

Vehicle Powertrain Guide – simplified **consumer** definitions (draft – not approved)

Vehicle Technology Categories

Internal Combustion Engine (ICE)

A vehicle powered only by an engine that uses petrol or diesel. Very probably what you're driving today.

Alternative Fuel

A vehicle that is powered by another fuel either in combination with, or instead of, petrol or diesel.

Electrified

A generic term for any vehicle that uses an electric motor to provide some or all of its power.

Hybrid (or Hybrid electric)

Uses a petrol or diesel engine, plus a battery and electric motor, to power the vehicle.

Ultra Low Emission (ULEV)

Any vehicle that emits less than 75g per km of CO₂ from the exhaust when driving.

Zero Emissions Vehicle

A vehicle with no exhaust emissions when driving.

Powertrain Technologies	Consumer Definition	Zero Exhaust Emissions	Does it have a plug?	Do you fill it with fuel?	What you need to know
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.
Hybrid Electric Vehicle (HEV). Sometimes called a 'Self-charging Hybrid'	A vehicle powered by both a petrol or diesel engine and an electric motor and battery. These can be used either individually or together.	Not usually as has short electric range	No	Yes – petrol or diesel	Because these cars have small batteries, the electric-only range is very limited.
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+. Fuel economy significantly suffers if not charged.
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. The electric motor always drives the wheels.	Yes – until battery becomes low	Yes	Yes – petrol or diesel	These require charging by the user to achieve their full electric range.
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.
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 very few hydrogen cars and limited fuel stations currently available.