

**Table 10.1 Renewable Energy Production and Consumption by Source**  
(Trillion Btu)

|                           | Production <sup>a</sup> |                        |                    |                                     | Consumption                      |                         |                    |                   |                   |                    |                        |              |                        |
|---------------------------|-------------------------|------------------------|--------------------|-------------------------------------|----------------------------------|-------------------------|--------------------|-------------------|-------------------|--------------------|------------------------|--------------|------------------------|
|                           | Biomass                 |                        |                    | Total Renewable Energy <sup>e</sup> | Hydroelectric Power <sup>f</sup> | Geothermal <sup>g</sup> | Solar <sup>h</sup> | Wind <sup>i</sup> | Biomass           |                    |                        |              | Total Renewable Energy |
|                           | Wood <sup>b</sup>       | Bio-fuels <sup>c</sup> | Total <sup>d</sup> |                                     |                                  |                         |                    |                   | Wood <sup>j</sup> | Waste <sup>k</sup> | Bio-fuels <sup>l</sup> | Total        |                        |
| 1950 Total                | 1,562                   | NA                     | 1,562              | 1,907                               | 344                              | NA                      | NA                 | NA                | 1,562             | NA                 | NA                     | 1,562        | 1,907                  |
| 1955 Total                | 1,424                   | NA                     | 1,424              | 1,821                               | 397                              | NA                      | NA                 | NA                | 1,424             | NA                 | NA                     | 1,424        | 1,821                  |
| 1960 Total                | 1,320                   | NA                     | 1,320              | 1,830                               | 510                              | (s)                     | NA                 | NA                | 1,320             | NA                 | NA                     | 1,320        | 1,830                  |
| 1965 Total                | 1,335                   | NA                     | 1,335              | 2,008                               | 672                              | 1                       | NA                 | NA                | 1,335             | NA                 | NA                     | 1,335        | 2,008                  |
| 1970 Total                | 1,429                   | NA                     | 1,431              | 2,289                               | 856                              | 2                       | NA                 | NA                | 1,429             | 2                  | NA                     | 1,431        | 2,289                  |
| 1975 Total                | 1,497                   | NA                     | 1,499              | 2,544                               | 1,034                            | 11                      | NA                 | NA                | 1,497             | 2                  | NA                     | 1,499        | 2,544                  |
| 1980 Total                | 2,474                   | NA                     | 2,475              | 3,445                               | 953                              | 17                      | NA                 | NA                | 2,474             | 2                  | NA                     | 2,475        | 3,445                  |
| 1985 Total                | 2,687                   | 93                     | 3,016              | 4,018                               | 970                              | 32                      | (s)                | (s)               | 2,687             | 236                | 93                     | 3,016        | 4,018                  |
| 1990 Total                | 2,216                   | 111                    | 2,735              | 3,863                               | 999                              | 63                      | 56                 | 10                | 2,216             | 408                | 111                    | 2,735        | 3,863                  |
| 1995 Total                | 2,370                   | 198                    | 3,099              | 4,295                               | 1,061                            | 60                      | 64                 | 11                | 2,370             | 531                | 200                    | 3,101        | 4,297                  |
| 2000 Total                | 2,262                   | 233                    | 3,006              | 4,093                               | 940                              | 69                      | 59                 | 19                | 2,262             | 511                | 236                    | 3,008        | 4,096                  |
| 2005 Total                | 2,137                   | 561                    | 3,101              | 4,220                               | 922                              | 84                      | 52                 | 61                | 2,137             | 403                | 574                    | 3,114        | 4,233                  |
| 2010 Total                | 2,217                   | 1,868                  | 4,553              | 5,943                               | 888                              | 111                     | 68                 | 323               | 2,217             | 468                | 1,821                  | 4,506        | 5,896                  |
| 2011 Total                | 2,213                   | 2,037                  | 4,712              | 6,404                               | 1,090                            | 116                     | 76                 | 410               | 2,213             | 462                | 1,941                  | 4,616        | 6,308                  |
| 2012 Total                | 2,151                   | 1,936                  | 4,554              | 6,187                               | 943                              | 117                     | 94                 | 480               | 2,151             | 467                | 1,899                  | 4,517        | 6,150                  |
| 2013 Total                | 2,338                   | 2,000                  | 4,835              | 6,561                               | 916                              | 117                     | 120                | 573               | 2,338             | 496                | 2,026                  | 4,861        | 6,587                  |
| 2014 Total                | 2,401                   | 2,135                  | 5,052              | 6,836                               | 885                              | 118                     | 161                | 620               | 2,401             | 516                | 2,099                  | 5,016        | 6,799                  |
| 2015 Total                | 2,312                   | 2,201                  | 5,031              | 6,846                               | 850                              | 118                     | 196                | 651               | 2,312             | 518                | 2,185                  | 5,015        | 6,829                  |
| 2016 Total                | 2,299                   | 2,329                  | 5,132              | 7,188                               | 914                              | 117                     | 251                | 774               | 2,227             | 503                | 2,333                  | 5,063        | 7,120                  |
| 2017 Total                | 2,264                   | 2,407                  | 5,166              | 7,505                               | 1,025                            | 118                     | 329                | 868               | 2,185             | 495                | 2,364                  | 5,045        | 7,383                  |
| 2018 Total                | 2,356                   | 2,471                  | 5,314              | 7,744                               | 998                              | 118                     | 384                | 930               | 2,262             | 487                | 2,355                  | 5,105        | 7,535                  |
| 2019 Total                | 2,341                   | 2,432                  | 5,215              | 7,753                               | 982                              | 116                     | 430                | 1,010             | 2,237             | 442                | 2,376                  | 5,056        | 7,594                  |
| 2020 Total                | 2,076                   | 2,194                  | 4,710              | 7,465                               | 973                              | 118                     | 511                | 1,153             | 1,970             | 440                | 2,136                  | 4,545        | 7,301                  |
| 2021 Total                | 2,109                   | 2,374                  | 4,914              | 7,807                               | 858                              | 118                     | 627                | 1,290             | 1,989             | 430                | 2,331                  | 4,751        | 7,644                  |
| <b>2022</b> January       | 184                     | 214                    | 435                | 698                                 | 83                               | 10                      | 42                 | 128               | 175               | 37                 | 193                    | 404          | 666                    |
| February                  | 171                     | 190                    | 394                | 652                                 | 73                               | 9                       | 47                 | 128               | 159               | 33                 | 177                    | 370          | 628                    |
