

One simple mission —

DECARBONIZE



Our vision is a future with sustainable, equitable and resilient transportation, buildings and communities.

EV, EVI and Auto Dealer Program Design

What the data shows are the most effective elements of a program

1

Three Pillars

Awareness, Access,
Assessment

3

Data and Resources

Consumers, Auto
Dealers, and Trends

2

Program Design

Elements, Effectiveness,
Equity

4





EVI Planning

Goals, Market Assessment,
Site Location, Grid Impacts,
Travel Behavior

State EV Rebate Programs Administered by CSE

(as of Jan. 2019, Oregon launch pending)




	CALIFORNIA CLEAN VEHICLE REBATE PROJECT™	MOR-EV Massachusetts Offers Rebates for Electric Vehicles	CHEAPR Connecticut Hydrogen and Electric Automobile Purchase Rebate	NEW YORK STATE
Fuel-Cell EVs 	\$5,000	\$1,500	\$5,000	<u>e-miles</u>
All-Battery EVs 	\$2,500	\$1,500	<u>e-miles</u> ≥ 200 \$2,000 ≥ 120 \$1,500 < 120 \$500	≥ 120 \$2,000 ≥ 40 \$1,700 ≥ 20 \$1,100 < 20 \$500
Plug-in Hybrid EVs 	\$2,500 (i3 REx) \$1,500	BEVx only: \$1,500	≥ 45 \$1,000 < 45 \$500	
Zero-Emission Motorcycles 	\$900	\$450		
	e-miles ≥ 20 only; Consumer income cap and increased rebates for lower-income households	MSRP ≤ \$50k, no fleet rebates	MSRP ≤ \$60k FCEVs, ≤ \$50k BEVs, PHEVs; dealer assignment; \$150 dealer incentive	MSRP > \$60k = \$500 max.; point-of-sale via dealer

Program Reach and Market Impact


We design, administer and evaluate scaled incentive programs that create consumer market demand for electric vehicles.

Program Statistics 2019	\$\$\$ (millions)	Rebates
MOR-EV	\$29	14,087
Drive Clean	\$19.5	14,365
CVRP	\$675	300,359
CHEAPR	\$8.6	4,350



CLEAN VEHICLE REBATE PROJECT


Incentivizes purchases of zero-emission vehicles, including electric, plug-in hybrid electric and fuel cell vehicles.
2009 - Present



MOR-EV


Massachusetts Offers Rebates for Electric Vehicles

Statewide program providing outreach, education and incentives for electric vehicles to increase adoption and reduce air pollution emissions.
2014 - Present



CHARGE NY DRIVE CLEAN REBATE INITIATIVE

CSE is the statewide administrator for the Charge NY Drive Clean Rebate initiative that aims to increase the adoption of electric vehicles by consumers and fleet managers in New York State.
2017 - Present



CONNECTICUT HYDROGEN AND ELECTRIC AUTOMOBILE PURCHASE REBATE PROGRAM

CHEAPR program aims to increase the number of clean vehicles in the state by offering Connecticut drivers up to \$3,000 toward the purchase or lease of new, eligible electric vehicles (EVs).
2015 - Present

3 Pillars of Successful Incentive Programs



Outreach

Increase awareness through strategic outreach & education



Design

Facilitate participation through customer support and user-friendly application features



Transparency

Create program and market intelligence through program transparency & evaluation that actively informs program improvement over time, and empowers stakeholders throughout the EV ecosystem to make evidence-informed decisions

Marketing, Education, and Outreach (MEO)



