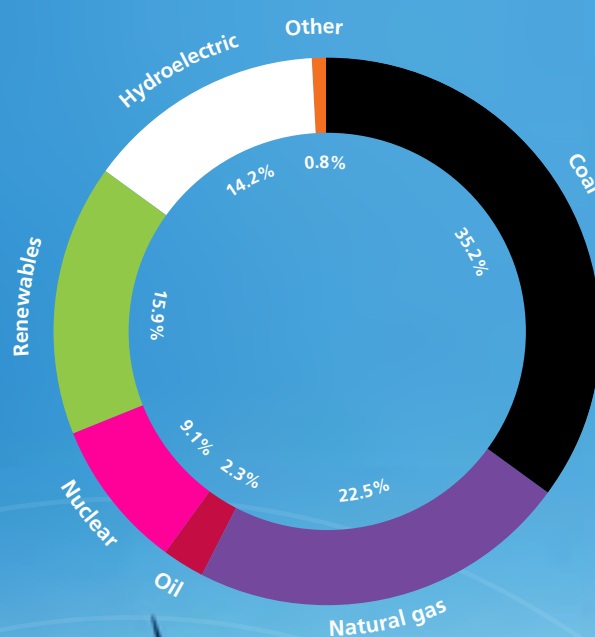


# Electricity and renewables

Global electricity generation increased by 2.5% in 2023 to reach a record level of 29,925 TWh. Recording a growth rate that was 25% faster than total global primary energy consumption suggests that the world's energy system is increasingly electrifying. Whilst electricity demand in Asia Pacific and the Middle East increased by around 5%, demand in both Europe and North America fell by 2.4% and 1% respectively.

Coal retained its position as the dominant fuel for power generation with fossil fuels overall forming 60% of global electricity generation. Renewables share of total power generation rose from 29% to 30%. At a regional level, Southern & Central America recorded the highest contribution from renewables at 72%. The share of nuclear remained flat at around 9% with new build in China and returns to service of plant in France and Japan being offset by the closure of Germany's remaining plant. In 2023, grid-scale battery electricity storage system (BESS) capacity stood at 56 GW, nearly 50% of which was installed in China.

**Fossil fuels  
contributed 60% of  
total global electricity  
generated in 2023**



| Terawatt-hours                      |               |               |               |               |               |               |               |               |               |               |               | Growth rate per annum |              | Share        |
|-------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|-----------------------|--------------|--------------|
|                                     | 2013          | 2014          | 2015          | 2016          | 2017          | 2018          | 2019          | 2020          | 2021          | 2022          | 2023          | 2023                  | 2013-23      | 2023         |
| Canada                              | 655.7         | 653.0         | 661.1         | 668.2         | 669.6         | 661.5         | 656.0         | 653.9         | 649.9         | 658.9         | <b>633.2</b>  | -3.9%                 | -0.3%        | 2.1%         |
| Mexico                              | 297.1         | 303.3         | 310.3         | 320.3         | 329.1         | 349.3         | 344.6         | 325.7         | 330.0         | 340.1         | <b>354.9</b>  | 4.3%                  | 1.8%         | 1.2%         |
| US                                  | 4330.3        | 4363.3        | 4349.9        | 4348.9        | 4303.8        | 4464.5        | 4414.1        | 4287.6        | 4400.9        | 4537.7        | <b>4494.0</b> | -1.0%                 | 0.4%         | 15.0%        |
| <b>Total North America</b>          | <b>5283.1</b> | <b>5319.5</b> | <b>5321.3</b> | <b>5337.4</b> | <b>5302.5</b> | <b>5475.3</b> | <b>5414.7</b> | <b>5267.2</b> | <b>5380.9</b> | <b>5536.8</b> | <b>5482.0</b> | <b>-1.0%</b>          | <b>0.4%</b>  | <b>18.3%</b> |
| Argentina                           | 139.4         | 138.6         | 145.4         | 147.2         | 145.6         | 146.8         | 139.5         | 144.6         | 153.2         | 145.6         | <b>146.4</b>  | 0.6%                  | 0.5%         | 0.5%         |
| Brazil                              | 570.8         | 590.5         | 581.2         | 578.9         | 589.3         | 601.4         | 633.3         | 628.8         | 656.1         | 677.2         | <b>710.0</b>  | 4.8%                  | 2.2%         | 2.4%         |
| Chile                               | 73.0          | 71.6          | 74.5          | 77.7          | 78.6          | 82.3          | 83.6          | 83.7          | 87.4          | 88.0          | <b>88.2</b>   | 0.2%                  | 1.9%         | 0.3%         |
| Colombia                            | 69.8          | 72.7          | 75.0          | 74.4          | 75.0          | 78.3          | 80.4          | 79.4          | 86.0          | 89.5          | <b>93.9</b>   | 4.9%                  | 3.0%         | 0.3%         |
| Ecuador                             | 23.3          | 24.3          | 26.0          | 27.3          | 28.0          | 29.2          | 32.3          | 31.2          | 32.2          | 33.0          | <b>35.4</b>   | 7.1%                  | 4.3%         | 0.1%         |
| Peru                                | 43.3          | 45.5          | 48.3          | 51.7          | 52.7          | 55.0          | 57.0          | 52.8          | 57.5          | 59.7          | <b>62.1</b>   | 3.9%                  | 3.7%         | 0.2%         |
| Trinidad & Tobago                   | 9.5           | 9.4           | 9.6           | 9.4           | 9.3           | 9.2           | 9.2           | 9.2           | 9.3           | 9.8           | <b>9.7</b>    | -0.7%                 | 0.2%         | †            |
| Venezuela                           | 132.6         | 131.0         | 126.3         | 116.2         | 110.3         | 92.3          | 78.1          | 81.6          | 83.9          | 87.6          | <b>85.8</b>   | -2.2%                 | -4.3%        | 0.3%         |
| Central America                     | 48.1          | 49.4          | 52.2          | 53.8          | 54.5          | 56.4          | 59.3          | 57.2          | 61.6          | 63.0          | <b>65.3</b>   | 3.5%                  | 3.1%         | 0.2%         |
| Other Caribbean                     | 76.8          | 76.0          | 77.8          | 78.7          | 74.4          | 76.2          | 79.5          | 78.7          | 80.0          | 79.3          | <b>84.5</b>   | 6.7%                  | 1.0%         | 0.3%         |
| Other South America                 | 84.2          | 80.9          | 82.7          | 91.3          | 87.9          | 87.9          | 80.1          | 74.4          | 72.1          | 75.0          | <b>83.3</b>   | 11.1%                 | -0.1%        | 0.3%         |
| <b>Total S. &amp; Cent. America</b> | <b>1270.9</b> | <b>1290.0</b> | <b>1299.0</b> | <b>1306.6</b> | <b>1305.8</b> | <b>1314.9</b> | <b>1332.4</b> | <b>1321.6</b> | <b>1379.3</b> | <b>1407.7</b> | <b>1464.5</b> | <b>4.0%</b>           | <b>1.4%</b>  | <b>4.9%</b>  |
| Austria                             | 68.4          | 65.6          | 65.5          | 68.5          | 71.3          | 68.6          | 74.2          | 72.6          | 70.8          | 68.5          | <b>72.6</b>   | 6.0%                  | 0.6%         | 0.2%         |
| Belgium                             | 83.5          | 72.5          | 69.7          | 85.6          | 86.6          | 75.0          | 93.6          | 89.5          | 100.5         | 95.9          | <b>81.9</b>   | -14.7%                | -0.2%        | 0.3%         |
| Bulgaria                            | 43.8          | 47.5          | 49.2          | 45.3          | 45.6          | 46.8          | 44.3          | 40.8          | 47.6          | 50.5          | <b>39.9</b>   | -21.0%                | -0.9%        | 0.1%         |
| Croatia                             | 14.1          | 13.6          | 11.4          | 12.8          | 12.0          | 13.6          | 12.8          | 13.4          | 15.2          | 14.2          | <b>17.3</b>   | 21.9%                 | 2.1%         | 0.1%         |
| Cyprus                              | 4.3           | 4.4           | 4.5           | 4.9           | 5.0           | 5.0           | 5.1           | 4.8           | 5.1           | 5.3           | <b>5.4</b>    | 1.9%                  | 2.3%         | †            |
| Czech Republic                      | 86.9          | 86.0          | 83.9          | 83.3          | 87.0          | 88.0          | 87.0          | 81.4          | 84.9          | 84.5          | <b>76.1</b>   | -9.9%                 | -1.3%        | 0.3%         |
| Denmark                             | 34.7          | 32.2          | 28.9          | 30.5          | 31.0          | 30.4          | 29.5          | 28.7          | 33.1          | 35.1          | <b>33.6</b>   | -4.4%                 | -0.3%        | 0.1%         |
| Estonia                             | 13.3          | 12.4          | 10.4          | 12.2          | 13.2          | 12.4          | 7.6           | 6.1           | 7.1           | 8.9           | <b>7.0</b>    | -21.6%                | -6.2%        | †            |
| Finland                             | 71.3          | 68.1          | 68.6          | 68.8          | 67.5          | 70.3          | 68.7          | 69.3          | 72.1          | 72.2          | <b>81.3</b>   | 12.6%                 | 1.3%         | 0.3%         |
| France                              | 575.3         | 564.8         | 571.6         | 556.2         | 554.0         | 573.9         | 562.7         | 524.3         | 547.2         | 466.5         | <b>519.7</b>  | 11.4%                 | -1.0%        | 1.7%         |
| Germany                             | 637.7         | 626.6         | 647.0         | 649.2         | 652.3         | 641.4         | 608.2         | 574.7         | 587.1         | 577.9         | <b>513.7</b>  | -11.1%                | -2.1%        | 1.7%         |
| Greece                              | 57.2          | 50.5          | 51.9          | 54.4          | 55.3          | 53.3          | 48.6          | 48.3          | 54.7          | 52.6          | <b>49.8</b>   | -5.4%                 | -1.4%        | 0.2%         |
| Hungary                             | 30.3          | 29.4          | 30.4          | 31.9          | 32.9          | 32.1          | 34.3          | 34.9          | 36.1          | 35.8          | <b>34.9</b>   | -2.4%                 | 1.4%         | 0.1%         |
| Iceland                             | 18.1          | 18.1          | 18.8          | 18.5          | 19.2          | 19.8          | 19.5          | 19.1          | 19.6          | 20.1          | <b>20.2</b>   | 0.6%                  | 1.1%         | 0.1%         |
| Ireland                             | 26.1          | 26.3          | 28.4          | 30.5          | 30.9          | 31.1          | 31.0          | 32.3          | 31.9          | 33.9          | <b>31.1</b>   | -8.1%                 | 1.8%         | 0.1%         |
| Italy                               | 289.8         | 279.8         | 283.0         | 289.8         | 295.8         | 289.7         | 293.9         | 280.5         | 289.1         | 284.0         | <b>265.3</b>  | -6.6%                 | -0.9%        | 0.9%         |
| Latvia                              | 6.2           | 5.1           | 5.5           | 6.4           | 7.5           | 6.7           | 6.4           | 5.7           | 5.8           | 5.0           | <b>6.2</b>    | 23.1%                 | -0.1%        | †            |
| Lithuania                           | 4.8           | 4.4           | 4.9           | 4.3           | 4.2           | 3.5           | 4.0           | 5.5           | 5.1           | 4.8           | <b>5.4</b>    | 13.6%                 | 1.3%         | †            |
| Luxembourg                          | 2.9           | 3.0           | 2.8           | 2.2           | 2.2           | 2.2           | 1.9           | 2.2           | 2.2           | 2.2           | <b>2.3</b>    | 4.7%                  | -2.1%        | †            |
| Netherlands                         | 100.9         | 103.4         | 110.2         | 115.2         | 117.2         | 114.4         | 121.4         | 123.3         | 122.1         | 121.8         | <b>122.3</b>  | 0.4%                  | 1.9%         | 0.4%         |
| North Macedonia                     | 6.1           | 5.4           | 5.6           | 5.6           | 5.6           | 5.6           | 5.9           | 5.3           | 5.5           | 5.9           | <b>6.9</b>    | 17.1%                 | 1.3%         | †            |
| Norway                              | 134.1         | 142.0         | 144.5         | 149.1         | 149.6         | 147.1         | 134.9         | 155.2         | 157.9         | 146.7         | <b>154.8</b>  | 5.5%                  | 1.4%         | 0.5%         |
| Poland                              | 164.6         | 159.1         | 164.9         | 166.6         | 170.5         | 170.0         | 164.0         | 158.0         | 179.6         | 179.7         | <b>167.0</b>  | -7.1%                 | 0.1%         | 0.6%         |
| Portugal                            | 51.7          | 52.8          | 52.4          | 60.3          | 59.4          | 59.6          | 53.2          | 53.1          | 51.0          | 48.8          | <b>49.2</b>   | 0.7%                  | -0.5%        | 0.2%         |
| Romania                             | 58.9          | 63.3          | 66.3          | 65.1          | 64.3          | 64.8          | 59.5          | 55.8          | 59.3          | 55.9          | <b>58.2</b>   | 4.1%                  | -0.1%        | 0.2%         |
| Slovakia                            | 28.8          | 27.4          | 26.9          | 27.1          | 27.7          | 27.0          | 28.4          | 28.8          | 30.0          | 26.8          | <b>30.3</b>   | 12.8%                 | 0.5%         | 0.1%         |
| Slovenia                            | 16.1          | 17.4          | 15.1          | 16.5          | 16.3          | 16.3          | 16.1          | 17.2          | 15.9          | 13.6          | <b>15.9</b>   | 16.8%                 | -0.1%        | 0.1%         |
| Spain                               | 285.3         | 278.8         | 281.0         | 274.6         | 275.6         | 274.5         | 267.5         | 263.4         | 274.3         | 292.5         | <b>282.0</b>  | -3.6%                 | -0.1%        | 0.9%         |
| Sweden                              | 153.2         | 153.7         | 162.1         | 156.1         | 164.3         | 163.4         | 168.4         | 163.8         | 171.8         | 173.1         | <b>166.5</b>  | -3.8%                 | 0.8%         | 0.6%         |
| Switzerland                         | 70.4          | 72.0          | 67.9          | 63.3          | 63.3          | 67.6          | 71.9          | 70.2          | 64.7          | 64.1          | <b>73.6</b>   | 14.8%                 | 0.4%         | 0.2%         |
| Türkiye                             | 240.2         | 252.0         | 261.8         | 274.4         | 297.3         | 304.8         | 303.9         | 306.7         | 334.7         | 328.4         | <b>328.0</b>  | -0.1%                 | 3.2%         | 1.1%         |
| Ukraine                             | 194.4         | 182.8         | 163.7         | 164.6         | 156.0         | 159.9         | 154.1         | 147.8         | 155.5         | 112.7         | <b>103.4</b>  | -8.3%                 | -6.1%        | 0.3%         |
| United Kingdom                      | 358.3         | 338.1         | 338.9         | 339.2         | 338.2         | 333.7         | 327.1         | 314.7         | 308.9         | 322.0         | <b>285.6</b>  | -11.3%                | -2.2%        | 1.0%         |
| Other Europe                        | 90.1          | 80.2          | 85.2          | 89.0          | 82.9          | 92.5          | 87.6          | 86.7          | 94.8          | 89.3          | <b>97.6</b>   | 9.3%                  | 0.8%         | 0.3%         |
| <b>Total Europe</b>                 | <b>4021.5</b> | <b>3938.5</b> | <b>3983.1</b> | <b>4022.0</b> | <b>4061.9</b> | <b>4065.0</b> | <b>3997.2</b> | <b>3884.2</b> | <b>4041.3</b> | <b>3899.4</b> | <b>3805.1</b> | <b>-2.4%</b>          | <b>-0.6%</b> | <b>12.7%</b> |
| Azerbaijan                          | 23.4          | 24.7          | 24.7          | 25.0          | 24.3          | 25.2          | 26.1          | 25.8          | 27.9          | 29.0          | <b>29.3</b>   | 0.9%                  | 2.3%         | 0.1%         |
| Belarus                             | 31.5          | 34.7          | 34.2          | 33.6          | 34.5          | 38.9          | 40.5          | 38.7          | 41.2          | 39.7          | <b>41.8</b>   | 5.3%                  | 2.9%         | 0.1%         |
| Kazakhstan                          | 92.6          | 94.6          | 91.6          | 94.6          | 103.1         | 107.3         | 106.5         | 108.6         | 115.1         | 113.5         | <b>113.0</b>  | -0.4%                 | 2.0%         | 0.4%         |
| Russian Federation                  | 1059.1        | 1064.2        | 1067.5        | 1091.0        | 1091.2        | 1109.2        | 1118.1        | 1085.4        | 1157.1        | 1166.9        | <b>1178.2</b> | 1.0%                  | 1.1%         | 3.9%         |
| Turkmenistan                        | 18.9          | 20.1          | 21.5          | 22.6          | 22.8          | 24.2          | 22.5          | 25.8          | 28.4          | 32.6          | <b>33.5</b>   | 2.7%                  | 5.9%         | 0.1%         |
| Uzbekistan                          | 54.9          | 55.4          | 57.3          | 59.1          | 60.8          | 62.9          | 63.5          | 66.5          | 71.4          | 74.3          | <b>78.0</b>   | 5.0%                  | 3.6%         | 0.3%         |
| Other CIS                           | 43.3          | 44.1          | 44.0          | 43.5          | 46.3          | 48.6          | 49.2          | 49.1          | 50.2          | 49.8          | <b>51.0</b>   | 2.4%                  | 1.6%         | 0.2%         |
| <b>Total CIS</b>                    | <b>1323.7</b> | <b>1337.9</b> | <b>1340.9</b> | <b>1369.3</b> | <b>1383.0</b> | <b>1416.4</b> | <b>1426.4</b> | <b>1400.0</b> | <b>1491.2</b> | <b>1505.8</b> | <b>1524.8</b> | <b>1.3%</b>           | <b>1.4%</b>  | <b>5.1%</b>  |
| Iran                                | 258.9         | 275.6         | 280.2         | 286.1         | 305.2         | 312.4         | 318.9         | 337.2         | 356.4         | 367.1         | <b>382.9</b>  | 4.3%                  | 4.0%         | 1.3%         |
| Iraq                                | 62.1          | 71.2          | 75.3          | 86.3          | 93.6          | 99.0          | 115.2         | 116.8         | 118.1         | 131.4         | <b>139.4</b>  | 6.1%                  | 8.4%         | 0.5%         |
| Israel                              | 61.4          | 61.3          | 64.3          | 67.4          | 67.7          | 69.3          | 72.4          | 72.8          | 73.8          | 76.0          | <b>77.2</b>   | 1.6%                  | 2.3%         | 0.3%         |
| Kuwait                              | 61.0          | 65.1          | 68.3          | 70.1          | 72.8          | 74.2          | 75.1          | 74.8          | 80.8          | 83.5          | <b>88.3</b>   | 5.7%                  | 3.8%         | 0.3%         |
| Oman                                | 26.2          | 29.1          | 32.8          | 34.2          | 36.1          | 37.7          | 38.8          | 38.3          | 41.0          | 41.7          | <b>44.3</b>   | 6.4%                  | 5.4%         | 0.1%         |
| Qatar                               | 34.7          | 38.7          | 41.5          | 42.3          | 45.6          | 47.9          | 49.9          | 49.3          | 51.6          | 50.0          | <b>54.4</b>   | 8.7%                  | 4.6%         | 0.2%         |
| Saudi Arabia                        | 294.7         | 328.2         | 350.6         | 357.7         | 395.0         | 374.8         | 378.5         | 380.9         | 392.9         | 401.3         | <b>422.9</b>  | 5.4%                  | 3.7%         | 1.4%         |
| United Arab Emirates                | 110.0         | 116.5         | 127.4         | 129.6         | 134.6         | 136.0         | 138.5         | 137.3         | 149.1         | 153.3         | <b>165.0</b>  | 7.6%                  | 4.1%         | 0.6%         |
| Other Middle East                   | 99.5          | 97.1          | 93.9          | 93.0          | 95.7          | 103.4         | 108.6         | 102.4         | 98.2          | 88.0          | <b>89.1</b>   | 1.3%                  | -1.1%        | 0.3%         |
| <b>Total Middle East</b>            | <b>1008.4</b> | <b>1083.0</b> | <b>1134.4</b> | <b>1166.8</b> | <b>1246.2</b> | <b>1254.7</b> | <b>1295.9</b> | <b>1309.8</b> | <b>1361.9</b> | <b>1392.2</b> | <b>1463.4</b> | <b>5.1%</b>           | <b>3.8%</b>  | <b>4.9%</b>  |
| Algeria                             | 59.9          | 64.2          | 68.8          | 71.0          | 76.0          | 76.7          | 81.5          | 79.2          | 85.4          | 91.2          | <b>85.9</b>   | -5.8%                 | 3.7%         | 0.3%         |
| Egypt                               | 165.1         | 171.2         | 181.8         | 188.2         | 193.2         | 199.4         | 200.6         | 198.6         | 209.7         | 216.7         | <b>220.1</b>  | 1.6%                  | 2.9%         | 0.7%         |
| Morocco                             | 28.1          | 29.3          | 30.3          | 30.7          | 31.6          | 34.4          | 40.1          | 38.5          | 41.0          | 41.2          | <b>42.2</b>   | 2.6%                  | 4.1%         | 0.1%         |
| South Africa                        | 256.1         | 254.8         | 250.4         | 253.1         | 255.4         | 256.3         | 252.6         | 239.5         | 244.3         | 234.8         | <b>224.4</b>  | -4.4%                 | -1.3%        | 0.7%         |
| Eastern Africa                      | 87.0          | 93.5          | 98.6          | 97.1          | 103.4         | 108.6         | 110.7         | 110.7         | 117.1         | 123.8         | <b>127.9</b>  | 3.3%                  | 3.9%         | 0.4%         |
| Middle Africa                       | 28.4          | 31.3          | 33.8          | 34.4          | 35.6          | 39.6          | 42.0          | 43.6          | 44.8          | 44.4          | <b>45.3</b>   | 2.0%                  | 4.8%         | 0.2%         |
| Western Africa                      | 60.4          | 64.1          | 64.4          | 69.1          | 71.7          | 74.3          | 80.4          | 85.9          | 91.1          | 92.4          | <b>99.0</b>   | 7.0%                  | 5.1%         | 0.3%         |
| Other Northern Africa               | 56.4          | 57.0          | 57.3          | 51.4          | 54.0          | 55.3          | 56.8          | 51.2          | 53.0          | 52.7          | <b>52.0</b>   | -1.3%                 | -0.8%        | 0.2%         |
| Other Southern Africa               | 4.1           | 5.0           | 5.0           | 4.7           | 5.7           | 5.0           | 4.5           | 4.9           | 4.7           | 5.5           | <b>6.1</b>    | 10.4%                 | 3.9%         | †            |
| <b>Total Africa</b>                 | <b>745.5</b>  | <b>770.5</b>  | <b>790.4</b>  | <b>799.6</b>  | <b>826.6</b>  | <b>849.7</b>  | <b>869.2</b>  | <b>852.1</b>  | <b>891.1</b>  | <b>902.7</b>  | <b>902.9</b>  | †                     | <b>1.9%</b>  | <b>3.0%</b>  |
| Australia                           | 249.6         | 247.6         | 254.0         | 258.2         | 259.0         | 262.6         | 265.9         | 265.2         | 267.5         | 272.9         | <b>273.1</b>  | 0.1%                  | 0.9%         | 0.9%         |
| Bangladesh                          | 54.6          | 57.6          | 62.1          | 70.2          | 73.7          | 79.7          | 84.6          | 84.7          | 94.9          | 99.6          | <b>99.9</b>   | 0.3%                  |              |              |

