U.S. DEPARTMENT of ENERGY | Office of Critical Minerals and Energy Innovation

Electric Vehicles and Charging Infrastructure

Find research-based information on the Alternative Fuels Data Center website

Learn about the technology behind electric vehicles and their charging infrastructure, explore the benefits and considerations of using electricity to power vehicles, and access tools and datasets.

AFDC.ENERGY.GOV/FUELS/ELECTRICITY

Considering an Electric Vehicle?

Electric vehicles (EVs) can lower overall costs and provide instant torque for a fast, quiet driving experience. The electricity used to charge EV batteries can be produced from a variety of energy sources, including natural gas, coal, nuclear energy, and hydropower.

EV chargers can be installed in homes, fleet facilities, workplaces, and public settings. Most EVs come with a 120-volt "Level 1" cordset that can be plugged into a standard electric outlet. Quicker charging options include 240-volt "Level 2" units and direct-current (DC) fast chargers. Most drivers can primarily charge at home or work, eliminating trips to the gas station.

Nearly all major vehicle manufacturers have light-duty EV models available. Medium- and heavy-duty options are also available for fleets. EVs are generally more expensive up front than their conventional counterparts. However, with fewer moving parts and fluids to change, less frequent maintenance, and the generally low cost of electricity, EVs can be a cost-competitive option. Plug-in hybrid EVs have added flexibility because they can fuel with gasoline or diesel when necessary.

Dive Into the Details: What You'll Find on the AFDC

- Basics of EV production, distribution, and research and development
- Considerations such as costs, infrastructure availability, and battery life
- Charging infrastructure planning, procurement, operation, and maintenance
- Vehicle batteries, deployment, maintenance, and safety

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For more information, visit: **afdc.energy.gov**

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