Electric Vehicles 101

SAVING MONEY WHILE GOING GREEN WITH ELECTRIC VEHICLES

Community Environmental Council

SIERRA CLUB

electricdrive 805

The future of clean driving is now

El futuro de conducir limpio es hoy
<table>
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<tr>
<th>Model</th>
<th>Type</th>
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<tr>
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<td>Electric SUV</td>
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<tr>
<td>BMW i3</td>
<td>Electric Hatchback</td>
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<tr>
<td>BMW X5 xDrive40e</td>
<td>Plug-in Hybrid SUV</td>
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<tr>
<td>Chevrolet Bolt</td>
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<td>Chevrolet Volt</td>
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<td>Chrysler Pacifica</td>
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<td>FIAT 500e</td>
<td>Electric Compact</td>
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<td>Honda Clarity</td>
<td>Hydrogen, EV and PHEV Sedan</td>
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<td>Hyundai Ioniq</td>
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<td>Mitsubishi Outlander</td>
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<td>Nissan Leaf</td>
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<td>smart Electric Drive</td>
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<td>Tesla Model 3</td>
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<td>Toyota Prius Prime</td>
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<td>Volkswagen e-Golf</td>
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<tr>
<td>Volvo XC90 T8</td>
<td>Plug-in Hybrid SUV</td>
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Why EVs?

Driving = Huge Impact

- EPA rated 100+ mpg equivalent
- Zero tailpipe emissions
- Reduce GHGs 75-100% in CA
- Use clean, increasingly renewable electricity
- Driving on Sunshine
Driving = Savings and Fun

- Fun to drive/better experience
- Inexpensive fuel - $1.40/gallon or less with solar
- Reduced maintenance - ½ cost, Alameda 3.5 vs 7.9 cents/mile
Driving = Carbon Impact

- Transp. 50% emissions
- 5 MTcO2/car to 0-1 MT
- Cheeseburger = 10 mile
- iPhone = 200 miles
- Long flight = 3,851 miles
  - LA-Japan = 1.6 MT
EV Sales Are Increasing

- US - 1.45 million
- CA - 700,110
- 9% new vehicle sales
- Globally Europe/China
- CC - 21,000
- Adding 400/month

*Data as of January 2020*
Used Electric Vehicles

- $5,000-$15,000
Used Plug-in Hybrids

- $10,000-$20,000
New EVs and Plug-in Hybrids

- $20,000 - $40,000+
EVs Coming 2020/2021
Hydrogen Fuel Cell Vehicles

- Higher range
- Faster refueling
- 41 hydrogen stations
- $50,000 or great lease
- 8,300 sold in CA
- Less efficient 67 mpge
Incentives

- Federal Tax Credit – Up to $7,500 (no Tesla/GM)
- Utility Rebate – SCE $1,000, PG&E $800
- CA Rebate – $4,500 FCV, $2,000 EV, $1,000 PHEV, low-moderate income extra $2,500 ($77k, fam. 4)
  OR
  $5,000 grant through Clean Vehicle Assist. Program ($104k, fam. 4)

Learn more at ElectricDrive805.org
Types of Charging

**Level 1 and 2 – 1,000+**

- **Level 1** - trickle charge, 3-5 miles/hr
- **Level 2** - 10-30 miles/hr.

**L3 - Fast Charging – 172+**

- **DC Fast Charger** – 60 miles in 20-30 min
- **Tesla Supercharger** – 1,000 miles/hour
Time of Use Rates = Low Cost fuel

- Rough estimate - 14 cents/kWh = $1.40/gallon gas

TOU-D-PRIME Rates

<table>
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<th>Summer Rates</th>
<th>Winter Rates</th>
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Winter Rates - October to May (8 months)

Weekdays:
- 14¢
- 38¢
- 14¢

8am, 4pm, 9pm, 8am

Weekends:
- Super Off-Peak: 14¢
- Off-Peak: 38¢
- Mid-Peak: 14¢

Above rates are per kWh.
Ventura County

- 424+ public charging stations in Ventura County
- 100+ fast charging stations in Ventura County
Santa Barbara County

- 263+ public charging stations in SB County
- 38+ fast charging stations in SB County
San Luis Obispo County

- 282+ public charging stations in SLO County
- 34+ fast charging stations in SLO County
- PlugShare.com
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!”

Solar
EV+PV = Zero Emission Driving
"We are saving lots of money and we made a decision that really impacts the environment positively."

Gilbert & Joy Robledo
Solarize Santa Barbara

SolarizeSB.org
ElectricDrive805

- CEC, APCDs of Ventura, SB, SLO, VCREA, C5
- Your resource for everything EV, learn more at:

www.ElectricDrive805.org

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Central Coast EV Progress

- Events -- over 40,000 annually exposed to EVs
  - Green Car Shows w/ride and drive (3,693 test drives)
  - National Drive Electric Week in five cities
- EV Readiness Plan – local recs and case studies
- EV charger funds by local APCDs
- Outreach to hundreds of local workplaces/cities/condo associations
- New Resources: VW Settlement, ZEV Readiness, SCE ChargeReady, CEC infrastructure grants
Challenges/Drawbacks

- **Longer recharge time**
  - Different mindset – charge at night, or at work
  - 90% of charging happens at home, while you are sleeping

- **Limited range**
  - Not an issue for PHEVs
  - BEVs work well in 2+ car households, long range BEVs available

- **Cost**
  - Many EVs are now less expensive than gas cars
Great Value Proposition

- Effectively zero $ down, $200/month
- Compelling total cost of ownership – lower than most ICEs
- GHG is 75%-100% reduction than avg. ICE with California grid power
- Electricity is 1/3-1/2 the cost of gasoline
- Rapidly growing public charging infrastructure
- So fun and part of the solution
- Time is right to get the word out about the EV era!
Best Resources

- ElectricDrive805.org
- PlugInCars.com
- PlugShare.com
Let’s Continue the Conversation

1) Join CEC's ElectricDrive805 Facebook Group

www.facebook.com/groups/electricdrive805
Ask questions, get the latest EV info, and share your EV stories.

2) Share your feedback on this webinar:
www.cecsb.org/ev-101-webinar-survey/
Help us improve our webinar for next time.
Questions?

Michael Chiaclos
Energy and Climate Program Director
Community Environmental Council
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Lifecycle Transpo Emissions

- Small EV 1 ton (+15%)
- Large EV 6 tons (+68%)
- Repaid in 6-16 months of driving
- Repaid in 3-8 months in CA