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More than One Million Plug-in Electric Vehicles have been Sold in the United States

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December 2010 marked the first sales of the Nissan LEAF and Chevrolet Volt – widely considered the first mass-marketed plug-in electric vehicles. Since that time, additional models have entered the market. To date, more than one million plug-in electric vehicles have been sold in the United States.

The term “electric vehicle” is often used loosely and can have different definitions. However, the term “plug-in vehicle” as used here, specifically refers to those vehicles that are capable of being plugged into the grid to draw all or part of their energy. This includes all-electric vehicles like the Nissan LEAF and plug-in hybrid electric vehicles like the Chevrolet Volt. Hybrid vehicles that cannot be plugged-in are not included, nor are low-speed neighborhood electric vehicles.

In 2011, BMW and smart joined Nissan and Chevrolet in selling plug-in electric vehicles. Over the next few years, Ford, Toyota, Honda, Tesla, Porsche, Mercedes-Benz, Volvo and others were selling models of plug-in vehicles. By 2018, there were 22 vehicle makes and 41 individual models of plug-in electric cars and sport utility vehicles on the market.

With the expansion of models available, sales of plug-in electric vehicles also grew. Nearly seven years from the introduction of the first mass-marketed plug-in vehicles, cumulative plug-in vehicle sales reached 500,000 in September 2016. Cumulative sales topped one million just two years later. In December 2018 there were nearly 50,000 plug-in electric vehicles sold, capturing 3% of total light-duty vehicle sales in that month.

To fuel the fast-growing number of plug-in electric vehicles, the number of electric-vehicle charging units grew from about 3,000 in 2011 to over 61,000 in 2018. California has 32.5% of all electric-vehicle charging units nationwide, the most of any State. Many plug-in electric vehicles are charged at the owner’s home either with a standard 120-volt outlet or an installed Level II charger. About 66% of occupied housing units in the United States have garages or carports which often have electricity readily available.

Plug-in electric vehicles are driven nearly as many miles in a year as other vehicles. The average household vehicle is driven 30.5 miles per day, or about 11,200 miles in a year. All-electric household

vehicles average only slightly fewer miles – 10, 600 miles in a year. The range of all-electric vehicles has grown from a maximum of 94 miles in 2011 – the BMW ActiveE – to 335 miles in 2018 – the Tesla Model S 100D.

An all-electric vehicle drivetrain is about three times more efficient than that of a conventional gasoline-powered vehicle. Furthermore, charging an electric vehicle consumes less energy than several common household appliances. Annual energy consumption for a typical household shows that home heating consumes by far the most energy (11,300 kW-hrs) followed by water heating (4,700 kW-hrs) and charging an electric car (2,800 kW-hrs). Based on average driving habits and consumption rates for the Nissan LEAF, charging an electric car consumes just over twice as much energy as a refrigerator which consumes about 1,300 kW-hrs annually.

In addition to light-duty vehicles, there were 54 different models of plug-in medium and heavy trucks and buses that were available for sale in 2018. Those include vans, vocational vehicles, refuse haulers, truck tractors, shuttle buses, transit buses, and school buses from more than 15 different manufacturers.

More information on electric vehicles and on the transportation sector in general, can be found in the latest [Transportation Energy Data Book](#) published by Oak Ridge National Laboratory. Additionally, the [Transportation Fact of the Week](#) has many good posts of electric vehicle information. This work was funded by the Department of Energy Vehicle Technologies Office Analysis Program.