

Battery Electric Vehicles (BEVs) are powered only by one or more electric motors. They receive electricity by plugging into the grid and store it in batteries. They consume no petroleum-based fuel while driving and produce no tailpipe emissions.

Plug-in Hybrid Electric Vehicles (PHEVs) use batteries to power an electric motor, plug into the electric grid to charge, and use a petroleum-based or an alternative fuel to power an internal combustion engine (ICE) or other propulsion source.

Regenerative Braking is used in most electrified vehicles. In simplest terms, it is a means to capture brake energy by using the traction motor as a generator to convert to electric energy and recharge the battery.

All-Electric Range (AER) is the distance a BEV or PHEV can travel on electricity alone.

Range Anxiety is what you feel when AER is not enough for your comfort level.

Electric Vehicle Supply Equipment (EVSE) delivers electrical energy from an electricity source to charge the batteries in electric vehicles. The EVSE communicates with the BEV or PHEV to ensure that an appropriate and safe flow of electricity is supplied. EVSE units are commonly referred to as “charging stations” or “chargers.” The actual chargers are on the vehicles themselves.

- **Level 1 EVSE (110/120VAC)** use a typical 120 volt, single-phase outlet for a three-prong grounded plug for the U.S. Depending on the vehicle being charged, it typically takes between 8 to 14 hours to fully charge a vehicle. The charging current is about the same as a standard blow dryer. Most, if not all, electric vehicles (BEVs & PHEVs) will come with a Level 1 standard cordset so that no additional charging equipment is required. On one end of the cord is a standard, three-prong household plug. On the other end is a SAE J-1772 standard connector which plugs into the vehicle (see below for definition).
- **Level 2 EVSE (208-240VAC)** increase the charge power up to 5 times over Level 1 and decrease the typical full charge time down to 4-8 hours, depending on the vehicle being charged. Level 2 provides charging through 240 volt (typical in residential applications) or 208 volt (typical in commercial applications) electrical service, and requires special installation of equipment and a dedicated circuit of 20 to 80 amps.
- **DC Fast Charger (Input: 3 phase 440-480VAC)** is an off board charger that connects directly to a vehicle’s high-voltage battery. It allows for high power transfer and can charge a battery to 80% state of charge in minutes instead of hours.
- **SAE J-1772** is the standard physical, electrical, communication protocol and performance requirement for the charging system and coupler for AC charging in the United States.