



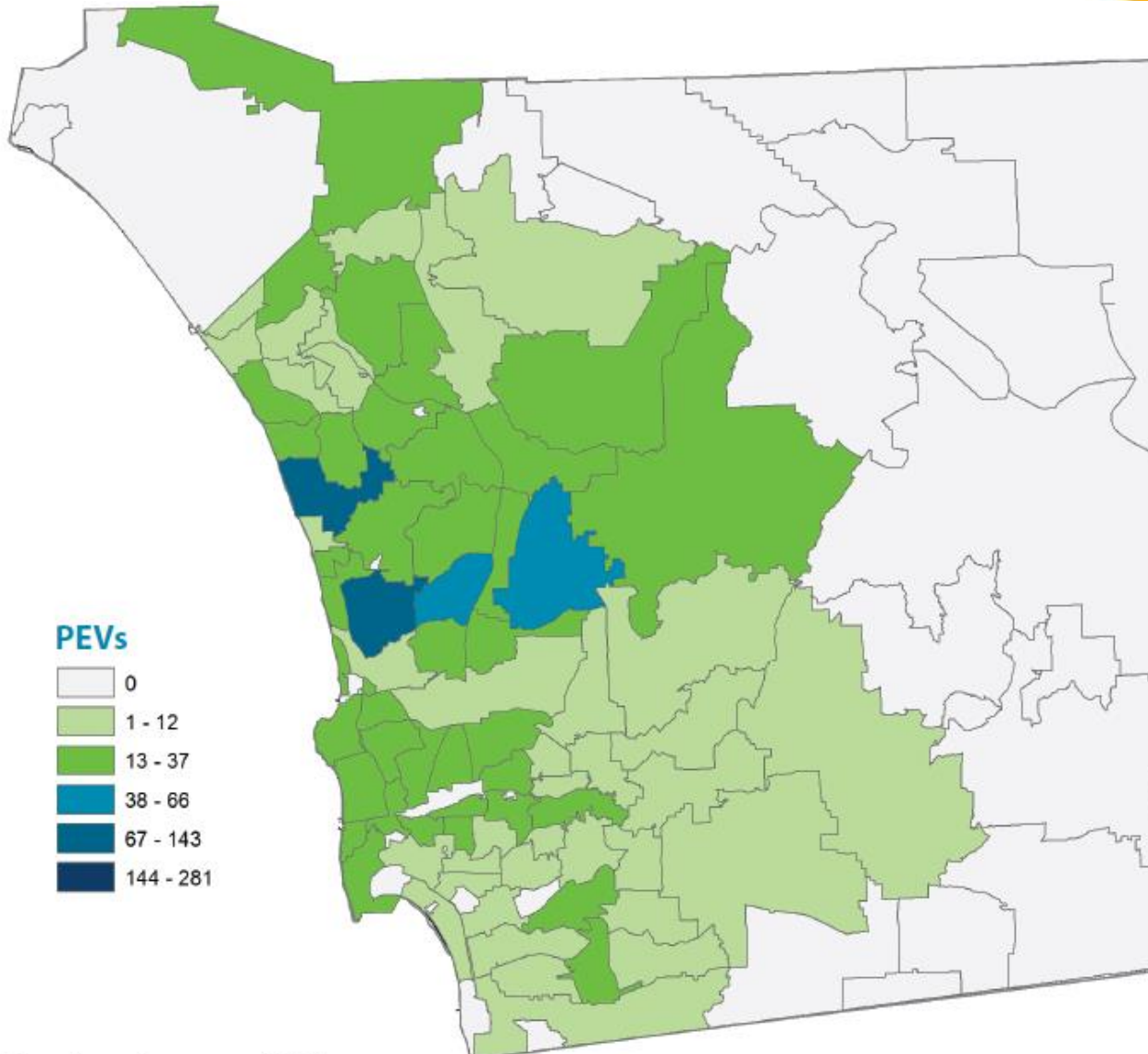
Planning for PEVs in the San Diego Region

