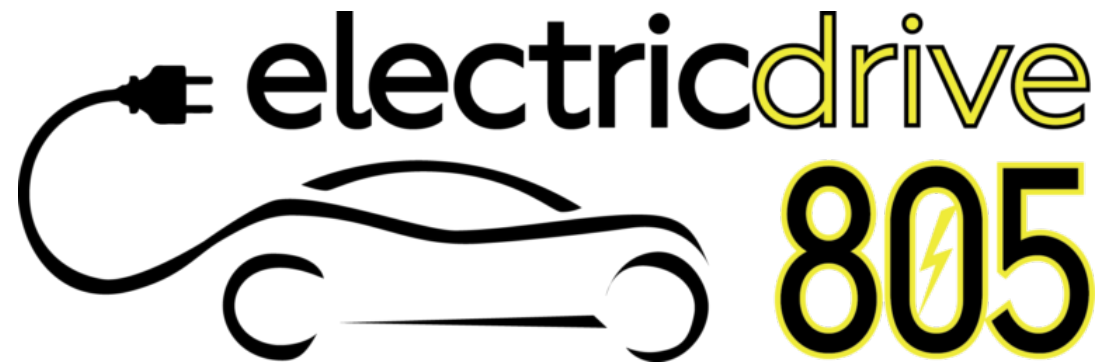


Electrifying Transportation

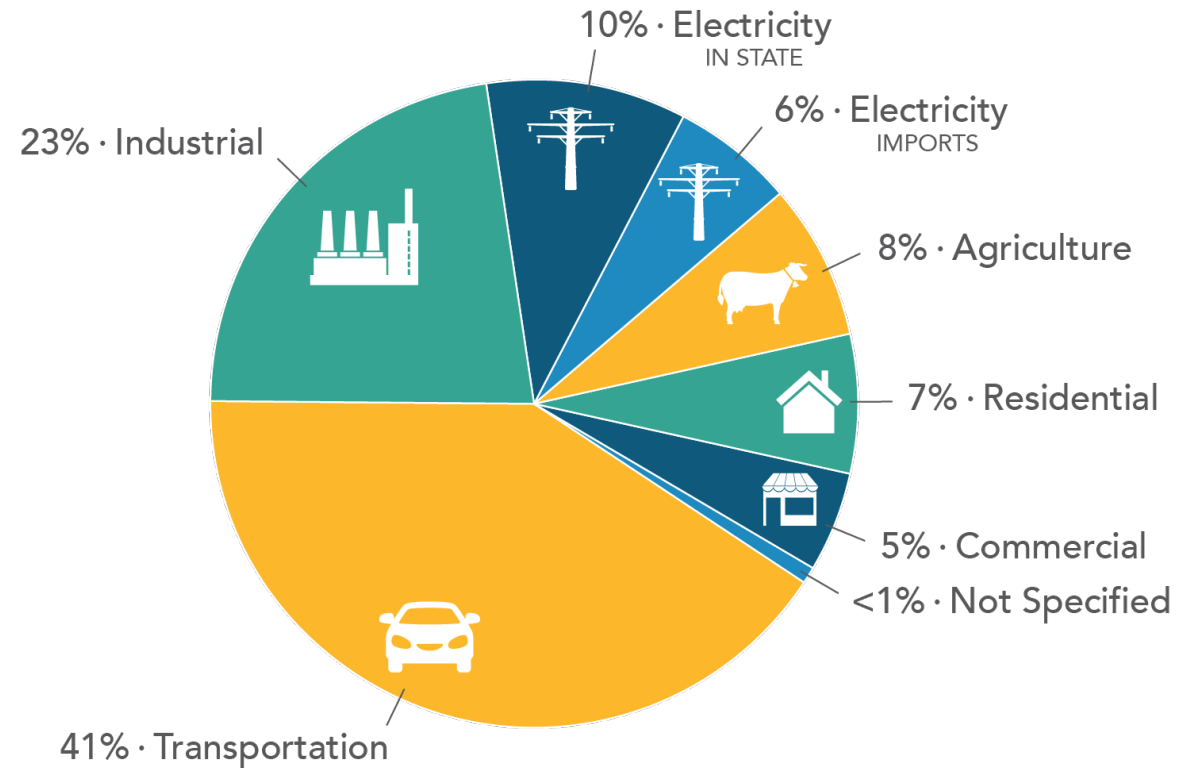
Andrew Wakelee

805-654-2568 | andrew.wakelee@ventura.org



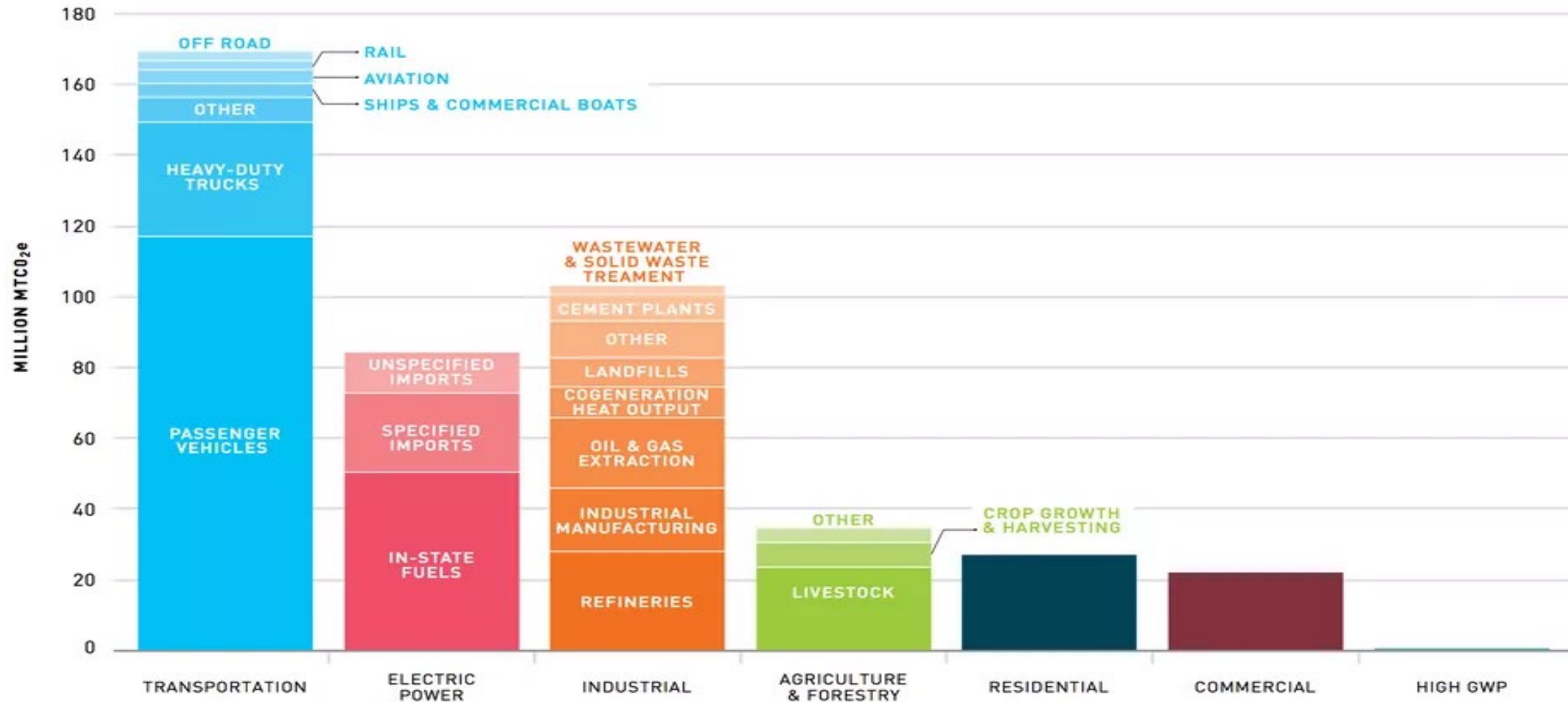
California's ambitious goals

- **5 million ZEVs in CA by 2030**
 - About 14,000 EVs needed in Ventura (~100,000 countywide)
- **250,000 vehicle charging stations**
 - About 500 chargers in Ventura (~3,000 countywide)
- **\$134 million** to fund EV charging infrastructure



429.4 MMTCO₂e
2016 TOTAL CA EMISSIONS

FIGURE 8. GREENHOUSE GAS EMISSIONS BY DETAILED SOURCE
 CALIFORNIA, 2015



NEXT 10 CALIFORNIA GREEN INNOVATION INDEX. Data Source: California Air Resources Board, California Greenhouse Gas Inventory – by Sector and Activity. NEXT 10 / SF - CA - USA

