

Light-Duty Electric Vehicles

Battery Electric

Battery Electric Vehicles (BEVs)

- Use a battery-powered electric motor
- Charged by plugging the vehicle into EV charging equipment
- Run on 100% electricity

Plug-in Hybrid

Plug-in Hybrids (PHEVs)

- Powered by an internal combustion engine and an electric motor
- Battery is charged by plugging in to an EV charger
- Can operate in all electric mode
- Transitions to the internal combustion engine when the electric battery depletes

Hybrid

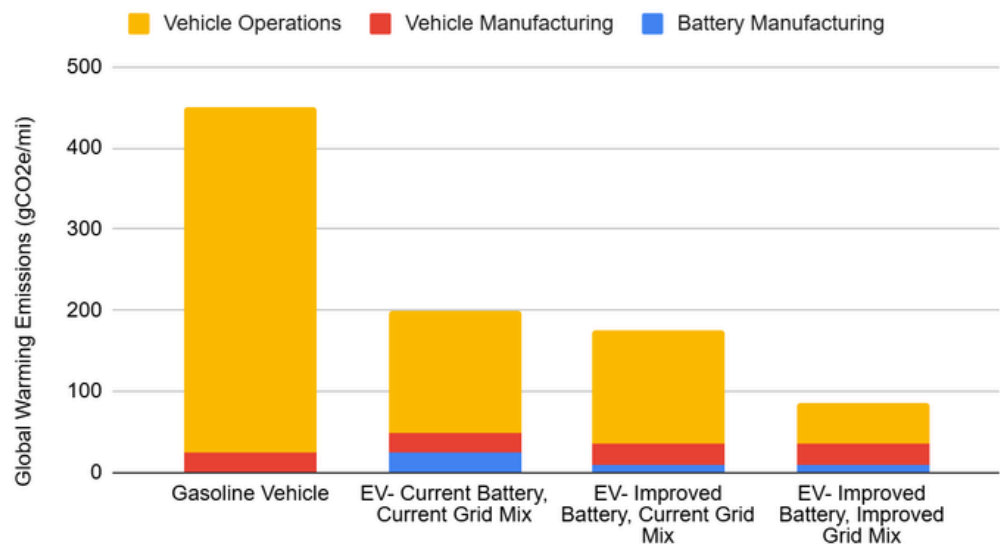
Hybrid Electric Vehicles (HEVs)

- Use an internal combustion engine and an electric motor powered by a battery
- Fueled with gasoline
- Battery is charged through regenerative braking, requiring no plug-in charging

Emissions and Environmental Impact

- Battery electric vehicles produce zero tailpipe emissions, and even when accounting for electricity generation, produce fewer overall emissions than gas-powered vehicles.
- HEVs and PHEVs reduce fuel use and emissions, but benefits vary based on how they're driven and charged.

Mine-to-Wheel Vehicle Life Cycle Emissions



Source: Maine Clean Transportation Roadmap

Cost of Ownership

- While BEVs and PHEVs have higher initial costs, drivers save on average \$1500 on fuel annually.
- EV batteries typically last between 12 and 15 years, though lifespan varies depending on climate and charging habits.
- BEVs require less frequent service and fewer repairs, leading to lower maintenance expenses.

Resources for Assessment

Vehicle Cost Calculator

- afdc.energy.gov/calc
- Calculates total cost of ownership for different EV models

Fuel Economy Calculator

- fuelconomy.gov
- Offers side-by-side comparisons, fuel economy calculation, and EV rankings