

BEV Winter driving tips

Cold weather reduces the efficiency of all vehicle types, not just Battery Electric Vehicles (BEVs) - conventional gasoline vehicles typically have a 20% reduction in fuel economy at -5°C .

However, it's often more noticeable with a BEV and is pertinent for all-electric vehicle drivers who need to know they have enough range to reach their destinations during the colder season.

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Why is BEV efficiency affected in winter?

Cold weather can affect your vehicle in more ways than you might expect:



Battery performance decreases in cold weather - this also affects the performance of the regenerative braking system.



Heated seats, window defrosters and heater fans use additional power.



Warming up your vehicles before you start a trip, when it's not plugged in, lowers your fuel economy.



Colder air is denser, increasing aerodynamic drag on your vehicle, especially at higher speeds.



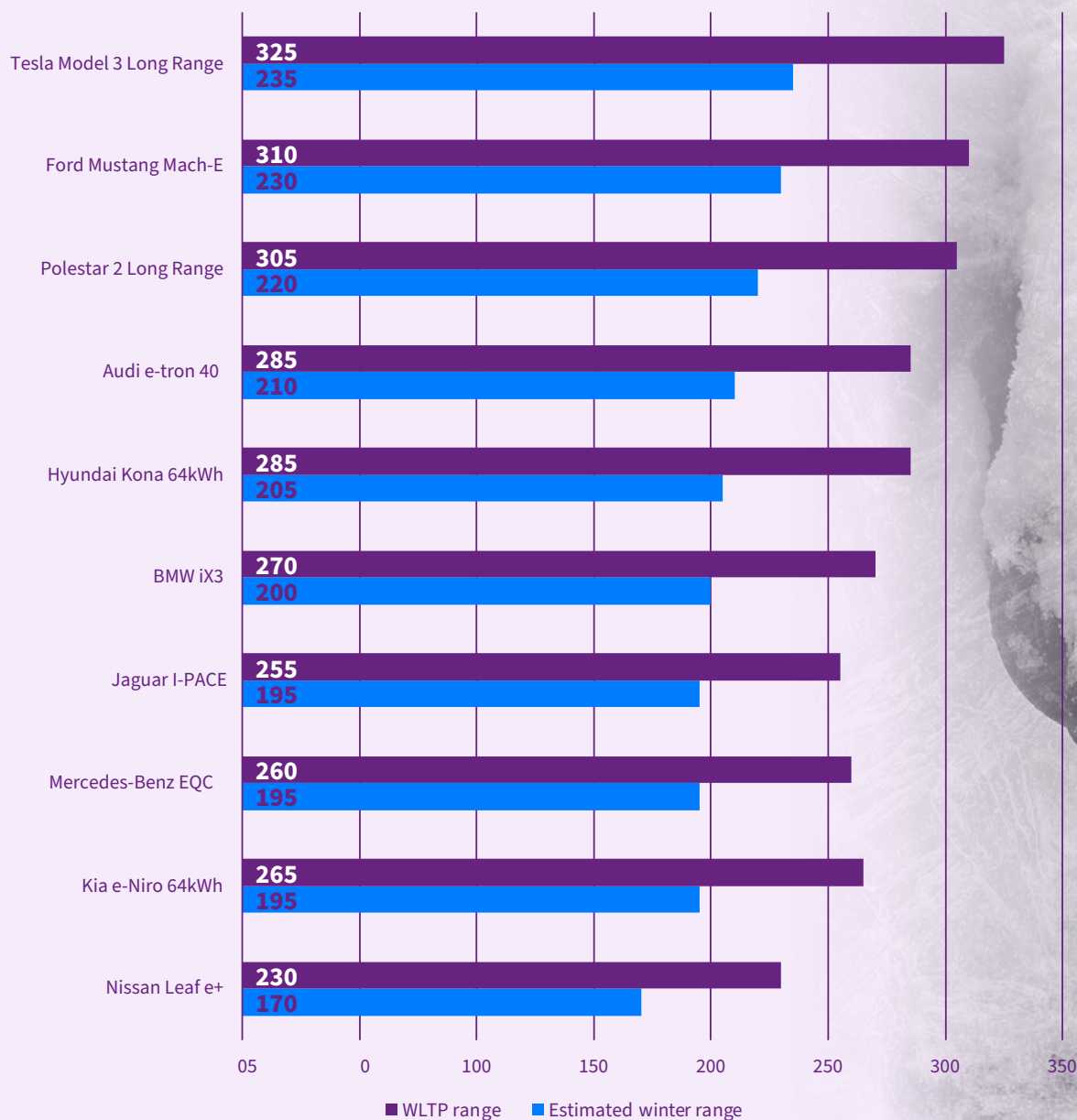
Tyre pressure decreases in colder temperatures, increasing rolling resistance.



