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Statistical Review of World Energy

2021 | 70th edition



Reviewing world energy
data for 70 years

Renewable energy: Solar capacity

| Installed photovoltaic (PV) power* Gigawatts | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Growth rate per annum | | Share 2020 |
|---|-------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------------|---------------|---------------|
| | | | | | | | | | | | | 2020 | 2009-19 | |
| Canada | 0.2 | 0.5 | 0.8 | 1.2 | 1.8 | 2.5 | 2.7 | 2.9 | 3.1 | 3.3 | 3.3 | 0.2% | 42.6% | 0.5% |
| Mexico | † | † | 0.1 | 0.1 | 0.1 | 0.2 | 0.4 | 0.7 | 2.5 | 4.4 | 5.6 | 26.9% | 67.8% | 0.8% |
| US | 2.0 | 5.2 | 8.1 | 11.8 | 16.0 | 21.7 | 33.0 | 41.4 | 51.4 | 58.9 | 73.8 | 24.9% | 47.8% | 10.4% |
| Total North America | 2.3 | 5.7 | 9.0 | 13.1 | 17.9 | 24.4 | 36.0 | 44.9 | 57.1 | 66.7 | 82.8 | 23.8% | 48.2% | 11.7% |
| Argentina | - | † | † | † | † | † | † | † | 0.2 | 0.4 | 0.8 | 72.4% | n/a | 0.1% |
| Brazil | † | † | † | † | † | † | 0.1 | 1.3 | 2.5 | 4.6 | 7.9 | 70.3% | n/a | 1.1% |
| Chile | - | - | † | † | 0.2 | 0.6 | 1.1 | 1.8 | 2.1 | 2.6 | 3.1 | 21.2% | n/a | 0.4% |
| Honduras | † | † | † | † | † | 0.4 | 0.4 | 0.5 | 0.5 | 0.5 | 0.5 | -0.3% | 64.7% | 0.1% |
| Other S. & Cent. America | 0.1 | 0.2 | 0.3 | 0.4 | 0.6 | 0.8 | 1.0 | 1.7 | 2.1 | 2.6 | 2.8 | 5.9% | 46.3% | 0.4% |
| Total S. & Cent. America | 0.1 | 0.2 | 0.3 | 0.5 | 0.8 | 1.8 | 2.7 | 5.2 | 7.5 | 10.8 | 15.1 | 39.6% | 67.4% | 2.1% |
| Austria | 0.1 | 0.2 | 0.3 | 0.6 | 0.8 | 0.9 | 1.1 | 1.3 | 1.5 | 1.7 | 2.2 | 30.1% | 42.6% | 0.3% |
| Belgium | 1.0 | 2.0 | 2.6 | 2.9 | 3.0 | 3.1 | 3.3 | 3.6 | 4.0 | 4.6 | 5.6 | 21.4% | 28.2% | 0.8% |
| Bulgaria | † | 0.2 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.1 | 2.1% | 87.0% | 0.2% |
| Czech Republic | 1.7 | 1.9 | 2.0 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | -1.0% | 16.2% | 0.3% |
| Denmark | † | † | 0.4 | 0.6 | 0.6 | 0.8 | 0.9 | 0.9 | 1.0 | 1.1 | 1.3 | 20.0% | 71.2% | 0.2% |
| France | 1.0 | 3.0 | 4.4 | 5.3 | 6.0 | 7.1 | 7.7 | 8.6 | 9.7 | 10.8 | 11.7 | 8.3% | 44.2% | 1.7% |
| Germany | 18.0 | 25.9 | 34.1 | 36.7 | 37.9 | 39.2 | 40.7 | 42.3 | 45.2 | 49.0 | 53.8 | 9.4% | 16.6% | 7.6% |
| Greece | 0.2 | 0.6 | 1.5 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.7 | 2.8 | 3.2 | 14.3% | 51.0% | 0.5% |
| Hungary | † | † | † | † | 0.1 | 0.2 | 0.2 | 0.3 | 0.7 | 1.4 | 2.0 | 39.1% | 106.4% | 0.3% |
| Italy | 3.6 | 13.1 | 16.8 | 18.2 | 18.6 | 18.9 | 19.3 | 19.7 | 20.1 | 20.9 | 21.6 | 3.2% | 32.4% | 3.1% |
| Netherlands | 0.1 | 0.1 | 0.3 | 0.7 | 1.0 | 1.5 | 2.1 | 2.9 | 4.6 | 7.2 | 10.2 | 41.9% | 59.1% | 1.4% |
| Poland | - | - | † | † | † | 0.1 | 0.2 | 0.3 | 0.6 | 1.5 | 3.9 | 155.0% | n/a | 0.6% |
| Portugal | 0.1 | 0.2 | 0.2 | 0.3 | 0.4 | 0.4 | 0.5 | 0.6 | 0.7 | 0.9 | 1.0 | 13.5% | 22.9% | 0.1% |
| Romania | † | † | † | 0.8 | 1.3 | 1.3 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | -1.1% | 159.7% | 0.2% |
| Slovakia | - | † | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 | 0.2% | n/a | 0.1% |
| Spain | 3.9 | 4.3 | 4.6 | 4.7 | 4.7 | 4.7 | 4.7 | 4.7 | 4.8 | 9.0 | 11.8 | 31.0% | 10.1% | 1.7% |
| Sweden | † | † | † | † | 0.1 | 0.1 | 0.2 | 0.2 | 0.4 | 0.7 | 1.4 | 97.9% | 54.9% | 0.2% |
| Switzerland | 0.1 | 0.2 | 0.4 | 0.8 | 1.1 | 1.4 | 1.7 | 1.9 | 2.2 | 2.6 | 3.2 | 22.8% | 41.8% | 0.5% |
