

# Energy Information Administration



## Did You Know?

- 1,000,000,000,000,000 British thermal units (one quadrillion Btu) is approximately the amount of energy in 8 billion gallons of motor gasoline — enough to supply U.S. drivers for 24 days. (*Annual Energy Review 1996*, Table 5.11 and Table A1)

**One match tip generates about 1 British thermal unit (Btu) of energy. (*Annual Energy Review 1995*, Table D2)**

- Electric utilities burn approximately one million Btu of fossil fuels — the equivalent of about 90 pounds of coal, on average — to generate 100 kilowatt-hours of electricity. (*Annual Energy Review 1995*, Table D2)

*Energy Infobits are little bits of information gleaned from Energy Information Administration (EIA) data and analyses. They reflect the most recent annual data available as of February 1998. To learn more about these and other energy topics visit EIA's Internet Web site— <http://www.eia.doe.gov>—or contact:*

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## Energy Overview

- In 1950, the United States produced nearly 34 quadrillion Btu of energy — 1 quadrillion Btu more than it consumed. By 1996, the Nation consumed nearly 94 quadrillion Btu — over 21 quadrillion Btu more than it produced. (*Annual Energy Review 1996*, Tables 1.2 and 1.3)
- Total U.S. net energy imports (imports minus exports) have more than doubled since 1985, due mostly to large increases in imports of petroleum. In 1996, net energy imports were nearly 19 quadrillion Btu — the equivalent of 20 percent of total U.S. energy consumption for the year. (*Annual Energy Review 1996*, Tables 1.3 and 1.4)
- In 1996, fossil fuels supplied 84 percent of U.S. energy needs. Nuclear electric power and renewable energy supplied the rest, with shares of about 8 percent each. (*Annual Energy Review 1996*, Table 1.3)
- About 6 percent of U.S. fossil fuel consumption is used for non-fuel purposes — feedstocks for plastics and fertilizers and other products, such as lubricants, asphalt, and road oil. (*Annual Energy Review 1996*, Table 1.16)
- The United States is both the top energy producer and consumer worldwide. Petroleum is the principal U.S. energy import; coal is the principal U.S. energy export. (*Annual Energy Review 1996*, Table 1.4 and *International Energy Annual 1995*, Table E1 and Table F1)

## Coal

- The United States produces enough coal to fill a railroad car every 3 seconds. A large power plant consumes coal at a rate of more than 20,000 short tons per day — the amount of coal held by about 200 railroad cars. (*Coal Data: A Reference*, pp. 3, 33)
- The United States mined over a billion short tons of coal in 1996 — more than double the amount mined in 1949. Industries, homes, businesses, and railroads accounted for 83 percent of coal consumed in 1996. Electric utilities used 89 percent by 1996. (*Monthly Energy Review*, Dec. 1997, Table 6.2)
- Anthracite production in 1996 was one-tenth of the amount mined in 1949. Only 0.4 percent of total U.S. coal production in 1996 was anthracite, compared with nearly 9 percent in 1949. (*Annual Energy Review 1996*, Table 7.2)
- More coal is mined east of the Mississippi River than in the western United States, but the western share is increasing. Western mines produced 500 million short tons, or 47 percent of the U.S. total in 1996, compared with 28 million short tons, or 5 percent of the total, 30 years earlier. (*Annual Energy Review 1996*, Table 7.2 and *Coal Industry Annual 1996*, Table 1)
- Surface mine productivity is more than double that of underground coal mines. Growth in surface mining helped raise overall productivity of U.S. coal mines to a record 5.7 short tons per miner hour in 1996. (*Coal Industry Annual 1996*, Table ES4)

## Petroleum

- The United States imports 25 times the amount of petroleum imported following World War II. Between 1949 and 1996, net imports of crude oil and refined petroleum products increased from 320,000 barrels per day to 8.5 million barrels per day. (*Annual Energy Review 1996*, Table 5.1 and *Monthly Energy Review*, Dec. 1997, Table 3.1)
- About 46.4 percent of total U.S. petroleum consumption in 1996 was supplied by net imports of crude oil and refined petroleum products. This was just 0.1 percentage points below the peak share of 46.5 percent recorded in 1977. Imports from the Persian Gulf were 17 percent of total consumption in 1996, compared with 28 percent in 1977. (*Monthly Energy Review*, Dec. 1997, Table 1.8)
- Venezuela, a member of the Organization of Petroleum Exporting Countries (OPEC), supplied more petroleum to the United States in 1995 and 1996 than any other country. Saudi Arabia was the leading supplier from 1988 through 1994. (*Annual Energy Review 1996*, Table 5.4)
- Distillate sales rose again in 1996, up 3.7 percent over sales in 1995, propelled upward by an expanding economy. In contrast to 1995, residual fuel oil sales increased 7.7 percent in 1996, the first gain since 1988. This shift in the trend of residual fuel oil sales was the consequence of extremely cold weather during the beginning of 1996 and competitive residual fuel prices toward the end of 1996. (*Fuel Oil and Kerosene Sales 1996*, p. 3)

