



Electric Vehicle Purchasing 101

The Webinar will begin shortly

Submit your questions in the Q&A and we will answer them at the end of the presentation.

For tech support call (707) 382-7110

August 26th, 2020



Overview

- Introduction
- Financial incentives
- Fuel and maintenance savings
- Charging stations
- Other tips, tricks, and factoids
- Q&A

Disclaimer/Note

- Unless otherwise noted, information about vehicles was obtained from Kelly Blue Book, Edmunds, and/or EV Insider magazine.
- The electric vehicle market changes rapidly. Values/information listed herein are representative of the most recent information as of August 2020. Individuals are encouraged to use the resources described in these slides to verify the currency of this information.
- Individuals are encouraged to view these slides in tandem with the video recording. These information on these slides are not comprehensive; the audio in the video provides additional details on each slide.



What is a ZEV?

2016 Kia Soul EV

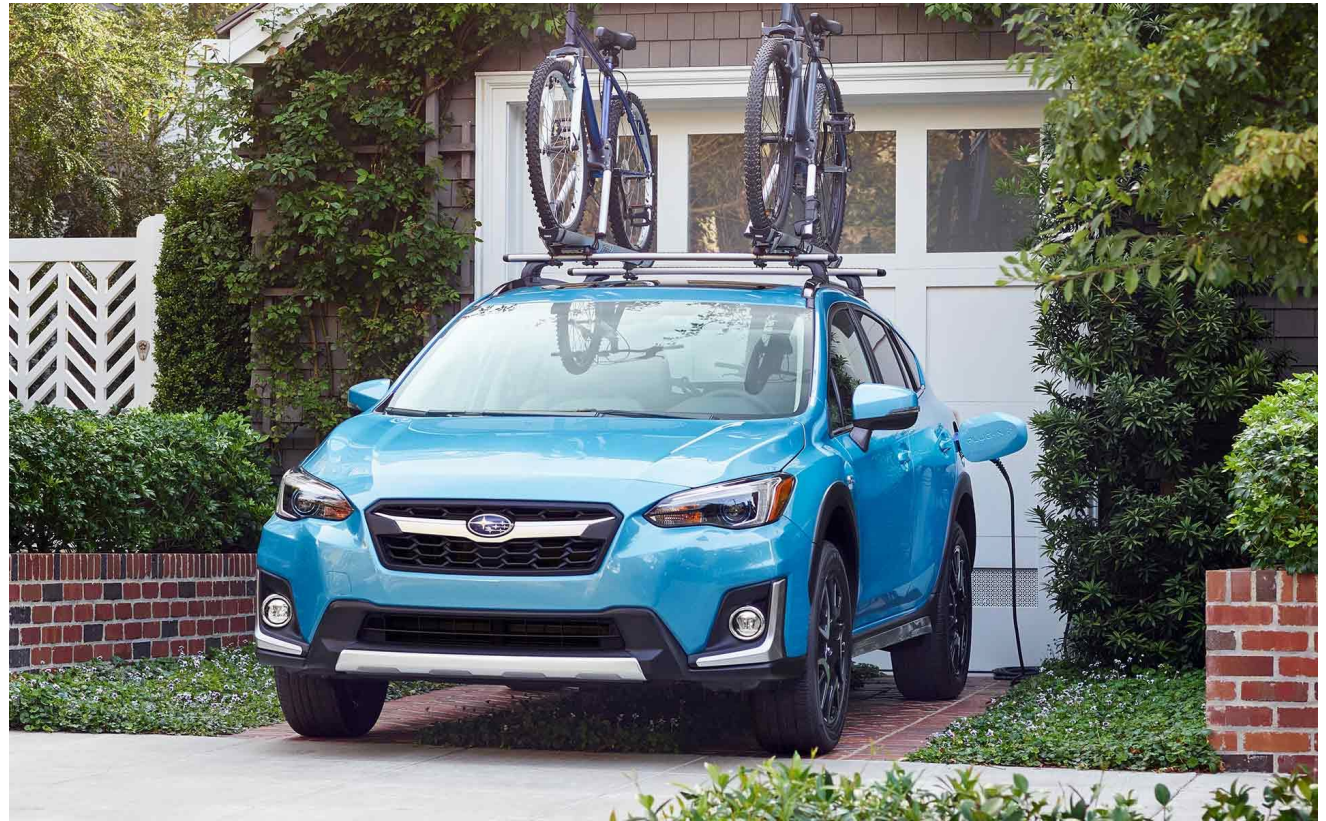


Battery Electric Vehicle (BEV)



2019 Hyundai Kona

Plug-in Hybrid Electric Vehicle (PHEV)