| Turkey | † | † | † | † | † | 0.2 | 0.8 | 3.4 | 5.1 | 6.0 | 6.7 | 10.9% | 104.4% | 0.9% |
| Ukraine | † | 0.2 | 0.4 | 0.7 | 0.8 | 0.8 | 1.0 | 1.2 | 2.0 | 5.9 | 7.3 | 23.2% | n/a | 1.0% |
| United Kingdom | 0.1 | 1.0 | 1.8 | 2.9 | 5.5 | 9.6 | 11.9 | 12.8 | 13.1 | 13.3 | 13.6 | 1.3% | 86.0% | 1.9% |
| Other Europe | 0.1 | 0.6 | 0.3 | 0.5 | 0.6 | 0.7 | 0.9 | 1.1 | 1.3 | 1.7 | 2.1 | 25.8% | 41.5% | 0.3% |
| Total Europe | 30.1 | 53.6 | 71.7 | 81.9 | 88.8 | 97.5 | 104.7 | 113.5 | 124.4 | 146.3 | 167.8 | 14.4% | 24.1% | 23.7% |
| Russian Federation | - | - | † | † | † | 0.1 | 0.1 | 0.2 | 0.5 | 1.1 | 1.4 | 33.9% | n/a | 0.2% |
| Other CIS | † | † | † | † | 0.1 | 0.1 | 0.2 | 0.2 | 0.5 | 1.2 | 1.8 | 50.5% | 97.7% | 0.3% |
| Total CIS | † | † | † | † | 0.1 | 0.2 | 0.2 | 0.4 | 1.0 | 2.3 | 3.2 | 42.7% | 110.6% | 0.5% |
| Israel | 0.1 | 0.2 | 0.2 | 0.4 | 0.7 | 0.8 | 0.9 | 1.0 | 1.1 | 1.2 | 1.2 | -0.3% | 47.4% | 0.2% |
| Jordan | - | - | † | † | † | † | 0.3 | 0.4 | 0.8 | 1.1 | 1.4 | 23.1% | n/a | 0.2% |
| United Arab Emirates | † | † | † | † | † | † | † | 0.3 | 0.5 | 1.8 | 2.4 | 33.8% | 68.3% | 0.3% |
| Other Middle East | † | † | † | 0.1 | 0.1 | 0.2 | 0.3 | 0.5 | 1.0 | 1.4 | 1.5 | 11.1% | 68.0% | 0.2% |
| Total Middle East | 0.1 | 0.2 | 0.3 | 0.5 | 0.8 | 1.0 | 1.5 | 2.1 | 3.3 | 5.5 | 6.5 | 18.6% | 62.7% | 0.9% |
| Algeria | - | - | - | - | † | † | 0.2 | 0.4 | 0.4 | 0.4 | 0.4 | -0.3% | n/a | 0.1% |
| Egypt | † | † | † | † | † | † | † | 0.2 | 0.7 | 1.6 | 1.7 | 1.7% | 104.2% | 0.2% |
| Morocco | † | † | † | † | † | † | † | † | 0.2 | 0.2 | 0.2 | -0.3% | 31.3% | 0.0% |
| South Africa | † | † | † | 0.3 | 1.1 | 1.3 | 2.0 | 3.1 | 4.4 | 4.4 | 5.5 | 24.3% | n/a | 0.8% |
| Other Africa | 0.2 | 0.2 | 0.2 | 0.4 | 0.5 | 0.6 | 0.7 | 1.0 | 1.3 | 1.6 | 1.7 | 6.7% | 33.1% | 0.2% |
| Total Africa | 0.2 | 0.3 | 0.3 | 0.7 | 1.6 | 1.9 | 3.0 | 4.7 | 7.1 | 8.3 | 9.5 | 14.5% | 54.5% | 1.3% |
| Australia | 1.1 | 2.5 | 3.8 | 4.6 | 5.4 | 6.1 | 6.9 | 7.6 | 8.9 | 13.6 | 17.6 | 29.6% | 44.7% | 2.5% |
| China | 1.0 | 3.1 | 6.7 | 17.7 | 28.4 | 43.5 | 77.8 | 130.8 | 175.0 | 204.6 | 253.8 | 23.7% | 85.9% | 35.9% |
| India | 0.1 | 0.6 | 1.0 | 1.4 | 3.4 | 5.4 | 9.7 | 17.9 | 27.1 | 34.9 | 39.0 | 11.5% | 97.1% | 5.5% |
| Japan | 3.6 | 4.9 | 6.4 | 12.1 | 19.3 | 28.6 | 38.4 | 44.2 | 55.5 | 61.5 | 67.0 | 8.6% | 37.2% | 9.5% |
| Malaysia | † | † | † | 0.1 | 0.2 | 0.2 | 0.3 | 0.4 | 0.5 | 0.9 | 1.5 | 68.8% | 109.6% | 0.2% |
| Pakistan | † | † | † | 0.1 | 0.2 | 0.3 | 0.6 | 0.7 | 0.7 | 0.7 | 0.7 | 3.1% | 69.2% | 0.1% |
| Philippines | † | † | † | † | † | 0.2 | 0.8 | 0.9 | 0.9 | 1.0 | 1.0 | 7.4% | 99.0% | 0.1% |
| South Korea | 0.7 | 0.7 | 1.0 | 1.6 | 2.5 | 3.6 | 4.5 | 5.8 | 7.1 | 10.5 | 14.6 | 38.4% | 35.0% | 2.1% |
| Taiwan | † | 0.1 | 0.2 | 0.4 | 0.6 | 0.8 | 1.2 | 1.8 | 2.7 | 4.1 | 5.8 | 39.8% | 83.7% | 0.8% |
| Thailand | † | 0.1 | 0.4 | 0.8 | 1.3 | 1.4 | 2.4 | 2.7 | 3.0 | 3.0 | 3.0 | -0.3% | 55.1% | 0.4% |
| Vietnam | † | † | † | † | † | † | † | † | 0.1 | 4.9 | 16.5 | 236.0% | 106.3% | 2.3% |
| Other Asia Pacific | 0.8 | 0.1 | 0.2 | 0.2 | 0.3 | 0.4 | 0.6 | 0.8 | 0.9 | 1.4 | 2.0 | 44.5% | 16.5% | 0.3% |
| Total Asia Pacific | 7.3 | 12.1 | 19.8 | 39.1 | 61.6 | 90.6 | 143.2 | 213.6 | 282.5 | 341.0 | 422.6 | 23.6% | 54.9% | 59.7% |
| Total World | 40.1 | 72.0 | 101.4 | 135.7 | 171.6 | 217.5 | 291.3 | 384.5 | 482.9 | 580.8 | 707.5 | 21.5% | 38.3% | 100.0% |

