

⑤ Renewable energy

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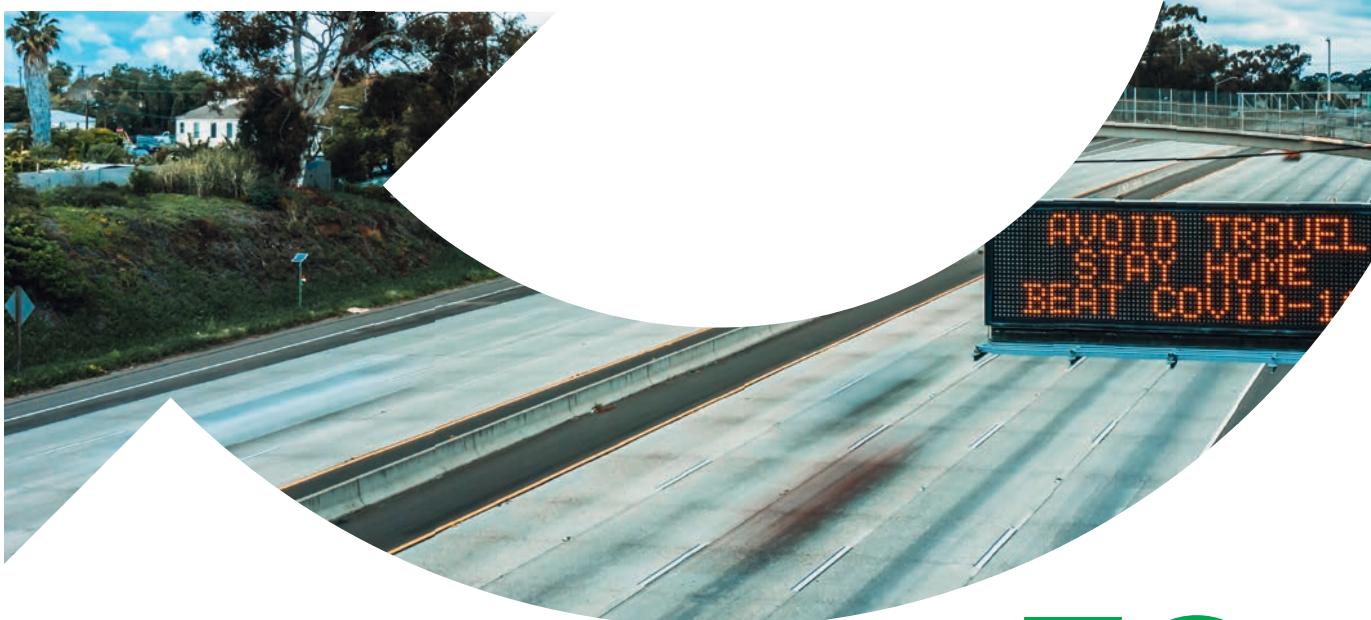
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Statistical Review of World Energy

2021 | 70th edition



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Reviewing world energy
data for 70 years

