



Electric Vehicle 101



**DRIVING ELECTRIC IS NOW
EASY AND COST EFFECTIVE**

PLUG IN CENTRAL COAST





2000 EVs, adding 150/month on the Central Coast





Why EVs?

Driving = Huge Impact

- EPA rated 100+ mpg equivalent
- Zero tailpipe emissions
- Reduce GHGs by 75% in CA
- Use clean, increasingly renewable electricity
- Driving on Sunshine
- Fun to drive/better experience





Electric Cars Available Now

ELECTRIC VEHICLE INFORMATION



CHEVY VOLT
Four Door Hatchback



NISSAN LEAF
Four Door Hatchback



TESLA MODEL S
Four Door Sports Sedan



TOYOTA PRIUS PLUG-IN
Based on Toyota Prius



FORD C-MAX ENERGI
Four Door Hatchback



FORD FUSION ENERGI
Based on Ford Fusion



FORD FOCUS ELECT.
Based on Ford Focus



HONDA PLUG-IN ACCORD SEDAN
Based on Honda Accord



HONDA FIT EV
Based on Honda FIT



TOYOTA RAV4 EV
Based on Toyota RAV4



MITSUBISHI i
Sub-compact



CHEVY SPARK EV
Compact



SMART ED
Coupe



FIAT 500 ELECT.
Based on Fiat 500



TESLA ROADSTER
Two-seat Roadster



FISKER KARMA
Four Door Sports Sedan



Pure Electric Vehicles



- Under \$20,000 or
- \$200/month, zero down
(after \$2,500 CA rebate and \$7,500 federal incentive)





Plug in hybrids



- \$26,000-\$30,000 or
- \$300/month, zero down
(after \$1,500 CA rebate and \$7,500 federal incentive)





Luxury EVs



- \$40,000 - \$100,000





Types of charging



Level 1 and 2 – 200+



Level 1 - trickle charge, 3-5 miles/hr
Level 2 - 10-30 miles/hr. \$.45-\$1.00/hr

Fast Charging – 5 + 16



DC Fast Charger – 60 miles in 20-30 min
Tesla Supercharger - 170 miles in 30 min



Challenges/drawbacks



- **Longer recharge time**
 - Requires different mindset – charge each night
 - 90% of charging happens at home, while you are sleeping
- **Limited range**
 - Not an issue for PHEVs
 - BEVs work well in 2+ car households
- ~~Cost (was an issue)~~
 - EVs are now less expensive than gas cars



Saving \$245/month

Before driving on sunshine:

Auto loan: \$475/month
Gasoline: \$300/month
Utility bills: \$30/month

Total: \$805/month

Current expenses:

Auto lease: \$260/month (he upgraded to 18,000 miles/year)
Home solar system loan: \$300/month
Utility bills: annual average is near zero.

Total: \$560/month

Jeff and Mandy Phillips

“It’s exciting to make such a huge change and also have it make total economic sense”

<http://www.cecsb.org/index.php/blog/item/phillips-are-driving-on-sunshine>



Solar

EV+PV = Zero Emission Driving



2 kW solar = 12,000 miles

~\$6,000 for 25+ years

Cost of 25 years of gas?

Tim Foraker

Financial Advisor, Edward
Jones

Tim calculated that his annual rate of return from switching to solar and an EV is better than 20 percent. Given the warranties and production guarantees of the panels, Tim sees the decision to go solar as a **“risk-free investment – and in this day and age there are no risk-free investments, particularly one with a 20 percent annual return!”**

http://www.cecsb.org/index.php/blog/item/tim-foraker?category_id=28



Solar

EV+PV = Zero Emission Driving



Time-of-Use Rates

- Smart meter data



- 9 cents – Night Super Off-Peak
- 16-47 cents – On-Peak

	Summer		Winter	
	Tier 1 Rate	Tier 2 Rate	Tier 1 Rate	Tier 2 Rate
On-Peak 10 AM - 6 PM weekdays	28 ¢ / kWh	47 ¢ / kWh	16 ¢ / kWh	35 ¢ / kWh
Off-Peak All other times	12 ¢ / kWh	31 ¢ / kWh	11 ¢ / kWh	30 ¢ / kWh
Super Off-Peak Midnight to 6 AM every day	9 ¢ / kWh	9 ¢ / kWh	10 ¢ / kWh	10 ¢ / kWh