Passenger vehicles = ~70% of transportation emissions in CA

Types of EVs



Pure Battery Electric Vehicles

Powered exclusively by battery. Newer models typically have 150+ miles of range



Plug-in Hybrid Electric Vehicles

Have an internal combustion engine and an electric powered engine. Typically 30-50 miles on battery and a full gas tank



Hybrid Electric Vehicles

Non-plug in hybrids capture energy through braking system for greater fuel efficiency



Fuel Cell Electric Vehicles

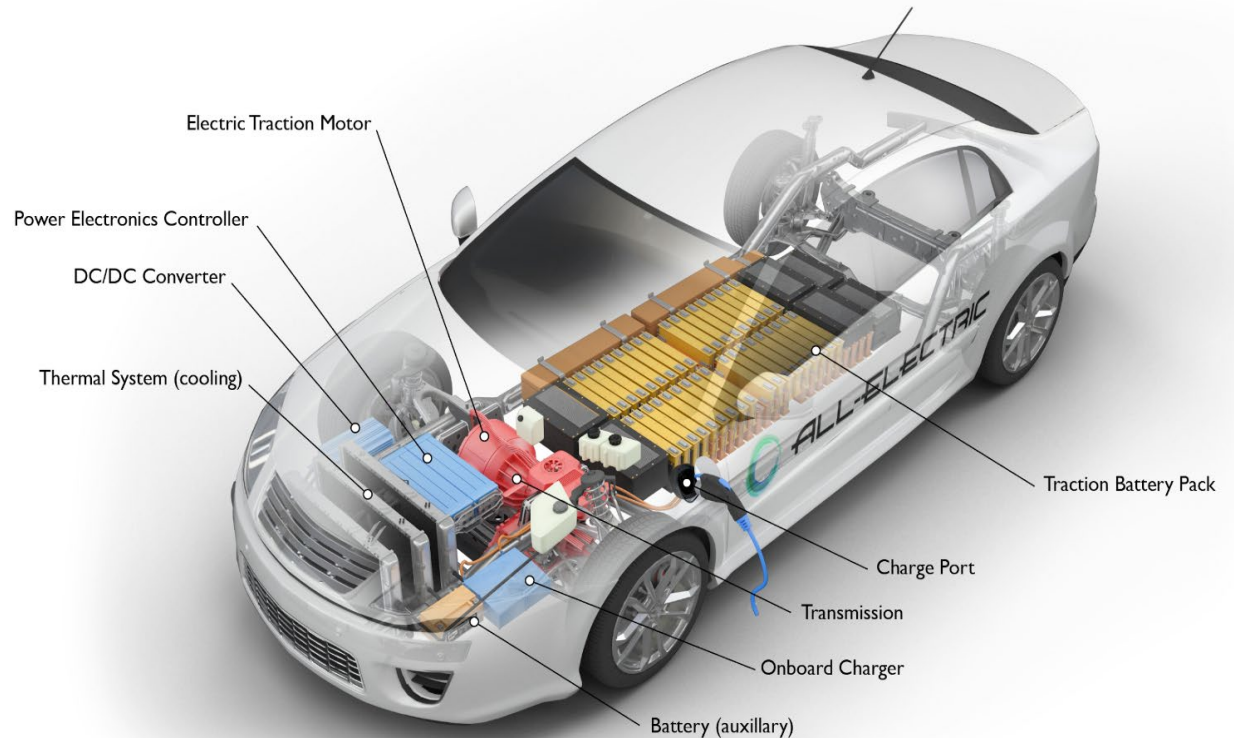
Use hydrogen to produce electricity that powers the car. Not very common

Hydrogen Fuel (H²)

Why EVs?