Online resources
and digital marketing

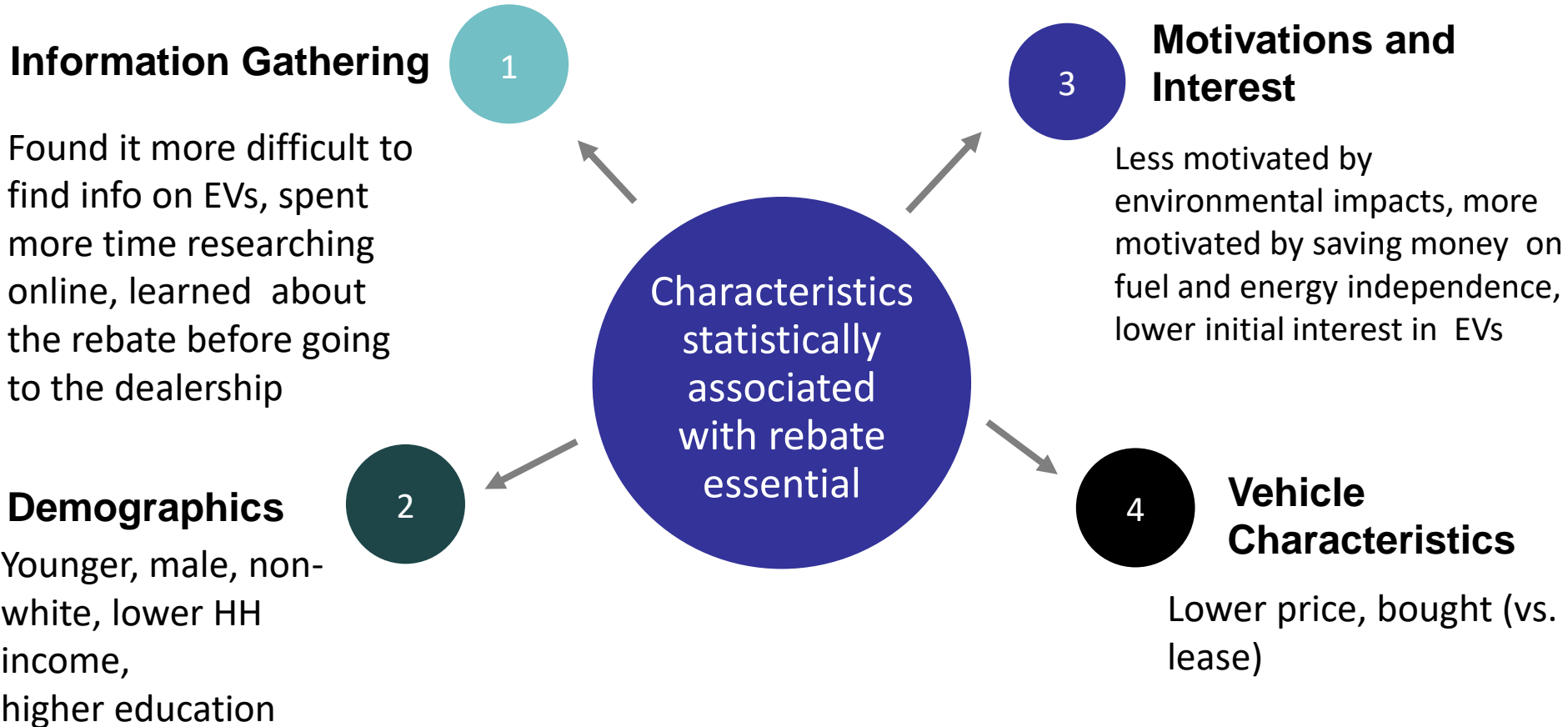


Dealer training
and outreach

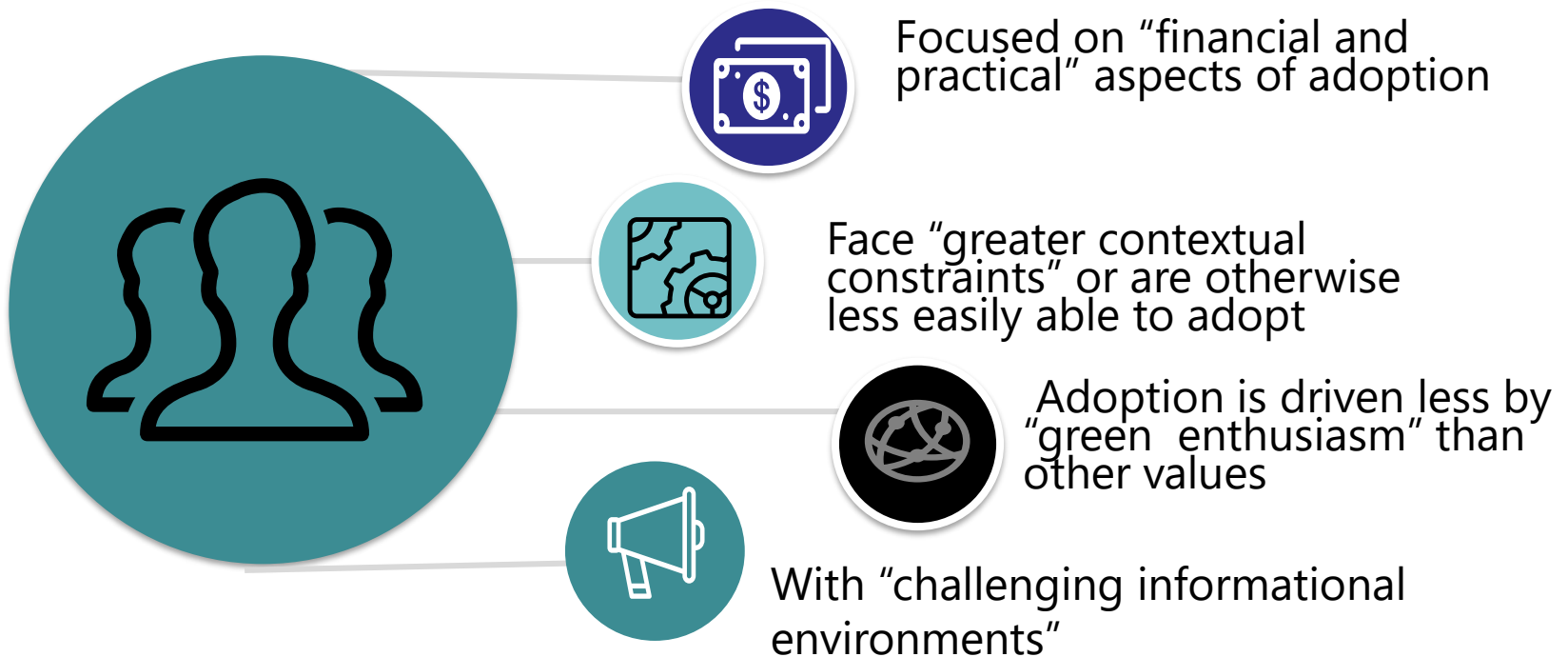


Community events
and outreach

Target “Rebate Essential” Consumers

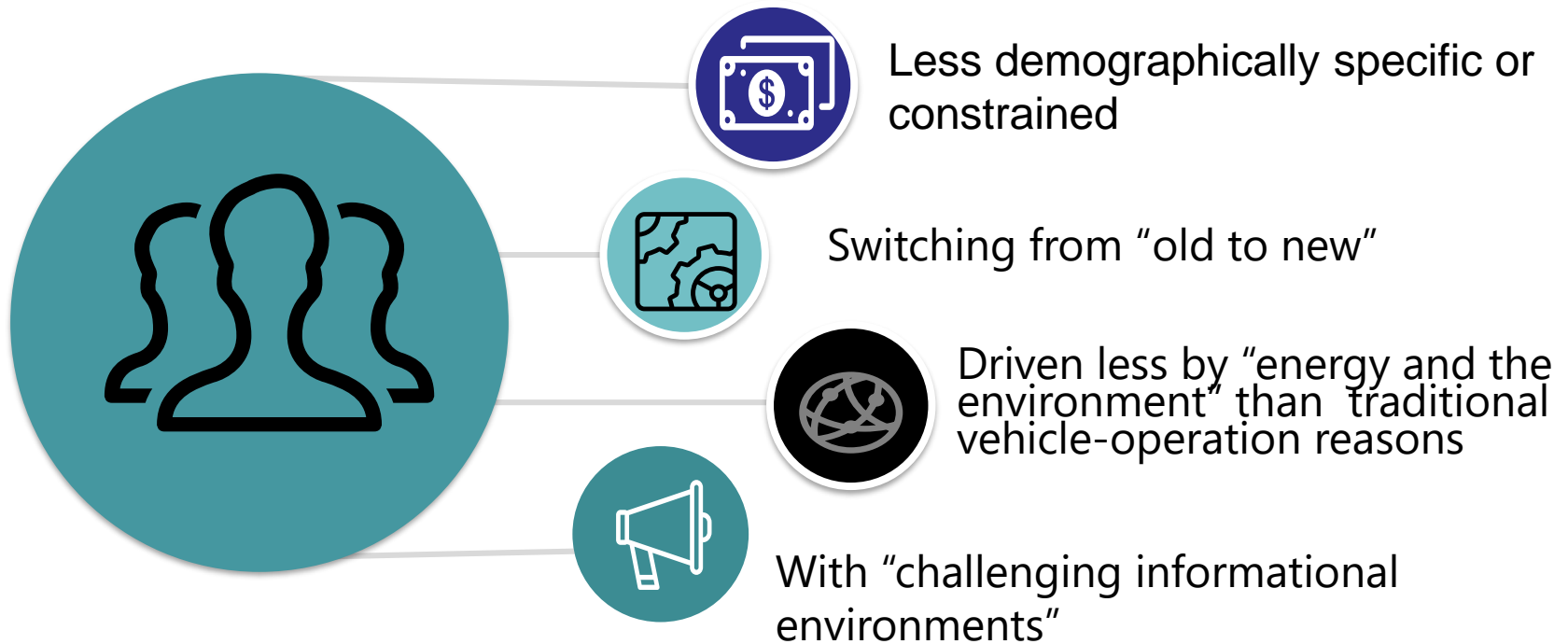


Rebate Essential Consumers

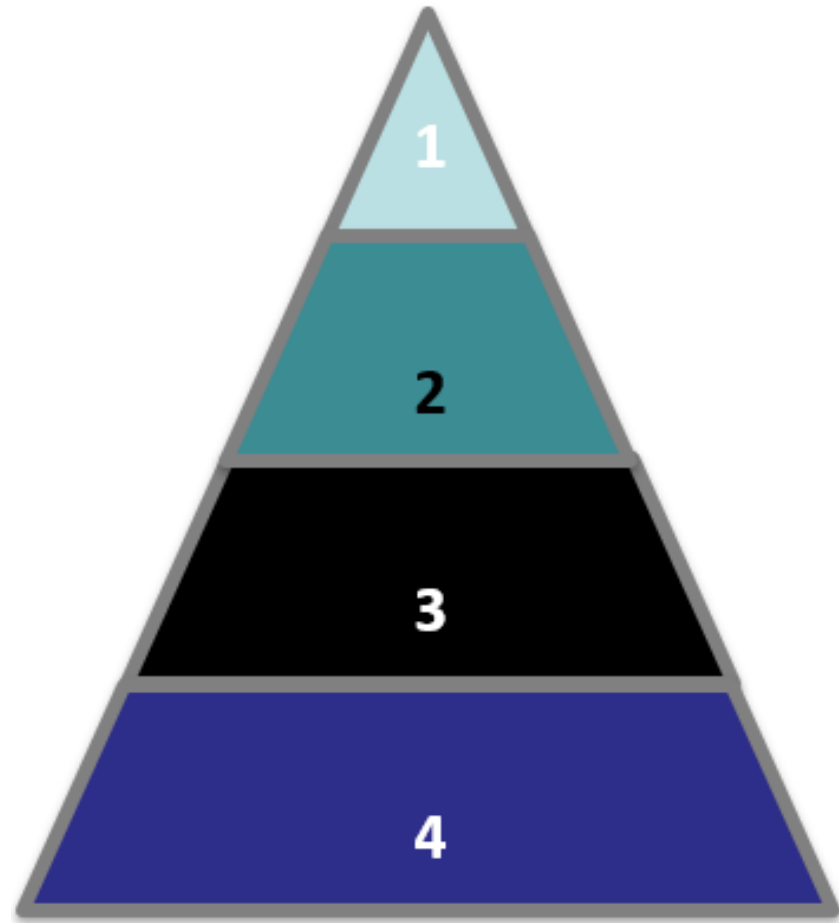


Converts

(Adopters with low initial interest in EVs)



Equity through Eligibility



MSRP Caps

Vehicle eligibility limits are much easier and less intrusive to implement than consumer eligibility limits

Hard Caps

Consider making eligibility caps “hard” to reserve funds for more effective rebates