## Electricity Generation by fuel\*

|                          | 2022  |             |         |                |                |             |        |         | 2023  |             |         |                |                |             |        |         |
|--------------------------|-------|-------------|---------|----------------|----------------|-------------|--------|---------|-------|-------------|---------|----------------|----------------|-------------|--------|---------|
| Terawatt-hours           | Oil   | Natural gas | Coal    | Nuclear energy | Hydro-electric | Renew-ables | Other† | Total   | Oil   | Natural Gas | Coal    | Nuclear energy | Hydro-electric | Renew-ables | Other† | Total   |
| Canada                   | 5.2   | 84.7        | 26.2    | 86.6           | 397.7          | 54.5        | 3.9    | 658.9   | 4.8   | 89.9        | 23.6    | 89.0           | 364.2          | 57.0        | 4.7    | 633.2   |
| Mexico                   | 32.7  | 192.1       | 21.4    | 10.8           | 35.6           | 47.6        | –      | 340.1   | 33.4  | 204.9       | 27.9    | 12.4           | 20.4           | 55.9        | –      | 354.9   |
| US                       | 24.7  | 1814.1      | 906.7   | 812.1          | 251.3          | 717.3       | 11.6   | 4537.7  | 17.7  | 1937.7      | 738.4   | 816.2          | 236.3          | 737.3       | 10.3   | 4494.0  |
| Total North America      | 62.6  | 2090.9      | 954.3   | 909.6          | 684.6          | 819.5       | 15.4   | 5536.8  | 55.9  | 2232.5      | 789.8   | 917.6          | 620.9          | 850.2       | 15.1   | 5482.0  |
| Argentina                | 16.1  | 76.6        | 2.3     | 7.5            | 22.8           | 19.5        | 0.8    | 145.6   | 9.0   | 75.9        | 1.8     | 9.0            | 29.9           | 20.0        | 0.8    | 146.4   |
| Brazil                   | 10.1  | 42.1        | 14.2    | 14.6           | 427.1          | 166.8       | 2.3    | 677.2   | 9.8   | 37.7        | 14.2    | 14.5           | 428.7          | 202.8       | 2.4    | 710.0   |
| Other S. & Cent. America | 68.5  | 114.4       | 37.0    | –              | 295.2          | 69.8        | ^      | 584.9   | 74.5  | 127.6       | 37.7    | –              | 291.4          | 76.9        | ^      | 608.1   |
| Total S. & Cent. America | 94.8  | 233.1       | 53.6    | 22.0           | 745.1          | 256.0       | 3.1    | 1407.7  | 93.2  | 241.3       | 53.7    | 23.5           | 749.9          | 299.7       | 3.2    | 1464.5  |
| France                   | 2.4   | 47.1        | 3.1     | 294.7          | 44.3           | 66.8        | 8.2    | 466.5   | 1.8   | 32.3        | 0.9     | 338.2          | 55.5           | 84.3        | 6.7    | 519.7   |
| Germany                  | 5.7   | 79.1        | 180.0   | 34.7           | 17.6           | 237.0       | 23.8   | 577.9   | 4.9   | 77.7        | 127.8   | 7.2            | 19.6           | 252.8       | 23.6   | 513.7   |
| Italy                    | 12.8  | 141.4       | 24.2    | –              | 28.4           | 72.1        | 5.0    | 284.0   | 10.6  | 117.5       | 20.0    | –              | 38.9           | 75.1        | 3.2    | 265.3   |
| Netherlands              | 1.6   | 47.7        | 17.4    | 4.2            | ^              | 48.3        | 2.6    | 121.8   | 1.6   | 45.9        | 10.7    | 4.0            | 0.1            | 58.1        | 2.1    | 122.3   |
| Poland                   | 2.4   | 11.4        | 126.7   | –              | 2.0            | 35.7        | 1.7    | 179.7   | 2.0   | 16.4        | 100.2   | –              | 2.4            | 44.0        | 2.0    | 167.0   |
| Spain                    | 10.6  | 86.0        | 8.7     | 58.6           | 17.6           | 105.3       | 5.8    | 292.5   | 10.7  | 61.7        | 4.3     | 56.8           | 25.5           | 116.5       | 6.5    | 282.0   |
| Türkiye                  | 0.4   | 75.1        | 113.7   | –              | 66.8           | 71.0        | 1.4    | 328.4   | 0.7   | 69.7        | 118.3   | –              | 63.9           | 74.1        | 1.4    | 328.0   |
| Ukraine                  | 0.5   | 7.2         | 24.3    | 62.1           | 11.1           | 7.5         | –      | 112.7   | 0.9   | 8.1         | 21.6    | 52.4           | 12.7           | 7.7         | –      | 103.4   |
| United Kingdom           | 2.2   | 125.0       | 5.6     | 47.7           | 5.6            | 129.4       | 6.5    | 322.0   | 2.4   | 97.9        | 3.5     | 40.7           | 5.2            | 129.8       | 6.1    | 285.6   |
| Other Europe             | 19.5  | 129.8       | 155.1   | 240.2          | 370.7          | 270.6       | 28.0   | 1214.0  | 17.8  | 109.7       | 122.4   | 236.6          | 414.9          | 288.3       | 28.2   | 1218.0  |
| Total Europe             | 58.1  | 749.7       | 658.8   | 742.2          | 564.1          | 1043.7      | 82.9   | 3899.4  | 53.3  | 636.9       | 529.9   | 735.9          | 638.7          | 1130.6      | 79.8   | 3805.1  |
| Kazakhstan               | 2.4   | 32.7        | 65.0    | –              | 9.2            | 4.1         | –      | 113.5   | 2.4   | 32.3        | 63.9    | –              | 8.8            | 5.6         | –      | 113.0   |
| Russian Federation       | 7.0   | 527.1       | 198.6   | 223.7          | 197.7          | 7.4         | 5.4    | 1166.9  | 6.8   | 528.4       | 211.1   | 217.4          | 200.9          | 8.2         | 5.4    | 1178.2  |
| Other CIS                | 2.3   | 163.1       | 8.5     | 7.5            | 41.3           | 2.1         | 0.6    | 225.4   | 2.1   | 161.6       | 9.1     | 14.4           | 43.3           | 2.4         | 0.6    | 233.6   |
| Total CIS                | 11.7  | 723.0       | 272.1   | 231.2          | 248.2          | 13.6        | 5.9    | 1505.8  | 11.4  | 722.3       | 284.1   | 231.8          | 253.0          | 16.3        | 5.9    | 1524.8  |
| Iran                     | 30.2  | 313.4       | 0.9     | 6.6            | 14.0           | 2.0         | –      | 367.1   | 26.9  | 323.6       | 0.9     | 6.6            | 22.7           | 2.1         | –      | 382.9   |
| Saudi Arabia             | 153.0 | 246.0       | –       | –              | –              | 2.3         | –      | 401.3   | 152.1 | 265.0       | –       | –              | –              | 5.8         | –      | 422.9   |
| United Arab Emirates     | ^     | 125.5       | –       | 20.1           | –              | 7.8         | –      | 153.3   | ^     | 118.9       | –       | 32.3           | –              | 13.8        | –      | 165.0   |
| Other Middle East        | 124.7 | 306.9       | 17.7    | –              | 4.1            | 16.8        | 0.2    | 470.5   | 129.9 | 320.5       | 17.4    | –              | 4.9            | 19.6        | 0.2    | 492.6   |
| Total Middle East        | 307.9 | 991.8       | 18.6    | 26.7           | 18.2           | 28.8        | 0.2    | 1392.2  | 308.9 | 1028.1      | 18.4    | 38.9           | 27.6           | 41.3        | 0.2    | 1463.4  |
| Egypt                    | 16.2  | 176.3       | –       | –              | 13.3           | 10.9        | –      | 216.7   | 16.6  | 178.7       | –       | –              | 13.8           | 11.0        | –      | 220.1   |
| South Africa             | 3.6   | –           | 197.2   | 10.1           | 3.1            | 16.3        | 4.5    | 234.8   | 4.8   | –           | 185.9   | 8.9            | 1.7            | 18.4        | 4.7    | 224.4   |
| Other Africa             | 44.0  | 203.3       | 40.3    | –              | 139.9          | 23.3        | 0.6    | 451.2   | 40.8  | 204.7       | 38.8    | –              | 146.1          | 27.4        | 0.6    | 458.4   |
| Total Africa             | 63.8  | 379.5       | 237.4   | 10.1           | 156.3          | 50.6        | 5.1    | 902.7   | 62.2  | 383.4       | 224.7   | 8.9            | 161.6          | 56.7        | 5.3    | 902.9   |
| Australia                | 4.7   | 50.8        | 129.2   | –              | 16.7           | 70.8        | 0.7    | 272.9   | 4.9   | 46.7        | 125.6   | –              | 15.3           | 80.0        | 0.7    | 273.1   |
| China                    | 11.5  | 275.6       | 5412.7  | 417.8          | 1298.1         | 1372.5      | 60.5   | 8848.7  | 11.2  | 297.8       | 5753.9  | 434.7          | 1226.0         | 1668.1      | 64.7   | 9456.4  |
| India                    | 2.4   | 46.5        | 1354.2  | 46.2           | 174.9          | 203.8       | 1.3    | 1829.3  | 2.8   | 52.6        | 1471.3  | 48.2           | 149.2          | 232.8       | 1.3    | 1958.2  |
| Indonesia                | 6.1   | 56.1        | 205.3   | –              | 27.3           | 38.1        | 0.6    | 333.5   | 6.6   | 61.0        | 216.8   | –              | 24.6           | 40.6        | 1.1    | 350.6   |
| Japan                    | 42.5  | 351.5       | 325.6   | 51.8           | 74.9           | 138.3       | 56.0   | 1040.6  | 33.4  | 320.9       | 304.3   | 77.5           | 74.5           | 149.0       | 53.7   | 1013.3  |
| Malaysia                 | 1.6   | 68.5        | 77.8    | –              | 31.8           | 4.0         | –      | 183.6   | 1.2   | 69.2        | 81.4    | –              | 31.5           | 4.5         | –      | 187.8   |
| South Korea              | 8.3   | 174.4       | 206.2   | 176.1          | 3.5            | 51.9        | 4.1    | 624.6   | 7.7   | 167.0       | 202.8   | 180.5          | 3.7            | 52.0        | 4.2    | 617.9   |
| Taiwan                   | 4.4   | 112.0       | 121.0   | 23.8           | 5.8            | 16.2        | 4.9    | 288.2   | 3.8   | 111.6       | 119.2   | 17.8           | 4.0            | 21.1        | 4.7    | 282.1   |
| Thailand                 | 1.7   | 114.6       | 35.5    | –              | 6.6            | 21.9        | ^      | 180.4   | 0.9   | 129.4       | 30.4    | –              | 6.6            | 23.2        | ^      | 190.5   |
| Vietnam                  | 0.1   | 29.2        | 104.0   | –              | 95.9           | 35.2        | 0.7    | 265.1   | 1.3   | 26.3        | 129.6   | –              | 80.9           | 37.9        | 0.5    | 276.4   |
| Other Asia Pacific       | 60.4  | 221.6       | 157.9   | 22.2           | 171.5          | 41.8        | 1.1    | 676.5   | 39.5  | 219.3       | 177.2   | 22.4           | 172.0          | 44.3        | 0.8    | 675.5   |
| Total Asia Pacific       | 143.8 | 1500.9      | 8129.6  | 737.8          | 1907.1         | 1994.5      | 129.8  | 14543.4 | 113.2 | 1501.8      | 8612.4  | 781.1          | 1788.2         | 2353.5      | 131.8  | 15282.0 |
| Total World              | 742.6 | 6668.9      | 10324.4 | 2679.6         | 4323.4         | 4206.7      | 242.4  | 29188.1 | 698.1 | 6746.3      | 10513.0 | 2737.7         | 4240.0         | 4748.4      | 241.3  | 29924.8 |
| of which: OECD           | 171.6 | 3475.7      | 2211.4  | 1790.0         | 1394.8         | 2149.4      | 158.3  | 11351.2 | 150.5 | 3463.5      | 1904.5  | 1831.7         | 1385.5         | 2290.5      | 152.5  | 11178.6 |
| Non-OECD                 | 571.0 | 3193.1      | 8113.0  | 889.6          | 2928.7         | 2057.2      | 84.2   | 17836.8 | 547.6 | 3282.8      | 8608.6  | 906.0          | 2854.5         | 2457.9      | 88.7   | 18746.2 |
| European Union           | 52.1  | 534.8       | 469.5   | 609.3          | 274.2          | 805.3       | 67.1   | 2812.4  | 46.3  | 452.2       | 343.0   | 619.4          | 325.7          | 886.0       | 64.7   | 2737.2  |

\* Based on gross output.

† Includes uncatagorised generation, statistical differences and sources not specified elsewhere e.g. pumped hydro, non-renewable waste and heat from chemical sources.

^ Less than 0.05.

## Electricity Grid-scale battery energy storage systems (BESS)

| Installed capacity (Gigawatts)      |            |            |            |            |            |            |            |            |            |            |             | Growth rate per annum |              | Share        |
|-------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-----------------------|--------------|--------------|
|                                     | 2013       | 2014       | 2015       | 2016       | 2017       | 2018       | 2019       | 2020       | 2021       | 2022       | 2023        | 2023                  | 2013–23      | 2023         |
| Canada                              | ^          | ^          | ^          | ^          | ^          | ^          | ^          | 0.1        | 0.1        | 0.1        | 0.4         | 426.1%                | 69.7%        | 0.7%         |
| Mexico                              | –          | –          | –          | –          | –          | –          | –          | –          | –          | ^          | ^           | –                     | –            | ^            |
| US                                  | 0.2        | 0.2        | 0.4        | 0.6        | 0.7        | 0.9        | 1.1        | 1.7        | 5.1        | 9.3        | 15.8        | 70.0%                 | 55.0%        | 28.3%        |
| <b>Total North America</b>          | <b>0.2</b> | <b>0.2</b> | <b>0.4</b> | <b>0.6</b> | <b>0.8</b> | <b>1.0</b> | <b>1.2</b> | <b>1.8</b> | <b>5.2</b> | <b>9.4</b> | <b>16.2</b> | <b>72.8%</b>          | <b>55.2%</b> | <b>29.0%</b> |
| Brazil                              | –          | –          | –          | –          | –          | –          | –          | –          | ^          | ^          | ^           | 900.0%                | –            | 0.1%         |
| Chile                               | ^          | ^          | ^          | 0.1        | 0.1        | 0.1        | 0.1        | 0.1        | 0.1        | 0.1        | 0.2         | 98.0%                 | 18.3%        | 0.3%         |
| Other S. & Cent. America            | ^          | ^          | ^          | ^          | ^          | ^          | ^          | ^          | ^          | ^          | 0.1         | 206.6%                | 38.7%        | 0.1%         |
| <b>Total S. &amp; Cent. America</b> | <b>^</b>   | <b>^</b>   | <b>^</b>   | <b>0.1</b> | <b>0.1</b> | <b>0.1</b> | <b>0.1</b> | <b>0.1</b> | <b>0.1</b> | <b>0.1</b> | <b>0.3</b>  | <b>145.2%</b>         | <b>23.3%</b> | <b>0.5%</b>  |
| Germany                             | ^          | ^          | ^          | 0.2        | 0.3        | 0.4        | 0.5        | 0.6        | 0.7        | 1.3        | 1.7         | 27.9%                 | 54.9%        | 3.1%         |
| Ireland                             | –          | –          | –          | –          | –          | –          | –          | –          | 0.2        | 0.3        | 0.4         | 27.6%                 | –            | 0.8%         |
| United Kingdom                      | –          | –          | –          | –          | 0.2        | 0.6        | 0.8        | 1.0        | 1.7        | 2.3        | 3.6         | 54.2%                 | 111.7%       | 6.5%         |
| Other Europe                        | ^          | ^          | 0.1        | 0.1        | 0.1        | 0.1        | 0.1        | 0.2        | 0.4        | 0.9        | 1.2         | 36.0%                 | 59.2%        | 2.2%         |
| <b>Total Europe</b>                 | <b>^</b>   | <b>0.1</b> | <b>0.1</b> | <b>0.3</b> | <b>0.6</b> | <b>1.1</b> | <b>1.4</b> | <b>1.8</b> | <b>2.9</b> | <b>4.9</b> | <b>7.0</b>  | <b>41.9%</b>          | <b>69.7%</b> | <b>12.5%</b> |
| Kazakhstan                          | –          | –          | –          | –          | –          | –          | –          | –          | ^          | ^          | ^           | –                     | –            | ^            |
| Other CIS                           | ^          | ^          | ^          | ^          | ^          | ^          | ^          | ^          | ^          | ^          | ^           | –                     | 5.2%         | ^            |
| <b>Total CIS</b>                    | <b>^</b>   | <b>^</b>   | <b>^</b>   | <b>^</b>   | <b>^</b>   | <b>^</b>   | <b>^</b>   | <b>^</b>   | <b>^</b>   | <b>^</b>   | <b>^</b>    | <b>–</b>              | <b>25.9%</b> | <b>0.1%</b>  |
| United Arab Emirates                | ^          | ^          | ^          | ^          | ^          | ^          | 0.1        | 0.1        | 0.1        | 0.1        | 0.1         | –                     | 30.8%        | 0.2%         |
| Other Middle East                   | –          | –          | –          | –          | –          | –          | –          | –          | ^          | ^          | ^           | 100.0%                | –            | 0.1%         |
| <b>Total Middle East</b>            | <b>^</b>   | <b>^</b>   | <b>^</b>   | <b>^</b>   | <b>^</b>   | <b>^</b>   | <b>0.1</b> | <b>0.1</b> | <b>0.1</b> | <b>0.1</b> | <b>0.2</b>  | <b>14.6%</b>          | <b>34.7%</b> | <b>0.3%</b>  |
| South Africa                        | –          | –          | –          | –          | –          | –          | –          | –          | ^          | ^          | 0.3         | 29300.0%              | –            | 0.5%         |
| Other Africa                        | –          | –          | –          | –          | –          | –          | –          | –          | 0.1        | 0.2        | 0.3         | 17.9%                 | –            | 0.5%         |
| <b>Total Africa</b>                 | <b>–</b>   | <b>–</b>   | <b>–</b>   | <b>–</b>   | <b>–</b>   | <b>–</b>   | <b>–</b>   | <b>–</b>   | <b>0.1</b> | <b>0.2</b> | <b>0.5</b>  | <b>153.4%</b>         | <b>–</b>     | <b>1.0%</b>  |
| Australia                           | –          | –          | –          | –          | 0.1        | 0.2        | 0.3        | 0.4        | 0.7        | 0.9        | 1.8         | 95.1%                 | –            | 3.2%         |
| China                               | ^          | ^          | 0.1        | 0.1        | 0.1        | 0.2        | 0.4        | 0.8        | 1.8        | 7.8        | 27.1        | 249.1%                | 93.4%        | 48.6%        |
| Japan                               | 0.1        | 0.1        | 0.1        | 0.2        | 0.2        | 0.2        | 0.2        | 0.3        | 0.3        | 0.3        | 0.6         | 76.7%                 | 21.3%        | 1.0%         |
| South Korea                         | ^          | ^          | 0.1        | 0.2        | 0.2        | 0.3        | 0.3        | 0.8        | 1.0        | 1.0        | 1.0         | –                     | 70.4%        | 1.8%         |

