

Table E1a. Noncombustible Renewable Primary Energy Consumption: Conventional Hydroelectric Power, Geothermal, and Wind (Trillion Btu)

| | Conventional Hydroelectric Power ^a | | | Geothermal ^b | | | | Wind ^c | | |
|------------|---|---|-----------------------------------|---------------------------------|---|---|-----------------------------------|---|---|-----------------------------------|
| | Transformed Into Electricity ^{d,e} | Adjustment for Fossil Fuel Equivalence ^f | Total Primary Energy ^g | Direct Consumption ^h | Transformed Into Electricity ^{d,i} | Adjustment for Fossil Fuel Equivalence ^f | Total Primary Energy ^j | Transformed Into Electricity ^{d,i} | Adjustment for Fossil Fuel Equivalence ^f | Total Primary Energy ^g |
| 1950 | 344 | 1,071 | 1,415 | NA | NA | NA | NA | NA | NA | NA |
| 1955 | 397 | 963 | 1,360 | NA | NA | NA | NA | NA | NA | NA |
| 1960 | 510 | 1,098 | 1,608 | NA | (s) | (s) | (s) | NA | NA | NA |
| 1965 | 672 | 1,387 | 2,059 | NA | 1 | 1 | 2 | NA | NA | NA |
| 1970 | 856 | 1,777 | 2,634 | NA | 2 | 4 | 6 | NA | NA | NA |
| 1975 | 1,034 | 2,120 | 3,155 | NA | 11 | 23 | 34 | NA | NA | NA |
| 1980 | 953 | 1,948 | 2,900 | NA | 17 | 35 | 53 | NA | NA | NA |
| 1981 | 900 | 1,858 | 2,758 | NA | 19 | 40 | 59 | NA | NA | NA |
| 1982 | 1,066 | 2,200 | 3,266 | NA | 17 | 34 | 51 | NA | NA | NA |
| 1983 | 1,144 | 2,383 | 3,527 | NA | 21 | 43 | 64 | (s) | (s) | (s) |
| 1984 | 1,107 | 2,279 | 3,386 | NA | 26 | 54 | 81 | (s) | (s) | (s) |
| 1985 | 970 | 2,000 | 2,970 | NA | 32 | 66 | 97 | (s) | (s) | (s) |
| 1986 | 1,003 | 2,068 | 3,071 | NA | 35 | 73 | 108 | (s) | (s) | (s) |
| 1987 | 863 | 1,772 | 2,635 | NA | 37 | 76 | 112 | (s) | (s) | (s) |
| 1988 | 771 | 1,563 | 2,334 | NA | 35 | 71 | 106 | (s) | (s) | (s) |
| 1989 | ^e 928 | 1,909 | 2,837 | 9 | ⁱ 50 | 102 | 162 | ^j 7 | 15 | 22 |
| 1990 | 999 | 2,047 | 3,046 | 10 | 53 | 108 | 171 | 10 | 19 | 29 |
| 1991 | 986 | 2,030 | 3,016 | 11 | 54 | 112 | 178 | 10 | 21 | 31 |
| 1992 | 864 | 1,754 | 2,617 | 12 | 55 | 112 | 179 | 10 | 20 | 30 |
| 1993 | 957 | 1,935 | 2,892 | 13 | 57 | 116 | 186 | 10 | 21 | 31 |
| 1994 | 888 | 1,796 | 2,683 | 13 | 53 | 107 | 173 | 12 | 24 | 36 |
| 1995 | 1,061 | 2,145 | 3,205 | 14 | 46 | 92 | 152 | 11 | 22 | 33 |
| 1996 | 1,185 | 2,405 | 3,590 | 15 | 49 | 99 | 163 | 11 | 22 | 33 |
| 1997 | 1,216 | 2,424 | 3,640 | 16 | 50 | 100 | 167 | 11 | 22 | 34 |
| 1998 | 1,103 | 2,194 | 3,297 | 18 | 50 | 100 | 168 | 10 | 21 | 31 |
| 1999 | 1,090 | 2,177 | 3,268 | 19 | 51 | 101 | 171 | 15 | 31 | 46 |
| 2000 | 940 | 1,871 | 2,811 | 21 | 48 | 96 | 164 | 19 | 38 | 57 |
| 2001 | 740 | 1,502 | 2,242 | 22 | 47 | 95 | 164 | 23 | 47 | 70 |
| 2002 | 902 | 1,787 | 2,689 | 24 | 49 | 98 | 171 | 35 | 70 | 105 |
| 2003 | 941 | 1,851 | 2,793 | 27 | 49 | 97 | 173 | 38 | 75 | 113 |
| 2004 | 916 | 1,773 | 2,688 | 30 | 51 | 98 | 178 | 48 | 93 | 142 |
| 2005 | 922 | 1,781 | 2,703 | 34 | 50 | 97 | 181 | 61 | 117 | 178 |
| 2006 | 987 | 1,882 | 2,869 | 37 | 50 | 95 | 181 | 91 | 173 | 264 |
| 2007 | 845 | 1,602 | 2,446 | 41 | 50 | 95 | 186 | 118 | 223 | 341 |
| 2008 | 869 | 1,642 | 2,511 | 46 | 51 | 96 | 192 | 189 | 357 | 546 |
| 2009 | 933 | 1,736 | 2,669 | 54 | 51 | 95 | 200 | 252 | 469 | 721 |
| 2010 | 888 | 1,651 | 2,539 | 60 | 52 | 97 | 208 | 323 | 600 | 923 |
| 2011 | 1,090 | 2,013 | 3,103 | 64 | 52 | 97 | 212 | 410 | 758 | 1,168 |
| 2012 | 943 | 1,686 | 2,629 | 64 | 53 | 95 | 212 | 480 | 860 | 1,340 |
| 2013 | 916 | 1,646 | 2,562 | 64 | 54 | 97 | 214 | 573 | 1,029 | 1,601 |
| 2014 | 885 | 1,582 | 2,467 | 64 | 54 | 97 | 214 | 620 | 1,108 | 1,728 |
| 2015 | 850 | 1,471 | 2,321 | 64 | 54 | 94 | 212 | 651 | 1,127 | 1,777 |
| 2016 | 914 | 1,559 | 2,472 | 64 | 54 | 92 | 210 | 774 | 1,321 | 2,096 |
| 2017 | 1,025 | 1,742 | 2,767 | 64 | 54 | 92 | 210 | 868 | 1,475 | 2,343 |
| 2018 | 998 | 1,669 | 2,667 | 64 | 54 | 91 | 209 | 930 | 1,556 | 2,486 |
| 2019 | 934 | 1,562 | 2,496 | 64 | 55 | 91 | 209 | 1,024 | 1,712 | 2,736 |

