

Why your energy consumption matters



- Most electricity in the United States comes from power plants that burn fossil fuels, like coal or natural gas. These fuels are burned to boil water and produce steam, which spins something called a turbine (like a big fan blade) to produce electricity[1,2].
- Burning fossil fuels releases carbon dioxide and other greenhouse gases that build up in the atmosphere. Greenhouse gases trap heat and make the planet warmer, resulting in climate change.
- Almost 30% of total greenhouse gas emissions in the United States come from making electricity[3,4].
- Making electricity uses a lot of water for steam production and cooling. 45% of all the freshwater withdrawn is used in power plants.
- Some power plants produce liquid and solid wastes that have to be stored or end up in landfills[5].

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[1] https://www.energysage.com/energy-efficiency/why-conserve-energy/environmental-impact-of-ee/

[2] https://www.epa.gov/energy/about-us-electricity-system-and-its-impact-environment

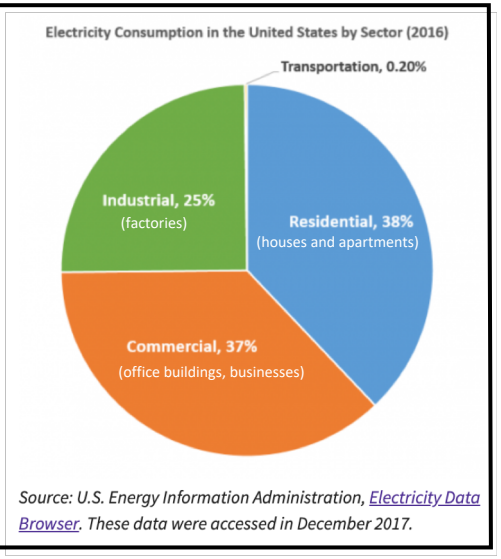
[3] https://solstice.us/solstice-blog/your-energy-usage-and-climate-change/

[4] https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions

[5] https://www.eia.gov/energyexplained/index.php?page=electricity_environment

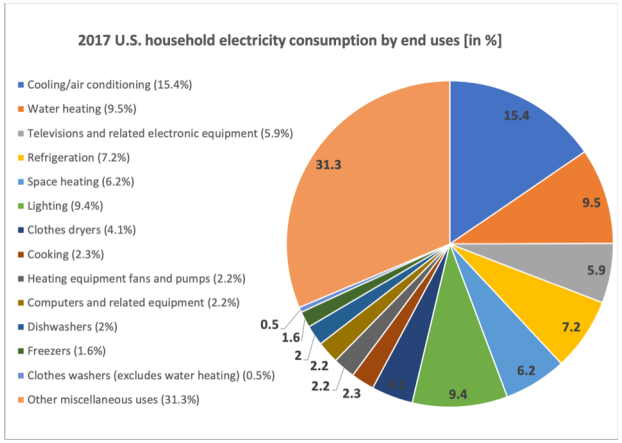
Data on energy consumption

- In the United States, most of the nation's electricity is used by residential (38%), commercial (37%), and industrial customers (25%)[1].
- The transportation sector accounts only for a small fraction of electricity use.



Source: U.S. Energy Information Administration, Electricity Data Browser. These data were accessed in December 2017.

- People use electricity for many things such as lighting, heating, cooling, refrigeration, or electronic devices.
- In 2017, a total of 3.82 trillion kilowatt hours (kWh) of electricity were consumed in the United States[3].
- The average American household uses around around 867 kilowatt hours of electricity per month[2].



[1] https://www.epa.gov/energy/about-us-electricity-system-and-its-impact-environment

[2] https://www.eia.gov/energyexplained/index.php?page=us_energy_homes

[3] https://www.eia.gov/energyexplained/index.php?page=electricity_use



Measuring your carbon footprint[1,2,3,4]



Your **carbon footprint** is the sum of all emissions of CO_2 (carbon dioxide), which result from your activities[1].

Direct carbon emissions

This includes activities that directly release CO_2 into the atmosphere, like burning gasoline while driving a car, or heating your house with oil, gas, or coal.

- The amount of CO_2 emitted depends on the amount of fuel burned. For example, a car might burn 1 gallon of gasoline to drive 30 miles.

Indirect carbon emissions

This includes CO_2 emitted as a result of your actions. For example, when you use electricity, that electricity might come from a coal power plant. The CO_2 emitted by burning the coal still counts as part of your indirect carbon emissions, even though you did not burn the coal yourself. This also includes all the CO_2 emitted when producing and transporting stuff that you buy or use. For example, it takes energy to grow food and transport it to the supermarket. **Embodied carbon** includes all the carbon emissions that result from making a certain material, food, or other product.

- Indirect carbon emissions are usually expressed in equivalent tons of carbon dioxide (CO_2e).

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[1] https://timeforchange.org/what-is-a-carbon-footprint-definition
[2] http://www.cornwalldevelopmentcompany.co.uk/assets/file/Low%20Carbon/CAC%20Info%20sheets/13.03.28%20CAC%20Info%20sheet%207.pdf
[3] http://www.circularecology.com/carbon-footprint-v-embodied-carbon.html
[4] https://energyeducation.ca/encyclopedia/Embodied_energy