Source: IRENA (2021), Renewable capacity statistics 2021 International Renewable Energy Agency (IRENA), Abu Dhabi.

*End of year.

†Less than 0.05.

Notes: Capacity figures in this table are on an AC basis.

Growth rates are adjusted for leap years.

Renewable energy: Wind capacity

| Installed wind turbine capacity* Gigawatts | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Growth rate per annum | | Share 2020 |
|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------------|--------------|---------------|
| | | | | | | | | | | | | 2020 | 2009-19 | |
| Canada | 4.0 | 5.3 | 6.2 | 7.8 | 9.7 | 11.2 | 12.0 | 12.4 | 12.8 | 13.4 | 13.6 | 0.9% | 15.1% | 1.9% |
| Mexico | 0.5 | 0.6 | 1.8 | 2.1 | 2.6 | 3.3 | 4.1 | 4.2 | 4.9 | 6.6 | 8.1 | 23.0% | 31.5% | 1.1% |
| US | 39.1 | 45.7 | 59.1 | 60.0 | 64.2 | 72.6 | 81.3 | 87.6 | 94.4 | 103.6 | 117.7 | 13.4% | 11.7% | 16.1% |
| Total North America | 43.6 | 51.5 | 67.1 | 69.9 | 76.5 | 87.1 | 97.3 | 104.2 | 112.1 | 123.6 | 139.4 | 12.5% | 12.5% | 19.0% |
| Argentina | † | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.8 | 1.6 | 2.6 | 62.6% | 50.1% | 0.4% |
| Brazil | 0.9 | 1.4 | 1.9 | 2.2 | 4.9 | 7.6 | 10.1 | 12.3 | 14.8 | 15.4 | 17.2 | 11.1% | 38.3% | 2.3% |
| Chile | 0.2 | 0.2 | 0.2 | 0.3 | 0.7 | 0.9 | 1.0 | 1.3 | 1.5 | 1.6 | 2.1 | 32.3% | 25.8% | 0.3% |
| Costa Rica | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 | -4.4% | 13.1% | 0.1% |
| Uruguay | † | † | 0.1 | 0.1 | 0.5 | 0.9 | 1.2 | 1.5 | 1.5 | 1.5 | 1.5 | -0.3% | 47.7% | 0.2% |
| Other S. & Cent. America | 0.2 | 0.4 | 0.6 | 0.7 | 1.0 | 1.4 | 1.6 | 1.6 | 1.8 | 2.1 | 2.5 | 23.6% | 28.8% | 0.3% |
| Total S. & Cent. America | 1.5 | 2.2 | 3.1 | 3.6 | 7.5 | 11.2 | 14.5 | 17.3 | 20.8 | 22.6 | 26.4 | 16.4% | 35.2% | 3.6% |
| Austria | 1.0 | 1.1 | 1.3 | 1.7 | 2.1 | 2.5 | 2.7 | 2.9 | 3.1 | 3.2 | 3.2 | -0.3% | 12.4% | 0.4% |
| Belgium | 0.9 | 1.1 | 1.4 | 1.8 | 1.9 | 2.2 | 2.4 | 2.8 | 3.3 | 3.9 | 4.7 | 21.1% | 20.3% | 0.6% |
| Bulgaria | 0.5 | 0.5 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | -0.3% | 7.8% | 0.1% |
| Denmark | 3.8 | 4.0 | 4.2 | 4.8 | 4.9 | 5.1 | 5.2 | 5.5 | 6.1 | 6.1 | 6.2 | 1.9% | 5.8% | 0.9% |
| Finland | 0.2 | 0.2 | 0.3 | 0.4 | 0.6 | 1.0 | 1.6 | 2.0 | 2.0 | 2.3 | 2.5 | 8.1% | 31.6% | 0.3% |
| France | 5.9 | 6.8 | 7.6 | 8.2 | 9.2 | 10.3 | 11.6 | 13.5 | 14.9 | 16.4 | 17.4 | 5.5% | 13.6% | 2.4% |
| Germany | 26.9 | 28.7 | 31.0 | 33.5 | 38.6 | 44.6 | 49.4 | 55.6 | 58.7 | 60.7 | 62.2 | 2.1% | 9.0% | 8.5% |
| Greece | 1.3 | 1.6 | 1.8 | 1.8 | 2.0 | 2.1 | 2.4 | 2.6 | 2.9 | 3.6 | 4.1 | 14.3% | 11.9% | 0.6% |
| Ireland | 1.4 | 1.6 | 1.7 | 2.0 | 2.3 | 2.5 | 2.8 | 3.3 | 3.7 | 4.2 | 4.3 | 3.1% | 12.8% | 0.6% |
| Italy | 5.8 | 6.9 | 8.1 | 8.5 | 8.7 | 9.1 | 9.4 | 9.7 | 10.2 | 10.7 | 10.8 | 1.2% | 8.1% | 1.5% |
| Netherlands | 2.2 | 2.3 | 2.4 | 2.7 | 2.9 | 3.4 | 4.3 | 4.2 | 4.4 | 4.5 | 6.6 | 46.8% | 7.3% | 0.9% |
| Norway | 0.4 | 0.5 | 0.7 | 0.8 | 0.9 | 0.9 | 0.9 | 1.2 | 1.7 | 2.9 | 4.0 | 36.1% | 21.3% | 0.5% |
| Poland | 1.1 | 1.8 | 2.6 | 3.4 | 3.8 | 4.9 | 5.7 | 5.8 | 5.8 | 5.8 | 6.3 | 7.1% | 23.5% | 0.9% |
| Portugal | 3.8 | 4.3 | 4.4 | 4.6 | 4.9 | 4.9 | 5.1 | 5.1 | 5.2 | 5.2 | 5.2 | 0.0% | 4.6% | 0.7% |
| Romania | 0.4 | 1.0 | 1.8 | 2.8 | 3.2 | 3.1 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | -0.8% | 70.1% | 0.4% |
| Spain | 20.7 | 21.5 | 22.8 | 23.0 | 22.9 | 22.9 | 23.0 | 23.1 | 23.4 | 25.6 | 27.1 | 5.6% | 2.9% | 3.7% |
| Sweden | 2.0 | 2.8 | 3.6 | 4.2 | 5.1 | 5.8 | 6.4 | 6.6 | 7.3 | 8.7 | 9.7 | 11.3% | 19.4% | 1.3% |
| Turkey | 1.3 | 1.7 | 2.3 | 2.8 | 3.6 | 4.5 | 5.8 | 6.5 | 7.0 | 7.6 | 8.8 | 16.0% | 25.4% | 1.2% |
| Ukraine | 0.1 | 0.1 | 0.2 | 0.4 | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 | 1.3 | 1.4 | 11.2% | 30.8% | 0.2% |
| United Kingdom | 5.4 | 6.6 | 9.0 | 11.3 | 13.1 | 14.3 | 16.1 | 19.6 | 21.8 | 24.1 | 24.7 | 2.1% | 18.5% | 3.4% |
| Other Europe | 1.0 | 1.3 | 1.6 | 1.7 | 1.9 | 2.2 | 2.5 | 2.8 | 3.1 | 3.4 | 3.7 | 5.6% | 16.3% | 0.5% |
| Total Europe | 86.2 | 96.4 | 109.4 | 121.0 | 133.8 | 147.5 | 161.5 | 177.1 | 189.0 | 203.9 | 216.6 | 5.9% | 10.3% | 29.5% |
| Russian Federation | † | † | † | † | † | † | † | † | 0.1 | 0.1 | 0.9 | 824.8% | 26.1% | 0.1% |
| Other CIS | † | † | † | † | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.4 | 0.6 | 53.4% | 55.3% | 0.1% |
| Total CIS | † | † | † | † | 0.1 | 0.1 | 0.1 | 0.2 | 0.3 | 0.5 | 1.5 | 218.3% | 41.7% | 0.2% |
| Iran | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.0% | 12.6% | 0.0% |
| Jordan | † | † | † | † | † | 0.1 | 0.2 | 0.2 | 0.3 | 0.4 | 0.5 | 38.8% | 74.7% | 0.1% |
| Other Middle East | † | † | † | † | † | † | † | † | † | 0.1 | 0.1 | -0.1% | 29.5% | 0.0% |
| Total Middle East | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.8 | 0.9 | 18.7% | 22.5% | 0.1% |
| Egypt | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 | 0.8 | 1.1 | 1.4 | 1.4 | -0.3% | 12.2% | 0.2% |
| Morocco | 0.2 | 0.3 | 0.3 | 0.5 | 0.8 | 0.8 | 0.9 | 1.0 | 1.2 | 1.2 | 1.4 | 14.4% | 18.7% | 0.2% |
| South Africa | † | † | † | 0.3 | 0.6 | 1.1 | 1.5 | 2.1 | 2.1 | 2.1 | 2.6 | 25.5% | 73.6% | 0.4% |
| Tunisia | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | -0.3% | 16.5% | 0.0% |
| Other Africa | † | 0.1 | 0.1 | 0.2 | 0.2 | 0.5 | 0.5 | 0.5 | 0.8 | 0.8 | 0.8 | -0.3% | 62.1% | 0.1% |
| Total Africa | 0.8 | 1.0 | 1.1 | 1.7 | 2.4 | 3.3 | 3.8 | 4.6 | 5.5 | 5.8 | 6.5 | 12.2% | 23.1% | 0.9% |
| Australia | 1.9 | 2.1 | 2.6 | 3.2 | 3.8 | 4.2 | 4.3 | 4.8 | 5.7 | 7.1 | 9.5 | 32.2% | 15.4% | 1.3% |
| China | 29.6 | 46.4 | 61.6 | 76.7 | 96.8 | 131.0 | 148.5 | 164.4 | 184.7 | 209.5 | 282.0 | 34.2% | 28.1% | 38.5% |
| India | 13.2 | 16.2 | 17.3 | 18.4 | 22.5 | 25.1 | 28.7 | 32.8 | 35.3 | 37.5 | 38.6 | 2.5% | 13.1% | 5.3% |
| Japan | 2.3 | 2.4 | 2.6 | 2.6 | 2.8 | 2.8 | 3.2 | 3.5 | 3.7 | 3.8 | 4.2 | 10.8% | 6.6% | 0.6% |
| New Zealand | 0.5 | 0.5 | 0.6 | 0.6 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.8 | 13.5% | 3.3% | 0.1% |
| Pakistan | † | † | 0.1 | 0.1 | 0.2 | 0.3 | 0.6 | 0.8 | 1.2 | 1.2 | 1.2 | -0.3% | 70.4% | 0.2% |
| Philippines | † | † | † | † | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | -0.3% | 29.7% | 0.1% |
| South Korea | 0.4 | 0.4 | 0.5 | 0.6 | 0.6 | 0.8 | 1.1 | 1.2 | 1.4 | 1.5 | 1.6 | 7.9% | 15.7% | 0.2% |
| Taiwan | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.6 | 0.7 | 0.7 | 0.7 | 0.8 | 0.8 | -0.3% | 8.5% | 0.1% |
| Thailand | † | † | 0.1 | 0.2 | 0.2 | 0.2 | 0.5 | 0.6 | 1.1 | 1.5 | 1.5 | -0.3% | 76.6% | 0.2% |
| Other Asia Pacific | 0.1 | 0.1 | 0.2 | 0.2 | 0.3 | 0.4 | 0.4 | 0.5 | 0.7 | 0.9 | 1.2 | 32.4% | 30.1% | 0.2% |
| Total Asia Pacific | 48.5 | 68.7 | 86.0 | 103.4 | 128.8 | 166.7 | 189.2 | 210.5 | 235.6 | 265.1 | 341.9 | 28.6% | 23.0% | 46.6% |
| Total World | 180.9 | 220.1 | 267.1 | 300.3 | 349.7 | 416.2 | 466.9 | 514.4 | 563.8 | 622.2 | 733.3 | 17.5% | 15.3% | 100.0% |

Source: IRENA (2021), Renewable capacity statistics 2021 International Renewable Energy Agency (IRENA), Abu Dhabi.

*End of year.

†Less than 0.05.

Notes: Capacity figures in this table are on an AC basis. Growth rates are adjusted for leap years.

