The State of the ZEV Market

Governor's Office Summit on Zero Emission Vehicles

May 4, 2015

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Center for Sustainable Energy

Outline

- **What?**
  - **New and Upcoming Vehicles**
- **How many?**
  - **Sales Trends**
- **Where?**
  - **Geographic Distribution**
- **Who and Why?**
  - **Demographics and Purchase Motivations**

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New and Upcoming Vehicles

What ZEV products are available?

2014 Additions (All-Battery, Plug-in Hybrid, and Fuel-Cell)

	Vehicle	Vehicle Category	EPA Fuel Economy	EPA Range
	**Cadillac ELR**	PHEV	82 mpg_e, 33 mpg (gas)	37 e-mi 340 total
	**Hyundai Tucson Fuel-Cell**	FCEV	48–50 kg/mi (city–hwy)	265 mi
	**BMW i3, i3 REx**	BEV, BEVx	124 mpg_e, 117 mpg_e	81 e-mi, 72 e-mi; 150 total
	**Mercedes B-Class Electric**	BEV	84 mpg_e	87 e-mi
	**Kia Soul EV**	BEV	105 mpg_e	93 e-mi
	**Volkswagen e-Golf**	BEV	116 mpg_e	83 e-mi

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Upcoming PHEVs

	Vehicle	Vehicle Category	Expected Release
	**Volvo V60 PHEV**	PHEV	2015
	**Volkswagen Golf GTE**	PHEV	2015
	**Audi A4 e-quattro**	PHEV	2015
	**Audi A3 e-tron**	PHEV	2015
	**Hyundai Sonata Plug-in Hybrid**	PHEV	2015

Upcoming PHEVs

	Vehicle	Vehicle Category	Expected Release
	**Chevrolet Volt (MY2016)**	PHEV	2015
	**Mercedes S500 Plug-in Hybrid**	PHEV	2015
	**Mitsubishi Outlander PHEV**	PHEV	2015
	**Volvo XC90 T8 Plug-in Hybrid**	PHEV	2015
	**Mercedes C350 Plug-in Hybrid**	PHEV	2016

Upcoming BEVs and FCEVs

	Vehicle	Vehicle Category	Expected Release
	**Tesla Model X**	BEV	2015
	**Chevrolet Bolt**	BEV	2016
	**Infinity LE**	BEV	2017
TBD in 2017	**Tesla Model 3**	BEV	2017
	**Toyota Mirai**	FCEV	Fall 2015

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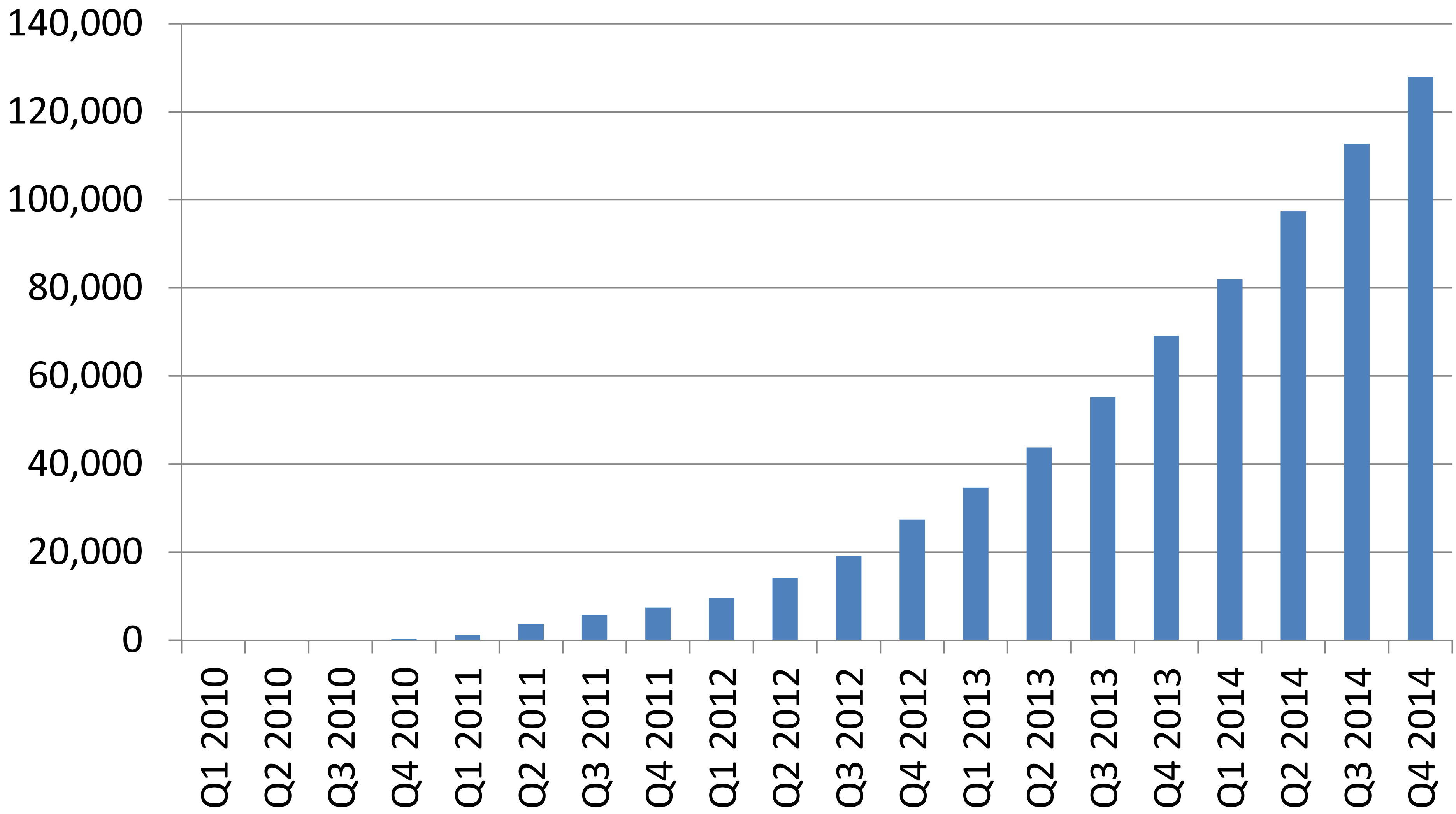
Sales Trends

How many?

Cumulative ZEV Sales, 2010 – 2014



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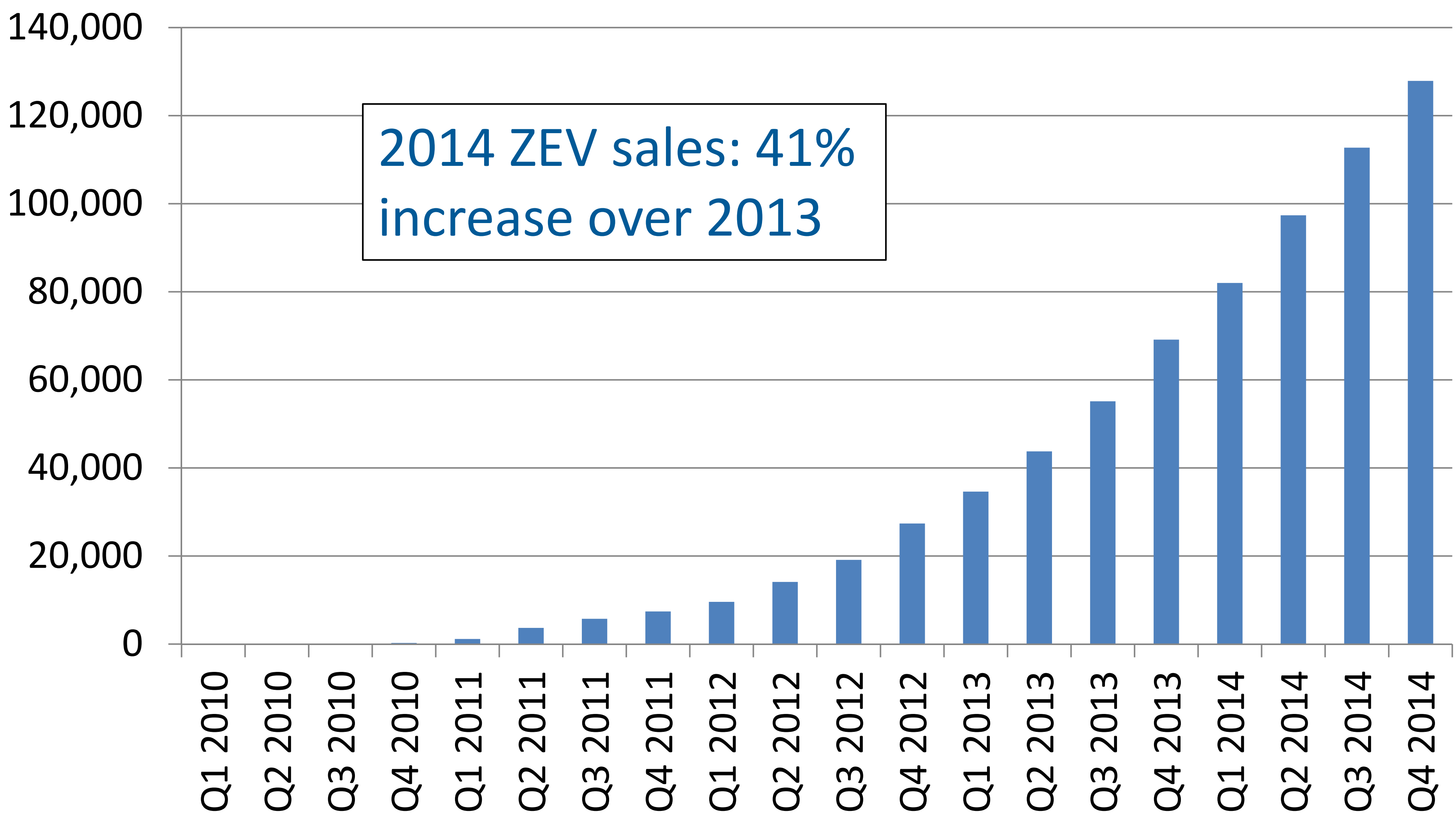
Cumulative ZEV Sales, 2010 – 2014



