



ELECTRIC VEHICLES AND CHARGING STATIONS

In the early 20th century, electric vehicles made up close to 40 percent of the U.S. vehicle market share. They quietly zipped around cities where driving distances were short and charging stations were readily available. Despite their early popularity, they began to disappear from the streets after just a few years. As roadways improved beyond the city limits, people wanted to get out and explore. With their slower speeds and shorter ranges, electric vehicles were not ideal for this type of travel. At the same time, gasoline cars began to improve and became both accessible and affordable. By 1930, electric vehicles had mostly vanished from roads.

Interest in electric vehicles made a bit of a resurgence in the mid to late 1900s, but it wasn't until recently that a more substantial push for electric vehicles developed. Electric vehicles were reintroduced to the market in 2010, and each year more shoppers are choosing to forgo gasoline models and opt for new all-electric or plug-in hybrid electric models.

An all-electric vehicle uses electricity as its primary fuel and a plug-in hybrid uses electricity along with a conventional engine to improve efficiency. Making the switch from a gas pump to an outlet is a big decision, yet around one million drivers across the U.S. have decided to make the switch and purchase an electric vehicle.

There are numerous reasons why people choose to drive electric. The top include saving money on fuel and maintenance costs, the car's driving performance, being environmentally friendly and supporting local energy sources. No matter the reason, most electric drivers will see savings by fueling at the outlet instead of a gas pump.

Most major car manufacturers are currently offering electric models, including Chevrolet, Toyota, Nissan, Ford, Fiat, BMW, Audi, Volkswagen, Hyundai, Porsche, Kia, Volvo, Mercedes and Tesla. Many other manufacturers are currently in the planning phase to produce an electric vehicle during the next few years.



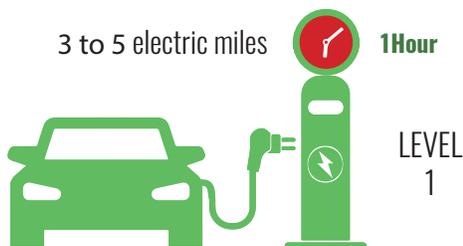
Electric convenience

Drivers have reported spending about \$30 a month to fuel their cars compared to about \$100 a month they used to spend on gasoline. Additionally, electric vehicles have less parts and do not need as much maintenance as gasoline vehicles, which saves drivers even more money.

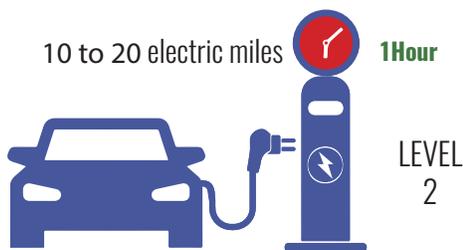
PLUGGING IN TO FUEL

Electric vehicle owners have multiple options when it comes to charging their vehicle. Charging stations are often categorized into three levels: Level 1, Level 2 and DC Fast Charge.

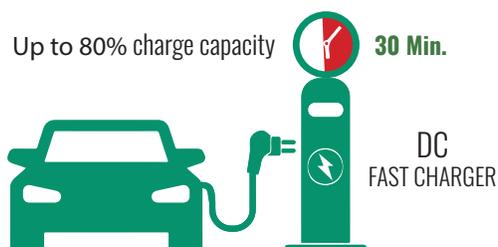
All vehicles come with an adapter to plug the car in at home to a standard 120-volt outlet, known as Level 1 charging.



Level 1 charging: Provides the slowest charge, around 3 to 5 electric miles per hour. Even at this slow speed, however, the majority of electric vehicle owners plug in at home to refuel.



Level 2 charging: Commonly found in public locations, including shopping centers, downtown areas, multifamily communities and workplaces. Level 2 charging stations can also be installed at home if a 240-volt outlet is available. Level 2 charging is three to five times faster than Level 1 and provides 10 to 20 electric miles per hour. It is a great option for public locations where people may be parked for a few hours and can charge their vehicle.



DC Fast Charge: Provides an opportunity for a very quick charge. These stations are capable of charging a depleted electric vehicle's battery to 80 percent capacity in under 30 minutes. DC Fast Charge stations are usually located in high-traffic public areas. Recently, more of these stations have been installed at gas stations across the country, where drivers can stop for a quick break while on road trips.

To locate a charging station, there are multiple apps and websites that list station locations and provide details. The Department of Energy's Vehicle Technologies Office runs the Alternative Fuels Data Center, where they maintain a list of charging stations across the country. Another popular website and app is PlugShare, which provides details on a station's location and has a trip planner to help you plan for longer drives.

THE FUTURE IS ELECTRIC

Electric vehicles have come a long way since they re-entered the market in 2010. Now, all major car manufacturers are showing support for electric vehicles by developing new models with longer ranges and more affordable prices. Research shows that by 2040, electric vehicles will account for about 50 percent of new car sales globally.

Over the next few years, electric vehicle growth is expected to continue to rise across the U.S. There are also plans to install thousands of additional charging stations across the country. With the infrastructure in place, people will soon be able to drive electric from coast to coast with plenty of options to plug in along the way.



This article was provided by Advanced Energy, a nonprofit energy consulting firm. For more information, visit www.advancedenergy.org.

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