV</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>195</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>6,737</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>19,540</td>
<td></td>
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</tr>
<tr>
<td>2013</td>
<td>41,524</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>58,615</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>61,813</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>75,211</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>95,687</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2018 (Q1–Q3)</td>
<td>102,261</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>461,583</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From Q4 2017–Q3 2018, EVs were 6.7% of new light-duty vehicle sales.
## Cumulative CVRP Rebates (through September 2018)

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>135</td>
<td>4,521</td>
<td>11,219</td>
<td>29,152</td>
<td>43,702</td>
<td>46,543</td>
<td>44,455</td>
<td>47,762</td>
<td>50,320</td>
<td>277,809</td>
</tr>
</tbody>
</table>

**Through September 2018, issued and approved applications**
CVRP Rebate Volumes Are Increasing

<table>
<thead>
<tr>
<th>CVRP Rebates</th>
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</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>135</td>
</tr>
<tr>
<td>2011</td>
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<tr>
<td>2018 (thru Sep.)</td>
<td>50,320</td>
</tr>
<tr>
<td>Total</td>
<td>277,809</td>
</tr>
</tbody>
</table>

Through September 2018, issued and approved applications
### San Diego: Cumulative PHEV, BEV, FCEV Registrations

<table>
<thead>
<tr>
<th>Year</th>
<th>PHEV</th>
<th>BEVx</th>
<th>FCEV</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>16</td>
<td></td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>2011</td>
<td>1,185</td>
<td></td>
<td></td>
<td>1,185</td>
</tr>
<tr>
<td>2012</td>
<td>1,421</td>
<td></td>
<td></td>
<td>1,421</td>
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<tr>
<td>2013</td>
<td>3,051</td>
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<tr>
<td>2014</td>
<td>4,382</td>
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<tr>
<td>2015</td>
<td>4,376</td>
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<td>4,376</td>
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<tr>
<td>2016</td>
<td>5,563</td>
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<td>5,563</td>
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<tr>
<td>2017</td>
<td>6,914</td>
<td></td>
<td></td>
<td>6,914</td>
</tr>
<tr>
<td>2018</td>
<td>7,928</td>
<td></td>
<td></td>
<td>7,928</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>34,836</td>
</tr>
</tbody>
</table>

From Q4 2017–Q3 2018, EVs were 6.1% of new light-duty vehicle sales.

Note: Some PHEV models could not be identified in the registration data.
New Registrations by Vehicle Category (thru Q3 2018)

Statewide (N = 461,583)
- FCEV: 1%
- BEVx: 3%
- PHEV: 43%
- BEV: 53%

San Diego (N = 34,836)
- FCEV: 0%
- BEVx: 3%
- PHEV: 39%
- BEV: 57%

Calculated from content supplied by R.L. Polk & Co.: Copyright © 2018, All rights reserved.

Note: Some PHEV models could not be identified in the registration data.
San Diego: Registrations (thru Q3 2018)

- Tesla
- Chevrolet
- Ford
- Nissan
- Toyota
- BMW
- FIAT
- smart
- Honda
- Other

Note: Some PHEV models could not be identified in the registration data.
New Registrations by County: Absolute and Share of Market

Registrations (thru Q3 2018)

- Registrations: 124,610
- 4,311
- 68,478
- 35,210

LDV Market Share (Q4 2017 – Q3 2018)

- Share: 4%
- 18%
- 6%

Note: Some PHEV models could not be identified in the registration data.
San Diego County Rebates by Census Tract

Consumers Rebated
### Data Summary (Rebates to Individuals Only)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey Responses (total n)*</td>
<td>40,438</td>
<td>2,549</td>
<td>819</td>
<td>817</td>
<td>44,623</td>
</tr>
<tr>
<td>Program Population (N)</td>
<td>185,367</td>
<td>5,754</td>
<td>1,583</td>
<td>3,937</td>
<td>196,641</td>
</tr>
</tbody>
</table>

* Weighted to represent the program population along the dimensions of vehicle category, vehicle model, buy vs. lease, and county (using raking method)
## CVRP Consumer Survey

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Responses</td>
<td>n = 19,460</td>
<td>n = 11,611</td>
<td>n = 8,957</td>
<td>n = 40,438</td>
</tr>
<tr>
<td>Participants survey</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>was weighted to</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>represent*</td>
<td>N = 91,081</td>
<td>N = 45,698</td>
<td>N = 46,839</td>
<td>N = 185,367</td>
</tr>
<tr>
<td>PHEVs and BEVs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FCEVs</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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</tbody>
</table>

## CVRP Program Population (Application Data)

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>Participants survey</td>
<td></td>
<td></td>
<td>N = 185,367</td>
</tr>
<tr>
<td>was weighted to</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>represent*</td>
<td>N = 91,081</td>
<td>N = 45,698</td>
<td>N = 185,367</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>total N = 48,588</td>
</tr>
</tbody>
</table>

Note: Results before the Income Cap (3/2016) are conservative.

