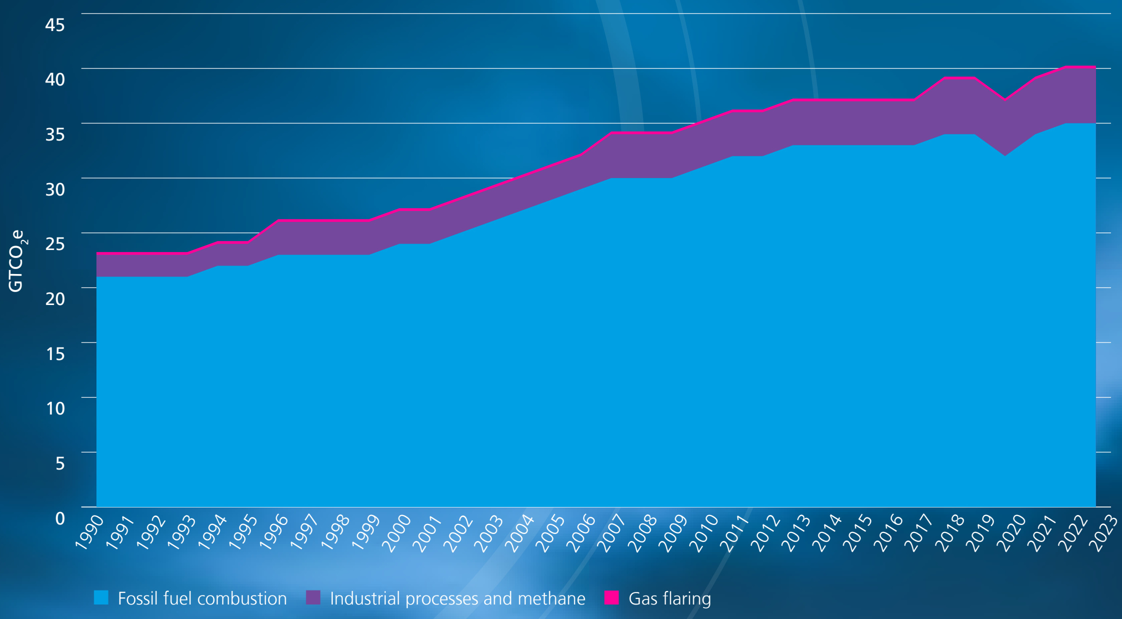
Primary energy and carbon

2023 saw a second consecutive record year for global primary energy consumption as it grew by 2%, reaching 620 EJ. Its growth rate was 0.6% above its ten-year average and over 5% above its 2019 pre-COVID level. Whilst a new record in the consumption of fossil fuels (in absolute terms) was recorded. In 2023, it fell to 81.5% compared to almost 81.9% in 2022. With demand for natural gas, a relatively low carbon-intensive fossil fuel, remaining flat, the increased use of more carbon-intensive oil and coal meant that energy-related greenhouse gas emissions also reached a record high, exceeding 40 $GtCO_2e$ for the very first time. CO_2 emissions from the combustion of fossil fuels is by far the largest source of energy-related greenhouse gas emissions contributing around 87% of the total.

2023 global energy-related greenhouse gas emissions exceeded 40 gigatonnes for the first time ever



Primary energy Consumption*

												Growth rate per annum		Share
Exajoules	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	**2023**	2023	2013–23	2023
Canada	14.40	14.43	14.47	14.34	14.54	14.72	14.64	13.76	13.92	14.30	**13.95**	-2.4%	-0.3%	2.3%
Mexico	8.07	8.03	7.94	8.11	8.26	8.15	8.07	7.35	7.83	8.18	**8.45**	3.3%	0.5%	1.4%
US	92.62	93.59	92.69	92.62	92.97	96.37	95.68	88.64	93.44	95.42	**94.28**	-1.2%	0.2%	15.2%
Total North America	115.09	116.04	115.10	115.07	115.76	119.25	118.40	109.75	115.20	117.90	**116.68**	-1.0%	0.1%	18.8%
Argentina	3.53	3.53	3.59	3.57	3.57	3.54	3.34	3.13	3.45	3.71	**3.67**	-0.9%	0.4%	0.6%
Brazil	12.51	12.83	12.66	12.36	12.47	12.51	12.72	12.22	12.85	13.44	**13.87**	3.3%	1.0%	2.2%
Chile	1.49	1.47	1.49	1.56	1.62	1.69	1.71	1.59	1.72	1.81	**1.81**	0.1%	2.0%	0.3%
Colombia	1.75	1.84	1.74	1.96	1.98	2.01	2.03	1.85	2.07	2.20	**2.26**	2.7%	2.6%	0.4%
Ecuador	0.65	0.68	0.68	0.67	0.70	0.74	0.76	0.66	0.77	0.80	**0.84**	5.2%	2.7%	0.1%
Peru	0.95	0.97	1.01	1.08	1.09	1.15	1.18	1.04	1.18	1.22	**1.24**	1.7%	2.7%	0.2%
Trinidad & Tobago	0.82	0.82	0.80	0.70	0.75	0.70	0.70	0.61	0.62	0.62	**0.59**	-5.3%	-3.3%	0.1%
Venezuela	3.73	3.65	3.49	3.20	3.14	2.62	2.37	1.90	2.17	2.34	**2.53**	8.1%	-3.8%	0.4%
Other S. & Cent. America	3.90	3.92	4.11	4.33	4.33	4.41	4.39	3.93	4.15	4.24	**4.46**	5.2%	1.4%	0.7%
Total S. & Cent. America	29.32	29.71	29.57	29.44	29.65	29.37	29.19	26.92	28.99	30.37	**31.28**	3.0%	0.6%	5.0%
Austria	1.48	1.42	1.43	1.47	1.50	1.47	1.54	1.44	1.46	1.37	**1.39**	1.3%	-0.7%	0.2%
Belgium	2.53	2.34	2.37	2.55	2.58	2.57	2.66	2.39	2.66	2.50	**2.31**	-7.5%	-0.9%	0.4%
Czech Republic	1.76	1.73	1.69	1.67	1.77	1.76	1.72	1.59	1.68	1.64	**1.52**	-7.1%	-1.5%	0.2%
Finland	1.23	1.19	1.18	1.20	1.18	1.20	1.18	1.13	1.15	1.15	**1.20**	3.6%	-0.3%	0.2%
France	10.53	10.07	10.16	9.96	9.92	10.04	9.83	8.79	9.34	8.27	**8.66**	4.7%	-1.9%	1.4%
Germany	13.93	13.36	13.61	13.83	14.00	13.64	13.30	12.40	12.76	12.29	**11.41**	-7.1%	-2.0%	1.8%
Greece	1.18	1.11	1.12	1.11	1.16	1.17	1.14	1.00	1.09	1.13	**1.10**	-2.9%	-0.7%	0.2%