What impact can I expect on my BEV's range during winter?

Cold weather temporarily reduces EV battery range. Whilst the effects can vary by vehicle model, the basic principle remains the same - a cold battery will discharge more quickly and produce less power than the same battery in warmer temperatures.

Estimated winter range



SOURCE: EV Database.

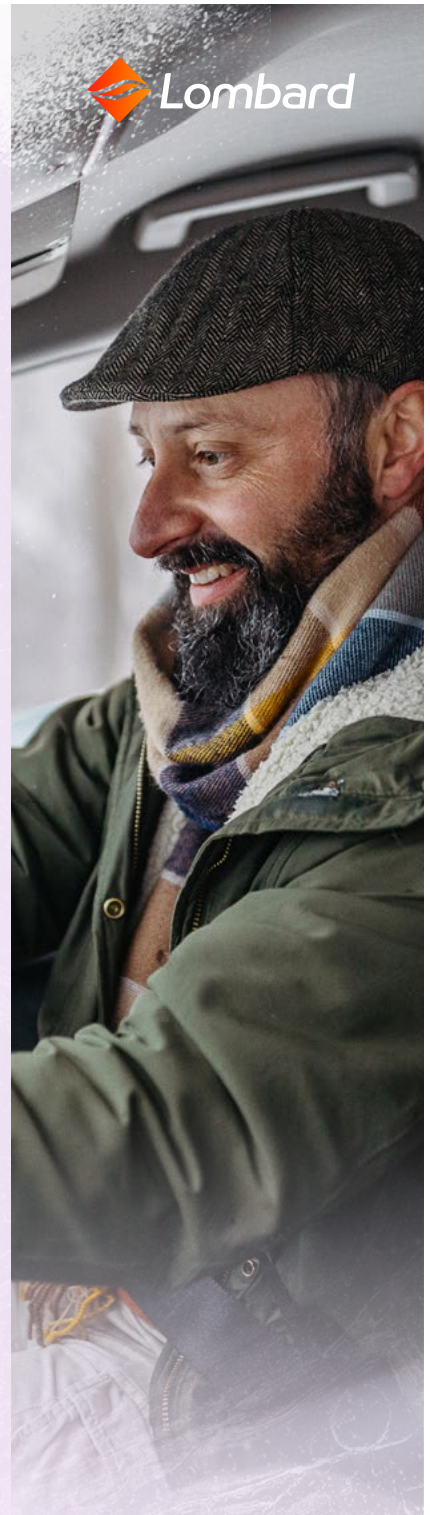
Indication of real-world range in several situations. Cold weather: 'worst-case' based on -10°C and use of heating. Mild weather: 'best-case' based on 23°C and no use of A/C. The actual range will depend on speed, style of driving, weather and route conditions.

Are there any cold weather options for my BEV?

An ever increasing number of BEVs come equipped with cold weather options, including heated seats and steering wheels – these are much more efficient than running cabin heating systems and can often be turned on whilst the car is still plugged in to retain battery range.

Some EV models also have battery heaters that help keep the battery pack at optimal temperatures.

Several manufacturers offer more efficient heat pump heating systems that can significantly improve cabin heating efficiency down to about -10°C , including but not limited to, the Audi e-Tron, BMW i3, Hyundai Ioniq, Jaguar I-PACE, Kia e-Niro, Mini Cooper SE and Nissan Leaf e+.