## Natural Gas

- In 1996, Canada supplied 13 percent of the natural gas consumed in the United States. Imports of natural gas from Canada now supply more than the production of any State except Texas and Louisiana. (*Natural Gas Annual 1996*, Tables 3 and 10)

**Nearly all of the natural gas consumed by U.S. households is used for space heating (70 percent) and water heating (25 percent). Only 5 percent is used for other purposes, such as cooking, drying clothes, and heating hot tubs and swimming pools. (Household Energy Consumption and Expenditures 1993, p. 14)**

- More than one-quarter of U.S. dry natural gas production comes from gas fields underlying the Gulf of Mexico. (*U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves 1996, Annual Report*, Table 8)
- In 1972, total U.S. consumption of natural gas peaked at a record 22.1 trillion cubic feet. Thereafter, uncertainties about supply and rising energy prices began to erode demand. In 1986, natural gas consumption totaled 16.2 trillion cubic feet, the lowest annual total since 1965. After the 1986 low point, natural gas consumption trended upward again, reaching 22.0 trillion cubic feet in 1996. (*Natural Gas Annual 1996*, Table 14)

## Electricity

- Since 1949, electricity sales have increased at an average of about 5.5 percent per year. On average, each person in the United States used over 11,000 kilowatthours in 1996, compared with fewer than 2,000 kilowatthours in 1949. (*Annual Energy Review 1996*, Tables 1.5 and 8.6)
- After adjustment for inflation, the price of electricity to residential customers was 3 and a half cents less per kilowatthour in 1996 than in 1960. (*Annual Energy Review 1996*, Table 8.11)
- Coal accounted for 57 percent of the electricity generated by utilities in the United States in 1996. Nuclear power accounted for 22 percent, natural gas for 9 percent, hydroelectric power for 11 percent, and petroleum for 2 percent. (*Electric Power Annual 1996*, Vol.1, Figure 2)
- In general, a short ton (2,000 pounds) of coal consumed at a power plant generates about 2,000 kilowatthours of electricity. Nearly half a ton of coal is needed to generate the amount of electricity used in a month by one person in the United States. (*Coal Data: A Reference*, p. 33; *Annual Energy Review 1996*, Table D2)
- The first practical coal-fired electric generating station, developed by Thomas Edison, went into operation in New York City in 1882 to supply electricity for household lights. (*Coal Data: A Reference*, p. 1)

## Nuclear Energy

- The performance of U.S. nuclear power plants continues to improve significantly. The efficiency of U.S. reactors, which is measured by the average capacity factor (or the amount of power actually generated divided by the maximum possible generation for a given period of time), reached 76.4 percent in 1996. (*Annual Energy Review 1996*, Table 9.2)
- Uranium production in 1996 totaled 6.3 million pounds of yellowcake (uranium oxide, or U3O8). This was a 5-percent increase from the 1995 level of 6.0 million pounds (and the highest production level since 1991). More than half—some 4.7 million pounds—was produced through uranium mining operations in 1996, as mine production increased by 34 percent. Most of that amount was produced by *in situ* leach mining. (*Uranium Industry Annual 1996*, p. 2)

**Only a few decades ago nuclear electric power was merely an engineering dream. Today it provides more than one-fifth of the Nation's electricity. There are 110 operable nuclear generating units in the United States compared with 111 in the early 1990's. (Monthly Energy Review, October 1997, Table 8.2)**

## Renewable Energy

- The renewable energy share of U.S. energy consumption in 1996 was equivalent to 134 days of petroleum imports. (*Annual Energy Review 1996*, Tables 1.3 and 1.4)
- Renewable sources now supply 8 percent of U.S. energy consumption. Conventional hydroelectric power accounts for over half of our renewable energy use. (*Annual Energy Review 1996*, Table 1.3)
- Electric utilities use about half of all U.S. renewable energy to generate power for consumers. In 1996, 96 percent of the renewable energy they used was in hydroelectric power plants. (*Annual Energy Review 1996*, Table 10.2)
- Waste — including everything from garbage and landfill methane to manufacturing waste — has become one of the fastest-growing sources of renewable energy in the Nation. The energy generated from waste in 1996 was 5.7 times the amount generated in 1981. (*Annual Energy Review 1996*, Table 10.3)
- More than 3 million U.S. households burn wood as a main heating fuel. (*Annual Energy Review 1996*, Table 10.4)
- Nearly 90 percent of the solar thermal energy equipment shipped in 1995 was used to heat home swimming pools. (*Annual Energy Review 1996*, Table 10.6)

## End-Use Energy Consumption

- U.S. industry relied on coal for 38 percent of its energy in 1949, but slightly less than 7 percent in 1996. Industry increased its reliance on petroleum and natural gas from 47 percent to 55 percent during the same period. (*Annual Energy Review 1996*, Table 2.1)
- Four industry groups — petroleum and coal products, chemicals, paper, and primary metals — account for 78 percent of all energy consumed for manufacturing in the United States. (*Annual Energy Review 1996*, Table 2.2)
- In the Midwest, where the houses tend to be older and larger than in other areas of the country, energy use per household is about one and a half times the per household energy use in the South. (*Annual Energy Review 1996*, Table 2.9)