Hungary	0.86	0.86	0.90	0.92	0.97	0.98	0.99	0.97	1.02	0.96	**0.91**	-5.3%	0.6%	0.1%
Italy	6.69	6.34	6.53	6.56	6.64	6.67	6.55	5.95	6.37	6.19	**5.95**	-3.9%	-1.2%	1.0%
Netherlands	3.83	3.66	3.69	3.76	3.79	3.70	3.68	3.56	3.65	3.44	**3.44**	-0.1%	-1.1%	0.6%
Norway	1.89	1.95	1.98	2.01	2.02	1.99	1.86	2.01	2.05	1.92	**1.99**	3.8%	0.5%	0.3%
Poland	4.07	3.92	3.97	4.14	4.35	4.40	4.27	4.10	4.41	4.27	**4.12**	-3.7%	0.1%	0.7%
Portugal	1.04	1.05	1.04	1.12	1.09	1.11	1.06	0.95	0.96	0.95	**0.95**	0.3%	-0.9%	0.2%
Romania	1.33	1.36	1.37	1.37	1.40	1.41	1.38	1.33	1.40	1.30	**1.28**	-1.6%	-0.4%	0.2%
Spain	5.68	5.60	5.66	5.70	5.77	5.86	5.70	5.12	5.51	5.73	**5.66**	-1.1%	†	0.9%
Sweden	2.17	2.16	2.24	2.19	2.27	2.19	2.25	2.16	2.28	2.24	**2.15**	-3.9%	-0.1%	0.3%
Switzerland	1.29	1.24	1.21	1.14	1.14	1.16	1.21	1.11	1.07	1.04	**1.13**	8.5%	-1.3%	0.2%
Türkiye	5.08	5.24	5.72	6.01	6.43	6.44	6.66	6.56	7.02	7.10	**7.00**	-1.4%	3.3%	1.1%
Ukraine	4.93	4.35	3.61	3.78	3.51	3.64	3.45	3.31	3.36	2.33	**2.22**	-4.6%	-7.7%	0.4%
United Kingdom	8.56	8.09	8.21	8.08	8.10	8.09	7.92	7.10	7.17	7.27	**6.95**	-4.4%	-2.1%	1.1%
Other Europe	6.41	6.19	6.33	6.50	6.62	6.73	6.56	6.19	6.59	6.52	**6.51**	-0.2%	0.2%	1.1%
Total Europe	86.47	83.23	84.05	85.06	86.19	86.21	84.90	79.16	83.01	79.60	**77.85**	-2.2%	-1.0%	12.6%
Azerbaijan	0.56	0.57	0.62	0.61	0.60	0.63	0.67	0.67	0.71	0.76	**0.82**	8.4%	4.0%	0.1%
Belarus	1.06	1.06	0.96	0.98	1.00	1.11	1.11	1.03	1.10	1.06	**1.07**	0.6%	0.1%	0.2%
Kazakhstan	2.63	2.77	2.29	2.56	2.75	2.84	2.88	2.65	2.96	2.95	**2.98**	1.1%	1.2%	0.5%
Russian Federation	28.92	29.01	28.55	29.11	29.29	30.36	30.13	29.08	30.01	31.08	**31.29**	0.7%	0.8%	5.1%
Turkmenistan	0.96	1.02	1.16	1.26	1.17	1.32	1.26	1.58	1.60	1.63	**1.60**	-1.7%	5.2%	0.3%
Uzbekistan	1.96	2.04	1.94	1.88	1.93	1.94	1.95	1.94	2.04	2.12	**2.10**	-0.7%	0.7%	0.3%
Other CIS	0.72	0.75	0.75	0.75	0.78	0.85	0.82	0.82	0.84	0.84	**0.86**	2.6%	1.7%	0.1%
Total CIS	36.81	37.21	36.27	37.15	37.52	39.05	38.82	37.78	39.25	40.43	**40.72**	0.7%	1.0%	6.6%
Iran	9.55	9.97	9.85	10.39	10.78	11.15	11.75	12.20	11.96	12.48	**12.71**	1.9%	2.9%	2.1%
Iraq	1.69	1.64	1.61	1.75	2.04	2.13	2.30	2.06	2.13	2.39	**2.51**	5.1%	4.0%	0.4%
Israel	0.96	0.94	0.99	1.01	1.03	1.05	1.09	1.03	1.05	1.11	**1.11**	0.3%	1.5%	0.2%
Kuwait	1.53	1.49	1.60	1.59	1.60	1.66	1.51	1.43	1.53	1.56	**1.58**	1.3%	0.3%	0.3%
Oman	1.14	1.14	1.21	1.22	1.27	1.35	1.34	1.30	1.42	1.50	**1.55**	3.2%	3.1%	0.2%
Qatar	1.74	1.88	2.14	2.10	2.03	2.01	2.10	1.84	1.95	2.04	**2.22**	8.7%	2.5%	0.4%
Saudi Arabia	9.83	10.55	11.00	11.45	11.45	11.17	10.68	10.39	10.73	11.34	**11.60**	2.3%	1.7%	1.9%
United Arab Emirates	4.08	4.07	4.42	4.59	4.38	4.14	4.39	4.34	4.49	4.88	**5.13**	5.2%	2.3%	0.8%
Other Middle East	2.15	2.14	2.00	1.96	2.00	2.00	2.00	1.93	2.01	1.99	**2.05**	2.7%	-0.5%	0.3%
Total Middle East	32.67	33.81	34.82	36.05	36.59	36.65	37.17	36.51	37.27	39.29	**40.46**	3.0%	2.2%	6.5%
Algeria	1.93	2.11	2.22	2.22	2.25	2.41	2.50	2.34	2.55	2.64	**2.54**	-4.0%	2.8%	0.4%