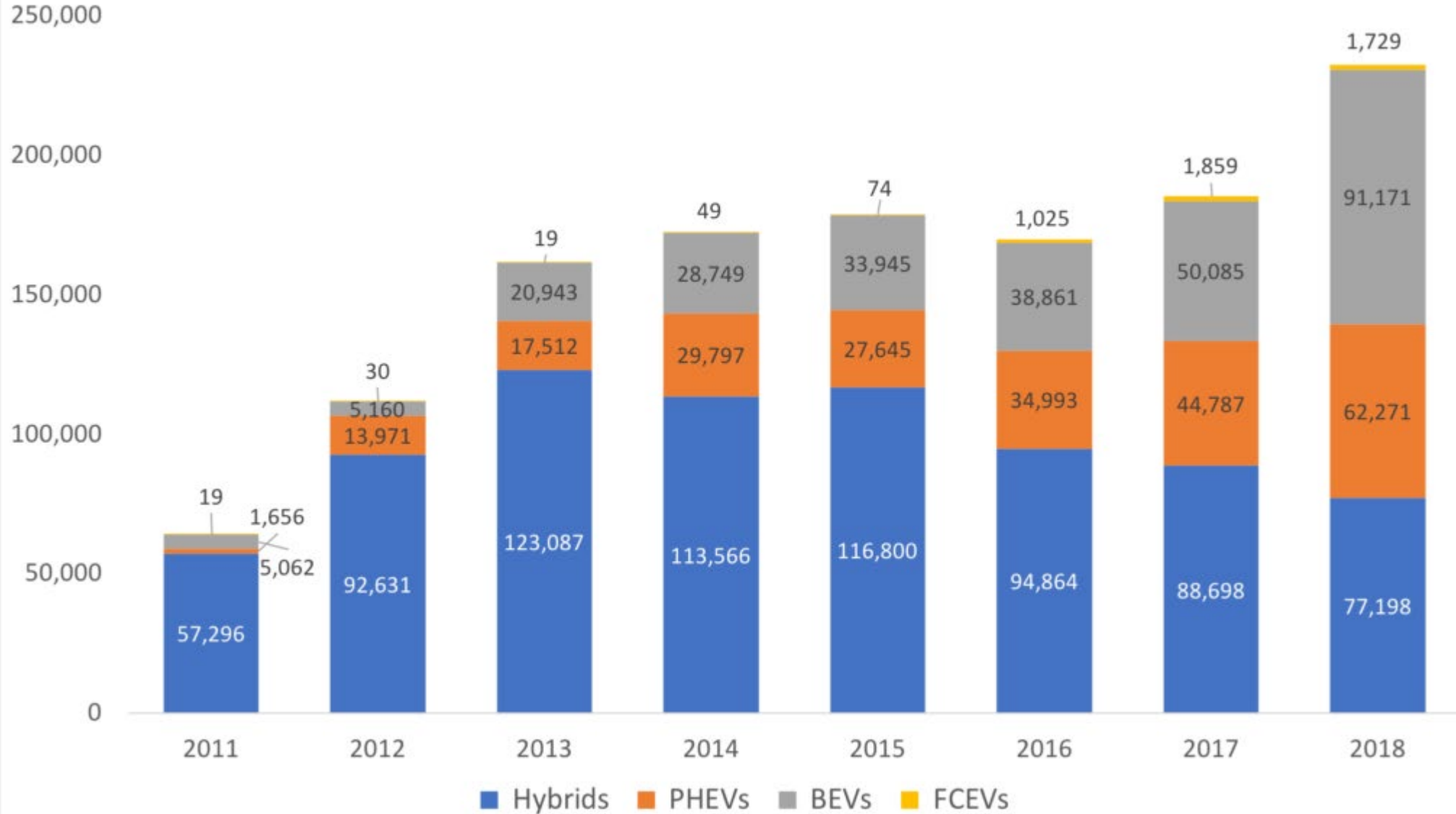
- Clean air/climate resiliency
- Comparable costs after incentives
- Electricity is far less expensive than gas (\$1.20/gallon!)
- Maintenance cost savings
- 8-10 year or 100,000 mile battery guarantee
- Longer ranges and more infrastructure
- Will only get cleaner