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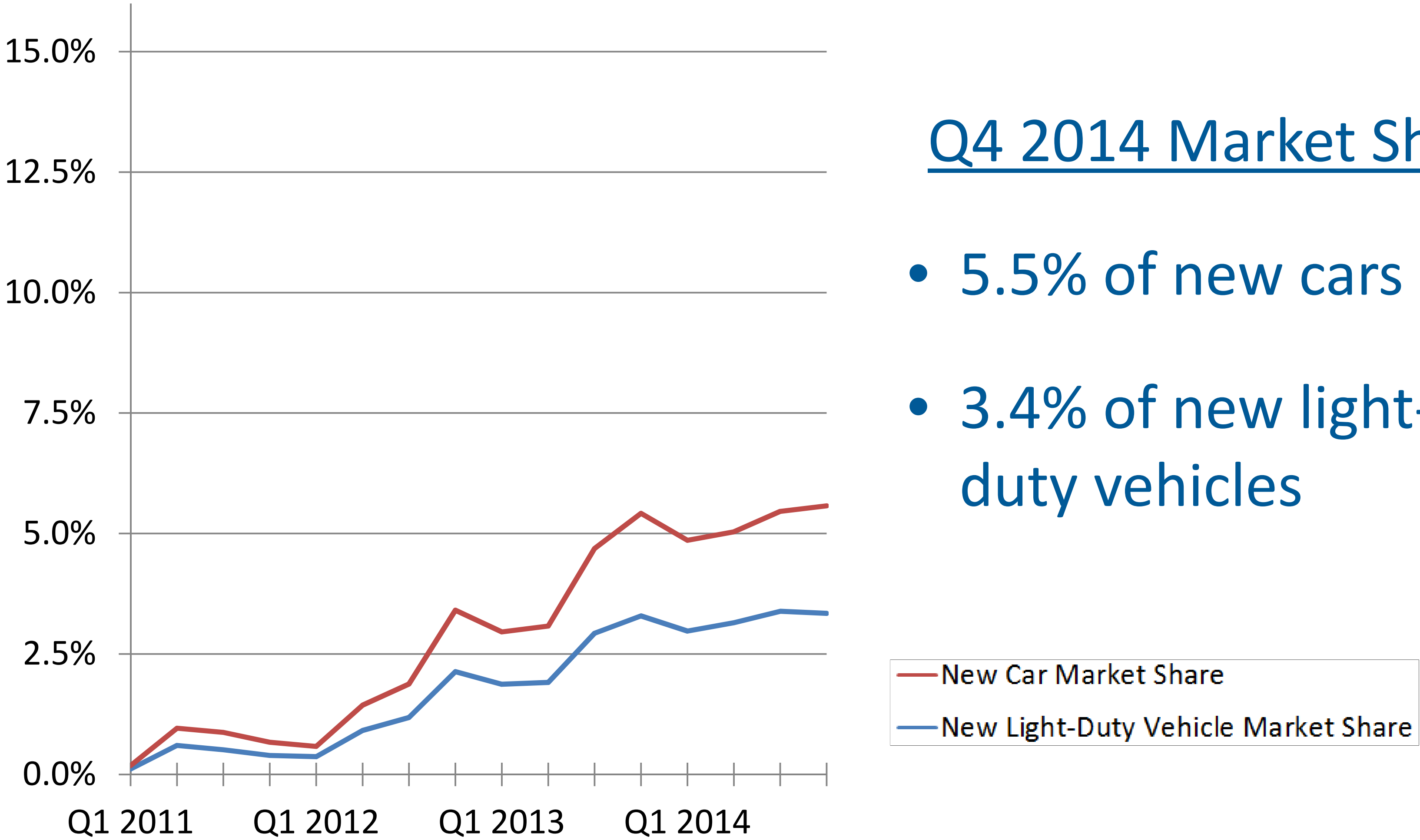
ZEV Market Share



Q4 2014 Market Share

- 5.5% of new cars
- 3.4% of new light-duty vehicles

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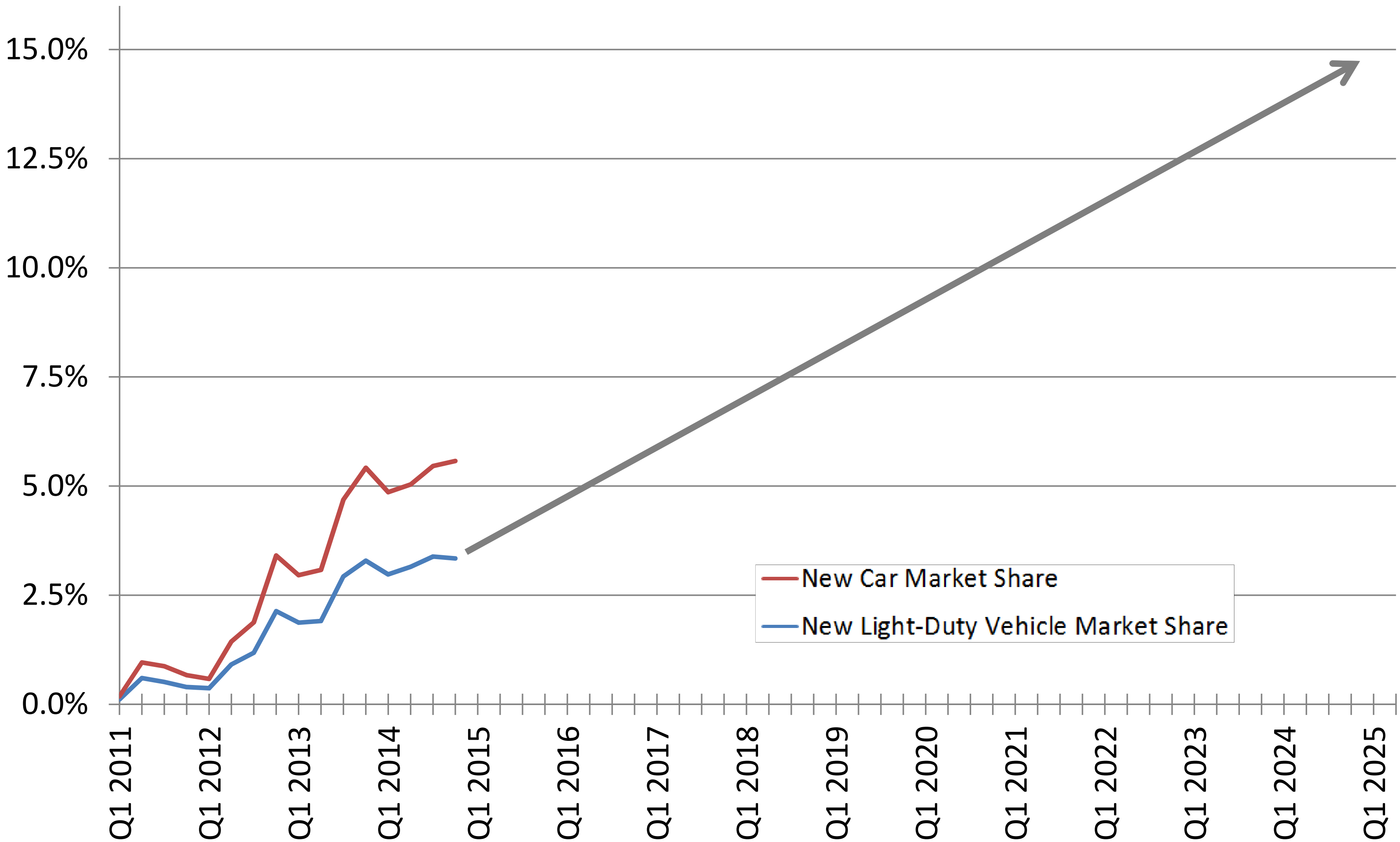
2025 ZEV Goal: ZEV Market Share



