

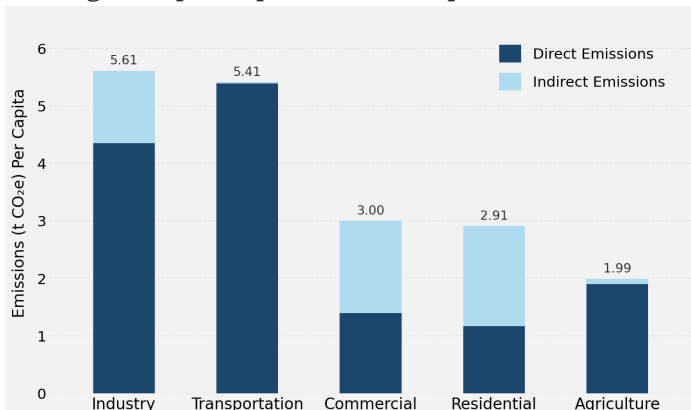
Carbon Footprint

A carbon footprint measures the total greenhouse gas (GHG) emissions—direct and indirect—associated with an individual, organization, product, or event¹ across all stages of its lifecycle: from material extraction and manufacturing to use and disposal. GHGs include carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). Because these gases differ in how strongly they trap heat, emissions are expressed in carbon dioxide equivalents (CO₂e), using each gas's global warming potential (GWP) as a conversion factor (See [Greenhouse Gases Factsheet](#)).¹

Per Capita Emissions

The U.S. per capita carbon footprint (17.3 t CO₂e/yr) in 2023 was more than twice the global average (6.6 t CO₂e/yr).² Industry is responsible for the largest portion: 29.5% of GHG emissions, equivalent to 5.6 t per person.^{3,4} Transportation is the second largest: 28.5% of GHG emissions, equivalent to 5.4 t per person.^{3,4} Agriculture produces 10.5% of emissions. 88% of this impact is due to CH₄ and N₂O.^{3,4} Household consumption indirectly accounts for over 70% of total U.S. emissions.^{5,6}

Average U.S. per Capita Emissions per Year^{3,4}



Transportation ([Personal Transportation Factsheet](#))

- The average passenger car emits 0.66 lbs of CO₂e per mile driven.⁸ Over its lifetime, a gasoline car emits about 66,000 lbs of CO₂e—84% comes from driving.^{9,10} In 2022, cars and light trucks generated 16% of total U.S. emissions (1.03 Gt CO₂e).⁴ See [Electric Vehicle Factsheet](#) for more GHG emission data.
- In 2025, annual per capita miles driven was 9,583.^{11,12}
- Fuel economy rose 41% from 2004–2024, reaching an average of 27 mpg by 2024.¹³ Driving at the speed limit boosts fuel economy by 7–14%, every 5 mph over 50 is equivalent to paying an additional \$0.27–\$0.54/gal.¹⁴
- Commercial aircraft emitted 130.8 Mt CO₂e in 2022; emissions vary by aircraft type, trip length, and load.⁴ A domestic flight emits 0.41 lb of CO₂e per passenger mile.^{4,15}
- Domestic air travel fuel efficiency (passenger miles/gal) rose 112% since 1990 due to increased occupancy.¹⁵

- Rail transportation emitted 35.6 Mt CO₂e in 2022, 2% of U.S. transportation emissions.⁴
- Commuter rail emits 0.295 lb CO₂e per passenger-mile, while freight rail emits 0.047 lb CO₂e per ton-mile.⁸

Household Energy ([Residential Buildings Factsheet](#))

- Each kWh generated in the U.S. emits 0.85 lb of CO₂e.¹⁶ Coal emits 2.31 lb/kWh, petroleum 2.46, and natural gas 0.96.¹⁷
- Nuclear, solar, wind, and hydro produce no CO₂ during use but have upstream emissions from material production and infrastructure (e.g. solar cells, nuclear fuels).¹⁸
- Residential electricity use generated 582.2 Mt CO₂e in 2022—9.2% of U.S. total.⁴ Heating and cooling account for 42% of energy used in U.S. residences in 2025.¹⁹ 17% of global carbon emissions from energy use is tied to residential buildings.²⁰

