

Appendix D – EV Terminology

Electric Vehicles (EV)

EV is a recognised term by the public, but it is a generic term used to refer to any vehicle driven by an electric motor powered by a battery, which range from hybrids through to full electric and fuel cell models. Their emissions depend on the method that drives the wheels at any point in time

Ultra-Low Emission Vehicles (ULEV)

Government reports use the term Ultra-Low Emission Vehicle (ULEV) currently referring to any vehicle emitting less than 75gCO₂ per km driven. With this definition the ULEV category includes both full electric and some hybrid vehicles. This definition will change with advantages in technology

Battery Electric Vehicles (BEV)

Full battery electric BEV have no combustion engine and always use an electric motor for propulsion, so they produce zero exhaust emissions

Hybrid vehicles

Hybrids use more than one form of on-board energy for propulsion, usually petrol or diesel engine plus electric motors and a battery. Some hybrids simply use the electric motor to make more efficient use of petrol so the motor cannot power the vehicle alone, whilst others can operate using petrol/diesel or electric alone, although only for short distances

Plug-in hybrid electric vehicles (PHEV)

PHEV are a subset of hybrid vehicles, combining a plug-in battery and an electric motor with a petrol/diesel engine; either of which can be used to drive the wheels

Plug-in vehicles (PIV)

PIV is a collective term covering all vehicles which can be plugged into an external electrical outlet to recharge their battery, including both BEV and PHEV

Types of charge-points

The following are the main levels associated with EV charging. In all cases the length of time it takes to charge a vehicle depends on the size of the vehicle's battery

- **3kW – Slow chargers**
This is the oldest standard and can typically be supplied by a standard household 3-pin plug or type 2 socket. These are most suited for overnight charging as it can take 6-12 hours to fully charge an EV or 2-4 hours for a plug-in hybrid. Generally, these types of chargers are not recommended due to more EV's having larger capacity batteries and, therefore, requiring higher capacity charge points
- **7 to 22kW – Fast chargers**
These require a dedicated power source and connecting cable type. A typical full charge on an electric vehicle takes 3-4 hours, meaning that 3 or 4 users a day could fully charge
- **50kW – Rapid chargers**
These are high power rapid charging option to suit users who need to charge their EVs quickly, i.e., taxis, commercial vehicles, or company cars and those doing longer journeys. A full charge typically takes 30-40 minutes, allowing for a high number of charges per day. The units are relatively large compared to lower power units and require significant local power network capacity.
- **150kW and 300kW – Ultra rapid chargers**
This is an emerging market and only a small number of vehicles can currently use these chargers