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Geographic Distribution

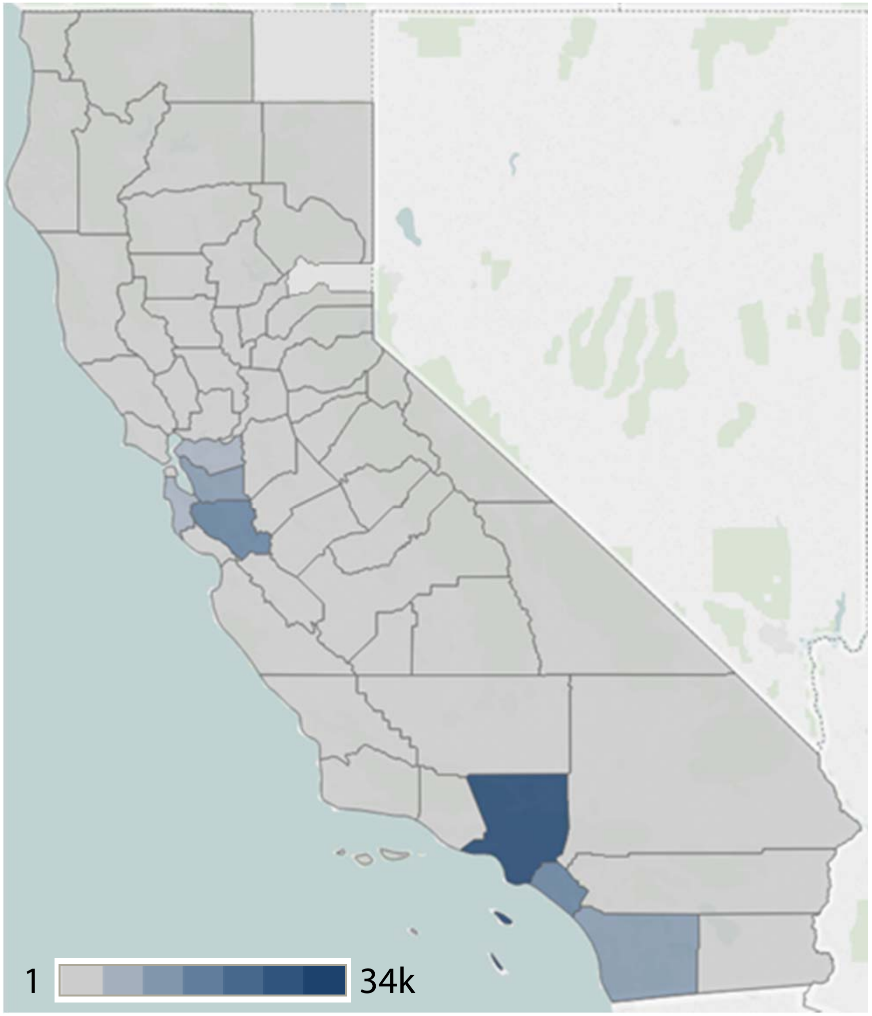
Where are the vehicles?

Where are ZEVs Located? (by County)

Highest volume counties:

1. Los Angeles
2. Santa Clara
3. Orange
4. San Diego
5. Alameda

New ZEV Registrations, 2010–2014



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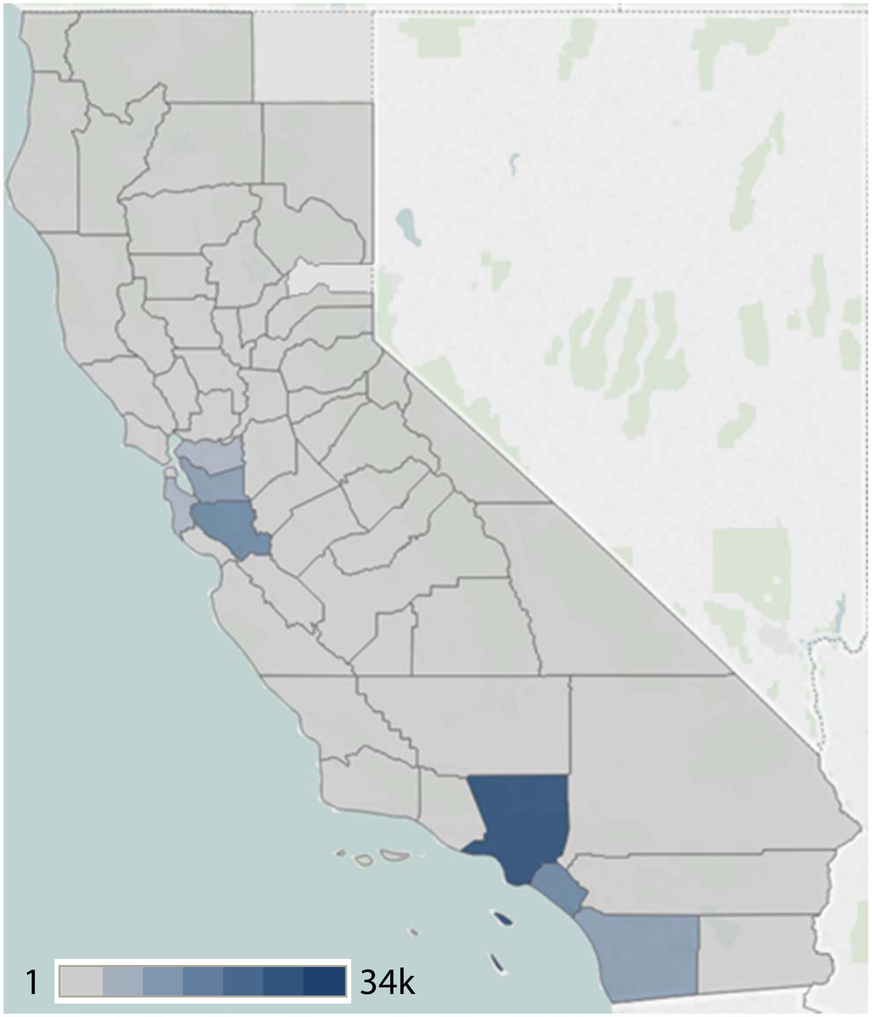
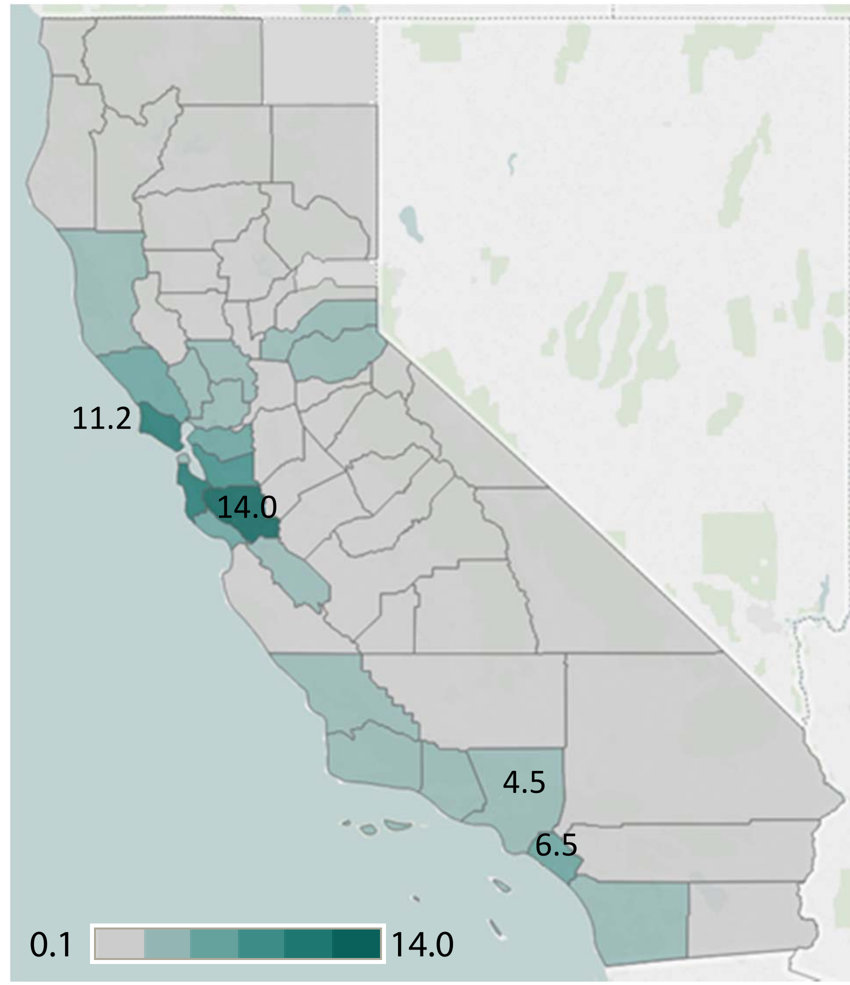
Where are ZEVs Located? (Per Capita)