| Terawatt-hours                      |              |              |              |              |              |              |              |              |              |              |               | Growth rate per annum |              | Share        |
|-------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|-----------------------|--------------|--------------|
|                                     | 2013         | 2014         | 2015         | 2016         | 2017         | 2018         | 2019         | 2020         | 2021         | 2022         | 2023          | 2023                  | 2013-23      | 2023         |
| Canada                              | 391.8        | 382.5        | 382.2        | 385.4        | 394.6        | 385.9        | 381.8        | 386.5        | 382.4        | 397.7        | <b>364.2</b>  | -8.4%                 | -0.7%        | 8.6%         |
| Mexico                              | 28.0         | 38.9         | 30.9         | 30.0         | 30.9         | 32.2         | 23.6         | 26.8         | 34.7         | 35.6         | <b>20.4</b>   | -42.6%                | -3.1%        | 0.5%         |
| US                                  | 266.5        | 255.8        | 246.5        | 263.8        | 296.8        | 289.5        | 285.5        | 282.8        | 249.0        | 251.3        | <b>236.3</b>  | -6.0%                 | -1.2%        | 5.6%         |
| <b>Total North America</b>          | <b>686.3</b> | <b>677.1</b> | <b>659.5</b> | <b>679.2</b> | <b>722.3</b> | <b>707.6</b> | <b>690.8</b> | <b>696.1</b> | <b>666.1</b> | <b>684.6</b> | <b>620.9</b>  | <b>-9.3%</b>          | <b>-1.0%</b> | <b>14.6%</b> |
| Argentina                           | 32.8         | 32.4         | 32.3         | 29.8         | 31.6         | 32.3         | 27.5         | 23.7         | 19.6         | 22.8         | <b>29.9</b>   | 31.3%                 | -0.9%        | 0.7%         |
| Brazil                              | 391.0        | 373.4        | 359.7        | 380.9        | 370.9        | 389.0        | 397.9        | 396.4        | 362.8        | 427.1        | <b>428.7</b>  | 0.4%                  | 0.9%         | 10.1%        |
| Chile                               | 19.9         | 23.0         | 23.6         | 19.7         | 21.3         | 23.4         | 21.4         | 21.7         | 18.1         | 20.4         | <b>24.0</b>   | 17.9%                 | 1.9%         | 0.6%         |
| Colombia                            | 44.4         | 44.7         | 44.7         | 46.8         | 57.3         | 56.7         | 54.4         | 49.8         | 60.5         | 64.3         | <b>59.8</b>   | -7.0%                 | 3.0%         | 1.4%         |
| Ecuador                             | 11.0         | 11.5         | 13.1         | 15.8         | 20.1         | 20.7         | 24.6         | 24.3         | 25.6         | 24.6         | <b>25.3</b>   | 2.9%                  | 8.7%         | 0.6%         |
| Peru                                | 22.3         | 22.2         | 23.7         | 24.1         | 29.1         | 30.7         | 31.5         | 30.5         | 31.9         | 29.7         | <b>29.1</b>   | -2.3%                 | 2.7%         | 0.7%         |
| Trinidad & Tobago                   | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -             | -                     | -            | -            |
| Venezuela                           | 81.5         | 80.4         | 74.7         | 63.0         | 70.0         | 65.3         | 62.8         | 67.2         | 67.8         | 68.5         | <b>65.6</b>   | -4.3%                 | -2.1%        | 1.5%         |
| Central America                     | 21.9         | 21.6         | 22.5         | 22.8         | 27.1         | 26.8         | 21.6         | 26.9         | 29.8         | 31.4         | <b>25.4</b>   | -19.3%                | 1.5%         | 0.6%         |
| Other Caribbean                     | 2.5          | 1.8          | 1.4          | 1.9          | 2.7          | 2.4          | 1.6          | 1.8          | 2.0          | 2.0          | <b>1.6</b>    | -17.2%                | -3.9%        | †            |
| Other South America                 | 72.5         | 68.2         | 67.4         | 74.6         | 70.9         | 69.9         | 62.2         | 54.8         | 50.8         | 54.2         | <b>60.5</b>   | 11.7%                 | -1.8%        | 1.4%         |
| <b>Total S. &amp; Cent. America</b> | <b>699.8</b> | <b>679.2</b> | <b>663.2</b> | <b>679.3</b> | <b>701.1</b> | <b>717.2</b> | <b>705.5</b> | <b>697.1</b> | <b>669.0</b> | <b>745.1</b> | <b>749.9</b>  | <b>0.6%</b>           | <b>0.7%</b>  | <b>17.7%</b> |
| Austria                             | 42.0         | 41.0         | 37.2         | 40.0         | 38.3         | 37.6         | 40.8         | 42.0         | 38.8         | 34.0         | <b>38.9</b>   | 14.4%                 | -0.8%        | 0.9%         |
| Belgium                             | 0.4          | 0.3          | 0.3          | 0.4          | 0.3          | 0.3          | 0.3          | 0.3          | 0.4          | 0.3          | <b>0.4</b>    | 44.7%                 | 0.3%         | †            |
| Bulgaria                            | 4.0          | 4.6          | 5.7          | 3.9          | 2.8          | 5.1          | 2.9          | 2.8          | 4.8          | 3.8          | <b>3.1</b>    | -17.7%                | -2.5%        | 0.1%         |
| Croatia                             | 8.6          | 9.0          | 6.4          | 6.9          | 5.3          | 7.7          | 5.8          | 5.7          | 7.1          | 5.5          | <b>8.2</b>    | 49.7%                 | -0.5%        | 0.2%         |
| Cyprus                              | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -             | -                     | -            | -            |
| Czech Republic                      | 2.7          | 1.9          | 1.8          | 2.0          | 1.9          | 1.6          | 2.0          | 2.1          | 2.4          | 2.1          | <b>2.3</b>    | 11.9%                 | -1.5%        | 0.1%         |
| Denmark                             | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^             | 31.7%                 | 3.9%         | †            |
| Estonia                             | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^             | 15.5%                 | 0.2%         | †            |
| Finland                             | 12.8         | 13.4         | 16.8         | 15.8         | 14.8         | 13.3         | 12.4         | 15.9         | 15.8         | 13.5         | <b>15.2</b>   | 12.5%                 | 1.7%         | 0.4%         |
| France                              | 70.8         | 62.8         | 54.6         | 59.9         | 49.0         | 63.9         | 56.0         | 61.7         | 58.7         | 44.3         | <b>55.5</b>   | 25.4%                 | -2.4%        | 1.3%         |
| Germany                             | 23.0         | 19.6         | 19.0         | 20.5         | 20.2         | 17.7         | 19.7         | 18.3         | 19.7         | 17.6         | <b>19.6</b>   | 11.4%                 | -1.6%        | 0.5%         |
| Greece                              | 6.3          | 4.5          | 6.1          | 5.5          | 4.0          | 5.7          | 4.0          | 3.3          | 5.9          | 3.9          | <b>3.9</b>    | 2.4%                  | -4.6%        | 0.1%         |
| Hungary                             | 0.2          | 0.3          | 0.2          | 0.3          | 0.2          | 0.2          | 0.2          | 0.2          | 0.2          | 0.2          | <b>0.2</b>    | 24.7%                 | 0.4%         | †            |
| Iceland                             | 12.9         | 12.9         | 13.8         | 13.5         | 14.1         | 13.8         | 13.5         | 13.2         | 13.8         | 14.2         | <b>14.2</b>   | 0.2%                  | 1.0%         | 0.3%         |
| Ireland                             | 0.6          | 0.7          | 0.8          | 0.7          | 0.7          | 0.7          | 0.9          | 0.9          | 0.7          | 0.7          | <b>0.9</b>    | 33.2%                 | 4.5%         | †            |
| Italy                               | 52.8         | 58.5         | 45.5         | 42.4         | 36.2         | 48.8         | 46.4         | 47.6         | 45.4         | 28.4         | <b>38.9</b>   | 37.1%                 | -3.0%        | 0.9%         |
| Latvia                              | 2.9          | 2.0          | 1.9          | 2.5          | 4.4          | 2.4          | 2.1          | 2.6          | 2.7          | 2.7          | <b>3.8</b>    | 38.2%                 | 2.7%         | 0.1%         |
| Lithuania                           | 0.5          | 0.4          | 0.3          | 0.5          | 0.6          | 0.4          | 0.3          | 0.3          | 0.4          | 0.5          | <b>0.5</b>    | -3.0%                 | -1.5%        | †            |
| Luxembourg                          | 0.1          | 0.1          | 0.1          | 0.1          | 0.1          | 0.1          | 0.1          | 0.1          | 0.1          | 0.1          | <b>0.1</b>    | 40.9%                 | -2.7%        | †            |
| Netherlands                         | 0.1          | 0.1          | 0.1          | 0.1          | 0.1          | 0.1          | 0.1          | ^            | 0.1          | ^            | <b>0.1</b>    | 36.0%                 | -5.1%        | †            |
| North Macedonia                     | 1.6          | 1.2          | 1.9          | 1.9          | 1.1          | 1.8          | 1.2          | 1.3          | 1.5          | 1.3          | <b>1.6</b>    | 20.6%                 | 0.2%         | †            |
| Norway                              | 128.1        | 135.5        | 137.3        | 142.8        | 142.4        | 139.0        | 125.3        | 140.9        | 143.3        | 127.6        | <b>136.1</b>  | 6.6%                  | 0.6%         | 3.2%         |
| Poland                              | 2.4          | 2.2          | 1.8          | 2.1          | 2.6          | 2.0          | 2.0          | 2.1          | 2.3          | 2.0          | <b>2.4</b>    | 21.8%                 | -0.2%        | 0.1%         |
| Portugal                            | 13.7         | 15.6         | 8.7          | 15.7         | 5.9          | 12.4         | 8.8          | 12.1         | 11.9         | 6.5          | <b>12.1</b>   | 84.8%                 | -1.3%        | 0.3%         |
| Romania                             | 14.8         | 18.5         | 16.6         | 18.0         | 14.5         | 17.7         | 15.6         | 15.4         | 17.4         | 14.0         | <b>18.2</b>   | 30.5%                 | 2.1%         | 0.4%         |
| Slovakia                            | 4.8          | 4.2          | 3.9          | 4.4          | 4.3          | 3.6          | 4.4          | 4.5          | 4.3          | 3.7          | <b>4.7</b>    | 29.0%                 | -0.2%        | 0.1%         |
| Slovenia                            | 4.6          | 6.1          | 3.8          | 4.5          | 3.9          | 4.7          | 4.5          | 4.9          | 4.7          | 3.1          | <b>5.0</b>    | 57.9%                 | 0.7%         | 0.1%         |
| Spain                               | 36.8         | 39.2         | 28.1         | 36.4         | 18.3         | 34.3         | 22.5         | 30.5         | 29.6         | 17.6         | <b>25.5</b>   | 44.8%                 | -3.6%        | 0.6%         |
| Sweden                              | 61.4         | 63.8         | 75.3         | 62.1         | 65.1         | 62.1         | 65.3         | 72.3         | 73.8         | 69.8         | <b>66.0</b>   | -5.4%                 | 0.7%         | 1.6%         |
| Switzerland                         | 38.5         | 38.0         | 38.3         | 34.6         | 34.1         | 34.6         | 37.6         | 37.5         | 36.6         | 29.6         | <b>37.0</b>   | 25.1%                 | -0.4%        | 0.9%         |
| Türkiye                             | 59.4         | 40.6         | 67.1         | 67.2         | 58.2         | 59.9         | 88.8         | 78.1         | 55.9         | 66.8         | <b>63.9</b>   | -4.4%                 | 0.7%         | 1.5%         |
| Ukraine                             | 13.8         | 8.5          | 5.4          | 7.7          | 8.9          | 10.4         | 6.5          | 7.6          | 10.4         | 11.1         | <b>12.7</b>   | 14.6%                 | -0.8%        | 0.3%         |
| United Kingdom                      | 4.7          | 5.9          | 6.3          | 5.4          | 5.9          | 5.4          | 5.9          | 6.9          | 5.4          | 5.6          | <b>5.2</b>    | -7.9%                 | 1.0%         | 0.1%         |
| Other Europe                        | 36.0         | 32.6         | 32.3         | 35.7         | 28.8         | 38.8         | 32.3         | 29.7         | 40.3         | 33.6         | <b>42.4</b>   | 26.0%                 | 1.6%         | 1.0%         |
| <b>Total Europe</b>                 | <b>661.7</b> | <b>644.0</b> | <b>637.4</b> | <b>653.5</b> | <b>586.7</b> | <b>646.5</b> | <b>628.3</b> | <b>660.9</b> | <b>654.4</b> | <b>564.1</b> | <b>638.7</b>  | <b>13.2%</b>          | <b>-0.4%</b> | <b>15.1%</b> |
| Azerbaijan                          | 1.5          | 1.3          | 1.6          | 2.0          | 1.7          | 1.8          | 1.6          | 1.1          | 1.3          | 1.6          | <b>1.8</b>    | 10.5%                 | 1.7%         | †            |
| Belarus                             | 0.1          | 0.1          | 0.1          | 0.1          | 0.4          | 0.3          | 0.4          | 0.4          | 0.4          | 0.4          | <b>0.3</b>    | -18.9%                | 8.1%         | †            |
| Kazakhstan                          | 7.7          | 8.3          | 9.3          | 11.6         | 11.2         | 10.4         | 10.0         | 9.7          | 9.2          | 9.2          | <b>8.8</b>    | -4.4%                 | 1.3%         | 0.2%         |
| Russian Federation                  | 181.2        | 173.4        | 168.0        | 184.6        | 185.2        | 190.6        | 194.4        | 212.4        | 214.5        | 197.7        | <b>200.9</b>  | 1.6%                  | 1.0%         | 4.7%         |
| Turkmenistan                        | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^             | -                     | †            | †            |
| Uzbekistan                          | 6.3          | 6.2          | 6.0          | 6.9          | 7.9          | 5.9          | 6.5          | 5.0          | 5.0          | 5.3          | <b>7.0</b>    | 31.7%                 | 1.1%         | 0.2%         |
| Other CIS                           | 32.7         | 31.9         | 30.4         | 30.7         | 33.9         | 35.3         | 35.7         | 34.1         | 34.4         | 34.1         | <b>34.3</b>   | 0.6%                  | 0.5%         | 0.8%         |
| <b>Total CIS</b>                    | <b>229.4</b> | <b>221.1</b> | <b>215.4</b> | <b>235.9</b> | <b>240.3</b> | <b>244.3</b> | <b>248.5</b> | <b>262.7</b> | <b>264.8</b> | <b>248.2</b> | <b>253.0</b>  | <b>1.9%</b>           | <b>1.0%</b>  | <b>6.0%</b>  |
| Iran                                | 14.6         | 14.5         | 13.3         | 15.4         | 17.2         | 9.8          | 33.9         | 23.2         | 13.8         | 14.0         | <b>22.7</b>   | 61.8%                 | 4.5%         | 0.5%         |
| Iraq                                | 4.6          | 2.8          | 2.5          | 3.4          | 2.2          | 1.8          | 5.0          | 4.2          | 3.3          | 2.7          | <b>3.4</b>    | 27.8%                 | -3.0%        | 0.1%         |
| Israel                              | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^             | -1.0%                 | -1.7%        | †            |
| Kuwait                              | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -             | -                     | -            | -            |
| Oman                                | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -             | -                     | -            | -            |
| Qatar                               | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -             | -                     | -            | -            |
| Saudi Arabia                        | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -             | -                     | -            | -            |
| United Arab Emirates                | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -             | -                     | -            | -            |
| Other Middle East                   | 4.2          | 2.6          | 0.9          | 1.4          | 1.2          | 1.1          | 1.7          | 1.8          | 1.4          | 1.5          | <b>1.5</b>    | 2.9%                  | -9.8%        | †            |
| <b>Total Middle East</b>            | <b>23.5</b>  | <b>19.9</b>  | <b>16.8</b>  | <b>20.2</b>  | <b>20.6</b>  | <b>12.8</b>  | <b>40.6</b>  | <b>29.2</b>  | <b>18.6</b>  | <b>18.2</b>  | <b>27.6</b>   | <b>51.9%</b>          | <b>1.6%</b>  | <b>0.7%</b>  |
| Algeria                             | 0.1          | 0.2          | 0.1          | 0.1          | 0.1          | 0.1          | 0.2          | ^            | ^            | ^            | <b>0.1</b>    | 329.9%                | -3.6%        | †            |
| Egypt                               | 13.2         | 13.6         | 13.7         | 13.2         | 12.8         | 12.9         | 14.1         | 14.9         | 13.9         | 13.3         | <b>13.8</b>   | 4.0%                  | 0.4%         | 0.3%         |
| Morocco                             | 2.8          | 1.6          | 1.9          | 1.3          | 1.2          | 1.7          | 1.3          | 0.9          | 0.8          | 0.4          | <b>0.2</b>    | -53.5%                | -24.7%       | †            |
| South Africa                        | 1.1          | 1.8          | 0.7          | 0.6          | 0.8          | 1.1          | 0.7          | 1.5          | 2.0          | 3.1          | <b>1.7</b>    | -45.6%                | 4.3%         | †            |
| Eastern Africa                      | 61.5         | 65.7         | 65.0         | 61.5         | 64.5         | 68.4         | 68.5         | 73.5         | 77.1         | 79.6         | <b>82.1</b>   | 3.2%                  | 2.9%         | 1.9%         |
| Middle Africa                       | 19.4         | 20.7         | 21.0         | 22.0         | 24.9         | 28.0         | 29.6         | 32.2         | 32.7         | 32.8         | <b>33.7</b>   | 2.9%                  | 5.7%         | 0.8%         |
| Western Africa                      | 17.1         | 17.9         | 16.0         | 18.4         | 18.8         | 19.9         | 22.5         | 22.4         | 24.0         | 25.6         | <b>28.0</b>   | 9.3%                  | 5.1%         | 0.7%         |
| Other Northern Africa               | 0.1          | 0.1          | 0.1          | ^            | ^            | ^            | 0.1          | ^            | ^            | ^            | ^             | -38.3%                | -17.1%       | †            |
| Other Southern Africa               | 2.0          | 2.3          | 2.3          | 2.0          | 2.2          | 1.9          | 1.6          | 2.2          | 1.8          | 1.5          | <b>2.1</b>    | 34.8%                 | 0.3%         | †            |
| <b>Total Africa</b>                 | <b>117.2</b> | <b>123.9</b> | <b>120.7</b> | <b>119.1</b> | <b>125.2</b> | <b>134.1</b> | <b>138.5</b> | <b>147.7</b> | <b>152.5</b> | <b>156.3</b> | <b>161.6</b>  | <b>3.4%</b>           | <b>3.3%</b>  | <b>3.8%</b>  |
| Australia                           | 19.1         | 14.5         | 14.1         | 17.6         | 13.5         | 17.3         | 14.0         | 14.4         | 15.9         | 16.7         | <b>15.3</b>   | -8.4%                 | -2.2%        | 0.4%         |
| Bangladesh                          | 0.7          | 0.6          | 0.9          | 0.9          | 1.0          | 0.9          | 0.8          | 0.7          | 0.7          | 0.8          | <b>0.7</b>    | -11.8%                | -0.6%        | †            |
| China                               | 909.6        | 1059.7       | 1114.5       | 1153.3       | 1165.1       | 1198.9       | 1272.5       | 1321.7       | 1300.0       | 1298.1       | <b>1226.0</b> | -5.6%                 | 3.0%         | 28.9%        |
| China Hong Kong SAR                 | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -             | -                     | -            | -            |
| India                               | 132.0        | 139.0        | 133.3        | 128.4        | 135.8        | 139.8        | 162.1        | 163.7        | 160.3        | 174.9        | <b>149.2</b>  | -14.7%                | 1.2%         | 3.5%         |
| Indonesia                           | 16.9         | 15.2         | 13.7         | 18.7         | 18.6         | 21.6         | 21.2         | 24.3         | 24.7         | 27.3         | <b>24.8</b>   | -9.2%                 | 3.9%         | 0.6%         |
| Japan                               | 79.3         | 81.7         | 85.8         | 79.4         | 79.2         | 81.0         | 73.9         | 78.3         | 79.6         | 74.9         | <b>74.5</b>   | -0.5%                 | -0.6%        | 1.8%         |
| Malaysia                            | 11.8         | 13.4         | 13.9         | 20.0         | 26.8         | 26.3         | 26.2         | 27.3         | 30.2         | 31.8         | <b>31.5</b>   | -0.9%                 | 10.3%        | 0.7%         |
| New Zealand                         | 23.0         | 24.3         | 24.5         | 25.9         | 25.2         | 26.3         | 25.6         | 24.3         | 24.2         | 26.3         | <b>26.5</b>   | 0.9%                  | 1.4%         | 0.6%         |
| Pakistan                            | 31.5         | 32.4         | 32.8         | 34.6         | 30.2         | 29.5         | 36.1         | 40.0         | 37.6         | 34.5         | <b>37.4</b>   | 8.4%                  | 1.7%         | 0.9%         |
| Phil                                |              |              |              |              |              |              |              |              |              |              |               |                       |              |              |



# Renewable energy

## Combined renewable electricity and biofuels primary energy input consumption

| energy input consumption     |       |       |       |       |       |       |       |       |       |       |       | Growth rate per annum |         | Share |
|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----------------------|---------|-------|
| Exajoules (input-equivalent) | 2013  | 2014  | 2015  | 2016  | 2017  | 2018  | 2019  | 2020  | 2021  | 2022  | 2023  | 2023                  | 2013–23 | 2023  |
| Canada                       | 4.17  | 4.07  | 4.18  | 4.25  | 4.33  | 4.24  | 4.18  | 4.23  | 4.22  | 4.37  | 4.08  | -6.6%                 | -0.2%   | 4.5%  |
| Mexico                       | 0.40  | 0.53  | 0.48  | 0.48  | 0.50  | 0.54  | 0.56  | 0.67  | 0.78  | 0.79  | 0.73  | -8.2%                 | 6.2%    | 0.8%  |
| US                           | 6.61  | 6.80  | 6.92  | 7.67  | 8.44  | 8.64  | 8.91  | 9.32  | 9.81  | 10.78 | 10.99 | 2.0%                  | 5.2%    | 12.2% |
| Total North America          | 11.18 | 11.40 | 11.58 | 12.41 | 13.27 | 13.41 | 13.65 | 14.22 | 14.81 | 15.94 | 15.80 | -0.9%                 | 3.5%    | 17.5% |
| Argentina                    | 0.39  | 0.39  | 0.39  | 0.36  | 0.39  | 0.40  | 0.40  | 0.39  | 0.39  | 0.45  | 0.52  | 14.6%                 | 3.0%    | 0.6%  |
| Brazil                       | 4.99  | 4.98  | 5.07  | 5.31  | 5.32  | 5.68  | 5.95  | 5.95  | 5.77  | 6.56  | 6.98  | 6.4%                  | 3.4%    | 7.7%  |
| Chile                        | 0.28  | 0.30  | 0.33  | 0.32  | 0.36  | 0.41  | 0.40  | 0.41  | 0.42  | 0.49  | 0.55  | 12.9%                 | 7.1%    | 0.6%  |
| Colombia                     | 0.48  | 0.49  | 0.48  | 0.50  | 0.60  | 0.60  | 0.58  | 0.54  | 0.64  | 0.68  | 0.65  | -4.0%                 | 3.1%    | 0.7%  |
| Ecuador                      | 0.11  | 0.12  | 0.13  | 0.16  | 0.20  | 0.20  | 0.24  | 0.24  | 0.25  | 0.24  | 0.24  | 2.9%                  | 8.1%    | 0.3%  |
| Peru                         | 0.25  | 0.25  | 0.26  | 0.27  | 0.31  | 0.34  | 0.34  | 0.34  | 0.35  | 0.33  | 0.33  | -0.5%                 | 2.8%    | 0.4%  |
| Trinidad & Tobago            | ^     | ^     | ^     | ^     | ^     | ^     | ^     | ^     | ^     | ^     | ^     | -0.4%                 | -0.4%   | †     |
| Venezuela                    | 0.80  | 0.79  | 0.73  | 0.61  | 0.67  | 0.62  | 0.60  | 0.64  | 0.64  | 0.64  | 0.61  | -4.6%                 | -2.6%   | 0.7%  |
| Central America              | 0.30  | 0.31  | 0.34  | 0.36  | 0.39  | 0.41  | 0.38  | 0.42  | 0.46  | 0.46  | 0.41  | -11.1%                | 3.0%    | 0.5%  |
| Other Caribbean              | 0.06  | 0.05  | 0.05  | 0.06  | 0.07  | 0.07  | 0.07  | 0.08  | 0.08  | 0.09  | 0.09  | 1.5%                  | 3.8%    | 0.1%  |
| Other South America          | 0.74  | 0.71  | 0.72  | 0.79  | 0.76  | 0.76  | 0.69  | 0.62  | 0.59  | 0.61  | 0.68  | 10.9%                 | -0.8%   | 0.8%  |
| Total S. & Cent. America     | 8.40  | 8.38  | 8.50  | 8.73  | 9.08  | 9.50  | 9.65  | 9.61  | 9.59  | 10.55 | 11.07 | 4.9%                  | 2.8%    | 12.3% |
| Austria                      | 0.52  | 0.52  | 0.49  | 0.52  | 0.52  | 0.51  | 0.55  | 0.55  | 0.52  | 0.49  | 0.56  | 12.6%                 | 0.6%    | 0.6%  |
| Belgium                      | 0.14  | 0.14  | 0.16  | 0.17  | 0.18  | 0.19  | 0.21  | 0.26  | 0.25  | 0.27  | 0.29  | 6.9%                  | 7.7%    | 0.3%  |
| Bulgaria                     | 0.07  | 0.08  | 0.09  | 0.08  | 0.07  | 0.10  | 0.08  | 0.08  | 0.11  | 0.10  | 0.11  | 4.6%                  | 4.0%    | 0.1%  |
| Croatia                      | 0.09  | 0.10  | 0.07  | 0.08  | 0.07  | 0.10  | 0.08  | 0.09  | 0.11  | 0.09  | 0.11  | 31.8%                 | 2.2%    | 0.1%  |
| Cyprus                       | ^     | ^     | ^     | ^     | ^     | ^     | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  | 19.8%                 | 11.0%   | †     |
| Czech Republic               | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.11  | 0.12  | 0.12  | 0.13  | 0.12  | 0.12  | -1.6%                 | 1.0%    | 0.1%  |
| Denmark                      | 0.17  | 0.19  | 0.20  | 0.20  | 0.23  | 0.22  | 0.24  | 0.24  | 0.27  | 0.29  | 0.30  | 2.7%                  | 5.7%    | 0.3%  |
| Estonia                      | 0.01  | 0.02  | 0.02  | 0.02  | 0.02  | 0.02  | 0.02  | 0.03  | 0.03  | 0.03  | 0.03  | -1.3%                 | 8.6%    | †     |
| Finland                      | 0.28  | 0.29  | 0.33  | 0.32  | 0.34  | 0.35  | 0.35  | 0.38  | 0.41  | 0.41  | 0.43  | 4.3%                  | 4.4%    | 0.5%  |
| France                       | 1.08  | 1.03  | 1.01  | 1.07  | 1.01  | 1.20  | 1.19  | 1.29  | 1.27  | 1.21  | 1.47  | 21.6%                 | 3.1%    | 1.6%  |
| Germany                      | 1.68  | 1.78  | 2.03  | 2.03  | 2.28  | 2.34  | 2.50  | 2.62  | 2.43  | 2.62  | 2.78  | 6.1%                  | 5.2%    | 3.1%  |
| Greece                       | 0.15  | 0.13  | 0.15  | 0.15  | 0.14  | 0.16  | 0.16  | 0.18  | 0.22  | 0.22  | 0.24  | 7.0%                  | 4.9%    | 0.3%  |
| Hungary                      | 0.04  | 0.04  | 0.04  | 0.04  | 0.04  | 0.05  | 0.06  | 0.07  | 0.08  | 0.09  | 0.10  | 12.2%                 | 10.7%   | 0.1%  |
| Iceland                      | 0.18  | 0.17  | 0.18  | 0.18  | 0.18  | 0.19  | 0.18  | 0.18  | 0.18  | 0.19  | 0.19  | 0.2%                  | 0.7%    | 0.2%  |
| Ireland                      | 0.06  | 0.07  | 0.08  | 0.08  | 0.09  | 0.11  | 0.12  | 0.14  | 0.12  | 0.13  | 0.15  | 8.2%                  | 9.2%    | 0.2%  |
| Italy                        | 1.18  | 1.25  | 1.14  | 1.13  | 1.09  | 1.18  | 1.17  | 1.19  | 1.18  | 1.02  | 1.15  | 12.1%                 | -0.3%   | 1.3%  |
| Latvia                       | 0.04  | 0.03  | 0.03  | 0.04  | 0.05  | 0.04  | 0.03  | 0.04  | 0.04  | 0.04  | 0.05  | 21.8%                 | 2.4%    | 0.1%  |
| Lithuania                    | 0.02  | 0.02  | 0.02  | 0.02  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.03  | 0.04  | 19.4%                 | 8.8%    | †     |
| Luxembourg                   | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  | 0.02  | 0.02  | 0.02  | 0.02  | 1.9%                  | 10.2%   | †     |
| Netherlands                  | 0.14  | 0.14  | 0.15  | 0.16  | 0.19  | 0.21  | 0.26  | 0.36  | 0.44  | 0.52  | 0.61  | 18.3%                 | 15.6%   | 0.7%  |
| North Macedonia              | 0.02  | 0.01  | 0.02  | 0.02  | 0.01  | 0.02  | 0.01  | 0.01  | 0.02  | 0.01  | 0.02  | 35.9%                 | 2.6%    | †     |
| Norway                       | 1.29  | 1.35  | 1.36  | 1.41  | 1.42  | 1.38  | 1.26  | 1.45  | 1.48  | 1.36  | 1.44  | 5.8%                  | 1.1%    | 1.6%  |
| Poland                       | 0.21  | 0.24  | 0.26  | 0.25  | 0.27  | 0.26  | 0.30  | 0.33  | 0.35  | 0.42  | 0.50  | 20.0%                 | 8.9%    | 0.6%  |
| Portugal                     | 0.31  | 0.32  | 0.26  | 0.33  | 0.23  | 0.30  | 0.28  | 0.30  | 0.32  | 0.28  | 0.34  | 22.3%                 | 1.1%    | 0.4%  |
| Romania                      | 0.20  | 0.25  | 0.26  | 0.27  | 0.25  | 0.26  | 0.25  | 0.25  | 0.27  | 0.24  | 0.28  | 15.9%                 | 3.2%    | 0.3%  |
| Slovakia                     | 0.07  | 0.07  | 0.07  | 0.07  | 0.07  | 0.06  | 0.07  | 0.07  | 0.07  | 0.06  | 0.08  | 21.9%                 | 1.5%    | 0.1%  |
| Slovenia                     | 0.05  | 0.07  | 0.04  | 0.05  | 0.04  | 0.05  | 0.05  | 0.06  | 0.06  | 0.04  | 0.06  | 52.1%                 | 1.9%    | 0.1%  |
| Spain                        | 1.15  | 1.14  | 1.00  | 1.08  | 0.92  | 1.10  | 1.02  | 1.17  | 1.28  | 1.25  | 1.41  | 13.3%                 | 2.1%    | 1.6%  |
| Sweden                       | 0.85  | 0.88  | 1.05  | 0.92  | 0.97  | 0.94  | 1.01  | 1.13  | 1.17  | 1.20  | 1.16  | -3.2%                 | 3.1%    | 1.3%  |
| Switzerland                  | 0.40  | 0.40  | 0.40  | 0.37  | 0.37  | 0.38  | 0.41  | 0.41  | 0.40  | 0.34  | 0.43  | 25.9%                 | 0.8%    | 0.5%  |
| Türkiye                      | 0.70  | 0.52  | 0.82  | 0.88  | 0.84  | 0.94  | 1.27  | 1.22  | 1.13  | 1.31  | 1.31  | -0.2%                 | 6.5%    | 1.5%  |
| Ukraine                      | 0.15  | 0.10  | 0.07  | 0.09  | 0.11  | 0.13  | 0.12  | 0.16  | 0.21  | 0.18  | 0.20  | 9.3%                  | 2.6%    | 0.2%  |
| United Kingdom               | 0.60  | 0.72  | 0.90  | 0.90  | 1.05  | 1.17  | 1.28  | 1.41  | 1.30  | 1.43  | 1.43  | †                     | 9.1%    | 1.6%  |
| Other Europe                 | 0.36  | 0.32  | 0.32  | 0.35  | 0.28  | 0.38  | 0.33  | 0.31  | 0.41  | 0.35  | 0.43  | 24.7%                 | 2.0%    | 0.5%  |
| Total Europe                 | 12.31 | 12.51 | 13.16 | 13.39 | 13.49 | 14.46 | 15.04 | 16.16 | 16.31 | 16.38 | 17.83 | 8.9%                  | 3.8%    | 19.8% |
| Azerbaijan                   | 0.02  | 0.01  | 0.02  | 0.02  | 0.02  | 0.02  | 0.02  | 0.01  | 0.01  | 0.02  | 0.02  | 8.8%                  | 2.1%    | †     |
| Belarus                      | ^     | ^     | ^     | ^     | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  | -10.6%                | 13.3%   | †     |
| Kazakhstan                   | 0.08  | 0.08  | 0.09  | 0.12  | 0.11  | 0.10  | 0.11  | 0.11  | 0.12  | 0.12  | 0.13  | 8.0%                  | 5.9%    | 0.1%  |
| Russian Federation           | 1.78  | 1.70  | 1.64  | 1.79  | 1.79  | 1.83  | 1.87  | 2.05  | 2.09  | 1.94  | 1.97  | 1.8%                  | 1.0%    | 2.2%  |
| Turkmenistan                 | ^     | ^     | ^     | ^     | ^     | ^     | ^     | ^     | ^     | ^     | ^     | -0.4%                 | 6.8%    | †     |
| Uzbekistan                   | 0.06  | 0.06  | 0.06  | 0.07  | 0.08  | 0.06  | 0.06  | 0.05  | 0.05  | 0.05  | 0.07  | 32.6%                 | 1.1%    | 0.1%  |
| Other CIS                    | 0.32  | 0.31  | 0.29  | 0.30  | 0.33  | 0.34  | 0.34  | 0.32  | 0.33  | 0.33  | 0.33  | 1.1%                  | 0.3%    | 0.4%  |
| Total CIS                    | 2.26  | 2.17  | 2.10  | 2.29  | 2.33  | 2.36  | 2.40  | 2.56  | 2.61  | 2.47  | 2.54  | 2.6%                  | 1.2%    | 2.8%  |
| Iran                         | 0.15  | 0.14  | 0.13  | 0.15  | 0.17  | 0.10  | 0.33  | 0.24  | 0.15  | 0.15  | 0.23  | 54.5%                 | 4.7%    | 0.3%  |
| Iraq                         | 0.05  | 0.03  | 0.03  | 0.03  | 0.02  | 0.02  | 0.05  | 0.04  | 0.04  | 0.03  | 0.04  | 23.5%                 | -2.5%   | †     |
| Israel                       | 0.01  | 0.01  | 0.01  | 0.02  | 0.02  | 0.02  | 0.03  | 0.04  | 0.05  | 0.06  | 0.08  | 25.0%                 | 29.5%   | 0.1%  |
| Kuwait                       | ^     | ^     | ^     | ^     | ^     | ^     | ^     | ^     | ^     | ^     | ^     | -8.6%                 | 96.5%   | †     |
| Oman                         | ^     | ^     | ^     | ^     | ^     | ^     | ^     | ^     | 0.01  | 0.01  | 0.01  | 2.0%                  | 104.3%  | †     |
| Qatar                        | ^     | ^     | ^     | ^     | ^     | ^     | ^     | ^     | ^     | ^     | 0.01  | 239.6%                | 31.3%   | †     |
| Saudi Arabia                 | ^     | ^     | ^     | ^     | ^     | ^     | ^     | ^     | 0.01  | 0.02  | 0.05  | 152.0%                | 62.6%   | 0.1%  |
| United Arab Emirates         | ^     | ^     | ^     | ^     | 0.01  | 0.01  | 0.03  | 0.05  | 0.06  | 0.07  | 0.13  | 77.8%                 | 65.2%   | 0.1%  |
| Other Middle East            | 0.04  | 0.03  | 0.01  | 0.02  | 0.03  | 0.04  | 0.05  | 0.07  | 0.07  | 0.09  | 0.09  | 0.5%                  | 7.7%    | 0.1%  |
| Total Middle East            | 0.24  | 0.21  | 0.19  | 0.23  | 0.25  | 0.20  | 0.51  | 0.44  | 0.39  | 0.44  | 0.65  | 45.9%                 | 10.4%   | 0.7%  |
| Algeria                      | ^     | ^     | ^     | ^     | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  | 7.4%                  | 18.5%   | †     |
| Egypt                        | 0.15  | 0.14  | 0.15  | 0.15  | 0.15  | 0.16  | 0.19  | 0.23  | 0.23  | 0.23  | 0.23  | 2.2%                  | 4.8%    | 0.3%  |
| Morocco                      | 0.04  | 0.03  | 0.04  | 0.04  | 0.04  | 0.06  | 0.07  | 0.07  | 0.07  | 0.07  | 0.08  | 22.8%                 | 7.7%    | 0.1%  |
| South Africa                 | 0.02  | 0.04  | 0.07  | 0.08  | 0.12  | 0.12  | 0.12  | 0.14  | 0.17  | 0.19  | 0.19  | 3.0%                  | 24.7%   | 0.2%  |
| Eastern Africa               | 0.65  | 0.70  | 0.71  | 0.67  | 0.    |       |       |       |       |       |       |                       |         |       |