All-Electric Vehicle



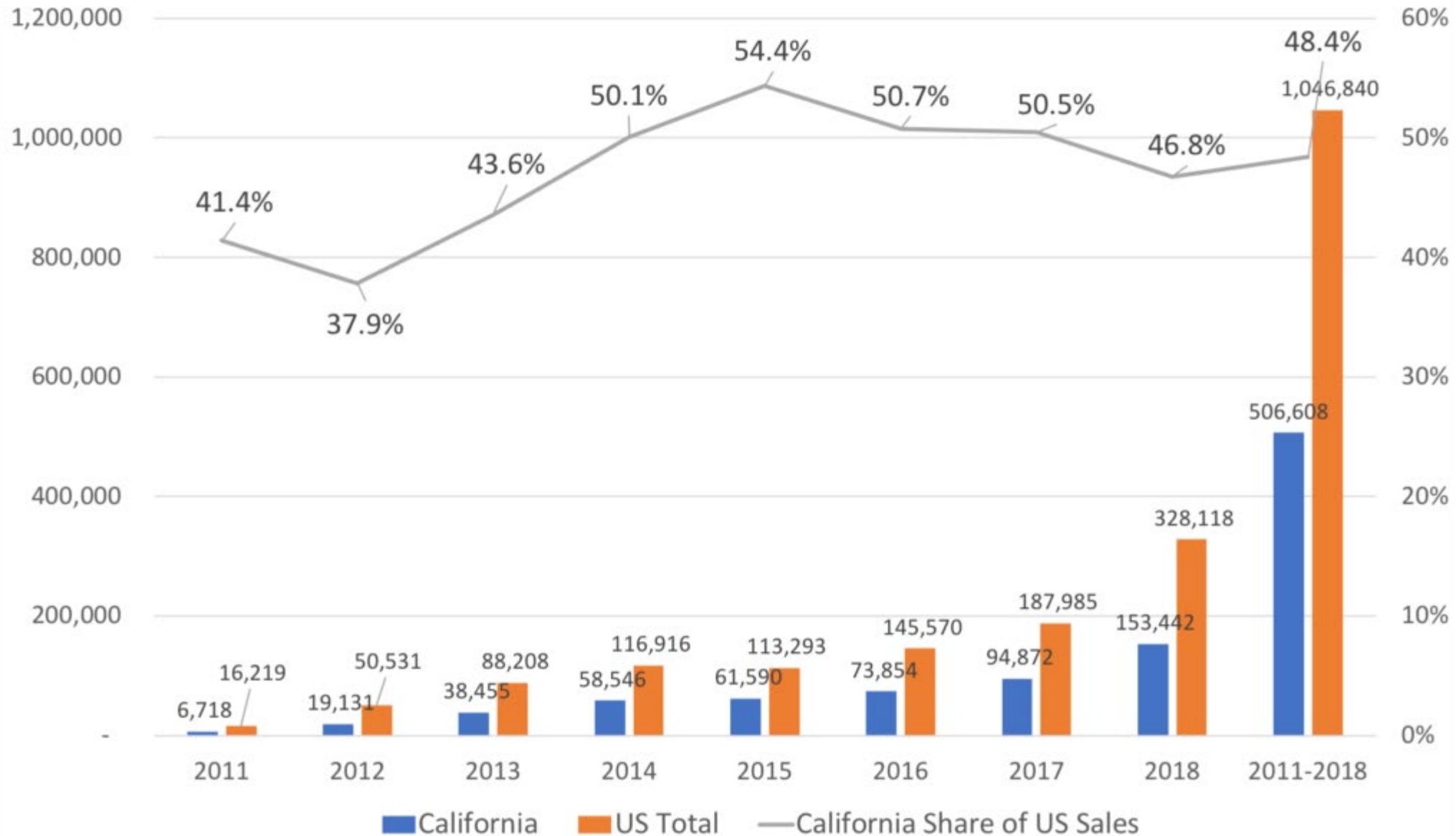
California Alternative Powertrain Sales: 2011-2018

Data: Auto Alliance/IHS Markit | Chart : Loren McDnald / EVAdoption



California EV Sales and % of US EV Sales: 2011-2018

Data: Auto Alliance/IHS Market | Chart: Loren McDonald/EVAdoption.com



More than 40 new models available!

Options include

- Full sized sedans
- SUVs
- Minivans
- Pick-up trucks coming soon!

View all options at: PlugInCars.com

Community Environmental Council

TOP SELLERS OF THE 40+ MODELS OF Clean Cars Available Now







Audi A1 E-Tron Plug-in Hybrid Electric	BMW i3 Electric Vehicle	BMW X5 xDrive40e Plug-in Hybrid Electric	Chevrolet Bolt Electric Vehicle
Chevrolet Volt Plug-in Hybrid Electric	Chrysler Pacifica Plug-in Hybrid Electric	FIAT 500e Electric Vehicle	Ford Fusion Energy Plug-In Hybrid Electric Vehicle
Kia Niro PHEV Plug-In Hybrid Electric Vehicle	Honda Clarity Hydrogen, EV and PHEV	Hyundai Ioniq EV & PHEV	Mitsubishi Outlander Plug-In Hybrid Electric Vehicle
Nissan Leaf Electric Vehicle	smart Electric Drive Electric Vehicle	Tesla Model 3 Electric Vehicle	Tesla Model X Electric Vehicle
Toyota Mirai Fuel Cell Electric Vehicle	Toyota Prius Prime Plug-in Hybrid Electric	Volkswagen e-Golf Electric Vehicle	Volvo XC90 T8 Plug-in Hybrid Electric

