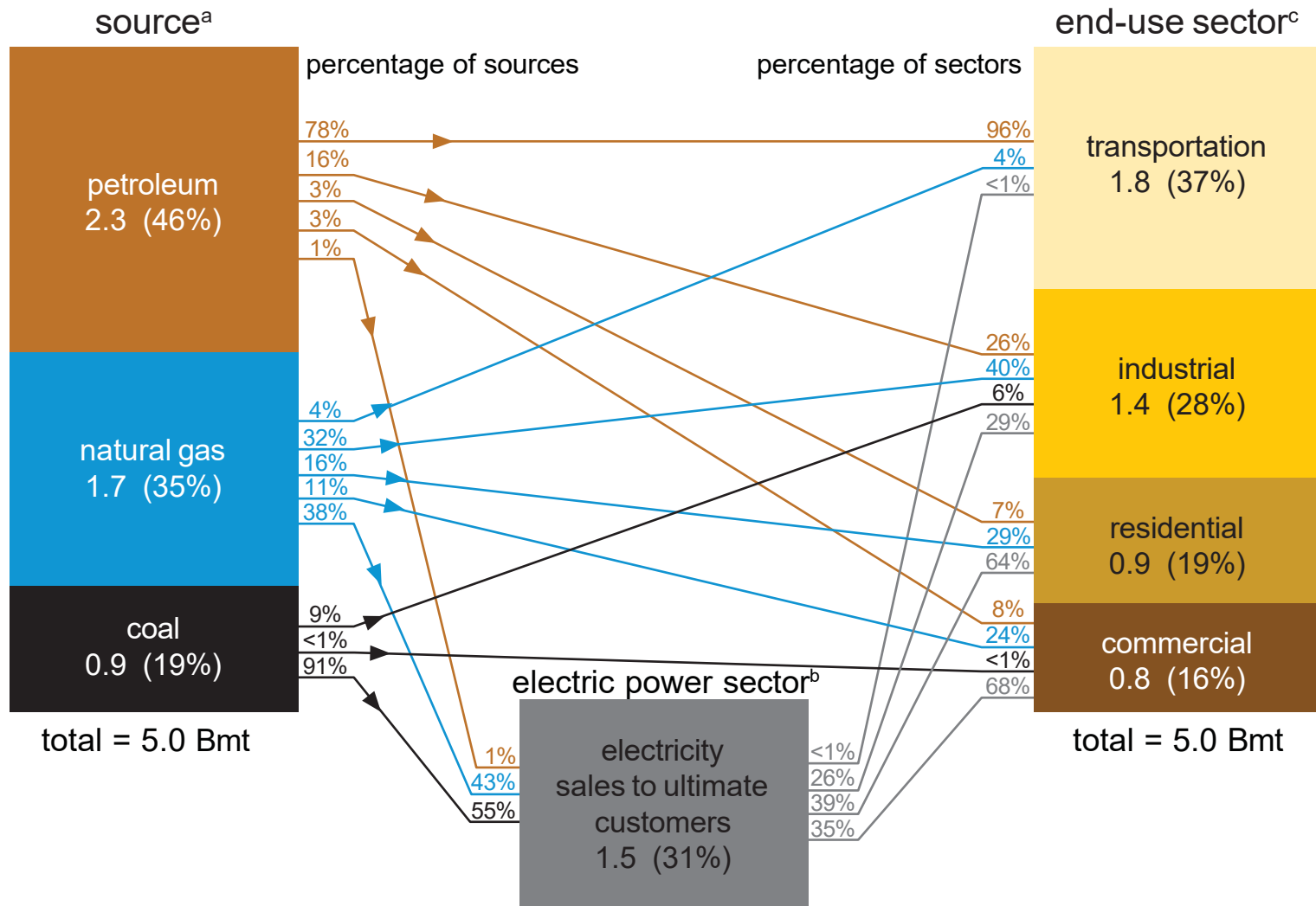


U.S. CO₂ emissions from energy consumption by source and sector, 2022

billion metric tons (Bmt) of carbon dioxide (CO₂)



Sources: U.S. Energy Information Administration (EIA), [Monthly Energy Review](#) (April 2023), Tables 11.1-11.6.

Note: Sum of components may not equal total due to independent rounding. Includes the relatively small amount of carbon dioxide (CO₂) emissions from geothermal and nonbiomass waste for electric power sector use not shown elsewhere, See EIA's [Monthly Energy Review, Section 11](#). See "Extended Chart Notes" on next page.