Jessica Jinn

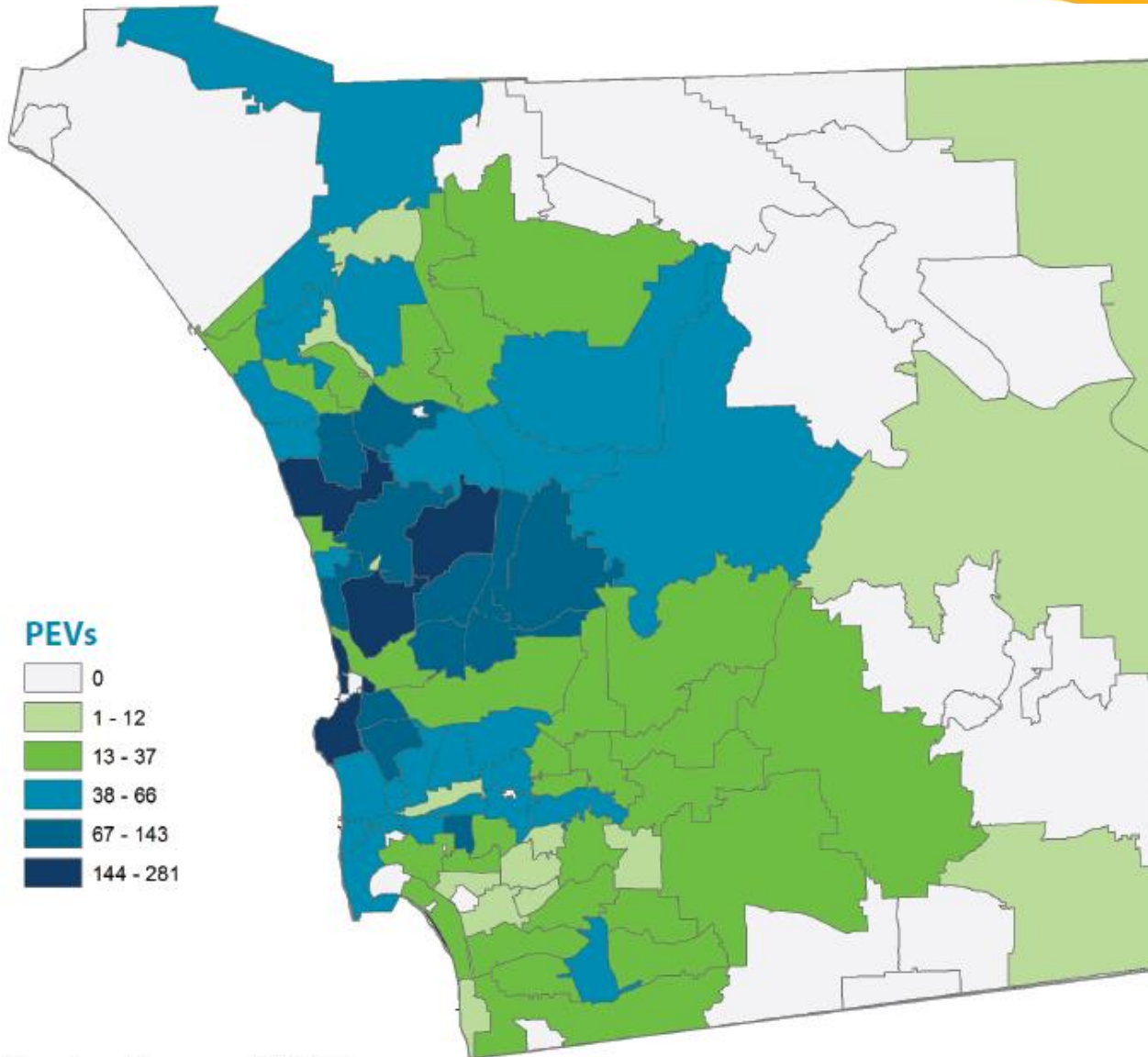


Why Plan for Plug-in Electric Vehicles (PEVs)?

- Enable and accelerate the PEV market in San Diego
- Make it easier to get chargers installed
- Plan for a regional network
- Enhance future siting capabilities
- Leverage outside funding sources



San Diego Regional PEV Adoption, February 2012



San Diego Regional PEV
Adoption, September 2013

0 4 8 16 Miles



EV Driver Survey Dashboard

Demographics | PEV Electricity Rates | Dealership Experience | Decision Factors | Information Channels

Demographics

Filter Vehicle Type

- (All)
- BEV
- PHEV

Filter Purchase/Lease

- (All)
- Purchase
- Lease

Select an area on the map to filter. Hold the Ctrl key and click areas on the map with your mouse to select multiple areas.

