

Target EV Consumer Segments & Incentivizing Dealers (to educate consumers)

EV Roadmap 10, 20 June 2017, Portland

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Thanks also to Clair Johnson, Georgina Arreola, Colin Santulli, and others at CSE



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Building
Performance



Clean
Transportation



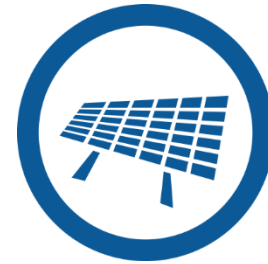
Distributed
Generation



Energy
Efficiency



Energy
Storage



Renewable
Energy

CSE Electric Vehicle Activities

Incentives Design & Administration

Consumer & Dealer Outreach

Stakeholder Engagement

Fleet Assistance & Clean Cities

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

2nd Life Battery Research & Vehicle-Grid Integration

EV Incentive Programs: Rebate Amounts



Fuel-Cell EVs



\$5,000

\$2,500

\$3,000

e-miles

≥ 120 \$2,000

All-Battery EVs



\$2,500

\$2,500

> 25 kWh \$3,000

≥ 20 kWh \$1,500

> 0 kWh \$750

≥ 40 \$1,700

Plug-in Hybrid EVs



\$2,500 (i3 REx)
\$1,500

≥10 kWh \$2,500

<10 kWh \$1,500

> 18 kWh \$3,000

≥ 10 kWh \$1,500

> 0 kWh \$750

≥ 20 \$1,100

< 20 \$500

Zero-Emission Motorcycles



\$900

\$750

e-miles ≥ 20 only;
Consumer income cap and increased rebates

MSRP ≥ \$60k =
\$1,000 max.

MSRP ≤ \$60k only; dealer assignment;
\$300 dealer incentive

MSRP > \$60k =
\$500 max.;
point-of-sale

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

1. **“Adding fuel to the fire”**: understand existing, generally enthusiastic adopters to target similar consumers

- Segment: all-battery vs. plug-in hybrid EVs
- Characteristics, motivations, and trends
- Who is “pre-adapted” to adopt? (e.g., Williams and Kurani 2006)



2. **“Tough nuts to crack”**: understand and break down barriers faced by consumers targeted based on policy priorities

- Multi-unit dwellers
- Disadvantaged Communities
- Low-to-moderate income consumers



3. **“Expand market frontiers”**: understand the margins of the market to target consumers who can be induced to join

- Adopters most influenced by incentives (“rebate essentials”)
- Adopters with low initial interest in EVs (“converts”)



Weighted EV Consumer Survey

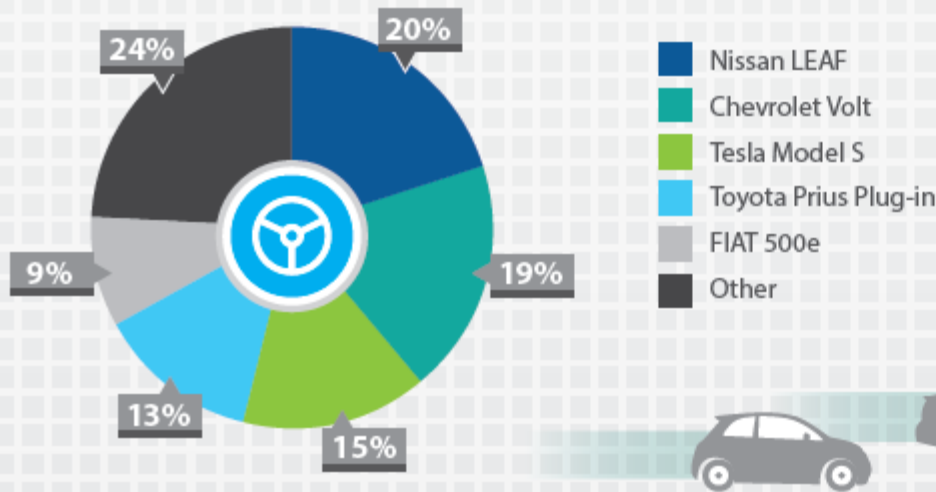
(CVRP vehicles acquired Sep 2012 thru May 2015)

Survey sample

19,460

individuals responded to the survey**

Vehicles driven by respondents



* Through May 2015, 150,287 new PEVs were adopted in California, 75,748 PHEVs and 74,539 BEVs.