Egypt	3.50	3.46	3.51	3.71	3.85	3.86	3.78	3.56	3.81	3.98	**3.94**	-1.1%	1.2%	0.6%
Morocco	0.77	0.78	0.80	0.80	0.84	0.87	0.95	0.87	0.97	0.96	**0.98**	1.6%	2.4%	0.2%
South Africa	5.15	5.21	5.10	5.34	5.32	5.12	5.35	5.01	5.06	4.87	**4.85**	-0.4%	-0.6%	0.8%
Other Africa	5.95	6.22	6.53	6.60	7.04	7.52	7.61	7.36	8.36	8.49	**8.56**	0.7%	3.7%	1.4%
Total Africa	17.31	17.78	18.16	18.67	19.29	19.77	20.20	19.14	20.75	20.95	**20.87**	-0.5%	1.9%	3.4%
Australia	5.60	5.64	5.76	5.78	5.77	5.85	6.05	5.71	5.72	5.98	**6.02**	0.7%	0.7%	1.0%
Bangladesh	1.10	1.15	1.39	1.39	1.45	1.55	1.74	1.65	1.77	1.86	**1.83**	-1.8%	5.2%	0.3%
China	121.87	125.02	126.49	127.00	131.94	138.27	144.68	149.38	157.85	160.26	**170.74**	6.5%	3.4%	27.6%
China Hong Kong SAR	1.17	1.14	1.18	1.21	1.29	1.31	1.24	0.93	0.88	0.78	**0.90**	15.4%	-2.6%	0.1%
India	25.84	27.59	28.55	29.83	30.96	32.72	33.54	31.78	34.51	36.37	**39.02**	7.3%	4.2%	6.3%
Indonesia	6.52	6.62	6.72	6.83	7.08	7.75	8.28	7.79	7.97	10.05	**10.11**	0.6%	4.5%	1.6%
Japan	20.07	19.55	19.31	19.06	19.28	19.14	18.74	17.37	18.13	18.02	**17.40**	-3.4%	-1.4%	2.8%
Malaysia	3.91	3.95	4.01	4.22	4.28	4.35	4.47	4.31	4.49	4.79	**4.81**	0.3%	2.1%	0.8%
New Zealand	0.86	0.90	0.91	0.92	0.94	0.93	0.95	0.86	0.85	0.84	**0.86**	3.0%	†	0.1%
Pakistan	2.71	2.79	2.94	1.95	3.39	3.50	3.54	3.52	3.90	3.60	**3.37**	-6.2%	2.2%	0.5%
Philippines	1.39	1.46	1.60	1.74	1.91	1.98	2.04	1.85	1.96	2.06	**2.19**	6.7%	4.7%	0.4%
Singapore	2.92	2.98	3.16	3.34	3.42	3.42	3.35	3.28	3.28	3.17	**3.47**	9.3%	1.7%	0.6%
South Korea	11.61	11.71	11.91	12.27	12.40	12.61	12.47	12.05	12.62	12.75	**12.43**	-2.5%	0.7%	2.0%
Sri Lanka	0.29	0.31	0.33	0.36	0.38	0.40	0.41	0.38	0.39	0.35	**0.36**	1.8%	2.3%	0.1%
Taiwan	4.70	4.80	4.80	4.82	4.83	4.88	4.79	4.65	4.94	4.75	**4.53**	-4.6%	-0.4%	0.7%
Thailand	4.73	4.89	4.96	5.06	5.16	5.32	5.33	4.95	4.99	5.00	**5.01**	0.2%	0.6%	0.8%
Vietnam	2.37	2.62	2.98	3.24	3.47	3.90	4.33	4.34	4.35	4.48	**4.89**	9.2%	7.5%	0.8%
Other Asia Pacific	2.14	2.29	2.37	2.52	3.15	3.28	3.45	3.55	3.54	3.70	**3.83**	3.5%	6.0%	0.6%
Total Asia Pacific	219.80	225.42	229.36	231.54	241.10	251.16	259.38	258.34	272.15	278.81	**291.77**	4.7%	2.9%	47.1%
Total World	**537.48**	**543.21**	**547.33**	**552.99**	**566.11**	**581.47**	**588.05**	**567.60**	**596.62**	**607.35**	**619.63**	**2.0%**	**1.4%**	**100.0%**
of which: OECD	234.81	232.88	233.43	234.62	237.13	240.65	238.53	221.91	232.56	233.55	**229.90**	-1.6%	-0.2%	37.1%
Non-OECD	302.66	310.32	313.89	318.36	328.98	340.81	349.52	345.69	364.07	373.80	**389.73**	4.3%	2.6%	62.9%
European Union	62.74	60.54	61.38	62.01	62.98	62.79	61.76	57.11	60.21	57.85	**56.38**	-2.5%	-1.1%	9.1%

* In this review, primary energy comprises commercially-traded fuels, including modern renewables used to generate electricity.
Energy from all sources of non-fossil power generation is accounted for on an input-equivalent basis. See the appendix or **https://www.energyinst.org/statistical-review** for more details on this methodology.
† Less than 0.05%.