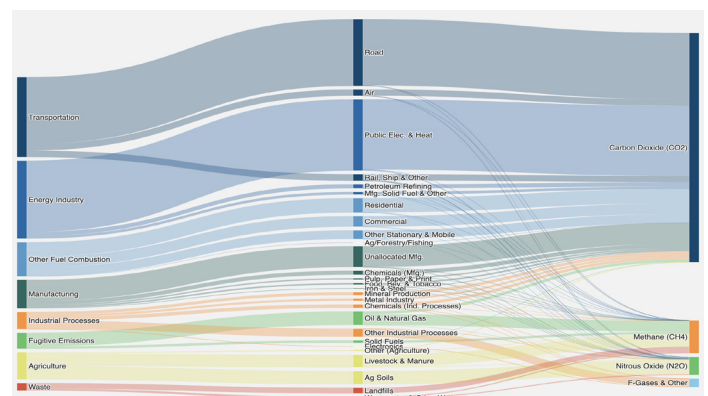
Goods and Services

- The average American buys 53 clothes items a year,²¹ producing emissions equivalent to driving almost 3,000 miles.^{22,23,61} The U.S. has the highest fashion carbon footprint at 132 Mt CO₂e/yr—90% of these emissions occur overseas.²⁴
- A piece of household furniture emits 9–164 kg CO₂e;²⁵ 50–80% is from materials. Buying refurbished cuts emissions by up to 85%.²⁶
- Health care is the most carbon-intensive U.S. household service, emitting 1,692 kg CO₂e per capita in 2018—the highest among industrialized nations. 70% of these emissions came from supply chains (e.g. pharmaceuticals, medical devices).²⁷

Food ([U.S. Food System Factsheet](#))

- Agriculture is responsible for 50% of CH₄, 66% of N₂O, and 3% of CO₂ emissions.²⁸
- Food makes up 10–30% of a household's emissions, often more in low-income households.⁵
- Food production accounts for 68% of food emissions; 27% comes from retail, restaurants, and wholesale. Transport accounts for just 5%—dietary choices have greater impact.²⁹

U.S. GHG Emissions, 2021³⁵



- Meats like beef produce 36 times more GHG per mass of protein than plant-based products;³⁰ most energy from feed is lost, and ruminants like cows emit CH₄ primarily through burping and from manure.^{31,32} Chicken produces 4.2 kg CO₂e/kg, 7 times less than beef's 30.4 kg CO₂e/kg.³³
- High-emission diets (top 20%) emit 8 times more GHGs than low-emission diets (bottom 20%), accounting for 46% of diet-related emissions.⁸
- Changes in U.S. eating habits cut diet-related GHG emissions by over 35% from 2003–2018.³⁴