Renewables consumption*

Exajoules (input-equivalent)	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Growth rate per annum			Share 2020
											2020	2020	2009-19	
Canada	0.22	0.26	0.29	0.30	0.31	0.44	0.49	0.46	0.51	0.51	0.54	4.1%	11.0%	1.7%
Mexico	0.09	0.09	0.10	0.11	0.13	0.16	0.17	0.19	0.24	0.30	0.36	19.9%	13.8%	1.1%
US	2.70	3.03	3.27	3.70	3.98	4.19	4.74	5.17	5.44	5.71	6.15	7.4%	9.3%	19.4%
Total North America	3.00	3.38	3.66	4.10	4.42	4.78	5.41	5.82	6.19	6.52	7.04	7.7%	9.6%	22.2%
Argentina	0.04	0.05	0.07	0.07	0.08	0.08	0.08	0.09	0.08	0.12	0.13	10.0%	22.0%	0.4%
Brazil	0.89	0.85	0.87	1.02	1.19	1.41	1.46	1.59	1.80	1.99	2.01	0.7%	10.0%	6.3%
Chile	0.04	0.04	0.06	0.07	0.06	0.08	0.11	0.13	0.16	0.18	0.21	12.9%	18.9%	0.7%
Colombia	0.03	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.06	0.05	-6.6%	9.0%	0.2%
Ecuador	†	†	†	†	†	0.01	0.01	0.01	0.01	0.01	0.01	9.4%	13.2%	♦
Peru	0.01	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.05	7.0%	14.4%	0.1%
Trinidad & Tobago	†	†	†	†	†	†	†	†	†	†	†	-0.6%	-15.1%	♦
Venezuela	†	†	†	†	†	†	†	†	†	†	†	-0.6%	—	♦
Other S. & Cent. America	0.10	0.11	0.12	0.14	0.16	0.20	0.23	0.24	0.27	0.29	0.29	0.3%	12.8%	0.9%
Total S. & Cent. America	1.12	1.11	1.19	1.37	1.57	1.86	1.96	2.15	2.41	2.69	2.75	1.9%	11.1%	8.7%
Austria	0.08	0.08	0.09	0.10	0.11	0.12	0.12	0.13	0.13	0.15	0.14	-4.0%	6.0%	0.4%
Belgium	0.07	0.09	0.11	0.12	0.13	0.14	0.14	0.16	0.17	0.19	0.23	21.7%	13.5%	0.7%
Czech Republic	0.04	0.06	0.07	0.07	0.08	0.08	0.08	0.08	0.09	0.09	0.09	1.1%	11.3%	0.3%
Finland	0.11	0.12	0.12	0.13	0.14	0.14	0.14	0.17	0.18	0.19	0.19	0.2%	7.7%	0.6%
France	0.24	0.28	0.34	0.37	0.41	0.46	0.47	0.52	0.56	0.63	0.68	7.5%	11.1%	2.1%
Germany	0.90	1.11	1.25	1.30	1.43	1.66	1.64	1.88	1.97	2.10	2.21	4.7%	9.7%	7.0%
Greece	0.03	0.04	0.06	0.08	0.08	0.09	0.09	0.10	0.10	0.12	0.14	18.6%	14.6%	0.4%
Hungary	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.05	0.06	17.5%	4.1%	0.2%
Italy	0.30	0.40	0.53	0.60	0.61	0.63	0.65	0.67	0.64	0.65	0.67	2.6%	10.7%	2.1%
Netherlands	0.11	0.13	0.13	0.13	0.12	0.14	0.15	0.18	0.19	0.23	0.33	39.1%	7.1%	1.0%
Norway	0.02	0.02	0.02	0.03	0.03	0.03	0.04	0.05	0.05	0.07	0.11	52.0%	16.9%	0.4%
Poland	0.10	0.13	0.17	0.17	0.19	0.22	0.21	0.22	0.21	0.25	0.27	6.0%	11.4%	0.8%
Portugal	0.13	0.13	0.14	0.16	0.16	0.16	0.16	0.16	0.18	0.17	0.17	-3.8%	5.5%	0.5%
Romania	0.01	0.02	0.03	0.05	0.07	0.09	0.09	0.10	0.09	0.10	0.10	0.7%	30.4%	0.3%
Spain	0.57	0.59	0.70	0.72	0.69	0.67	0.66	0.68	0.69	0.73	0.77	4.8%	4.7%	2.4%
Sweden	0.17	0.19	0.21	0.22	0.24	0.29	0.30	0.33	0.32	0.36	0.41	14.0%	9.6%	1.3%
Switzerland	0.01	0.02	0.02	0.02	0.02	0.03	0.03	0.04	0.04	0.04	0.05	10.0%	13.6%	0.2%
Turkey	0.04	0.05	0.07	0.11	0.12	0.15	0.21	0.27	0.34	0.39	0.45	13.4%	34.1%	1.4%
Ukraine	†	†	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.05	0.09	75.9%	40.3%	0.3%
United Kingdom	0.26	0.32	0.37	0.49	0.59	0.74	0.74	0.88	0.99	1.09	1.20	9.9%	16.8%	3.8%
Other Europe	0.24	0.29	0.33	0.36	0.39	0.43	0.43	0.49	0.51	0.58	0.60	3.6%	11.1%	1.9%
Total Europe	3.48	4.11	4.79	5.26	5.64	6.32	6.41	7.14	7.52	8.24	8.94	8.2%	10.6%	28.2%
Azerbaijan	†	—	—	†	†	†	†	†	†	†	†	-3.5%	60.2%	♦
Belarus	†	†	†	†	†	†	†	†	†	†	†	4.2%	12.2%	♦
Kazakhstan	—	—	—	—	—	—	—	—	—	—	0.01	0.03	234.3%	—
Russian Federation	0.01	0.01	†	†	0.01	0.01	0.01	0.01	0.02	0.02	0.04	71.3%	16.6%	0.1%
Turkmenistan	†	†	†	†	†	†	†	†	†	†	†	-0.6%	—	♦
Uzbekistan	—	—	—	—	—	—	—	—	—	—	—	-0.6%	—	♦
Other CIS	†	†	†	†	†	†	†	†	†	†	†	-2.5%	41.7%	♦
Total CIS	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.03	0.04	0.08	96.9%	20.5%	0.2%
Iran	†	†	†	†	†	†	†	†	†	0.01	0.01	3.4%	14.5%	♦
Iraq	—	—	—	—	—	—	—	—	—	—	—	-0.6%	—	♦
Israel	†	†	†	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.05	70.1%	39.4%	0.2%
Kuwait	—	—	—	—	—	—	—	—	—	—	—	-0.6%	—	♦
Oman	—	—	—	—	—	—	—	—	—	—	—	1136.7%	—	♦
Qatar	—	—	—	—	—	—	—	—	—	—	—	-0.6%	—	♦
Saudi Arabia	†	†	†	†	†	†	†	†	†	†	†	0.01	0.01	109.2%
United Arab Emirates	†	†	†	†	†	†	†	†	†	0.01	0.01	0.04	0.05	32.3%
Other Middle East	†	†	†	†	†	†	0.01	0.01	0.02	0.03	0.04	22.7%	71.8%	0.1%
Total Middle East	†	0.01	0.01	0.01	0.02	0.02	0.03	0.05	0.07	0.12	0.17	34.2%	43.0%	0.5%
Algeria	†	†	†	†	†	†	†	†	†	0.01	0.01	0.01	—	-3.3%
Egypt	0.01	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.03	0.06	0.09	48.8%	19.4%	0.3%
Morocco	0.01	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.04	0.06	0.06	10.3%	31.2%	0.2%
South Africa	†	0.01	0.01	0.01	0.03	0.06	0.07	0.10	0.11	0.11	0.11	4.1%	34.1%	0.4%
Other Africa	0.04	0.04	0.04	0.05	0.06	0.08	0.08	0.09	0.10	0.11	0.11	-2.3%	13.6%	0.3%
Total Africa	0.06	0.07	0.07	0.08	0.12	0.18	0.22	0.25	0.28	0.34	0.38	10.4%	21.0%	1.2%
Australia	0.09	0.11	0.13	0.16	0.18	0.21	0.23	0.24	0.29	0.37	0.45	19.9%	17.2%	1.4%
Bangladesh	†	†	†	†	†	†	†	†	†	†	†	17.1%	26.9%	♦
China	0.77	1.05	1.36	1.81	2.23	2.64	3.44	4.61	5.81	6.75	7.79	15.1%	28.9%	24.6%
China Hong Kong SAR	†	†	†	†	†	†	†	†	†	†	†	44.5%	56.1%	♦
India	0.36	0.44	0.50	0.56	0.63	0.65	0.79	0.95	1.18	1.33	1.43	7.6%	16.2%	4.5%
Indonesia	0.10	0.10	0.11	0.12	0.16	0.13	0.20	0.21	0.26	0.35	0.37	6.3%	13.7%	1.2%
Japan	0.29	0.30	0.33	0.39	0.49	0.64	0.67	0.80	0.90	1.01	1.13	11.9%	14.8%	3.6%
Malaysia	0.01	0.02	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.04	5.4%	12.3%	0.1%
New Zealand	0.08	0.08	0.08	0.09	0.09	0.10	0.10	0.10	0.10	0.10	0.10	0.3%	4.1%	0.3%
Pakistan	†	†	†	†	†	0.01	0.01	0.02	0.04	0.05	0.04	-7.0%	98.6%	0.1%
Philippines	0.10	0.10	0.11	0.11	0.13	0.14	0.14	0.15	0.15	0.15	0.15	-0.5%	3.3%	0.5%
Singapore	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1.4%	5.5%	♦
South Korea	0.06	0.08	0.09	0.12	0.15	0.18	0.19	0.24	0.27	0.30	0.36	18.5%	27.0%	1.1%
Sri Lanka	†	†	†	†	†	†	†	†	†	†	0.01	42.1%	36.5%	♦
Taiwan	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.05	0.06	0.07	0.09	29.4%	10.5%	0.3%
Thailand	0.06	0.07	0.09	0.12	0.15	0.16	0.18	0.21	0.24	0.28	0.28	-3.3%	18.7%	0.9%
Vietnam	†	†	†	†	†	†	†	†	†	†	0.04	128.1%	48.7%	0.3%
Other Asia Pacific	†	†	†	†	†	0.01	0.01	0.01	0.01	0.01	0.02	12.4%	26.8%	♦
Total Asia Pacific	1.95	2.40 </												