PCC Steering Committee



Stan Cowen

Ventura County APCD

Michael Chiacos

Community Environmental
Council

Aeron Arlin Genet

Central Coast Clean Cities
San Luis Obispo APCD

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Santa Barbara County APCD



PCC Mission and Vision



Mission

To encourage and facilitate mass adoption of PEVs in the tri-county Central Coast region

Vision

The Central Coast will be a leader in mass Electric Vehicle deployment, with robust EV education and outreach; a convenient public charging infrastructure, streamlined charger installation, efficient integration into the grid, and optimized utilization of renewable energy resources.



EVs on the Central Coast



National sales 2011 – 17k, 2012 – 52k, 2013 – 96k

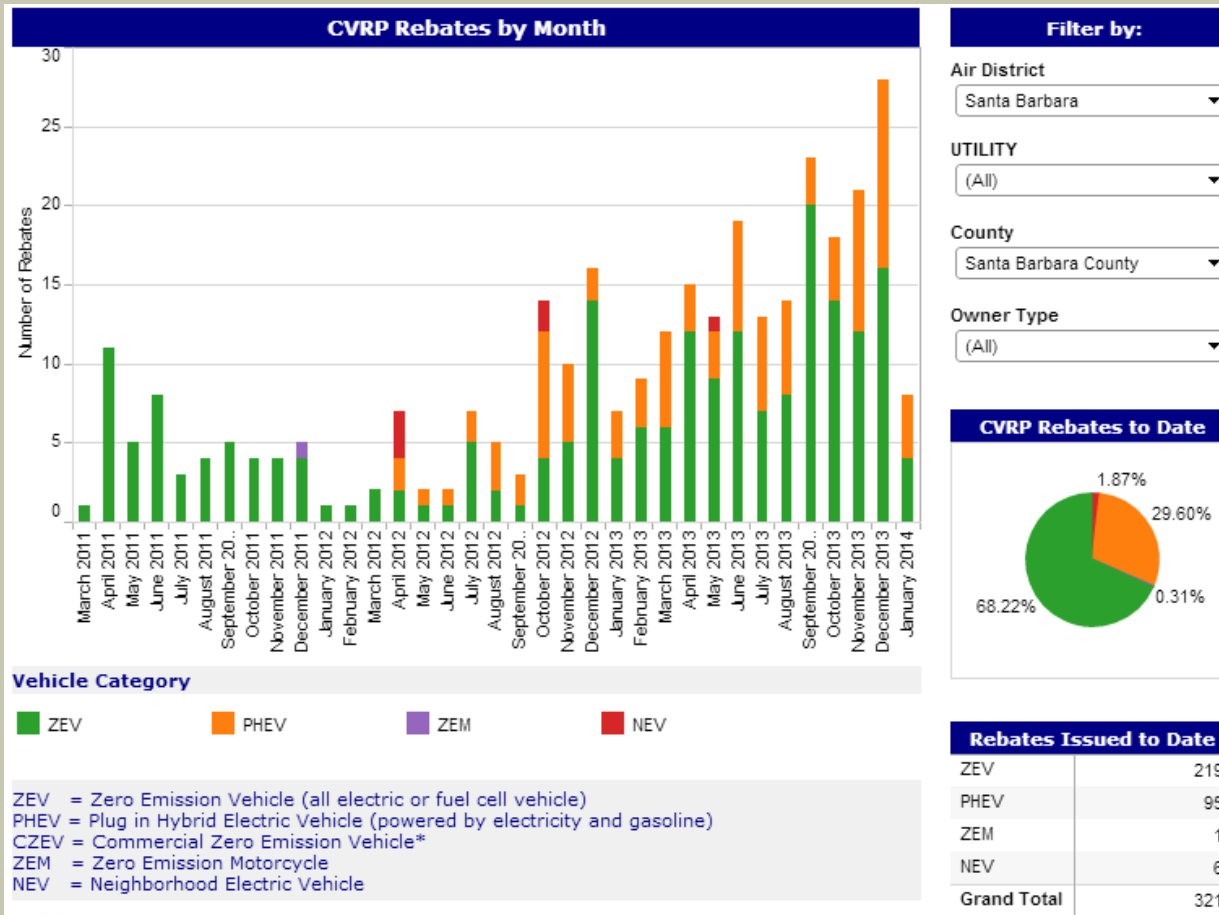
- **2014 = launch of new EVs** from Tesla, BMW, Volvo, Cadillac, VW, and many more
- **1/3 of all U.S. EVs are in California**
- **Large price drops = \$13k-19k** for iMiev, Spark, Leaf
- **Great value proposition**
 - **Effectively zero \$ down, \$200/month**
 - **Compelling total cost of ownership** – lower than most ICEs
 - **GHG is 75% less than avg. ICE** with California grid power (BEVs)
 - **Electricity is 1/3 the cost of gasoline**
 - **Rapidly growing public charging infrastructure**
 - **Time is right to get the word out about the EV era!**