2019 Subaru Crosstrek Plug-In Hybrid

Standard Hybrid

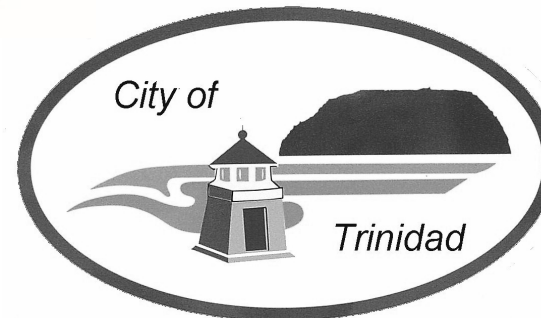


2011 Toyota Prius

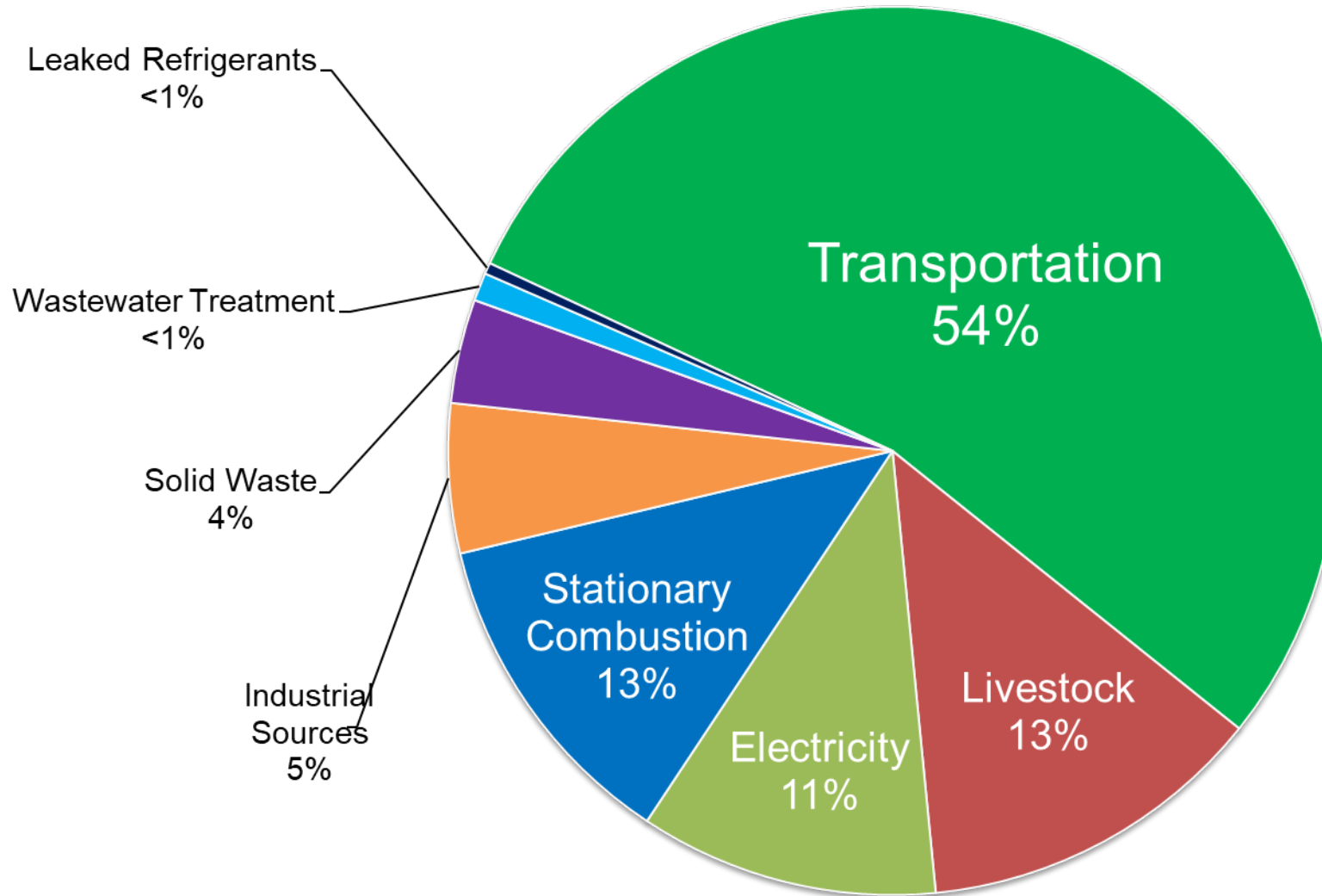


2019 Ram 1500

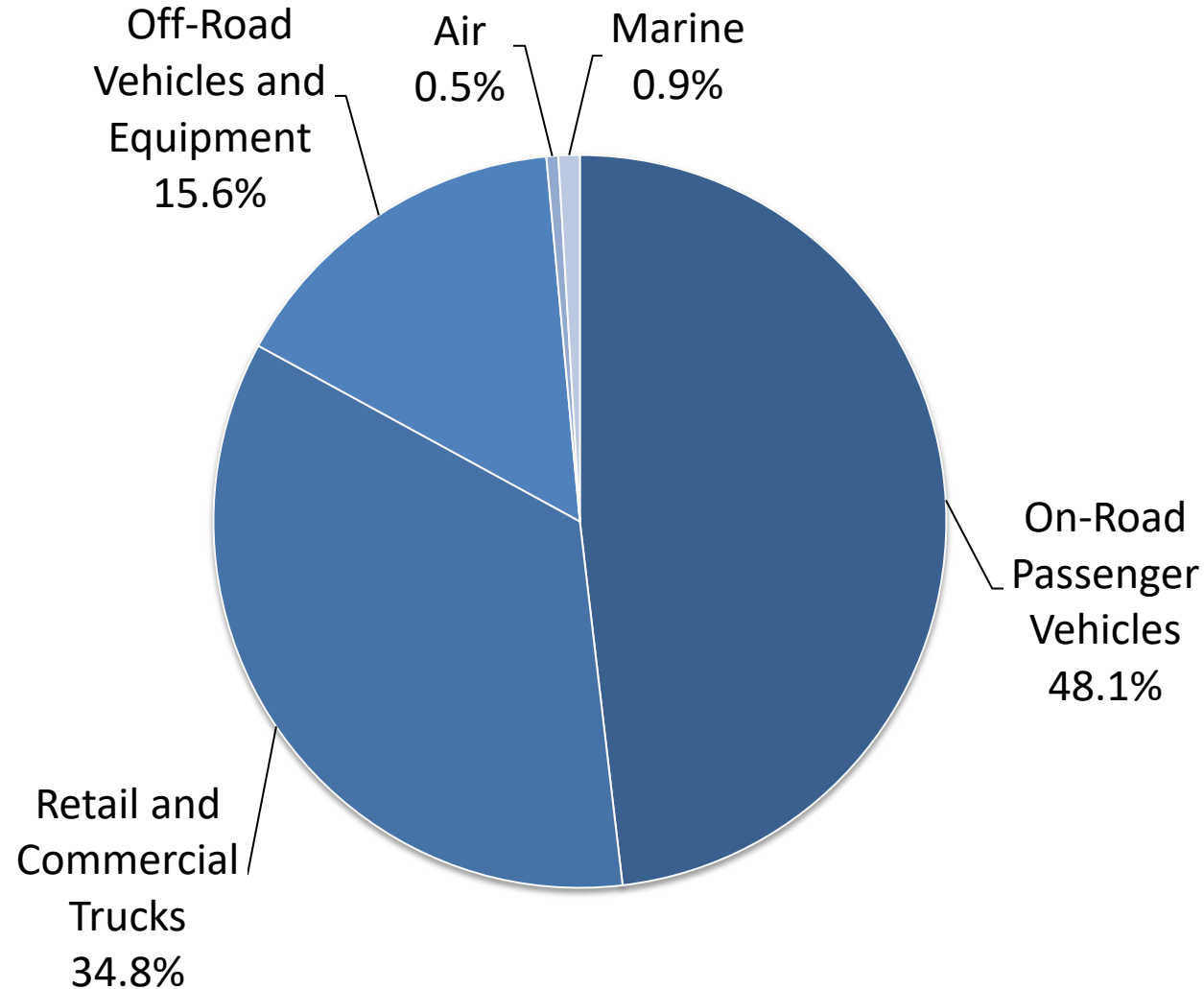
RCEA Advanced Fuels and Transportation Program



Humboldt County Emissions (2015)