Renewables: Renewable power generation*

Terawatt-hours	Growth rate per annum											Share 2020		
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020			
Canada	19.3	21.0	23.1	23.7	24.7	39.8	46.3	41.6	47.5	47.1	51.2	8.4%	11.6%	1.6%
Mexico	8.7	9.1	10.5	11.6	13.8	16.6	18.1	19.9	25.9	32.3	39.2	20.9%	14.7%	1.2%
US	173.7	201.9	228.3	266.2	296.8	315.8	367.4	417.7	451.6	483.7	551.7	13.8%	12.4%	17.5%
Total North America	201.7	231.9	261.9	301.5	335.3	372.2	431.9	479.3	525.0	563.1	642.1	13.7%	12.5%	20.4%
Argentina	2.0	2.2	2.8	2.9	2.9	3.0	2.5	3.0	2.0	6.4	11.2	74.5%	13.8%	0.4%
Brazil	34.1	35.3	40.8	47.6	59.3	71.6	84.9	96.1	106.3	117.6	120.3	2.1%	17.2%	3.8%
Chile	3.7	4.7	6.4	7.4	6.9	9.0	11.7	15.0	17.9	20.7	23.6	13.4%	19.6%	0.7%
Colombia	1.1	1.4	1.5	1.4	1.8	1.9	2.0	2.0	2.2	2.6	2.6	0.1%	9.5%	0.1%
Ecuador	0.2	0.3	0.3	0.4	0.5	0.5	0.6	0.5	0.5	0.7	0.7	4.0%	12.4%	♦
Peru	0.7	0.7	0.7	1.2	1.7	1.7	1.9	1.8	2.7	2.9	3.3	10.8%	20.4%	0.1%
Trinidad & Tobago	†	†	†	†	†	†	†	†	†	†	†	-0.3%	-14.6%	♦
Venezuela	†	†	†	†	†	†	†	†	†	†	†	-0.3%	-	♦
Other S. & Cent. America	9.0	9.4	11.5	13.0	15.4	19.4	22.7	24.1	27.8	30.3	31.1	2.1%	14.3%	1.0%
Total S. & Cent. America	50.9	54.0	64.1	73.8	88.6	107.1	126.4	142.6	159.4	181.4	192.9	6.1%	16.6%	6.1%
Austria	6.6	6.6	7.4	8.4	9.0	10.3	11.0	12.8	12.4	13.9	13.6	-2.3%	8.3%	0.4%
Belgium	6.2	8.2	10.1	11.3	12.0	14.2	14.0	15.6	16.8	19.2	23.5	22.0%	14.2%	0.7%
Czech Republic	3.1	5.2	6.0	6.5	7.3	7.6	7.4	7.7	7.8	8.0	8.0	-0.2%	13.6%	0.3%
Finland	11.3	11.7	11.6	12.7	12.8	13.7	14.5	16.7	18.8	19.4	19.5	0.3%	8.0%	0.6%
France	15.5	19.6	25.5	28.6	31.5	37.5	39.1	44.0	49.5	57.1	64.3	12.2%	16.3%	2.0%
Germany	84.2	106.4	121.3	129.3	142.9	169.8	169.1	196.2	206.8	222.7	232.4	4.1%	11.3%	7.4%
Greece	3.1	4.1	5.7	8.0	7.7	8.8	9.4	9.8	10.4	12.1	14.6	20.0%	15.7%	0.5%
Hungary	2.8	2.5	2.4	2.6	2.8	3.0	3.0	3.3	3.5	4.5	5.1	14.5%	5.3%	0.2%
Italy	25.8	37.1	50.3	59.2	62.1	63.4	65.6	67.7	65.6	69.5	70.3	0.8%	13.2%	2.2%
Netherlands	11.1	12.3	12.4	12.1	11.6	13.6	14.6	17.4	18.8	22.7	32.0	40.9%	7.8%	1.0%
Norway	1.2	1.6	1.9	2.3	2.5	2.8	2.4	3.1	4.1	5.9	10.3	74.3%	17.1%	0.3%
Poland	8.0	10.8	14.8	14.6	17.7	20.7	20.7	21.6	19.6	23.5	25.6	8.7%	14.1%	0.8%
Portugal	12.2	12.6	13.8	15.7	16.0	15.7	16.5	16.7	17.0	18.6	18.1	-2.9%	6.4%	0.6%
Romania	0.4	1.6	2.9	5.2	6.5	9.6	8.9	9.8	8.5	9.1	9.2	1.7%	84.3%	0.3%
Spain	54.6	55.6	66.4	74.2	71.1	68.9	68.2	69.5	69.8	73.8	80.5	8.8%	4.5%	2.6%
Sweden	15.7	17.6	19.4	21.3	22.0	27.1	27.1	29.9	28.9	33.5	40.1	19.3%	9.2%	1.3%
Switzerland	1.4	1.6	1.9	2.2	2.6	2.8	3.2	3.7	3.9	4.2	4.7	12.8%	12.4%	0.2%
Turkey	3.9	5.8	7.4	9.8	12.0	16.5	23.0	29.0	37.8	43.3	49.8	14.7%	34.8%	1.6%
Ukraine	0.2	0.3	0.8	1.3	1.7	1.7	1.6	1.9	2.6	5.3	9.7	83.4%	40.0%	0.3%
United Kingdom	22.6	29.5	35.9	48.5	58.6	77.1	77.6	93.0	104.6	114.6	127.8	11.2%	19.1%	4.1%
Other Europe	23.6	28.8	32.0	35.3	39.3	42.9	43.2	50.4	52.4	59.0	61.7	4.3%	11.4%	2.0%
Total Europe	313.6	379.5	449.9	509.2	549.7	627.5	640.2	719.7	759.9	840.0	921.0	9.4%	12.0%	29.3%
Azerbaijan	†	—	—	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	-3.1%	61.1%	♦
Belarus	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.5	0.5	4.7%	22.3%	♦
Kazakhstan	—	†	†	†	†	0.2	0.4	0.4	0.5	1.1	3.7	235.6%	—	0.1%
Russian Federation	0.5	0.6	0.5	0.5	0.8	1.0	1.1	1.2	1.4	1.8	3.5	92.4%	13.8%	0.1%
Turkmenistan	†	†	†	†	†	†	†	†	†	†	†	-0.3%	—	♦
Uzbekistan	—	—	—	—	—	—	†	†	†	†	†	-0.3%	—	♦
Other CIS	†	†	†	†	†	†	†	†	†	0.1	0.1	-2.2%	42.5%	♦
Total CIS	0.6	0.7	0.6	0.7	1.0	1.4	1.8	2.1	2.5	3.8	8.1	113.0%	20.9%	0.3%
Iran	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.8	0.9	1.0	3.8%	15.2%	♦
Iraq	—	—	—	†	0.1	0.1	0.1	0.1	0.4	0.4	0.4	-0.3%	—	♦
Israel	0.1	0.3	0.5	0.5	0.9	1.3	1.8	1.8	2.0	3.3	5.7	71.5%	46.0%	0.2%
Kuwait	—	—	—	†	†	†	†	0.1	0.1	0.2	0.2	-0.3%	—	♦
Oman	—	—	—	†	†	†	†	†	†	†	0.2	1141.3%	—	♦
Qatar	—	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-0.3%	—	♦
Saudi Arabia	†	†	†	†	†	†	†	†	0.1	0.2	1.0	-0.3%	110.5%	♦
United Arab Emirates	†	†	†	†	0.1	0.3	0.3	0.3	0.8	1.3	5.6	32.8%	91.3%	0.2%
Other Middle East	†	†	†	†	0.1	0.3	1.1	1.7	2.7	3.6	4.5	23.1%	72.8%	0.1%
Total Middle East	0.4	0.7	0.9	1.1	1.8	2.4	3.8	5.0	7.7	13.8	18.6	34.8%	45.4%	0.6%
Algeria	†	†	†	†	0.1	0.1	0.3	0.5	0.6	0.6	0.6	-3.0%	—	♦
Egypt	1.4	1.7	1.8	1.6	1.2	1.9	2.6	2.7	3.5	6.5	9.7	49.3%	20.1%	0.3%
Morocco	0.7	0.7	0.7	1.2	1.9	2.5	3.4	3.5	4.8	6.3	7.0	10.7%	32.0%	0.2%
South Africa	0.5	0.5	0.5	0.8	2.6	6.2	7.9	10.6	11.4	12.0	12.6	4.6%	37.4%	0.4%
Other Africa	3.8	3.9	4.5	5.2	6.7	8.9	9.4	9.7	10.8	12.6	12.4	-1.9%	14.3%	0.4%
Total Africa	6.3	6.9	7.6	8.8	12.5	19.7	23.6	27.0	31.2	38.0	42.3	10.9%	21.9%	1.3%
Australia	8.4	11.1	13.2	16.4	18.3	21.7	24.1	25.7	32.2	41.2	49.9	20.6%	18.6%	1.6%
Bangladesh	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.4	0.4	17.5%	27.6%	♦
China	75.0	104.3	136.8	183.8	229.5	279.1	369.5	502.0	636.4	742.0	863.1	16.0%	31.3%	27.4%
China Hong Kong SAR	†	†	†	†	†	0.1	0.1	0.1	0.1	0.1	0.1	60.5%	52.7%	♦
India	33.9	41.9	49.5	55.9	63.0	65.1	79.8	99.1	123.9	139.2	151.2	8.3%	17.4%	4.8%
Indonesia	9.4	9.5	9.6	9.5	10.2	10.3	11.0	13.1	14.5	14.9	16.8	12.8%	4.8%	0.5%
Japan	29.7	31.0	34.2	41.2	52.2	68.2	72.3	87.5	98.7	111.2	125.6	12.7%	15.3%	4.0%
Malaysia	1.3	1.5	1.5	1.2	0.9	1.0	1.1	1.1	2.0	2.6	3.1	19.4%	6.6%	0.1%
New Zealand	8.1	8.8	9.0	9.2	10.2	11.0	11.0	10.7	10.7	11.0	11.1	0.7%	4.8%	0.4%
Pakistan	†	†	0.1	0.3	0.6	1.0	2.3	4.2	5.4	5.4	5.0	-6.7%	99.8%	0.2%
Philippines	10.0	10.1	10.5	9.9	10.7	12.3	13.9	13.6	13.9	14.0	14.4	2.6%	3.0%	0.5%
Singapore	0.6	0.6	0.6	0.7	0.8	0.9	0.9	0.9	0.9	1.0	1.0	1.8%	6.1%	♦
South Korea	4.5	7.6	8.6	10.2	14.7	17.3	18.9	24.1	27.2	30.5	37.0	21.0%	32.8%	1.2%
Sri Lanka	0.1	0.1	0.2	0.3	0.3	0.4	0.5	0.7	0.7	0.8	1.1	42.6%	37.3%	♦
Taiwan	2.9	3.4	3.4	3.8	3.9	4.3	4.5	5.2	6.4	7.9	10.3	30.4%	12.0%	0.3%
Thailand	3.4	4.1	5.2	7.2	9.0	10.0	12.5	14.9	17.9	21.4	20.5	-4.5%	25.0%	0.7%
Vietnam	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.4	0.5	4.1	9.5	128.9%	49.5%	0.3%
Other Asia Pacific	0.2	0.2	0.2	0.3	0.4	0.6	0.7	0.9	1.2	1.5	1.7	12.8%	27.6%	0.1%
Total Asia Pacific	187.6	234.5	282.9	350.4	425.2	504.0	623.6	804.3	992.9	1149.2	1322.			

