

# Carbon Footprint Calculator – How Do You Measure Up?



Every household has a unique carbon footprint based on the amount and types of energy consumed. Below is one example of a two-person North Dakota household.

Calculate your own footprint to compare with the example or learn what you can do and what society can do to reduce your carbon footprint.

EXAMPLE HOUSEHOLD	ESTIMATE YOUR CARBON FOOTPRINT	WHAT YOU CAN DO	WHAT SOCIETY CAN DO															
<p>In this example, a Grand Forks, North Dakota, couple lives in a 2-story, 1600-square-foot home with an 800-square-foot basement. Their home is heated with a natural gas furnace. Electricity powers all major and minor appliances—including the water heater and clothes dryer—central air conditioning, electronics, and lighting. Two light-duty vehicles are driven about 18,000 and 10,000 miles a year. Their fuel economies are 25.5 and 22 miles per gallon, respectively.</p> <div style="display: flex; justify-content: space-around;"> <div> <p><b>Carbon Footprint from Energy</b></p> <table border="1"> <tr><td>Gasoline</td><td>41%</td></tr> <tr><td>Electricity</td><td>41%</td></tr> <tr><td>Natural Gas</td><td>18%</td></tr> </table> </div> <div> <p><b>2-Person Household Energy Consumption</b></p> <table border="1"> <tr><td>Gasoline</td><td>50%</td><td>Two Vehicles</td></tr> <tr><td>Natural Gas</td><td>32%</td><td>Home Heating</td></tr> <tr><td>Electricity</td><td>18%</td><td></td></tr> </table> </div> </div> <p>In the energy consumption graph, transportation makes up the largest share—50% of this household’s energy consumption—and electricity is the smallest at 18%. Natural gas for home heating accounts for 32%. In contrast, the carbon footprint graph<sup>1</sup> shows this same family’s electricity use produces a much larger share of its household carbon footprint than its natural gas consumption—the proportion equal to the share from gasoline.</p> <p>By comparing the two charts, you can see that energy consumption does not directly correspond to carbon footprint. For this household, using less electricity would have a greater effect on carbon footprint than reducing the use of home fuels like natural gas or propane. Decreasing gasoline consumption would have a significant effect on both overall energy use and carbon footprint.</p> <p>Click on each of the energy icons to learn more about the relationship between energy and carbon footprint.</p> <p><sup>1</sup>The U.S. Environmental Protection Agency Household Carbon Footprint Calculator was used to determine the carbon footprint for this family.</p>				Gasoline	41%	Electricity	41%	Natural Gas	18%	Gasoline	50%	Two Vehicles	Natural Gas	32%	Home Heating	Electricity	18%	
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Figure your footprint. Use the links to the calculators below to estimate your household carbon footprint from energy and more.

You will need your energy bills and other information to calculate average monthly energy consumption.



**Household Carbon Footprint Calculator** by the U.S. Environmental Protection Agency estimates your household carbon footprint from your energy bill, your driving habits, and how you handle your household waste.



**Home Energy Saver Calculator** by the U.S. Department of Energy focuses on your in-home carbon footprint (no transportation). Inputs like insulation r-values and square footage of window surfaces yield a more detailed estimate of energy needs and carbon footprint based on the character of the home you own or might build. The Carbon Footprint Map feature lets you compare results locally or across the country.



**CoolClimate Calculator** by the University of California at Berkeley looks at energy and carbon footprint for a California household. The calculator provides an estimate of the footprint that incorporates your lifestyle choices.



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Reducing your energy consumption reduces energy costs and emissions of CO<sub>2</sub> because most of our energy comes from fossil fuels. And, with 350,000 housing units in North Dakota, actions can add up. Reducing energy use by 10% is doable, is affordable, and will reduce carbon emissions.

Start with small actions, see what happens, and decide about next steps.

- Lower the thermostat to 65°–68° F in the winter and raise it to 75° F in the summer.
- Use a programmable thermostat to minimize heating and cooling at night and when you are away from home. Try 5° cooler in the winter and warmer in the summer.
- Caulk the windows to stop the drafts.
- Turn off the lights when you leave a room.
- Replace your light bulbs with energy-efficient bulbs—one room at a time.
- Adjust the temperature settings in appliances to optimize efficiency: 20° F for the freezer, 35° F for the fridge, and 120 F for the water heater.
- Wash full loads in cold water, dry full loads, and cut your shower time.
- Use a power strip with TVs, computers, and battery chargers, and click the strip off to cut the power when the electronics are not in use.
- Unplug the adapters, chargers, and consoles when not in use.
- Car pool or share a ride.
- Use public transit for some of those errands.



