

# 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](https://afdc.energy.gov/files/u/publication/electric-drive_vehicles.pdf)

## Additional Resources

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



## Why Electric Vehicles?

### Contact Us

69 W. Washington St., Room 1900  
Chicago, IL 60602  
(312) 603-8200  
[environment@cookcountyil.gov](mailto:environment@cookcountyil.gov)  
[www.cookcountyil.gov/EVcharging](http://www.cookcountyil.gov/EVcharging)

Environmental,  
economic and  
equity benefits of  
electric vehicles.





## Charging Types



### AC Level One

#### Range

3 - 5 miles

of range per hour  
of charging

#### Where does this work?

- Single-family homes
- Multi-unit residential



### DC Fast Charge

#### Range

80% charge

in 20-30 minutes  
of charging

#### Where does this work?

- Multi-unit residential

-Fleet

-Public



### AC Level Two

#### Range

10 - 20 miles

of range per hour  
of charging

#### Where does this work?

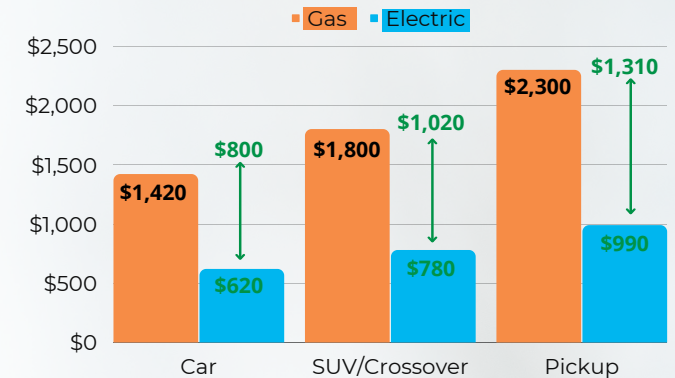
- Single-family homes
- Multi-unit residential
- Workplace
- Fleet
- Public

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



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*