Renewable energy: Generation by source*

Terawatt-hours	2020 Growth rate											
	Wind	Solar	Other renewables‡	2019 Total	Wind	Solar	Other renewables‡	2020 Total	Wind	Solar	Other renewables‡	Total
Canada	32.7	4.2	10.3	47.1	36.1	4.4	10.7	51.2	10.2%	4.6%	3.9%	8.4%
Mexico	16.7	7.4	8.2	32.3	19.7	11.9	7.6	39.2	17.5%	60.7%	-7.9%	20.9%
US	298.9	108.0	76.8	483.7	340.9	134.0	76.8	551.7	13.8%	23.7%	-0.3%	13.8%
Total North America	348.3	119.6	95.3	563.1	396.7	150.3	95.1	642.1	13.6%	25.3%	-0.5%	13.7%
Argentina	5.0	0.8	0.6	6.4	9.5	1.3	0.4	11.2	89.0%	67.6%	-33.7%	74.5%
Brazil	56.0	6.7	54.9	117.6	57.0	8.0	55.4	120.3	1.6%	19.3%	0.5%	2.1%
Chile	4.9	6.3	9.5	20.7	5.6	7.6	10.3	23.6	14.6%	20.5%	8.0%	13.4%
Colombia	0.1	0.1	2.4	2.6	†	0.2	2.4	2.6	-54.3%	36.3%	-0.5%	0.1%
Ecuador	0.1	0.2	0.5	0.7	0.1	0.2	0.5	0.7	-0.3%	-0.3%	6.3%	4.0%
Peru	1.7	0.8	0.5	2.9	1.8	0.8	0.7	3.3	8.7%	1.7%	30.6%	10.8%
Trinidad & Tobago	—	†	—	†	—	†	—	—	—	-0.3%	—	-0.3%
Venezuela	—	†	—	†	—	†	—	—	—	-0.3%	—	-0.3%
Other S. & Cent. America	11.1	4.3	15.0	30.3	11.4	4.7	15.0	31.1	2.5%	10.5%	-0.5%	2.1%
Total S. & Cent. America	78.8	19.1	83.5	181.4	85.4	22.8	84.7	192.9	8.2%	19.0%	1.1%	6.1%
Austria	7.5	1.7	4.7	13.9	6.8	1.6	5.3	13.6	-9.4%	-6.8%	10.4%	-2.3%
Belgium	9.7	4.2	5.2	19.2	13.0	5.1	5.3	23.5	33.6%	20.6%	1.5%	22.0%
Czech Republic	0.7	2.3	5.0	8.0	0.7	2.2	5.1	8.0	-0.4%	-2.6%	0.9%	-0.2%
Finland	6.1	0.1	13.2	19.4	8.1	0.3	11.2	19.5	31.9%	73.7%	-15.1%	0.3%
France	34.6	11.7	10.7	57.1	40.6	13.1	10.6	64.3	17.0%	11.0%	-1.7%	12.2%
Germany	125.9	46.4	50.4	222.7	131.0	50.6	50.8	232.4	3.7%	8.8%	0.5%	4.1%
Greece	7.3	4.4	0.4	12.1	9.3	4.9	0.4	14.6	27.7%	9.7%	-7.5%	20.0%
Hungary	0.7	1.5	2.2	4.5	0.6	2.4	2.1	5.1	-12.0%	58.0%	-5.8%	14.5%
Italy	20.2	23.7	25.6	69.5	18.7	26.0	25.7	70.3	-7.7%	9.3%	-0.2%	0.8%
Netherlands	11.5	5.3	5.8	22.7	15.3	8.1	8.7	32.0	32.3%	50.6%	48.9%	40.9%
Norway	5.5	0.1	0.3	5.9	9.9	0.1	0.3	10.3	78.5%	26.1%	2.4%	74.3%
Poland	15.1	0.7	7.7	23.5	15.7	2.0	7.9	25.6	3.8%	179.3%	2.5%	8.7%
Portugal	13.7	1.3	3.6	18.6	12.4	1.7	4.0	18.1	-9.8%	25.9%	12.5%	-2.9%
Romania	6.8	1.8	0.5	9.1	7.0	1.7	0.6	9.2	2.4%	-4.5%	13.8%	1.7%
Spain	53.1	15.1	5.6	73.8	53.2	20.8	6.5	80.5	•	37.3%	14.9%	8.8%
Sweden	19.8	0.7	13.0	33.5	28.1	1.1	11.0	40.1	41.1%	58.9%	-15.9%	19.3%
Switzerland	0.1	2.2	1.9	4.2	0.2	2.6	1.9	4.7	15.7%	20.1%	4.0%	12.8%
Turkey	21.7	9.2	12.4	43.3	24.8	10.8	14.2	49.8	13.6%	16.8%	14.9%	14.7%
Ukraine	2.0	2.9	0.3	5.3	3.2	6.2	0.4	9.7	56.6%	110.3%	8.4%	83.4%
United Kingdom	64.3	12.9	37.3	114.6	75.6	12.8	39.4	127.8	17.2%	-1.2%	5.3%	11.2%
Other Europe	1.7	0.3	0.2	2.2	1.7	0.4	0.3	2.4	4.4%	22.1%	23.6%	8.7%
Total Europe	460.0	152.8	227.2	840.0	510.1	178.9	232.0	921.0	10.6%	16.8%	1.9%	9.4%
Azerbaijan	0.1	†	0.1	0.2	0.1	†	0.1	0.2	-10.0%	6.5%	♦	-3.1%
Belarus	0.2	0.2	0.1	0.5	0.2	0.2	0.1	0.5	10.5%	1.3%	1.6%	4.7%
Kazakhstan	0.7	0.4	†	1.1	1.1	2.6	†	3.7	60.1%	555.6%	5.7%	235.6%
