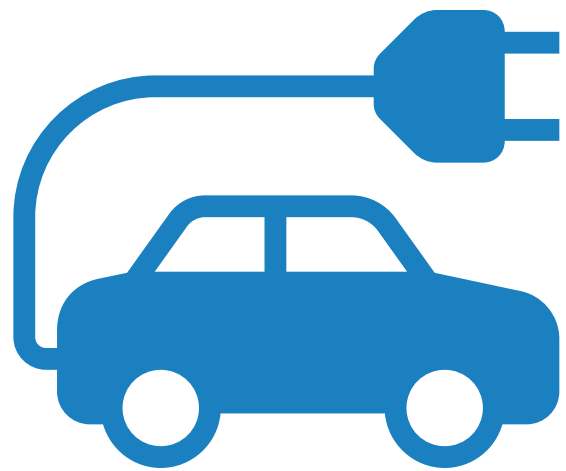


Electric Vehicles

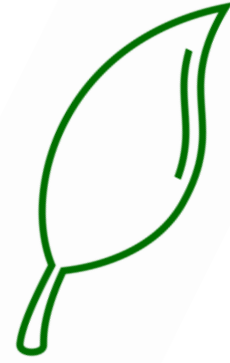
What Is It?

An electric vehicle, or EV, is a vehicle that runs on one or more electric motors and is powered by batteries rather than gasoline.



How Clean Is It?

EVs emit no exhaust and generate lower overall emissions than an internal combustion engine. Producing EV batteries and motors requires mining and harvesting resources such as cobalt, lithium carbonate, neodymium, and copper at significantly higher rates than today.



What Does It Cost?

EVs cost more to make than gas-powered vehicles, though prices are expected to fall. In 2021, the average consumer price for an EV was just over \$56,000. By 2030, it is expected that EV's will cost nine percent more to make than their counterpart.



Space

The average EV can drive an estimated 200 miles on a single charge. Currently, there are over 100,000 charging outlets in the U.S. Charging stations can be as small as a single parking space and are typically found in public parking lots.



Point

- There are no exhaust emissions from electric vehicles
- EVs cost about \$14,000 less to power than gas-powered vehicles over a 15-year span.
- EVs are often government subsidized.
- EV technology will become more prevalent across the entire vehicle fleet including commercial vehicles and trucks.
- EVs reduce reliance on fossil fuels, such as gasoline.

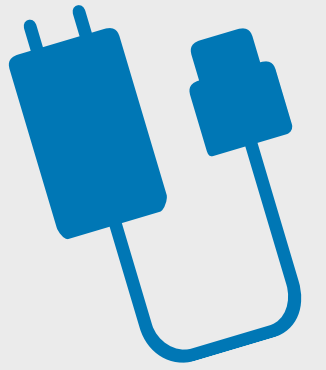


Counterpoint

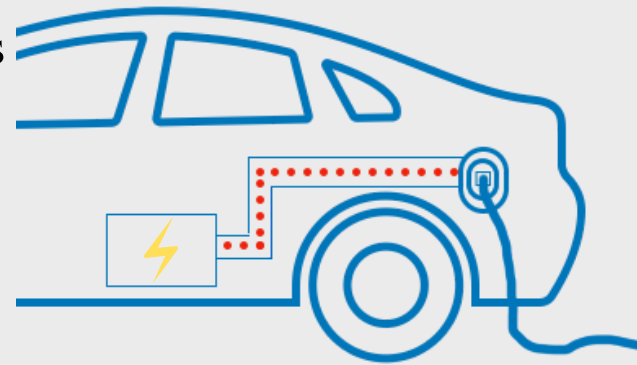
- Mining the resources necessary for EVs has a considerable impact on the environment.
- The average EV is about \$19,000 more expensive to purchase than the average gas-powered vehicle.
- EVs do not pay the fuel tax, which governments rely on to build and maintain roadways.
- EVs do more damage to the roads as they are typically much heavier than their counterparts.
- Charging stations generally pull power from the grid, which is largely supplied by fossil fuels.

How Does It Work?

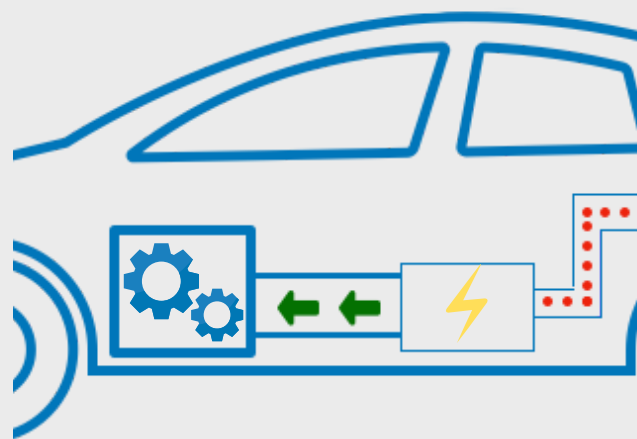
1. All EVs require a charger and a source of power, just like any rechargeable electronic device.



2. There are multiple charging connectors and adaptors to match a vehicle's specifications to that of the charging station.

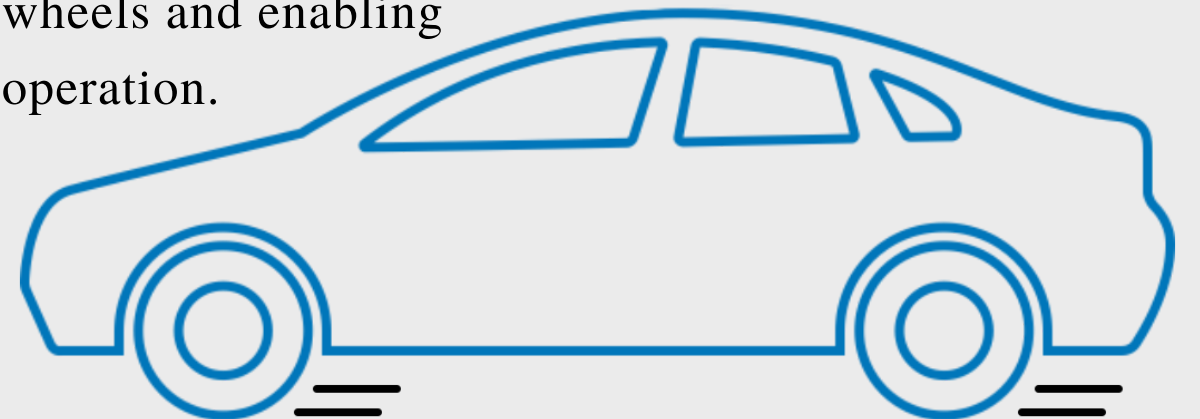


3. Once plugged in, the EV pulls a current of electricity either from a household outlet or public charging station, supplied by the grid.



4. This electricity charges the battery which supplies power to electronics and other EV systems.

5. The motor pulls power from the battery, turning the wheels and enabling operation.



Did You Know?

In 2020, U.S. consumers purchased nearly 2 million electric vehicles. In 2021, global sales tallied 4 million EVs and an additional 2.4 million hybrid vehicles. There are an estimated 16 million EVs operating globally.

What's Next?

In December of 2021, the Biden Administration announced an ambitious goal of having EVs make up 50 percent of auto sales by 2030. Such an increase will mean extracting a larger share of the earth's natural resources through mining, transportation, and manufacturing. Innovative recycling and waste disposal will also be in far higher demand.