# Renewable energy

## Renewable power primary energy input consumption (including hydro)\*

| Exajoules (input-equivalent)*       |              |              |              |              |              |              |              |              |              |              |              |               | Growth rate per annum |              | Share |
|-------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|-----------------------|--------------|-------|
|                                     | 2013         | 2014         | 2015         | 2016         | 2017         | 2018         | 2019         | 2020         | 2021         | 2022         | 2023         | 2023          | 2013-23               | 2023         |       |
| Canada                              | 4.09         | 3.99         | 4.11         | 4.18         | 4.24         | 4.15         | 4.09         | 4.15         | 4.13         | 4.26         | <b>3.96</b>  | -7.1%         | -0.3%                 | 4.6%         |       |
| Mexico                              | 0.39         | 0.52         | 0.47         | 0.47         | 0.49         | 0.53         | 0.55         | 0.66         | 0.77         | 0.78         | <b>0.72</b>  | -8.3%         | 6.2%                  | 0.8%         |       |
| US                                  | 5.33         | 5.50         | 5.56         | 6.20         | 6.97         | 7.18         | 7.41         | 7.96         | 8.32         | 9.20         | <b>9.21</b>  | 0.1%          | 5.6%                  | 10.8%        |       |
| <b>Total North America</b>          | <b>9.82</b>  | <b>10.01</b> | <b>10.14</b> | <b>10.85</b> | <b>11.70</b> | <b>11.86</b> | <b>12.05</b> | <b>12.77</b> | <b>13.22</b> | <b>14.25</b> | <b>13.88</b> | <b>-2.5%</b>  | <b>3.5%</b>           | <b>16.2%</b> |       |
| Argentina                           | 0.34         | 0.34         | 0.34         | 0.31         | 0.33         | 0.34         | 0.33         | 0.35         | 0.35         | 0.40         | <b>0.47</b>  | 17.6%         | 3.2%                  | 0.6%         |       |
| Brazil                              | 4.37         | 4.30         | 4.27         | 4.58         | 4.58         | 4.82         | 5.00         | 5.06         | 4.90         | 5.69         | <b>6.02</b>  | 5.9%          | 3.3%                  | 7.0%         |       |
| Chile                               | 0.28         | 0.30         | 0.33         | 0.32         | 0.36         | 0.41         | 0.40         | 0.41         | 0.42         | 0.49         | <b>0.55</b>  | 12.9%         | 7.1%                  | 0.6%         |       |
| Colombia                            | 0.45         | 0.46         | 0.45         | 0.47         | 0.57         | 0.56         | 0.55         | 0.51         | 0.61         | 0.64         | <b>0.61</b>  | -5.4%         | 3.0%                  | 0.7%         |       |
| Ecuador                             | 0.11         | 0.12         | 0.13         | 0.16         | 0.20         | 0.20         | 0.24         | 0.24         | 0.25         | 0.24         | <b>0.24</b>  | 2.9%          | 8.0%                  | 0.3%         |       |
| Peru                                | 0.23         | 0.24         | 0.25         | 0.25         | 0.30         | 0.32         | 0.33         | 0.32         | 0.33         | 0.31         | <b>0.31</b>  | -0.7%         | 2.9%                  | 0.4%         |       |
| Trinidad & Tobago                   | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | -0.4%         | -0.4%                 | ^            |       |
| Venezuela                           | 0.80         | 0.79         | 0.73         | 0.61         | 0.67         | 0.62         | 0.60         | 0.64         | 0.64         | 0.64         | <b>0.61</b>  | -4.6%         | -2.6%                 | 0.7%         |       |
| Central America                     | 0.30         | 0.31         | 0.34         | 0.35         | 0.39         | 0.41         | 0.37         | 0.42         | 0.45         | 0.46         | <b>0.41</b>  | -11.2%        | 3.0%                  | 0.5%         |       |
| Other Caribbean                     | ^            | ^            | ^            | ^            | 0.06         | 0.06         | 0.06         | 0.07         | 0.07         | 0.08         | <b>0.08</b>  | 2.3%          | 4.8%                  | 0.1%         |       |
| Other South America                 | 0.73         | 0.70         | 0.71         | 0.78         | 0.75         | 0.75         | 0.68         | 0.61         | 0.58         | 0.60         | <b>0.67</b>  | 11.0%         | -0.9%                 | 0.8%         |       |
| <b>Total S. &amp; Cent. America</b> | <b>7.68</b>  | <b>7.59</b>  | <b>7.58</b>  | <b>7.88</b>  | <b>8.21</b>  | <b>8.50</b>  | <b>8.55</b>  | <b>8.62</b>  | <b>8.60</b>  | <b>9.56</b>  | <b>9.98</b>  | <b>4.5%</b>   | <b>2.7%</b>           | <b>11.7%</b> |       |
| Austria                             | 0.50         | 0.50         | 0.47         | 0.50         | 0.50         | 0.49         | 0.53         | 0.53         | 0.51         | 0.48         | <b>0.54</b>  | 13.2%         | 0.7%                  | 0.6%         |       |
| Belgium                             | 0.12         | 0.13         | 0.15         | 0.15         | 0.16         | 0.17         | 0.20         | 0.23         | 0.22         | 0.24         | <b>0.26</b>  | 7.9%          | 7.7%                  | 0.3%         |       |
| Bulgaria                            | 0.07         | 0.07         | 0.09         | 0.07         | 0.06         | 0.09         | 0.07         | 0.07         | 0.10         | 0.10         | <b>0.10</b>  | 2.8%          | 3.7%                  | 0.1%         |       |
| Croatia                             | 0.09         | 0.10         | 0.07         | 0.08         | 0.07         | 0.09         | 0.08         | 0.08         | 0.10         | 0.09         | <b>0.11</b>  | 32.1%         | 2.3%                  | 0.1%         |       |
| Cyprus                              | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | 21.6%         | 12.0%                 | ^            |       |
| Czech Republic                      | 0.10         | 0.10         | 0.10         | 0.10         | 0.10         | 0.10         | 0.11         | 0.11         | 0.11         | 0.11         | <b>0.11</b>  | -0.9%         | 1.0%                  | 0.1%         |       |
| Denmark                             | 0.16         | 0.18         | 0.19         | 0.19         | 0.22         | 0.21         | 0.23         | 0.23         | 0.26         | 0.28         | <b>0.29</b>  | 2.8%          | 5.9%                  | 0.3%         |       |
| Estonia                             | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | -1.6%         | 8.3%                  | ^            |       |
| Finland                             | 0.27         | 0.28         | 0.32         | 0.31         | 0.32         | 0.33         | 0.33         | 0.36         | 0.39         | 0.39         | <b>0.41</b>  | 6.4%          | 4.3%                  | 0.5%         |       |
| France                              | 0.97         | 0.91         | 0.89         | 0.95         | 0.89         | 1.08         | 1.07         | 1.18         | 1.15         | 1.06         | <b>1.33</b>  | 25.0%         | 3.2%                  | 1.6%         |       |
| Germany                             | 1.57         | 1.66         | 1.91         | 1.92         | 2.16         | 2.22         | 2.39         | 2.48         | 2.31         | 2.50         | <b>2.65</b>  | 6.2%          | 5.4%                  | 3.1%         |       |
| Greece                              | 0.14         | 0.12         | 0.14         | 0.14         | 0.13         | 0.15         | 0.15         | 0.17         | 0.21         | 0.21         | <b>0.23</b>  | 7.3%          | 4.9%                  | 0.3%         |       |
| Hungary                             | ^            | ^            | ^            | ^            | ^            | ^            | ^            | 0.06         | 0.07         | 0.08         | <b>0.09</b>  | 13.3%         | 11.0%                 | 0.1%         |       |
| Iceland                             | 0.18         | 0.17         | 0.18         | 0.18         | 0.18         | 0.19         | 0.18         | 0.18         | 0.18         | 0.19         | <b>0.19</b>  | 0.2%          | 0.6%                  | 0.2%         |       |
| Ireland                             | 0.06         | 0.06         | 0.08         | 0.07         | 0.09         | 0.10         | 0.11         | 0.13         | 0.11         | 0.12         | <b>0.13</b>  | 5.6%          | 8.9%                  | 0.2%         |       |
| Italy                               | 1.13         | 1.21         | 1.09         | 1.07         | 1.03         | 1.13         | 1.14         | 1.14         | 1.13         | 0.98         | <b>1.10</b>  | 12.0%         | -0.3%                 | 1.3%         |       |
| Latvia                              | ^            | ^            | ^            | ^            | 0.05         | ^            | ^            | ^            | ^            | ^            | ^            | 22.8%         | 2.5%                  | 0.1%         |       |
| Lithuania                           | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | 22.2%         | 8.9%                  | ^            |       |
| Luxembourg                          | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | 1.2%          | 10.6%                 | ^            |       |
| Netherlands                         | 0.13         | 0.12         | 0.14         | 0.15         | 0.18         | 0.19         | 0.23         | 0.33         | 0.40         | 0.47         | <b>0.56</b>  | 18.4%         | 15.8%                 | 0.7%         |       |
| North Macedonia                     | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | 35.9%         | 2.6%                  | ^            |       |
| Norway                              | 1.28         | 1.35         | 1.36         | 1.40         | 1.39         | 1.36         | 1.25         | 1.43         | 1.46         | 1.34         | <b>1.41</b>  | 5.2%          | 1.0%                  | 1.7%         |       |
| Poland                              | 0.18         | 0.21         | 0.24         | 0.23         | 0.24         | 0.22         | 0.26         | 0.28         | 0.30         | 0.37         | <b>0.45</b>  | 22.2%         | 9.5%                  | 0.5%         |       |
| Portugal                            | 0.29         | 0.31         | 0.24         | 0.32         | 0.22         | 0.29         | 0.27         | 0.29         | 0.31         | 0.27         | <b>0.33</b>  | 22.3%         | 1.1%                  | 0.4%         |       |
| Romania                             | 0.20         | 0.25         | 0.25         | 0.26         | 0.23         | 0.25         | 0.23         | 0.23         | 0.25         | 0.22         | <b>0.26</b>  | 17.8%         | 2.9%                  | 0.3%         |       |
| Slovakia                            | 0.06         | 0.06         | 0.06         | 0.07         | 0.07         | 0.06         | 0.07         | 0.07         | 0.07         | 0.06         | <b>0.07</b>  | 24.4%         | 1.2%                  | 0.1%         |       |
| Slovenia                            | 0.05         | 0.06         | ^            | ^            | ^            | 0.05         | ^            | 0.05         | 0.05         | ^            | <b>0.06</b>  | 55.4%         | 1.8%                  | 0.1%         |       |
| Spain                               | 1.10         | 1.08         | 0.95         | 1.02         | 0.85         | 1.00         | 0.93         | 1.09         | 1.20         | 1.17         | <b>1.34</b>  | 14.7%         | 2.0%                  | 1.6%         |       |
| Sweden                              | 0.83         | 0.85         | 1.01         | 0.88         | 0.93         | 0.89         | 0.96         | 1.08         | 1.12         | 1.13         | <b>1.10</b>  | -3.2%         | 2.8%                  | 1.3%         |       |
| Switzerland                         | 0.40         | 0.40         | 0.40         | 0.37         | 0.37         | 0.37         | 0.40         | 0.40         | 0.40         | 0.34         | <b>0.43</b>  | 26.2%         | 0.6%                  | 0.5%         |       |
| Turkiye                             | 0.68         | 0.51         | 0.81         | 0.87         | 0.84         | 0.93         | 1.26         | 1.22         | 1.13         | 1.31         | <b>1.30</b>  | -0.2%         | 6.7%                  | 1.5%         |       |
| Ukraine                             | 0.15         | 0.10         | 0.07         | 0.09         | 0.10         | 0.12         | 0.11         | 0.16         | 0.21         | 0.18         | <b>0.19</b>  | 9.4%          | 2.7%                  | 0.2%         |       |
| United Kingdom                      | 0.55         | 0.67         | 0.86         | 0.86         | 1.01         | 1.12         | 1.21         | 1.35         | 1.23         | 1.34         | <b>1.34</b>  | -0.6%         | 9.2%                  | 1.6%         |       |
| Other Europe                        | 0.36         | 0.32         | 0.32         | 0.35         | 0.28         | 0.38         | 0.33         | 0.30         | 0.41         | 0.35         | <b>0.43</b>  | 24.8%         | 2.0%                  | 0.5%         |       |
| <b>Total Europe</b>                 | <b>11.74</b> | <b>11.91</b> | <b>12.56</b> | <b>12.78</b> | <b>12.84</b> | <b>13.74</b> | <b>14.29</b> | <b>15.38</b> | <b>15.51</b> | <b>15.54</b> | <b>16.96</b> | <b>9.2%</b>   | <b>3.8%</b>           | <b>19.8%</b> |       |
| Azerbaijan                          | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | 8.8%          | 2.1%                  | ^            |       |
| Belarus                             | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | -10.6%        | 17.2%                 | ^            |       |
| Kazakhstan                          | 0.08         | 0.08         | 0.09         | 0.12         | 0.11         | 0.10         | 0.11         | 0.11         | 0.12         | 0.12         | <b>0.13</b>  | 8.0%          | 5.9%                  | 0.2%         |       |
| Russian Federation                  | 1.78         | 1.70         | 1.64         | 1.79         | 1.79         | 1.83         | 1.86         | 2.05         | 2.08         | 1.93         | <b>1.96</b>  | 1.6%          | 0.9%                  | 2.3%         |       |
| Turkmenistan                        | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | -0.4%         | 6.8%                  | ^            |       |
| Uzbekistan                          | 0.06         | 0.06         | 0.06         | 0.07         | 0.08         | 0.06         | 0.06         | ^            | ^            | 0.05         | <b>0.07</b>  | 32.6%         | 1.1%                  | 0.1%         |       |
| Other CIS                           | 0.32         | 0.31         | 0.29         | 0.30         | 0.33         | 0.34         | 0.34         | 0.32         | 0.33         | 0.33         | <b>0.33</b>  | 1.1%          | 0.3%                  | 0.4%         |       |
| <b>Total CIS</b>                    | <b>2.26</b>  | <b>2.17</b>  | <b>2.10</b>  | <b>2.29</b>  | <b>2.32</b>  | <b>2.35</b>  | <b>2.39</b>  | <b>2.55</b>  | <b>2.60</b>  | <b>2.46</b>  | <b>2.52</b>  | <b>2.5%</b>   | <b>1.1%</b>           | <b>2.9%</b>  |       |
| Iran                                | 0.15         | 0.14         | 0.13         | 0.15         | 0.17         | 0.10         | 0.33         | 0.24         | 0.15         | 0.15         | <b>0.23</b>  | 54.5%         | 4.7%                  | 0.3%         |       |
| Iraq                                | ^            | ^            | ^            | ^            | ^            | ^            | 0.05         | ^            | ^            | ^            | ^            | 23.5%         | -2.5%                 | ^            |       |
| Israel                              | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | 0.05         | 0.06         | <b>0.08</b>  | 25.7%         | 29.8%                 | 0.1%         |       |
| Kuwait                              | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | -8.6%         | 96.5%                 | ^            |       |
| Oman                                | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | 2.0%          | 104.3%                | ^            |       |
| Qatar                               | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | 239.6%        | 31.3%                 | ^            |       |
| Saudi Arabia                        | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | 152.0%        | 62.6%                 | 0.1%         |       |
| United Arab Emirates                | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | 0.06         | 0.07         | <b>0.13</b>  | 77.8%         | 65.2%                 | 0.2%         |       |
| Other Middle East                   | ^            | ^            | ^            | ^            | ^            | ^            | 0.05         | 0.07         | 0.07         | 0.09         | <b>0.09</b>  | 0.5%          | 7.7%                  | 0.1%         |       |
| <b>Total Middle East</b>            | <b>0.24</b>  | <b>0.21</b>  | <b>0.19</b>  | <b>0.23</b>  | <b>0.25</b>  | <b>0.20</b>  | <b>0.51</b>  | <b>0.44</b>  | <b>0.39</b>  | <b>0.44</b>  | <b>0.39</b>  | <b>-12.3%</b> | <b>4.8%</b>           | <b>0.5%</b>  |       |
| Algeria                             | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | 7.4%          | 18.5%                 | ^            |       |
| Egypt                               | 0.15         | 0.14         | 0.15         | 0.15         | 0.15         | 0.16         | 0.19         | 0.23         | 0.23         | 0.23         | <b>0.23</b>  | 2.2%          | 4.8%                  | 0.3%         |       |
| Morocco                             | ^            | ^            | ^            | ^            | ^            | 0.06         | 0.07         | 0.07         | 0.07         | 0.07         | <b>0.08</b>  | 22.8%         | 7.7%                  | 0.1%         |       |
| South Africa                        | ^            | ^            | 0.07         | 0.08         | 0.12         | 0.12         | 0.12         | 0.13         | 0.17         | 0.18         | <b>0.19</b>  | 3.0%          | 25.8%                 | 0.2%         |       |
| Eastern Africa                      | 0.65         | 0.70         | 0.71         | 0.67         | 0.69         | 0.74         | 0.75         | 0.79         | 0.83         | 0.86         | <b>0.89</b>  | 4.0%          | 3.3%                  | 1.0%         |       |
| Middle Africa                       | 0.19         | 0.20         | 0.20         | 0.21         | 0.24         | 0.27         | 0.28         | 0.31         | 0.31         | 0.31         | <b>0.32</b>  | 2.9%          | 5.4%                  | 0.4%         |       |
| Western Africa                      | 0.17         | 0.18         | 0.16         | 0.19         | 0.19         | 0.20         | 0.23         | 0.23         | 0.25         | 0.26         | <b>0.29</b>  | 10.1%         | 5.3%                  | 0.3%         |       |
| Other Northern Africa               | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | 10.8%         | 4.8%                  | ^            |       |
| Other Southern Africa               | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | 26.8%         | 1.8%                  | ^            |       |
| <b>Total Africa</b>                 | <b>1.24</b>  | <b>1.33</b>  | <b>1.36</b>  | <b>1.38</b>  | <b>1.47</b>  | <b>1.58</b>  | <b>1.68</b>  | <b>1.80</b>  | <b>1.90</b>  | <b>1.95</b>  | <b>2.05</b>  | <b>5.3%</b>   | <b>5.1%</b>           | <b>2.4%</b>  |       |
| Australia                           | 0.35         | 0.33         | 0.35         | 0.41         | 0.38         | 0.48         | 0.53         | 0.61         | 0.73         | 0.83         | <b>0.90</b>  | 8.5%          | 9.7%                  | 1.0%         |       |
| Bangladesh                          | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | 19.1%         | 7.3%                  | ^            |       |
| China                               | 10.79        | 12.65        | 13.61        | 14.79        | 16.12        | 17.66        | 19.34        | 20.93        | 23.41        | 25.45        | <b>27.49</b> | 8.0%          | 9.8%                  | 32.2%        |       |
| China Hong Kong SAR                 | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | ^            | 4.9%          | 23.3%                 | ^            |       |
| India                               | 1.88         | 2.01         | 2.03         | 2.05         | 2.30         | 2.56         | 2.94         | 3.05         | 3.20         | 3.64         | <b>3.65</b>  | 0.4%          | 6.9%                  | 4.3%         |       |
| Indonesia                           | 0.26         | 0.24         | 0.23         | 0.29         | 0.30         | 0.48         | 0.47         | 0.52         | 0.55         | 0.65         | <b>0.65</b>  | 0.1%          | 9.8%                  | 0.8%         |       |
| Japan                               | 1.22         | 1.34         | 1.54         | 1.50         | 1.60         | 1.71         | 1.72         | 1.88         | 2.03         | 2.07         | <b>2.17</b>  | 4.8%          | 6.0%                  | 2.5%         |       |
| Malaysia                            | 0.13         | 0.14         | 0.15         | 0.20         | 0.27         | 0.27         | 0.28         | 0.29         | 0.32         | 0.34         | <b>0.34</b>  | 0.2%          | 10.1%                 | 0.4%         |       |
| New Zealand                         | 0.32         | 0.34         | 0.35         | 0.36         | 0.35         | 0.35         | 0.35         | 0.34         | 0.34         | 0.36         | <b>0.36</b>  | 0.8%          | 1.3%                  | 0.4%         |       |
| Pakistan                            | 0.31         | 0.32         | 0.33         | 0.35         | 0.32         | 0.33         | 0.39         | 0.42         | 0.40         |              |              |               |                       |              |       |