Transportation Emissions Breakdown



Zero Emissions Vehicle Executive Order

By 2030

5 million ZEVs on California roads

By 2025

240,000 L2 charging stations

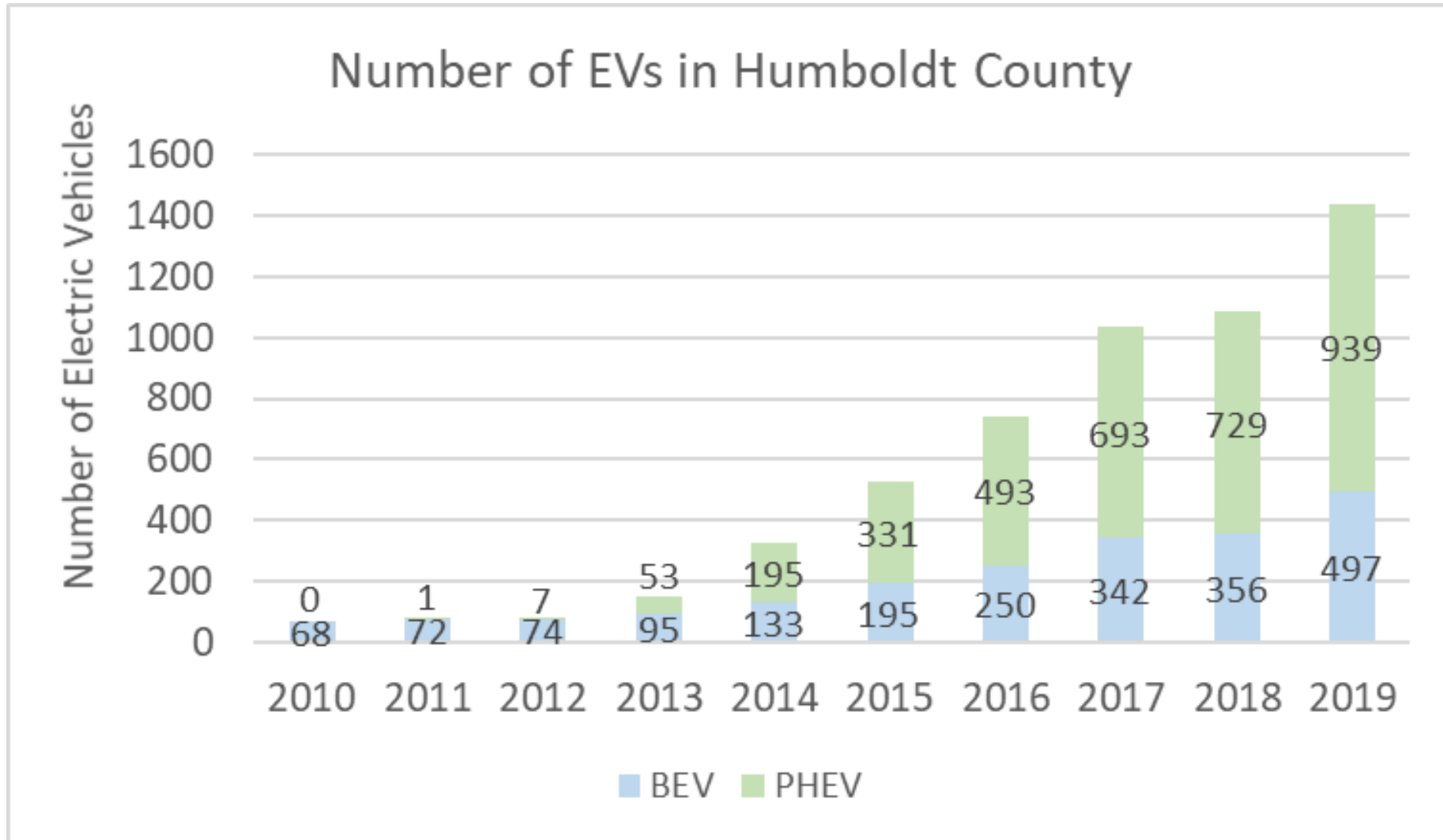
10,000 L3 charging stations

200 hydrogen fueling stations



Office of Governor
Edmund G. Brown Jr.

Zero Emission Vehicles in Humboldt County



Battery Electric Vehicles (BEV)



2016 Nissan
Leaf (used)



2020
Hyundai
Kona



2019 Chevy
Bolt (used)

MSRP/Lease (Manufacturers Suggested Sale Price)	Battery (kWh)	Range (miles)
\$9,030	30	107
\$20,300	64	258
\$28,464	60	238

Plug-in Hybrid Electric Vehicles (PHEV)



2018 Kia
Niro (Used)



2019
Mitsubishi
Outlander



2020 Subaru
Crosstrek
AWD

MSRP	Battery Gas	Range (miles)
\$21,749	8.9 kWh 11.4 gallons	26 (electric) 535 (total)
\$22,969	13.8 kWh 11.3 gal	28 288
\$35,145	8.8 kWh 13.2 gal	17 480

PHEV Cont'd



2017 Chevy
Volt (used)



2018 Toyota
Prius Prime

MSRP	Battery Gas	Range (miles)
\$17,053	18.4 kWh 8.9 gallons	53 (electric) 420 (total)
\$23,811	9 kWh 11.3 gal	25 640

Financial Incentives





Federal Tax Credit Amount

- BEV/PHEV
- \$2,500 - \$7,500
- Amount changes depending on vehicle (additional \$417 for every kWh of battery capacity above 5 kWh minimum)

Eligibility

- Models are phased out of eligibility after the manufacturer has sold 200,000 (ex. Tesla and Chevrolet EVs are no longer eligible)
- Only applies to new vehicles



Rebate Amount

- BEV: \$2,000 - \$4,500
- PHEV: \$1,000 - \$3,500

Eligibility

- New EV/PHEV
- Purchase or lease
- Must apply within 3 months of EV purchase
- See website for eligible vehicle list

Income Eligibility

Income Cap

- \$150,000 for single filers
- \$204,000 for head-of-household filers
- \$300,000 for joint filers

Increased Rebate Income Limits

Household Size	Combined Household Income must be less than*:
1	\$38,280
2	\$51,720
3	\$65,160
4	\$78,600
5	\$92,040
6	\$105,480
7	\$118,920
8	\$132,360



clean vehicle
assistance program

Grant Amounts

- HEV: \$2,500
- PHEV: \$5,000
- BEV: \$5,000
- Includes a Level 2 charger installed in your home OR \$1,000 prepaid charge card

Financing

- \$1000 buyer contribution (down payment or loan)
- Loans must have an interest rate $\leq 12\%$

Vehicle eligibility

- New (purchase or lease)
- If used, must have less than 75,000 miles and be ≤ 8 years old
- Must meet minimum MPG requirements

Income Eligibility

Number of People*	Maximum Gross Annual Income**
1	\$51,040
2	\$68,960
3	\$86,880
4	\$104,800
5	\$122,720
6	\$140,640
7	\$158,560
8	\$176,480



PG&E Clean Fuel Rebate

\$800

Income Eligibility

No income requirements

Vehicle Eligibility

New or used EV (can only be claimed once per vehicle)

Funds can be used for charging or installing a home charger

Estimated Capital Savings



2017 Used Fiat 500e
(84 mile range)

\$7,716 (Estimated Price)

-\$5000 (CVAP)

\$2,716

Estimated Capital Savings



2020 Nissan Leaf
(150 mile range)

\$31,600 (MSRP)

-\$2,000 (CVRP)

-\$7,500 (Federal Tax Credit)

-\$5,000 (CVAP)

\$17,100

Insurance Incentives

Several insurance providers offer discounts to drivers of alternative fuel vehicles.



HOV Access



Active: January 1, 2018 – 2022

RCEA EV Rebate

- In October, RCEA will open an Electric Vehicle rebate for customers
- The rebate will be an add-on to the Clean Vehicle Rebate Project
 - RCEA will match 50% of the amount customer received from the CVRP

Eligibility:

- Open to all commercial and residential customers
- Must submit application to RCEA within 3 months of receiving final approval from the CVRP

Service For:

Residential CARE Customer
1234 Main Street
Anytown, CA 000000

Questions about your bill?