** Results have been weighted to be representative of the entire program with respect to county, vehicle mode

The Clean Vehicle Rebate Project

Summary Documentation of the Electric Vehicle Consumer Survey, 2013–2015 Edition

June 2017

Prepared for
California Air Resources Board

Prepared by
Center for Sustainable Energy®



California Environmental Protection Agency
Air Resources Board

Center for Sustainable Energy™




**Adding Fuel to the Fire:
Who is participating in the market?**

Majority Characteristics of CVRP Consumers

CVRP-All (EV Consumer Survey 2014)	
40–59 years old	55%
≥ Bachelor's	82%
Postgraduate	49%
Male	74%
White/Caucasian	63%
Detached homes	80%
\$50–200k/y household income	62%

Majority Characteristics of CVRP Consumers

	CVRP-All (EV Consumer Survey 2014)	New-vehicle “intenders” (CHTS 2012)
40–59 years old	55%	52%
≥ Bachelor’s	82%	66%
Postgraduate	49%	34%
Male	74%	49%
White/Caucasian	63%	76%
Detached homes	80%	75%
\$50–200k/y household income	62%	58%



How can the program *expand* the market for EVs through targeted outreach?

Target Consumers: “Rebate Essential” Segment

Characteristics statistically associated with being rebate essential:

- **Vehicle characteristics:** lower price, bought (vs. lease)
- **Demographics:** younger, male, non-white, lower HH income, higher education
- **Motivations and interest:** less motivated by environmental impacts, more motivated by saving money on fuel and energy independence, lower initial interest in EVs
- **Information gathering:** found it more difficult to find info on EVs, spent more time researching online, learned about the rebate before going to the dealership



Summary “Profiles”

The rebate is more essential to consumers:

- focused on **“financial and practical”** aspects of adoption
- who face **“greater contextual constraints”** or are otherwise less easily able to adopt
- whose adoption is **driven less by “green enthusiasm”** than other values
- with **“challenging informational environments”**

The convert is more likely:

- **less demographically specific/constrained**
- **driven less by “energy and the environment” than traditional vehicle-operation reasons**
- **with “challenging informational environments”**
- **“switching from old to new”**



Incentivizing Dealers (to educate consumers)

The Role of Dealerships in EV Market Development

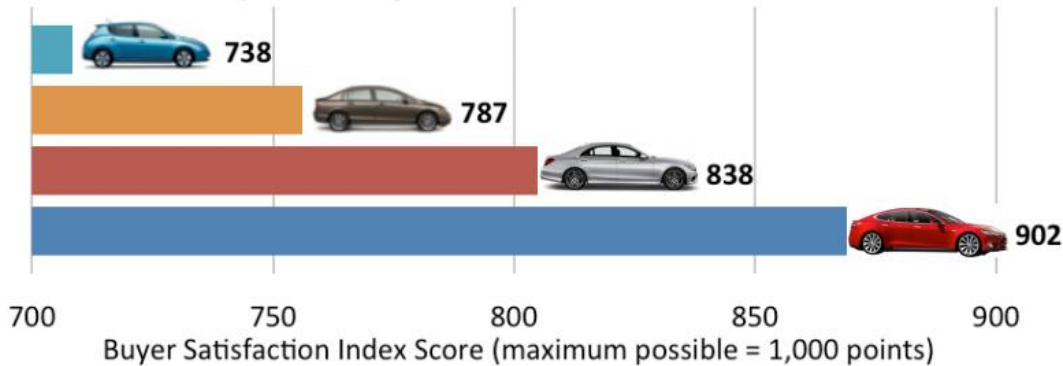


Of the visits to dealerships with at least one EV on the lot, volunteers indicated that only **about 50% of the salespeople they spoke with provided information on how to fuel the EV while traveling.**