# Renewable energy

## Solar – Installed photovoltaic (PV) power and concentrated solar power (CSP)\*

| solar power (CSP)*       |        |        |        |        |        |        |        |        |        |         |         | Growth rate per annum |         | Share  |
|--------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|-----------------------|---------|--------|
| Megawatts                | 2013   | 2014   | 2015   | 2016   | 2017   | 2018   | 2019   | 2020   | 2021   | 2022    | 2023    | 2023                  | 2013–23 | 2023   |
| Canada                   | 1210   | 1843   | 2519   | 2665   | 2932   | 3095   | 3327   | 3609   | 4554   | 5312    | 5757    | 8.4%                  | 16.9%   | 0.4%   |
| Mexico                   | 109    | 174    | 287    | 633    | 1126   | 2583   | 4744   | 6712   | 8180   | 9364    | 10910   | 16.5%                 | 58.5%   | 0.8%   |
| US                       | 13246  | 18112  | 24237  | 35434  | 43770  | 51987  | 61587  | 76441  | 95391  | 114361  | 139205  | 21.7%                 | 26.5%   | 9.8%   |
| Total North America      | 14565  | 20129  | 27043  | 38731  | 47828  | 57665  | 69658  | 86762  | 108125 | 129037  | 155873  | 20.8%                 | 26.7%   | 11.0%  |
| Argentina                | 16     | 16     | 16     | 16     | 16     | 198    | 447    | 769    | 1080   | 1116    | 1408    | 26.2%                 | 57.0%   | 0.1%   |
| Brazil                   | 12     | 21     | 46     | 128    | 1207   | 2453   | 4698   | 8452   | 14499  | 25520   | 37449   | 46.7%                 | 122.8%  | 2.6%   |
| Chile                    | 12     | 203    | 545    | 1050   | 1829   | 2294   | 2673   | 3229   | 4516   | 6525    | 8475    | 29.9%                 | 93.1%   | 0.6%   |
| Honduras                 | 5      | 5      | 396    | 412    | 455    | 515    | 518    | 525    | 529    | 529     | 529     | –                     | 58.9%   | ^      |
| The Dominican Republic   | 7      | 13     | 22     | 70     | 93     | 188    | 331    | 382    | 580    | 732     | 1073    | 46.7%                 | 65.7%   | 0.1%   |
| Other S. & Cent. America | 405    | 506    | 882    | 1064   | 1666   | 1885   | 2415   | 2829   | 3494   | 4039    | 4669    | 15.6%                 | 27.7%   | 0.3%   |
| Total S. & Cent. America | 457    | 764    | 1907   | 2739   | 5265   | 7531   | 11083  | 16186  | 24699  | 38462   | 53603   | 39.4%                 | 61.1%   | 3.8%   |
| Austria                  | 626    | 785    | 937    | 1096   | 1269   | 1455   | 1702   | 2043   | 2783   | 3792    | 6832    | 80.2%                 | 27.0%   | 0.5%   |
| Belgium                  | 2902   | 3015   | 3132   | 3329   | 3621   | 4000   | 4637   | 5573   | 6012   | 6756    | 8549    | 26.5%                 | 11.4%   | 0.6%   |
| Bulgaria                 | 1039   | 1029   | 1028   | 1030   | 1031   | 1033   | 1044   | 1100   | 1275   | 1737    | 2937    | 69.1%                 | 11.0%   | 0.2%   |
| Czech Republic           | 2064   | 2067   | 2075   | 2068   | 2075   | 2081   | 2111   | 2172   | 2246   | 2420    | 2499    | 3.3%                  | 1.9%    | 0.2%   |
| Denmark                  | 571    | 607    | 782    | 851    | 906    | 998    | 1080   | 1304   | 1704   | 3070    | 3529    | 15.0%                 | 20.0%   | 0.2%   |
| France                   | 5277   | 6034   | 7138   | 7702   | 8610   | 9629   | 10738  | 11926  | 14612  | 17350   | 20551   | 18.4%                 | 14.6%   | 1.4%   |
| Germany                  | 36710  | 37900  | 39224  | 40679  | 42293  | 45158  | 48914  | 53671  | 60038  | 67479   | 81739   | 21.1%                 | 8.3%    | 5.8%   |
| Greece                   | 2579   | 2596   | 2604   | 2604   | 2606   | 2651   | 2834   | 3288   | 4277   | 5430    | 7030    | 29.5%                 | 10.5%   | 0.5%   |
| Hungary                  | 35     | 89     | 172    | 235    | 344    | 728    | 1400   | 2131   | 2968   | 4235    | 5835    | 37.8%                 | 66.8%   | 0.4%   |
| Italy                    | 18190  | 18600  | 18907  | 19289  | 19688  | 20114  | 20871  | 21656  | 22600  | 24561   | 29795   | 21.3%                 | 5.1%    | 2.1%   |
| Lithuania                | 68     | 69     | 69     | 70     | 74     | 82     | 103    | 164    | 255    | 572     | 1165    | 103.7%                | 32.9%   | 0.1%   |
| Netherlands              | 650    | 1007   | 1526   | 2135   | 2911   | 4608   | 7228   | 11110  | 14823  | 19600   | 23904   | 22.0%                 | 43.4%   | 1.7%   |
| Poland                   | 2      | 27     | 108    | 187    | 287    | 562    | 1539   | 3955   | 7416   | 12170   | 15809   | 29.9%                 | 141.0%  | 1.1%   |
| Portugal                 | 296    | 415    | 447    | 513    | 579    | 667    | 901    | 1100   | 1646   | 2646    | 3876    | 46.5%                 | 29.3%   | 0.3%   |
| Romania                  | 761    | 1293   | 1326   | 1372   | 1374   | 1386   | 1398   | 1383   | 1394   | 1809    | 1917    | 6.0%                  | 9.7%    | 0.1%   |
| Slovakia                 | 533    | 533    | 533    | 533    | 528    | 471    | 590    | 535    | 537    | 549     | 631     | 15.0%                 | 1.7%    | ^      |
| Slovenia                 | 187    | 224    | 239    | 232    | 247    | 247    | 278    | 370    | 461    | 626     | 1034    | 65.2%                 | 18.7%   | 0.1%   |
| Spain                    | 6994   | 7001   | 7008   | 7017   | 7027   | 7068   | 11111  | 12440  | 16019  | 25615   | 31016   | 21.1%                 | 16.1%   | 2.2%   |
| Sweden                   | 43     | 60     | 104    | 153    | 244    | 428    | 714    | 1107   | 1606   | 2388    | 3488    | 46.1%                 | 55.2%   | 0.2%   |
| Switzerland              | 756    | 1061   | 1394   | 1664   | 1906   | 2173   | 2498   | 2973   | 3655   | 4340    | 5840    | 34.6%                 | 22.7%   | 0.4%   |
| Türkiye                  | 19     | 41     | 250    | 834    | 3422   | 5064   | 5996   | 6668   | 7817   | 9426    | 11293   | 19.8%                 | 89.7%   | 0.8%   |
| Ukraine                  | 748    | 819    | 841    | 955    | 1200   | 2003   | 5936   | 7331   | 8062   | 8062    | 8062    | –                     | 26.8%   | 0.6%   |
| United Kingdom           | 2937   | 5528   | 9601   | 11914  | 12760  | 13060  | 13345  | 13551  | 13915  | 14651   | 15657   | 6.9%                  | 18.2%   | 1.1%   |
| Other Europe             | 221    | 331    | 404    | 500    | 647    | 817    | 1217   | 1758   | 2479   | 3713    | 6211    | 67.3%                 | 39.6%   | 0.4%   |
| Total Europe             | 84208  | 91133  | 99849  | 106962 | 115649 | 126483 | 148184 | 169308 | 198600 | 242999  | 299200  | 23.1%                 | 13.5%   | 21.1%  |
| Russian Federation       | 1      | 5      | 61     | 76     | 225    | 535    | 1276   | 1428   | 1661   | 1816    | 2170    | 19.5%                 | 110.7%  | 0.2%   |
| Kazakhstan               | ^      | 5      | 57     | 57     | 59     | 209    | 542    | 912    | 1038   | 1146    | 1306    | 13.9%                 | 119.6%  | 0.1%   |
| Other CIS                | 2      | 8      | 12     | 75     | 114    | 210    | 212    | 250    | 461    | 812     | 1209    | 49.0%                 | 89.7%   | 0.1%   |
| Total CIS                | 4      | 18     | 130    | 209    | 398    | 954    | 2030   | 2589   | 3160   | 3774    | 4685    | 24.2%                 | 104.0%  | 0.3%   |
| Israel                   | 446    | 656    | 796    | 906    | 1006   | 1346   | 2138   | 2652   | 3591   | 4411    | 4524    | 2.6%                  | 26.1%   | 0.3%   |
| Jordan                   | ^      | ^      | 57     | 311    | 418    | 760    | 971    | 1541   | 1811   | 1966    | 1990    | 1.2%                  | 160.0%  | 0.1%   |
| Saudi Arabia             | 22     | 24     | 24     | 24     | 34     | 84     | 109    | 109    | 439    | 440     | 2285    | 419.5%                | 58.8%   | 0.2%   |
| United Arab Emirates     | 126    | 130    | 132    | 135    | 353    | 600    | 1935   | 2333   | 3002   | 3588    | 5925    | 65.1%                 | 47.0%   | 0.4%   |
| Other Middle East        | 38     | 72     | 145    | 245    | 438    | 744    | 923    | 1172   | 1417   | 3579    | 3819    | 6.7%                  | 58.4%   | 0.3%   |
| Total Middle East        | 633    | 883    | 1154   | 1621   | 2250   | 3535   | 6077   | 7807   | 10261  | 13983   | 18543   | 32.6%                 | 40.2%   | 1.3%   |
| Algeria                  | 25     | 28     | 61     | 261    | 354    | 366    | 366    | 366    | 366    | 451     | 451     | –                     | 33.5%   | ^      |
| Egypt                    | 35     | 35     | 36     | 59     | 180    | 764    | 1647   | 1643   | 1663   | 1724    | 1856    | 7.7%                  | 48.7%   | 0.1%   |
| Morocco                  | 35     | 40     | 200    | 202    | 204    | 734    | 734    | 774    | 854    | 854     | 934     | 9.4%                  | 38.8%   | 0.1%   |
| South Africa             | 262    | 1164   | 1353   | 2176   | 3451   | 4805   | 4908   | 5994   | 6316   | 6326    | 6164    | -2.6%                 | 37.1%   | 0.4%   |
| Tunisia                  | 10     | 17     | 28     | 38     | 47     | 64     | 80     | 95     | 95     | 197     | 506     | 156.8%                | 48.8%   | ^      |
| Other Africa             | 307    | 384    | 493    | 610    | 870    | 1290   | 1677   | 1883   | 2342   | 3150    | 3568    | 13.3%                 | 27.8%   | 0.3%   |
| Total Africa             | 674    | 1668   | 2171   | 3346   | 5106   | 8023   | 9412   | 10756  | 11635  | 12702   | 13479   | 6.1%                  | 34.9%   | 0.9%   |
| Australia                | 4568   | 5287   | 5946   | 6689   | 7291   | 11365  | 16147  | 20838  | 25757  | 29958   | 33683   | 12.4%                 | 22.1%   | 2.4%   |
| China                    | 17759  | 28399  | 43549  | 77819  | 130832 | 175262 | 204971 | 253864 | 306973 | 393032  | 609921  | 55.2%                 | 42.4%   | 43.0%  |
| India                    | 1603   | 3776   | 5697   | 9982   | 18257  | 27485  | 35250  | 39705  | 49950  | 63390   | 73109   | 15.3%                 | 46.5%   | 5.2%   |
| Japan                    | 13599  | 23339  | 34150  | 42040  | 49500  | 56162  | 63192  | 71868  | 78413  | 83057   | 87068   | 4.8%                  | 20.4%   | 6.1%   |
| Malaysia                 | 139    | 205    | 266    | 344    | 394    | 545    | 894    | 1483   | 1787   | 1933    | 1933    | –                     | 30.1%   | 0.1%   |
| Pakistan                 | 101    | 165    | 265    | 589    | 655    | 680    | 756    | 855    | 1078   | 1244    | 1244    | –                     | 28.6%   | 0.1%   |
| Philippines              | 3      | 28     | 172    | 784    | 908    | 919    | 982    | 1058   | 1378   | 1625    | 1675    | 3.0%                  | 87.9%   | 0.1%   |
| South Korea              | 1555   | 2620   | 3845   | 4882   | 6435   | 8921   | 12717  | 17323  | 21264  | 24078   | 27046   | 12.3%                 | 33.1%   | 1.9%   |
| Taiwan                   | 410    | 636    | 884    | 1245   | 1768   | 2738   | 4150   | 5817   | 7700   | 9724    | 12418   | 27.7%                 | 40.6%   | 0.9%   |
| Thailand                 | 829    | 1304   | 1425   | 2451   | 2702   | 2967   | 2988   | 2984   | 3065   | 3185    | 3186    | ^                     | 14.4%   | 0.2%   |
| Vietnam                  | 5      | 5      | 5      | 5      | 8      | 105    | 4994   | 16661  | 16661  | 16698   | 17077   | 2.3%                  | 127.9%  | 1.2%   |
| Other Asia Pacific       | 303    | 400    | 600    | 747    | 1070   | 1301   | 2007   | 2541   | 3352   | 4255    | 5226    | 22.8%                 | 32.9%   | 0.4%   |
| Total Asia Pacific       | 40872  | 66164  | 96805  | 147578 | 219821 | 288450 | 349048 | 434998 | 517378 | 632180  | 873586  | 38.2%                 | 35.8%   | 61.6%  |
| Total World              | 144412 | 180759 | 229058 | 301186 | 396316 | 492641 | 595492 | 728405 | 873858 | 1073136 | 1418969 | 32.2%                 | 25.9%   | 100.0% |

Source: IRENA (2024), Renewable Capacity Statistics 2024, The International Renewable Energy Agency, Abu Dhabi.

\* End of year.

^ Less than 0.05.