| March                     | 181                     | 212                    | 430                | 733                                 | 83                               | 10                      | 63                 | 147               | 169               | 37                 | 207                    | 412          | 715                    |
| April                     | 173                     | 198                    | 406                | 712                                 | 68                               | 10                      | 71                 | 158               | 164               | 34                 | 195                    | 393          | 700                    |
| May                       | 182                     | 214                    | 430                | 743                                 | 80                               | 10                      | 79                 | 144               | 170               | 35                 | 208                    | 412          | 725                    |
| June                      | 182                     | 214                    | 430                | 726                                 | 89                               | 10                      | 83                 | 115               | 168               | 33                 | 213                    | 414          | 710                    |
| July                      | 185                     | 218                    | 436                | 713                                 | 84                               | 10                      | 83                 | 101               | 175               | 34                 | 206                    | 415          | 692                    |
| August                    | 184                     | 211                    | 429                | 672                                 | 72                               | 10                      | 77                 | 84                | 174               | 34                 | 213                    | 421          | 664                    |
| September                 | 177                     | 193                    | 402                | 633                                 | 58                               | 10                      | 70                 | 93                | 162               | 32                 | 192                    | 387          | 618                    |
| October                   | 174                     | 217                    | 425                | 659                                 | 49                               | 10                      | 63                 | 112               | 163               | 34                 | 216                    | 413          | 647                    |
| November                  | 174                     | 219                    | 427                | 686                                 | 61                               | 10                      | 47                 | 141               | 164               | 34                 | 209                    | 407          | 665                    |
| December                  | 183                     | 211                    | 429                | 680                                 | 70                               | 10                      | 40                 | 132               | 169               | 35                 | 205                    | 409          | 661                    |
| <b>Total</b>              | <b>2,150</b>            | <b>2,511</b>           | <b>5,073</b>       | <b>8,307</b>                        | <b>869</b>                       | <b>118</b>              | <b>765</b>         | <b>1,482</b>      | <b>2,012</b>      | <b>412</b>         | <b>2,433</b>           | <b>4,857</b> | <b>8,091</b>           |
| <b>2023</b> January       | 182                     | 220                    | 437                | 702                                 | 76                               | 11                      | 44                 | 134               | 174               | 36                 | 210                    | 420          | 685                    |
| February                  | 162                     | 198                    | 393                | 660                                 | 64                               | 9                       | 50                 | 144               | 154               | 32                 | 190                    | 376          | 644                    |
| March                     | 180                     | 222                    | 436                | 735                                 | 69                               | 10                      | 67                 | 152               | 165               | 34                 | 220                    | 420          | 718                    |
| April                     | 160                     | 212                    | 404                | 700                                 | 60                               | 10                      | 79                 | 147               | 152               | 32                 | 207                    | 391          | 687                    |
| May                       | 175                     | 229                    | 438                | 741                                 | 94                               | 10                      | 90                 | 109               | 164               | 34                 | 234                    | 432          | 735                    |
| June                      | 168                     | 230                    | 430                | 692                                 | 66                               | 10                      | 92                 | 94                | 156               | 32                 | 232                    | 420          | 682                    |
| July                      | 172                     | 232                    | 437                | 712                                 | 72                               | 10                      | 98                 | 95                | 162               | 33                 | 223                    | 418          | 693                    |
| August                    | 177                     | 230                    | 440                | 712                                 | 72                               | 10                      | 93                 | 97                | 163               | 33                 | 235                    | 431          | 703                    |
| September                 | 166                     | 227                    | 425                | 669                                 | 56                               | 10                      | 82                 | 96                | 153               | 32                 | 224                    | 408          | 652                    |
| October                   | 166                     | 231                    | 430                | 701                                 | 62                               | 10                      | 74                 | 124               | 154               | 33                 | 233                    | 420          | 690                    |
| November                  | 168                     | 229                    | 430                | 685                                 | 62                               | 10                      | 56                 | 126               | 159               | 32                 | 219                    | 410          | 665                    |
| December                  | 177                     | 248                    | 461                | 719                                 | 66                               | 10                      | 51                 | 131               | 162               | 36                 | 235                    | 432          | 690                    |
| <b>Total</b>              | <b>2,053</b>            | <b>2,708</b>           | <b>5,160</b>       | <b>8,426</b>                        | <b>818</b>                       | <b>120</b>              | <b>876</b>         | <b>1,451</b>      | <b>1,918</b>      | <b>398</b>         | <b>2,662</b>           | <b>4,978</b> | <b>8,245</b>           |
| <b>2024</b> January       | 169                     | 225                    | 428                | 683                                 | 72                               | 10                      | 53                 | 119               | 161               | 34                 | 212                    | 407          | 662                    |
| February                  | 156                     | 227                    | 416                | 699                                 | 67                               | 9                       | 65                 | 142               | 145               | 33                 | 221                    | 399          | 682                    |
| March                     | 166                     | 241                    | 442                | 769                                 | 78                               | 10                      | 83                 | 157               | 155               | 34                 | 233                    | 422          | 749                    |
| <b>3-Month Total</b>      | <b>492</b>              | <b>693</b>             | <b>1,286</b>       | <b>2,151</b>                        | <b>218</b>                       | <b>29</b>               | <b>201</b>         | <b>418</b>        | <b>461</b>        | <b>101</b>         | <b>666</b>             | <b>1,228</b> | <b>2,093</b>           |
| <b>2023 3-Month Total</b> | <b>524</b>              | <b>640</b>             | <b>1,266</b>       | <b>2,097</b>                        | <b>209</b>                       | <b>30</b>               | <b>162</b>         | <b>430</b>        | <b>493</b>        | <b>102</b>         | <b>621</b>             | <b>1,216</b> | <b>2,047</b>           |
| <b>2022 3-Month Total</b> | <b>537</b>              | <b>616</b>             | <b>1,260</b>       | <b>2,083</b>                        | <b>239</b>                       | <b>29</b>               | <b>152</b>         | <b>403</b>        | <b>503</b>        | <b>107</b>         | <b>577</b>             | <b>1,186</b> | <b>2,009</b>           |