Cost comparison examples

	2008 Mazda CX-9	2019 Toyota Corolla	2019 Nissan Leaf
Miles per gallon	15 city/ 21 highway (mpg)	28 city/ 35 highway (mpg)	124 city/ 99 highway (mpg)
Monthly costs (\$3.20/gallon & \$0.13/kWh; 1,2500 miles/month average)	\$211	\$118	\$53
Monthly savings on fuel	---	---	\$158 (Mazda) OR \$65 (Toyota)
Yearly savings on fuel	---	---	\$1,892 (Mazda) OR \$780 (Toyota)
Upfront Cost	\$6,000-8,000 (used)	\$18,000-\$24,000 (new)	- \$29,000-\$36,000 (new - before incentives) - As low as \$20,000 after incentives - \$5,000-\$10,000 for 2014-16 models

Visit www.fueleconomy.gov for more information

Combining different rebates in CA

<u>Rebate program</u>	<u>Standard rebate</u>	<u>Rebate for low or moderate income</u>
California State Rebate*	Up to \$2,500 (new - purchase or lease) 	Up to \$5,000 (new or used purchase) 
SCE Clean Fuel Rewards	\$1,000 (new or used) 	\$1,000 (new or used) 
Vehicle retirement	\$1,000 	\$1,500 
Total rebate amount possible	\$4,500	\$7,500

**All rebates listed can be “stacked” except for the two state programs: CVRP and CVAP
Up to \$7,500 in Tax Credit from the IRS available for some EVs*

Charging 101

Types of chargers:

- **Level 1:** 3-5 miles per hour of charge (standard 120v outlet)
- **Level 2:** 10-50 miles per hour of charge (240v, most common)
- **Level 3 (DCFC):** 90-170 miles per 30 minute charge (public charging)



Free Volta charging at the Collection

Where can I charge?



At home: Level 1 or 2. Depends on your options and needs

Work: Level 1 or 2

School: Moorpark College, Ventura College, CSUCI

Public destinations: Level 2 or Fast Chargers. See PlugShare for (almost) all public options.

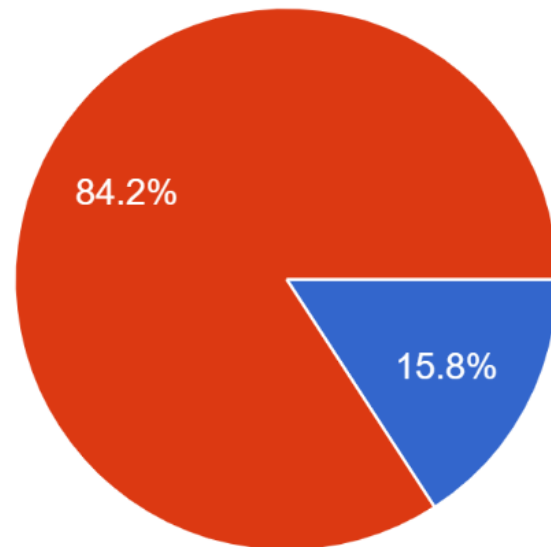
You can find more options at: www.plugshare.com or electricdrive805.org

Green = Level 1 or 2, Orange = Level 3

County of Ventura Employee Survey Results

Do you currently own or lease a plug-in electric vehicle?