# Renewable energy

## Wind – Installed wind turbine capacity\*

| Megawatts                           |               |               |               |               |               |               |               |               |               |               |                | Growth rate per annum |              | Share         |
|-------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|-----------------------|--------------|---------------|
|                                     | 2013          | 2014          | 2015          | 2016          | 2017          | 2018          | 2019          | 2020          | 2021          | 2022          | 2023           | 2023                  | 2013–23      | 2023          |
| Canada                              | 7801          | 9694          | 11214         | 11973         | 12250         | 12816         | 13220         | 13735         | 14259         | 15265         | <b>16989</b>   | 11.3%                 | 8.1%         | 1.7%          |
| Mexico                              | 2122          | 2569          | 3271          | 4051          | 4180          | 4180          | 6541          | 6995          | 7155          | 7318          | <b>7318</b>    | ^                     | 13.2%        | 0.7%          |
| US                                  | 60198         | 64430         | 72767         | 81502         | 87831         | 94666         | 103836        | 118664        | 133019        | 141674        | <b>148020</b>  | 4.5%                  | 9.4%         | 14.6%         |
| <b>Total North America</b>          | <b>70121</b>  | <b>76693</b>  | <b>87252</b>  | <b>97526</b>  | <b>104261</b> | <b>111662</b> | <b>123597</b> | <b>139394</b> | <b>154433</b> | <b>164257</b> | <b>172327</b>  | <b>4.9%</b>           | <b>9.4%</b>  | <b>16.9%</b>  |
| Argentina                           | 163           | 188           | 188           | 188           | 228           | 751           | 1609          | 2624          | 3292          | 3310          | <b>3706</b>    | 12.0%                 | 36.7%        | 0.4%          |
| Brazil                              | 2202          | 4888          | 7633          | 10129         | 12304         | 14843         | 15438         | 17198         | 21161         | 24163         | <b>29135</b>   | 20.6%                 | 29.5%        | 2.9%          |
| Chile                               | 295           | 732           | 907           | 1034          | 1305          | 1524          | 1620          | 2340          | 3137          | 3830          | <b>4510</b>    | 17.8%                 | 31.4%        | 0.4%          |
| Costa Rica                          | 148           | 196           | 278           | 319           | 378           | 408           | 411           | 394           | 390           | 390           | <b>408</b>     | 4.5%                  | 10.7%        | ^             |
| Uruguay                             | 59            | 481           | 857           | 1211          | 1513          | 1513          | 1516          | 1516          | 1516          | 1516          | <b>1516</b>    | ^                     | 38.3%        | 0.1%          |
| Other S. & Cent. America            | 675           | 962           | 1346          | 1569          | 1635          | 1864          | 2080          | 2147          | 2275          | 2519          | <b>2742</b>    | 8.9%                  | 15.1%        | 0.3%          |
| <b>Total S. &amp; Cent. America</b> | <b>3542</b>   | <b>7448</b>   | <b>11209</b>  | <b>14451</b>  | <b>17363</b>  | <b>20903</b>  | <b>22675</b>  | <b>26220</b>  | <b>31772</b>  | <b>35729</b>  | <b>42018</b>   | <b>17.6%</b>          | <b>28.1%</b> | <b>4.1%</b>   |
| Austria                             | 1675          | 2110          | 2489          | 2730          | 2887          | 3133          | 3224          | 3226          | 3408          | 3579          | <b>3977</b>    | 11.1%                 | 9.0%         | 0.4%          |
| Belgium                             | 1769          | 1933          | 2181          | 2334          | 2779          | 3305          | 3864          | 4673          | 4948          | 5303          | <b>5504</b>    | 3.8%                  | 12.0%        | 0.5%          |
| Bulgaria                            | 683           | 699           | 699           | 699           | 698           | 699           | 703           | 703           | 704           | 702           | <b>702</b>     | –                     | 0.3%         | 0.1%          |
| Denmark                             | 4819          | 4886          | 5077          | 5245          | 5489          | 6123          | 6111          | 6259          | 7004          | 7084          | <b>7482</b>    | 5.6%                  | 4.5%         | 0.7%          |
| Finland                             | 447           | 627           | 1005          | 1565          | 2044          | 2041          | 2284          | 2586          | 3257          | 5677          | <b>6957</b>    | 22.5%                 | 31.6%        | 0.7%          |
| France                              | 8160          | 9201          | 10298         | 11567         | 13499         | 14900         | 16427         | 17535         | 18551         | 20811         | <b>22196</b>   | 6.7%                  | 10.5%        | 2.2%          |
| Germany                             | 33477         | 38614         | 44580         | 49435         | 55580         | 58721         | 60742         | 62201         | 63711         | 66163         | <b>69459</b>   | 5.0%                  | 7.6%         | 6.8%          |
| Greece                              | 1809          | 1978          | 2091          | 2370          | 2624          | 2877          | 3589          | 4119          | 4649          | 4702          | <b>5220</b>    | 11.0%                 | 11.2%        | 0.5%          |
| Ireland                             | 1923          | 2283          | 2451          | 2802          | 3319          | 3674          | 4126          | 4307          | 4339          | 4536          | <b>4807</b>    | 6.0%                  | 9.6%         | 0.5%          |
| Italy                               | 8542          | 8683          | 9137          | 9384          | 9737          | 10230         | 10679         | 10871         | 11254         | 11821         | <b>12308</b>   | 4.1%                  | 3.7%         | 1.2%          |
| Netherlands                         | 2713          | 2865          | 3391          | 4257          | 4202          | 4393          | 4484          | 6648          | 7674          | 8755          | <b>10749</b>   | 22.8%                 | 14.8%        | 1.1%          |
| Norway                              | 818           | 859           | 867           | 883           | 1207          | 1710          | 2914          | 4030          | 5049          | 5062          | <b>5065</b>    | 0.1%                  | 20.0%        | 0.5%          |
| Poland                              | 3429          | 3836          | 4886          | 5747          | 5759          | 5766          | 5838          | 6298          | 6967          | 8150          | <b>9307</b>    | 14.2%                 | 10.5%        | 0.9%          |
| Portugal                            | 4610          | 4857          | 4937          | 5124          | 5124          | 5172          | 5223          | 5122          | 5427          | 5538          | <b>5617</b>    | 1.4%                  | 2.0%         | 0.6%          |
| Romania                             | 2773          | 3244          | 3130          | 3025          | 3030          | 3032          | 3038          | 3013          | 3015          | 3015          | <b>3087</b>    | 2.4%                  | 1.1%         | 0.3%          |
| Spain                               | 22958         | 22925         | 22943         | 22990         | 23124         | 23405         | 25590         | 26819         | 27908         | 30114         | <b>31028</b>   | 3.0%                  | 3.1%         | 3.1%          |
| Sweden                              | 4194          | 5088          | 5819          | 6435          | 6611          | 7300          | 8681          | 9976          | 12116         | 14279         | <b>16252</b>   | 13.8%                 | 14.5%        | 1.6%          |
| Türkiye                             | 2760          | 3630          | 4503          | 5751          | 6516          | 7005          | 7591          | 8832          | 10607         | 11396         | <b>11697</b>   | 2.6%                  | 15.5%        | 1.1%          |
| Ukraine                             | 362           | 514           | 514           | 526           | 553           | 621           | 1258          | 1402          | 1761          | 1761          | <b>1761</b>    | –                     | 17.1%        | 0.2%          |
| United Kingdom                      | 11282         | 13074         | 14305         | 16126         | 19585         | 21606         | 23887         | 24458         | 25748         | 28762         | <b>30215</b>   | 5.1%                  | 10.4%        | 3.0%          |
| Other Europe                        | 1724          | 1913          | 2193          | 2442          | 2700          | 3007          | 3358          | 3560          | 3936          | 4365          | <b>5318</b>    | 21.8%                 | 11.9%        | 0.5%          |
| <b>Total Europe</b>                 | <b>120927</b> | <b>133819</b> | <b>147496</b> | <b>161436</b> | <b>177068</b> | <b>188721</b> | <b>203610</b> | <b>216638</b> | <b>232034</b> | <b>251575</b> | <b>268708</b>  | <b>6.8%</b>           | <b>8.3%</b>  | <b>26.4%</b>  |
| Russian Federation                  | 10            | 10            | 11            | 11            | 11            | 52            | 102           | 945           | 1955          | 2218          | <b>2518</b>    | 13.5%                 | 73.8%        | 0.2%          |
| Other CIS                           | 12            | 14            | 33            | 81            | 103           | 162           | 182           | 182           | 181           | 188           | <b>192</b>     | 2.4%                  | 31.6%        | ^             |
| <b>Total CIS</b>                    | <b>22</b>     | <b>24</b>     | <b>44</b>     | <b>92</b>     | <b>114</b>    | <b>214</b>    | <b>284</b>    | <b>1127</b>   | <b>2136</b>   | <b>2406</b>   | <b>2710</b>    | <b>12.6%</b>          | <b>61.6%</b> | <b>0.3%</b>   |
| Iran                                | 108           | 149           | 153           | 191           | 259           | 282           | 305           | 308           | 310           | 342           | <b>365</b>     | 6.7%                  | 13.0%        | ^             |
| Jordan                              | 1             | 1             | 118           | 184           | 198           | 295           | 384           | 529           | 632           | 614           | <b>614</b>     | –                     | 83.7%        | 0.1%          |
| Other Middle East                   | 13            | 14            | 14            | 34            | 37            | 47            | 97            | 97            | 97            | 608           | <b>892</b>     | 46.6%                 | 53.2%        | 0.1%          |
| <b>Total Middle East</b>            | <b>122</b>    | <b>165</b>    | <b>286</b>    | <b>409</b>    | <b>494</b>    | <b>623</b>    | <b>786</b>    | <b>934</b>    | <b>1040</b>   | <b>1564</b>   | <b>1871</b>    | <b>19.6%</b>          | <b>31.4%</b> | <b>0.2%</b>   |
| Egypt                               | 555           | 555           | 755           | 755           | 755           | 1130          | 1132          | 1380          | 1640          | 1643          | <b>1890</b>    | 15.1%                 | 13.0%        | 0.2%          |
| Morocco                             | 495           | 797           | 797           | 902           | 1022          | 1225          | 1225          | 1435          | 1471          | 1558          | <b>1858</b>    | 19.3%                 | 14.1%        | 0.2%          |
| South Africa                        | 257           | 569           | 1079          | 1473          | 2094          | 2094          | 2094          | 2516          | 2495          | 3163          | <b>3442</b>    | 8.8%                  | 29.6%        | 0.3%          |
| Tunisia                             | 200           | 233           | 240           | 240           | 240           | 245           | 245           | 245           | 245           | 245           | <b>245</b>     | –                     | 2.1%         | ^             |
| Other Africa                        | 235           | 245           | 449           | 461           | 467           | 777           | 832           | 938           | 1058          | 1136          | <b>1219</b>    | 7.2%                  | 17.9%        | 0.1%          |
| <b>Total Africa</b>                 | <b>1742</b>   | <b>2399</b>   | <b>3320</b>   | <b>3831</b>   | <b>4578</b>   | <b>5471</b>   | <b>5528</b>   | <b>6514</b>   | <b>6909</b>   | <b>7745</b>   | <b>8654</b>    | <b>11.7%</b>          | <b>17.4%</b> | <b>0.9%</b>   |
| Australia                           | 3221          | 3797          | 4181          | 4324          | 5407          | 6409          | 7881          | 10207         | 10555         | 10555         | <b>11327</b>   | 7.3%                  | 13.4%        | 1.1%          |
| China                               | 76731         | 96819         | 131048        | 148517        | 164374        | 184665        | 209582        | 281993        | 328973        | 365964        | <b>441895</b>  | 20.7%                 | 19.1%        | 43.4%         |
| India                               | 18420         | 22465         | 25088         | 28700         | 32848         | 35288         | 37505         | 38559         | 40067         | 41930         | <b>44736</b>   | 6.7%                  | 9.3%         | 4.4%          |
| Japan                               | 2646          | 2753          | 2809          | 3205          | 3483          | 3498          | 3952          | 4120          | 4262          | 4372          | <b>5232</b>    | 19.7%                 | 7.1%         | 0.5%          |
| New Zealand                         | 623           | 682           | 689           | 690           | 690           | 690           | 690           | 690           | 913           | 994           | <b>1059</b>    | 6.5%                  | 5.4%         | 0.1%          |
| Pakistan                            | 106           | 206           | 308           | 591           | 789           | 1186          | 1236          | 1236          | 1335          | 1845          | <b>1845</b>    | –                     | 33.1%        | 0.2%          |
| Philippines                         | 33            | 337           | 427           | 427           | 427           | 427           | 443           | 443           | 443           | 443           | <b>443</b>     | –                     | 29.7%        | ^             |
| South Korea                         | 576           | 612           | 847           | 1067          | 1215          | 1420          | 1494          | 1645          | 1724          | 1908          | <b>2167</b>    | 13.6%                 | 14.2%        | 0.2%          |
| Taiwan                              | 614           | 637           | 647           | 682           | 692           | 713           | 845           | 937           | 1033          | 1581          | <b>2674</b>    | 69.1%                 | 15.8%        | 0.3%          |
| Thailand                            | 223           | 225           | 234           | 507           | 628           | 1103          | 1507          | 1507          | 1545          | 1545          | <b>1545</b>    | –                     | 21.4%        | 0.2%          |
| Other Asia Pacific                  | 245           | 336           | 450           | 501           | 611           | 847           | 1160          | 1556          | 5427          | 6818          | <b>7988</b>    | 17.2%                 | 41.7%        | 0.8%          |
| <b>Total Asia Pacific</b>           | <b>103438</b> | <b>128868</b> | <b>166727</b> | <b>189211</b> | <b>211165</b> | <b>236246</b> | <b>266294</b> | <b>342892</b> | <b>396278</b> | <b>437956</b> | <b>520912</b>  | <b>18.9%</b>          | <b>17.5%</b> | <b>51.2%</b>  |
| <b>Total World</b>                  | <b>299914</b> | <b>349417</b> | <b>416335</b> | <b>466956</b> | <b>515045</b> | <b>563840</b> | <b>622773</b> | <b>733719</b> | <b>824602</b> | <b>901231</b> | <b>1017199</b> | <b>12.9%</b>          | <b>13.0%</b> | <b>100.0%</b> |

Source: IRENA (2024), Renewable Energy Statistics 2024, The International Renewable Energy Agency, Abu Dhabi.

\* End of year.

^ Less than 0.05.

Note: Capacity figures in this table include both onshore and offshore wind and are on an AC basis.



# Renewable energy Solar & Wind – Installed capacity by type\*

|                                     | 2022           |             |                | 2023           |             |                |
|-------------------------------------|----------------|-------------|----------------|----------------|-------------|----------------|
| Megawatts                           | Solar PV       | CSP         | Total          | Solar PV       | CSP         | Total          |
| Canada                              | 5312           | –           | 5312           | 5757           | –           | 5757           |
| Mexico                              | 9347           | 17          | 9364           | 10893          | 17          | 10910          |
| US                                  | 112881         | 1480        | 114361         | 137725         | 1480        | 139205         |
| <b>Total North America</b>          | <b>127540</b>  | <b>1497</b> | <b>129037</b>  | <b>154376</b>  | <b>1497</b> | <b>155873</b>  |
| Argentina                           | 1116           | –           | 1116           | 1408           | –           | 1408           |
| Brazil                              | 25520          | –           | 25520          | 37449          | –           | 37449          |
| Chile                               | 6417           | 108         | 6525           | 8366           | 108         | 8475           |
| Honduras                            | 529            | –           | 529            | 529            | –           | 529            |
| The Dominican Republic              | 732            | –           | 732            | 1073           | –           | 1073           |
| Other S. & Cent. America            | 4039           | –           | 4039           | 4669           | –           | 4669           |
| <b>Total S. &amp; Cent. America</b> | <b>38354</b>   | <b>108</b>  | <b>38462</b>   | <b>53495</b>   | <b>108</b>  | <b>53603</b>   |
| Austria                             | 3792           | –           | 3792           | 6832           | –           | 6832           |
| Belgium                             | 6756           | –           | 6756           | 8549           | –           | 8549           |
| Bulgaria                            | 1737           | –           | 1737           | 2937           | –           | 2937           |
| Czech Republic                      | 2420           | –           | 2420           | 2499           | –           | 2499           |
| Denmark                             | 3070           | –           | 3070           | 3529           | –           | 3529           |
| France                              | 17341          | 9           | 17350          | 20542          | 9           | 20551          |
| Germany                             | 67477          | 2           | 67479          | 81737          | 2           | 81739          |
| Greece                              | 5430           | –           | 5430           | 7030           | –           | 7030           |
| Hungary                             | 4235           | –           | 4235           | 5835           | –           | 5835           |
| Italy                               | 24555          | 6           | 24561          | 29789          | 6           | 29795          |
| Lithuania                           | 572            | –           | 572            | 1165           | –           | 1165           |
| Netherlands                         | 19600          | –           | 19600          | 23904          | –           | 23904          |
| Poland                              | 12170          | –           | 12170          | 15809          | –           | 15809          |
| Portugal                            | 2646           | –           | 2646           | 3876           | –           | 3876           |
| Romania                             | 1809           | ^           | 1809           | 1917           | ^           | 1917           |
| Slovakia                            | 549            | –           | 549            | 631            | –           | 631            |
| Slovenia                            | 626            | –           | 626            | 1034           | –           | 1034           |
| Spain                               | 23311          | 2304        | 25615          | 28712          | 2304        | 31016          |
| Sweden                              | 2388           | –           | 2388           | 3488           | –           | 3488           |
| Switzerland                         | 4340           | –           | 4340           | 5840           | –           | 5840           |
| Türkiye                             | 9425           | 1           | 9426           | 11292          | 1           | 11293          |
| Ukraine                             | 8062           | –           | 8062           | 8062           | –           | 8062           |
| United Kingdom                      | 14651          | –           | 14651          | 15657          | –           | 15657          |
| Other Europe                        | 3713           | –           | 3713           | 6211           | –           | 6211           |
| <b>Total Europe</b>                 | <b>240676</b>  | <b>2322</b> | <b>242999</b>  | <b>296878</b>  | <b>2322</b> | <b>299200</b>  |
| Russian Federation                  | 1816           | –           | 1816           | 2170           | –           | 2170           |
| Kazakhstan                          | 1146           | –           | 1146           | 1306           | –           | 1306           |
| Other CIS                           | 812            | –           | 812            | 1209           | –           | 1209           |
| <b>Total CIS</b>                    | <b>3774</b>    | <b>–</b>    | <b>3774</b>    | <b>4685</b>    | <b>–</b>    | <b>4685</b>    |
| Israel                              | 4169           | 242         | 4411           | 4282           | 242         | 4524           |
| Jordan                              | 1966           | –           | 1966           | 1990           | –           | 1990           |
| Saudi Arabia                        | 390            | 50          | 440            | 2235           | 50          | 2285           |
| United Arab Emirates                | 3288           | 300         | 3588           | 5325           | 600         | 5925           |
| Other Middle East                   | 3527           | 52          | 3579           | 3767           | 52          | 3819           |
| <b>Total Middle East</b>            | <b>13340</b>   | <b>644</b>  | <b>13983</b>   | <b>17599</b>   | <b>944</b>  | <b>18543</b>   |
| Algeria                             | 426            | 25          | 451            | 426            | 25          | 451            |
| Egypt                               | 1704           | 20          | 1724           | 1836           | 20          | 1856           |
| Morocco                             | 314            | 540         | 854            | 394            | 540         | 934            |
| South Africa                        | 5826           | 500         | 6326           | 5664           | 500         | 6164           |
| Tunisia                             | 197            | –           | 197            | 506            | –           | 506            |
| Other Africa                        | 3150           | –           | 3150           | 3568           | –           | 3568           |
| <b>Total Africa</b>                 | <b>11617</b>   | <b>1085</b> | <b>12702</b>   | <b>12394</b>   | <b>1085</b> | <b>13479</b>   |
| Australia                           | 29955          | 3           | 29958          | 33680          | 3           | 33683          |
| China                               | 392462         | 570         | 393032         | 609351         | 570         | 609921         |
| India                               | 63048          | 343         | 63390          | 72767          | 343         | 73109          |
| Japan                               | 83057          | –           | 83057          | 87068          | –           | 87068          |
| Malaysia                            | 1933           | –           | 1933           | 1933           | –           | 1933           |
| Pakistan                            | 1244           | –           | 1244           | 1244           | –           | 1244           |
| Philippines                         | 1625           | –           | 1625           | 1675           | –           | 1675           |
| South Korea                         | 24078          | –           | 24078          | 27046          | –           | 27046          |
| Taiwan                              | 9724           | –           | 9724           | 12418          | –           | 12418          |
| Thailand                            | 3180           | 5           | 3185           | 3181           | 5           | 3186           |
| Vietnam                             | 16698          | –           | 16698          | 17077          | –           | 17077          |
| Other Asia Pacific                  | 4255           | –           | 4255           | 5226           | –           | 5226           |
| <b>Total Asia Pacific</b>           | <b>631259</b>  | <b>921</b>  | <b>632180</b>  | <b>872665</b>  | <b>921</b>  | <b>873586</b>  |
| <b>Total World</b>                  | <b>1066559</b> | <b>6576</b> | <b>1073136</b> | <b>1412093</b> | <b>6876</b> | <b>1418969</b> |

|                                     | 2022          |              |               | 2023          |              |                |
|-------------------------------------|---------------|--------------|---------------|---------------|--------------|----------------|
| Megawatts                           | Onshore       | Offshore     | Total         | Onshore       | Offshore     | Total          |
| Canada                              | 15265         | –            | 15265         | 16989         | –            | 16989          |
| Mexico                              | 7318          | –            | 7318          | 7318          | –            | 7318           |
| US                                  | 141633        | 41           | 141674        | 147979        | 41           | 148020         |
| <b>Total North America</b>          | <b>164215</b> | <b>41</b>    | <b>164257</b> | <b>172286</b> | <b>41</b>    | <b>172327</b>  |
| Argentina                           | 3310          | –            | 3310          | 3706          | –            | 3706           |
| Brazil                              | 24163         | –            | 24163         | 29135         | –            | 29135          |
| Chile                               | 3830          | –            | 3830          | 4510          | –            | 4510           |
| Costa Rica                          | 390           | –            | 390           | 408           | –            | 408            |
| Uruguay                             | 1516          | –            | 1516          | 1516          | –            | 1516           |
| Other S. & Cent. America            | 2519          | –            | 2519          | 2742          | –            | 2742           |
| <b>Total S. &amp; Cent. America</b> | <b>35729</b>  | <b>–</b>     | <b>35729</b>  | <b>42018</b>  | <b>–</b>     | <b>42018</b>   |
| Austria                             | 3579          | –            | 3579          | 3977          | –            | 3977           |
| Belgium                             | 3042          | 2262         | 5303          | 3242          | 2262         | 5504           |
| Bulgaria                            | 702           | –            | 702           | 702           | –            | 702            |
| Denmark                             | 4778          | 2306         | 7084          | 4832          | 2650         | 7482           |
| Finland                             | 5604          | 73           | 5677          | 6884          | 73           | 6957           |
| France                              | 20809         | 2            | 20811         | 22194         | 2            | 22196          |
| Germany                             | 58014         | 8149         | 66163         | 61052         | 8407         | 69459          |
| Greece                              | 4702          | –            | 4702          | 5220          | –            | 5220           |
| Ireland                             | 4511          | 25           | 4536          | 4782          | 25           | 4807           |
| Italy                               | 11821         | –            | 11821         | 12308         | –            | 12308          |
| Netherlands                         | 6185          | 2570         | 8755          | 6771          | 3978         | 10749          |
| Norway                              | 5060          | 2            | 5062          | 5063          | 2            | 5065           |
| Poland                              | 8150          | –            | 8150          | 9307          | –            | 9307           |
| Portugal                            | 5513          | 25           | 5538          | 5592          | 25           | 5617           |
| Romania                             | 3015          | –            | 3015          | 3087          | –            | 3087           |
| Spain                               | 30109         | 5            | 30114         | 31021         | 7            | 31028          |
| Sweden                              | 14086         | 193          | 14279         | 16059         | 193          | 16252          |
| Türkiye                             | 11396         | –            | 11396         | 11697         | –            | 11697          |
| Ukraine                             | 1761          | –            | 1761          | 1761          | –            | 1761           |
| United Kingdom                      | 14835         | 13928        | 28762         | 15470         | 14746        | 30215          |
| Other Europe                        | 4365          | –            | 4365          | 5318          | –            | 5318           |
| <b>Total Europe</b>                 | <b>222036</b> | <b>29539</b> | <b>251575</b> | <b>236338</b> | <b>32369</b> | <b>268708</b>  |
| Russian Federation                  | 2218          | –            | 2218          | 2518          | –            | 2518           |
| Other CIS                           | 188           | –            | 188           | 192           | –            | 192            |
| <b>Total CIS</b>                    | <b>2406</b>   | <b>–</b>     | <b>2406</b>   | <b>2710</b>   | <b>–</b>     | <b>2710</b>    |
| Iran                                | 342           | –            | 342           | 365           | –            | 365            |
| Jordan                              | 614           | –            | 614           | 614           | –            | 614            |
| Other Middle East                   | 608           | –            | 608           | 892           | –            | 892            |
| <b>Total Middle East</b>            | <b>1564</b>   | <b>–</b>     | <b>1564</b>   | <b>1871</b>   | <b>–</b>     | <b>1871</b>    |
| Egypt                               | 1643          | –            | 1643          | 1890          | –            | 1890           |
| Morocco                             | 1558          | –            | 1558          | 1858          | –            | 1858           |
| South Africa                        | 3163          | –            | 3163          | 3442          | –            | 3442           |
| Tunisia                             | 245           | –            | 245           | 245           | –            | 245            |
| Other Africa                        | 1136          | –            | 1136          | 1219          | –            | 1219           |
| <b>Total Africa</b>                 | <b>7745</b>   | <b>–</b>     | <b>7745</b>   | <b>8654</b>   | <b>–</b>     | <b>8654</b>    |
| Australia                           | 10555         | –            | 10555         | 11327         | –            | 11327          |
| China                               | 335504        | 30460        | 365964        | 404605        | 37290        | 441895         |
| India                               | 41930         | –            | 41930         | 44736         | –            | 44736          |
| Japan                               | 4320          | 52           | 4372          | 5079          | 154          | 5232           |
| New Zealand                         | 994           | –            | 994           | 1059          | –            | 1059           |
| Pakistan                            | 1845          | –            | 1845          | 1845          | –            | 1845           |
| Philippines                         | 443           | –            | 443           | 443           | –            | 443            |
| South Korea                         | 1772          | 136          | 1908          | 2031          | 136          | 2167           |
| Taiwan                              | 836           | 745          | 1581          | 1105          | 1569         | 2674           |
| Thailand                            | 1545          | –            | 1545          | 1545          | –            | 1545           |
| Other Asia Pacific                  | 5824          | 994          | 6818          | 6884          | 1104         | 7988           |
| <b>Total Asia Pacific</b>           | <b>405569</b> | <b>32387</b> | <b>437956</b> | <b>480659</b> | <b>40253</b> | <b>520912</b>  |
| <b>Total World</b>                  | <b>839263</b> | <b>61967</b> | <b>901231</b> | <b>944536</b> | <b>72663</b> | <b>1017199</b> |

Source: IRENA (2024), Renewable Capacity Statistics 2024, The International Renewable Energy Agency, Abu Dhabi.

\* End of year.

^ Less than 0.05.