<sup>a</sup> For hydroelectric power, geothermal, solar, wind, and biomass waste, production equals consumption.

<sup>b</sup> Wood and wood-derived fuels. Through 2015, wood production equals consumption. Beginning in 2016, wood production equals consumption plus densified biomass exports.

<sup>c</sup> Total biomass inputs to the production of fuel ethanol and biodiesel. Beginning in 2011, also includes production of renewable diesel fuel. Beginning in 2014, also includes production of other biofuels.

<sup>d</sup> Includes biomass waste.

<sup>e</sup> Hydroelectric power, geothermal, solar, wind, and biomass.

<sup>f</sup> Conventional hydroelectricity net generation (converted to Btu by multiplying by the heat content of electricity in Table A6).

<sup>g</sup> Geothermal electricity net generation (converted to Btu by multiplying by the heat content of electricity in Table A6), and geothermal heat pump and direct use energy.

<sup>h</sup> Solar photovoltaic (PV) and solar thermal electricity net generation (converted to Btu by multiplying by the heat content of electricity in Table A6), and solar thermal direct use energy.

<sup>i</sup> Wind electricity net generation (converted to Btu by multiplying by the heat content of electricity in Table A6).

<sup>j</sup> Wood and wood-derived fuels.

<sup>k</sup> Municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural byproducts, and other biomass. Through 2000, also includes non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels).

<sup>l</sup> Fuel ethanol (minus denaturant), biodiesel, renewable diesel fuel, and other biofuels consumption; plus losses and co-products from the production of fuel ethanol and biodiesel.

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

Notes: • Production data are estimates. Consumption data are estimates, except for hydroelectric power in 1949–1978 and 1989 forward, and wind. • See Note, "Renewable Energy Production and Consumption," at end of section.

• 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/#renewable> (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: • **Production:** Tables 10.2a–10.4c and U.S. Energy Information Administration, Form EIA-63C, "Densified Biomass Fuel Report." • **Consumption:** Tables 10.2a–10.2c.