(Sierra Club, 2016)¹

Buyer satisfaction with the new vehicle purchase experience

- Plug-in Vehicle Buyer (non-premium segment, N=768)
- Conventional Vehicle Buyer (non-premium segment, N=4,658)
- Conventional Vehicle Buyer (premium segment, N=8,807)
- Tesla (premium segment, N=168; California data unavailable)



(Cahill & Davies, 2014)³

Many who work at dealerships may not have much experience in dealing with EVs.

(Kress, 2015)²

¹ <http://www.sierraclub.org/>

² <http://energyfuse.org/why-car-dealerships-struggle-with-selling-electric-vehicles/>

³ http://policyinstitute.ucdavis.edu/files/Policy-Brief_Cahill-Davies_2014-12.pdf

How is the dealer incentive working?

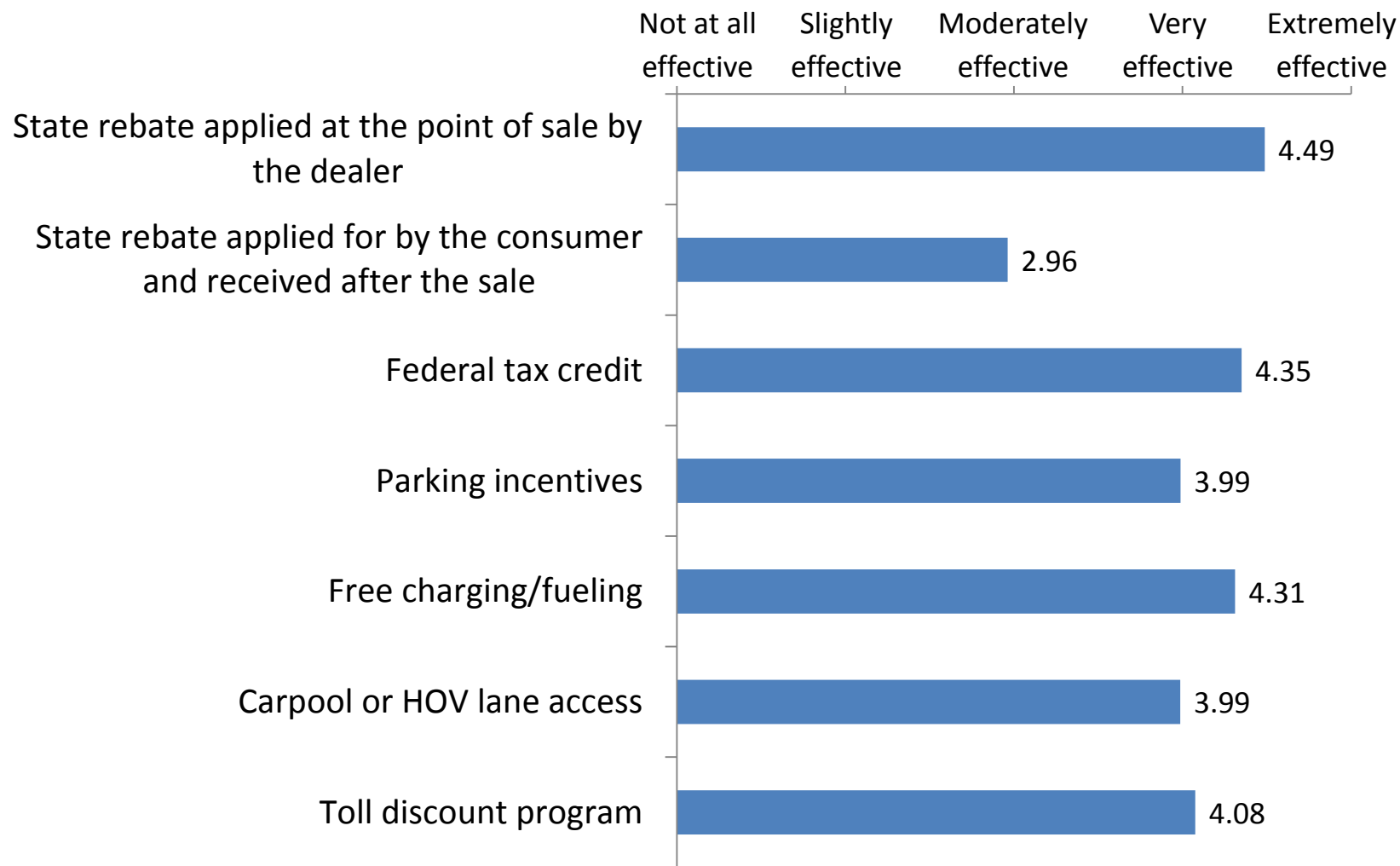
Evaluating the Connecticut Dealer Incentive for Electric Vehicle Sales

