

What is an electric vehicle (EV)?

- An electric vehicle is any vehicle that can drive on electricity from a power plug.
 - An all-electric vehicle (sometimes called a battery electric vehicle or BEV) is powered by an electric motor that uses energy stored in a battery. A BEV drives solely on power from the plug.
 - Plug-in hybrid electric vehicle (PHEV) can take both electricity from plugging in and gasoline.
- Many EVs use regenerative braking
 - This is a way of taking the wasted energy from the process of slowing the vehicle and using it to recharge the vehicle's battery

Sources:

<https://driveelectricweek.org/ev101#what-is-ev>

https://afdc.energy.gov/files/u/publication/electric-drive_vehicles.pdf

Additional Resources

- Green Vehicle Guide: epa.gov/greenvehicles
- Dept. of Energy Vehicle Technologies: energy.gov/eere/vehicles
- EV 101: nrdc.org/experts/madhur-bolloor/electric-vehicles-101
- Alternative Fuels Calculator: afdc.energy.gov/calc/
- EV Myths: epa.gov/greenvehicles/electric-vehicle-myths
- EV Incentives: pluginamerica.org/inflation-reduction-act-ira-ev-incentives-explained/



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Why Electric Vehicles?

Environmental,
economic and
equity benefits of
electric vehicles.



Ways to Charge



AC Level 1
Charger

Range 3 - 5 miles

of range per hour of charging

Best location: residential buildings

Think charging in your garage overnight



AC Level 2
Charger

Range 10 - 20 miles

of range per hour of charging

Best location: residential buildings, workplace, fleets and public spaces

Think plugging in while grocery shopping



DC Fast
Charger

Range 80% charge

in 20-30 minutes of charging

Best location: multi-unit residential buildings, workplace, fleets and public spaces

Think charging during a road-trip pit stop

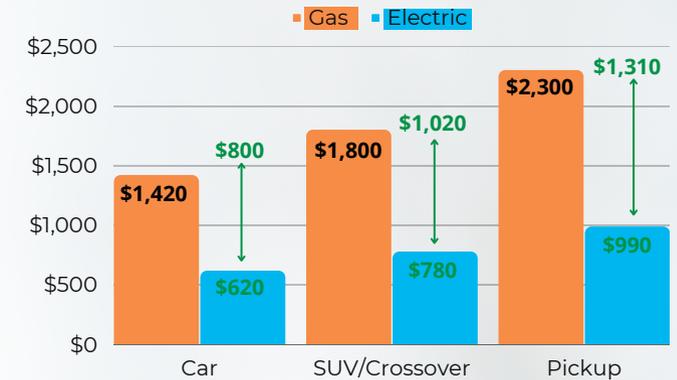
More info on charging:
www.nrdc.org/experts/patricia-valderrama/electric-vehicle-charging-101



Benefits of Electric Vehicles

- **Reduced Air Pollution**
 - No tailpipe means no tailpipe emissions, lowering smog and greenhouse gases
 - Charging with electricity from renewable energy further reduces air pollution
 - An electric motor loses about 15%-20% of energy whereas gasoline engines lose between 64%-75% of energy while driving
- **Lower cost of ownership**
 - Fewer maintenance needs
 - Available IL and federal tax incentives
 - Equivalent cost per mile less for EVs than gasoline vehicles
 - Electricity is cheaper than gasoline
 - Public charging can be low-cost or free at certain locations
- **Safety**
 - Lower center of gravity offers better handling
 - Instant torque and regenerative braking reduce slipping in icy conditions
- **Many EV options are available**
 - Manufacturers adding 80 new models in coming years
 - Sedan examples: Nissan Leaf and Chevy Bolt
 - Truck examples: Rivian R1T and Ford F150
 - SUV examples: Kia Niro and Hyundai Ioniq 5

Fuel Cost Comparison



Data from a 2020 Consumer Reports document: bit.ly/3m6rWms

This chart shows the estimated fuel costs to drive 15,000 miles in an EV compared to a gas vehicle.

Myth Busting

Myth: EV batteries have safety and reliability issues

- *Batteries are designed for a long lifespan and can have a second life as electricity storage*
- *Gas-powered cars are up to 100 times more prone to fires than EVs*

Myth: EVs are not good in cold weather

- *The reduction in battery range is similar to the reduction of fuel efficiency of a gasoline engine when heating the vehicle*
- *Instant torque and regenerative braking reduce slipping and getting stuck*

Myth: EV batteries do not have enough range per charge

- *U.S. car owners drive an average of 31.5 miles per day*
- *Charging networks and stations are expanding for more charging options*
- *Battery range is increasing with newer models*