Note: Capacity figures in this table for both onshore and offshore wind are on an AC basis.

| Terawatt-hours                      | 2022         |              |              |                   |               | 2023         |              |              |                   |               | 2023 Growth rate |              |              |                   |              |
|-------------------------------------|--------------|--------------|--------------|-------------------|---------------|--------------|--------------|--------------|-------------------|---------------|------------------|--------------|--------------|-------------------|--------------|
|                                     | Wind         | Solar        | Hydro        | Other renewables† | Total         | Wind         | Solar        | Hydro        | Other renewables† | Total         | Wind             | Solar        | Hydro        | Other renewables† | Total        |
| Canada                              | 38.4         | 7.1          | 397.7        | 9.1               | 452.3         | 38.9         | 7.6          | 364.2        | 10.4              | 421.2         | 1.5%             | 8.4%         | -8.4%        | 13.8%             | -6.9%        |
| Mexico                              | 20.5         | 20.3         | 35.6         | 6.7               | 83.1          | 21.7         | 27.1         | 20.4         | 7.1               | 76.3          | 5.5%             | 33.4%        | -42.6%       | 6.0%              | -8.2%        |
| US                                  | 438.7        | 207.2        | 251.3        | 71.5              | 968.6         | 429.5        | 240.5        | 236.3        | 67.3              | 973.7         | -2.1%            | 16.1%        | -6.0%        | -5.9%             | 0.5%         |
| <b>Total North America</b>          | <b>497.6</b> | <b>234.5</b> | <b>684.6</b> | <b>87.3</b>       | <b>1504.0</b> | <b>490.1</b> | <b>275.3</b> | <b>620.9</b> | <b>84.8</b>       | <b>1471.1</b> | <b>-1.5%</b>     | <b>17.4%</b> | <b>-9.3%</b> | <b>-2.9%</b>      | <b>-2.2%</b> |
| Argentina                           | 14.2         | 2.9          | 22.8         | 2.4               | 42.2          | 14.5         | 3.3          | 29.9         | 2.3               | 49.9          | 2.2%             | 11.3%        | 31.3%        | -3.3%             | 18.2%        |
| Brazil                              | 81.6         | 30.1         | 427.1        | 55.0              | 593.9         | 95.5         | 51.5         | 428.7        | 55.8              | 631.5         | 17.0%            | 70.9%        | 0.4%         | 1.5%              | 6.3%         |
| Chile                               | 8.9          | 15.7         | 20.4         | 6.1               | 51.1          | 9.8          | 18.2         | 24.0         | 6.0               | 58.0          | 9.6%             | 15.7%        | 17.9%        | -0.7%             | 13.5%        |
| Colombia                            | 0.1          | 0.5          | 64.3         | 2.9               | 67.8          | 0.2          | 1.2          | 59.8         | 3.1               | 64.3          | 171.9%           | 138.7%       | -7.0%        | 6.3%              | -5.2%        |
| Ecuador                             | 0.1          | ^            | 24.6         | 0.4               | 25.1          | 0.2          | ^            | 25.3         | 0.4               | 26.0          | 244.2%           | -0.4%        | 2.9%         | -8.0%             | 3.3%         |
| Peru                                | 1.9          | 0.9          | 29.7         | 0.5               | 33.1          | 2.4          | 1.1          | 29.1         | 0.5               | 33.0          | 21.9%            | 16.5%        | -2.3%        | 2.5%              | -0.3%        |
| Trinidad & Tobago                   | ^            | ^            | -            | -                 | ^             | ^            | ^            | -            | -                 | ^             | -                | -            | -            | -                 | -            |
| Venezuela                           | ^            | ^            | 68.5         | -                 | 68.5          | ^            | ^            | 65.6         | -                 | 65.6          | -                | 14.8%        | -4.3%        | -                 | -4.3%        |
| Central America                     | 3.6          | 3.2          | 31.4         | 9.8               | 48.0          | 4.3          | 3.3          | 25.4         | 9.7               | 42.7          | 18.0%            | 4.8%         | -19.3%       | -0.8%             | -11.1%       |
| Other Caribbean                     | 2.2          | 2.4          | 2.0          | 1.2               | 7.8           | 2.1          | 3.0          | 1.6          | 1.2               | 8.0           | -4.8%            | 29.0%        | -17.2%       | -1.9%             | 2.8%         |
| Other South America                 | 5.2          | 0.9          | 54.2         | 3.3               | 63.6          | 5.2          | 1.0          | 60.5         | 4.0               | 70.8          | 0.4%             | 1.8%         | 11.7%        | 24.0%             | 11.2%        |
| <b>Total S. &amp; Cent. America</b> | <b>117.9</b> | <b>56.7</b>  | <b>745.1</b> | <b>81.5</b>       | <b>1001.1</b> | <b>134.2</b> | <b>82.6</b>  | <b>749.9</b> | <b>83.0</b>       | <b>1049.7</b> | <b>13.8%</b>     | <b>45.6%</b> | <b>0.6%</b>  | <b>1.9%</b>       | <b>4.8%</b>  |
| Austria                             | 7.2          | 3.8          | 34.0         | 4.7               | 49.7          | 8.0          | 5.2          | 38.9         | 4.6               | 56.6          | 10.9%            | 36.2%        | 14.4%        | -3.0%             | 13.9%        |
| Belgium                             | 12.4         | 6.9          | 0.3          | 4.9               | 24.4          | 15.7         | 7.3          | 0.4          | 3.5               | 26.9          | 26.9%            | 6.6%         | 44.7%        | -29.6%            | 10.0%        |
| Bulgaria                            | 1.5          | 2.1          | 3.8          | 2.2               | 9.6           | 1.6          | 3.4          | 3.1          | 1.9               | 10.0          | 5.7%             | 63.8%        | -17.7%       | -15.8%            | 4.1%         |
| Croatia                             | 2.1          | 0.2          | 5.5          | 1.2               | 9.0           | 2.3          | 0.4          | 8.2          | 1.1               | 12.0          | 9.9%             | 148.1%       | 49.7%        | -11.6%            | 33.6%        |
| Cyprus                              | 0.2          | 0.6          | -            | 0.1               | 0.9           | 0.2          | 0.8          | -            | ^                 | 1.1           | -7.0%            | 37.2%        | -            | -14.9%            | 22.6%        |
| Czech Republic                      | 0.6          | 2.3          | 2.1          | 5.4               | 10.4          | 0.7          | 2.2          | 2.3          | 5.2               | 10.4          | 9.4%             | -4.6%        | 11.9%        | -4.5%             | -0.4%        |
| Denmark                             | 19.0         | 2.2          | ^            | 7.3               | 28.5          | 19.4         | 3.5          | ^            | 6.7               | 29.6          | 1.9%             | 57.9%        | 31.7%        | -8.1%             | 3.7%         |
| Estonia                             | 0.7          | 0.6          | ^            | 1.6               | 2.9           | 0.7          | 0.7          | ^            | 1.4               | 2.9           | 4.2%             | 22.8%        | 15.5%        | -10.9%            | -0.2%        |
| Finland                             | 12.0         | 0.4          | 13.5         | 12.8              | 38.7          | 15.0         | 0.7          | 15.2         | 11.0              | 41.9          | 25.1%            | 69.6%        | 12.5%        | -13.9%            | 8.2%         |
| France                              | 37.9         | 19.1         | 44.3         | 9.7               | 111.0         | 52.3         | 22.2         | 55.5         | 9.7               | 139.8         | 38.0%            | 16.2%        | 25.4%        | -0.3%             | 25.9%        |
| Germany                             | 124.8        | 60.3         | 17.6         | 51.9              | 254.6         | 142.1        | 61.2         | 19.6         | 49.5              | 272.4         | 13.8%            | 1.5%         | 11.4%        | -4.6%             | 7.0%         |
| Greece                              | 10.9         | 7.1          | 3.9          | 0.6               | 22.4          | 11.0         | 8.5          | 3.9          | 0.7               | 24.2          | 1.2%             | 19.0%        | 2.4%         | 23.2%             | 7.6%         |
| Hungary                             | 0.6          | 4.7          | 0.2          | 2.1               | 7.7           | 0.6          | 6.5          | 0.2          | 1.5               | 8.9           | 5.6%             | 38.1%        | 24.7%        | -29.3%            | 16.4%        |
| Iceland                             | ^            | ^            | 14.2         | 5.9               | 20.1          | ^            | ^            | 14.2         | 6.0               | 20.2          | 26.3%            | 374.3%       | 0.2%         | 1.5%              | 0.6%         |
| Ireland                             | 11.2         | 0.1          | 0.7          | 1.0               | 13.1          | 11.6         | 0.4          | 0.9          | 0.9               | 13.9          | 3.4%             | 180.0%       | 33.2%        | -7.2%             | 6.2%         |
| Italy                               | 20.5         | 28.1         | 28.4         | 23.5              | 100.5         | 23.5         | 31.2         | 38.9         | 20.3              | 114.0         | 14.8%            | 11.0%        | 37.1%        | -13.4%            | 13.5%        |
| Latvia                              | 0.2          | ^            | 2.7          | 0.8               | 3.8           | 0.3          | ^            | 3.8          | 0.6               | 4.7           | 40.5%            | 13.9%        | 38.2%        | -22.0%            | 25.3%        |
| Lithuania                           | 1.5          | 0.3          | 0.5          | 0.7               | 3.0           | 2.5          | 0.4          | 0.5          | 0.5               | 3.8           | 65.8%            | 4.7%         | -3.0%        | -31.8%            | 25.5%        |
| Luxembourg                          | 0.3          | 0.3          | 0.1          | 0.4               | 1.0           | 0.5          | 0.3          | 0.1          | 0.2               | 1.1           | 48.9%            | 9.3%         | 40.9%        | -43.0%            | 5.0%         |
| Netherlands                         | 21.4         | 17.1         | ^            | 9.8               | 48.3          | 28.9         | 21.2         | 0.1          | 8.0               | 58.2          | 35.0%            | 24.0%        | 36.0%        | -17.9%            | 20.4%        |
| North Macedonia                     | 0.1          | 0.1          | 1.3          | ^                 | 1.6           | 0.2          | 0.3          | 1.6          | 0.1               | 2.2           | 46.4%            | 234.6%       | 20.6%        | 80.2%             | 36.2%        |
| Norway                              | 14.8         | 0.3          | 127.6        | 0.2               | 143.0         | 14.0         | 0.5          | 136.1        | 0.3               | 150.9         | -5.7%            | 72.0%        | 6.6%         | 42.0%             | 5.6%         |
| Poland                              | 19.8         | 8.3          | 2.0          | 7.6               | 37.7          | 24.1         | 11.7         | 2.4          | 8.2               | 46.4          | 22.0%            | 40.4%        | 21.8%        | 8.2%              | 23.2%        |
| Portugal                            | 13.2         | 3.5          | 6.5          | 4.3               | 27.6          | 13.2         | 5.5          | 12.1         | 3.5               | 34.3          | -0.7%            | 55.6%        | 84.8%        | -17.7%            | 24.1%        |
| Romania                             | 7.0          | 2.0          | 14.0         | 0.6               | 23.6          | 7.6          | 1.9          | 18.2         | 0.3               | 28.0          | 9.0%             | -6.3%        | 30.5%        | -55.6%            | 18.7%        |
| Slovakia                            | ^            | 0.7          | 3.7          | 1.5               | 5.8           | ^            | 0.6          | 4.7          | 1.9               | 7.2           | -                | -7.1%        | 29.0%        | 27.2%             | 24.5%        |
| Slovenia                            | ^            | 0.6          | 3.1          | 0.3               | 4.1           | ^            | 1.1          | 5.0          | 0.3               | 6.4           | 12.1%            | 67.2%        | 57.9%        | 15.67%            | 56.5%        |
| Spain                               | 62.8         | 35.7         | 17.6         | 6.8               | 122.8         | 64.2         | 46.8         | 25.5         | 5.4               | 142.0         | 2.3%             | 31.1%        | 44.8%        | -19.9%            | 15.6%        |
| Sweden                              | 33.1         | 2.0          | 69.8         | 13.1              | 117.9         | 34.3         | 3.1          | 66.0         | 11.3              | 114.8         | 3.8%             | 57.8%        | -5.4%        | -13.4%            | -2.7%        |
| Switzerland                         | 0.2          | 3.9          | 29.6         | 2.0               | 35.6          | 0.2          | 6.0          | 37.0         | 2.0               | 45.2          | 12.0%            | 56.7%        | 25.1%        | -1.2%             | 27.0%        |
| Türkiye                             | 34.9         | 16.9         | 66.8         | 19.2              | 137.8         | 34.1         | 20.5         | 63.9         | 19.5              | 137.9         | -2.5%            | 21.5%        | -4.4%        | 1.5%              | 0.1%         |
| Ukraine                             | 1.6          | 5.2          | 11.1         | 0.8               | 18.6          | 0.9          | 5.7          | 12.7         | 1.0               | 20.4          | -39.2%           | 9.8%         | 14.6%        | 34.5%             | 9.6%         |
| United Kingdom                      | 80.3         | 13.3         | 5.6          | 35.8              | 135.0         | 82.0         | 13.8         | 5.2          | 34.0              | 135.0         | 2.2%             | 4.1%         | -7.9%        | -5.1%             | ^            |
| Other Europe                        | 2.2          | 0.6          | 33.6         | 0.4               | 36.9          | 2.4          | 1.1          | 42.4         | 0.4               | 46.2          | 5.9%             | 72.2%        | 26.0%        | -1.1%             | 25.3%        |
| <b>Total Europe</b>                 | <b>555.1</b> | <b>249.4</b> | <b>564.1</b> | <b>239.2</b>      | <b>1607.8</b> | <b>614.1</b> | <b>294.9</b> | <b>638.7</b> | <b>221.6</b>      | <b>1769.3</b> | <b>10.6%</b>     | <b>18.2%</b> | <b>13.2%</b> | <b>-7.4%</b>      | <b>10.0%</b> |
| Azerbaijan                          | 0.1          | 0.1          | 1.6          | 0.1               | 1.8           | 0.1          | 0.1          | 1.8          | 0.1               | 2.0           | -32.1%           | 30.4%        | 10.5%        | 8.6%              | 9.1%         |
| Belarus                             | 0.2          | 0.2          | 0.4          | 0.5               | 1.3           | 0.2          | 0.2          | 0.3          | 0.5               | 1.1           | -1.7%            | -26.5%       | -18.9%       | 2.6%              | -11.1%       |
| Kazakhstan                          | 2.3          | 1.8          | 9.2          | ^                 | 13.3          | 3.7          | 2.0          | 8.8          | ^                 | 14.4          | 58.0%            | 10.4%        | -4.4%        | 52.6%             | 8.4%         |
| Russian Federation                  | 4.2          | 2.4          | 197.7        | 0.8               | 205.1         | 4.7          | 2.6          | 200.9        | 0.8               | 209.1         | 13.0%            | 9.8%         | 1.6%         | 0.9%              | 1.9%         |
| Turkmenistan                        | -            | ^            | ^            | -                 | ^             | -            | ^            | ^            | -                 | ^             | -                | -            | -            | -                 | -            |
| Uzbekistan                          | -            | 0.2          | 5.3          | -                 | 5.5           | -            | 0.3          | 7.0          | -                 | 7.3           | -                | 73.4%        | 31.7%        | -                 | 33.1%        |
| Other CIS                           | 0.1          | 0.6          | 34.1         | ^                 | 34.8          | 0.2          | 0.8          | 34.3         | ^                 | 35.3          | 22.8%            | 46.7%        | 0.6%         | -                 | 1.5%         |
| <b>Total CIS</b>                    | <b>6.9</b>   | <b>5.2</b>   | <b>248.2</b> | <b>1.5</b>        | <b>261.8</b>  | <b>8.8</b>   | <b>6.0</b>   | <b>253.0</b> | <b>1.5</b>        | <b>269.3</b>  | <b>27.3%</b>     | <b>15.1%</b> | <b>1.9%</b>  | <b>0.3%</b>       | <b>2.9%</b>  |
| Iran                                | 1.2          | 0.7          | 14.0         | ^                 | 16.0          | 1.3          | 0.8          | 22.7         | ^                 | 24.8          | 6.7%             | 10.3%        | 61.8%        | -                 | 55.1%        |
| Iraq                                | -            | 0.4          | 2.7          | -                 | 3.1           | -            | 0.4          | 3.4          | -                 | 3.8           | -                | -            | 27.8%        | -                 | 24.0%        |
| Israel                              | 0.2          | 6.1          | ^            | 0.1               | 6.4           | 0.4          | 7.5          | ^            | 0.1               | 8.1           | 132.1%           | 23.5%        | -1.0%        | -                 | 26.2%        |
| Kuwait                              | ^            | 0.1          | -            | -                 | 0.2           | ^            | 0.1          | -            | -                 | 0.2           | -                | -10.3%       | -            | -                 | -8.3%        |
| Oman                                | 0.1          | 1.4          | -            | -                 | 1.6           | 0.1          | 1.5          | -            | -                 | 1.6           | -                | 2.6%         | -            | -                 | 2.4%         |
| Qatar                               | -            | 0.3          | -            | 0.1               | 0.4           | -            | 1.3          | -            | 0.1               | 1.5           | -                | 386.7%       | -            | -                 | 258.6%       |
| Saudi Arabia                        | 1.5          | 0.8          | -            | -                 | 2.3           | 1.5          | 4.3          | -            | -                 | 5.8           | -                | 419.5%       | -            | -                 | 152.9%       |
| United Arab Emirates                | ^            | 7.7          | -            | ^                 | 7.8           | 0.1          | 13.7         | -            | ^                 | 13.8          | 100.0%           | 77.6%        | -            | 159.6%            | 78.4%        |
| Other Middle East                   | 1.8          | 6.1          | 1.5          | ^                 | 9.3           | 1.7          | 6.2          | 1.5          | ^                 | 9.4           | -4.4%            | 1.9%         | 2.9%         | ^                 | 0.9%         |
| <b>Total Middle East</b>            | <b>4.8</b>   | <b>23.7</b>  | <b>18.2</b>  | <b>0.3</b>        | <b>47.0</b>   | <b>5.1</b>   | <b>35.9</b>  | <b>27.6</b>  | <b>0.3</b>        | <b>68.9</b>   | <b>6.5%</b>      | <b>51.3%</b> | <b>51.9%</b> | <b>6.8%</b>       | <b>46.7%</b> |
| Algeria                             | ^            | 0.6          | ^            | -                 | 0.7           | ^            | 0.6          | 0.1          | -                 | 0.7           | -                | -            | 329.9%       | -                 | 7.8%         |
| Egypt                               | 5.5          | 5.4          | 13.3         | -                 | 24.2          | 5.7          | 5.2          | 13.8         | -                 | 24.8          | 4.1%             | -2.6%        | 4.0%         | -                 | 2.6%         |
| Morocco                             | 5.4          | 1.4          | 0.4          | -                 | 7.2           | 6.5          | 2.1          | 0.2          | -                 | 8.8           | 22.2%            | 45.8%        | -53.5%       | -                 | 23.3%        |
| South Africa                        | 9.7          | 6.2          | 3.1          | 0.4               | 19.4          | 11.6         | 6.4          | 1.7          | 0.4               | 20.1          | 19.3%            | 3.3%         | -45.6%       | -                 | 3.4%         |
| Eastern Africa                      | 2.8          | 1.7          | 79.6         | 7.3               | 91.3          | 2.6          | 1.9          | 82.1         | 8.5               | 95.2          | -7.6%            | 14.8%        | 3.2%         | 17.4%             | 4.2%         |
| Middle Africa                       | ^            | 0.5          | 32.8         | 0.1               | 33.3          | ^            | 0.6          | 33.7         | 0.1               | 34.4          | -                | 30.2%        | 2.9%         | -5.1%             | 3.3%         |
| Western Africa                      | 0.6          | 1.2          | 25.6         | 0.3               | 27.7          | 1.0          | 1.4          | 28.0         | 0.3               | 30.7          | 64.8%            | 13.0%        | 9.3%         | 0.2%              | 10.5%        |
| Other Northern Africa               | 0.3          | 0.3          | ^            | -                 | 0.7           | 0.3          | 0.4          | ^            | -                 | 0.7           | 5.0%             | 19.6%        | -38.3%       | -                 | 11.2%        |
| Other Southern Africa               | -            | 0.4          | 1.5          | 0.3               | 2.3           | -            | 0.5          | 2.1          | 0.3               | 2.9           | -                | 20.3%        | 34.8%        | 4.5%              | 27.9%        |
| <b>Total Africa</b>                 | <b>24.3</b>  | <b>17.8</b>  | <b>156.3</b> | <b>8.4</b>        | <b>206.8</b>  | <b>27.8</b>  | <b>19.2</b>  | <b>161.6</b> | <b>9.7</b>        | <b>218.4</b>  | <b>14.3%</b>     | <b>8.0%</b>  | <b>3.4%</b>  | <b>15.1%</b>      | <b>5.6%</b>  |
| Australia                           | 30.1         | 37.5         | 16.7         | 3.2               | 87.4          | 31.9         | 45.0         | 15.3         | 3.1               | 95.2          | 6.0%             | 19.8%        | -8.40%       | -1.9%             | 8.9%         |
| Bangladesh                          | ^            | 0.9          | 0.8          | ^                 | 1.6           | ^            | 1.3          | 0.7          | ^                 | 2.0           | 226.4%           | 46.5%        | -11.80%      | -                 | 19.5%        |
| China                               | 762.7        | 427.3        | 1298.1       | 182.5             | 2670.6        | 885.9        | 584.2        | 1226.0       | 198.1             | 2894.1        | 16.2%            | 36.7%        | -5.56%       | 8.5%              | 8.4%         |
| China Hong Kong SAR                 | ^            | 0.2          | -            | 0.1               | 0.3           | ^            | 0.2          | -            | 0.1               | 0.4           | -                | 3.4%         | -            | 8.0%              | 4.9%         |
| India                               | 70.0         | 95.2         | 174.9        | 38.6              | 378.7         | 82.1         | 113.4        | 149.2        | 37.3              | 382.0         | 17.2%            | 19.2%        | -14.7%       | -3.3%             | 0.9%         |
| Indonesia                           | 0.4          | 0.4          | 27.3         | 37.3              | 65.4          | 0.5          | 0.7          | 24.6         | 39.4              | 65.2          | 35.1%            | 60.7%        | -9.9%        | 5.7%              | -0.3%        |
| Japan                               | 9.4          | 91.1         | 74.9         | 37.8              | 213.2         | 10.0         | 97.0         |              |                   |               |                  |              |              |                   |              |



# Renewable energy Biofuels production\*

| Thousand barrels of oil equivalent per day |             |             |             |             |             |             |             |             |             |             |             | Growth rate per annum |               | Share         |
|--------------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-----------------------|---------------|---------------|
|                                            | 2013        | 2014        | 2015        | 2016        | 2017        | 2018        | 2019        | 2020        | 2021        | 2022        | 2023        | 2023                  | 2013–23       | 2023          |
| Canada                                     | 19          | 22          | 22          | 23          | 22          | 21          | 23          | 22          | 22          | 22          | 23          | 8.8%                  | 2.3%          | 1.1%          |
| Mexico                                     | –           | –           | –           | 0           | 0           | 0           | 0           | 0           | 1           | 1           | 1           | –                     | –             | †             |
| US                                         | 562         | 597         | 614         | 655         | 678         | 701         | 693         | 632         | 685         | 729         | 804         | 10.3%                 | 3.6%          | 38.8%         |
| <b>Total North America</b>                 | <b>580</b>  | <b>618</b>  | <b>637</b>  | <b>679</b>  | <b>701</b>  | <b>723</b>  | <b>717</b>  | <b>655</b>  | <b>708</b>  | <b>751</b>  | <b>828</b>  | <b>10.2%</b>          | <b>3.6%</b>   | <b>40.0%</b>  |
| Argentina                                  | 38          | 49          | 38          | 53          | 58          | 51          | 46          | 27          | 38          | 43          | 25          | -42.0%                | -4.3%         | 1.2%          |
| Brazil                                     | 313         | 329         | 353         | 331         | 334         | 401         | 429         | 411         | 391         | 390         | 455         | 16.6%                 | 3.8%          | 21.9%         |
| Colombia                                   | 12          | 13          | 13          | 13          | 12          | 14          | 13          | 12          | 15          | 14          | 16          | 8.0%                  | 2.5%          | 0.8%          |
| Other S. & Cent. America                   | 6           | 7           | 7           | 8           | 7           | 8           | 10          | 9           | 11          | 11          | 11          | 0.8%                  | 6.4%          | 0.5%          |
| <b>Total S. &amp; Cent. America</b>        | <b>369</b>  | <b>398</b>  | <b>410</b>  | <b>404</b>  | <b>411</b>  | <b>475</b>  | <b>498</b>  | <b>459</b>  | <b>456</b>  | <b>458</b>  | <b>506</b>  | <b>10.5%</b>          | <b>3.2%</b>   | <b>24.4%</b>  |
| Austria                                    | 6           | 7           | 8           | 7           | 7           | 7           | 7           | 7           | 7           | 8           | 7           | -7.7%                 | 2.2%          | 0.3%          |
| Belgium                                    | 8           | 11          | 7           | 7           | 8           | 8           | 8           | 9           | 8           | 8           | 8           | 1.6%                  | -0.5%         | 0.4%          |
| Finland                                    | 6           | 7           | 11          | 4           | 4           | 11          | 13          | 13          | 14          | 15          | 17          | 13.3%                 | 10.4%         | 0.8%          |
| France                                     | 46          | 47          | 49          | 45          | 44          | 50          | 47          | 43          | 36          | 35          | 34          | -3.2%                 | -3.0%         | 1.6%          |
| Germany                                    | 58          | 64          | 59          | 60          | 61          | 63          | 66          | 63          | 66          | 67          | 72          | 7.5%                  | 2.2%          | 3.5%          |
| Italy                                      | 9           | 10          | 10          | 10          | 12          | 13          | 15          | 17          | 21          | 20          | 23          | 14.7%                 | 10.2%         | 1.1%          |
| Netherlands                                | 28          | 33          | 32          | 28          | 37          | 35          | 38          | 37          | 39          | 37          | 37          | 0.2%                  | 3.0%          | 1.8%          |
| Poland                                     | 13          | 14          | 15          | 17          | 17          | 17          | 18          | 18          | 19          | 20          | 20          | 0.6%                  | 4.5%          | 1.0%          |
| Portugal                                   | 5           | 6           | 6           | 6           | 6           | 6           | 7           | 6           | 5           | 6           | 6           | -7.2%                 | 0.7%          | 0.3%          |
| Spain                                      | 14          | 19          | 21          | 22          | 35          | 40          | 39          | 33          | 31          | 31          | 28          | -9.4%                 | 7.3%          | 1.4%          |
| Sweden                                     | 4           | 4           | 4           | 4           | 3           | 7           | 8           | 8           | 9           | 9           | 7           | -22.8%                | 5.1%          | 0.3%          |
| United Kingdom                             | 9           | 7           | 6           | 10          | 14          | 13          | 11          | 12          | 12          | 13          | 14          | 4.0%                  | 3.6%          | 0.7%          |
| Other Europe                               | 26          | 26          | 28          | 30          | 32          | 35          | 40          | 39          | 39          | 40          | 41          | 2.8%                  | 4.8%          | 2.0%          |
| <b>Total Europe</b>                        | <b>232</b>  | <b>255</b>  | <b>256</b>  | <b>250</b>  | <b>281</b>  | <b>305</b>  | <b>316</b>  | <b>305</b>  | <b>307</b>  | <b>308</b>  | <b>313</b>  | <b>1.5%</b>           | <b>3.0%</b>   | <b>15.1%</b>  |
| <b>Total CIS</b>                           | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>29.0%</b>          | <b>-10.6%</b> | <b>†</b>      |
| <b>Total Middle East</b>                   | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>1</b>    | <b>1</b>    | <b>2</b>    | <b>44.3%</b>          | <b>17.9%</b>  | <b>0.1%</b>   |
| <b>Total Africa</b>                        | <b>2</b>    | <b>2</b>    | <b>2</b>    | <b>2</b>    | <b>2</b>    | <b>1</b>    | <b>2</b>    | <b>2</b>    | <b>2</b>    | <b>2</b>    | <b>2</b>    | <b>14.0%</b>          | <b>-1.0%</b>  | <b>0.1%</b>   |
| Australia                                  | 5           | 5           | 4           | 2           | 2           | 2           | 3           | 2           | 2           | 2           | 2           | 4.4%                  | -6.7%         | 0.1%          |
| China                                      | 42          | 47          | 40          | 39          | 31          | 44          | 53          | 56          | 58          | 72          | 78          | 8.5%                  | 6.3%          | 3.8%          |
| India                                      | 5           | 5           | 10          | 12          | 11          | 19          | 21          | 23          | 35          | 44          | 49          | 9.9%                  | 26.9%         | 2.4%          |
| Indonesia                                  | 41          | 59          | 24          | 54          | 50          | 91          | 124         | 126         | 151         | 174         | 194         | 11.1%                 | 16.7%         | 9.4%          |
| South Korea                                | 7           | 7           | 8           | 8           | 8           | 13          | 13          | 13          | 11          | 13          | 13          | -2.2%                 | 6.1%          | 0.6%          |
| Thailand                                   | 30          | 34          | 36          | 33          | 36          | 40          | 44          | 44          | 39          | 36          | 39          | 9.3%                  | 2.7%          | 1.9%          |
| Other Asia Pacific                         | 28          | 33          | 37          | 33          | 31          | 35          | 53          | 45          | 46          | 46          | 47          | 2.8%                  | 5.3%          | 2.3%          |
| <b>Total Asia Pacific</b>                  | <b>158</b>  | <b>189</b>  | <b>159</b>  | <b>180</b>  | <b>170</b>  | <b>243</b>  | <b>311</b>  | <b>310</b>  | <b>342</b>  | <b>388</b>  | <b>422</b>  | <b>8.9%</b>           | <b>10.3%</b>  | <b>20.4%</b>  |
| <b>Total World</b>                         | <b>1342</b> | <b>1463</b> | <b>1465</b> | <b>1516</b> | <b>1564</b> | <b>1748</b> | <b>1844</b> | <b>1731</b> | <b>1815</b> | <b>1907</b> | <b>2072</b> | <b>8.6%</b>           | <b>4.4%</b>   | <b>100.0%</b> |
| of which: OECD                             | 832         | 895         | 914         | 948         | 998         | 1053        | 1054        | 980         | 1036        | 1079        | 1163        | 7.7%                  | 3.4%          | 56.1%         |
| Non-OECD                                   | 510         | 569         | 551         | 568         | 566         | 695         | 790         | 751         | 780         | 828         | 909         | 9.8%                  | 5.9%          | 43.9%         |
| European Union                             | 220         | 246         | 248         | 237         | 262         | 288         | 300         | 290         | 291         | 291         | 295         | 1.4%                  | 3.0%          | 14.2%         |