June 2017

Prepared by
Center for Sustainable Energy

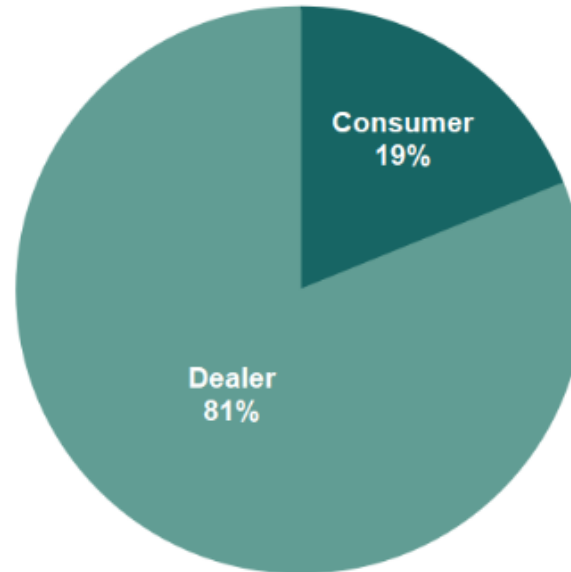


Please indicate how effective you think each of the following types of consumer incentives is in advancing the sale of EVs



Percentage of Vehicle Rebates Assigned to the Dealership

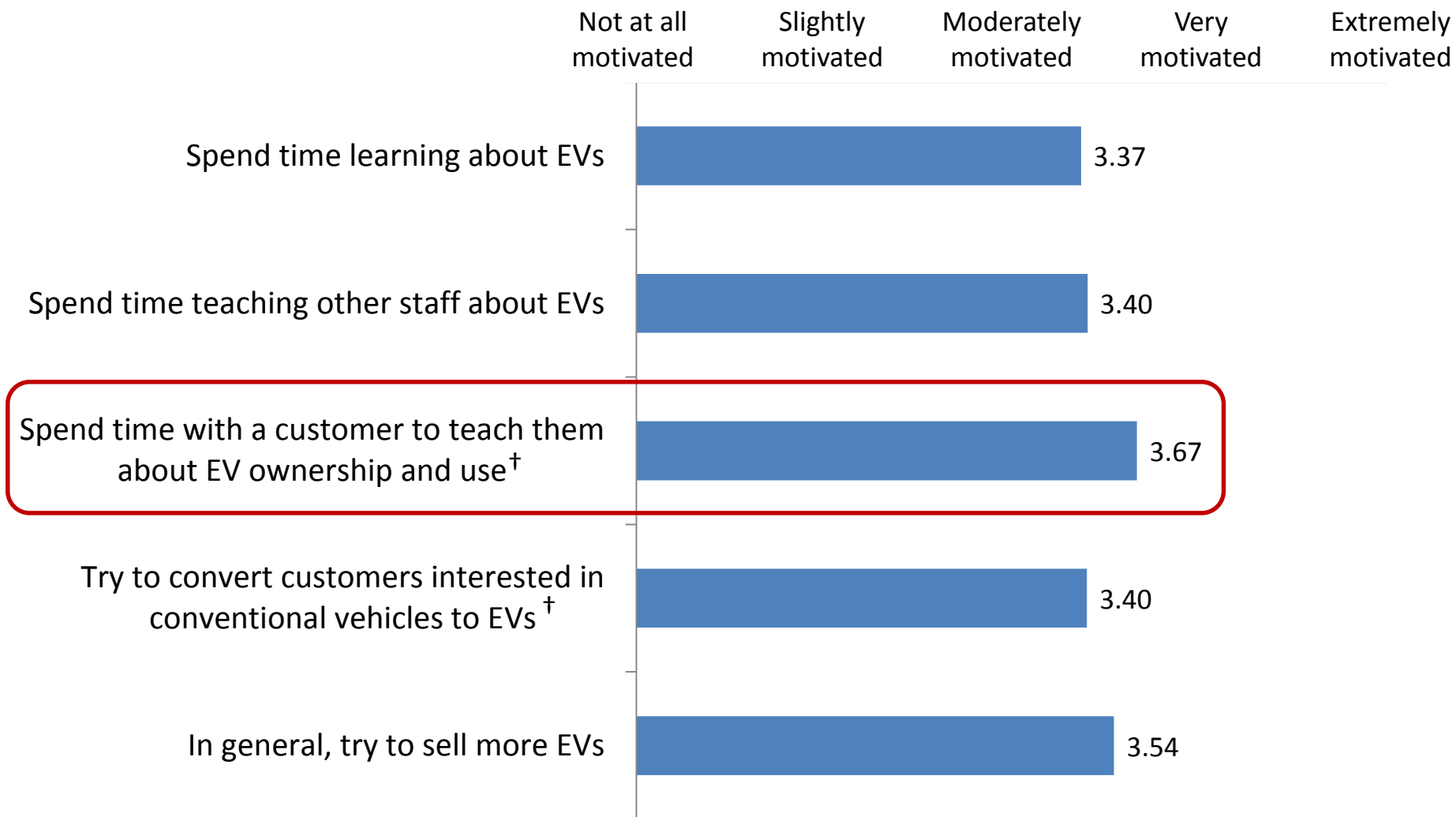
Rebate assignment



Who will receive the rebate?