Renewables: Biofuels production*

| Thousand barrels of oil equivalent per day | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Growth rate per annum | | Share 2020 |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-----------------------|--------------|---------------|
| | | | | | | | | | | | | 2020 | 2009-19 | |
| Canada | 15 | 18 | 17 | 18 | 22 | 21 | 22 | 22 | 22 | 24 | 21 | -10.2% | 5.4% | 1.3% |
| Mexico | - | - | - | - | - | - | - | - | - | - | - | n/a | n/a | - |
| US | 499 | 556 | 531 | 555 | 588 | 605 | 642 | 664 | 684 | 665 | 602 | -9.6% | 4.6% | 35.9% |
| Total North America | 514 | 574 | 548 | 574 | 609 | 625 | 664 | 686 | 707 | 689 | 623 | -9.6% | 4.7% | 37.2% |
| Argentina | 32 | 42 | 43 | 38 | 49 | 38 | 53 | 58 | 51 | 46 | 27 | -40.3% | 9.1% | 1.6% |
| Brazil | 292 | 251 | 257 | 299 | 315 | 338 | 317 | 320 | 384 | 411 | 395 | -4.0% | 4.5% | 23.5% |
| Colombia | 8 | 11 | 12 | 12 | 13 | 13 | 13 | 12 | 14 | 13 | 12 | -9.0% | 8.2% | 0.7% |
| Other S. & Cent. America | 4 | 5 | 5 | 6 | 7 | 8 | 10 | 10 | 11 | 13 | 12 | -3.1% | 13.7% | 0.7% |
| Total S. & Cent. America | 336 | 309 | 316 | 356 | 384 | 396 | 392 | 399 | 461 | 482 | 446 | -7.5% | 5.1% | 26.6% |
| Austria | 7 | 7 | 7 | 7 | 6 | 7 | 8 | 7 | 7 | 7 | 7 | 3.2% | 0.3% | 0.4% |
| Belgium | 7 | 8 | 8 | 8 | 11 | 7 | 7 | 8 | 8 | 8 | 8 | -0.7% | 12.8% | 0.5% |
| Finland | 6 | 4 | 5 | 6 | 7 | 8 | 2 | 6 | 5 | 6 | 7 | 14.7% | 3.9% | 0.4% |
| France | 43 | 42 | 49 | 46 | 47 | 49 | 45 | 44 | 51 | 47 | 43 | -8.0% | 0.7% | 2.6% |
| Germany | 59 | 58 | 54 | 58 | 64 | 59 | 60 | 61 | 63 | 66 | 65 | -0.6% | 3.3% | 3.9% |
| Italy | 15 | 11 | 6 | 9 | 10 | 10 | 10 | 12 | 13 | 15 | 16 | 7.7% | 0.4% | 0.9% |
| Netherlands | 7 | 12 | 24 | 28 | 33 | 36 | 28 | 37 | 36 | 38 | 37 | -1.7% | 23.7% | 2.2% |
| Poland | 8 | 8 | 12 | 13 | 14 | 15 | 17 | 17 | 17 | 18 | 19 | 3.4% | 9.2% | 1.1% |
| Portugal | 5 | 6 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 7 | 6 | -15.6% | 4.6% | 0.3% |
| Spain | 19 | 16 | 11 | 14 | 19 | 21 | 22 | 35 | 40 | 39 | 32 | -19.0% | 8.7% | 1.9% |
| Sweden | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 7 | 8 | 7 | -9.9% | 8.9% | 0.4% |
| United Kingdom | 5 | 3 | 6 | 9 | 7 | 6 | 10 | 14 | 13 | 11 | 10 | -5.7% | 10.6% | 0.6% |
| Other Europe | 20 | 22 | 26 | 28 | 28 | 31 | 33 | 35 | 39 | 39 | 36 | -6.4% | 7.1% | 2.2% |
| Total Europe | 204 | 201 | 217 | 234 | 256 | 260 | 252 | 286 | 304 | 309 | 295 | -4.6% | 5.6% | 17.6% |
| Total CIS | 1 | † | 1 | † | † | † | † | † | † | † | † | ♦ | -3.7% | ♦ |
| Total Middle East | † | † | † | † | † | † | † | † | † | † | † | - | 2.7% | ♦ |
| Total Africa | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 2 | 3 | 3 | 3 | - | -6.0% | 0.2% |
| Australia | 3 | 4 | 4 | 5 | 5 | 4 | 2 | 2 | 2 | 3 | 3 | -4.5% | -4.3% | 0.2% |
| China | 29 | 36 | 38 | 42 | 47 | 40 | 39 | 47 | 45 | 55 | 63 | 16.0% | 6.4% | 3.8% |
| India | 3 | 5 | 5 | 5 | 5 | 10 | 12 | 11 | 18 | 21 | 20 | -8.1% | 26.2% | 1.2% |
| Indonesia | 4 | 27 | 33 | 41 | 59 | 24 | 54 | 50 | 91 | 124 | 126 | 2.1% | 46.0% | 7.5% |
| South Korea | 6 | 5 | 7 | 7 | 7 | 8 | 8 | 8 | 13 | 13 | 12 | -4.9% | 12.2% | 0.7% |
| Thailand | 16 | 17 | 24 | 30 | 34 | 36 | 31 | 37 | 40 | 45 | 44 | -3.6% | 14.2% | 2.6% |
| Other Asia Pacific | 8 | 16 | 21 | 28 | 35 | 36 | 34 | 32 | 37 | 45 | 41 | -8.3% | 18.3% | 2.5% |
| Total Asia Pacific | 68 | 109 | 132 | 158 | 191 | 159 | 180 | 188 | 246 | 306 | 310 | 1.1% | 17.1% | 18.5% |
| Total World | 1125 | 1195 | 1215 | 1325 | 1443 | 1444 | 1491 | 1562 | 1721 | 1790 | 1677 | -6.3% | 6.2% | 100.0% |
| of which: OECD | 735 | 792 | 785 | 828 | 886 | 906 | 935 | 988 | 1035 | 1020 | 938 | -8.0% | 4.9% | 56.0% |
| Non-OECD | 391 | 404 | 430 | 497 | 557 | 537 | 557 | 574 | 686 | 770 | 738 | -4.1% | 8.3% | 44.0% |
| European Union | 198 | 195 | 210 | 223 | 247 | 252 | 239 | 267 | 287 | 293 | 279 | -4.7% | 5.4% | 16.7% |

Biofuels production by fuel type

| Thousand barrels of oil equivalent per day | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Growth rate per annum | | Share 2020 | |
|--|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|------------|-----------------------|--------------|---------------|--|
| | | | | | | | | | | | | 2020 | 2009-19 | | |
| Biogasoline | | | | | | | | | | | | | | | |
| Canada & Mexico | 13 | 16 | 16 | 16 | 17 | 16 | 16 | 16 | 17 | 18 | 16 | -12.2% | 4.0% | 1.7% | |
| US | 480 | 502 | 475 | 479 | 516 | 534 | 554 | 575 | 580 | 569 | 501 | -12.0% | 3.7% | 52.2% | |
| Brazil | 257 | 212 | 217 | 256 | 264 | 280 | 261 | 256 | 305 | 324 | 300 | -7.4% | 3.0% | 31.2% | |
| Other S. & Cent. America | 7 | 9 | 10 | 14 | 17 | 19 | 21 | 23 | 24 | 24 | 21 | -10.6% | 13.9% | 2.2% | |
| Europe | 36 | 40 | 46 | 52 | 51 | 56 | 52 | 56 | 57 | 54 | 49 | -7.7% | 5.9% | 5.1% | |
| CIS | - | - | - | † | † | † | † | † | † | † | † | -0.3% | n/a | ♦ | |
| Middle East | † | † | † | † | † | † | † | † | † | † | † | - | 2.7% | ♦ | |
| Africa | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 2 | 3 | 3 | 3 | - | -6.0% | 0.3% | |
| Asia Pacific | 31 | 39 | 40 | 47 | 53 | 57 | 51 | 58 | 65 | 76 | 70 | -7.7% | 10.0% | 7.3% | |
| Total World | 825 | 820 | 807 | 866 | 920 | 965 | 959 | 987 | 1052 | 1067 | 960 | -10.0% | 4.0% | 100.0% | |
| of which: OECD | 534 | 564 | 543 | 553 | 590 | 613 | 628 | 652 | 660 | 647 | 572 | -11.6% | 3.8% | 59.5% | |
| Non-OECD | 292 | 256 | 264 | 313 | 330 | 353 | 331 | 336 | 391 | 420 | 389 | -7.5% | 4.4% | 40.5% | |
| European Union | 33 | 40 | 44 | 46 | 45 | 52 | 47 | 48 | 51 | 50 | 47 | -6.4% | 5.5% | 4.9% | |
| Biodiesel† | | | | | | | | | | | | | | | |
| Canada & Mexico | 2 | 2 | 1 | 2 | 5 | 4 | 6 | 6 | 6 | 5 | 5 | -3.1% | 12.5% | 0.7% | |
| US | 19 | 54 | 55 | 76 | 71 | 70 | 87 | 89 | 104 | 96 | 101 | 4.6% | 12.8% | 14.1% | |
| Brazil | 35 | 39 | 40 | 43 | 50 | 58 | 56 | 63 | 79 | 87 | 95 | 8.7% | 13.9% | 13.2% | |
| Other S. & Cent. America | 37 | 48 | 49 | 43 | 53 | 40 | 54 | 57 | 52 | 48 | 30 | -36.8% | 8.0% | 4.2% | |
| Europe | 168 | 160 | 171 | 183 | 205 | 203 | 200 | 230 | 248 | 255 | 245 | -4.0% | 5.5% | 34.2% | |
| CIS | 1 | † | 1 | † | † | † | † | † | † | † | † | - | -3.8% | ♦ | |
| Middle East | - | - | - | - | - | - | - | - | - | - | - | n/a | n/a | - | |
| Africa | - | - | † | † | † | † | † | † | - | - | - | n/a | n/a | - | |
| Asia Pacific | 37 | 71 | 91 | 111 | 138 | 102 | 129 | 129 | 181 | 230 | 240 | 4.0% | 21.1% | 33.5% | |
| Total World | 300 | 375 | 409 | 459 | 523 | 478 | 532 | 575 | 670 | 723 | 716 | -0.9% | 10.8% | 100.0% | |
| of which: OECD | 201 | 227 | 242 | 274 | 296 | 294 | 307 | 337 | 375 | 373 | 367 | -1.7% | 7.2% | 51.2% | |
| Non-OECD | 99 | 148 | 167 | 184 | 227 | 185 | 225 | 238 | 295 | 349 | 349 | ♦ | 16.8% | 48.8% | |
| European Union | 165 | 156 | 166 | 177 | 201 | 199 | 192 | 219 | 236 | 243 | 233 | -4.3% | 5.3% | 32.5% | |

