



harmoto

Electric Vehicle Factsheet



EV Definitions

Plug-in Hybrid

A Plug-in Hybrid (PHEV) vehicle powers the wheels via an Internal Combustion Engine (ICE) and a battery. Charge is added to the battery by connecting to an external power source

TYPICAL RANGE

10 – 40 miles on electric power alone on a single charge.

BEST FOR?

Drivers with easy access to charging stations who want the benefits of an electric vehicle without the range anxiety.

Full Hybrid

A Full Hybrid (FHEV) vehicle powers the wheels via an Internal Combustion Engine (ICE) and a battery. Charge is added to the battery internally, by using energy recuperated from braking.

TYPICAL RANGE

400 – 600 miles when combined with the Internal Combustion Engine.

BEST FOR?

Drivers wanting the benefits of increased fuel efficiency and lower CO2 figures, who do not have easy access to charging stations.

Mild Hybrid

A Mild Hybrid (MHEV) vehicle powers the wheels predominantly via an Internal Combustion Engine (ICE). The vehicle houses a separate battery for a small amount of electrical assistance, to aid engine efficiency.

TYPICAL RANGE

N/A May increase fuel efficiency for further range.

BEST FOR?

Drivers wanting slightly lower CO2 figures and potential MPG increases, without making the move to part electric.



Pure Electric

A Pure Electric Vehicle (EV) drives the wheels using electrical power alone. They do not have an Internal Combustion Engine (ICE) and instead take power from an onboard battery, which is charged via an external power source - normally a charging station or wall box.

TYPICAL RANGE

200 - 350 miles on a single charge.

BEST FOR?

Drivers with easy access to charging points that want to benefit from lower running and maintenance costs, plus Government incentives and lower Benefit in Kind (BiK) figures.



Extended Range

An Extended Range Electric Vehicle (E-REV) drives the wheels using electrical power alone. Unlike Pure Electric Vehicles, E-REVs include an onboard Internal Combustion Engine (ICE) which is solely used to provide additional charge to the onboard battery, increasing the range of the vehicle.

TYPICAL RANGE

200 - 350 miles on a single charge, with the ICE adding additional miles as needed.

BEST FOR?

Drivers with regular access to charging points but drive the occasional long journey. E-REVs grant access to Government incentives and lower Benefit in Kind (BiK) figures.



Charger Types

Slow

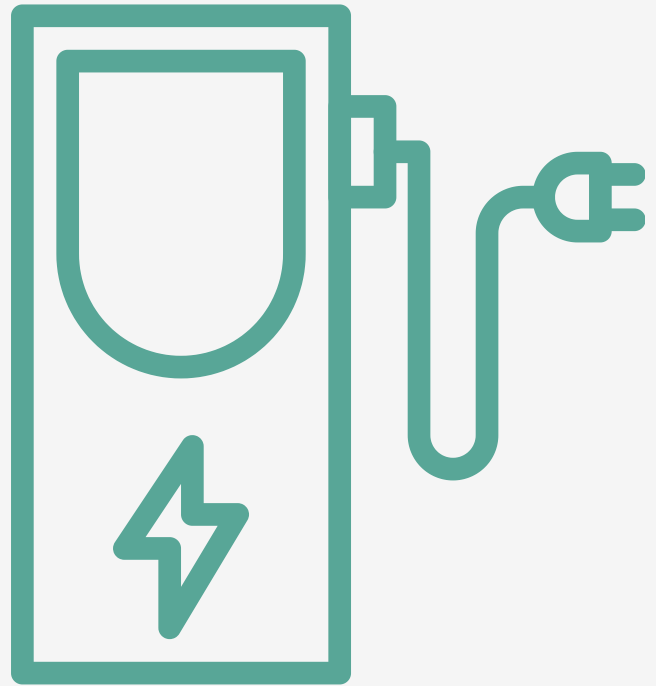
Slow charging typically performs at 3kW. This is generally associated with charging via a 3-pin plug or by using converted lamp posts which allow vehicles to charge from them.

Fast

Fast charging requires a type 2 cable and performs at between 7kW – 22kW. Fast charging requires a wall box charging unit which is fitted at home or work, and also often located at supermarkets and public car parks.

Rapid

Rapid charging performs at around 50kW, with some stations now getting up to 150kW. These charging stations are located at service stations, allowing you to take a break and fully recharge your vehicle at the same time.



How to determine battery and motor size

The battery size is usually listed within the vehicle's description, and is generally labelled in KiloWatt Hour (kWh) units. The motor size is usually listed within the vehicle's description too, and is usually labelled in KiloWatt (kW) units.

Considerations

The range is quoted by manufacturers Worldwide Harmonised Light Vehicle Test Procedure (WLTP). Whilst the testing regime aims to provide a closer representation of 'real-world' fuel consumption the range achieved in real driving conditions will be lower than those quoted by manufacturers under the WLTP testing.



Things that will affect the range you achieve include:

Speed

The faster you drive, the harder the vehicle battery is working. You can lose on average 15% of your battery's range at speeds consistently above 65 mph.

Heating/Air Conditioning

Your vehicle uses the same battery to power the heating and the air conditioning systems as it does to move the vehicle. For longer journeys this can reduce the battery range as there will be less available energy to use.

Headwind

When the wind is blowing against the direction of travel, this causes the battery to work harder to maintain its speed and movement forward, drawing power for the battery and affecting the overall range.

Battery Degradation

Depending on how you drive, maintain and charge your vehicle, over time the battery will naturally degrade. Batteries are designed to last the lifetime of the vehicle, however if an EV battery is repeatedly driven down close to zero range, then is charged from a low charge to a full charge routinely or always charged on rapid charge points, this will also degrade the battery over time.

Weather

When the weather is either too hot or too cold, this will affect the performance of the battery. The battery will consume more energy when trying to heat the vehicle from colder temperatures – the same is said for cooling the vehicle in warmer temperatures.

If a vehicle is too hot, the battery needs to attempt to cool itself down prior to and during charging. It may take your vehicle longer to charge as it needs to protect the battery from getting too hot, therefore, may charge at a slower rate and not to its usual full capacity.

Tyres

Should your tyres not be inflated correctly as per the manufacturer guidelines, or they become damaged, the car will have to work harder to compensate for this. This will cause your battery to consume more energy and in turn affect the vehicle's overall range.



Cargo/Weight

The more an electric vehicle has to carry, the less range it may have available. The battery has to work harder and use more energy to carry the additional weight and maintain its speed.

Journey Type

EVs are most efficient in city areas due to stop-and-go traffic. This is because they don't waste energy when idling and regenerative braking helps to recover energy that would have otherwise been lost.