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What is renewable energy?

Renewable energy is energy from sources that are naturally replenishing but flow-limited; renewable resources are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time.

The major types of renewable energy sources are:

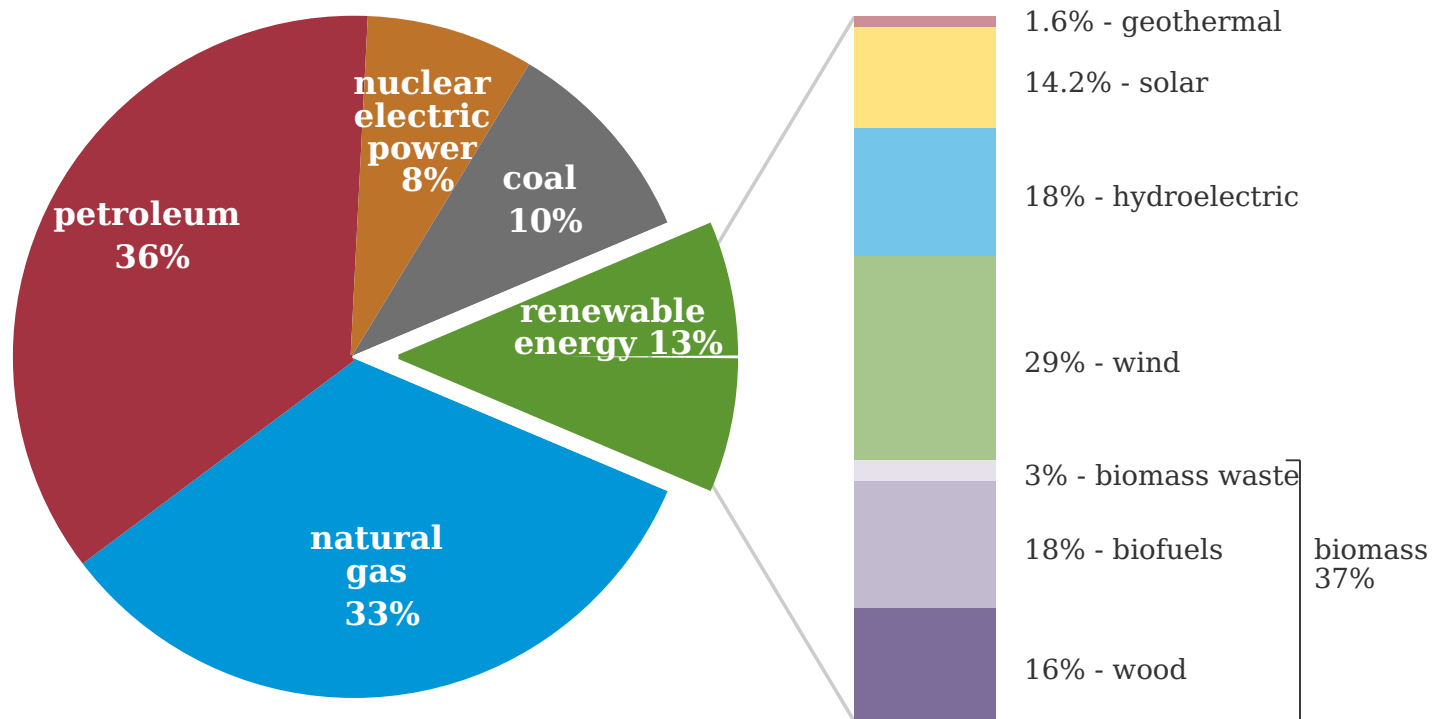
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U.S. primary energy consumption by energy source

total = 100.41 quadrillion
British thermal units (Btu)

total = 13.18 quadrillion Btu



Data source: U.S. Energy Information Administration, *Monthly Energy Review*, Table April 2023, preliminary data



Note: Sum of components may not equal 100% because of independent rounding.

What role does renewable energy play in the United States?

Until the mid-1800s, wood was the source of nearly all of the nation's energy needs for heating, cooking, and lighting. From the late 1800s until today, fossil fuels—coal, petroleum, and natural gas—have been the primary sources of energy. Hydropower and wood were the most used renewable energy resources until the 1990s. Since then, U.S. energy consumption from biofuels, geothermal energy, solar energy, and wind energy have increased. Total U.S. renewable energy production and consumption reached record highs in 2022.

In 2022, renewable energy provided about 13%, or 13.18 quadrillion British thermal units (Btu)—1 quadrillion is the number 1 followed by 15 zeros—of total U.S. energy consumption. The [electric power sector](#) accounted for about 61% of total U.S. renewable energy consumption in 2022, and about 21% of total U.S. [electricity generation](#) was from renewable energy sources.

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Renewable energy can play an important role in U.S. energy security and in reducing greenhouse gas emissions. Using renewable energy can help to reduce energy imports and reduce fossil fuel use, which is the largest source of U.S. [carbon dioxide emissions](#). According to projections in the [Annual Energy Outlook 2023](#) Reference case, [U.S. renewable energy consumption](#) will continue to increase through 2050. The Reference case generally assumes that current laws and regulations that affect the energy sector, including laws that have end dates, remain unchanged throughout the projection period.

Last updated: June 9, 2023, with data from the [Monthly Energy Review](#), April 2023, and the [Annual Energy Outlook 2023](#), March 2023; data for 2022 are preliminary.

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