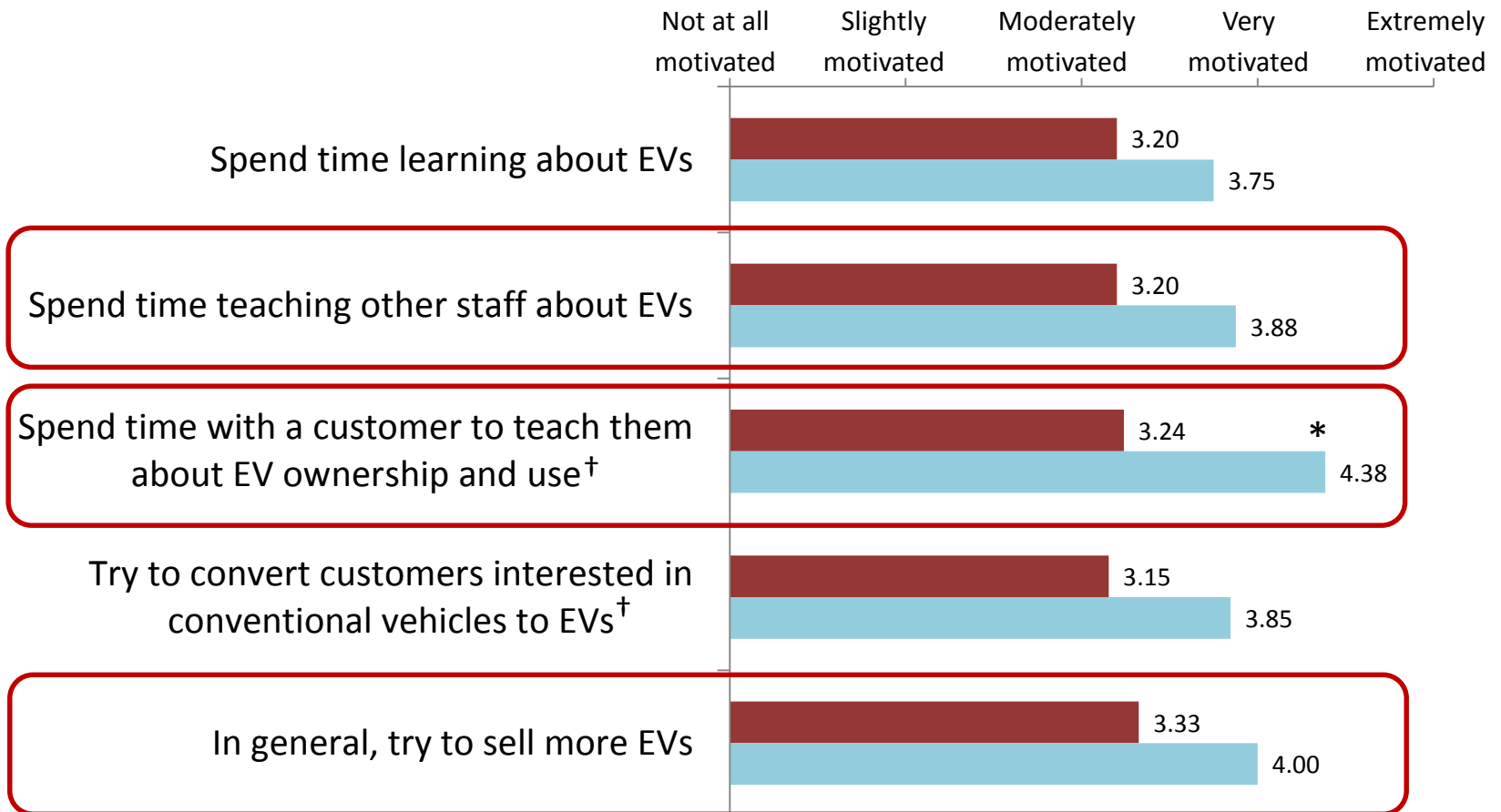
- Consumer
- Dealer

To what extent are you motivated by the current dealer incentive to do each of the following?