What can I do to improve vehicle efficiency, and subsequently range, in cold weather?

Whilst you may not be able to completely mitigate the cold weather's effect on your vehicle's efficiency, there are some simple things you can do to help reduce the impact:

- ✓ Cooling or heating the vehicle while it's being charged can improve the range significantly. Doing this before you start your trip will minimise the drain on the battery and, with many manufacturer Apps, you can even initiate pre-conditioning from your smartphone.
- ✓ Combine trips when possible so that you drive less often in the colder months.
- ✓ Using the seat warmers instead of the cabin heater can save energy and extend range.
- ✓ Park your car in a warmer place, such as your garage, to increase the initial temperature of your battery and cabin.
- ✓ Check your tyre pressure regularly.
- ✓ Remove accessories that increase wind resistance, like roof racks, when not in use.

Whilst there are additional considerations for your BEV during the colder winter months, by making some small changes to your driving style and utilising your vehicle's power in different ways, you can expect to continue to use (and benefit from) your BEV all the way back through to the warmer months!

Assess

If the weather is very bad, or it's forecast to get worse, you should avoid driving completely or consider alternative methods of travel such as public transport.



Prepare

If you really have to make the journey then there are some key preparations and considerations for both you and your vehicle:

Vehicle

- Keep your vehicle well-maintained, ensuring you complete regular checks, keep up-to-date with servicing and have a valid, up-to-date MOT.
- Check your tyres regularly – a change in weather and temperature can quickly change your tyre pressure.
- Check your wiper blades regularly.
- Ensure you have anti-freeze in your windscreen washer and radiator.
- Make sure you have an ice-scraper and de-icer in your vehicle.
- Ensure that ice, snow and condensation has been completely removed from your vehicle before you begin your journey.

Driver

- In the season of winter colds, don't drive with a cold if you are feeling unwell and have taken medication that might make you drowsy and so affect your ability to drive safely.
- Check the weather forecast and your route before setting off.
- Allow plenty of time to get to your destination.
- Plan your route before you set off to ensure you are aware of charging locations should you require them before you reach your end destination.
- Carry a winter safety kit in your vehicle in case you run into trouble and are stranded. The kit should include torch, a small shovel, blankets, a coat, gloves, hat, first aid kit and food/water supplies.
- Carry a fully charged mobile phone and power bank – that way you can let friends/relatives know if your journey is taking longer than usual or you need to call for help in an emergency.

Most of us have very little experience of driving in extreme conditions, so it's important to consider how this can affect your driving and then adapt the way in which you drive in different conditions.

On the road

The roads can be dangerous in winter when there's snow, ice or sleet – the best advice is not to travel unless you absolutely have to, and if you do, you need to be prepared and take it slow.

Stopping distances are longer in bad conditions and reduced visibility - due to snow, fog and the low winter sun. [Braking distances can be doubled in wet conditions](#) and increased by at least [10 times on snow or ice!](#)

Gentle manoeuvres and slow speeds are the key to safe driving in ice and snow.

Tips for keeping you and your vehicle safe on the roads in winter:

- ✓ Allow extra time for winter journeys.
- ✓ Try to get up at least 10 minutes earlier to give you time to de-ice your vehicle thoroughly.
- ✓ Clear all your windows using a scraper and de-icer and wait until the windscreen is fully demisted – air-con demists the screen faster and reduces condensation.
- ✓ Clean snow from the roof – it can fall onto the windscreen and block your view.
- ✓ Make sure all car lights are working and the lenses are clean.
- ✓ Use your headlights when visibility is seriously reduced – if you use fog lights make sure you turn them back off when visibility improves so they don't dazzle other drivers or obscure your brake lights.
- ✓ Wear comfortable, dry shoes for driving so your feet don't slip on the pedals.
- ✓ When using brakes, apply them gently and gradually.
- ✓ Leave plenty of room between your own and other vehicles.
- ✓ Keep a constant, safe speed when driving uphill.

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