^a CO₂ emissions from primary energy consumption. Each energy source is measured in different physical units and converted to metric tons of CO₂.

^b The electric power sector includes electricity-only and combined-heat-and-power.

(CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public. CO₂ emissions from electricity sales to ultimate customers in each end-use sector are equal to the weighted average of fuels used to generate electricity and allocated proportionally to the amount of electricity sales to each end-use sector.

^c Industrial and commercial sectors include primary energy consumption by CHP and electricity-only plants in the sector. Includes the CO₂ emissions from the electricity sales allocated to each end-use sector.



Extended Chart Notes

The U.S. Energy Information Administration (EIA) *U.S. CO₂ emissions from energy consumption by source and sector* chart illustrates carbon dioxide (CO₂) that is emitted from fossil fuel consumption in the United States. The chart includes the relatively small amount of emissions from the non-combustion use of fossil fuels. The data are from EIA's *Monthly Energy Review* (MER). See [MER Section 1](#) and [Section 11](#) for more explanation.

Source:

Fossil fuel energy sources are measured in different physical units: liquid fuels in barrels or gallons, natural gas in cubic feet, coal in tons, and electricity in kilowatthours. EIA converts each source into common British thermal units (Btu) to allow comparison among different types of energy and for conversion to metric tons of CO₂. Each source has different Btu and CO₂ conversion rates. See [MER Section 11](#) and [Appendix A](#) for further explanation.

Petroleum: Petroleum products, as they are consumed. Includes motor gasoline, distillate fuel oil (diesel), jet fuel, aviation gasoline, asphalt and road oil, hydrocarbon gas liquids (HGL), lubricants, kerosene, petroleum coke, petrochemical feedstocks, residual fuel oil, still gas (refinery gas), special naphthas, naphtha-type jet fuel, waxes, unfinished oils, and miscellaneous products. Excludes biofuels.

Natural gas: A gaseous mixture of hydrocarbon compounds, primarily methane, formed deep beneath the earth's surface over millions of years from the remains of plants and animals, chemicals, heat, and pressure. Excludes supplemental gaseous fuels.

Coal: A combustible black or brownish-black sedimentary rock with a high amount of carbon and hydrocarbons formed from plant remains that have been compacted, hardened, chemically altered, and metamorphosed by heat and pressure over geologic time. Includes a relatively small amount of coal coke net imports.

Electric Power Sector:

Includes electricity-only and combined-heat-and-power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public—that is North American Industry Classification System (NAICS) code 22 plants. Includes the emissions associated with useful thermal output at CHP plants. Includes the relatively small amount of emissions from geothermal and non-biomass waste. See [MER Section 11](#) for further explanation.

Electricity sales to ultimate customers: The amount of CO₂ emitted to generate electricity in the electric power sector. CO₂ estimates are allocated to the end-use sectors in proportion to the amount of electricity sold to customers purchasing electricity for their own use and not for resale in those sectors.

End-use sector:

CO₂ emissions by sector in this chart include the estimated emissions associated with the electricity sales to ultimate customers in each end-use sector. EIA allocates the consumption-weighted average CO₂ emissions from electricity sales proportionally to the national electricity sales sold to each end-use sector, as shown in [MER Section 2](#). See [MER Section 11](#) for further explanation.

Transportation: Includes energy used by automobiles; trucks; buses; motorcycles; trains, subways, and other rail vehicles; aircraft; and ships, barges, and other waterborne vehicles whose primary purpose is transporting people or goods from one location to another. Vehicles whose primary purpose is not transportation (that is construction cranes and bulldozers, farming vehicles, and warehouse forklifts) are classified in the sector of their primary use. Also includes natural gas used to operate natural gas pipelines.

Industrial: Includes energy consumed for manufacturing (NAICS codes 31-33); agriculture, forestry, fishing, and hunting (NAICS code 11); mining, including oil and natural gas extraction (NAICS code 21); construction (NAICS code 23); and combined-heat-and-power (CHP) generators that produce electricity or useful thermal output primarily to support the above-mentioned industrial activities.

Residential: Includes energy used for space heating, water heating, air conditioning, lighting, refrigeration, cooking, and running a variety of other appliances in the living quarters of private households.

Commercial: Includes energy consumed by businesses; federal, state, and local governments; other private and public organizations, such as religious, social, or fraternal groups; institutional living quarters; sewage treatment facilities; and CHP generators that produce electricity or useful thermal output primarily to support the activities of the above-mentioned commercial establishments.