Russian Federation	0.3	1.0	0.5	1.8	1.1	1.9	0.5	3.5	260.5%	88.5%	-1.8%	92.4%
Turkmenistan	—	†	—	†	—	†	—	—	-0.3%	—	—	-0.3%
Uzbekistan	—	†	—	†	—	†	—	—	-0.3%	—	—	-0.3%
Other CIS	†	0.1	†	0.1	†	0.1	†	0.1	-0.6%	-4.0%	-0.3%	-2.2%
Total CIS	1.3	1.7	0.8	3.8	2.6	4.8	0.8	8.1	93.4%	180.0%	-0.9%	113.0%
Iran	0.6	0.3	†	0.9	0.6	0.3	†	1.0	0.1%	12.5%	-0.3%	3.8%
Iraq	—	0.4	—	0.4	—	0.4	—	0.4	—	-0.3%	—	-0.3%
Israel	†	3.1	0.2	3.3	†	5.5	0.2	5.7	-0.3%	75.8%	-0.3%	71.5%
Kuwait	†	0.2	—	0.2	†	0.2	—	0.2	-0.3%	-0.3%	—	-0.3%
Oman	—	†	—	†	—	0.2	—	—	—	1141.3%	—	1141.3%
Qatar	—	†	0.1	0.1	—	†	0.1	0.1	—	-0.3%	-0.3%	-0.3%
Saudi Arabia	—	1.0	—	1.0	—	1.0	—	1.0	—	-0.3%	—	-0.3%
United Arab Emirates	—	4.2	†	4.2	—	5.6	†	5.6	—	32.8%	-0.3%	32.8%
Other Middle East	0.9	2.7	†	3.6	1.3	3.2	†	4.5	38.5%	18.1%	-0.3%	23.1%
Total Middle East	1.6	11.9	0.3	13.8	1.9	16.4	0.3	18.6	22.4%	37.4%	-0.3%	34.8%
Algeria	—	†	0.6	—	0.6	†	0.6	0.6	-20.2%	-2.7%	—	-3.0%
Egypt	4.6	1.9	—	6.5	6.8	2.9	—	9.7	48.5%	51.3%	—	49.3%
Morocco	4.7	1.6	—	6.3	5.4	1.6	—	7.0	14.4%	-0.3%	—	10.7%
South Africa	6.7	4.9	0.4	12.0	7.0	5.2	0.4	12.6	4.4%	5.3%	-0.3%	4.6%
Other Africa	2.9	1.9	7.8	12.6	2.6	2.1	7.6	12.4	-10.2%	12.9%	-2.3%	-1.9%
Total Africa	18.9	10.9	8.2	38.0	21.8	12.4	8.1	42.3	15.2%	13.5%	-2.2%	10.9%
Australia	19.5	18.3	3.5	41.2	22.6	23.8	3.4	49.9	15.8%	30.0%	-1.9%	20.6%
Bangladesh	†	0.3	†	0.4	†	0.4	†	0.4	-0.3%	17.9%	5.2%	17.5%
China	405.3	224.0	112.7	742.0	466.5	261.1	135.5	863.1	14.8%	16.2%	19.9%	16.0%
China Hong Kong SAR	†	†	0.1	0.1	†	†	0.1	0.1	21.7%	5.6%	61.7%	60.5%
India	63.3	46.3	29.7	139.2	60.4	58.7	32.1	151.2	-4.8%	26.5%	7.9%	8.3%
Indonesia	0.5	0.1	14.3	14.9	0.5	0.5	0.5	16.8	-2.2%	773.0%	10.4%	12.8%
Japan	6.7	72.3	32.2	111.2	7.8	82.9	34.9	125.6	15.1%	14.4%	8.1%	12.7%
Malaysia	—	0.7	1.9	2.6	—	1.2	1.9	3.1	68.8%	0.7%	—	19.4%
New Zealand	2.3	0.1	8.6	11.0	2.3	0.2	8.6	11.1	1.8%	24.2%	—	0.7%
Pakistan	3.1	1.6	0.6	5.4	2.7	1.7	0.6	5.0	-13.5%	3.1%	2.3%	-6.7%
Philippines	1.0	1.2	11.7	14.0	1.0	1.4	12.0	14.4	-1.7%	9.9%	2.2%	2.6%
Singapore	—	0.2	0.8	1.0	—	0.3	0.7	1.0	—	51.2%	-10.9%	1.8%
South Korea	2.7	13.0	14.9	30.5	3.1	16.6	17.3	37.0	16.9%	27.1%	16.4%	21.0%
Sri Lanka	0.3	0.4	0.1	0.8	0.6	0.4	0.1	1.1	95.6%	6.9%	-0.3%	42.6%
Taiwan	1.9	4.0	2.0	7.9	2.3	6.1	1.9	10.3	20.7%	51.2%	-2.2%	30.4%
Thailand	2.2	4.6	14.6	21.4	2.2	4.6	13.7	20.5	-0.3%	-0.3%	-6.4%	-4.5%
Vietnam	†	4.1	†	4.1	†	9.5	†	9.5	60.7%	129.0%	-7.0%	128.9%
Other Asia Pacific	0.5	0.8	0.3	1.5	0.5	1.1	0.2	1.7	-0.3%	27.4%	-10.9%	12.8%
Total Asia Pacific	509.4	392.0	247.8	1149.2	572.6	470.3	279.1	1322.0	12.1%	19.6%	12.3%	14.7%
Total World	1418.2	707.9	663.1	2789.2	1591.2	855.7	700.1	3147.0	11.9%	20.5%	5.3%	12.5%
of which: OECD	830.8	378.8	389.8	1599.3	932.9	455.7	400.0	1788.6	12.0%	20.0%	2.3%	11.5%
Non-OECD	587.3	329.2	273.4	1189.9	658.3	400.0	300.1	1358.4	11.8%	21.2%	9.5%	13.8%
European Union	364.5	125.2	168.8	658.5	394.7	146.1	169.6	710.4	8.0%	16.4%	0.2%	7.6%