* Along the dimensions of vehicle model, county, and buy vs. lease (raking method)
## Majority Characteristics

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>All</td>
</tr>
<tr>
<td>White/Caucasian</td>
<td>76%</td>
<td>56%</td>
</tr>
<tr>
<td>Male</td>
<td>49%</td>
<td>72%</td>
</tr>
<tr>
<td>≥ Bachelor’s degree</td>
<td>66%</td>
<td>79%</td>
</tr>
<tr>
<td>Detached homes</td>
<td>75%</td>
<td>77%</td>
</tr>
<tr>
<td>40–59 years old</td>
<td>52%</td>
<td>50%</td>
</tr>
<tr>
<td>&lt; $150k HH Income</td>
<td>79%</td>
<td>80%</td>
</tr>
</tbody>
</table>
Majority Characteristics: Trend

- **California Household Travel Survey, 2012: weighted, n = 42,431**

<table>
<thead>
<tr>
<th>Male</th>
<th>≥ Bachelor’s degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013–2015</td>
<td>75% 74% 72%</td>
</tr>
<tr>
<td>2015–2016</td>
<td>85% 83% 81%</td>
</tr>
<tr>
<td>2016–2017</td>
<td>66%</td>
</tr>
</tbody>
</table>

Vehicle purchase “intenders” (CHTS 2012)
Majority Characteristics: Trend


California Household Travel Survey, 2012: weighted, n = 42,431
Respondents by Household Income

CVRP (2013–17)
MOR-EV (2014–17)
CHEAPR (2015–17)
Drive Clean NY (2017)
U.S. new-car buyers (MY2015)*

44,623 total survey respondents weighted to represent 196,641 participants
* Personal correspondence, Prof. Bunch (UCD)
Respondents by Household Income: Inappropriate Comparisons

- CVRP (2013–17)
- MOR-EV (2014–17)
- CHEAPR (2015–17)
- Drive Clean NY (2017)
- U.S. new-car buyers (MY2015)*
- U.S. population (2016)**

---

44,623 total survey respondents  weighted to represent 196,641 participants

* Personal correspondence, Prof. Bunch (UCD)
** U.S. Census Data
Presently, do you charge your plug-in electric vehicle at home?

- Yes, I'm using a 120V outlet (typical household outlet): 53% California, 48% San Diego
- Yes, I'm using a Level 2 (240V) charging station: 18% California, 22% San Diego
- Yes, I'm using a 240V outlet (e.g., dryer outlet): 15% California, 19% San Diego
- No, I'm not charging at home: 12% California, 10% San Diego
- Yes, I'm using a Level 1 (120V) charging station: 2% California, 2% San Diego

CVRP Consumer Survey, 2016–17 edition, weighted, n = 9,367
Question n = 8,865
Did you have to make any electrical upgrades to be able to charge your vehicle at home?

**CVRP Consumer Survey, 2016–17 edition, weighted, n = 9,367**

**Question n = 5,941**

- **No**: 80% (California), 78% (San Diego)
- **Yes**: 20% (California), 22% (San Diego)
Select Evaluation Highlights
## Evaluation

### Reports, analysis, infographics & presentations

<table>
<thead>
<tr>
<th>Presentation</th>
<th>Title</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presentation</td>
<td>“CVRP: Market Projections and Funding Needs”</td>
<td>December 4, 2018</td>
</tr>
<tr>
<td>Presentation</td>
<td>“CVRP: Data and Analysis Update”</td>
<td>December 4, 2018</td>
</tr>
<tr>
<td></td>
<td>Summary of CVRP Rebate Eligibility and Funding Availability Over Time</td>
<td>November 6, 2018</td>
</tr>
<tr>
<td></td>
<td>Summary of Disadvantaged Community Responses to the Electric Vehicle Consumer Survey,</td>
<td>October 25, 2018</td>
</tr>
<tr>
<td>Presentation</td>
<td>Cost-Effectively Targeting EV Outreach and Incentives to “Rebate-Essential” Consumers</td>
<td>October 2, 2018</td>
</tr>
<tr>
<td>Presentation</td>
<td>“Electric Vehicle Rebates: Exploring Indicators of Impact in Four States”</td>
<td>June 20, 2018</td>
</tr>
</tbody>
</table>
Behaviors Influenced
Do EVs get used?

Replaced a vehicle with their rebated clean vehicle

Datasets: 44,623 total survey respondents weighted to represent 196,641 participants

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CVRP</td>
<td>71%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MOR-EV</td>
<td></td>
<td>76%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEAPR</td>
<td></td>
<td></td>
<td>79%</td>
<td></td>
</tr>
<tr>
<td>Drive Clean NY</td>
<td></td>
<td></td>
<td></td>
<td>81%</td>
</tr>
</tbody>
</table>

Datasets: 44,623 total survey respondents weighted to represent 196,641 participants
Do EVs get used?: Trend

Replaced a vehicle with their rebated EV

- 2013–2015: 65%
- 2015–2016: 76%
- 2016–2017: 78%

2015–2016 edition: weighted n=11,611, question n=11,583
2016–2017 edition: weighted n=9,367, question n=9,342
Do EVs get used?: by Tech Type

Replaced a vehicle with their rebated EV

Datasets: 44,623 total survey respondents weighted to represent 196,641 participants

- MOR-EV (2014–17)
- CHEAPR (2015–17)
- Drive Clean NY (2017)
What vehicles have rebates helped replace?