Monday-Friday 7 a.m.-9 p.m.
Saturday 8 a.m.-6 p.m.
Phone: 1-800-743-5000
www.pge.com/MyEnergy

Local Office Address

111 STEVENSON BLVD
SANTA ROSA, CA 95401

Your Enrolled Programs

CARE Discount, CA Climate Credit

Your Account Summary

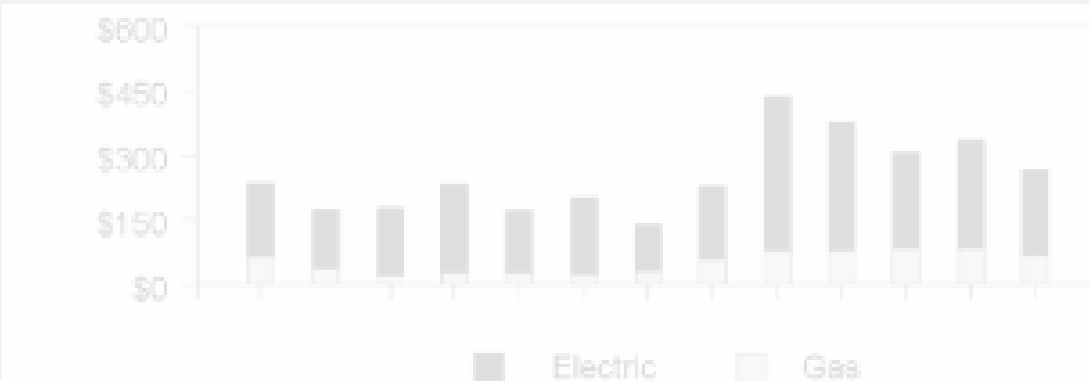
Amount Due on Previous Statement	\$334.72
Payment(s) Received Since Last Statement	0.00
Previous Unpaid Balance	\$334.72
Current Electric Charges	\$197.74
Electric Adjustments	-39.42
Current Gas Charges	69.89

Total Amount Due by \$562.93

 Current charges include discounts of \$169.58 for CARE and CA Climate Credit.

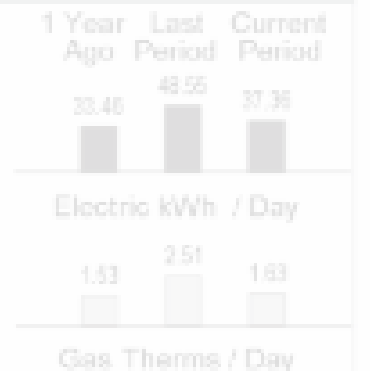
Maintenance and Fuel Savings

Monthly Billing History



Visit www.pge.com/MyEnergy for a detailed bill comparison

Daily Usage Comparison

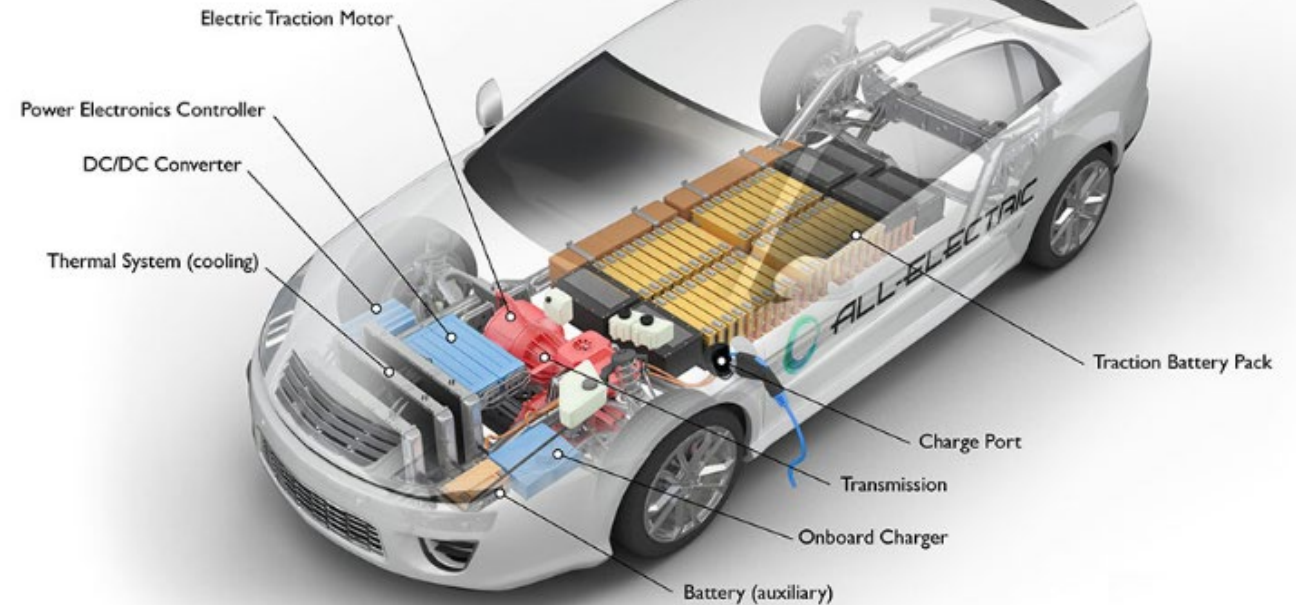


Important Messages

Maintenance Costs & Savings



Gas Car
~2,000 moving parts



afdc.energy.gov

Electric Car
~20 moving parts

How Do Maintenance Costs Vary With Mileage?

Based on Maintenance Performed by YourMechanic

Mileage	Total Maintenance Costs per 25k Miles
0- 25,000	\$1,400
25,000 - 50,000	\$2,200
50,000 - 75,000	\$3,000
75,000 - 100,000	\$3,900
100,000 - 125,000	\$4,100
125,000 - 150,000	\$4,400
150,000 - 175,000	\$4,800
175,000 - 200,000	\$5,000

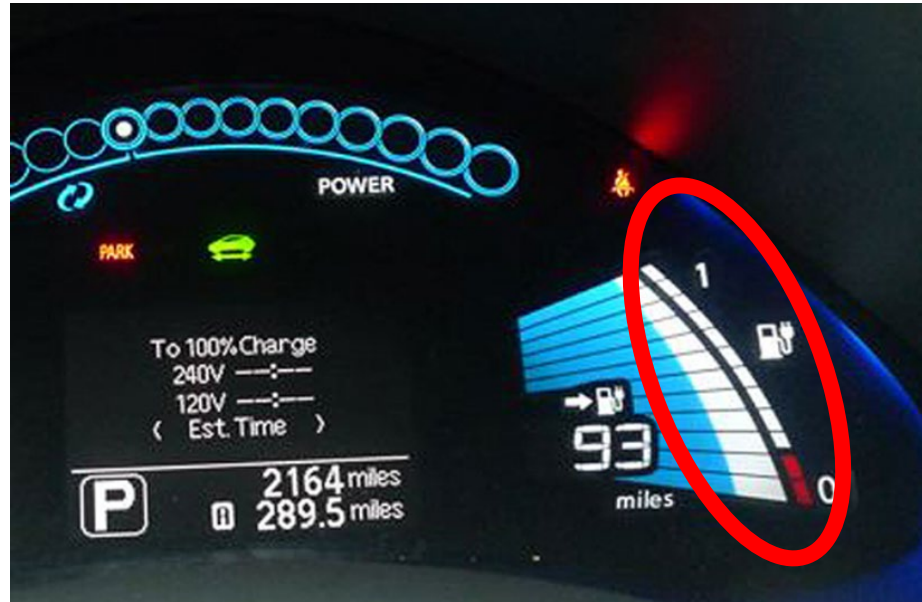
Average New Car Maintenance and Repairs (AAA)

Gas: \$1186/year

Electric: \$982/year

Battery Replacement

- Batteries degrade to about 80% of their capacity after 8 years
- Most EV manufacturers offer warranties of different lengths on their batteries (ex. 8 years, 100,000 miles)



Fuel Savings



Chevy 2017 Bolt

$$\frac{\$0.18}{1 \text{ kWh}} \times \frac{66 \text{ kWh}}{259 \text{ miles}} \times \frac{15,000 \text{ miles}}{1 \text{ year}} = \$688 \text{ Per year}$$

64 % Savings = \$1,212



2010 Honda Accord

$$\frac{\$3.80}{1 \text{ Gallon}} \times \frac{15.3 \text{ gallons}}{459 \text{ miles}} \times \frac{15,000 \text{ miles}}{1 \text{ year}} = \$1,900 \text{ Per year}$$

Fuel Savings (cont.)