P Primary energy Consumption by fuel*

Exajoules	2022							2023						
	Oil	Natural gas	Coal	Nuclear energy	Hydro-electricity	Renewables	Total	Oil	Natural gas	Coal	Nuclear energy	Hydro-electricity	Renewables	Total
Canada	4.31	4.46	0.39	0.78	3.73	0.64	**14.30**	4.35	4.35	0.37	0.80	3.41	0.68	**13.95**
Mexico	3.77	3.27	0.24	0.10	0.33	0.46	**8.18**	3.84	3.51	0.26	0.11	0.19	0.54	**8.45**
US	35.75	31.67	9.91	7.31	2.36	8.42	**95.42**	35.86	31.91	8.20	7.32	2.21	8.78	**94.28**
Total North America	43.83	39.40	10.54	8.19	6.43	9.51	**117.90**	44.05	39.77	8.83	8.23	5.81	9.99	**116.68**
Argentina	1.48	1.65	0.05	0.07	0.21	0.24	**3.71**	1.41	1.62	0.05	0.08	0.28	0.24	**3.67**
Brazil	5.01	1.15	0.59	0.13	4.01	2.55	**13.44**	5.11	1.08	0.57	0.13	4.01	2.97	**13.87**
Chile	0.82	0.26	0.24	–	0.19	0.30	**1.81**	0.83	0.25	0.18	–	0.22	0.33	**1.81**
Colombia	0.96	0.45	0.10	–	0.60	0.08	**2.20**	0.98	0.47	0.16	–	0.56	0.09	**2.26**
Ecuador	0.54	0.02	^	–	0.23	0.01	**0.80**	0.58	0.02	^	–	0.24	0.01	**0.84**
Peru	0.50	0.35	0.03	–	0.28	0.05	**1.22**	0.52	0.36	0.03	–	0.27	0.05	**1.24**
Trinidad & Tobago	0.07	0.56	–	–	–	^	**0.62**	0.07	0.52	–	–	–	^	**0.59**
Venezuela	0.65	1.05	0.01	–	0.64	^	**2.34**	0.84	1.07	0.01	–	0.61	^	**2.53**
Other S. & Cent. America	2.56	0.36	0.17	–	0.82	0.34	**4.24**	2.68	0.43	0.18	–	0.82	0.36	**4.46**
Total S. & Cent. America	12.59	5.85	1.19	0.20	6.99	3.56	**30.37**	13.01	5.82	1.16	0.21	7.01	4.06	**31.28**
Austria	0.49	0.28	0.10	–	0.32	0.17	**1.37**	0.49	0.25	0.10	–	0.36	0.19	**1.39**
Belgium	1.19	0.52	0.12	0.40	^	0.27	**2.50**	1.13	0.49	0.10	0.30	^	0.29	**2.31**
Czech Republic	0.42	0.27	0.56	0.28	0.02	0.10	**1.64**	0.42	0.24	0.47	0.27	0.02	0.10	**1.52**
Finland	0.35	0.04	0.12	0.23	0.13	0.29	**1.15**	0.33	0.04	0.09	0.31	0.14	0.29	**1.20**
France	2.80	1.38	0.23	2.65	0.42	0.79	**8.27**	2.76	1.22	0.18	3.03	0.52	0.95	**8.66**
Germany	4.25	2.79	2.31	0.31	0.17	2.46	**12.29**	4.01	2.72	1.83	0.06	0.18	2.60	**11.41**
Greece	0.62	0.22	0.07	–	0.04	0.19	**1.13**	0.62	0.19	0.05	–	0.04	0.20	**1.10**
Hungary	0.35	0.33	0.05	0.14	^	0.09	**0.96**	0.34	0.29	0.04	0.14	^	0.10	**0.91**
Italy	2.51	2.35	0.31	–	0.27	0.76	**6.19**	2.47	2.11	0.22	–	0.36	0.78	**5.95**
Netherlands	1.66	0.99	0.23	0.04	^	0.52	**3.44**	1.70	0.93	0.16	0.04	^	0.61	**3.44**
Norway	0.39	0.14	0.03	–	1.20	0.16	**1.92**	0.38	0.14	0.03	–	1.27	0.16	**1.99**
Poland	1.40	0.67	1.78	–	0.02	0.40	**4.27**	1.41	0.70	1.51	–	0.02	0.48	**4.12**
Portugal	0.46	0.20	^	–	0.06	0.22	**0.95**	0.45	0.16	^	–	0.11	0.23	**0.95**
Romania	0.46	0.35	0.15	0.10	0.13	0.11	**1.30**	0.46	0.33	0.11	0.10	0.17	0.11	**1.28**
Spain	2.61	1.19	0.16	0.53	0.17	1.08	**5.73**	2.57	1.05	0.12	0.51	0.24	1.17	**5.66**
Sweden	0.48	0.03	0.07	0.47	0.66	0.54	**2.24**	0.47	0.03	0.07	0.43	0.62	0.54	**2.15**
Switzerland	0.38	0.11	^	0.21	0.28	0.07	**1.04**	0.39	0.10	^	0.21	0.35	0.09	**1.13**
Türkiye	2.18	1.84	1.76	–	0.63	0.69	**7.10**	2.30	1.74	1.65	–	0.60	0.71	**7.00**
Ukraine	0.39	0.66	0.54	0.56	0.10	0.07	**2.33**	0.39	0.67	0.49	0.47	0.12	0.08	**2.22**
United Kingdom	2.65	2.55	0.21	0.43	0.05	1.37	**7.27**	2.69	2.29	0.18	0.37	0.05	1.38	**6.95**
Other Europe	2.57	1.00	1.21	0.34	0.65	0.75	**6.52**	2.57	0.97	1.02	0.36	0.79	0.81	**6.51**
Total Europe	28.60	17.92	10.02	6.68	5.29	11.09	**79.60**	28.33	16.68	8.39	6.60	5.97	11.86	**77.85**
Azerbaijan	0.25	0.49	^	–	0.01	^	**0.76**	0.26	0.54	^	–	0.02	^	**0.82**
Belarus	0.30	0.66	0.04	0.04	^	0.01	**1.06**	0.30	0.60	0.04	0.11	^	0.01	**1.07**
Kazakhstan	0.65	0.77	1.41	–	0.09	0.04	**2.95**	0.69	0.77	1.39	–	0.08	0.05	**2.98**
Russian Federation	7.14	16.14	3.84	2.01	1.86	0.08	**31.08**	7.21	16.32	3.83	1.95	1.88	0.10	**31.29**
Turkmenistan	0.28	1.35	–	–	^	^	**1.63**	0.28	1.32	–	–	^	^	**1.60**
Uzbekistan	0.22	1.74	0.11	–	0.05	^	**2.12**	0.22	1.68	0.14	–	0.07	^	**2.10**
Other CIS	0.20	0.20	0.09	0.03	0.32	0.01	**0.84**	0.20	0.22	0.09	0.02	0.32	0.01	**0.86**