New ZEV Registrations, 2010–2014



New ZEV registrations (2010–2014) per 1,000 population (18 or older)



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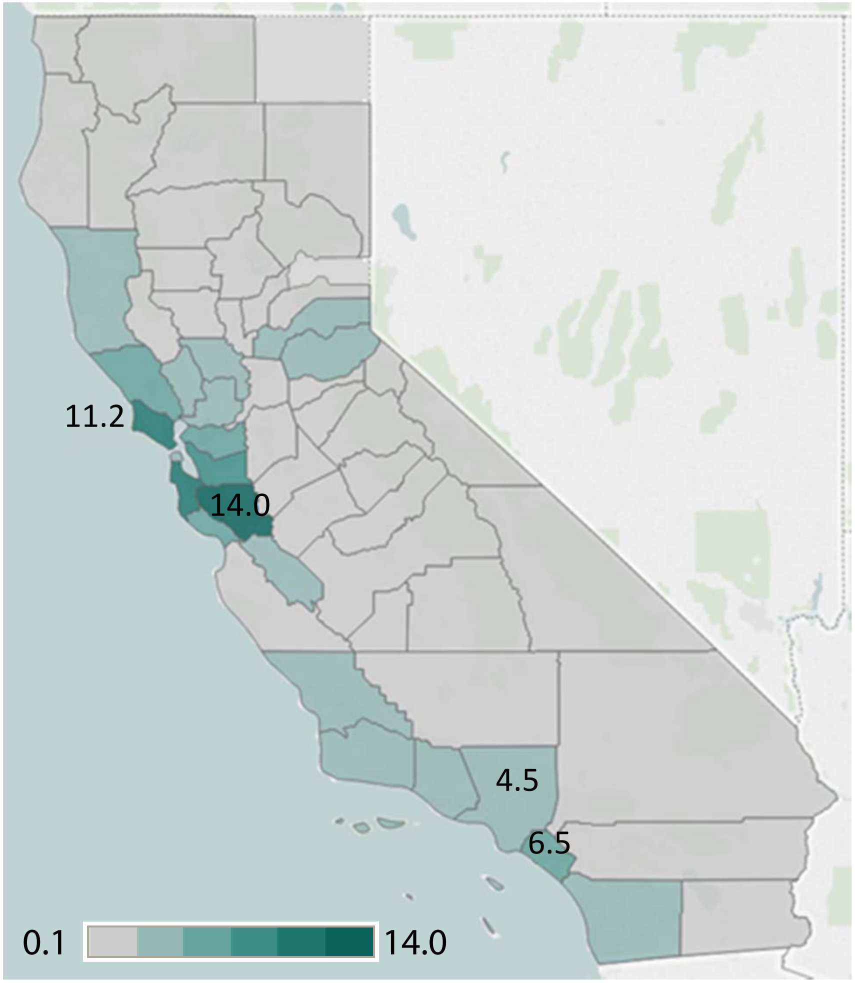
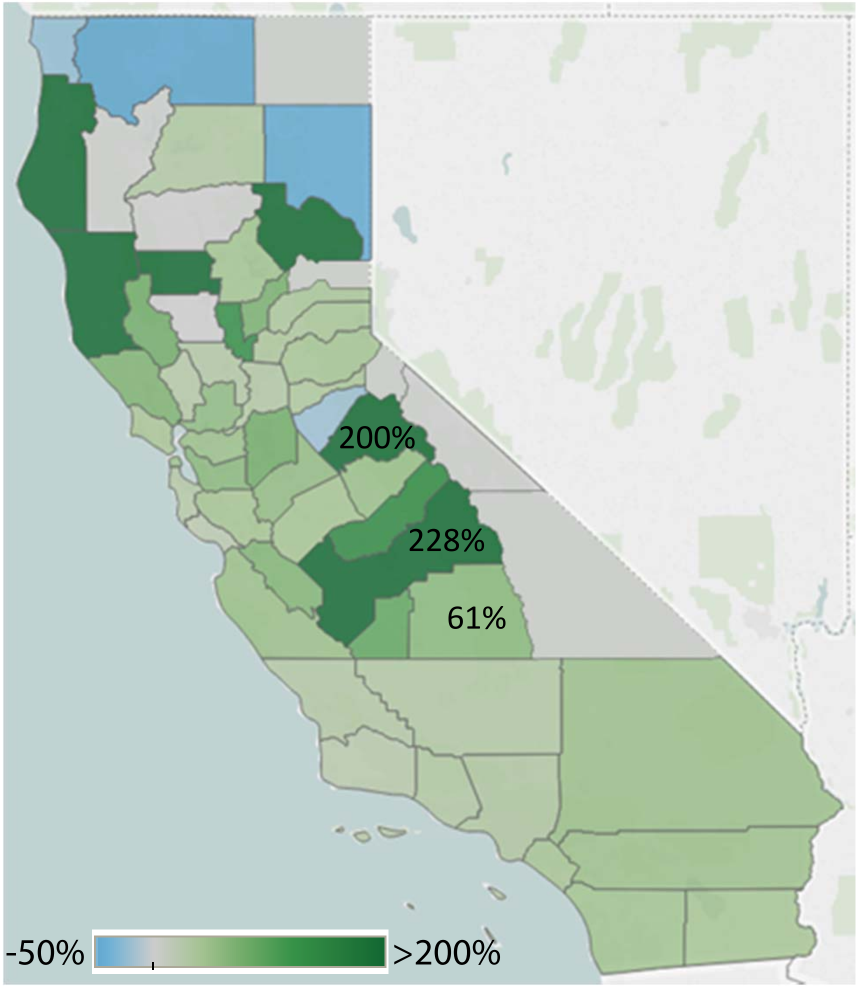
Where are ZEVs Located? (Percent Change)

New ZEV registrations (2010–2014) per 1,000 population (18 or older)



Percent change in density, 2013–2014



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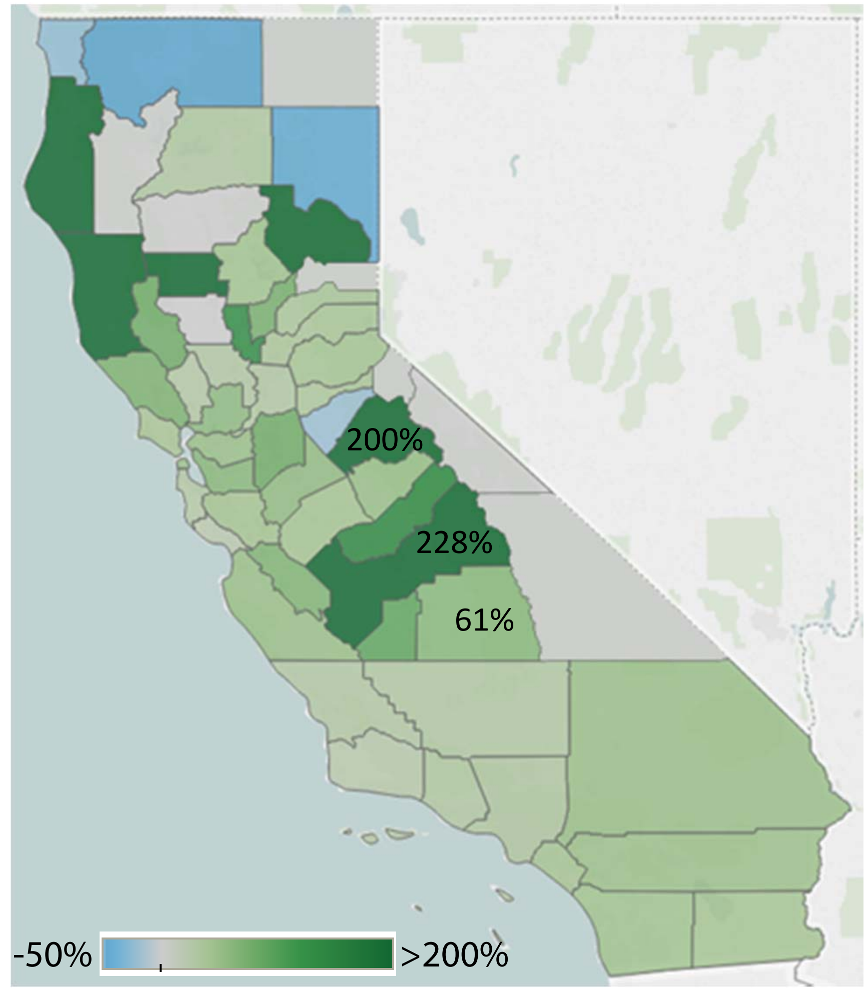
Where are ZEVs Located? (Percent Change)