*Based on gross output.

†Includes electricity generated from: geothermal, biomass and other sources of renewable energy (not already itemized).

‡Less than 0.05%.

◆Less than 0.05%.

A more extensive time series of renewables by source is available at bp.com/statisticalreview.

Note: Growth rates are adjusted for leap years.

Renewable energy: Solar capacity

Installed photovoltaic (PV) power* Gigawatts	Growth rate per annum											Share 2020	
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	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%
Mexico	—	†	0.1	0.1	0.1	0.2	0.4	0.7	2.5	4.4	5.6	26.9%	67.8%
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%
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%
Argentina	—	†	†	†	†	†	†	†	0.2	0.4	0.8	72.4%	n/a
Brazil	†	†	†	†	†	†	†	1.3	2.5	4.6	7.9	70.3%	n/a
Chile	—	—	†	†	0.2	0.6	1.1	1.8	2.1	2.6	3.1	21.2%	n/a
Honduras	†	†	†	†	†	0.4	0.4	0.5	0.5	0.5	0.5	-0.3%	64.7%
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%
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%
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%
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%
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%
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%
Denmark	†	†	0.4	0.6	0.6	0.8	0.9	0.9	1.0	1.1	1.3	20.0%	71.2%
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%
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%
Greece	0.2	0.6	1.5	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%
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%
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%
Poland	—	—	†	†	†	0.1	0.2	0.3	0.6	1.5	3.9	155.0%	n/a
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%
Romania	†	†	†	0.8	1.3	1.3	1.4	1.4	1.4	1.4	1.4	-1.1%	159.7%
Slovakia	—	—	†	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.2%	n/a
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%
Sweden	†	†	†	†	0.1	0.1	0.2	0.2	0.4	0.7	1.4	97.9%	54.9%
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%
Turkey	†	†	†	†	†	0.2	0.8	3.4	5.1	6.0	6.7	10.9%	104.4%
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
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%
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%
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%
Russian Federation	—	—	†	†	†	0.1	0.1	0.2	0.5	1.1	1.4	33.9%	n/a
Other CIS	†	†	†	†	0.1	0.1	0.2	0.2	0.5	1.2	1.8	50.5%	97.7%
Total CIS	†	†	†	†	0.1	0.2	0.2	0.4	1.0	2.3	3.2	42.7%	110.6%
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%
Jordan	—	—	†	†	†	†	†	0.3	0.4	0.8	1.4	23.1%	n/a
United Arab Emirates	†	†	†	†	†	†	†	†	0.3	0.5	2.4	33.8%	68.3%
Other Middle East	†	†	†	0.1	0.1	0.2	0.3	0.5	1.0	1.4	1.5	11.1%	68.0%
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%
Algeria	—	—	—	—	†	†	0.2	0.4	0.4	0.4	0.4	-0.3%	n/a
Egypt	†	†	†	†	†	†	†	0.2	0.7	1.6	1.7	1.7%	104.2%
Morocco	†	†	†	†	†	†	†	†	0.2	0.2	0.2	-0.3%	31.3%
South Africa	†	†	†	0.3	1.1	1.3	2.0	3.1	4.4	4.4	5.5	24.3%	n/a
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%
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%
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%
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%
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%
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%
Malaysia	†	†	†	0.1	0.2	0.2	0.3	0.4	0.5	0.9	1.5	68.8%	109.6%
Pakistan	†	†	†	0.1	0.2	0.3	0.6	0.7	0.7	0.7	0.7	3.1%	69.2%
Philippines	†	†	†	†	†	0.2	0.8	0.9	0.9	1.0	1.0	7.4%	99.0%
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%
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%
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%
Vietnam	†	†	†	†	†	†	†	†	0.1	4.9	16.5	236.0%	106.3%
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%
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%
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	Growth rate per annum											Share 2020
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
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%
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%
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%
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%
Argentina	†	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.8	1.6	2.6	62.6%
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%
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%
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%
Uruguay	†	†	0.1	0.1	0.5	0.9	1.2	1.5	1.5	1.5	1.5	-0.3%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
Ukraine	0.1	0.1	0.2	0.4	0.5	0.5	0.6	0.6	0.6	1.3	1.4	11.2%
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%
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%
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%
Russian Federation	†	†	†	†	†	†	†	†	0.1	0.1	0.9	824.8%
Other CIS	†	†	†	†	0.1	0.1	0.1	0.2	0.2	0.4	0.6	53.4%
Total CIS	†	†	†	†	0.1	0.1	0.1	0.2	0.3	0.5	1.5	218.3%
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%
Jordan	†	†	†	†	†	0.1	0.2	0.2	0.3	0.4	0.5	38.8%
Other Middle East	†	†	†	†	†	†	†	†	†	0.1	0.1	-0.1%
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%
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%
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%
South Africa	†	†	†	0.3	0.6	1.1	1.5	2.1	2.1	2.1	2.6	25.5%
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%
Other Africa	†	0.1	0.1	0.2	0.2	0.5	0.5	0.8	0.8	0.8	0.8	-0.3%
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%
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%
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%
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%
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%
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%
Pakistan	†	†	0.1	0.1	0.2	0.3	0.6	0.8	1.2	1.2	1.2	-0.3%
Philippines	†	†	†	†	0.3	0.4	0.4	0.4	0.4	0.4	0.4	-0.3%
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%
Taiwan	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.8	0.8	-0.3%
Thailand	†	†	0.1	0.2	0.2	0.2	0.5	0.6	1.1	1.5	1.5	-0.3%
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%
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%
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%

*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.