Pre-Approval

Pre-approval prior to purchasing or leasing a new vehicle

Increased Incentives

Increased incentive level for people with Low-Moderate Incomes

Program Design Goal

Market Transformation

Maximize market stimulation and acceleration into mainstream consumers

Benefits

Maximize Environmental and Energy Benefits

Variety

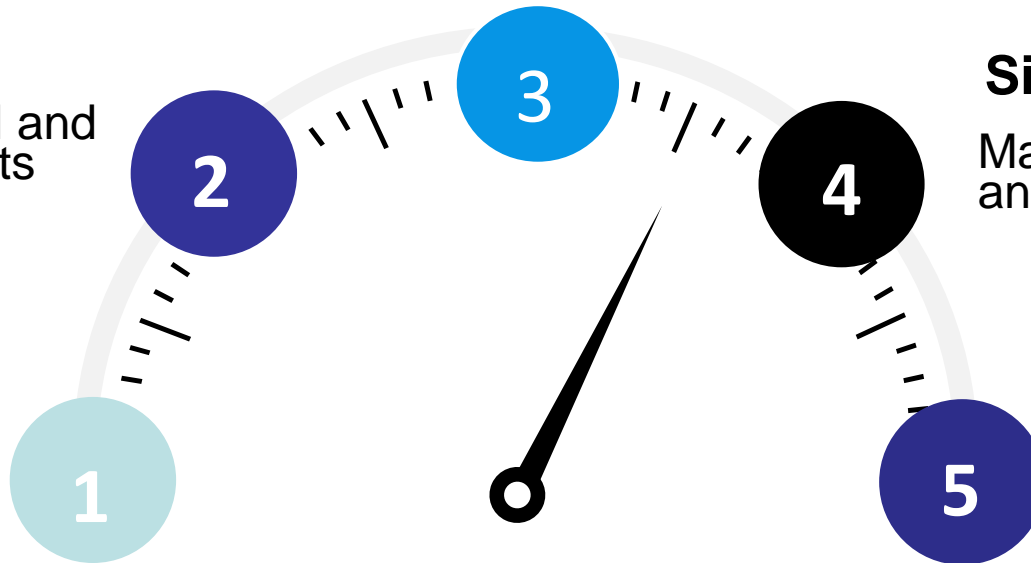
Promote a variety of ZEV products and brands

Simplicity

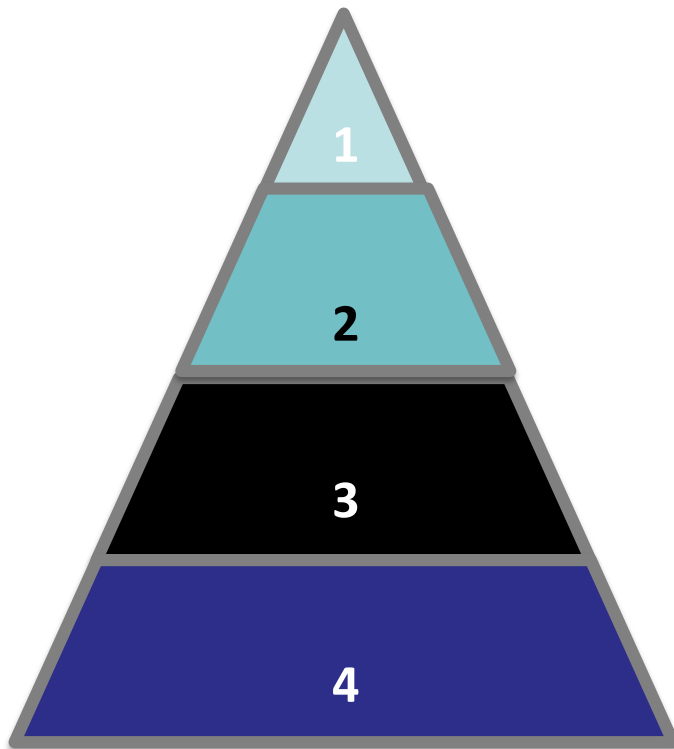
Maintain simplicity and consistency

Return

Provide return on investment of public and ratepayer dollars



Program Design Considerations



Vehicle eligibility

Vehicle eligibility: MSRP Cap (e.g., \$60k, \$50k, \$40k), EPA All-Electric Range (AER) Minimum (e.g., >25, >30, >40, >50, >100)

Consumer eligibility

Income Cap <\$150k single filers, <\$300k others), Increased Rebate for Lower-Income

Program Terms

Limit one rebate per person, limit three months to apply

Incentive Levels

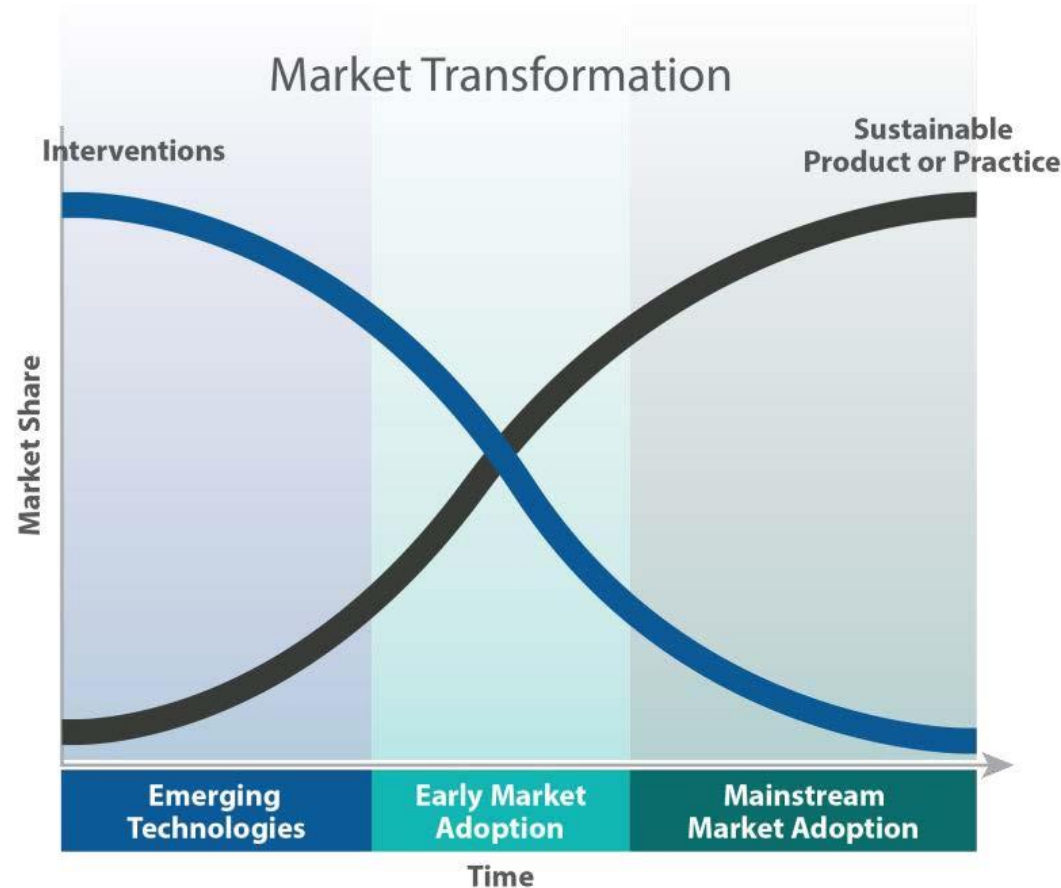
Rebate amounts (e.g., \$ by tech type, e-range, consumer type, etc.)

Rebate Phase Out

Keep incentive levels for impactful vehicles:

- As high as possible
- For as long as possible

Avoid premature phase-out.



Incentivizing Dealers

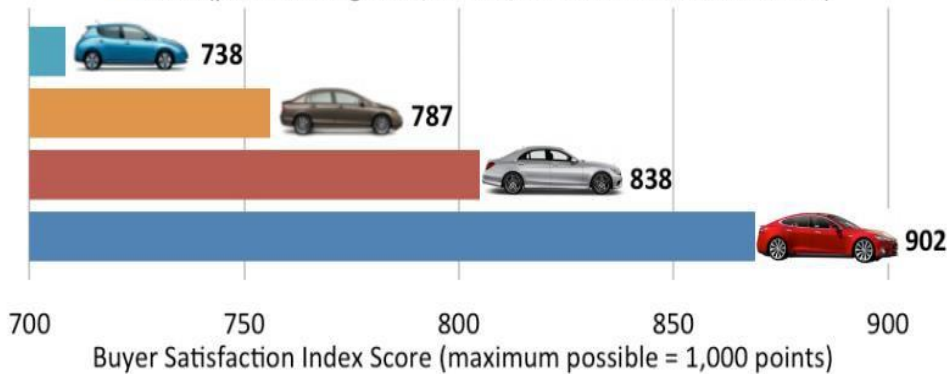


Of the visits to dealerships with at least one EV on the lot, volunteers indicated that only **about 50%** of the salespeople they spoke with provided information on how to fuel the EV while traveling.

