

How to Extend Your Electric Vehicle's Range During the Winter

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For electric vehicles to catch on in the mainstream, consumers have to be comfortable they can handle everything a gas-powered vehicle can. Among other things, that means driving in extreme temperatures. No matter how hot or cold it gets, an EV must maintain its performance on a reasonable scale and keep occupants comfortable. Otherwise, plug-ins will remain a niche segment.



In fairness, the earliest electric cars were not capable of enduring an intense cold spell. Models without thermal management or advanced climate options burned battery power when there wasn't much to begin with. Furthermore, drivers who weren't used to EV technology may not have been prepared for handling these models in winter.

Of course, drivers of gas-powered cars also deal with range loss and other issues in the cold, though they are not as magnified. But getting the most out of an EV in winter takes effort, especially when a car's range is below 100 miles. Here are steps drivers can take to maximize an electric car's battery life during winter.

Climate Control

Since EVs do not have the manufactured heat of a combustion engine, drivers must find creative ways to stay warm or otherwise sacrifice battery power. Actually, electric cars do not waste the type of energy gas-powered cars do (as heat), so greater efficiency is the source of the problem.



EV drivers have several methods for reducing battery consumption:

Heating before you unplug. Cold temperatures make a plug-in climate system work hard to warm a car, so there is no point wasting that energy after you stop charging. Before leaving on a trip during winter, heat the car before disconnecting from the power source.

Heated seats. Your car's power system uses less energy to heat a seat than it would sending warm air into the cabin. Most EVs come with heated seats or offer the option, so consumers living in cold areas should take advantage of them.

Layered clothing. The easiest way to conserve battery power is using little to no heat. Always dress in layers when heading out in winter so you can stay warm whether or not the climate control system helps. A scarf, hat and driving gloves complete winter attire in an EV.

Parking & Charging

Because a battery can lose range simply sitting in subzero temperatures, drivers have to consider where to park their cars when the weather is frigid. The same applies to charging, which can take longer when it's cold outside.

Though it may be impossible for drivers without a garage, EV owners can try the following:

Parking in an enclosed space. Even public garages with openings on every level are better for retaining battery power than an open-air



parking lot. EV owners might try saving charging for overnight in a garage, if possible.

Heated garages. Homeowners with a heated garage are in the best shape when it comes to retaining battery power and limiting energy waste. Mild temperatures allow for faster charging as well.

Driving

There are some aspects of winter that can't be adjusted. For example, the density of cold air creates more drag for a car to power through, limiting an EV's range. However, you can change some aspects of the drive to make a battery hold its charge.

Steady pacing. Driving in the cold is often an uncomfortable experience, and it can lead to drivers rushing to a destination. Hurrying – accelerating too quickly and speeding in general – is a guaranteed way to drain your battery.

Inflating your tires to the proper pressure level ensures you will get better performance from the car, so check on them frequently during winter. Cold weather changes pressure levels much more than milder temperatures.

Remove unneeded accessories. Roof racks and other add-ons alter the aerodynamics of any vehicle, which in turn creates a heavier load for the powertrain to support. Unless you are using this type of equipment for every trip, consider taking it down for a bit.



Best EVs for Cold Weather Climates

As with any vehicle purchase, plug-in enthusiasts should choose the model that suits specific driving needs. In the most frigid conditions, a plug-in hybrid may be the only option if you have to drive long distances on a daily basis, unless you are thinking of a high-end model.

Cold-weather EV choices should take the following into account:

Electric cars lose range as the battery ages. If you buy a used model, get an idea of the real-world range and subtract 20-30% to estimate how the car would perform in harsh winter conditions.

Charging station implications. If there are no plugs on the route you plan to take to work or other daily activities, make sure the car has the technology to handle the cold. Newer Nissan Leafs have a reversible heat pump that helps range loss in the winter. Older models will not have this, so even if you see a low-mileage used Leaf it might not work for your needs.

The Chevrolet Bolt EV and any Tesla are great bets. While first-generation EVs maxed out at around 90 miles, there are now several models featuring over 200 miles of driving range. Every Tesla – from the original base 60 kWh Model S through the 100 kWh S and X – offers better than 200 miles, while Chevy's new Bolt EV got 238 miles for its EPA quote. These cars give you leeway.

Highway vs. city driving. If your daily routine takes you through city streets with frequent stops, you can get closer to range estimates in winter. Highway drivers will want to trim down their range estimate and then perform the subtraction accounting for the lowest temperatures.



Electric Cars' Track Record in the Cold

Electric vehicles are already a fixture in places with very cold weather, including Norway, which has the highest adoption rate for EVs of any country on earth. Norway's embrace of EVs came when the technology was at its earliest stages and cars like the first-gen Leaf were consumer's best bet.

Moving forward, manufacturers will continue adapting plug-ins to accommodate different climates. With the first mass-market, long-range vehicles finally entering North America, it's clear electric cars are having their moment. Don't let the cold scare you off buying one for personal or company use.