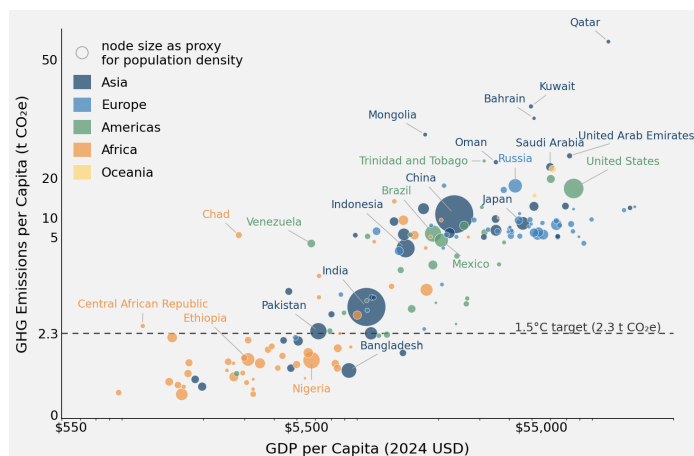
Sources of Institutional Emissions

- Construction material production emits 23% of global GHG. Recycling construction materials in the U.S. could reduce emissions by at least 80%. Steel and cement production generates 11% of global carbon emissions.²⁰
- \$1 spent on infrastructure creates 1 kg of embodied carbon.³⁶
- U.S. commercial buildings emit 764 Mt CO₂/yr in 2025.¹⁹ Data centers emitted 105 Mt CO₂e/yr in 2023,³⁷ projected to double by 2030.³⁸ U.S. data centers account for 45% of the global energy consumption by data centers.³⁹ See [Commercial Buildings Factsheet](#) and [AI and Data Centers Factsheet](#).
- Industrial machinery production accounts for 8% of global CO₂ emissions.⁴⁰
- Militaries contribute 5.5% of global GHG emissions,⁴¹ mostly from supply chains and procurement, not operations.⁴²
- NATO's military activities in 2023 resulted in 233 Mt CO₂e. The U.S. accounts for ⅓ of these emissions.⁴³
- If NATO meets the 2% GDP military spending goal by 2028, its military carbon footprint would be 2 Bt CO₂e/yr—surpassing emissions from all but the top 3 nations (China, India, U.S.).⁴³

Global Emissions and Development

- To stay below 1.5 °C warming, world emissions must fall to 2.3 t CO₂ per capita by 2030.⁴⁴ This requires countries like the U.S., Canada, and Australia to cut emissions by >80%.²

GHG Emissions per Capita by GDP per Capita²



- The world's richest 10% emit 24 t CO₂e/capita.⁴⁴ The richest 1% make up 15% of global emissions (74 t CO₂e/capita), while the poorest 50% account for 7% (just over 1 t CO₂e/capita).⁴⁴ By 2030, the world's richest 10% are projected to emit 9x the sustainable target.⁴⁴ The richest 1% will emit 30x the target.⁴⁴ The bottom 50% will emit about 1 t CO₂e/capita, less than half the global per capita CO₂e target.⁴⁴ Check out the [Emissions Inequality Calculator](#) for more information.

Solutions and Sustainable Actions

Ways to Reduce Your Carbon Footprint

- Walk, bike, carpool, use transit, or drive best-in-class vehicles.⁴⁵ Use less plane travel and use alternative travel methods where they are available.⁴⁶
- Switching from incandescent to LED bulbs saves an average household \$200/yr; immediately switching from incandescent and halogen is expected to save money for any bulb used more than 90 minutes per day.^{47,48}
- ENERGY STAR is a federal program that designates energy efficient products.⁴⁹ ENERGY STAR smart thermostats can save \$50–\$100 annually.⁷ Nation-wide adoption of these thermostats would save \$740M and 6 Mt CO₂e per year.²⁹
- Switching to cold water for one load of laundry per week can cut household emissions by 70 lb of CO₂e per year.⁵⁰
- Unplug devices or switch off power strips when not in use.⁵¹
- Purchase secondhand, reusable,⁵² or low-emission products to reduce waste. See [Municipal Solid Waste Factsheet](#). Many brands now disclose their products' carbon footprints.^{53,54}
- Reduce meat consumption⁵⁵ or swap beef for chicken³³ and cut food waste: compost scraps, and donate excess.⁵⁶ See [U.S. Food System Factsheet](#).
- Cook at home—restaurant delivery can double emissions.⁵⁷ Meal kits may lower GHGs by 33% per meal compared to in-store shopping.⁵⁸
- Reducing snacks, ready-made food, and soft drinks can cut emissions as much as switching to a plant-based diet.⁵⁹
- Solar-reflective roofs can cut home cooling demand by 27%, and wide-scale usage can reduce mortality from urban heat extremes by 18%.⁶⁰

Carbon Footprint Calculators

Estimate your personal or household GHG emissions and explore the impact of different techniques to lower those emissions:

- [U.S. Environmental Protection Agency](#)
- [The Nature Conservancy](#)
- [Global Footprint Network](#)

Results from carbon calculators will vary due to different assumptions and levels of detail.