(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)

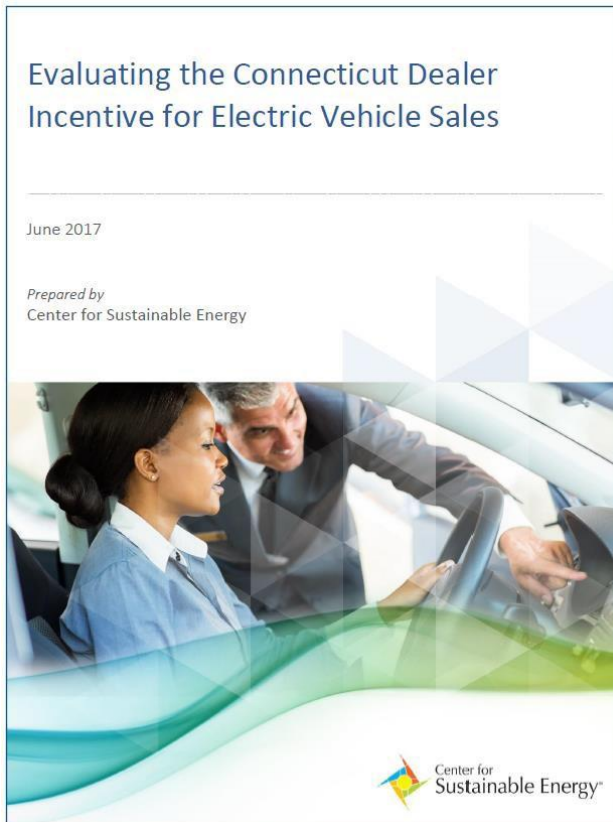


(Cahill & Davies, 2014)³

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

(Kress, 2015)²

How is the dealer incentive working?

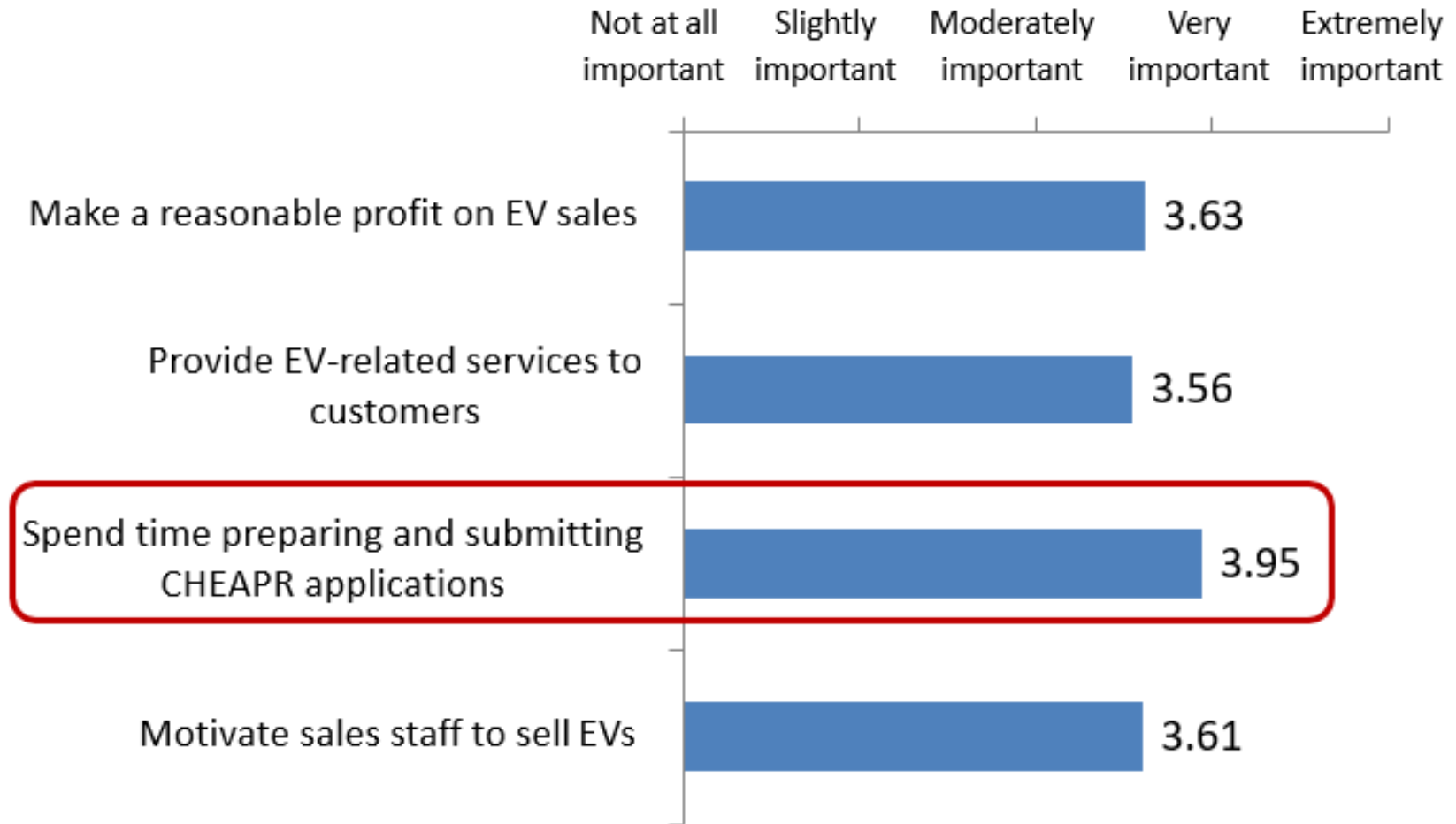


- Executive Summary
- Introduction
- CHEAPR Overview
- Evaluation Objectives
- Methodology & Data Summary
- Evaluation Findings
- Recommendations
- Appendices

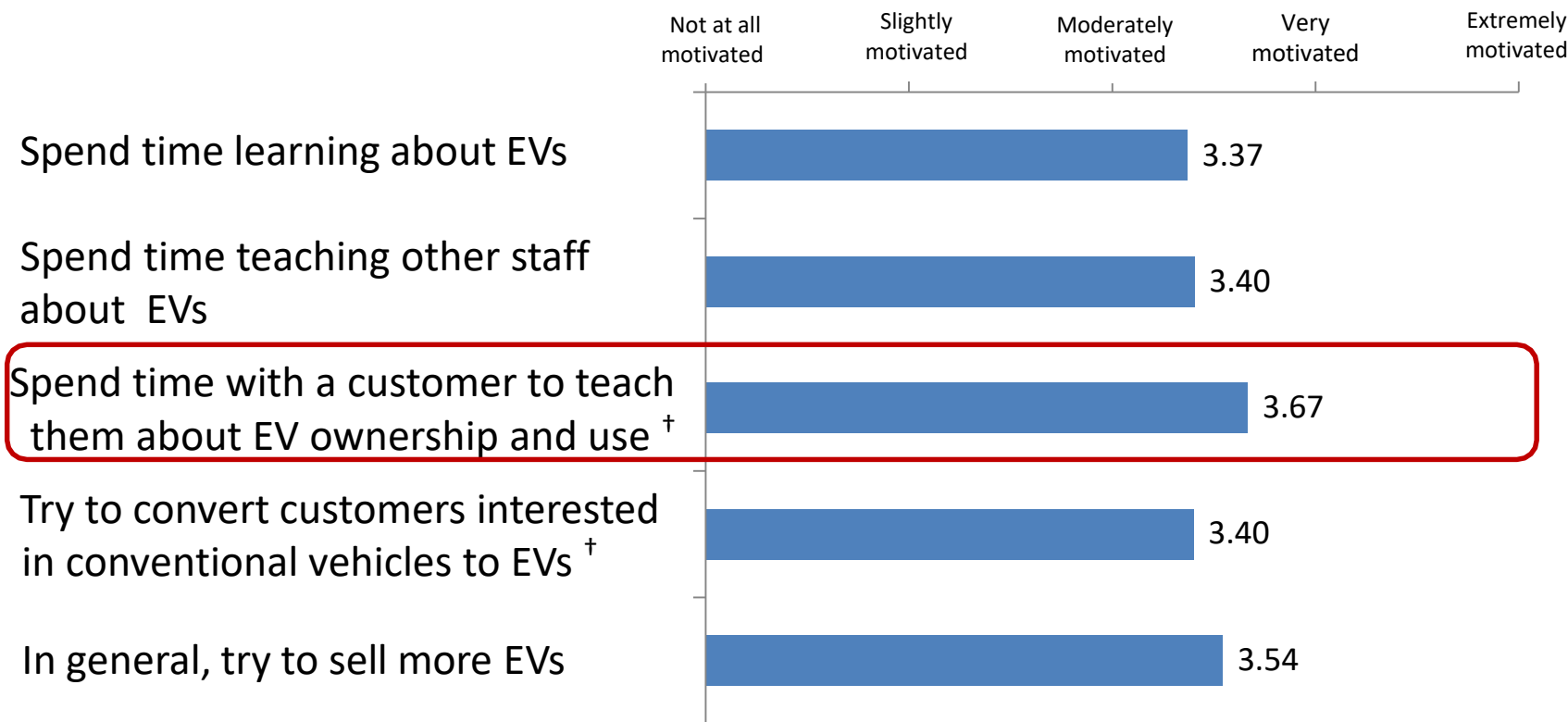
• Download [here](#)

Johnson, Clair, Williams, Brett, Anderson, John & Appenzeller, Nicole (2017), *Evaluating the Connecticut Dealer Incentive for Electric Vehicle Sales*, Center for Sustainable Energy.