To what extent are you motivated by the current dealer incentive to do each of the following?

■ Have Never Owned an EV ■ Have Owned an EV





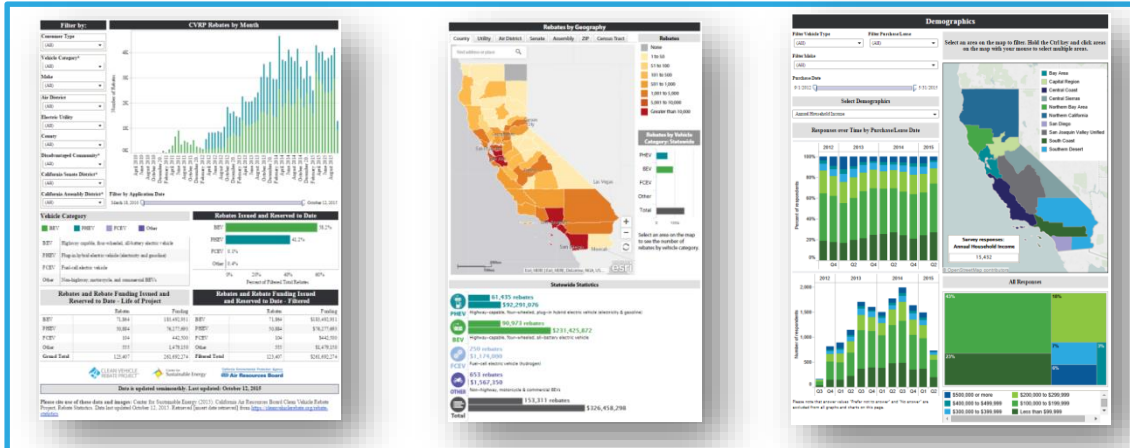
Additional information...