^a Conventional hydroelectricity net generation. Through 1989, also includes hydroelectric pumped storage.

^b Geothermal heat pump and direct use energy; and geothermal electricity net generation.

^c Wind electricity net generation.

^d Electricity net generation in kilowatt-hours (kWh) multiplied by 3,412 Btu/kWh, the heat content of electricity (see Table A6).

^e Through 1988, data are for electric utilities and industrial plants. Beginning in 1989, data are for electric utilities, independent power producers, commercial plants, and industrial plants.

^f Equals the difference between the fossil-fuel equivalent value of electricity and the captured energy consumed as electricity. The fossil-fuel equivalent value of electricity equals electricity net generation in kilowatt-hours multiplied by the total fossil fuels heat rate factors (see Table A6). The captured energy consumed as electricity equals electricity net generation in kilowatt-hours multiplied by 3,412 Btu/kWh, the heat content of electricity (see Table A6).

^g Electricity net generation in kilowatt-hours multiplied by the total fossil fuels

heat rate factors (see Table A6).

^h Geothermal heat pump and direct use energy.

ⁱ Through 1988, data are for electric utilities only. Beginning in 1989, data are for electric utilities, independent power producers, commercial plants, and industrial plants.

^j Direct consumption of energy; and energy used to generate electricity, calculated as electricity net generation in kilowatt-hours multiplied by the total fossil fuels heat rate factors (see Table A6).

NA=Not available. (s)=Less than 0.5 trillion Btu.

Notes: • Geothermal direct consumption data are estimates. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See <http://www.eia.gov/totalenergy/data/monthly/#appendices> (Excel and CSV files) for all available annual data beginning in 1949.

Sources: • **Conventional Hydroelectric Power** and **Wind**: Tables 7.2a, 10.1, and A6. • **Geothermal**: Tables 7.2a, 10.1, 10.2a, 10.2b, and A6.