How important is the dealer incentive in making it possible for your dealership to do each of the following?



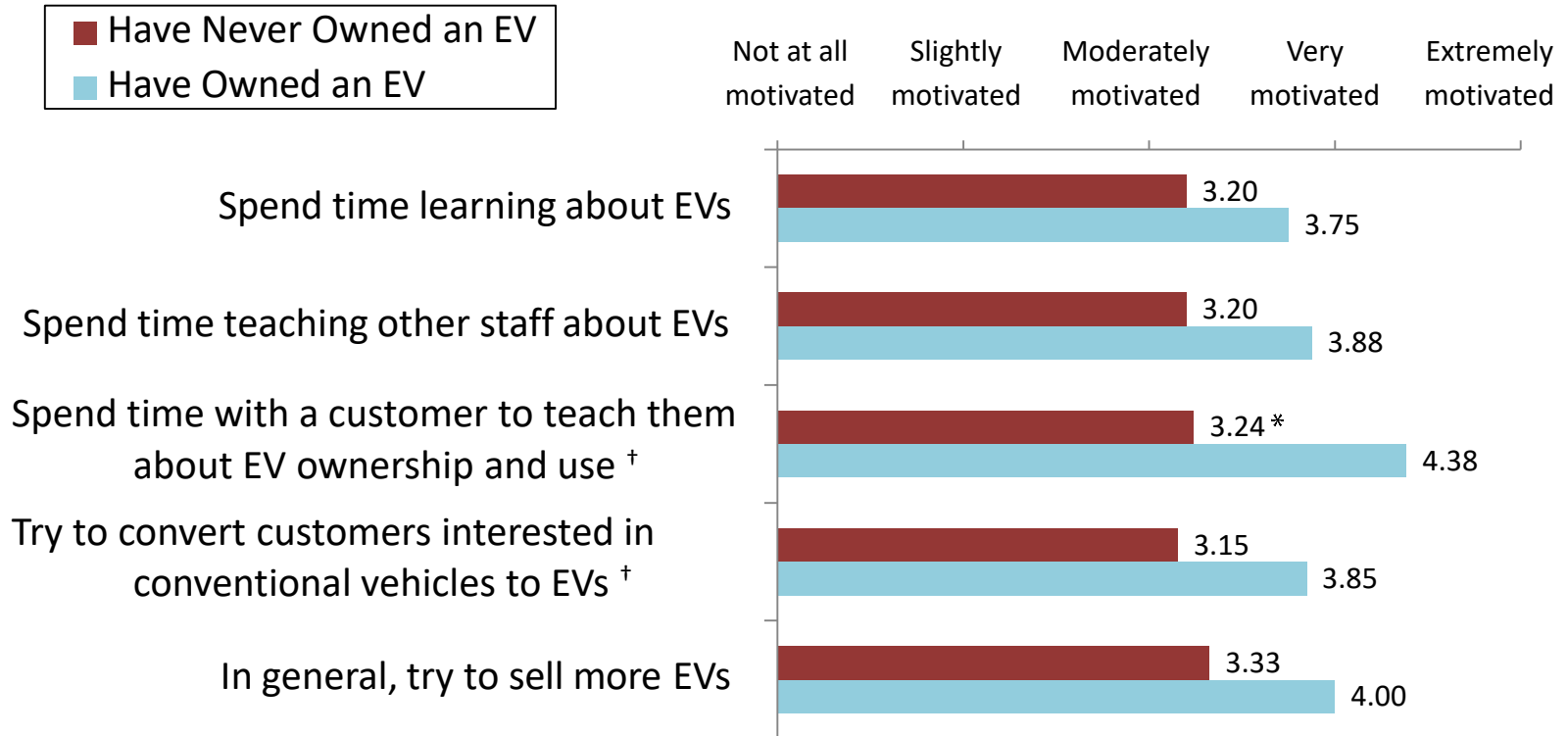
To what extent are you motivated by the current dealer incentive to do each of the following?



Question only asked of respondents who said they were aware of the dealer incentive; Respondents=57

† Third and fourth statements only appeared to sales employees; Respondents=40

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



Respondents=57

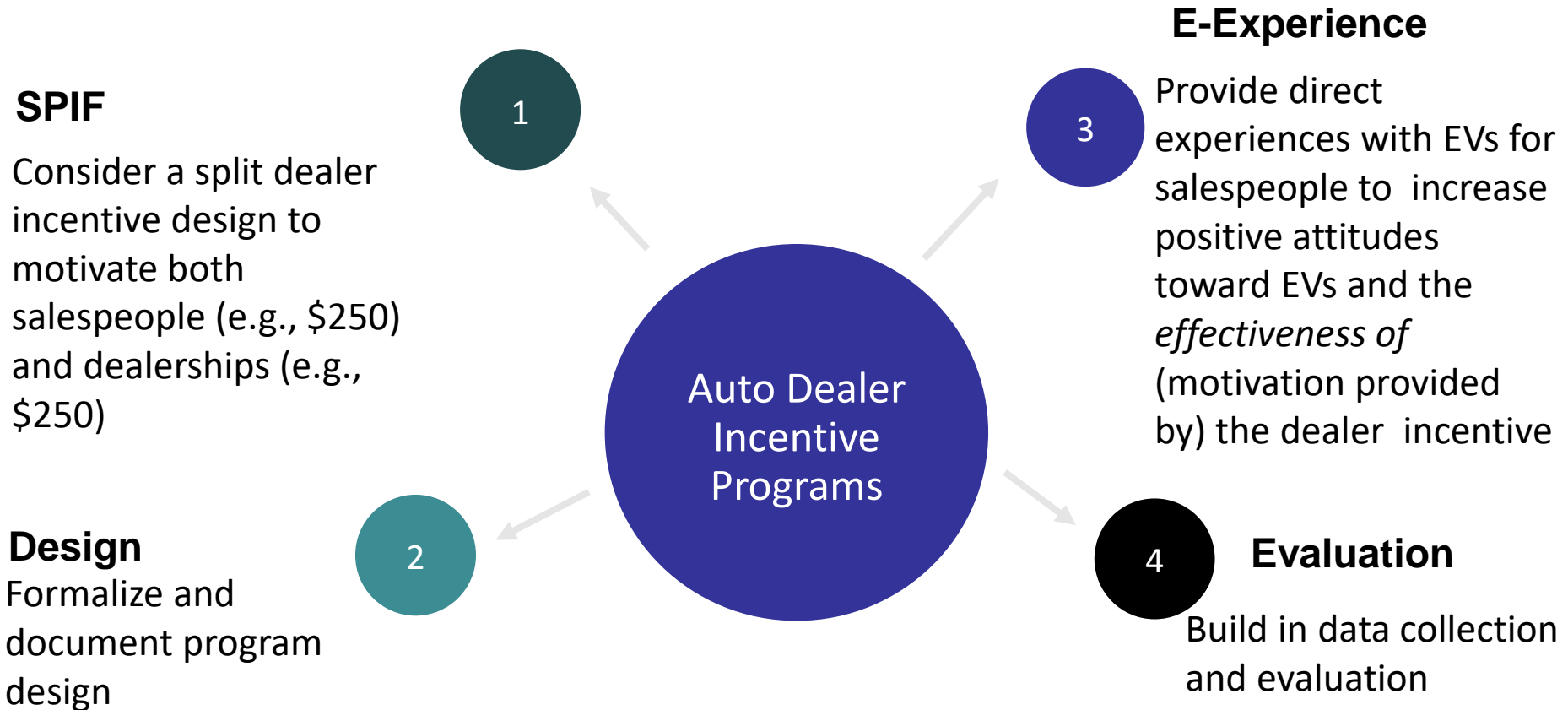
† Fourth and fifth statements only appeared to sales employees; respondents=40