Data Dashboards and Program Evaluation

Where can I get the data?: CSE Transparency Tools

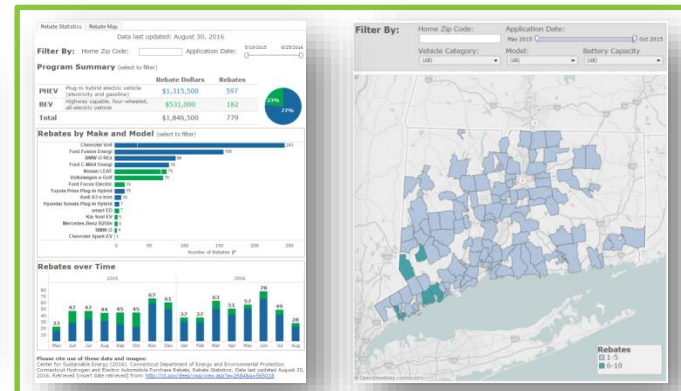
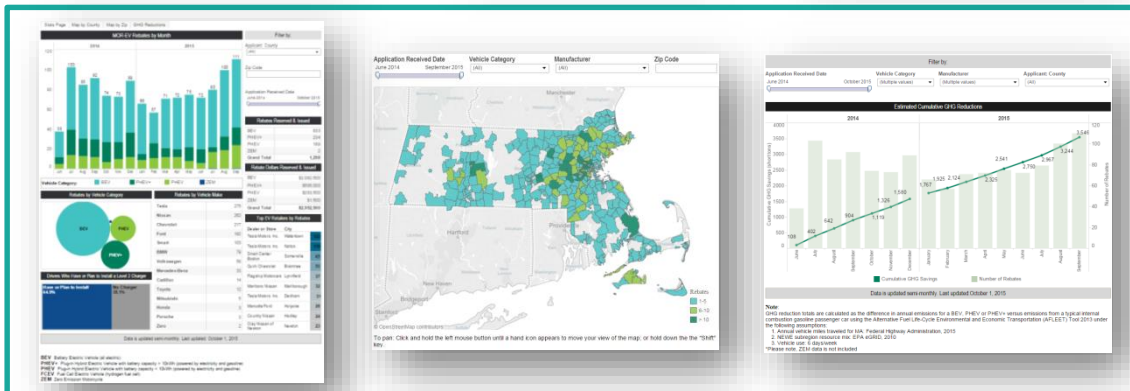
- Public, online, interactive dashboards facilitate informed action
 - Data characterizing >200,000 EVs and consumers
 - >\$430M in rebates processed
 - >19,000 survey responses statistically represent >90,000 consumers

Also: zevfacts.com



cleanvehicle.org

ct.gov/deep



mor-ev.org

Participant Evaluation Examples

- Evaluation of the **CT Dealer Incentive** ([Report](#))
- **Target Consumer Segments: Converts, Rebate Essentials** ([BECC pres 2016](#) and [TRR 2017 journal article](#))
- Results of 19,460 survey responses representing 91,085 rebated consumers ([survey summary document](#))
- 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)

Thank You for Your Attention

What would you like to know more about?
What decisions are you facing?
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We work nationally in the clean energy industry and are always open to exploring partnership opportunities.