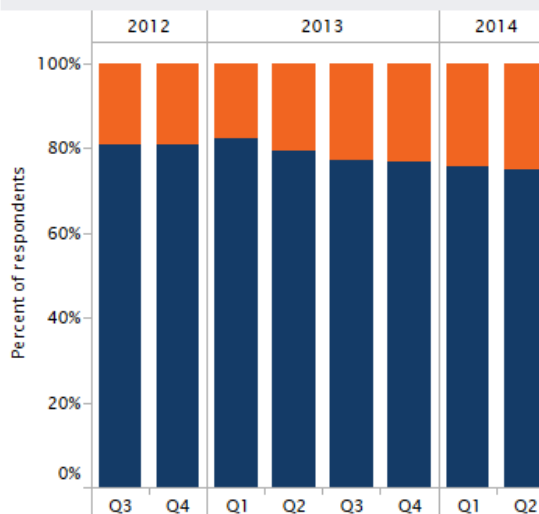
Filter Manufacturer

(All)

Select Demographics

Gender

Responses over Time by Purchase/Lease Date



Survey respondents
8,124

- Interactive dashboard of PEV market data from California EV drivers
- Learn about demographics, electricity rates, decision factors, primary motivations, and more

energycenter.org/evsurvey
www.energycenter.org

Overview

California Energy Commission (CEC) Grant

- Term: February 2012 – March 2014
- Prepare San Diego Regional PEV Readiness Plan
- San Diego Regional Electric Vehicle Infrastructure (REVI) Working Group
 - Convene stakeholders
 - Identify barriers to PEV infrastructure deployment
 - Develop resources



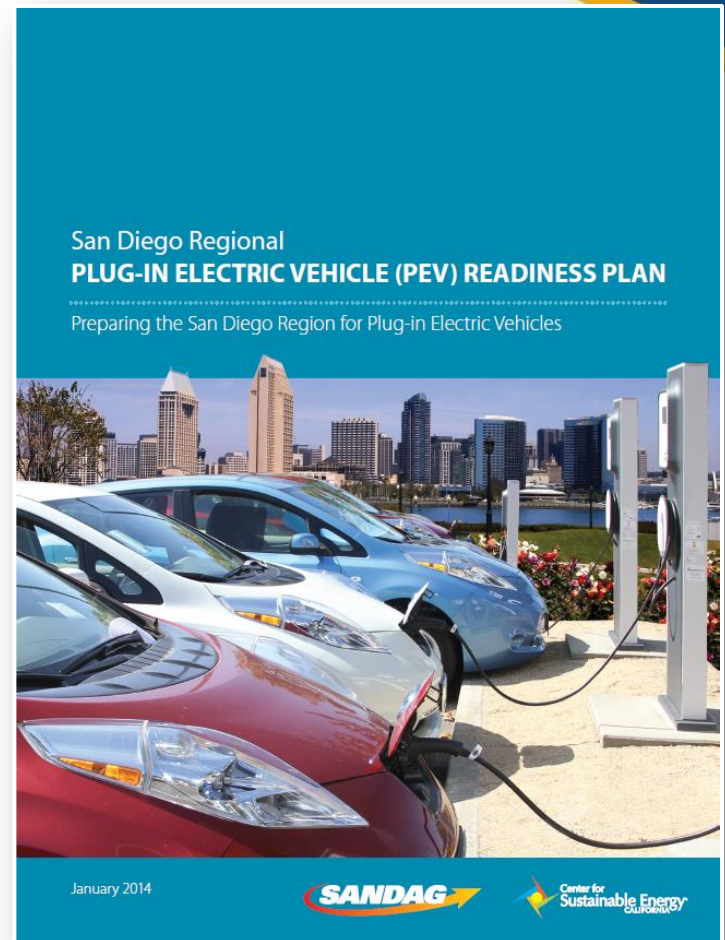
REVI Barriers

1. Permitting and inspection
2. Building codes
3. Zoning and parking rules
4. Training for education for municipal staff and electrical contractors
5. Lack of public knowledge
6. EVSE at multi-unit dwellings
7. Regional planning for public EVSE siting
8. On peak charging – TOU utility rates
9. Public agency EVSE installations
10. Commercial and workplace charging
11. Government fleets



San Diego Regional Plug-in Electric Vehicle Readiness Plan

- Includes regional best practices and resources for reducing and addressing regional barriers
- Over 40 pages of appendices covering
 - Installation guidelines
 - Resources for electrical contractors
 - Resources for public agencies
 - Resources for fleet managers



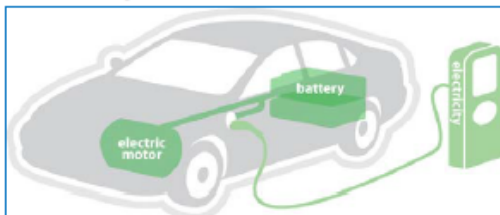
Plug-in Electric Vehicles & Charging: Getting Started

California is leading the nation in plug-in electric vehicle (PEV) adoption, and about 20% of PEVs in California are in the San Diego region. Interested in learning more about these new vehicles on our roads and highways? Here are some answers to your questions about the basics of PEVs, benefits of PEVs, charging options, and available incentives.