*Statistically significant difference ($p < 0.05$)

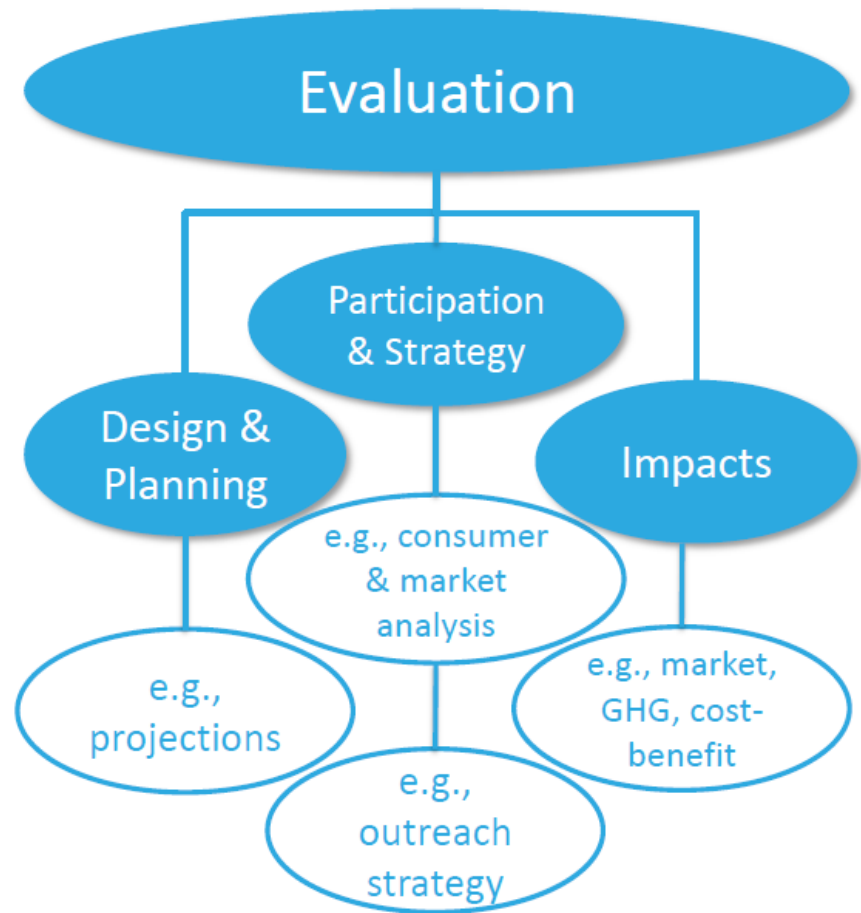
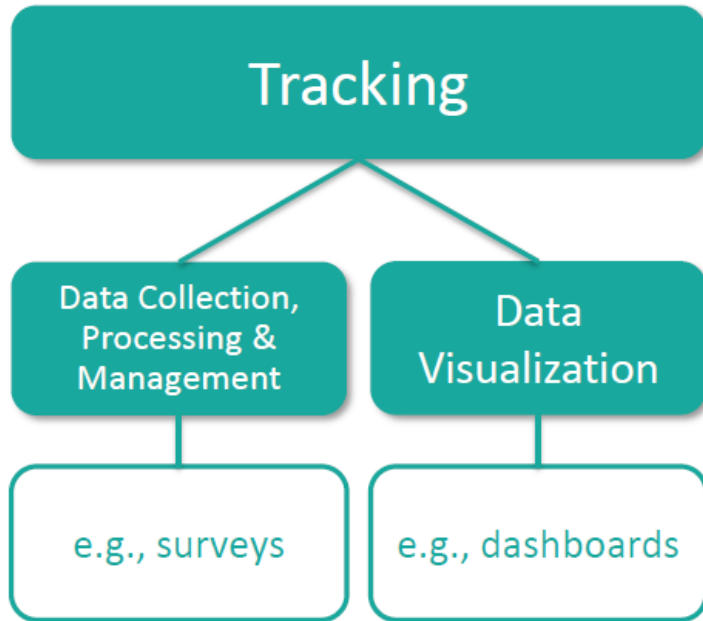
Recommended *Minimum* Levels for the Dealer Incentive

	Mean	Minimum	Maximum	Median
What is the minimum dealer incentive amount salespeople would need to receive personally to motivate them to increase their EV sales? (n=76)	\$233	\$0	\$500	\$200
What is the minimum dealer incentive amount salespeople would need to receive personally to motivate them to increase their EV sales? — Sales employees (n=56)	\$236	\$0	\$500	\$200
Additionally, what is the minimum dealer incentive amount that would motivate your dealership to increase your EV sales? (n=73)	\$565	\$0	\$5,000	\$500
Additionally, what is the minimum dealer incentive amount that would motivate your dealership to increase your EV sales? — Dealer principals, (vice) presidents, controllers, and general managers (n=20)	\$623	\$0	\$5,000	\$500

Recommendations for Auto Dealer Incentive Programs



Successful Programs Provide Insight



Transparency



Create program and market intelligence through program transparency & evaluation that actively informs program improvement over time, and empowers stakeholders throughout the EV ecosystem to make evidence-informed decisions

 CLEAN VEHICLE REBATE PROJECT Incentivizes purchases of zero-emission vehicles, including electric, plug-in hybrid electric and fuel cell vehicles. 2009 - Present	 MASSACHUSETTS OFFERS REBATES FOR ELECTRIC VEHICLES Statewide program providing outreach, education and incentives for electric vehicles to increase adoption and reduce air pollution emissions. 2014 - Present	 CHARGE NY DRIVE CLEAN REBATE INITIATIVE CSE is the statewide administrator for the Charge NY Drive Clean Rebate initiative that aims to increase the adoption of electric vehicles by consumers and fleet managers in New York State. 2017 - Present	 CONNECTICUT HYDROGEN AND ELECTRIC AUTOMOBILE PURCHASE REBATE PROGRAM CHEAPR program aims to increase the number of clean vehicles in the state by offering Connecticut drivers up to \$3,000 toward the purchase or lease of new, eligible electric vehicles (EVs). 2015 - Present
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How Consumer Research Helps us Grow



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”)

Consumer Survey Data

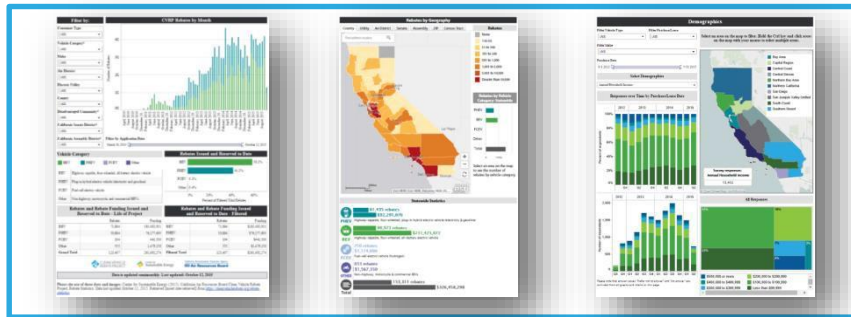
					Total
Vehicle Purchase/ Lease Dates	Dec. 2010 – May 2017	July 2014 – October 2017	May 2015 – June 2017	March 2017 – Nov. 2017	Dec. 2010 – Nov. 2017
Survey Responses (total n)*	40,438	2,549	819	817	44,623
Program Population (N)	185,367	5,754	1,583	3,937	196,641