Source: includes data from IHS Markit; US Energy Information Administration (March 2021).

*Total biofuels includes biogasoline (such as ethanol), biodiesel and biojet. Volumes have been adjusted for energy content.

†Biodiesel production includes biojet which is currently <1kboed globally but more than doubled relative to 2019.

‡Less than 0.5.

♦Less than 0.05%.

n/a not available.

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

Renewables: Biofuels consumption*

| Thousand barrels of oil equivalent per day | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Growth rate per annum | | Share 2020 |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-----------------------|--------------|---------------|
| | | | | | | | | | | | | 2020 | 2009-19 | |
| Canada | 17 | 27 | 35 | 35 | 36 | 34 | 32 | 38 | 39 | 42 | 36 | -13.2% | 11.2% | 2.2% |
| Mexico | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 0.4% | 7.5% | 0.2% |
| US | 478 | 515 | 513 | 556 | 564 | 586 | 632 | 633 | 626 | 626 | 558 | -10.9% | 4.2% | 33.2% |
| Total North America | 497 | 543 | 551 | 593 | 603 | 623 | 668 | 675 | 669 | 671 | 598 | -11.0% | 4.5% | 35.6% |
| Argentina | 10 | 14 | 17 | 19 | 22 | 24 | 26 | 30 | 28 | 29 | 16 | -46.5% | n/a | 0.9% |
| Brazil | 257 | 235 | 222 | 261 | 288 | 341 | 310 | 326 | 378 | 420 | 418 | -0.4% | 5.7% | 24.9% |
| Colombia | 10 | 12 | 12 | 12 | 13 | 13 | 13 | 14 | 15 | 16 | 14 | -10.9% | 9.0% | 0.8% |
| Other S. & Cent. America | 11 | 12 | 14 | 15 | 15 | 16 | 17 | 18 | 17 | 17 | 16 | -8.2% | 7.1% | 0.9% |
| Total S. & Cent. America | 287 | 272 | 265 | 307 | 338 | 395 | 365 | 387 | 439 | 482 | 464 | -3.8% | 6.5% | 27.6% |
| Austria | 10 | 10 | 10 | 8 | 10 | 12 | 10 | 9 | 9 | 9 | 8 | -11.5% | -0.4% | 0.5% |
| Belgium | 7 | 7 | 6 | 6 | 8 | 5 | 8 | 9 | 9 | 9 | 11 | 23.6% | 13.5% | 0.6% |
| Finland | 2 | 3 | 3 | 4 | 8 | 8 | 3 | 7 | 6 | 7 | 7 | 3.8% | 11.9% | 0.4% |
| France | 44 | 44 | 48 | 49 | 52 | 53 | 53 | 54 | 53 | 55 | 49 | -10.3% | 2.1% | 2.9% |
| Germany | 51 | 53 | 56 | 50 | 53 | 50 | 50 | 51 | 53 | 52 | 63 | 21.8% | 0.2% | 3.8% |
| Italy | 26 | 25 | 28 | 24 | 20 | 25 | 25 | 25 | 26 | 15 | 21 | 41.2% | -3.1% | 1.3% |
| Netherlands | 4 | 7 | 7 | 7 | 7 | 8 | 8 | 9 | 11 | 14 | 18 | 31.3% | 7.2% | 1.1% |
| Poland | 12 | 13 | 14 | 14 | 13 | 12 | 8 | 11 | 17 | 18 | 17 | -5.7% | 4.7% | 1.0% |
| Portugal | 6 | 6 | 5 | 5 | 5 | 7 | 5 | 5 | 5 | 5 | 5 | -11.7% | 2.3% | 0.3% |
| Spain | 27 | 32 | 39 | 17 | 18 | 18 | 21 | 24 | 31 | 31 | 23 | -28.1% | 18.5% | 1.3% |
| Sweden | 9 | 10 | 12 | 12 | 16 | 19 | 25 | 28 | 27 | 27 | 25 | -9.6% | 17.8% | 1.5% |
| United Kingdom | 21 | 20 | 17 | 19 | 22 | 17 | 18 | 17 | 24 | 31 | 29 | -4.4% | 5.2% | 1.8% |
| Other Europe | 22 | 26 | 31 | 38 | 36 | 37 | 43 | 50 | 52 | 61 | 61 | 0.8% | 12.2% | 3.7% |
| Total Europe | 241 | 255 | 276 | 253 | 269 | 271 | 276 | 298 | 323 | 336 | 339 | 1.0% | 5.2% | 20.2% |
| Total CIS | 1 | 1 | 1 | † | † | † | 1 | 2 | 2 | 3 | 3 | 12.6% | 21.9% | 0.2% |
| Total Middle East | † | † | † | † | † | † | † | † | † | † | † | -26.4% | -4.4% | ♦ |
| Total Africa | † | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | -0.9% | 8.9% | 0.1% |
| Australia | 4 | 4 | 4 | 5 | 6 | 4 | 4 | 3 | 3 | 3 | 3 | 2.4% | -0.1% | 0.2% |
| China | 32 | 35 | 41 | 50 | 59 | 44 | 44 | 42 | 54 | 61 | 56 | -8.1% | 6.7% | 3.3% |
| India | 18 | 20 | 19 | 19 | 22 | 23 | 28 | 25 | 33 | 38 | 39 | 3.2% | 10.3% | 2.3% |
| Indonesia | 5 | 7 | 11 | 17 | 28 | 15 | 46 | 39 | 56 | 96 | 98 | 2.5% | 39.4% | 5.8% |
| South Korea | 7 | 6 | 7 | 10 | 9 | 8 | 8 | 8 | 13 | 13 | 13 | -0.9% | 10.7% | 0.8% |
| Thailand | 14 | 14 | 18 | 24 | 28 | 30 | 31 | 34 | 37 | 42 | 42 | -0.2% | 12.2% | 2.5% |
| Other Asia Pacific | 8 | 10 | 13 | 16 | 19 | 22 | 24 | 25 | 26 | 27 | 24 | -10.9% | 17.8% | 1.4% |
| Total Asia Pacific | 86 | 96 | 114 | 142 | 171 | 147 | 184 | 176 | 223 | 279 | 274 | -1.6% | 14.0% | 16.3% |
| Total World | 1112 | 1168 | 1206 | 1297 | 1382 | 1438 | 1495 | 1538 | 1658 | 1772 | 1679 | -5.2% | 6.2% | 100.0% |
| of which: OECD | 758 | 820 | 848 | 871 | 898 | 920 | 967 | 996 | 1021 | 1033 | 961 | -6.9% | 4.8% | 57.2% |
| Non-OECD | 354 | 348 | 359 | 425 | 484 | 518 | 528 | 542 | 636 | 739 | 718 | -2.8% | 8.7% | 42.8% |
| European Union | 217 | 233 | 255 | 224 | 241 | 248 | 248 | 265 | 285 | 287 | 294 | 2.2% | 4.7% | 17.5% |