Total CIS	9.03	21.35	5.49	2.08	2.33	0.14	**40.43**	9.16	21.46	5.49	2.08	2.37	0.17	**40.72**
Iran	3.58	8.62	0.08	0.06	0.13	0.02	**12.48**	3.50	8.84	0.08	0.06	0.21	0.02	**12.71**
Iraq	1.70	0.66	–	–	0.02	^	**2.39**	1.80	0.67	–	–	0.03	^	**2.51**
Israel	0.45	0.44	0.16	–	^	0.06	**1.11**	0.44	0.45	0.14	–	^	0.08	**1.11**
Kuwait	0.77	0.78	0.01	–	–	^	**1.56**	0.76	0.81	0.01	–	–	^	**1.58**
Oman	0.45	1.03	0.01	–	–	0.01	**1.50**	0.47	1.06	0.01	–	–	0.01	**1.55**
Qatar	0.58	1.45	^	–	–	^	**2.04**	0.61	1.59	^	–	–	0.01	**2.22**
Saudi Arabia	7.11	4.20	^	–	–	0.02	**11.34**	7.43	4.11	^	–	–	0.05	**11.60**
United Arab Emirates	2.14	2.38	0.10	0.18	–	0.07	**4.88**	2.20	2.41	0.10	0.29	–	0.13	**5.13**
Other Middle East	1.06	0.82	0.03	–	0.01	0.07	**1.99**	1.06	0.85	0.04	–	0.01	0.07	**2.05**
Total Middle East	17.85	20.38	0.38	0.24	0.17	0.27	**39.29**	18.28	20.80	0.38	0.35	0.26	0.39	**40.46**
Algeria	0.82	1.81	0.01	–	^	0.01	**2.64**	0.86	1.67	0.01	–	^	0.01	**2.54**
Egypt	1.53	2.18	0.04	–	0.12	0.10	**3.98**	1.49	2.16	0.05	–	0.13	0.10	**3.94**
Morocco	0.58	0.01	0.31	–	^	0.06	**0.96**	0.57	0.03	0.29	–	^	0.08	**0.98**
South Africa	1.06	0.15	3.38	0.09	0.03	0.16	**4.87**	1.09	0.17	3.33	0.08	0.02	0.18	**4.85**
Other Africa	4.52	2.13	0.38	–	1.31	0.15	**8.49**	4.48	2.13	0.41	–	1.36	0.17	**8.56**
Total Africa	8.50	6.29	4.12	0.09	1.47	0.48	**20.95**	8.49	6.16	4.08	0.08	1.51	0.54	**20.87**
Australia	2.05	1.56	1.54	–	0.16	0.68	**5.98**	2.17	1.44	1.51	–	0.14	0.76	**6.02**
Bangladesh	0.62	1.03	0.20	–	0.01	0.01	**1.86**	0.52	1.01	0.28	–	0.01	0.01	**1.83**
China	29.51	13.60	87.83	3.76	12.18	13.37	**160.26**	32.73	14.57	91.94	3.90	11.46	16.13	**170.74**
China Hong Kong SAR	0.46	0.16	0.15	–	–	0.01	**0.78**	0.57	0.17	0.15	–	–	0.01	**0.90**
India	10.10	2.10	20.03	0.42	1.64	2.09	**36.37**	10.57	2.25	21.98	0.43	1.39	2.38	**39.02**
Indonesia	3.09	1.59	4.38	–	0.26	0.74	**10.05**	3.10	1.64	4.32	–	0.23	0.83	**10.11**
Japan	6.94	3.61	4.92	0.47	0.70	1.39	**18.02**	6.65	3.33	4.54	0.70	0.70	1.49	**17.40**
Malaysia	1.60	1.87	0.95	–	0.30	0.08	**4.79**	1.79	1.66	0.98	–	0.29	0.08	**4.81**
New Zealand	0.30	0.13	0.05	–	0.25	0.11	**0.84**	0.32	0.14	0.04	–	0.25	0.12	**0.86**
Pakistan	0.99	1.38	0.64	0.20	0.32	0.06	**3.60**	0.78	1.36	0.62	0.20	0.35	0.06	**3.37**
Philippines	0.89	0.11	0.80	–	0.10	0.16	**2.06**	0.93	0.12	0.88	–	0.10	0.17	**2.19**
Singapore	2.67	0.47	0.02	–	–	0.02	**3.17**	2.99	0.44	0.01	–	–	0.02	**3.47**
South Korea	5.47	2.25	2.87	1.59	0.03	0.55	**12.75**	5.36	2.16	2.69	1.62	0.03	0.56	**12.43**
Sri Lanka	0.20	–	0.07	–	0.06	0.02	**0.35**	0.22	–	0.06	–	0.05	0.03	**0.36**
Taiwan	1.73	1.01	1.58	0.21	0.05	0.16	**4.75**	1.63	1.01	1.49	0.16	0.04	0.20	**4.53**
Thailand	2.32	1.60	0.71	–	0.06	0.31	**5.00**	2.31	1.70	0.60	–	0.06	0.33	**5.01**
Vietnam	1.07	0.28	1.90	–	0.90	0.33	**4.48**	1.20	0.26	2.32	–	0.76	0.36	**4.89**
Other Asia Pacific	1.22	0.40	1.17	–	0.87	0.03	**3.70**	1.26	0.41	1.27	–	0.85	0.04	**3.83**
Total Asia Pacific	71.21	33.13	129.80	6.65	17.90	20.12	**278.81**	75.10	33.67	135.70	7.01	16.72	23.57	**291.77**
Total World	**191.62**	**144.31**	**161.53**	**24.13**	**40.58**	**45.18**	**607.35**	**196.43**	**144.37**	**164.03**	**24.57**	**39.65**	**50.58**	**619.63**
of which: OECD	87.43	64.56	28.88	16.12	13.09	23.47	**233.55**	87.15	63.25	25.15	16.44	12.96	24.96	**229.90**
Non-OECD	104.19	79.75	132.65	8.01	27.49	21.71	**373.80**	109.29	81.11	138.88	8.13	26.69	25.62	**389.73**
European Union	21.88	12.38	6.89	5.49	2.57	8.64	**57.85**	21.45	11.50	5.48	5.56	3.05	9.35	**56.38**

* In this review, primary energy comprises commercially-traded fuels, including modern renewables used to generate electricity.
Energy from all sources of non-fossil power generation is accounted for on an input-equivalent basis. See the appendix or **https://www.energyinst.org/statistical-review** for more details on this methodology.
^ Less than 0.005.