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

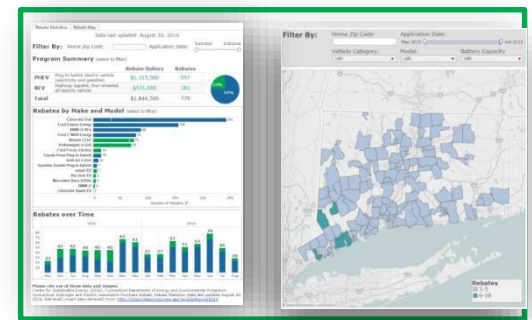


Public dashboards and data facilitate informed action

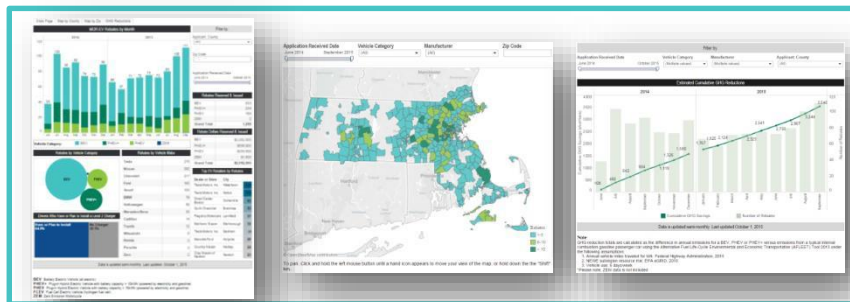
- >300,000 EVs and consumers have received >\$700 M in rebates
- >45,000 survey responses being analyzed so far, statistically represent >200,000 consumers
- Reports, presentations, and analysis growing



cleanvehiclerebate.org



ct.gov/deep



mor-ev.org



nyscrda.ny.gov

Evaluation: CVRP Analysis



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

June 15, 2017



Infographic: Characterizing California Electric Vehicle Consumer Segments - TRB Poster

January 16, 2017



Infographic: Plug-in Electric Vehicle Owners in California's Disadvantaged Communities

January 11, 2017



CVRP Final Report 2014-2015

November 21, 2016



Characterizing Plug-In Hybrid Electric Vehicle Consumers Most Influenced by CVRP

November 15, 2016



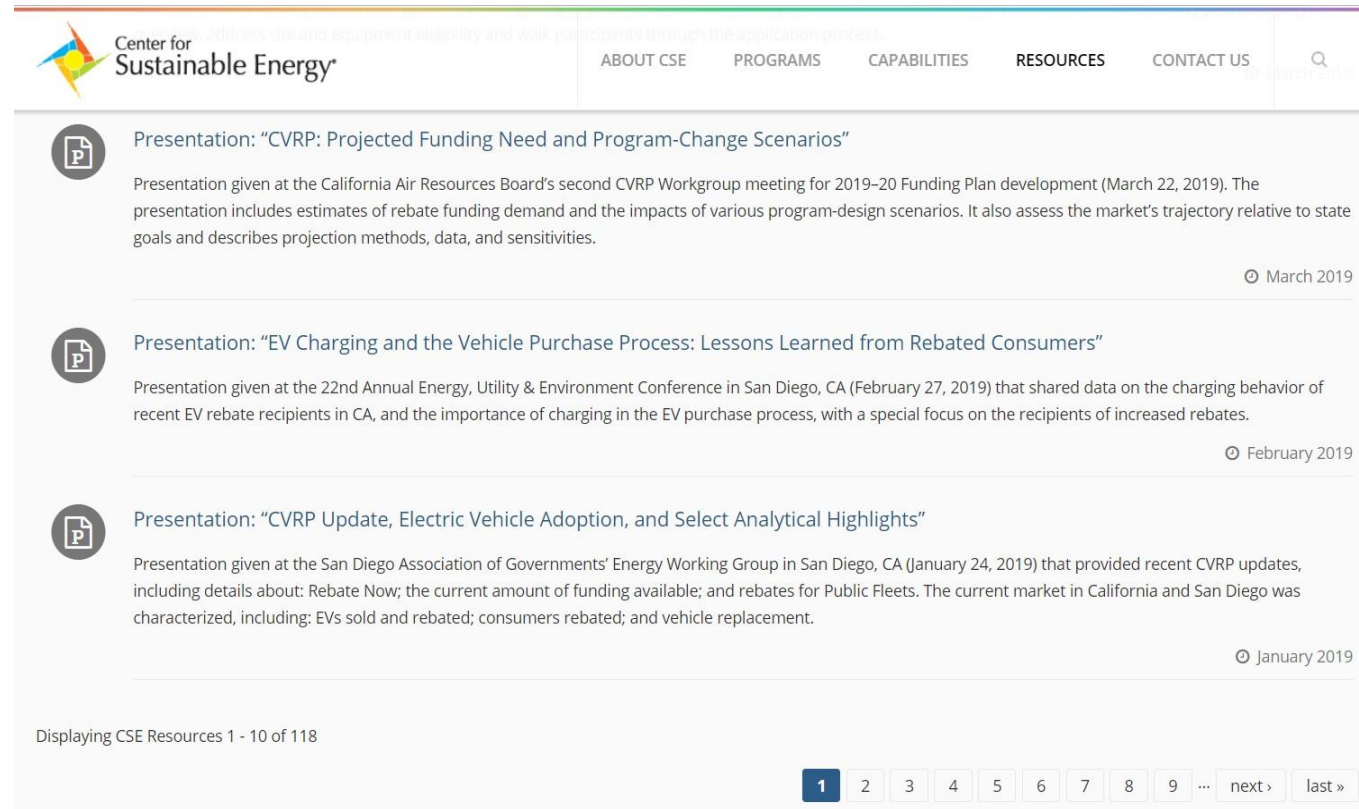
Presentation: "Electric Vehicle Rebates in Disadvantaged Communities: Evaluating Progress with Appropriate Comparisons"

October 26, 2016

[Reports, fact sheets
infographics &
presentations](#)

CSE Clean Transportation Resources

Reports, analysis,
infographics,
presentations, ...



The screenshot shows the website for the Center for Sustainable Energy. The header includes the logo and navigation links: ABOUT CSE, PROGRAMS, CAPABILITIES, RESOURCES, and CONTACT US. A search icon is also present. The main content area displays a list of three presentations, each with a document icon, a title, a description, and a date.

Center for Sustainable Energy

ABOUT CSE PROGRAMS CAPABILITIES **RESOURCES** CONTACT US

Presentation: "CVRP: Projected Funding Need and Program-Change Scenarios"
Presentation given at the California Air Resources Board's second CVRP Workgroup meeting for 2019-20 Funding Plan development (March 22, 2019). The presentation includes estimates of rebate funding demand and the impacts of various program-design scenarios. It also assess the market's trajectory relative to state goals and describes projection methods, data, and sensitivities.
March 2019

Presentation: "EV Charging and the Vehicle Purchase Process: Lessons Learned from Rebated Consumers"
Presentation given at the 22nd Annual Energy, Utility & Environment Conference in San Diego, CA (February 27, 2019) that shared data on the charging behavior of recent EV rebate recipients in CA, and the importance of charging in the EV purchase process, with a special focus on the recipients of increased rebates.
February 2019

Presentation: "CVRP Update, Electric Vehicle Adoption, and Select Analytical Highlights"
Presentation given at the San Diego Association of Governments' Energy Working Group in San Diego, CA (January 24, 2019) that provided recent CVRP updates, including details about: Rebate Now; the current amount of funding available; and rebates for Public Fleets. The current market in California and San Diego was characterized, including: EVs sold and rebated; consumers rebated; and vehicle replacement.
January 2019

Displaying CSE Resources 1 - 10 of 118

1 2 3 4 5 6 7 8 9 ... next › last »

U.S. Light-Duty Advanced Technology Vehicle (ATV) Sales (2011–2018)

Filters

ATV Category

- (All)
- FCEV
- BEV
- PHEV
- HEV

Region

(All)

State

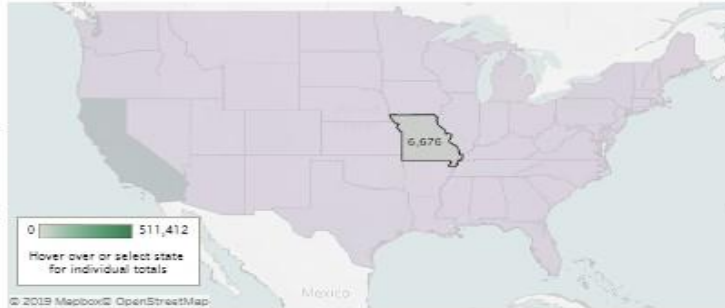
(All)

