

## **Electric and Hybrid Vehicles Reduce Greenhouse Gas Emissions**

At my last count, there were at least 13 battery-electric vehicles (EVs) available on the market. General Motors recently announced 11 new electric vehicles they plan to introduce over the next 2 years. The driving range of these all-electric vehicles is in the range of 150 to 400 miles per charge, making them reasonable choices for many drivers with access to a charging station at home or at work. Electric vehicles produce no emissions, are less mechanically complex and inherently more reliable and cheaper to drive than gasoline or even hybrid vehicles. Think about it; NO oil changes!

There are similar numbers of gasoline-electric hybrid drive vehicles available. Toyota, alone, offers 7 hybrid Toyota and 4 hybrid Lexus models that boast EPA mileage estimates in the range of 30 to 58 MPG. Honda offers 4 hybrid models including the Clarity plug-in hybrid.

Plug-in hybrids can be plugged in to an electrical outlet to allow for electric battery charging and also have a gasoline engine that is utilized after the battery range is depleted. They can often be plugged into a standard 120V electrical circuit, so do not require an electrical upgrade at your home. However, the charge time will be significantly higher than if using a 240V circuit.

I own a 2012 Chevrolet Volt plug-in serial hybrid sedan (electric only range ~35 miles) that has traveled 105,000 miles with a lifetime average mileage of 127 miles per gallon. Compared to a similar driving pattern and time period for a previously owned Audi A6, the Volt has cost about \$20,000 less in fuel, maintenance, and repair costs.



The Honda Clarity plug-in hybrid sedan, pictured below, has an electric range of ~48 miles per charge and when in gas engine mode gets ~46 mpg. With a 48-mile electric range it can be an all-electric commuter car for some. And with the high mpg gasoline engine, roomy back seat, and roomy trunk it is great for long trips without any range anxiety. It's nicely appointed and has a starting price of \$34,355.00



The all electric 2012 Tesla Model S, pictured below, has a range of 265 miles on a single charge. The latest models have a range of up to 373 miles and Tesla says 400 mile models will be available this summer. The car seats 5 and has plenty of cargo space including a front trunk, where the engine would be, known as a frunk! It features a large touch screen used to control most in-car electronics and includes a web browser. The car can be charged at home in a few hours or at one of the 12,000 Tesla Superchargers worldwide when on a road trip (newer models can add up to 75 miles of range in just 5 minutes).



The March 20, 2020, issue of Motor Trend magazine was dubbed the “Green Issue.” It included tests of 4 “affordable” EVs, an article on coming electric pickup trucks, and tests of 4 high performance hybrid cars. Electric and hybrid drive systems are not limited to cars and trucks. The April/May issue of BOAT/US magazine had a 10-page article on electric and hybrid drive systems for boats.