Disadvantaged Communities

- 6.5% of total rebates in 2014
- 71% increase in rebates allocated to DACs in 2014
- 49% increase in the rest of the California

Percent change in density, 2013–2014



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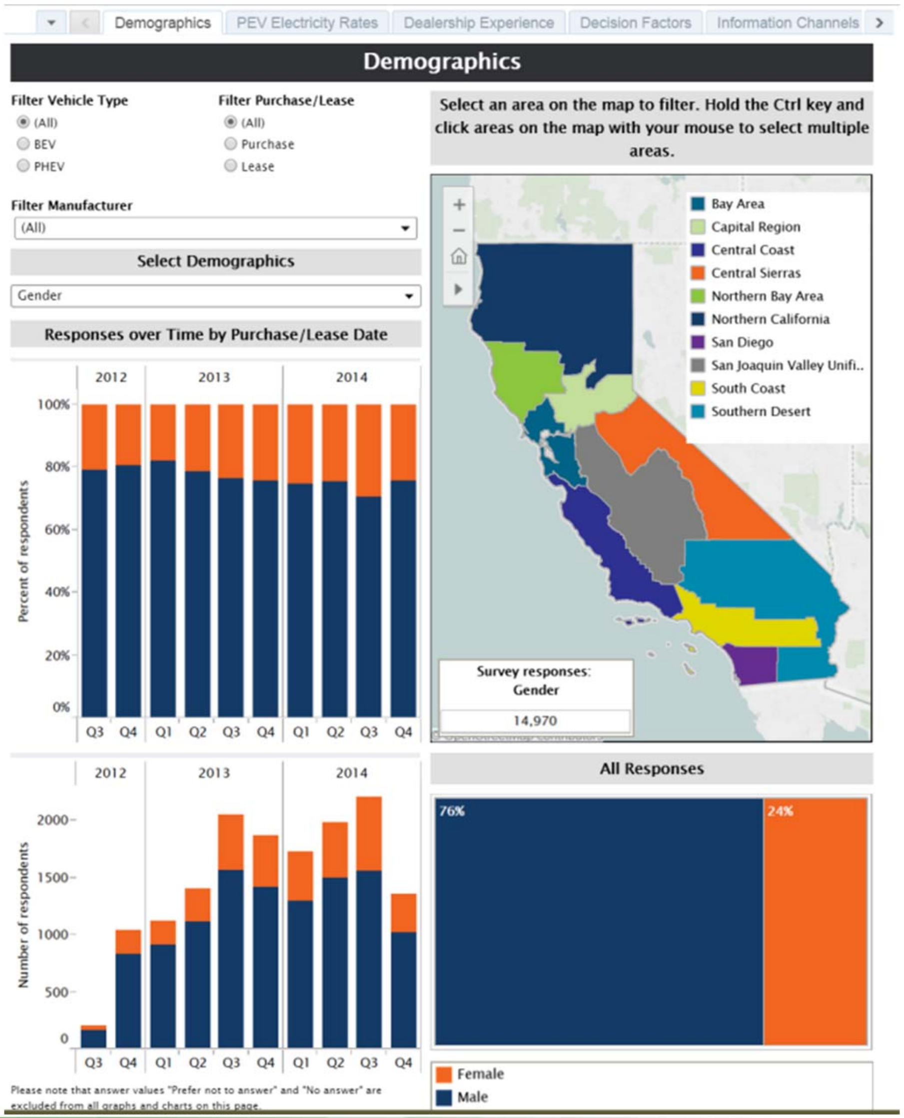
Demographics and Purchase Motivations

Who and why?

CVRP Consumer Survey Data



- All applicants invited to take a survey
- >16,000 CVRP responses
  - Reasonably represents all 100K CVRP participants
- Topics include:
  - demographics
  - purchase motivations and enablers
  - dealership experience
  - utility rate awareness
- CVRP responses updated monthly on an interactive dashboard for easy use

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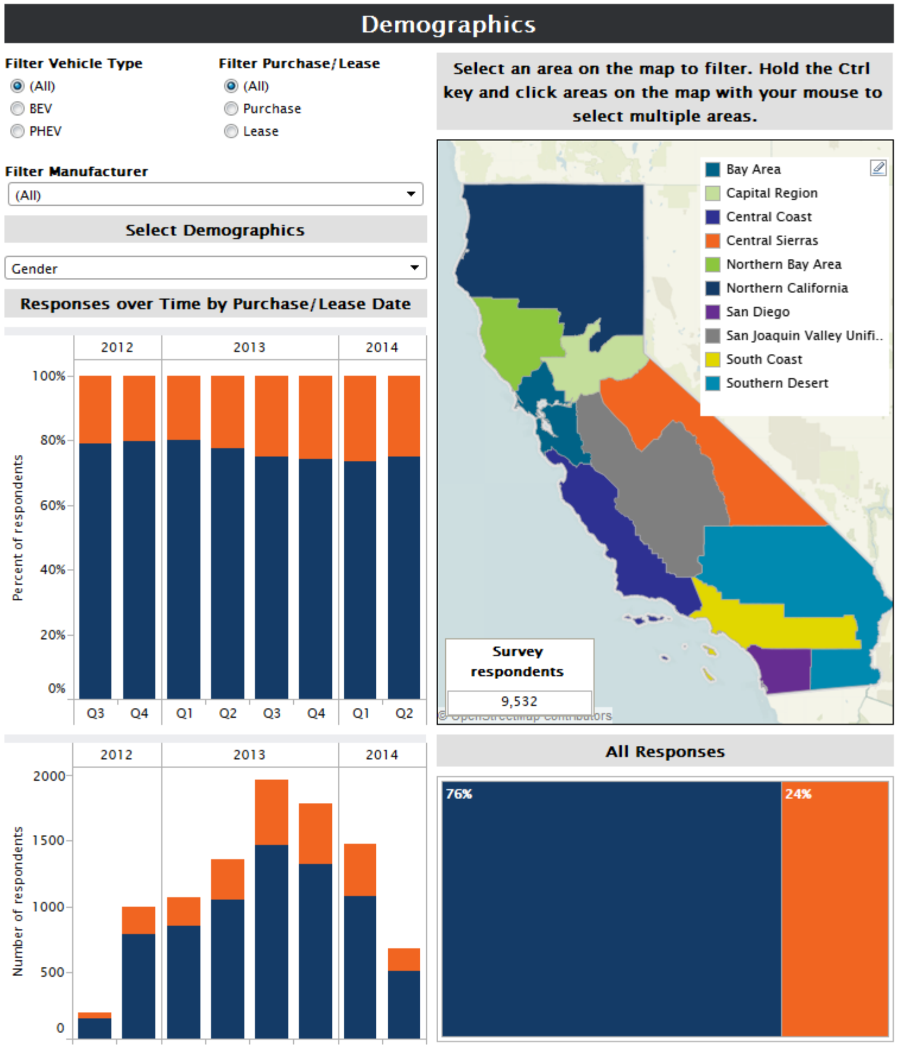
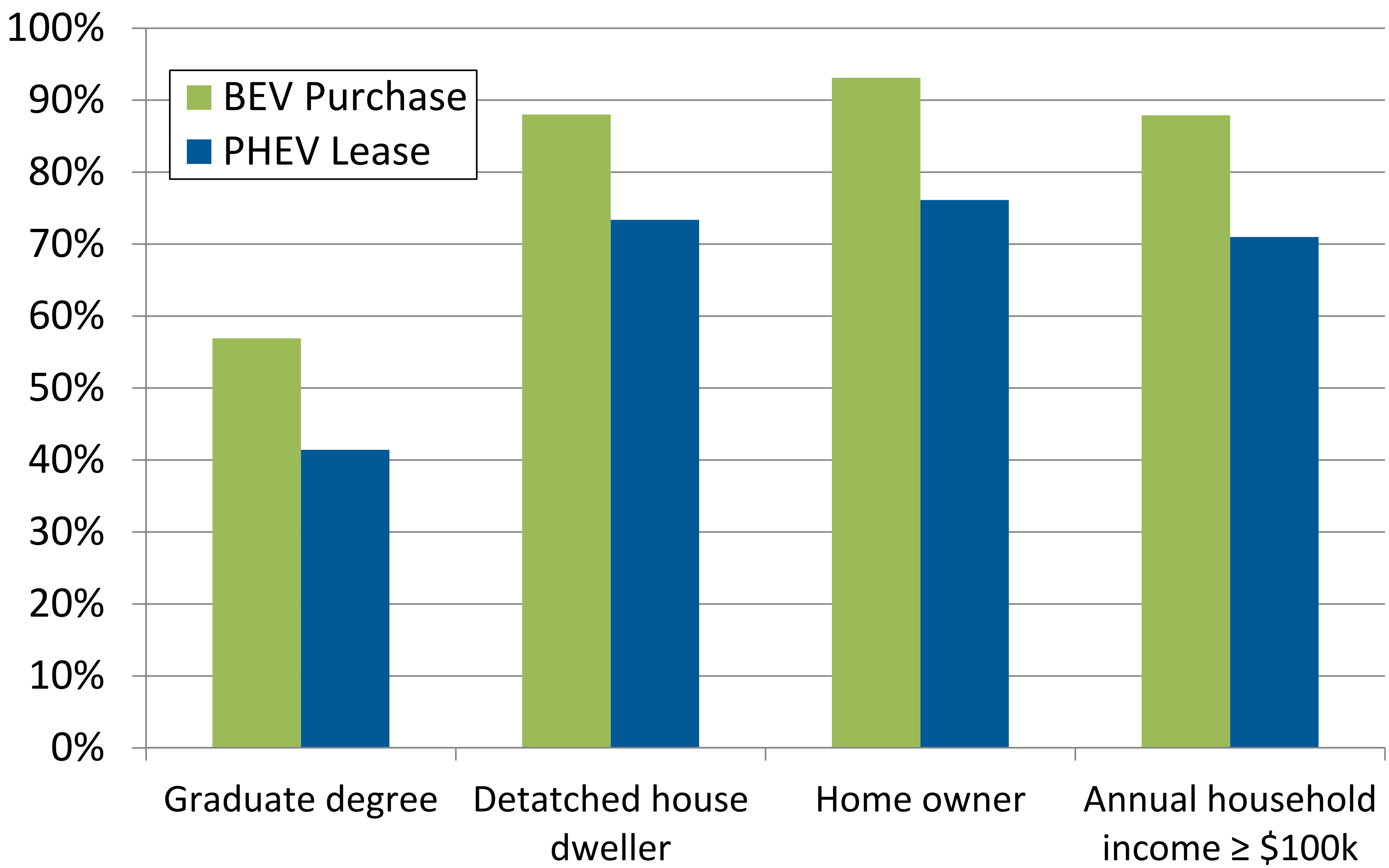
Demographics: the Average EV Driver in 2014

