

ALTERNATIVE FUEL INFORMATION SHEET: ELECTRIC (EVS)

CLEANFUELSOHIO.ORG



Economic Benefits

While the initial purchase cost of EVs is typically higher, the cost of powering them with electricity is currently cost-effective compared to gasoline.

Cost savings can be achieved through energy savings, federal tax credits, and state incentives.

Charging costs depend on electricity prices, which vary by region, generation type, time of use, and access point.

Overview

Electricity has the capability to propel electric vehicles (EVs), which encompass battery-electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs). These vehicles have the ability to replenish their batteries by extracting electricity directly from the grid and other off-board electrical power sources. In contrast, hybrid electric vehicles (HEVs) run on liquid fuels like gasoline but integrate small batteries to capture otherwise lost energy during braking, ultimately enhancing fuel economy. PHEVs fall into the EV category as they can use off-board electricity for power, yet they also have the flexibility to employ liquid fuels and operate in a manner similar to HEVs if needed. The use of electricity to propel vehicles can yield significant benefits in terms of energy security and emissions reduction.



Environmental Benefits

- All-electric vehicles produce zero tailpipe emissions.
- Plug-in hybrid electric vehicles (PHEVs) emit no tailpipe emissions when operating in all-electric mode.
- Emissions benefits of hybrid electric vehicles (HEVs) vary based on the vehicle model and hybrid power system type.
- Life Cycle Emissions of Electric Vehicles:
 - Life cycle emissions of electric vehicles depend on the source of electricity used for charging.
 - Regions with low-polluting energy sources for electricity production provide a life cycle emissions advantage for electric vehicles compared to conventional gasoline or diesel vehicles.
 - Regions heavily dependent on conventional electricity generation may not show a strong life cycle emissions benefit for electric vehicles.

Current Applications

Electric vehicles are becoming more affordable. Between September 2022 and September 2023, the average price for an electric vehicle fell over \$14,000 .

Also, public charging points are more readily available. By the beginning of 2023, there were over 160,000 charging points in the U.S. alone, with that number projected to steadily increase (Office of Energy Efficiency & Renewable Energy 2023)