**Personal computers account for about two-tenths of 1 percent of the electricity used in U.S. households. (*Household Energy Consumption and Expenditures 1993*, p. 10)**

## Appliances

- Appliances account for half of all residential electricity consumption. Together, air conditioners, refrigerators, and freezers account for nearly one-third. (*Household Energy Consumption and Expenditures 1993*, pp. 9 and 13)
- Eighty-seven percent of the 523 million lights used in U.S. residential households are incandescent — the least efficient type of bulb. If every household replaced its most heavily used incandescent lights with compact fluorescent bulbs, the Nation could save nearly 32 billion kilowatt-hours of electricity each year — about 35 percent of all electricity used for lighting homes. (*Residential Lighting: Use and Potential Savings*, p. v and Figure ES1)
- Nearly every U.S. household now has at least one color television. Only 2 percent of households are without them, whereas 23 percent lack electric clothes washers. (*Annual Energy Review 1996*, Table 2.12)
- In 1978, only about 1 U.S. household in 12 had a microwave oven. By 1993, 5 out of 6 did. (*Annual Energy Review 1996*, Table 2.12)
- Virtually every U.S. household had at least one refrigerator in 1993, and 15 percent had two or more. (*Annual Energy Review 1996*, Table 2.12)
- In 1990, only 1 U.S. household in 6 had a personal computer. By 1993, the number had jumped to nearly 1 household in 4. (*Annual Energy Review 1996*, Table 2.12)

## State Energy Facts

- Texas consumes more energy than any other State and 70 times as much as Vermont, the State that consumes the least energy. (*State Energy Data Report 1995*, p. 17, Table 9)
- The industrial sector consumes more energy than any other sector. States that consume large amounts of energy for industry — like Texas, Louisiana, California, Ohio, and Pennsylvania — are also among the leading States in total consumption. (*State Energy Data Report 1995*, p. 17, Table 9)
- Florida is the destination for half of all solar thermal collector shipments in the United States. (*Renewable Energy Annual 1996*, p. 161, Table F10)

**Cars and trucks used for personal transportation in the United States traveled a total of 1.9 trillion vehicle miles in 1995. (*Annual Energy Review 1996*, Table 2.14 p. 67)**

- California and Texas had the greatest number of alternative-fuel vehicles in use in 1995 — 52 thousand and 32 thousand vehicles, respectively. Together, these two States account for one-fourth of the alternative-fuel vehicles in use. (*Alternatives to Traditional Transportation Fuels 1995*, Figure 5, p. 3)

## Environmental Indicators

- Sulfur dioxide emissions from coal-fired electric power plants are lower now than they were in 1985, even though more coal is being burned to generate power. Much of the credit goes to the increased use of scrubbers at power plants. (*Annual Energy Review 1996*, Table 12.5, p. 343 and Table 12.6, p. 345)
- Industrial facilities and motor vehicles produced 65 percent of the carbon dioxide emissions in the United States during 1995. The rest were produced by homes and businesses. (*Annual Energy Review 1996*, Table 12.3, p. 339)
- Landfills, livestock, rice paddies, and burning of crop residues accounted for 62 percent of U.S. methane emissions in 1994. (*Annual Energy Review 1996*, p. 341, Table 12.4)
- Petroleum is the leading source of carbon emissions from energy use. If current policies remain unchanged, it will contribute 42 percent of the 1,956 million metric tons of carbon emissions projected for the United States in 2020, and over 80 percent of its share comes from transportation. Coal is expected to contribute about one-third of the total, with 90 percent of coal emissions from electricity generation. Of the fossil fuels, natural gas has the smallest share. But, because of rapid growth in gas consumption, its share is growing the fastest. (*Annual Energy Outlook 1998*, Table A19)

## International Energy

- Worldwide energy production grew 47 percent between 1973 and 1995 — to more than 363 quadrillion British thermal units (Btu). (*Annual Energy Review 1996*, Table 11.2)
- World energy consumption is expected to increase more than 54 percent from 1995 to 2015, to 562 quadrillion Btu. (*International Energy Outlook 1997*, Table A1)
- Although in 1996 U.S. production of crude oil fell to its lowest level in over 40 years, the United States remained the second largest producer in the world, after Saudi Arabia. (*Annual Energy Review 1996*, Tables 5.1 and 11.5)
- China was the largest consumer of coal in 1996, using 1.5 billion short tons. The United States, India, Germany, and Russia were the next largest consumers. These five countries accounted for 65 percent of world coal. (*International Energy Annual 1996*, Table 1.4)
- The United States produced 33 percent of the world's oil in 1960, but it now produces only 10 percent — about 6.5 million barrels per day. (*Annual Energy Review 1996*, Table 11.5)