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

Renewables: Biofuels production*

Thousand barrels of oil equivalent per day	Growth rate per annum											Share 2020		
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020			
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	7	6	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	Growth rate per annum											Share 2020		
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020			
Biogasoline														
Canada & Mexico	13	16	16	16	17	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^b														
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.

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

^bLess 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												Growth rate per annum			Share 2020
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	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	8	8	9	11	14	18	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	21	24	31	31	23	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	-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												Growth rate per annum			Share 2020
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	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	—	—	—	—	—	—	—	—	—	—	—	9.9%	n/a	0.2%	
Middle East	†	†	†	†	†	†	†	†	†	†	0	-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.

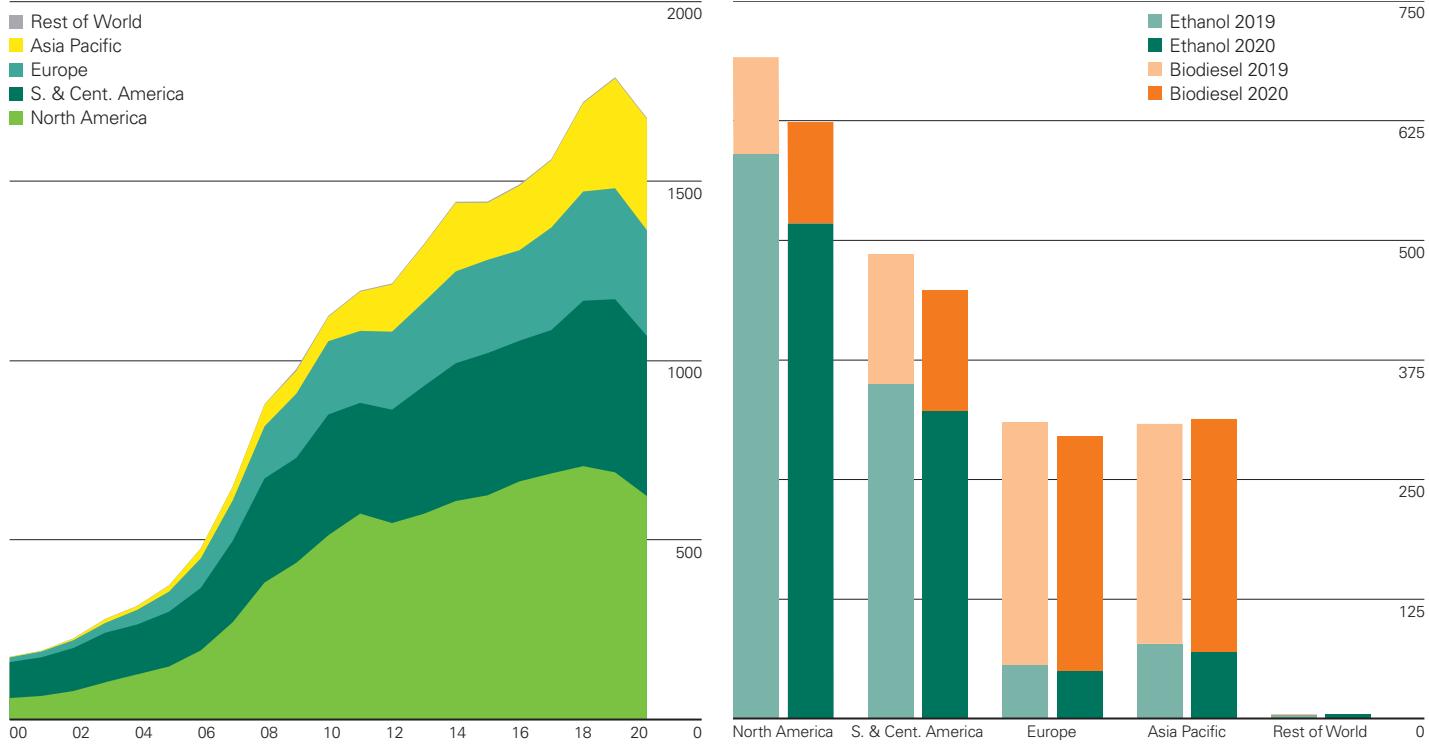
♦Less than 0.05%.

n/a not available.

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

World biofuels production

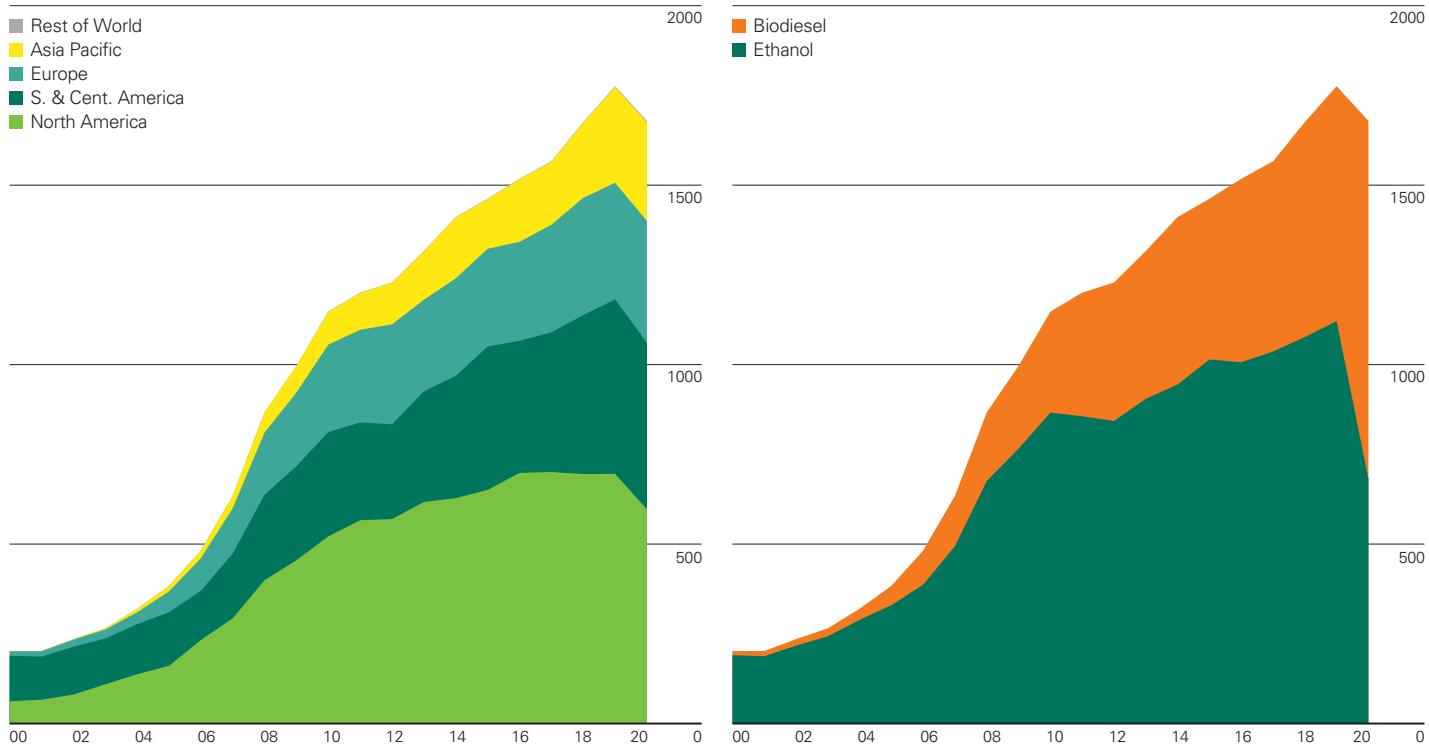
Thousand barrels of oil equivalent per day



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	Growth rate per annum		Share 2020	
											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	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	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.

