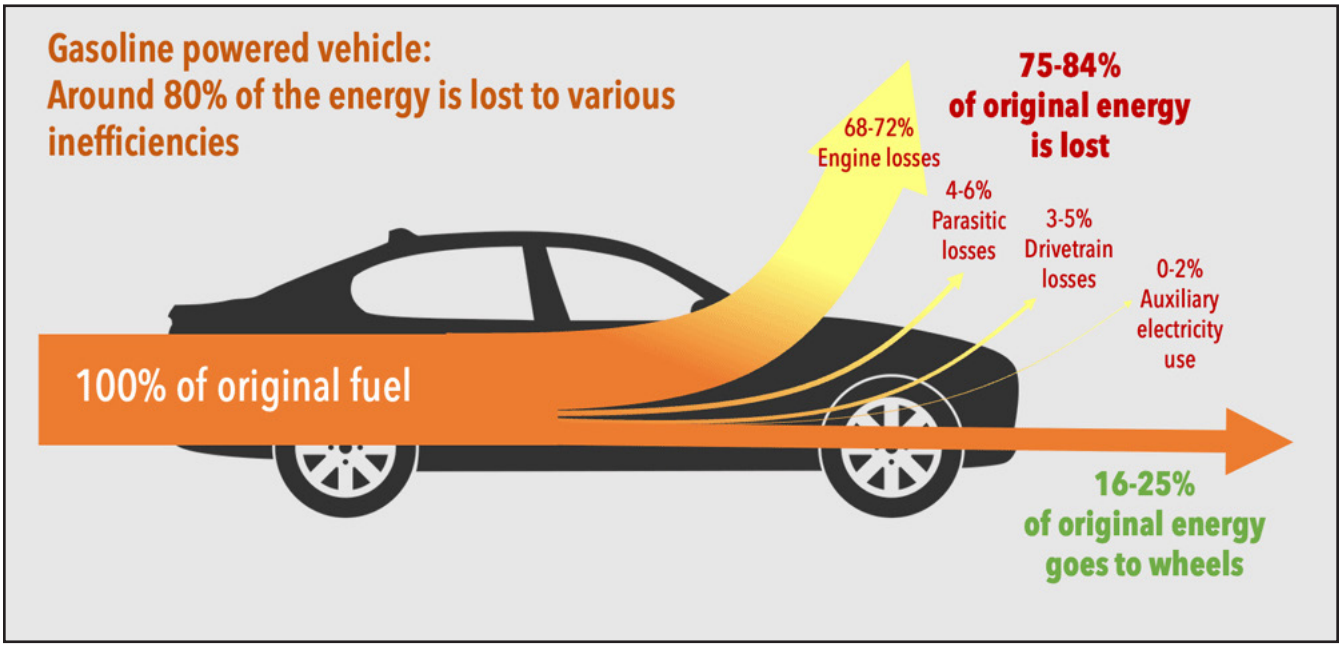
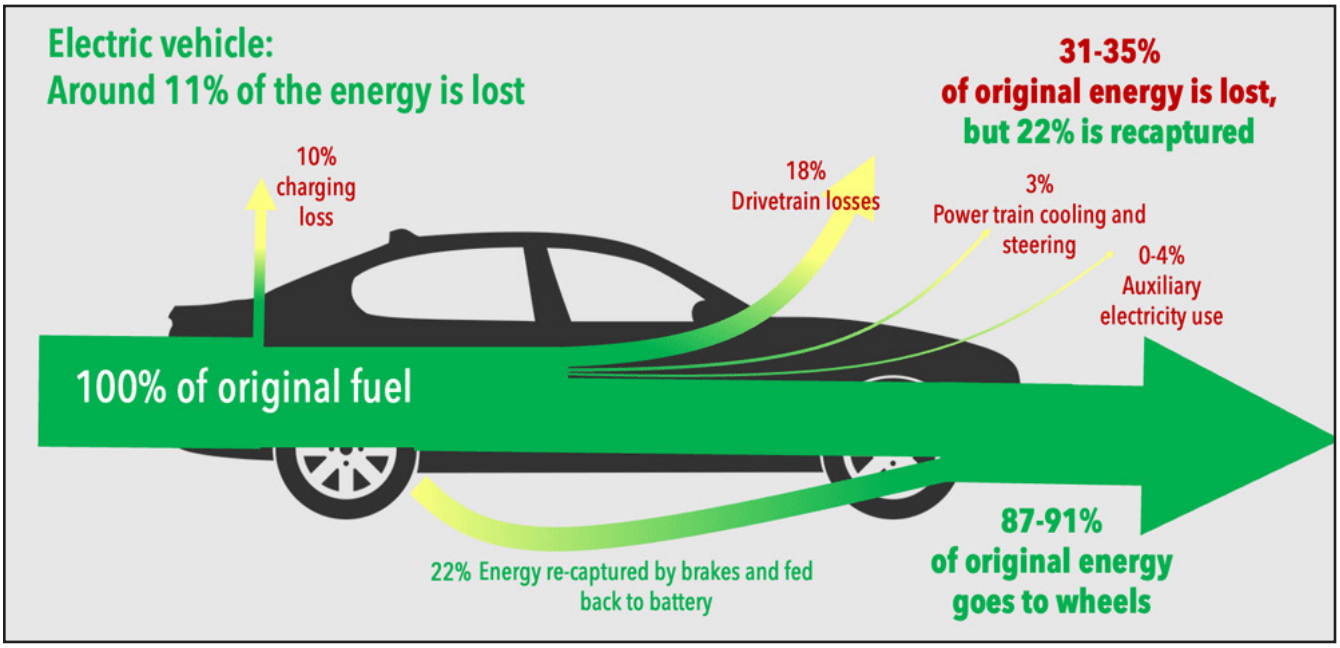
Energy Efficiency: Gas Vehicles vs Electric Vehicles

Data from fueleconomy.gov • Images by Karin Kirk for Yale Climate Connections





Comparing the efficiency of gas vs electric vehicles, only about one-fifth of a gasoline vehicle's fuel source—gasoline—goes toward propelling them. The rest is expended as heat and friction.

On the other hand, we see here that the motor of an electric vehicle converts over 85% of electrical energy into mechanical energy, or motion, on average making them more than four-fifths efficient.

The emissions and pollution benefit: In the U.S., about 8.9 million barrels of motor gasoline are burned every day, and around 80% of that energy is wasted as heat and friction. Of the total amount of gasoline burned, only 1.8 million of those barrels—20%—propel vehicles along the road. This means that if the gasoline vehicle fleet was replaced with EVs, those EVs would need the energy equivalent of only around 1.8 million barrels of gasoline per day, plus the 11% energy loss within the EV itself. The rough math pencils out to the energy equivalent of around 2 million barrels of gasoline per day, which is a substantial savings over the 8.9 million barrels currently used.