## Biofuels production by fuel type

| Thousand barrels of oil equivalent per day | 2013       | 2014       | 2015       | 2016       | 2017       | 2018        | 2019        | 2020       | 2021        | 2022        | 2023        | 2023         | 2013–23     | 2023          |
|--------------------------------------------|------------|------------|------------|------------|------------|-------------|-------------|------------|-------------|-------------|-------------|--------------|-------------|---------------|
| <b>Biogasoline</b>                         |            |            |            |            |            |             |             |            |             |             |             |              |             |               |
| Canada & Mexico                            | 16         | 17         | 16         | 17         | 17         | 17          | 18          | 16         | 16          | 17          | 17          | 1.4%         | 0.4%        | 1.5%          |
| US                                         | 479        | 516        | 534        | 554        | 575        | 580         | 569         | 501        | 542         | 554         | 563         | 1.7%         | 1.6%        | 50.7%         |
| Brazil                                     | 269        | 278        | 294        | 275        | 270        | 322         | 341         | 315        | 291         | 297         | 343         | 15.5%        | 2.4%        | 30.8%         |
| Other S. & Cent. America                   | 13         | 16         | 18         | 19         | 20         | 22          | 22          | 18         | 22          | 22          | 23          | 4.7%         | 5.7%        | 2.1%          |
| Europe                                     | 52         | 51         | 52         | 52         | 55         | 56          | 55          | 52         | 57          | 59          | 61          | 2.8%         | 1.6%        | 5.5%          |
| CIS                                        | ^          | ^          | ^          | ^          | ^          | ^           | ^           | ^          | ^           | 0           | 0           | 29.0%        | 61.7%       | †             |
| Middle East                                | 0          | 0          | 0          | 0          | –          | –           | –           | –          | –           | –           | –           | –            | -100.0%     | –             |
| Africa                                     | 2          | 2          | 2          | 2          | 2          | 1           | 2           | 2          | 2           | 2           | 2           | 14.0%        | -0.9%       | 0.2%          |
| Asia Pacific                               | 47         | 53         | 57         | 52         | 58         | 69          | 80          | 76         | 86          | 98          | 102         | 4.3%         | 8.1%        | 9.2%          |
| <b>Total World</b>                         | <b>879</b> | <b>934</b> | <b>974</b> | <b>971</b> | <b>997</b> | <b>1067</b> | <b>1087</b> | <b>980</b> | <b>1015</b> | <b>1049</b> | <b>1112</b> | <b>6.0%</b>  | <b>2.4%</b> | <b>100.0%</b> |
| of which: OECD                             | 554        | 591        | 608        | 628        | 652        | 661         | 647         | 575        | 620         | 634         | 647         | 1.9%         | 1.6%        | 58.2%         |
| Non-OECD                                   | 326        | 343        | 365        | 343        | 345        | 407         | 439         | 405        | 395         | 415         | 465         | 12.2%        | 3.6%        | 41.8%         |
| European Union                             | 46         | 45         | 48         | 46         | 48         | 50          | 50          | 48         | 52          | 54          | 55          | 1.7%         | 1.8%        | 4.9%          |
| <b>Biodiesel</b>                           |            |            |            |            |            |             |             |            |             |             |             |              |             |               |
| Canada & Mexico                            | 2          | 5          | 6          | 7          | 6          | 5           | 5           | 7          | 6           | 5           | 7           | 30.4%        | 11.7%       | 0.7%          |
| US                                         | 82         | 80         | 80         | 101        | 104        | 121         | 124         | 131        | 144         | 175         | 240         | 37.6%        | 11.3%       | 25.0%         |
| Brazil                                     | 43         | 51         | 58         | 56         | 64         | 79          | 88          | 95         | 100         | 93          | 112         | 20.4%        | 9.9%        | 11.6%         |
| Other S. & Cent. America                   | 43         | 53         | 40         | 54         | 57         | 52          | 47          | 30         | 43          | 46          | 28          | -38.8%       | -4.2%       | 2.9%          |
| Europe                                     | 180        | 204        | 204        | 199        | 225        | 249         | 262         | 253        | 250         | 249         | 252         | 1.2%         | 3.4%        | 26.2%         |
| CIS                                        | 0          | 0          | 0          | 0          | 0          | 0           | 0           | –          | –           | –           | –           | –            | -100.0%     | –             |
| Middle East                                | ^          | ^          | 0          | 0          | 0          | 0           | 0           | 0          | 1           | 1           | 2           | 44.3%        | 48.5%       | 0.2%          |
| Africa                                     | ^          | ^          | 0          | 0          | ^          | ^           | ^           | ^          | ^           | ^           | ^           | –            | -19.0%      | †             |
| Asia Pacific                               | 111        | 136        | 102        | 128        | 112        | 174         | 231         | 235        | 256         | 290         | 320         | 10.4%        | 11.1%       | 33.3%         |
| <b>Total World</b>                         | <b>463</b> | <b>529</b> | <b>491</b> | <b>545</b> | <b>567</b> | <b>681</b>  | <b>758</b>  | <b>751</b> | <b>800</b>  | <b>858</b>  | <b>960</b>  | <b>11.9%</b> | <b>7.6%</b> | <b>100.0%</b> |
| of which: OECD                             | 278        | 304        | 306        | 320        | 347        | 392         | 407         | 406        | 416         | 445         | 516         | 16.0%        | 6.4%        | 53.7%         |
| Non-OECD                                   | 185        | 225        | 186        | 225        | 221        | 289         | 351         | 346        | 384         | 413         | 444         | 7.5%         | 9.2%        | 46.3%         |
| European Union                             | 174        | 201        | 200        | 191        | 214        | 238         | 250         | 242        | 239         | 237         | 240         | 1.4%         | 3.3%        | 25.0%         |

Source: Includes data from S&P Global Commodity Insights; US Energy Information Administration.

\* Includes biogasoline (such as ethanol) and biodiesel. Volumes have been adjusted for energy content.

^ Less than 0.5.

† Less than 0.05%.

Note: Annual changes and shares of total are calculated using thousand barrels a day oil equivalent figures.



# Renewable energy Biofuels consumption\*

|                                            |             |             |             |             |             |             |             |             |             |             |             | Growth rate per annum |              | Share         |
|--------------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-----------------------|--------------|---------------|
| Thousand barrels of oil equivalent per day | 2013        | 2014        | 2015        | 2016        | 2017        | 2018        | 2019        | 2020        | 2021        | 2022        | 2023        | 2023                  | 2013–23      | 2023          |
| Canada                                     | 35          | 36          | 34          | 32          | 38          | 39          | 40          | 37          | 39          | 47          | 54          | 14.7%                 | 4.6%         | 2.6%          |
| Mexico                                     | 2           | 3           | 3           | 3           | 4           | 4           | 4           | 5           | 4           | 4           | 4           | 2.0%                  | 8.9%         | 0.2%          |
| US                                         | 573         | 581         | 608         | 658         | 661         | 652         | 670         | 608         | 670         | 705         | 799         | 13.2%                 | 3.4%         | 37.6%         |
| <b>Total North America</b>                 | <b>609</b>  | <b>620</b>  | <b>645</b>  | <b>693</b>  | <b>703</b>  | <b>695</b>  | <b>715</b>  | <b>650</b>  | <b>714</b>  | <b>757</b>  | <b>857</b>  | <b>13.2%</b>          | <b>3.5%</b>  | <b>40.4%</b>  |
| Argentina                                  | 19          | 22          | 24          | 26          | 30          | 28          | 29          | 16          | 17          | 23          | 21          | -8.8%                 | 0.7%         | 1.0%          |
| Brazil                                     | 278         | 305         | 357         | 324         | 332         | 385         | 426         | 396         | 392         | 390         | 429         | 10.0%                 | 4.4%         | 20.2%         |
| Colombia                                   | 12          | 13          | 13          | 13          | 12          | 15          | 16          | 13          | 15          | 16          | 20          | 20.5%                 | 4.9%         | 0.9%          |
| Other S. & Cent. America                   | 15          | 15          | 17          | 18          | 19          | 18          | 19          | 18          | 20          | 18          | 18          | 0.8%                  | 1.9%         | 0.8%          |
| <b>Total S. &amp; Cent. America</b>        | <b>324</b>  | <b>356</b>  | <b>411</b>  | <b>380</b>  | <b>393</b>  | <b>447</b>  | <b>489</b>  | <b>442</b>  | <b>444</b>  | <b>446</b>  | <b>487</b>  | <b>9.0%</b>           | <b>4.1%</b>  | <b>22.9%</b>  |
| Austria                                    | 8           | 8           | 9           | 9           | 9           | 8           | 8           | 7           | 8           | 7           | 7           | -3.3%                 | -1.6%        | 0.3%          |
| Belgium                                    | 6           | 8           | 5           | 8           | 9           | 9           | 9           | 12          | 13          | 14          | 14          | -0.8%                 | 7.9%         | 0.6%          |
| Finland                                    | 4           | 8           | 8           | 3           | 7           | 6           | 7           | 7           | 12          | 10          | 7           | -33.4%                | 5.7%         | 0.3%          |
| France                                     | 49          | 52          | 53          | 53          | 54          | 53          | 55          | 50          | 56          | 65          | 63          | -3.4%                 | 2.6%         | 2.9%          |
| Germany                                    | 50          | 53          | 50          | 50          | 51          | 53          | 52          | 63          | 56          | 56          | 58          | 3.5%                  | 1.5%         | 2.7%          |
| Italy                                      | 24          | 20          | 25          | 25          | 25          | 26          | 15          | 21          | 22          | 20          | 23          | 14.9%                 | -0.3%        | 1.1%          |
| Netherlands                                | 6           | 7           | 6           | 5           | 6           | 10          | 13          | 15          | 15          | 19          | 22          | 17.3%                 | 14.2%        | 1.1%          |
| Poland                                     | 14          | 13          | 12          | 8           | 11          | 17          | 18          | 19          | 20          | 21          | 22          | 3.0%                  | 4.7%         | 1.0%          |
| Portugal                                   | 5           | 5           | 7           | 5           | 5           | 5           | 5           | 5           | 6           | 5           | 6           | 21.1%                 | 2.2%         | 0.3%          |
| Spain                                      | 22          | 23          | 24          | 27          | 31          | 41          | 40          | 36          | 36          | 35          | 32          | -8.3%                 | 3.9%         | 1.5%          |
| Sweden                                     | 10          | 12          | 14          | 18          | 17          | 20          | 20          | 21          | 23          | 28          | 27          | -2.3%                 | 10.3%        | 1.3%          |
| United Kingdom                             | 19          | 22          | 17          | 18          | 17          | 24          | 31          | 29          | 29          | 37          | 41          | 9.8%                  | 7.9%         | 1.9%          |
| Other Europe                               | 38          | 37          | 38          | 42          | 50          | 51          | 60          | 62          | 62          | 61          | 68          | 11.3%                 | 5.9%         | 3.2%          |
| <b>Total Europe</b>                        | <b>256</b>  | <b>269</b>  | <b>267</b>  | <b>270</b>  | <b>291</b>  | <b>324</b>  | <b>334</b>  | <b>346</b>  | <b>358</b>  | <b>379</b>  | <b>390</b>  | <b>2.9%</b>           | <b>4.3%</b>  | <b>18.4%</b>  |
| <b>Total CIS</b>                           | <b>^</b>    | <b>^</b>    | <b>^</b>    | <b>1</b>    | <b>2</b>    | <b>2</b>    | <b>3</b>    | <b>3</b>    | <b>5</b>    | <b>6</b>    | <b>8</b>    | <b>27.3%</b>          | <b>33.7%</b> | <b>0.4%</b>   |
| <b>Total Middle East</b>                   | <b>^</b>    | <b>^</b>    | <b>^</b>    | <b>^</b>    | <b>1</b>    | <b>1</b>    | <b>1</b>    | <b>1</b>    | <b>1</b>    | <b>1</b>    | <b>1</b>    | <b>9.9%</b>           | <b>24.0%</b> | <b>0.1%</b>   |
| <b>Total Africa</b>                        | <b>1</b>    | <b>1</b>    | <b>1</b>    | <b>1</b>    | <b>1</b>    | <b>2</b>    | <b>1</b>    | <b>1</b>    | <b>2</b>    | <b>1</b>    | <b>1</b>    | <b>1.0%</b>           | <b>3.4%</b>  | <b>0.1%</b>   |
| Australia                                  | 5           | 5           | 4           | 3           | 3           | 3           | 2           | 2           | 2           | 2           | 2           | -4.2%                 | -7.8%        | 0.1%          |
| China                                      | 57          | 60          | 44          | 45          | 42          | 54          | 58          | 44          | 46          | 47          | 50          | 5.6%                  | -1.4%        | 2.3%          |
| India                                      | 6           | 5           | 6           | 12          | 9           | 17          | 21          | 20          | 32          | 45          | 55          | 22.6%                 | 25.9%        | 2.6%          |
| Indonesia                                  | 15          | 27          | 13          | 44          | 38          | 55          | 94          | 123         | 137         | 154         | 181         | 17.6%                 | 27.9%        | 8.5%          |
| South Korea                                | 10          | 9           | 8           | 8           | 8           | 13          | 13          | 13          | 11          | 13          | 14          | 11.2%                 | 3.3%         | 0.7%          |
| Thailand                                   | 23          | 28          | 30          | 31          | 34          | 37          | 42          | 42          | 38          | 34          | 38          | 10.4%                 | 5.0%         | 1.8%          |
| Other Asia Pacific                         | 16          | 18          | 22          | 24          | 25          | 27          | 31          | 33          | 34          | 37          | 39          | 5.5%                  | 9.4%         | 1.8%          |
| <b>Total Asia Pacific</b>                  | <b>132</b>  | <b>151</b>  | <b>127</b>  | <b>167</b>  | <b>158</b>  | <b>206</b>  | <b>261</b>  | <b>276</b>  | <b>300</b>  | <b>332</b>  | <b>379</b>  | <b>14.1%</b>          | <b>11.1%</b> | <b>17.8%</b>  |
| <b>Total World</b>                         | <b>1323</b> | <b>1397</b> | <b>1451</b> | <b>1513</b> | <b>1547</b> | <b>1676</b> | <b>1805</b> | <b>1720</b> | <b>1823</b> | <b>1923</b> | <b>2124</b> | <b>10.4%</b>          | <b>4.8%</b>  | <b>100.0%</b> |
| of which: OECD                             | 890         | 914         | 936         | 987         | 1015        | 1048        | 1075        | 1019        | 1095        | 1163        | 1279        | 10.0%                 | 3.7%         | 60.2%         |
| Non-OECD                                   | 433         | 483         | 515         | 526         | 532         | 628         | 729         | 701         | 728         | 760         | 845         | 11.1%                 | 6.9%         | 39.8%         |
| European Union                             | 226         | 241         | 243         | 242         | 258         | 286         | 287         | 304         | 316         | 329         | 332         | 0.9%                  | 3.9%         | 15.6%         |

## Biofuels consumption by fuel type

| Thousand barrels of oil equivalent per day | 2013       | 2014       | 2015       | 2016       | 2017       | 2018        | 2019        | 2020       | 2021        | 2022        | 2023        | 2023         | 2013–23     | 2023          |
|--------------------------------------------|------------|------------|------------|------------|------------|-------------|-------------|------------|-------------|-------------|-------------|--------------|-------------|---------------|
| <b>Biogasoline</b>                         |            |            |            |            |            |             |             |            |             |             |             |              |             |               |
| Canada & Mexico                            | 477        | 485        | 503        | 516        | 522        | 520         | 525         | 456        | 503         | 506         | 514         | 1.6%         | 0.8%        | 46.3%         |
| US                                         | 28         | 30         | 30         | 30         | 32         | 34          | 34          | 30         | 32          | 36          | 42          | 16.2%        | 4.0%        | 3.8%          |
| Brazil                                     | 236        | 255        | 299        | 268        | 269        | 305         | 339         | 301        | 291         | 296         | 317         | 6.9%         | 3.0%        | 28.5%         |
| Other S. & Cent. America                   | 18         | 20         | 23         | 25         | 26         | 28          | 29          | 24         | 27          | 28          | 32          | 14.4%        | 5.9%        | 2.9%          |
| Europe                                     | 51         | 52         | 53         | 51         | 53         | 56          | 60          | 59         | 70          | 78          | 80          | 1.6%         | 4.5%        | 7.2%          |
| CIS                                        | —          | —          | —          | ^          | 1          | 1           | 2           | 2          | 3           | 4           | 5           | 25.9%        | —           | 0.5%          |
| Middle East                                | ^          | ^          | ^          | ^          | ^          | ^           | ^           | ^          | ^           | 0           | 0           | 1.5%         | 1.2%        | †             |
| Africa                                     | 1          | 1          | 1          | 1          | 1          | 2           | 1           | 1          | 2           | 1           | 1           | 1.0%         | 3.4%        | 0.1%          |
| Asia Pacific                               | 51         | 54         | 61         | 70         | 65         | 80          | 91          | 84         | 96          | 109         | 120         | 9.4%         | 8.9%        | 10.8%         |
| <b>Total World</b>                         | <b>862</b> | <b>897</b> | <b>970</b> | <b>962</b> | <b>970</b> | <b>1026</b> | <b>1082</b> | <b>957</b> | <b>1024</b> | <b>1060</b> | <b>1111</b> | <b>4.8%</b>  | <b>2.6%</b> | <b>100.0%</b> |
| of which: OECD                             | 565        | 577        | 596        | 608        | 619        | 623         | 632         | 557        | 616         | 631         | 650         | 3.0%         | 1.4%        | 58.5%         |
| Non-OECD                                   | 297        | 321        | 373        | 353        | 351        | 403         | 450         | 400        | 408         | 428         | 461         | 7.6%         | 4.5%        | 41.5%         |
| European Union                             | 42         | 42         | 43         | 41         | 43         | 46          | 49          | 50         | 57          | 62          | 63          | 0.7%         | 4.1%        | 5.6%          |
| <b>Biodiesel</b>                           |            |            |            |            |            |             |             |            |             |             |             |              |             |               |
| Canada & Mexico                            | 96         | 96         | 105        | 141        | 138        | 132         | 145         | 152        | 167         | 199         | 285         | 42.7%        | 11.5%       | 28.1%         |
| US                                         | 8          | 8          | 7          | 6          | 9          | 10          | 10          | 11         | 12          | 16          | 17          | 7.7%         | 7.6%        | 1.6%          |
| Brazil                                     | 43         | 50         | 59         | 56         | 63         | 80          | 88          | 95         | 101         | 94          | 112         | 19.5%        | 10.1%       | 11.0%         |
| Other S. & Cent. America                   | 28         | 30         | 31         | 32         | 34         | 34          | 34          | 23         | 25          | 29          | 26          | -8.6%        | -0.7%       | 2.6%          |
| Europe                                     | 204        | 217        | 215        | 219        | 237        | 268         | 274         | 288        | 288         | 300         | 310         | 3.3%         | 4.3%        | 30.6%         |
| CIS                                        | ^          | ^          | ^          | 1          | 1          | 1           | 1           | 1          | 2           | 2           | 3           | 30.0%        | 20.6%       | 0.3%          |
| Middle East                                | —          | —          | —          | ^          | ^          | 1           | 1           | 1          | 1           | 1           | 1           | 11.3%        | —           | 0.1%          |
| Africa                                     | —          | —          | —          | —          | —          | —           | —           | —          | —           | —           | —           | —            | —           | —             |
| Asia Pacific                               | 81         | 97         | 66         | 97         | 94         | 126         | 170         | 193        | 204         | 223         | 259         | 16.4%        | 12.3%       | 25.6%         |
| <b>Total World</b>                         | <b>461</b> | <b>500</b> | <b>482</b> | <b>551</b> | <b>577</b> | <b>650</b>  | <b>723</b>  | <b>763</b> | <b>799</b>  | <b>864</b>  | <b>1013</b> | <b>17.3%</b> | <b>8.2%</b> | <b>100.0%</b> |
| of which: OECD                             | 325        | 337        | 340        | 378        | 397        | 425         | 443         | 462        | 480         | 532         | 629         | 18.2%        | 6.8%        | 62.1%         |
| Non-OECD                                   | 136        | 163        | 142        | 173        | 181        | 225         | 280         | 301        | 319         | 332         | 384         | 15.8%        | 10.9%       | 37.9%         |
| European Union                             | 184        | 198        | 200        | 201        | 215        | 240         | 237         | 254        | 259         | 266         | 269         | 0.9%         | 3.9%        | 26.5%         |

\* Includes biogasoline (such as ethanol) and biodiesel. Volumes have been adjusted for energy content.

^ Less than 0.5.

† Less than 0.05%.

**Note:** Annual changes and shares of total are calculated using thousand barrels a day oil equivalent figures.