Primary energy Consumption per capita*

Gigajoule per capita	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Growth rate per annum 2023	Growth rate per annum 2013–23
Canada	410.6	407.5	404.9	397.1	397.7	397.6	390.3	363.1	364.9	371.8	**359.7**	-3.3%	-1.3%
Mexico	68.8	67.6	66.1	66.8	67.2	65.8	64.5	58.3	61.8	64.2	**65.8**	2.5%	-0.4%
US	290.0	290.6	285.5	283.1	281.9	290.1	286.2	263.9	277.3	282.1	**277.3**	-1.7%	-0.4%
Total North America	244.0	243.7	239.5	237.3	236.6	241.8	238.3	219.6	229.5	233.8	**230.0**	-1.6%	-0.6%
Argentina	83.3	82.4	83.0	81.8	81.0	79.8	74.6	69.5	76.2	81.4	**80.2**	-1.5%	-0.4%
Brazil	62.0	63.1	61.7	59.7	59.8	59.5	60.1	57.3	60.0	62.4	**64.1**	2.7%	0.3%
Chile	85.1	83.4	83.4	86.4	88.3	90.1	89.6	82.5	88.1	92.5	**92.4**	†	0.8%
Colombia	37.8	39.4	36.9	41.2	40.9	40.8	40.4	36.2	40.2	42.3	**43.3**	2.3%	1.4%
Ecuador	41.1	42.5	41.8	41.0	42.1	43.7	43.9	37.4	43.0	44.5	**46.4**	4.1%	1.2%
Peru	31.5	31.9	33.0	34.6	34.6	35.6	35.8	31.1	35.0	35.7	**36.0**	0.8%	1.4%
Trinidad & Tobago	571.2	567.9	546.4	479.7	504.2	464.2	462.3	401.6	408.5	406.9	**384.3**	-5.6%	-3.9%
Venezuela	125.1	120.8	114.3	104.2	102.8	87.9	81.6	66.7	77.1	82.7	**87.8**	6.1%	-3.5%
Other S. & Cent. America	36.0	35.8	37.2	38.7	38.3	38.6	38.1	33.7	35.3	35.7	**37.2**	4.1%	0.3%
Total S. & Cent. America	59.5	59.7	58.8	58.0	57.8	56.8	55.9	51.2	54.7	57.0	**58.3**	2.2%	-0.2%
Austria	174.4	166.3	165.1	168.8	170.9	166.3	173.5	161.7	163.8	152.9	**154.6**	1.1%	-1.2%
Belgium	227.6	209.6	210.4	225.7	226.4	224.6	230.9	206.8	228.9	214.5	**197.8**	-7.8%	-1.4%
Czech Republic	167.8	164.3	161.0	158.8	167.7	167.1	163.3	151.3	159.7	156.3	**145.2**	-7.1%	-1.4%
Finland	226.2	217.4	216.1	218.9	213.9	217.9	213.2	204.4	208.5	208.4	**215.6**	3.5%	-0.5%
France	166.2	158.3	159.2	155.6	154.6	156.2	152.6	136.3	144.7	128.0	**133.8**	4.5%	-2.1%
Germany	170.5	163.2	165.8	168.0	169.4	164.5	160.0	148.8	153.0	147.4	**137.0**	-7.0%	-2.2%
Greece	108.3	102.0	103.8	102.8	108.5	109.7	107.9	94.8	104.3	109.0	**106.2**	-2.5%	-0.2%
Hungary	86.6	86.9	91.8	93.7	99.0	99.9	101.3	99.8	105.3	96.4	**89.7**	-7.0%	0.3%
Italy	110.9	105.2	108.5	109.1	110.6	111.4	109.7	99.9	107.5	104.8	**101.0**	-3.6%	-0.9%
Netherlands	226.9	215.8	216.8	219.5	220.1	213.8	212.0	204.5	208.7	195.8	**195.0**	-0.4%	-1.5%
Norway	371.3	380.4	381.6	384.0	382.7	374.4	347.8	373.0	378.8	352.9	**363.7**	3.1%	-0.2%
Poland	105.5	101.6	103.0	107.5	112.9	114.2	111.0	106.7	115.1	107.2	**100.3**	-6.4%	-0.5%
Portugal	99.6	100.9	100.6	108.0	105.4	107.7	102.5	92.7	93.2	92.1	**92.6**	0.5%	-0.7%
Romania	66.3	68.3	68.9	69.3	70.9	72.0	70.8	68.4	72.6	65.9	**64.1**	-2.7%	-0.3%
Spain	121.9	120.4	122.0	122.6	123.8	125.3	121.0	108.2	116.0	120.4	**119.2**	-1.1%	-0.2%
Sweden	225.2	221.9	227.4	220.4	226.0	215.8	219.4	208.4	217.9	212.2	**202.7**	-4.5%	-1.0%
Switzerland	159.9	151.4	146.2	136.0	135.0	135.9	141.0	128.6	123.5	119.5	**128.8**	7.8%	-2.1%
Türkiye	66.4	67.0	71.8	74.2	78.4	77.7	79.7	78.0	82.9	83.2	**81.6**	-1.9%	2.1%
Ukraine	108.8	96.4	80.3	84.3	78.6	82.0	78.0	75.3	77.3	58.6	**60.4**	3.1%	-5.7%
United Kingdom	133.1	124.8	125.9	123.0	122.6	121.8	118.6	105.8	106.5	107.7	**102.6**	-4.7%	-2.6%
Other Europe	104.9	101.5	104.0	106.9	109.2	111.0	108.3	102.5	109.6	108.6	**108.6**	-0.1%	0.3%
Total Europe	130.2	124.8	125.6	126.7	128.1	127.8	125.6	116.9	122.6	117.7	**115.2**	-2.1%	-1.2%
Azerbaijan	57.7	58.1	62.7	61.4	59.7	62.5	65.4	64.7	69.0	73.1	**78.8**	7.8%	3.2%
Belarus	109.3	109.5	99.1	101.2	103.0	114.1	114.9	107.1	115.0	111.1	**112.2**	1.0%	0.3%
Kazakhstan	151.8	157.4	128.4	141.6	150.4	153.3	153.3	139.6	154.2	152.0	**152.0**	†	†
Russian Federation	200.9	201.0	197.3	200.6	201.4	208.4	206.7	199.7	206.8	214.7	**216.6**	0.9%	0.8%
Turkmenistan	173.5	180.3	201.5	214.2	196.0	217.5	204.5	253.3	251.5	253.5	**245.8**	-3.0%	3.5%
Uzbekistan	65.4	67.1	62.7	59.8	60.3	59.9	59.2	58.0	59.8	61.2	**59.8**	-2.2%	-0.9%