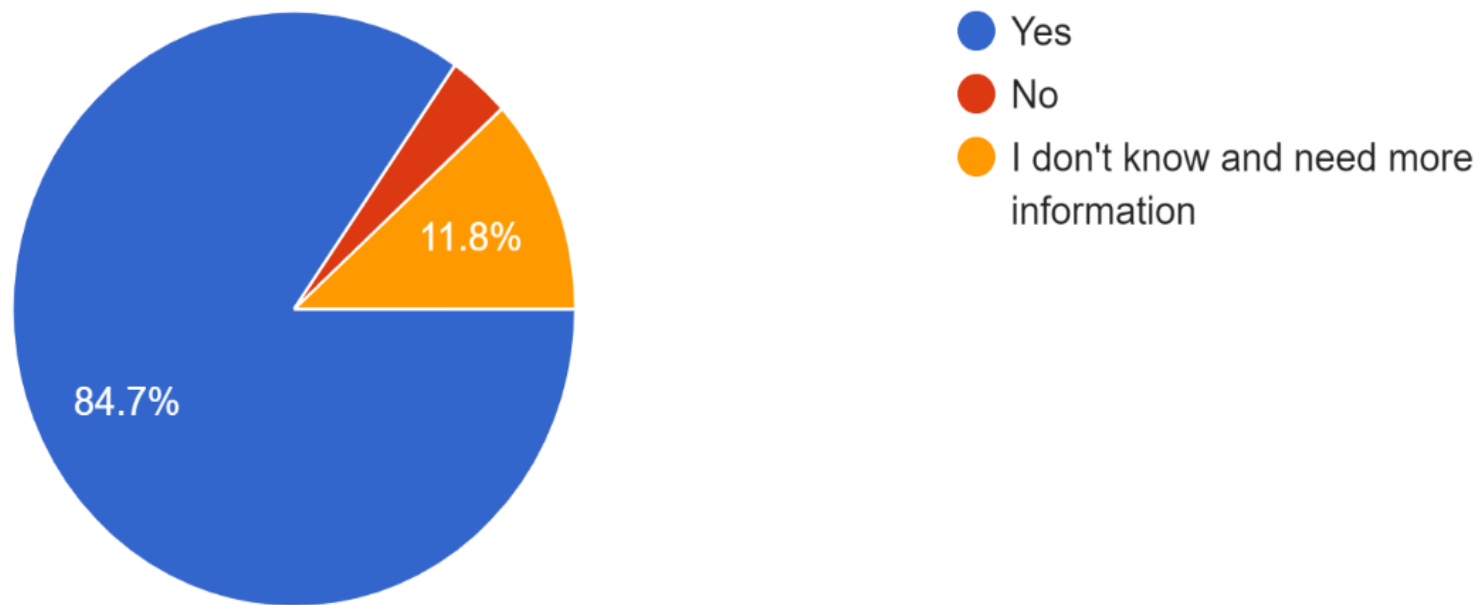
1,073 responses



- Yes, I currently own or lease a plug-in electric vehicle
- No, I do not own or lease a plug-in electric vehicle

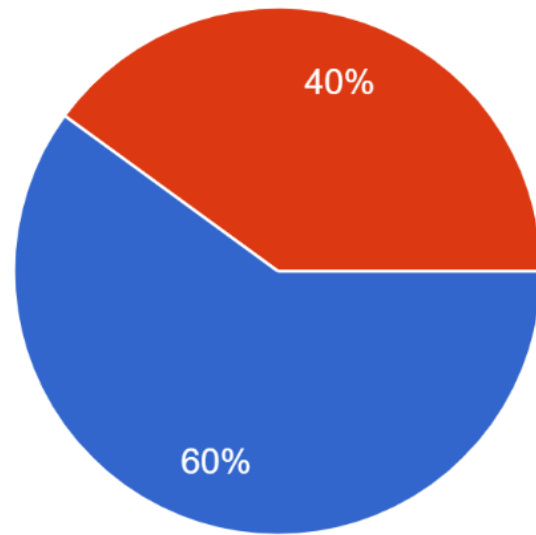
If you had the ability to do most of your vehicle charging at work for the same cost as you charge at home, would you choose to do so?

170 responses



Would you consider purchasing or leasing a plug-in electric vehicle if you are in the market for a new or used automobile?

903 responses



- Yes, I would consider purchasing a plug-in electric vehicle
- No, I would not consider purchasing a plug-in electric vehicle

True or false?

- EVs are slower than ICE cars
- EVs are way more expensive than other cars
- EVs are unsafe and randomly catch fire
- Emissions associated with EVs are worse than gasoline



Lessons Learned

- Leasing and ridesharing vs personal EV ownership
- Access to charging and misconceptions are the biggest barriers
- If you build it, they will come



Discussion & questions

- Would you consider an EV? Why or why not?
- Do you have any questions or comments about EVs?

