



# RANGE ANXIETY AND FUEL COMPARISON



*As your Touchstone Energy® cooperative, we want to be your source for energy and information. Since electric vehicles (EVs) are becoming more mainstream, we put together a variety of fact sheets and information to help answer questions you might have.*

***Contact us for more information about EVs.***

Despite continued progress in driving range, battery technology and charging station availability, a primary concern among prospective electric vehicle (EV) drivers remains range anxiety, or the fear of getting stranded after running out of a charge.

While some of the early entrants to the EV market could travel only relatively short distances, that has quickly changed. Today, nearly all new EVs can go more than 200 miles on a single charge and are able to cover the vast majority of daily commutes. In addition, most charging is done at home, so people often wake up with their car more than ready to go. Workplace and public charging stations also continue to be added across the country, making charging when out and about easier.

If you are interested in going electric but are still worried about having enough range – whether because of a longer commute or frequent road trips – you can consider a plug-in hybrid electric vehicle (PHEV). PHEVs have a smaller battery than fully electric vehicles (also known as battery electric vehicles) and therefore a shorter electric range (typically somewhere between 20 and 50 miles). But they have a hybrid-gasoline engine that can be used for backup. Still, drivers of PHEVs can often cover most of their trips on electricity and use only a minimal amount of gasoline each year.

While an EV's range may be what captures most people's attention, its efficiency is also worth noting. With gas-powered cars, how far they can travel depends on the size of their gas tank and their efficiency (in mpg). The gas tank equivalent in EVs is battery size, measured in kilowatt-hours (kWh), and they too have different levels of efficiency. Here is some lingo to know.

**MPGe:** MPGe, or miles per gallon equivalent, was developed by the U.S. Environmental Protection Agency (EPA) as a way to relate EV driving to a metric most drivers are already familiar with: mpg. The measurement is intended to depict how far an EV will travel on the energy equivalent of one gallon of gasoline, which is approximately 33.7 kWh. Because of their efficiency, EVs often have very high MPGe ratings compared to traditional mpg, and you'll find many with an MPGe of 100+.

**kWh per 100 Miles:** Some experts consider kWh per 100 miles to be a better efficiency metric for EVs. As it sounds, it illustrates how much energy (in kWh) an EV uses to drive 100 miles. Unlike with mpg and MPGe where higher numbers are better, the lower the kWh per 100 miles rating, the better, as this signifies that less energy is required for driving. This rating is displayed on an EV's EPA fuel label along with MPGe and driving range.

**Miles per kWh:** Miles per kWh is an alternative way of evaluating kWh per 100 miles. The measure is framed similarly to mpg and MPGe, with higher numbers representing better efficiency.

EV	MPGe (City/Hwy/Comb)	kWh per 100 Miles
Tesla Model 3	138/126/132	25
Hyundai Ioniq Electric	130/132/131	26
Tesla Model Y	140/119/129	26
Chevrolet Bolt EV	131/109/120	28
Hyundi Kona Electric	132/108/120	28

*Most Efficient EVs. Note: Only the most efficient trim of each EV is listed. Data from [www.fueleconomy.gov](http://www.fueleconomy.gov)*

To get a feel for what EV would best fit your lifestyle and needs, explore opportunities to take a test drive through a local EV club or at a ride-and-drive event. Search for a nearby chapter of the Electric Vehicle Association, North America's leading volunteer organization that accelerates the adoption of EVs, and look for meetups through National Drive Electric Week.

*This article was provided by Advanced Energy, a nonprofit energy consulting firm. For more information, visit [www.advancedenergy.org](http://www.advancedenergy.org).*

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