Biofuels consumption by fuel type

| Thousand barrels of oil equivalent per day | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Growth rate per annum | | Share 2020 | |
|--|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|------------|-----------------------|--------------|---------------|--|
| | | | | | | | | | | | | 2020 | 2009-19 | | |
| Biogasoline | | | | | | | | | | | | | | | |
| US | 464 | 465 | 463 | 477 | 485 | 503 | 516 | 522 | 520 | 525 | 454 | -13.4% | 2.8% | 45.6% | |
| Canada & Mexico | 15 | 22 | 28 | 28 | 30 | 30 | 30 | 32 | 33 | 34 | 31 | -10.5% | 8.5% | 3.1% | |
| Brazil | 222 | 197 | 181 | 218 | 238 | 283 | 254 | 263 | 300 | 333 | 324 | -2.7% | 4.3% | 32.5% | |
| Other S. & Cent. America | 12 | 13 | 15 | 18 | 20 | 22 | 24 | 26 | 27 | 27 | 23 | -14.4% | 10.2% | 2.3% | |
| Europe | 53 | 55 | 56 | 52 | 52 | 53 | 52 | 54 | 56 | 61 | 58 | -5.9% | 3.6% | 5.8% | |
| CIS | - | - | - | - | - | - | † | 1 | 1 | 2 | 2 | 9.9% | n/a | 0.2% | |
| Middle East | † | † | † | † | † | † | † | † | † | † | † | -26.4% | -4.4% | ♦ | |
| Africa | † | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | -0.9% | 8.9% | 0.1% | |
| Asia Pacific | 52 | 57 | 60 | 66 | 73 | 82 | 88 | 82 | 97 | 110 | 105 | -5.0% | 9.0% | 10.5% | |
| Total World | 819 | 810 | 804 | 861 | 900 | 974 | 965 | 981 | 1036 | 1093 | 997 | -8.8% | 4.1% | 100.0% | |
| of which: OECD | 541 | 552 | 556 | 567 | 579 | 598 | 610 | 620 | 623 | 632 | 555 | -12.2% | 3.2% | 55.6% | |
| Non-OECD | 278 | 258 | 248 | 294 | 322 | 377 | 355 | 361 | 413 | 461 | 442 | -4.1% | 5.6% | 44.4% | |
| European Union | 47 | 49 | 48 | 43 | 43 | 43 | 42 | 44 | 46 | 50 | 49 | -3.2% | 2.4% | 4.9% | |
| Biodiesel | | | | | | | | | | | | | | | |
| US | 15 | 49 | 50 | 80 | 79 | 83 | 116 | 111 | 106 | 101 | 104 | 2.5% | 18.9% | 15.2% | |
| Canada & Mexico | 3 | 7 | 9 | 8 | 8 | 7 | 6 | 9 | 10 | 11 | 9 | -17.2% | 28.0% | 1.3% | |
| Brazil | 35 | 38 | 40 | 43 | 50 | 58 | 56 | 63 | 79 | 87 | 95 | 8.6% | 14.2% | 13.9% | |
| Other S. & Cent. America | 18 | 24 | 28 | 28 | 30 | 31 | 31 | 35 | 34 | 35 | 22 | -36.3% | 21.1% | 3.3% | |
| Europe | 187 | 200 | 221 | 201 | 217 | 219 | 224 | 244 | 267 | 274 | 281 | 2.6% | 5.6% | 41.2% | |
| CIS | 1 | 1 | 1 | † | † | † | 1 | 1 | 1 | 1 | 1 | 16.6% | 11.4% | 0.2% | |
| Middle East | - | - | - | - | - | - | - | - | - | - | - | n/a | n/a | - | |
| Africa | - | - | - | - | - | - | - | - | - | - | - | n/a | n/a | - | |
| Asia Pacific | 34 | 40 | 54 | 75 | 97 | 66 | 97 | 93 | 126 | 169 | 170 | 0.6% | 19.3% | 24.9% | |
| Total World | 294 | 358 | 402 | 436 | 482 | 464 | 530 | 556 | 622 | 678 | 682 | 0.5% | 11.1% | 100.0% | |
| of which: OECD | 218 | 269 | 292 | 304 | 319 | 322 | 358 | 376 | 399 | 401 | 406 | 1.4% | 8.1% | 59.5% | |
| Non-OECD | 76 | 90 | 110 | 131 | 163 | 142 | 173 | 180 | 223 | 278 | 276 | -0.6% | 18.1% | 40.5% | |
| European Union | 169 | 184 | 207 | 181 | 198 | 204 | 206 | 221 | 239 | 237 | 245 | 3.4% | 5.2% | 35.9% | |

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

†Less than 0.5.

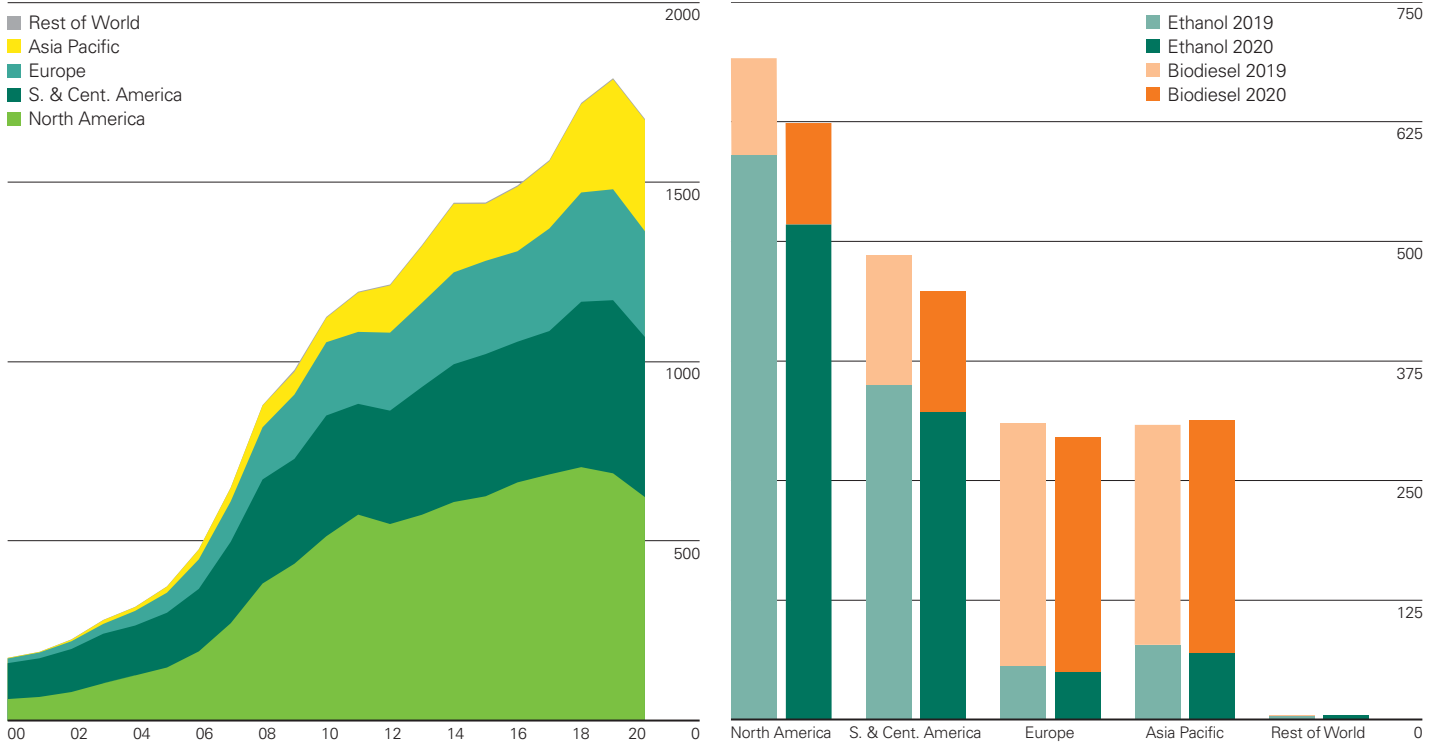
♦Less than 0.05%.

n/a not available.