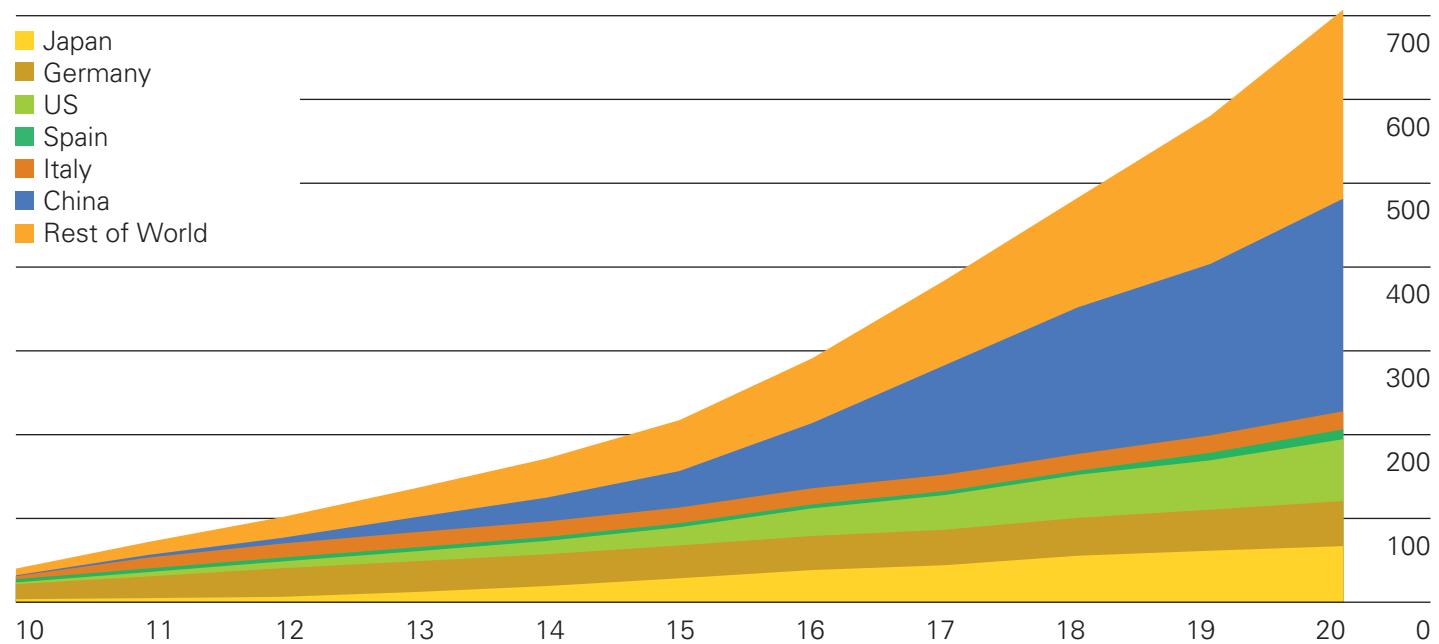
*End of year installed capacity.

n/a not available.

Note: Growth rates are adjusted for leap years.

Solar PV generation capacity

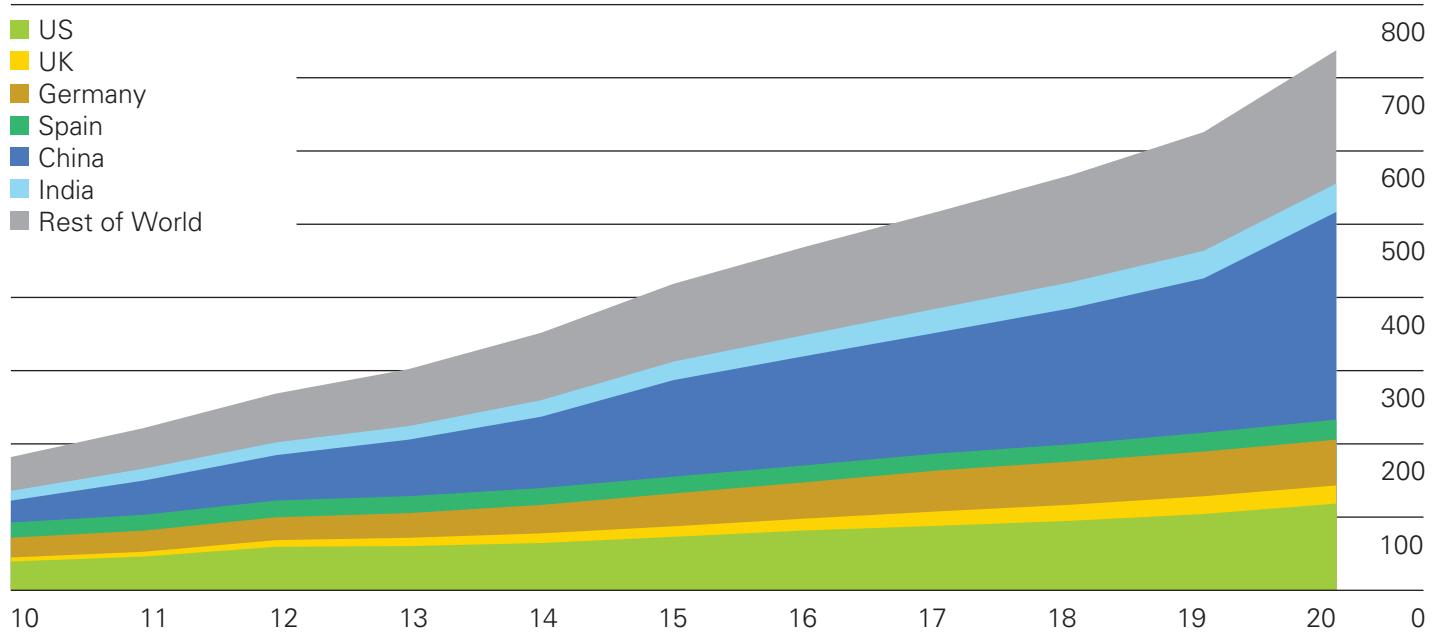
Gigawatts, cumulative installed capacity



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.