- 64% are over the age of 45
- 49% have graduate degree
  - more than 82% have bachelor's degree or higher
- 82% live in detached houses,
  - 9% in apartments/condos
- 85% own their home
- 75% have an annual household income greater than or equal to $100,000

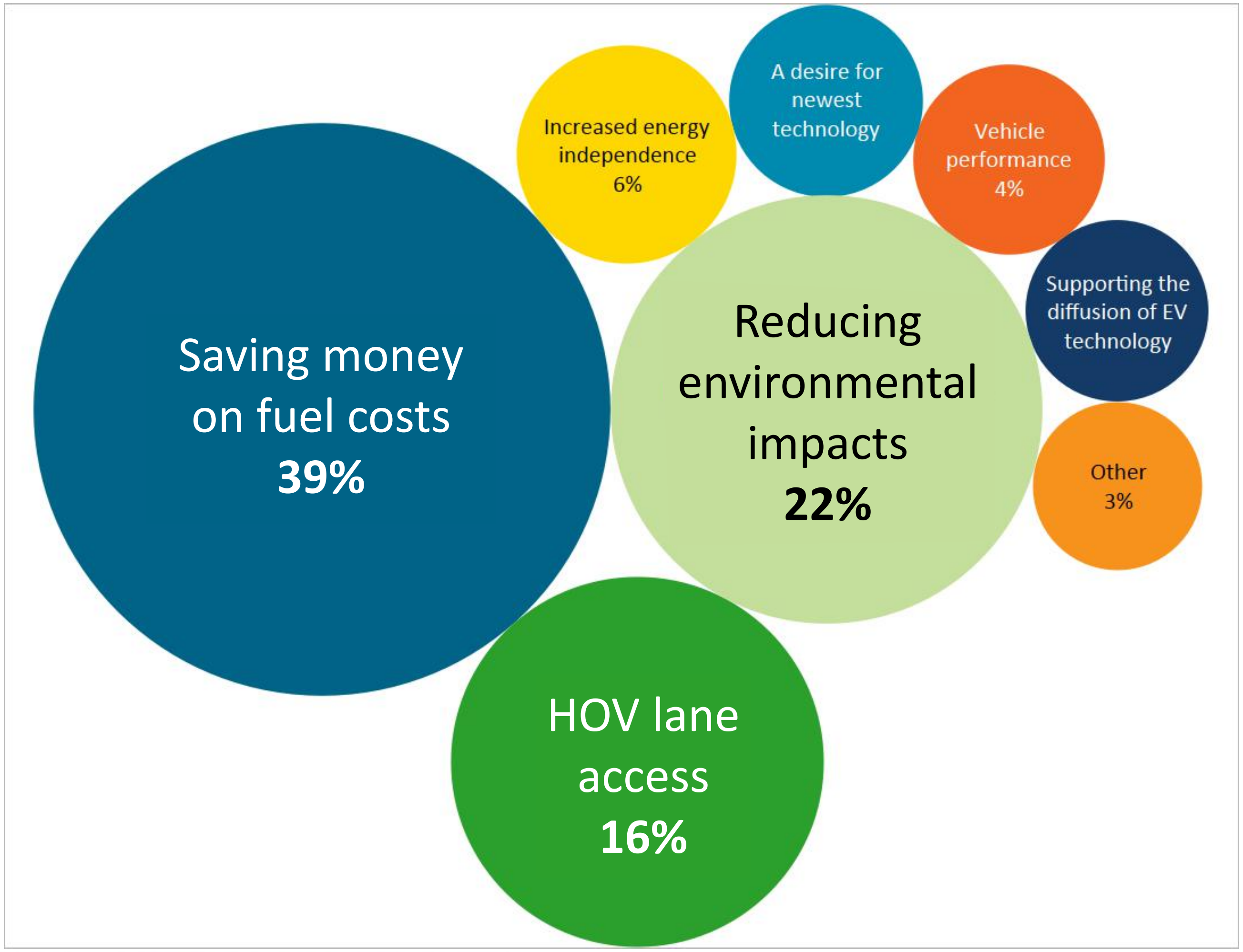


Demographics: Variation Across Consumer Groups (2014)



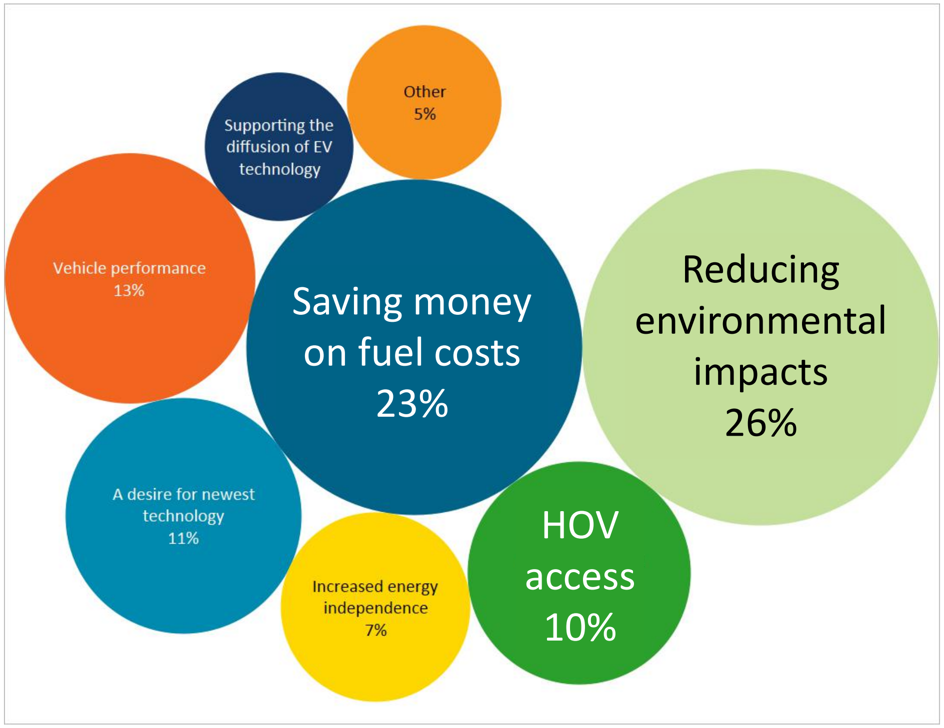
Primary Motivation for Acquisition (2014)