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

World biofuels production

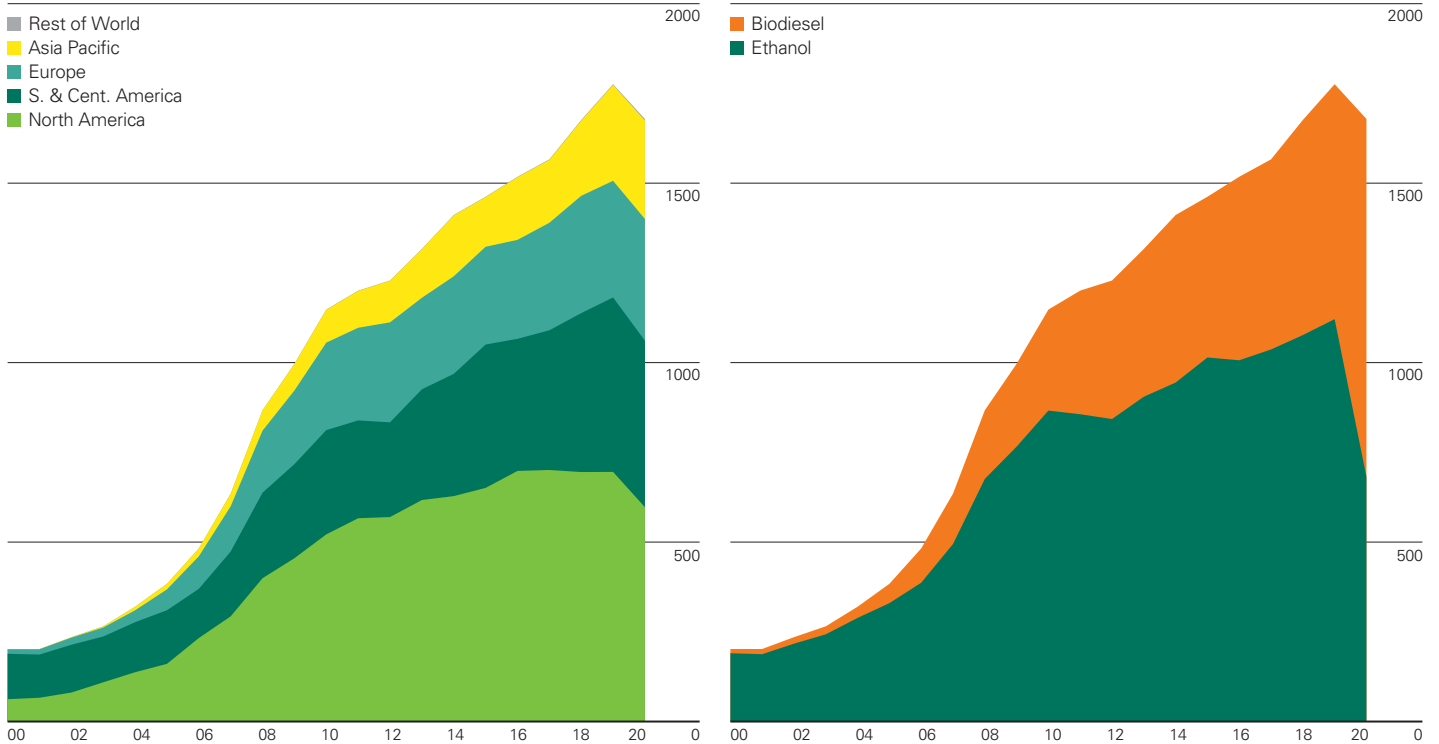
Thousand barrels of oil equivalent per day



Biofuels production fell 6% globally in 2020 (113,000 barrels of oil equivalent per day or boe/d) in contrast to the 6% average growth for the 10 years prior. Moderate growth in Asia (4,000 boe/d) was more than compensated by a decline in the US (64,000 boe/d), Argentina (19,000 boe/d) and Brazil (16,000 boe/d). Asia's production was resilient due to an increase in biodiesel whereas ethanol production decreased in all major regions by 7 to 12% (107,000 boe/d globally). Biodiesel is the dominant fuel produced in Europe and Asia Pacific (making up 83% and 77% of biofuels respectively in 2020), while ethanol is the main fuel in North America (83% of total) and South and Central America (72%).

World biofuels consumption

Thousand barrels of oil equivalent per day



Biofuels consumption fell by 5% (92,000 boe/d). As with production, the decline was largest in the US (68,000 boe/d), most of which was ethanol, but also in Argentina (13,000 boe/d), due to reduced biodiesel consumption. European biofuel consumption grew 1% in 2020 (3,000 boe/d). At the global level, ethanol made up 59% of biofuels in 2019, but the share of biodiesel has risen continually. For example, biodiesel's share was 26% in 2010 but rose to 41% last year.

Appendices

- A1** Geothermal – Cumulative installed geothermal power capacity
- A2** Solar PV generation capacity
- A3** Wind generation capacity

Renewable energy – geothermal

Cumulative installed geothermal power capacity*

| Megawatts | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Growth rate per annum | | Share 2020 |
|-------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------------|--------------|---------------|
| | | | | | | | | | | | | 2020 | 2009-19 | |
| Mexico | 965 | 887 | 824 | 823 | 813 | 906 | 926 | 926 | 951 | 936 | 906 | -3.4% | -0.3% | 6.4% |
| US | 2405 | 2409 | 2592 | 2607 | 2514 | 2542 | 2517 | 2483 | 2541 | 2555 | 2587 | 1.0% | 0.7% | 18.4% |
| Total North America | 3370 | 3296 | 3416 | 3430 | 3327 | 3448 | 3443 | 3409 | 3491 | 3491 | 3493 | -0.2% | 0.4% | 24.8% |
| Chile | – | – | – | – | – | – | – | 24 | 48 | 40 | 40 | 0.5% | n/a | 0.3% |
| Costa Rica | 166 | 218 | 218 | 218 | 218 | 217 | 207 | 207 | 207 | 262 | 262 | -0.2% | 4.7% | 1.9% |
| El Salvador | 204 | 204 | 204 | 204 | 204 | 204 | 204 | 204 | 204 | 204 | 204 | -0.5% | 0.0% | 1.4% |
| Guatemala | 54 | 54 | 54 | 49 | 49 | 49 | 49 | 49 | 49 | 52 | 49 | -6.0% | -0.4% | 0.3% |
| Honduras | – | – | – | – | – | – | – | 35 | 35 | 35 | 39 | 11.1% | n/a | 0.3% |
| Nicaragua | 88 | 88 | 165 | 155 | 155 | 155 | 155 | 155 | 155 | 153 | 153 | -0.4% | 5.8% | 1.1% |
| Other S. and Cent. America | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | -0.3% | 0.0% | 0.1% |
| Total S. & Cent. America | 527 | 578 | 656 | 641 | 641 | 640 | 630 | 689 | 713 | 761 | 762 | -0.2% | 3.7% | 5.4% |
| Croatia | – | – | – | – | – | – | – | – | 10 | 10 | 10 | -0.3% | n/a | 0.1% |
| France | – | 16 | 15 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 0.4% | n/a | 0.1% |
| Germany | 8 | 6 | 16 | 26 | 29 | 29 | 33 | 32 | 35 | 40 | 40 | -0.3% | 17.5% | 0.3% |
| Iceland | 575 | 665 | 665 | 665 | 665 | 665 | 665 | 710 | 756 | 756 | 756 | -0.3% | 2.8% | 5.4% |
| Italy | 728 | 728 | 728 | 729 | 768 | 768 | 767 | 767 | 767 | 767 | 797 | 3.6% | 1.0% | 5.7% |
| Portugal | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 29 | 29 | 29 | 29 | -0.6% | 1.5% | 0.2% |
| Turkey | 94 | 114 | 162 | 311 | 405 | 624 | 821 | 1064 | 1283 | 1515 | 1613 | 6.2% | 34.7% | 11.5% |
| Other Europe | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 4 | 4 | 4 | 4 | 0.6% | 16.0% | 0.0% |
| Total Europe | 1431 | 1555 | 1612 | 1773 | 1909 | 2128 | 2327 | 2622 | 2900 | 3137 | 3265 | 3.8% | 8.6% | 23.2% |
| Russian Federation | 81 | 81 | 81 | 79 | 78 | 78 | 78 | 74 | 74 | 74 | 74 | -0.3% | -0.9% | 0.5% |
| Total CIS | 81 | 81 | 81 | 79 | 78 | 78 | 78 | 78 | 78 | 74 | 74 | -0.3% | -0.9% | 0.5% |
| Ethiopia | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | -4.4% | 0.0% | 0.0% |
| Kenya | 198 | 198 | 206 | 206 | 366 | 604 | 638 | 648 | 664 | 824 | 824 | -0.3% | 17.6% | 5.9% |
| Total Africa | 205 | 205 | 213 | 213 | 373 | 611 | 645 | 655 | 671 | 831 | 831 | -0.3% | 17.2% | 5.9% |
| China | 24 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | -0.3% | 0.5% | 0.2% |
| Indonesia | 1189 | 1226 | 1336 | 1344 | 1404 | 1438 | 1533 | 1808 | 1948 | 2131 | 2131 | -0.2% | 6.0% | 15.1% |
| Japan | 537 | 537 | 512 | 512 | 508 | 516 | 526 | 481 | 482 | 525 | 525 | -0.3% | -0.2% | 3.7% |
| New Zealand | 731 | 726 | 726 | 798 | 924 | 941 | 941 | 941 | 952 | 952 | 984 | 3.1% | 4.2% | 7.0% |
| Philippines | 1847 | 1847 | 1847 | 1847 | 1916 | 1916 | 1916 | 1916 | 1928 | 1928 | 1928 | -0.3% | 0.4% | 13.7% |
| Papua New Guinea | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | -0.3% | 0.0% | 0.4% |
| Total Asia Pacific | 4384 | 4418 | 4503 | 4582 | 4834 | 4893 | 4998 | 5228 | 5392 | 5618 | 5650 | 0.3% | 2.7% | 40.1% |
| Total World | 9998 | 10133 | 10480 | 10718 | 11162 | 11799 | 12122 | 12681 | 13245 | 13912 | 14075 | 0.9% | 3.6% | 100.0% |
| Total World | 10358 | 10830 | 11091 | 11179 | 11614 | 11889 | 12452 | 13126 | 13568 | 14034 | 14601 | 4.0% | 3.4% | 100.0% |