Chevy 2020 Bolt

$$\frac{\$0.18}{1 \text{ kWh}} \times \frac{66 \text{ kWh}}{259 \text{ miles}} \times \frac{15,000 \text{ miles}}{1 \text{ year}} = \$688 \text{ Per year}$$

60 % Savings = \$1,040



2020 Chevy Malibu

$$\frac{\$3.80}{1 \text{ Gallon}} \times \frac{15.8 \text{ gallons}}{521 \text{ miles}} \times \frac{15,000 \text{ miles}}{1 \text{ year}} = \$1,728 \text{ Per year}$$

Overall Savings

Cost	Average 2019 EV	Average 2019 Gas
Capital Costs	\$30,419	\$16,485
Maintenance	\$982	\$1186
Fuel	\$680	\$1,728
One year	\$32081	\$19399
Incremental Cost (NPV, 8 years)	\$4740	
Incremental Cost (NPV, 10 years)	\$2848	
Incremental Cost (NPV, 14 years)	\$615	

Overall Savings

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Average new light-duty car price (December 2018)

Overall Savings

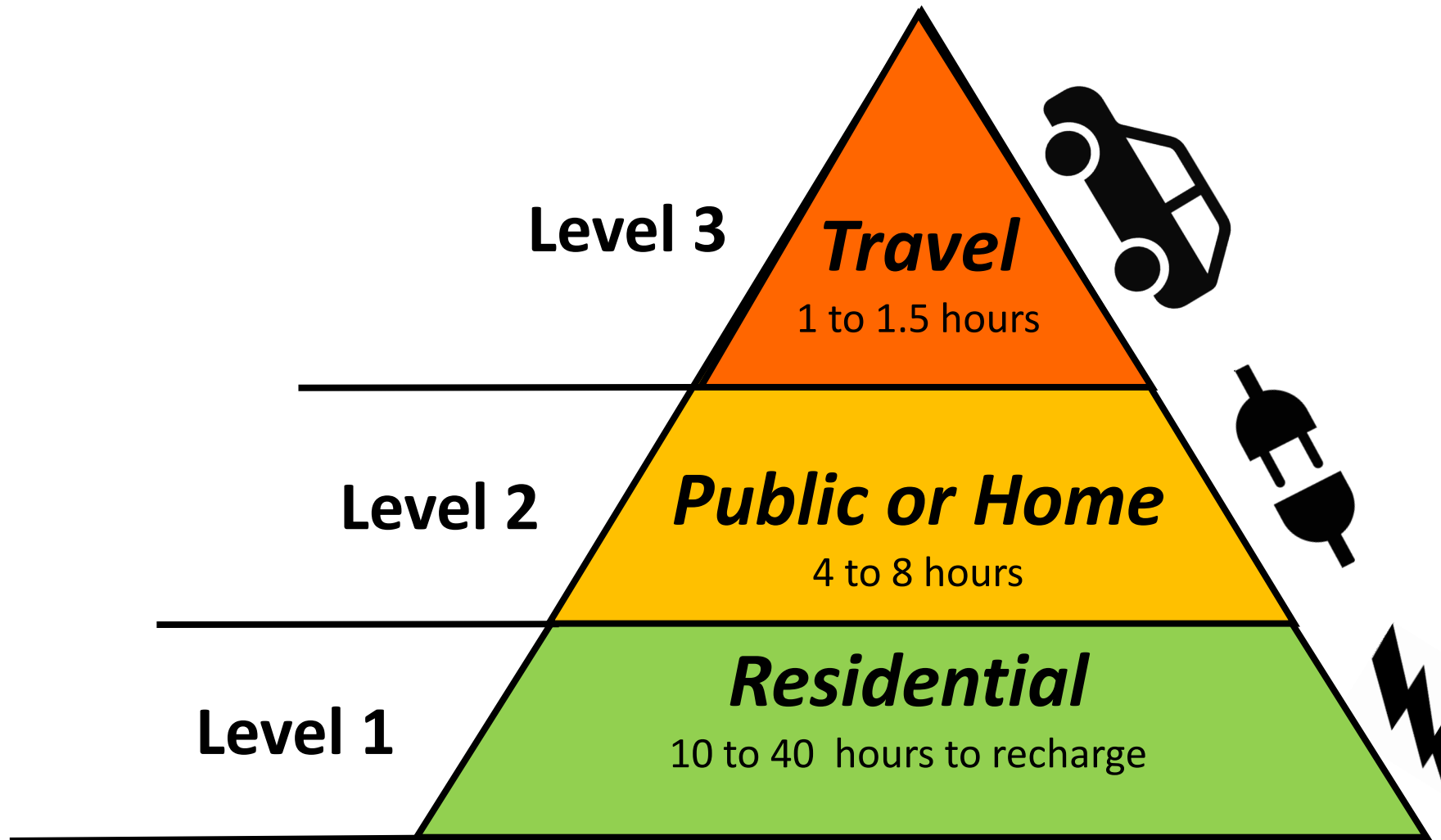
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Incremental Cost (NPV, 8 years)	\$4740	
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Average used car price
(December 2018)