Statewide

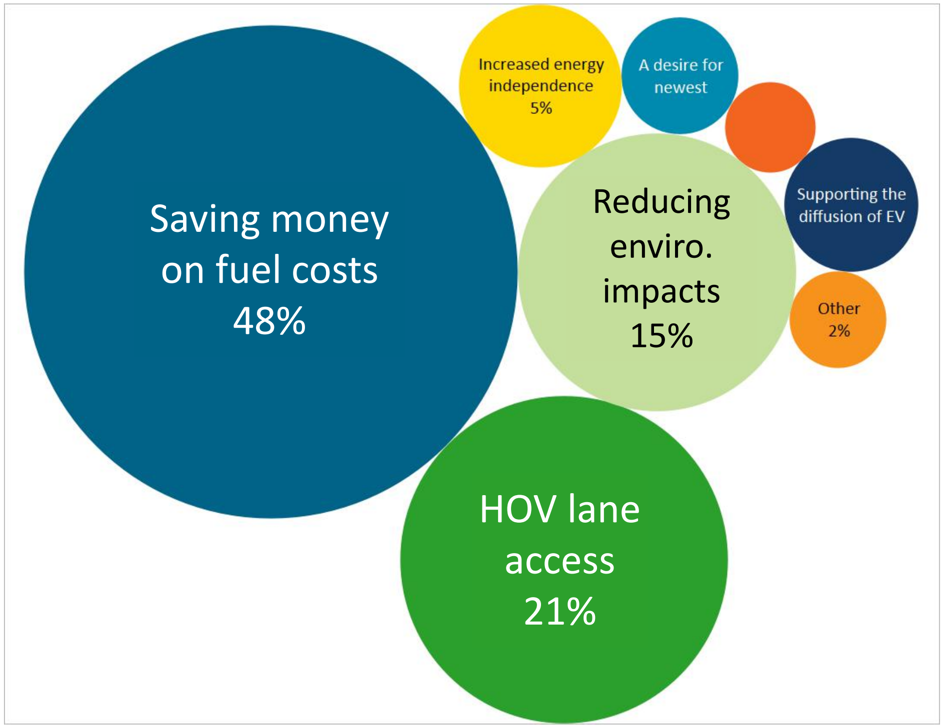


Primary Motivation for Acquisition (2014)

BEV Purchase

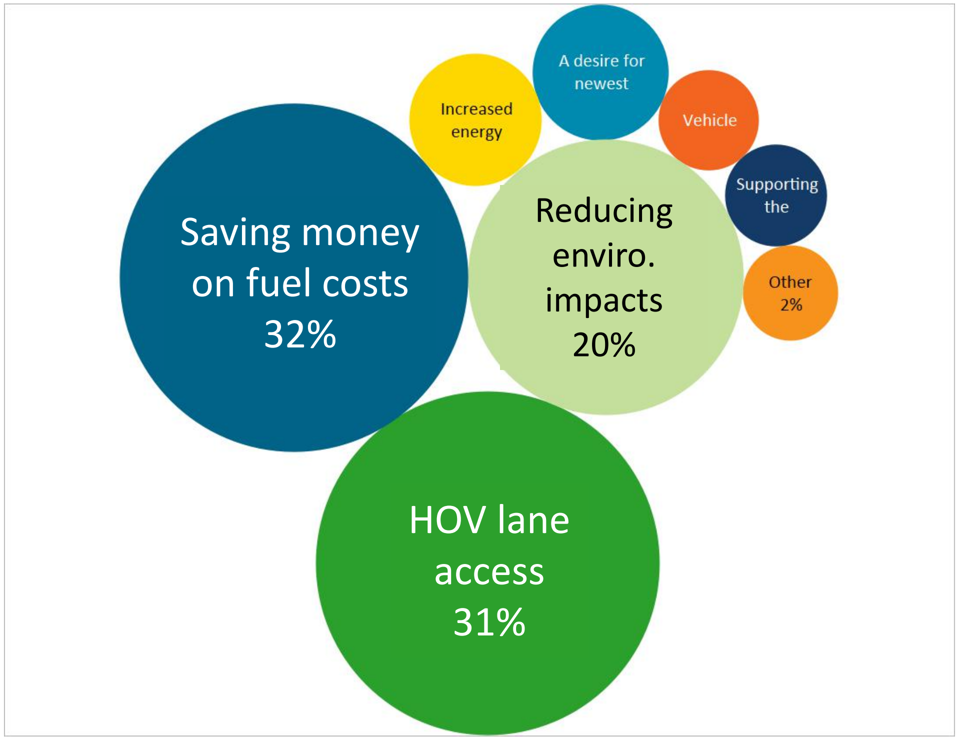


PHEV Lease

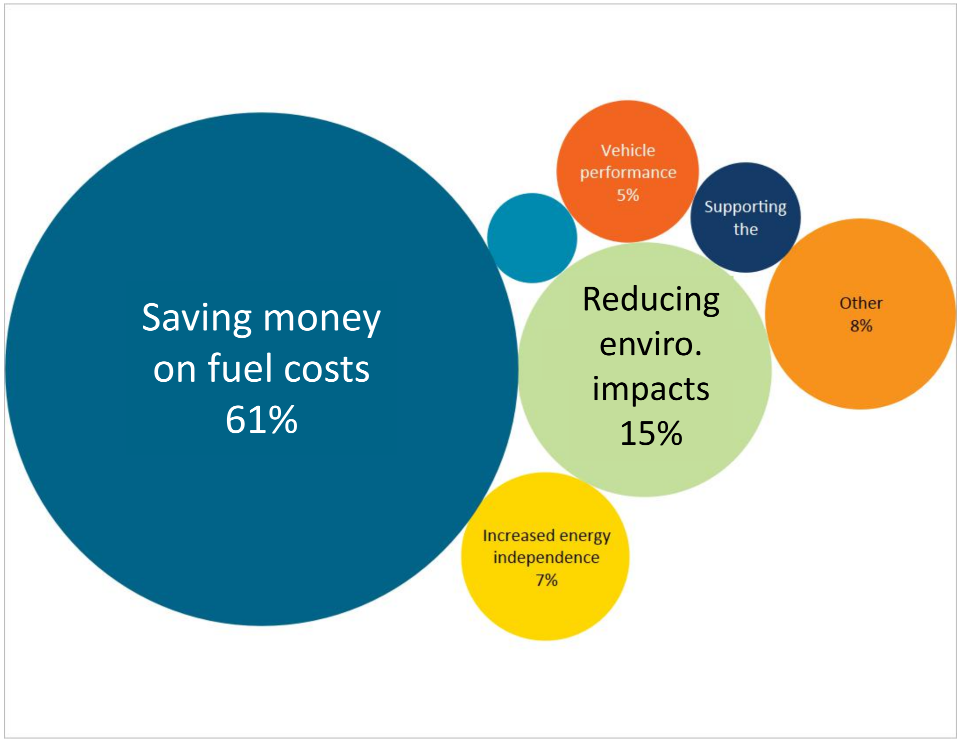


Primary Motivation for Acquisition (2014)

Santa Clara County

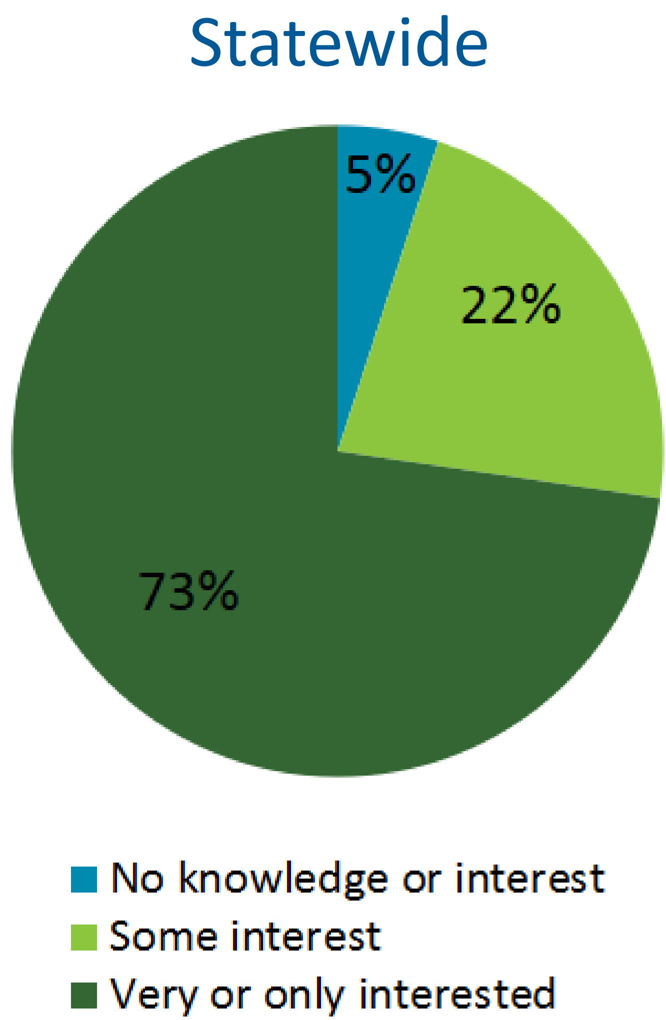


Fresno County



Initial PEV Knowledge/Interest (2014)

"Which of the following statements best describes your interest in acquiring a PEV when you started your search for a new vehicle?"