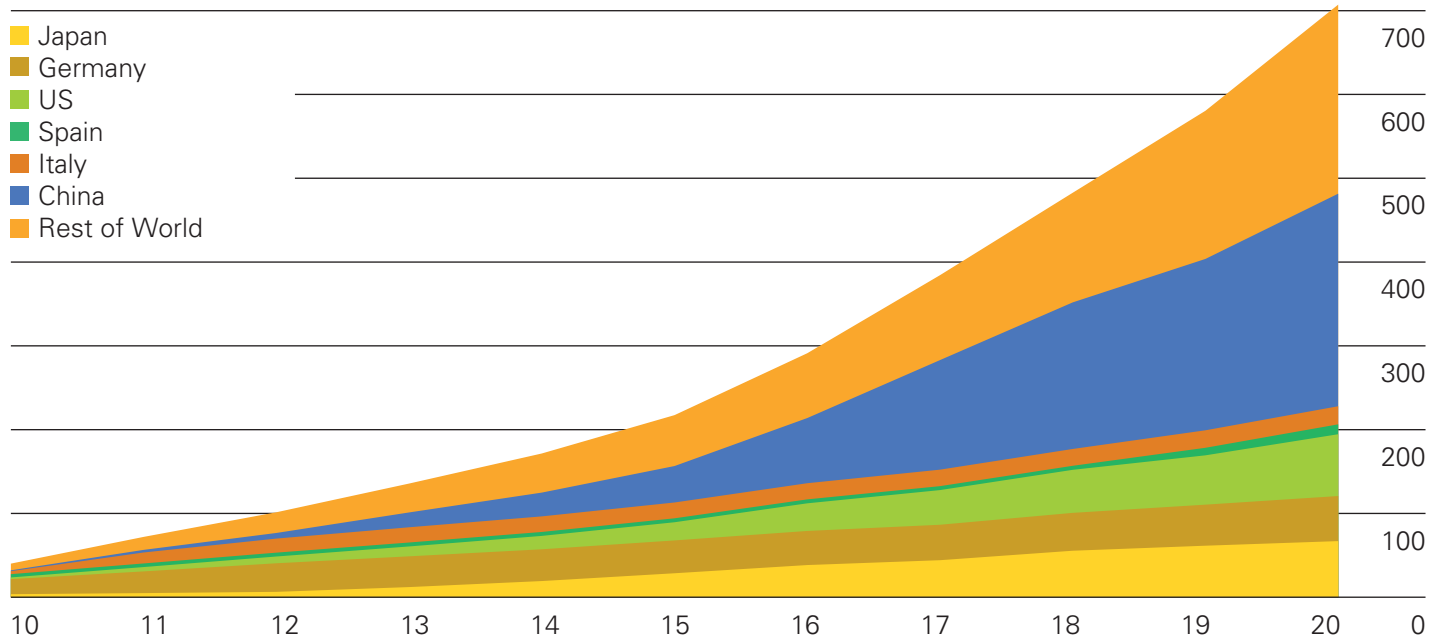
Source: statistics are taken from national statistical agencies, international organizations, and other proprietary sources. Includes data from International Renewable Energy Agency (IRENA, Abu Dhabi), BNEF, IHS.

*End of year installed capacity.
n/a not available.

Note: Growth rates are adjusted for leap years.

Solar PV generation capacity

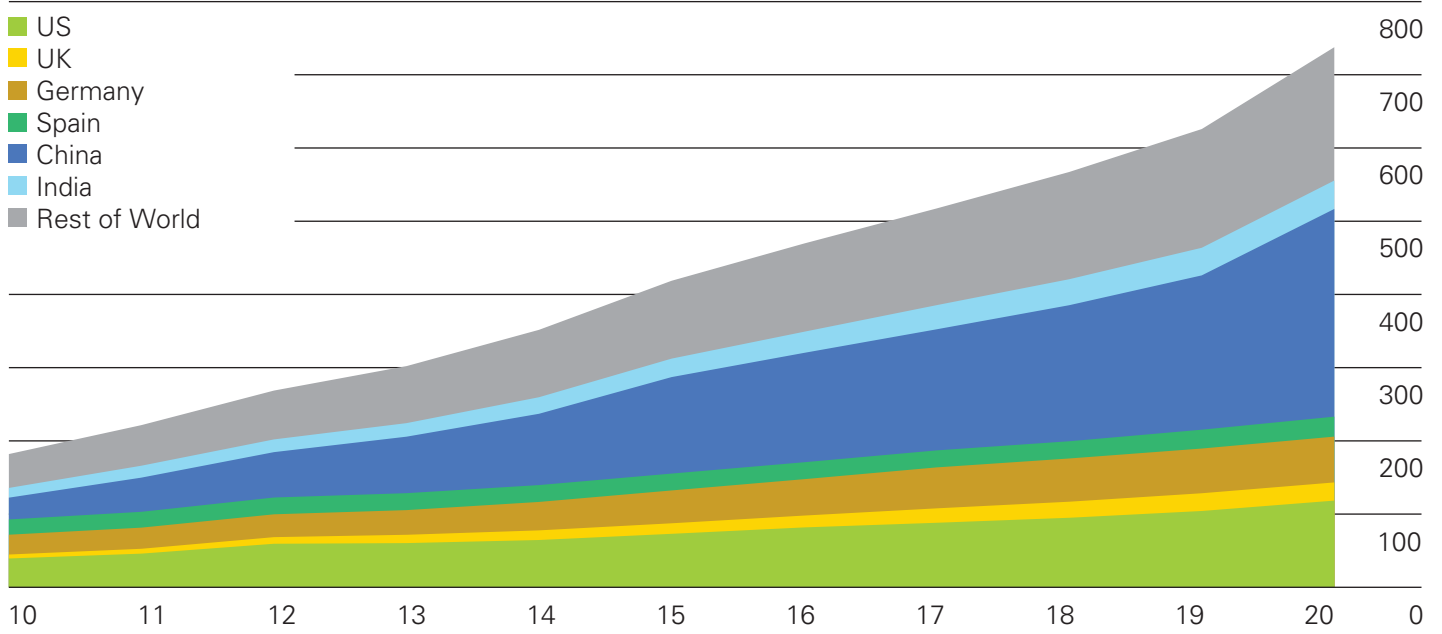
Gigawatts, cumulative installed capacity



Source: IRENA (2021), Renewable capacity statistics 2021 International Renewable Energy Agency (IRENA), Abu Dhabi.
Please find the data underpinning this chart in the Solar capacity section.

Wind generation capacity

Gigawatts, cumulative installed capacity



Source: IRENA (2021), Renewable capacity statistics 2021 International Renewable Energy Agency (IRENA), Abu Dhabi.
Please find the data underpinning this chart in the Wind capacity section.