Other CIS	35.8	36.6	36.2	36.0	37.1	39.9	38.1	37.5	37.8	36.9	**37.1**	0.6%	0.4%
Total CIS	155.8	156.5	151.5	154.1	154.7	160.1	158.4	153.5	159.1	163.2	**163.7**	0.3%	0.5%
Iran	121.7	124.7	120.4	124.7	127.6	130.2	135.7	139.7	136.0	140.9	**142.6**	1.1%	1.6%
Iraq	47.7	44.6	42.6	45.2	51.6	52.4	55.4	48.4	49.0	53.7	**55.2**	2.8%	1.5%
Israel	124.5	119.3	123.7	123.8	123.8	124.4	126.1	117.2	118.1	122.9	**121.4**	-1.2%	-0.2%
Kuwait	418.9	395.9	409.5	393.9	388.8	383.5	340.7	328.5	359.3	364.6	**365.9**	0.4%	-1.3%
Oman	299.5	283.6	289.6	277.1	280.1	294.0	291.9	285.6	313.3	328.0	**333.4**	1.7%	1.1%
Qatar	853.1	847.8	884.6	808.1	748.9	727.2	748.3	667.1	725.6	756.9	**816.7**	7.9%	-0.4%
Saudi Arabia	312.3	328.5	336.0	342.6	335.0	318.9	298.2	288.7	298.6	311.5	**313.9**	0.8%	0.1%
United Arab Emirates	466.2	460.7	495.7	510.9	482.5	453.1	476.4	467.0	479.1	516.9	**539.4**	4.3%	1.5%
Other Middle East	31.9	31.3	28.8	27.8	27.9	27.5	26.9	25.4	25.9	25.1	**25.2**	0.2%	-2.3%
Total Middle East	136.8	138.6	139.7	141.9	141.5	139.2	138.6	134.4	135.6	140.9	**142.9**	1.4%	0.4%
Algeria	50.9	54.4	56.2	55.1	54.6	57.5	58.5	53.8	57.7	58.9	**55.7**	-5.5%	0.9%
Egypt	37.5	36.2	36.0	37.2	37.9	37.2	35.8	33.1	34.9	35.9	**34.9**	-2.7%	-0.7%
Morocco	22.8	22.8	22.9	22.9	23.7	24.2	26.2	23.8	26.1	25.7	**25.8**	0.6%	1.3%
South Africa	95.6	95.2	91.3	94.6	93.9	89.2	92.1	85.3	85.2	81.3	**80.3**	-1.2%	-1.7%
Other Africa	6.5	6.6	6.7	6.6	6.8	7.1	7.0	6.6	7.3	7.2	**7.1**	-1.7%	1.0%
Total Africa	15.2	15.2	15.1	15.2	15.3	15.3	15.2	14.1	14.9	14.7	**14.3**	-2.7%	-0.6%
Australia	242.3	240.3	242.0	239.0	234.5	234.2	238.5	222.3	220.7	228.4	**227.7**	-0.3%	-0.6%
Bangladesh	7.2	7.3	8.8	8.7	9.0	9.5	10.5	9.8	10.5	10.9	**10.6**	-2.8%	4.0%
China	88.6	90.3	90.8	90.6	93.6	97.6	101.8	104.8	110.7	112.4	**119.8**	6.6%	3.1%
China Hong Kong SAR	160.4	155.3	158.8	162.2	173.4	174.9	165.5	123.8	117.0	104.5	**120.6**	15.4%	-2.8%
India	20.0	21.1	21.6	22.3	22.9	23.9	24.3	22.8	24.5	25.7	**27.3**	6.4%	3.2%
Indonesia	25.7	25.8	25.9	26.1	26.8	29.0	30.7	28.7	29.1	36.5	**36.4**	-0.2%	3.5%
Japan	157.2	153.4	151.7	150.1	152.2	151.6	149.0	138.7	145.5	145.4	**141.2**	-2.9%	-1.1%
Malaysia	129.8	129.1	129.1	133.9	133.8	134.4	136.2	129.7	133.7	141.2	**140.1**	-0.8%	0.8%
New Zealand	193.8	199.9	197.8	197.2	197.1	192.3	191.4	170.2	165.3	161.2	**164.7**	2.1%	-1.6%
Pakistan	13.2	13.4	13.9	9.1	15.7	15.9	15.8	15.5	16.9	15.2	**14.0**	-8.0%	0.6%
Philippines	13.9	14.4	15.5	16.6	17.9	18.2	18.5	16.5	17.2	17.8	**18.7**	5.1%	3.0%
Singapore	533.9	535.3	559.7	584.1	593.3	588.5	570.5	554.6	551.8	531.3	**577.0**	8.6%	0.8%
South Korea	231.8	231.6	233.6	239.1	240.8	244.0	240.6	232.4	243.6	246.1	**240.1**	-2.4%	0.4%
Sri Lanka	13.5	14.6	15.4	16.9	17.9	18.7	18.8	17.6	18.1	16.1	**16.3**	1.5%	1.9%
Taiwan	201.3	205.0	204.1	204.4	204.0	205.9	201.5	195.2	207.2	198.7	**189.3**	-4.7%	-0.6%
Thailand	67.9	69.8	70.5	71.7	72.7	74.8	74.7	69.3	69.7	69.7	**69.7**	0.1%	0.3%
Vietnam	26.3	28.7	32.3	34.7	36.9	41.1	45.2	44.9	44.6	45.6	**49.5**	8.5%	6.5%
Other Asia Pacific	12.3	13.0	13.3	13.9	17.2	17.6	18.3	18.5	18.2	18.8	**19.2**	2.1%	4.5%
Total Asia Pacific	54.9	55.7	56.2	56.2	58.0	59.9	61.3	60.6	63.5	64.7	**67.3**	4.0%	2.1%
Total World	**74.1**	**74.0**	**73.7**	**73.6**	**74.5**	**75.7**	**75.7**	**72.4**	**75.4**	**76.2**	**77.0**	**1.1%**	**0.4%**
of which: OECD	178.4	175.8	175.1	174.9	175.7	177.3	174.8	161.9	169.3	169.3	**166.0**	-1.9%	-0.7%
Non-OECD	51.0	51.6	51.5	51.6	52.6	53.9	54.6	53.4	55.7	56.7	**58.5**	3.2%	1.4%
European Union	142.0	136.9	138.6	139.9	141.9	141.3	138.8	128.3	135.3	129.3	**125.6**	-2.9%	-1.2%

* In this review, primary energy comprises commercially-traded fuels, including modern renewables used to generate electricity.
Energy from all sources of non-fossil power generation is accounted for on an input-equivalent basis. See the appendix or **https://www.energyinst.org/statistical-review** for more details on this methodology.
† Less than 0.05%.