Data from CA Rebate Project



- C. Coast 2000 EVs (375 on South Coast, 25-30/m)

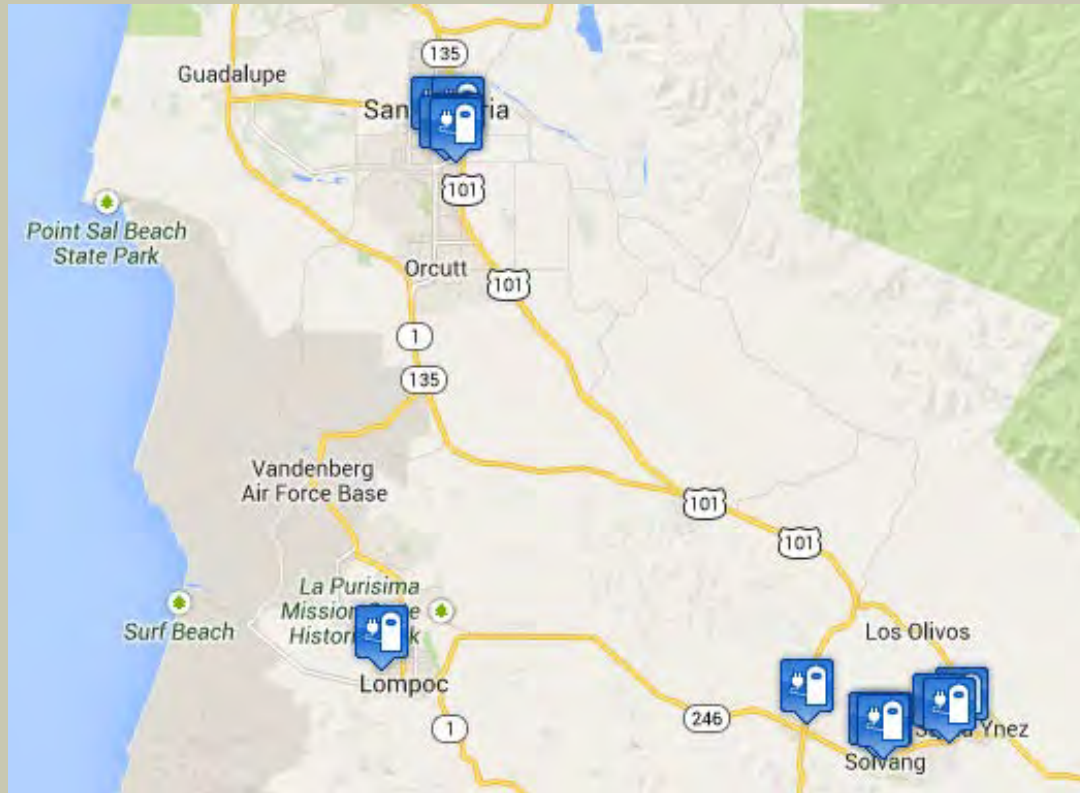




North County Santa Barbara



- 200+ public charging stations on Central Coast
- 72 public chargers in SB, 22 in N. County + 8 Tesla