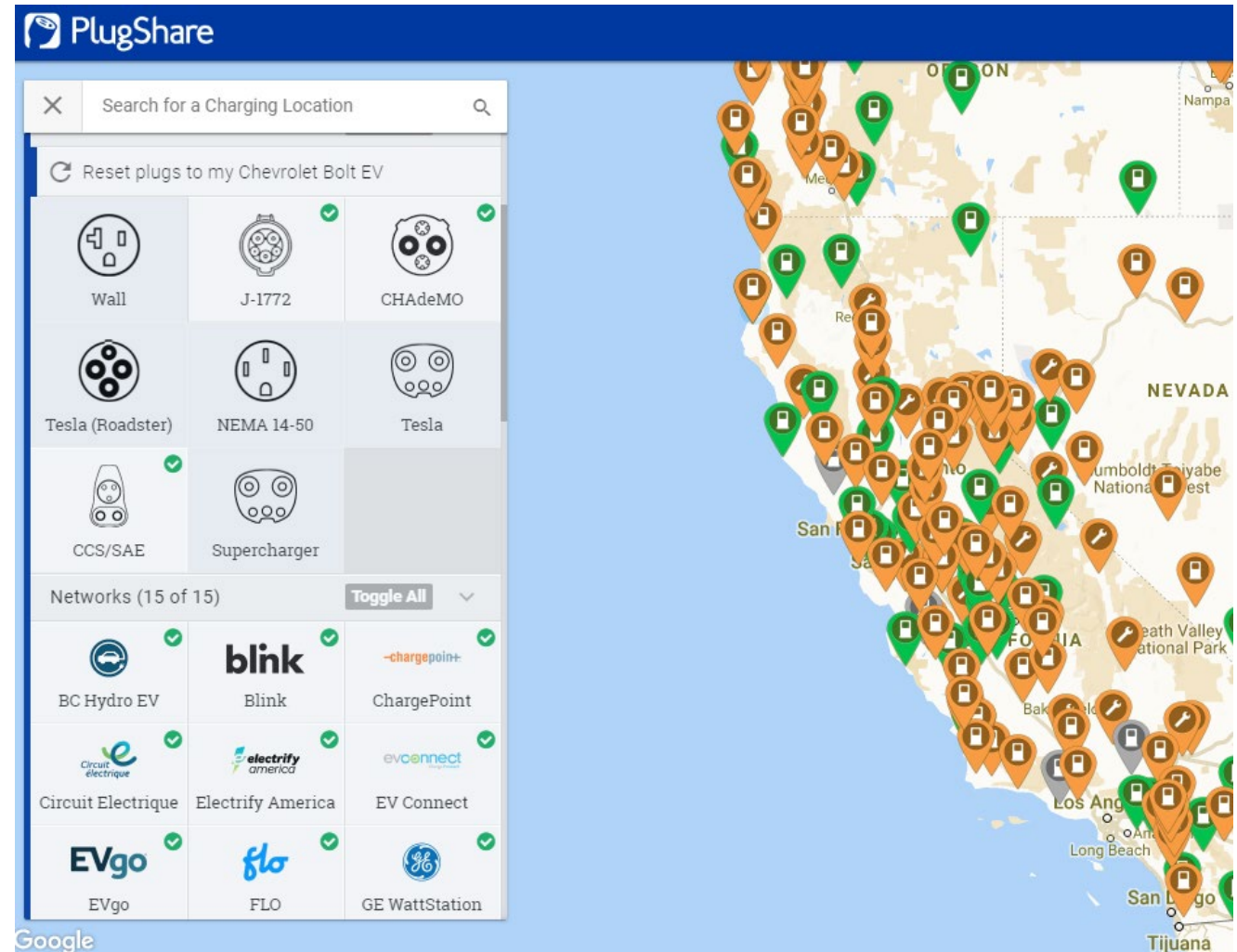
Charging Stations

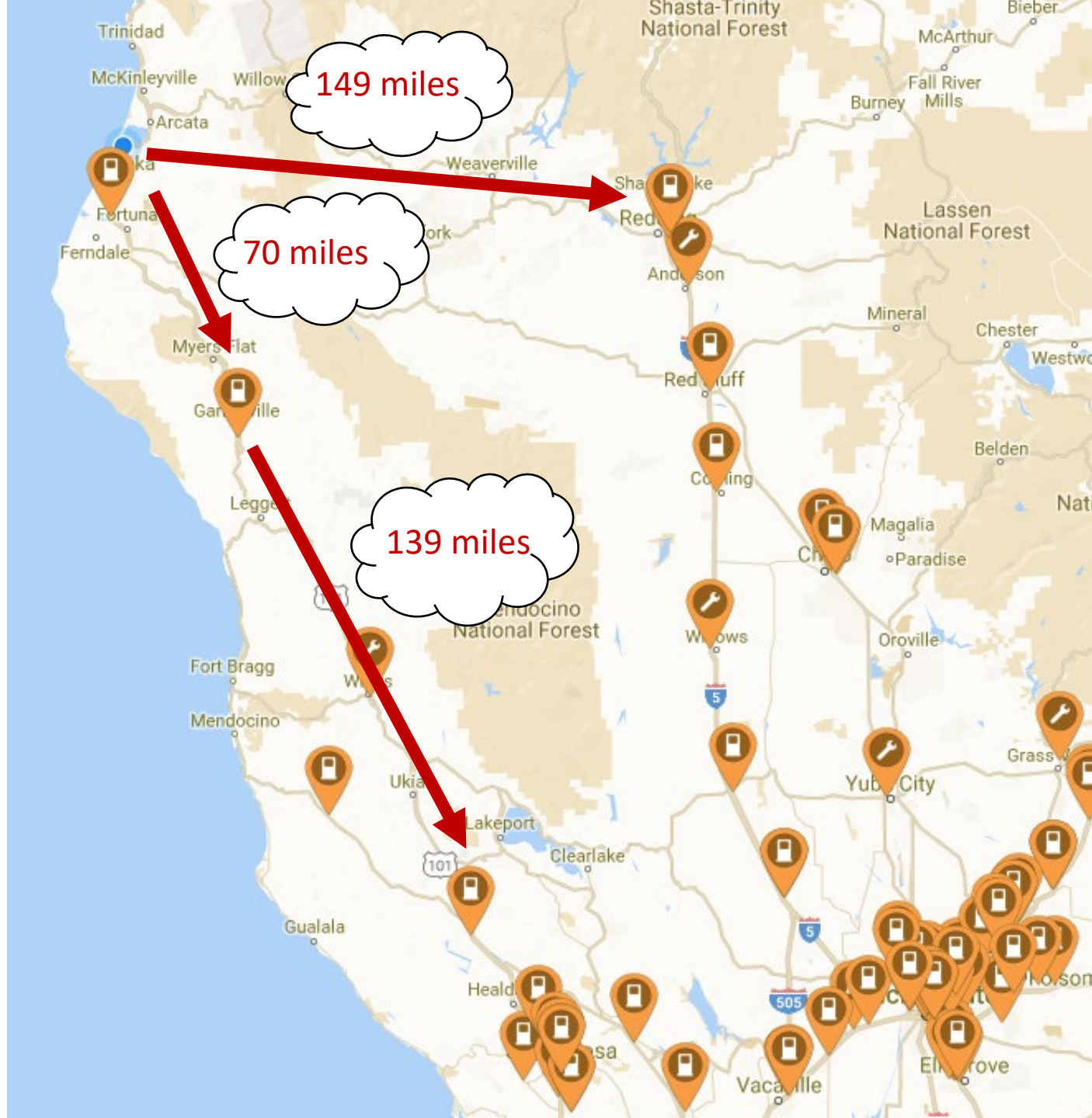


Types of Charging Stations



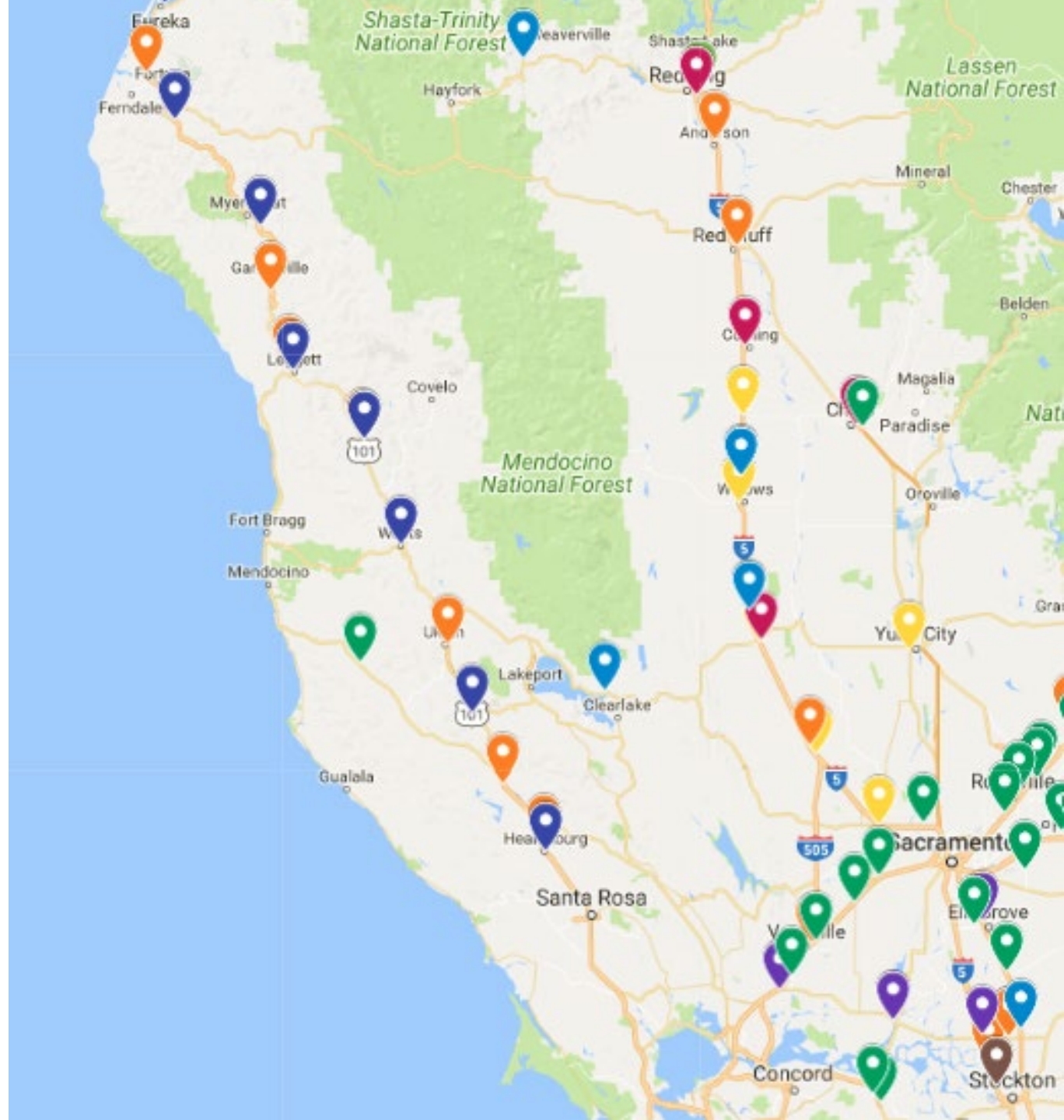
EV Charging Stations in Our Region





Future
Fast Charge
Network:

Leave the
range anxiety
behind!



A map of Northern California is shown in the background. A red line segment is drawn on the map, starting from a location near Arcata and extending towards the northeast. A white cloud-shaped callout with a black outline is positioned above the red line, containing the text "149 miles" in red. A large blue oval is superimposed over the center of the map, containing white text. The map shows various locations including Trinidad, McKinleyville, Willow, Arcata, Shasta-Trinity National Forest, McArthur, Fall River Mills, Burney, Lassen National Forest, Gualala, Healdsburg, Vacaville, and Eureka. There are also several orange location pins with white gas pump icons scattered across the map, particularly in the southern and eastern regions.

149 miles

Average daily trip
is 30 miles!

The background image shows an outdoor event, possibly a car show or a community fair. In the foreground, a woman with short blonde hair and glasses, wearing a pink shirt, is leaning over a table and writing on a clipboard. On the table, there are several brochures, one of which prominently features the word "Electric" and an image of a red car. To her right, a man in a green jacket and a black cap is talking to two women. One woman is smiling broadly and holding a black water bottle, while the other is looking on. In the background, a white car with its door open is visible, and further back, a building with a "Jack" logo can be seen. The overall scene is bright and sunny.

