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Types of Plug-in Electric Vehicles (PEVs)

Battery-Electric Vehicles (BEVs)

- Plug-in charging plus regenerative braking
- All-electric motors
- No petroleum-based fuel
- Zero tailpipe emissions
- Electric range: 70 to 300 miles

Example: Nissan Leaf, Tesla Model S

Plug-In Hybrid Electric Vehicles (PHEVs)

- Batteries power an electric motor, and fuel, such as gasoline, powers an internal combustion engine (ICE) or other propulsion source.
- On an empty battery PHEVs perform like hybrid electric vehicles (HEVs), consuming less fuel due to regenerative braking.
- Electric range: 10 to 20 miles

Example: Ford Fusion Energi

Extended Range Electric Vehicles (EREVs)

- A plug-in hybrid that gets more mileage on battery than a normal PHEV
- After the battery has been discharged, a gasoline-driven generator powers the vehicle for 300-plus miles of *extended-range* driving
- Electric range: 30 to 40 miles

Example: Chevrolet Volt

Electric Vehicle Supply Equipment (EVSE)

Level 1

- Provides charging through a 120-volt AC plug
- Works well for charging at home, work or where only 120-volt AC is available
- Charging time: 2 to 5 miles of range to a PEV per hour of charging time

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Level 2

- Provides charging through a 240-volt AC plug
- Requires installation of charging equipment and dedicated electrical circuit
- Easily charge a typical EV battery overnight
- Charging time: 10 to 20 miles of range to a PEV per hour of charging time

DC Fast Charging

- 480-volt AC input to the EVSE
- Enables rapid charging at sites such as heavy traffic corridors and public fueling stations
- Charging time: 60 to 80 miles of range to a PEV in 20 minutes

PEV Benefits

High Fuel Economy, Low Fuel Cost

- Today's EVs (or PHEVs in electric mode) can exceed 100 mpge (miles per gallon electric).
- Estimate \$1 per gallon when charging with electricity.

Flexible Fueling

- Most charging happens at your home every night.
- Workplace and public charging are becoming more readily available.

High Performance

- Today's PEVs are state-of-the-art highway vehicles ready to match or surpass the performance of conventional gasoline and diesel vehicles.
- PEVs are much quieter than conventional vehicles.
- PEVs produce maximum torque and smooth acceleration from a full stop.

Low Emissions

- PEVs that are driven in all-electric mode produce ZERO direct emissions.
- PHEVs running on gasoline do produce emissions, but because their operation is more efficient than gas or diesel, they yield direct emissions benefits even when relying on ICE mode.