**Drive Clean NY (2017)**
- 1999 or earlier: 0%
- 2000-2005: 20%
- 2006-2011: 30%
- 2012-2017: 60%

**CHEAPR (2015–17)**
- 1999 or earlier: 0%
- 2000-2005: 20%
- 2006-2011: 40%
- 2012-2017: 50%

**MOR-EV (2014–17)**
- 1999 or earlier: 10%
- 2000-2005: 20%
- 2006-2011: 50%
- 2012-2017: 40%

**CVRP (2013–2017)**
- 1999 or earlier: 10%
- 2000-2005: 20%
- 2006-2011: 50%
- 2012-2017: 40%

Datasets: 44,623 total survey respondents weighted to represent 196,641 participants
What vehicle types have rebates helped replace?

Current Program (after Nov. 2016)

- Gasoline
- All-battery electric
- Conventional hybrid
- Plug-in hybrid
- Diesel
- Compressed natural gas
- Alternative fuel
- Hydrogen fuel cell


Model Year
- 1999 or earlier
- 2000–2005
- 2006–2011
- 2012–2017
Market Implications
How important was the state rebate in making it possible for you to acquire your clean vehicle?

- CVRP (2013–2017): 90%
- MOR-EV (2014–17): 86%
- CHEAPR (2015–17): 96%
- Drive Clean NY (2017): 94%

Datasets: 44,623 total survey respondents weighted to represent 196,641 participants
Consumers Say the Rebate is Essential

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

- CVRP (2013–2017): 52%
- MOR-EV (2014–17): 41%
- CHEAPR (2015–17): 63%
- Drive Clean NY (2017): 53%

Datasets: 44,623 total survey respondents weighted to represent 196,641 participants
Rebate Essentiality: Trend

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

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013–2015</td>
<td>46%</td>
</tr>
<tr>
<td>2015–2016</td>
<td>56%</td>
</tr>
<tr>
<td>2016–2017</td>
<td>58%</td>
</tr>
</tbody>
</table>

*Rebate Essential*

2015–2016 edition: weighted n=11,611, question n= 11,457
2016–2017 edition: weighted n=9,367, question n=9,261
Rebate essentiality is growing; phase-out appears premature

Rebate Essentiality

Common paradigm

2015–2016 edition: weighted n=11,611, question n= 11,457
2016–2017 edition: weighted n=9,367, question n=9,261
Percent of MOR-EV Respondents that are “Rebate Essential” by Base MSRP

As MSRP goes up, rebate influence diminishes

As MSRP goes up, rebate influence diminishes

$1,000 max rebate →

* = small sample size (n < 30) in bin.
MOR-EV Survey, 2014–17: n = 2,549 total respondents weighted to represent 5,754 participants
Targeting Rebate-Essential Consumers: Odds-Increasing Factors for PHEV and BEV Consumers

All are significant factors (p < 0.05)
Watch This Space
CALeVIP & EUEC
CA Electric Vehicle Infrastructure Project (CALeVIP)

• $39 million currently available
  – Up to $200 million in future funding for various projects
• Example: Southern California Incentive Project (SCIP)
  – Counties: Los Angeles; Orange; Riverside; and San Bernardino
  – Apply **before**:
    • Eligible costs are incurred to reserve funds
      – Equipment; labor and materials; utility service orders; planning and engineering, etc.
    • Rebate funds are exhausted (first come, first serve)
  – **Max Rebate Amounts for Eligible Costs:**
    • $40,000 for replacement installations and make-ready sites
    • $70,000 for installations at new sites and stub-out sites
    • $80,000 for sites within DACs, regardless of installation type

www.calevip.org/incentive-project/southern-california
EV Charging and the Vehicle Purchase Process: Lessons Learned from Consumers

This presentation will summarize consumer perceptions of, and access to, charging during to their vehicle purchase/lease process. Charging topics to be explored include: information gathering, decision factors, purchase enablers, EV rates, and access to home and WPC charging.
Wrap Up
Select Takeaways

- Plug-in EV purchases/leases in SD are eligible for $1,500 (PHEV) or $2,500 (BEV) rebates
  - $3,500 or $4,500 for lower-income consumers and public fleets in DACs
- Rebate Now pilot allows pre-approval to apply discount at the time of sale
- Funds are available, low-income prioritized
- Continual growth of EV product choices
- Recent unprecedented volume
- There are differences between EV and new-car consumers, but perhaps not as big as you might think
- Incentives are helping EVs replace older, more polluting vehicles at impactful rates across four states
  - Remain important, if not essential to a large and growing portion of the market, particularly as it expands into the mainstream
How can we help?

brett.williams@energycenter.org

CleanVehicleRebate.org