Other Tips and Tricks

Dealer Tips

- Sometimes it's better to lease EVs than buy, due to obsolescence and faster-than-usual depreciation
- If the EV is a secondary car, buying may be more feasible
- Check for overall battery capacity when buying used (dealers often won't know)
- Single pay up front for lease is cheaper

Dealer Tips Cont'd

- Get quotes via e-mail from out of area first, then use to negotiate with local dealers
- [Tips for getting the best deal on a lease](#) (for all cars and includes math that will be the key to great negotiation skills; especially relevant to an EV)
- [Tips from a Driver Who has Leased 4 Evs](#)
- [Consumer Reports Tips](#)

Get the Most Out of Your Battery

1)Speed

Get the Most Out of Your Battery

1)Speed

2)Charge to 80%

Get the Most Out of Your Battery

1)Speed

2)Charge to 80%

3)Park in the shade

Get the Most Out of Your Battery

- 1)Speed
- 2)Charge to 80%
- 3)Park in the shade
- 4)Heating and AC

Get the Most Out of Your Battery

1)Speed

2)Charge to 80%

3)Park in the shade

4)Heating and AC

5)Tires

Get the Most Out of Your Battery

- 1)Speed
- 2)Charge to 80%
- 3)Park in the shade
- 4)Heating and AC
- 5)Tires
- 6)Travel light

Get the Most Out of Your Battery

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- 6)Travel light
- 7)Recharge at 30%

Get the Most Out of Your Battery

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- 7)Recharge at 30%
- 8)Use a charging timer

Get the Most Out of Your Battery

- 1)Speed
- 2)Charge to 80%
- 3)Park in the shade
- 4)Heating and AC
- 5)Tires
- 6)Travel light
- 7)Recharge at 30%
- 8)Use a charging timer
- 9)Temper fast charging

Greenhouse Gas Emissions

EV long-range (265 miles)