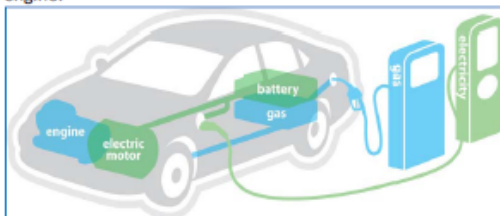
What is a plug-in electric vehicle?

A plug-in electric vehicle (PEV) is the generic term for cars that operate, fully or partially, on battery power and that are charged from the electricity grid. There are two main types of PEVs: battery electric vehicles and plug-in hybrid electric vehicles.

Battery Electric Vehicle (BEV) - Runs on electricity stored in batteries and has an electric motor rather than an internal combustion engine.



Plug-in Hybrid Electric Vehicle (PHEV) - Plugs into the grid and operates on electricity as well as an internal combustion engine.



What are all the options?

There are currently more than **20 different PEV models** on the market, offered by a variety of manufacturers. Check out an EV buying guide at <http://www.drivedclean.ca.gov>.

How far can I drive?

Battery electric vehicles can generally go 60 – 120 miles on a full charge, which is plenty of range for most people (the average Californian travels less than 30 miles a day). If more range flexibility is needed, a plug-in hybrid might be a better choice. They can generally run on battery alone for 10 – 40 miles, and then continue for up to 400 miles as a gasoline-electric hybrid.

Why should I drive a PEV?

- Help to reduce emissions and improve air quality

- Lower fueling costs
 - ✓ Save money and charge your vehicle overnight with SDG&E's time-of-use rates. Learn more at <http://www.sdge.com/evrates>.
- Lower maintenance costs
 - ✓ No more oil changes, fewer tune-ups



How do I charge?

Most PEV drivers will do the majority of their charging at home, but the availability of public charging stations is growing. Public stations offer drivers more charging options. A list of public charging locations can be found at <http://www.afdc.energy.gov/afdc/locator/stations>.

How long does it take to charge?

Charging times depend on three primary factors: the size of the battery, the onboard vehicle charger, and the type of charging equipment. The onboard charger is located in the vehicle and determines the amount of power that can enter the vehicle from the grid. Generally, BEVs have a larger battery compared to PHEVs. Three types of charging equipment are described in the table below:

Type of Charger	Miles of Range for 1 hour of charge	Where to charge?
Level 1 (120 volt)	3 to 4	Standard three-pronged outlet
Level 2 (240 volt)	8 to 20	At-home or public charging station
DC Fast Charger	50 to 60	Few public DC Fast Chargers

Are there incentives for buying or leasing a PEV?

For a limited time, rebates and tax breaks are available for PEV purchasers and lessees. Incentives include a state rebate of up to **\$2,500**, a federal tax credit of up to **\$7,500**, and HOV lane access.



- Find information on PEV rebates, discounts, HOV access, tax breaks, and other incentives available in your area at <http://drivedclean.ca.gov/pev/incentives.php>.
- Tax credits are also available for charging stations and allow consumers to claim up to 30% of the cost of hardware and installation, find out more at <http://www.afdc.energy.gov/laws/law/US/10513>.

Example fact sheet from the Plan

Next Steps

- SANDAG Board of Directors accepted the San Diego Regional PEV Readiness Plan as a regional guide on January 24, 2014
- Under a CEC grant, SANDAG, with San Diego Clean Cities Coalition, will begin developing a San Diego Regional Alternative Fuel Readiness Project to address barriers and provide support for deployment of alternative fuel vehicles and infrastructure.



More Information



- CCSE San Diego PEV Readiness:
www.energycenter.org/pluginready
- SANDAG Energy:
www.sandag.org/energy

Questions?

Jessica Jinn

(858) 634-4744

jessica.jinn@energycenter.org