**Clip Title:** Cutting Carbon: What Can I Do?

**Description:** Practical tips to cut energy use, reduce your household carbon footprint, and save money, too!

**Length:** 02:34

Electricity provider links to help customize your household energy efficiency and conservation plan:

- Xcel Energy customers
  - Learn about [residential programs](#).
  - Learn about [energy audits](#).
- Montana–Dakota Utilities Co. customers
  - Tour the [home energy saver](#).
  - Visit the [energy calculator](#).
- Rural electric cooperative customers
  - [Touchstone Energy Program](#).
  - [Together We Save](#) features a virtual home tour and a blog that gives ideas for energy savings.

Learn about more actions you can take.

- Energy-saving actions and energy programs in North Dakota: [North Dakota Department of Commerce](#).
- Energy information for home and the farm from [North Dakota State University Extension Service](#).
- [Energy Star](#) has tips for reducing your household energy use – appliance by appliance and room by room.



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Wise use of energy in the household can reduce part of your carbon footprint, but there’s only so much households can do. As a society, we need to make changes to existing infrastructure, residential and commercial building practices, how consumer products are made, and how we produce and use energy in order to decrease our carbon footprint.

Many actions focused on every sort of energy use will be needed. [Learn about](#) the global greenhouse gas situation and options to reduce our carbon footprint.



**Clip Title:** Cutting Carbon: Society’s Options

**Description:** Societies make decisions that can reduce carbon output. Energy efficiency and conservation, alternative energy, and carbon capture and storage can make a difference.

**Length:** 02:50

**Decrease CO<sub>2</sub> Emissions from Fossil Fuels at Large Facilities (experts say they aren’t going away anytime soon!)**

Electricity generation will continue to be a very important part of energy use around the world. Our region is active in looking for ways to reduce the carbon footprint of electricity generation.

Capture the CO<sub>2</sub>. Install CO<sub>2</sub> capture technology at energy facilities (such as power plants and refineries) and use geologic CO<sub>2</sub> storage. The northern Great Plains region has great [CO<sub>2</sub> storage potential](#)—and several projects are already happening [right here](#).



**Clip Title:** Carbon Capture and Storage

**Description:** A means of managing industrial CO<sub>2</sub> that builds on 40 years of experience is described.

**Length:** 06:13

**Increase efficiency at coal-fired power plants. The northern Great Plains region is a leader in fuel efficiency. Learn more.**

- Learn about the [Spiritwood plant](#), which will improve the efficiency of a typical power plant to using the steam heat that is usually wasted.
- Learn how drying lignite increases efficiency, which decreases CO<sub>2</sub> emissions.



**Clip Title:** Improving Energy Efficiency – Drying Coal

**Description:** Coal Creek Station uses waste heat to dry coal, which improves the energy efficiency of its electricity generation.

**Length:** 02:50



### Focus on Alternatives

Increase the availability of renewable energy for electricity generation and transportation.

Learn more at these Web sites:

- [Office of Energy Efficiency and Renewable Energy](#)
- [National Renewable Energy Laboratory](#)
- [National Geographic](#)
- [National Research Defense Council](#)
- [Boeing's fuel cell technology video](#)
- [Clips from \*Hydrogen: Nature's Fuel\* documentary](#)

### Focus on Land Management Practices

Plants can remove and store CO<sub>2</sub> from the atmosphere in a practice called terrestrial CO<sub>2</sub> sequestration.

Learn about terrestrial sequestration.



**Clip Title:** What Is Terrestrial CO<sub>2</sub> Sequestration?

**Description:** Terrestrial sequestration is explained.

**Length:** 01:07



**Clip Title:** Sequestration Potential in the Prairies

**Description:** Soil has great potential for trapping carbon dioxide. Details of capture and release into the atmosphere are presented.

**Length:** 01:45

[Watch](#) the documentary *Out of the Air – Into the Soil*

### Learn about CO<sub>2</sub> Emission Offsets



**Clip Title:** Sequestering Carbon in the Prairie

**Description:** The role of prairies sequestering carbon dioxide.

**Length:** 02:05



**Clip Title:** CO<sub>2</sub> Offsets Through Reforestation in Mississippi  
**Description:** Forest management in Mississippi is helping to manage carbon emissions.  
**Length:** 04:11



**Clip Title:** Emission Trading  
**Description:** The process of emission trading and its usefulness to the global economy are described.  
**Length:** 01:58

Household Energy / Electricity / Home Fuels / Gasoline / Carbon Calculator

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