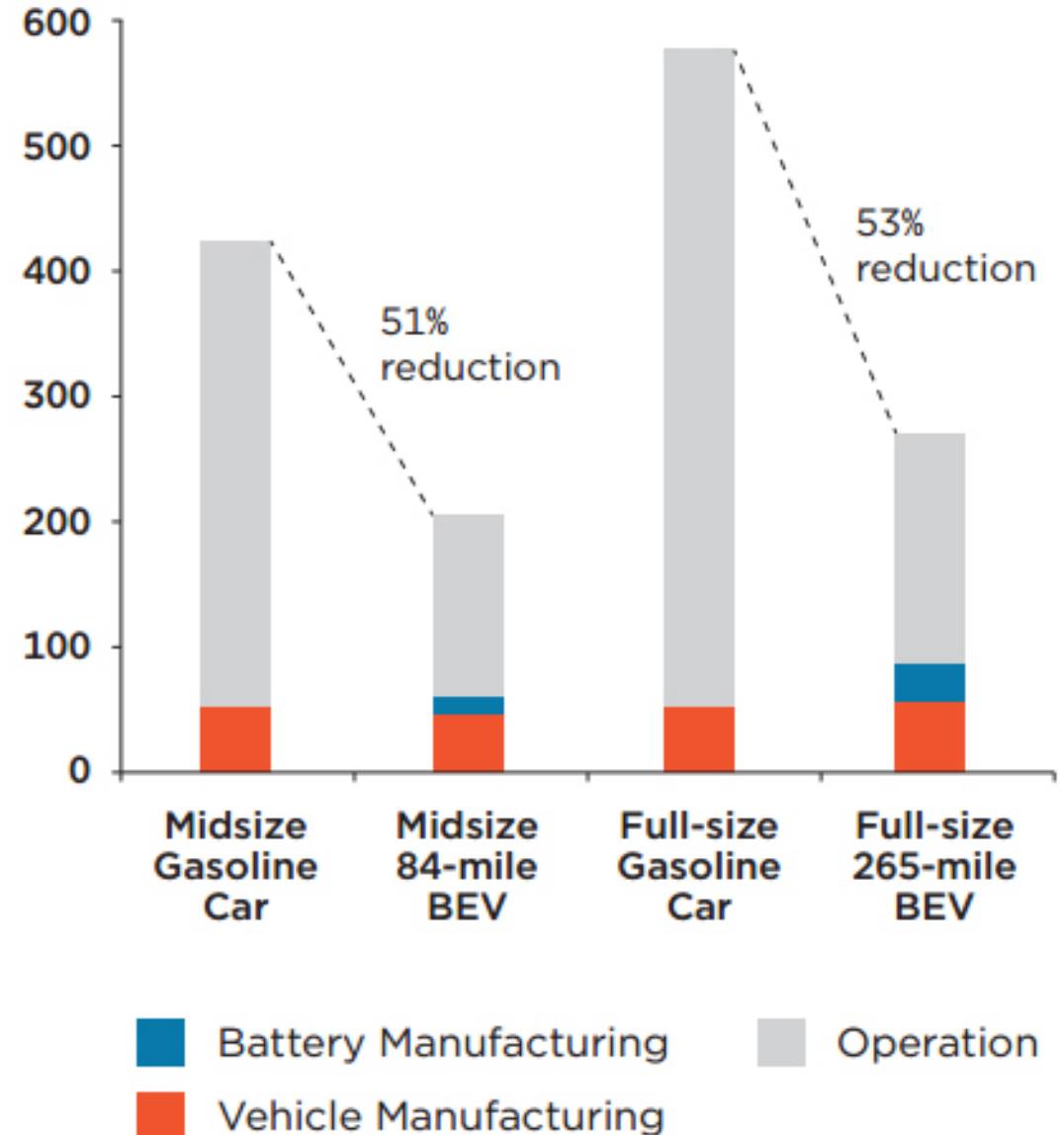
Manufacturing emissions ↑ 68 %

Overall emissions ↓ 53 %

Pay back = 19,000 miles

Extra emissions during production are rapidly negated by reduced emissions from driving.

Life Cycle Emissions



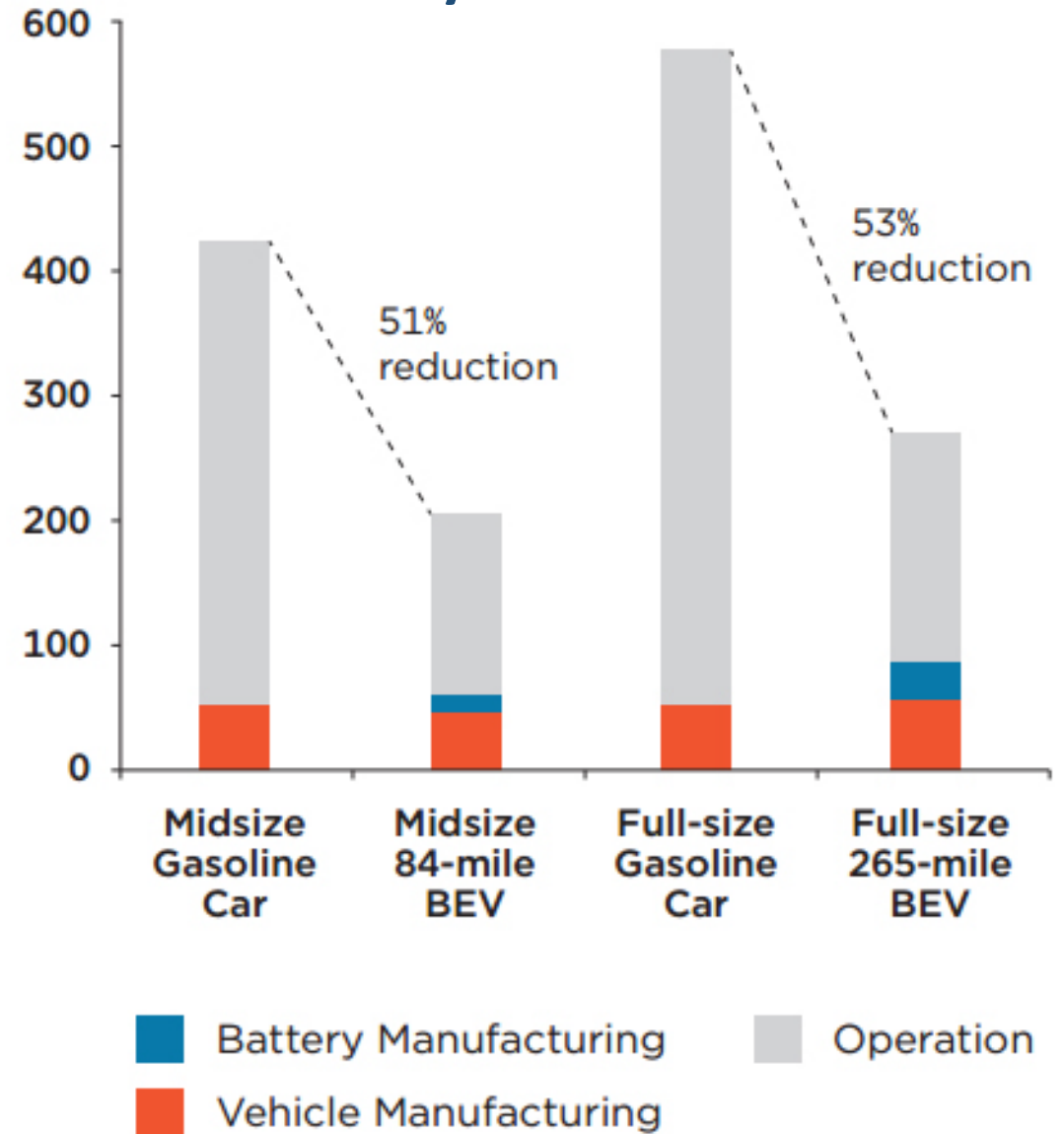
EV Midrange (84 miles)

Manufacturing emissions ↑ 15 %

Overall emissions ↓ 51 %

Pay back = 4,900 miles

Life Cycle Emissions



Thank You



Sophia Valenzuela
svalenzuela@redwoodenergy.org

Q&A