Registration Month

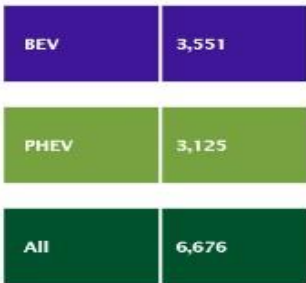
Jan 2011 Dec 2018

1 96

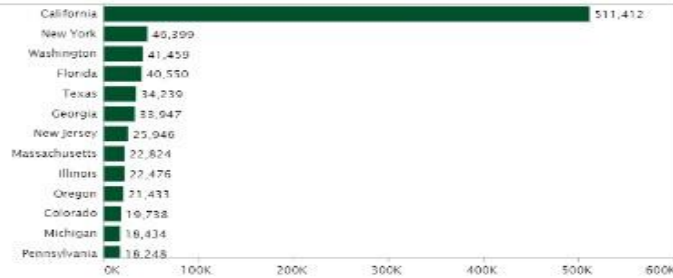
ATV Sales by State



Total Sales by ATV Category

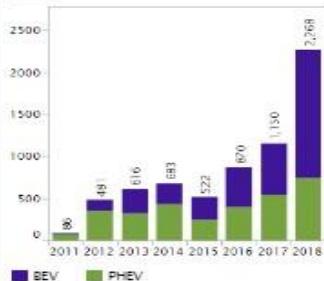


Top States by ATV Sales



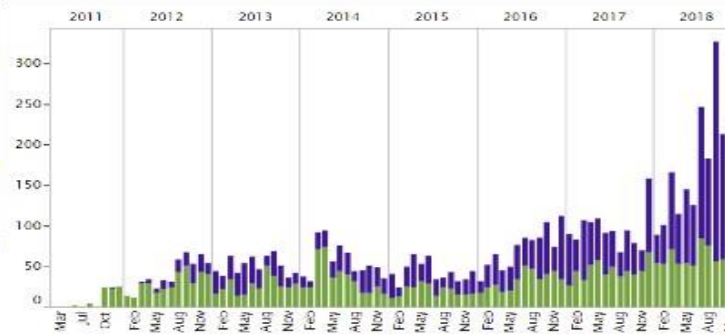
Data include 50 states and Washington D.C.

Annual Sales by ATV Category



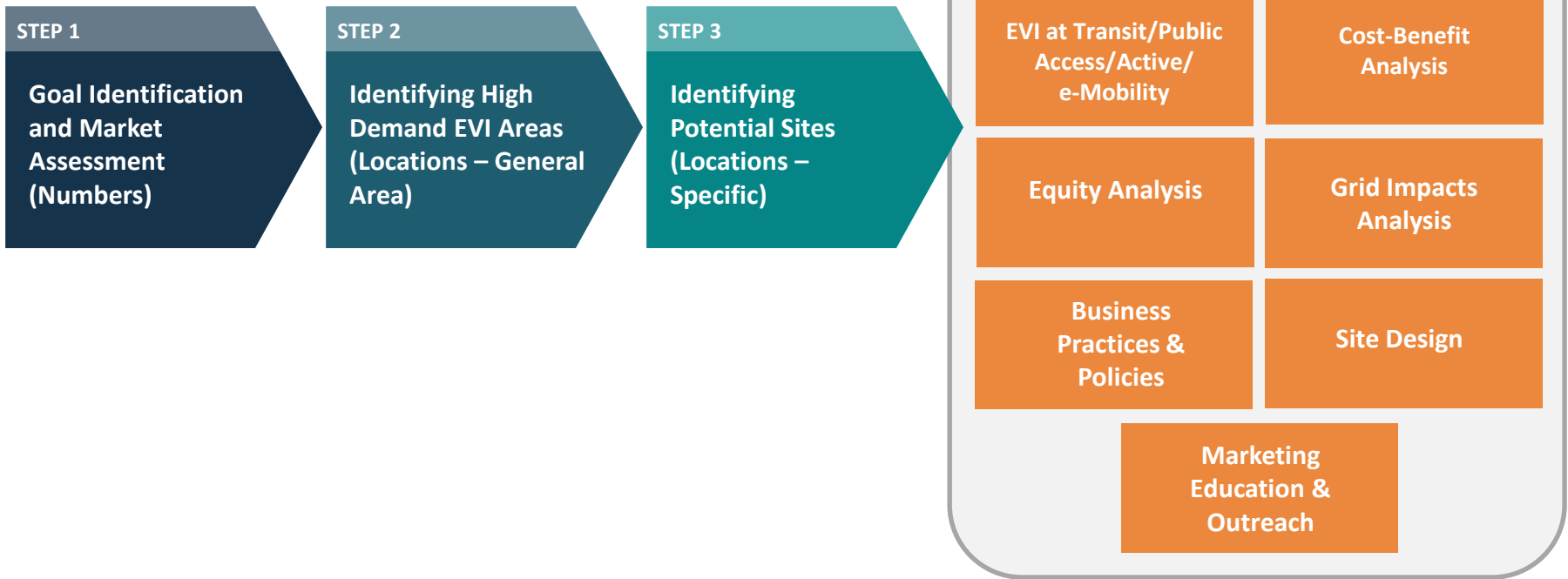
Through December 2018
Hover over x-axis (lower or upper) to display
drill-down "+" or fold-up "-" buttons.

Monthly Sales by ATV Category



Linked at zevfacts.com

EVI Planning Process



About CSE

501(c)(3) nonprofit organization

Offering clean energy program administration and technical advisory services.

Headquarters: San Diego, CA

Regional offices: Boston, Brooklyn, Stony Brook, Oakland, Sacramento and Los Angeles

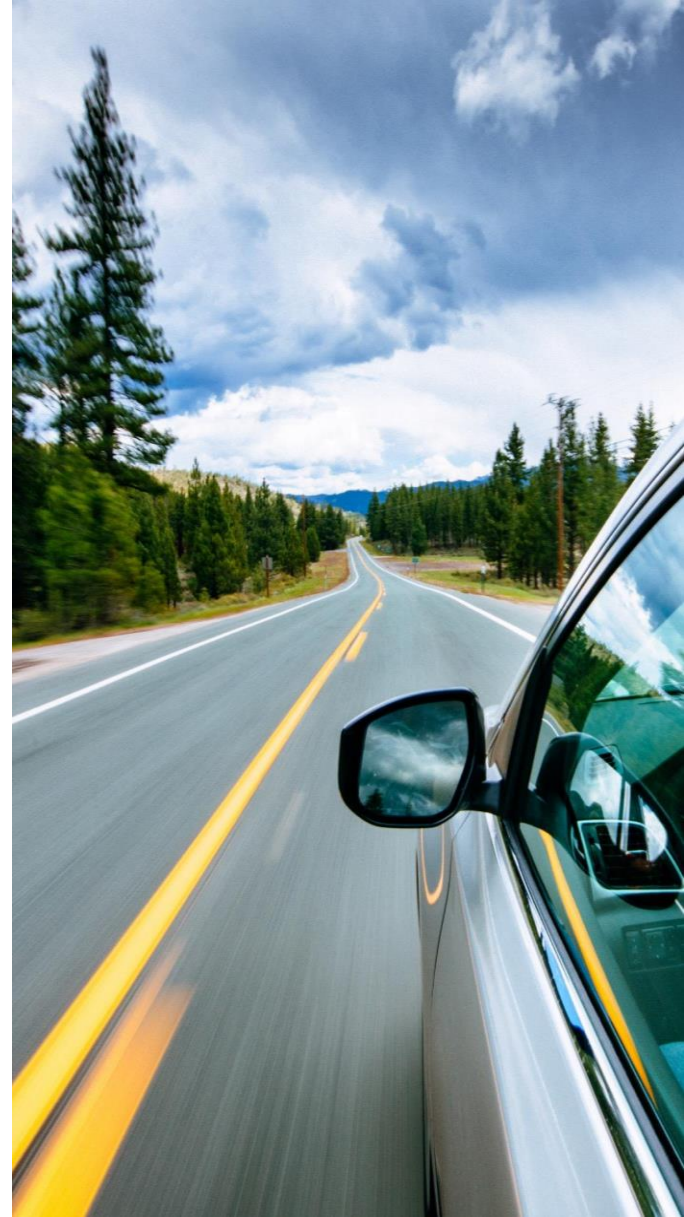
185+ dedicated, mission-driven employees

Managing ~50 projects and programs

National programs | Statewide incentive projects | Region-specific solutions

Neutral and Trusted

- Program Administration
- Program Evaluation
- Advisory Services
- Demonstration/Validation
- Policy



CSE Skills

- Rebate processing
 - Multilingual, IRS trained
 - Income verification
- Customer survey expertise that informs program design
- Web platform and design



Areas of Expertise



Clean Transportation

Adoption of electric vehicles and
deployment of charging infrastructure



Built Environment

Advancing energy efficiency and
renewable resources



Technology Convergence

Interconnecting systems to achieve
decarbonization