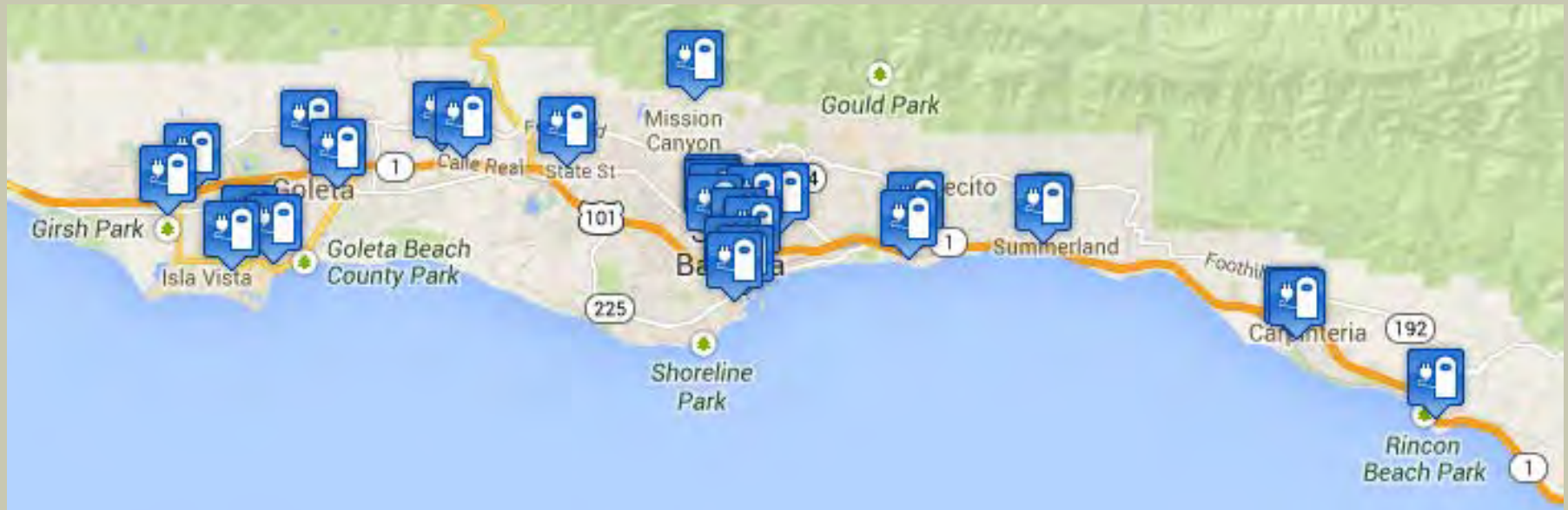




South County Santa Barbara



- 7 out of 8 EVs sold in South County
- 50 public stations in S. County, 1 fast charger
- Usage quadrupled at our sites in SB/Ventura





Central Coast EV Progress



- Events -- over 50,000 exposed to EVs
 - Green Car Shows w/ride and drive (2000 test drives)
 - National Plug in Day expanded to Ventura and Santa Barbara
- EV Readiness Plan – local recs and case studies
- \$282,000 in EV charger funds by local APCDs
- Outreach to over 100 local workplaces/cities/condo associations
- New Resources: NRG funds, Towbes workplace grant, Alt. Fuels Readiness, and CEC corridor grant



Questions?



Michael Chiacos

**Energy and Transportation
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