



Plugged in to CO₂

Part 2

Carbon dioxide, a greenhouse gas, is released into the atmosphere when fossil fuels are burned. This is a major cause of recent climate warming. The amount of CO₂ released to generate electricity depends on how much of your electricity comes from fossil fuels. In this part of the project, you will figure out how much CO₂ is released to generate the electricity for a particular appliance or electronic device over a year.

How much of your electricity comes from fossil fuels?

1. Look at the US map that shows pie charts for regions that have particular energy mix. Locate your region and its pie chart.
2. According to that pie chart, what is the percentage of electricity that comes from coal, natural gas, and fuel oil? Fill in percentages in the table at the right. Convert to decimal form (For example, 63% = 0.63).

| Fossil fuel | Percent | Decimal |
|-------------|---------|---------|
| Coal | | |
| Natural Gas | | |
| Fuel Oil | | |

How much CO₂ is formed to make the electricity that powers an appliance or electronic device?

3. Choose one of the appliances or electronics measured in the first part of this project. Record its kWh per year (from Worksheet 1.)

Appliance/electronic: _____, which uses _____ kWh in a year

4. Calculate the number of kWh produced with coal, natural gas, and fuel oil to power the appliance by multiplying the decimal form of the percentage by the total kWh. Fill in these numbers in Column B in the table below.
5. Multiply the pounds or kilograms of CO₂ per kWh (Column C) by the number of kWh for each fuel (Column B) to get the amount of CO₂ produced generating electricity for your appliance or electronic. Record your answers in Column D.
6. Sum the pounds or kilograms of CO₂ you calculated in Column D to get the total pounds of CO₂ sent into the atmosphere by using the appliance or electronic device over a year.

| A | B | C | D |
|-----------------------------|--|---|--|
| Fossil Fuel | Step 4: kWh produced with each fuel to power device over a year | Pounds (kg) of CO ₂ per kWh of electricity | Step 5: pounds (kg) of CO ₂ produced over a year |
| Coal | | 2.095 pounds/kWh (0.95 kg/kWh) | |
| Natural Gas | | 1.321 pounds/kWh (0.60 kg/kWh) | |
| Fuel Oil | | 1.969 pounds/kWh (0.89 kg/kWh) | |
| TOTAL CO₂ | | | |