

Vehicle Powertrains Explained



Vehicle Technology Categories	Powertrain Technologies	Consumer Definition	Zero Exhaust Emissions	Requires user charging	Do you fill it with fuel?	What you need to know
<p>Internal Combustion Engine (ICE) A vehicle powered only by an engine that uses petrol or diesel. Very probably what you're driving today.</p>	Mild Hybrid Electric Vehicle (MHEV)	Uses a petrol or diesel engine to always power the vehicle, assisted by a small electric motor and battery in certain driving conditions.	No	No	Yes – petrol or diesel	Cannot drive using only the electric motor. Does not require user charging.
<p>Alternative Fuel A vehicle that is powered by another fuel either in combination with, or instead of, petrol or diesel.</p>	Hybrid Electric Vehicle (HEV). Sometimes called a 'Self-charging Hybrid'	Powered by both a petrol or diesel engine plus an electric motor & battery, which can be used either individually or together. The battery is charged as you brake or decelerate, and by the engine itself.	Yes – but only for very short distances	No	Yes – petrol or diesel	These cars have small batteries, so the electric-only range is very limited. Does not require user charging.
<p>Electrified A generic term for any vehicle that uses an electric motor to provide some or all of its power.</p>	Plug in Hybrid Electric Vehicle (PHEV)	These also use a petrol or diesel engine combined with an electric motor, but with a larger battery to provide a much longer electric-only range. This needs plugging-in to fully recharge.	Yes – when in electric mode	Yes	Yes – petrol or diesel	Some PHEVs provide an electric-only range of 30 miles or more. Fuel economy suffers if battery is not charged.
<p>Hybrid (or Hybrid electric) Uses a petrol or diesel engine, plus a battery and electric motor, to power the vehicle.</p>	Range Extended Electric Vehicle (REEV)	A Battery Electric Vehicle with an additional small petrol or diesel engine, which acts as a generator to provide extra battery charge. Always drives in electric-only mode.	Yes – until battery becomes low	Yes	Yes – petrol or diesel	These require charging by the user to achieve their full electric range..
<p>Ultra Low Emission (ULEV) Any vehicle that emits less than 75g per km of CO₂ from the exhaust when driving.</p>	Battery Electric Vehicle (BEV) / Pure Electric Vehicle / Electric Vehicle (EV)	A vehicle that runs on electricity only, using a powerful electric motor(s) and large battery to power the vehicle. This needs to be charged by the user.	Yes – always	Yes	No	You'll need the ability to charge an EV for an extended period; either at home, work or on street.
<p>Zero Emissions Vehicle A vehicle with no exhaust emissions when driving.</p>	Fuel Cell Electric Vehicle (FCEV) / Hydrogen Vehicle	An electric vehicle that uses its own hydrogen fuel cell to generate electricity, which then powers the electric motor that drives the car.	Yes – only emission is water	No	Yes – hydrogen	There are currently very few hydrogen cars and limited fuel stations available.