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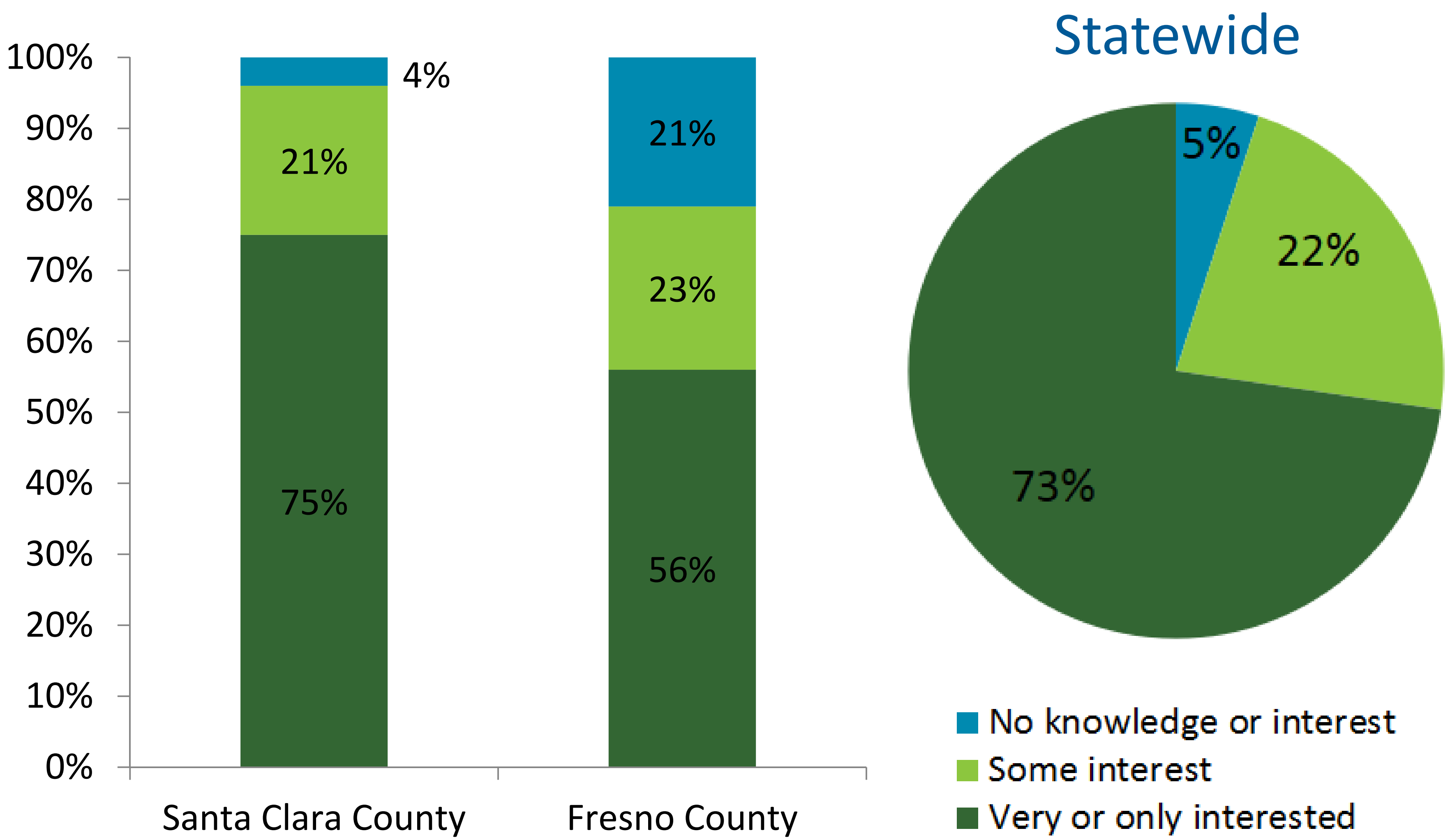
Initial PEV Knowledge/Interest (2014)



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Summary

What?

- Over 20 models now available
- Increased BEV variety in 2014, more PHEVs in 2015

How many?

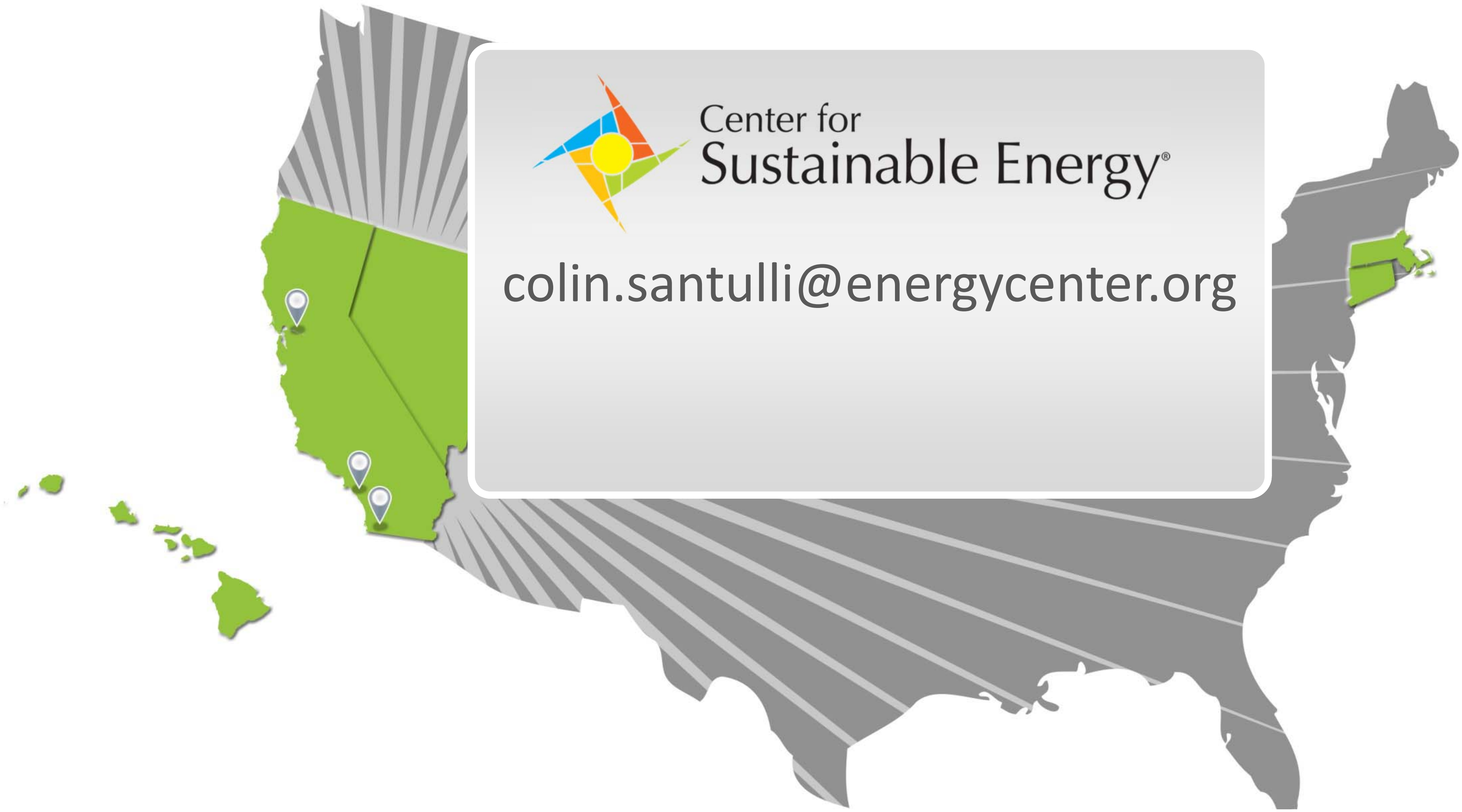
- 41% increase in 2014 from 2013, sustained growth needed

Where?

- Highest volume and density in population centers
- Growth in new markets

Who and Why?

- EV drivers not a homogenous group
- Statewide averages hiding variation in demographics, motivations, and initial ZEV interest



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