Carbon Carbon dioxide emissions from energy

Million tonnes of carbon dioxide	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Growth rate per annum 2023	Growth rate per annum 2013–23	Share 2023
Canada	559.3	564.5	559.4	546.9	561.2	574.2	562.4	502.2	511.3	525.0	**519.5**	-1.0%	-0.7%	1.5%
Mexico	496.7	482.8	480.9	491.1	503.3	489.0	480.6	413.4	442.5	469.3	**489.9**	4.4%	-0.1%	1.4%
US	5246.9	5252.5	5137.8	5039.3	4980.3	5134.6	4982.8	4466.8	4755.3	4798.2	**4639.7**	-3.3%	-1.2%	13.2%
Total North America	**6302.9**	**6299.8**	**6178.1**	**6077.3**	**6044.9**	**6197.8**	**6025.8**	**5382.4**	**5709.2**	**5792.4**	**5649.1**	**-2.5%**	**-1.1%**	**16.1%**
Argentina	187.6	187.8	191.2	190.1	188.5	186.0	174.6	162.3	183.5	198.4	**190.9**	-3.8%	0.2%	0.5%
Brazil	487.0	511.7	494.8	455.9	461.7	442.1	435.5	408.3	461.6	443.4	**451.0**	1.7%	-0.8%	1.3%
Chile	88.9	87.2	87.4	92.2	93.9	93.5	94.8	85.1	93.8	93.0	**86.5**	-7.0%	-0.3%	0.2%
Colombia	89.1	94.9	87.7	102.3	95.3	96.9	99.7	89.6	96.8	103.0	**110.2**	7.0%	2.1%	0.3%
Ecuador	36.5	38.4	37.6	35.4	34.4	37.2	35.7	29.2	36.2	39.6	**42.2**	6.7%	1.5%	0.1%
Peru	46.0	46.8	49.2	53.2	51.0	52.8	54.4	45.3	54.0	57.9	**59.5**	2.7%	2.6%	0.2%
Trinidad & Tobago	25.1	24.7	23.8	21.5	20.7	19.6	19.0	16.4	15.5	15.8	**15.2**	-3.7%	-4.9%	0.0%
Venezuela	186.1	181.7	172.1	159.2	149.9	123.8	111.3	77.7	93.6	104.7	**120.8**	15.5%	-4.2%	0.3%
Central America	60.1	61.8	68.7	71.6	72.1	72.9	80.7	63.7	72.4	75.0	**81.0**	8.0%	3.0%	0.2%
Other Caribbean	103.8	105.5	110.0	112.8	109.6	112.1	111.5	101.2	101.4	101.0	**106.9**	5.9%	0.3%	0.3%
Other South America	34.7	35.2	35.6	37.3	38.2	39.4	40.0	35.9	41.4	42.6	**43.8**	2.7%	2.4%	0.1%
Total S. & Cent. America	**1344.9**	**1375.9**	**1357.9**	**1331.5**	**1315.3**	**1276.3**	**1257.3**	**1114.8**	**1250.2**	**1274.3**	**1308.1**	**2.7%**	**-0.3%**	**3.7%**
Austria	62.8	59.0	61.6	62.1	64.5	62.3	63.8	56.2	59.3	56.3	**53.8**	-4.5%	-1.5%	0.2%
Belgium	117.3	109.0	115.2	116.9	118.8	125.5	121.8	105.3	113.9	109.7	**103.3**	-5.8%	-1.3%	0.3%
Bulgaria	40.7	43.2	45.9	43.1	45.9	42.7	41.5	36.1	42.0	46.4	**35.5**	-23.5%	-1.4%	0.1%
Croatia	16.1	15.8	16.2	16.7	17.1	16.3	16.3	14.9	15.7	16.0	**16.0**	-0.1%	-0.1%	0.0%
Cyprus	7.3	7.3	7.5	8.1	8.3	8.2	8.2	7.0	7.2	7.7	**7.6**	-0.5%	0.5%	0.0%
Czech Republic	105.0	102.0	102.8	104.8	104.8	103.8	98.2	88.4	92.9	91.9	**82.9**	-9.8%	-2.3%	0.2%
Denmark	43.0	39.2	36.7	38.0	35.5	35.8	32.6	27.4	28.8	29.8	**28.4**	-4.5%	-4.1%	0.1%
Estonia	24.5	23.5	21.4	22.2	24.5	24.1	18.3	15.7	16.8	17.8	**15.0**	-15.6%	-4.8%	0.0%
Finland	52.0	47.7	44.9	47.7	45.1	46.5	43.4	36.8	36.3	35.8	**31.7**	-11.5%	-4.8%	0.1%
France	339.5	304.4	308.9	314.2	319.1	308.9	301.5	252.9	278.6	272.5	**254.6**	-6.6%	-2.8%	0.7%
Germany	797.6	751.1	755.6	767.4	758.2	731.0	678.4	603.0	640.2	631.8	**571.9**	-9.5%	-3.3%	1.6%
Greece	79.9	76.1	73.8	70.7	75.0	73.6	69.6	56.3	59.6	62.8	**59.4**	-5.5%	-2.9%	0.2%
Hungary	42.0	41.3	43.8	44.7	46.9	47.3	47.1	44.6	46.0	43.3	**39.1**	-9.6%	-0.7%	0.1%
Iceland	2.6	2.6	2.9	2.8	3.1	3.3	2.8	1.8	2.1	2.6	**2.4**	-6.6%	-0.8%	0.0%
Ireland	37.5	37.2	38.7	40.4	39.3	39.1	37.6	33.4	35.5	36.2	**34.0**	-6.3%	-1.0%	0.1%
Italy	341.4	318.8	334.4	331.4	335.5	336.1	328.6	286.3	318.2	324.9	**301.3**	-7.3%	-1.2%	0.9%
Latvia	8.0	7.7	7.9	8.2	8.0	7.8	8.4	7.1	7.5	6.7	**6.5**	-2.1%	-1.9%	0.0%
Lithuania	11.7	11.0	11.3	11.8	12.0	12.6	12.4	12.1	12.4	11.9	**11.7**	-1.5%	0.0%	0.0%
Luxembourg	10.9	10.5	10.1	10.0	10.3	10.8	10.9	9.0	9.7	8.6	**8.3**	-3.8%	-2.7%	0.0%
Netherlands	211.4	202.5	207.6	208.0	204.3	198.2	193.7	173.1	176.9	164.8	**156.1**	-5.3%	-3.0%	0.4%
North Macedonia	8.1	7.7	7.4	7.5	7.8	7.5	8.3	7.0	7.1	7.9	**8.2**	4.3%	0.1%	0.0%
Norway	37.5	37.4	38.0	37.0	37.1	37.3	36.0	33.7	34.6	34.7	**34.0**	-1.9%	-1.0%	0.1%
Poland	307.5	290.3	290.1	303.2	316.0	320.7	302.5	284.3	310.3	294.5	**270.3**	-8.2%	-1.3%	0.8%
Portugal	48.8	48.0	52.6	52.0	57.3	54.3	50.3	40.5	39.1	42.2	**39.7**	-5.7%	-2.0%	0.1%
Romania	70.4	70.7	71.5	69.1	72.6	72.2	70.7	64.5	69.6	64.8	**59.9**	-7.7%	-1.6%	0.2%
Slovakia	32.6	30.0	30.4	30.8	32.9	32.3	30.0	27.8	31.3	28.4	**27.6**	-2.6%	-1.6%	0.1%
Slovenia	14.1	12.6	12.7	13.6	13.9	13.9	13.3	11.9	12.1	11.6	**10.4**	-10.5%	-3.0%	0.0%
Spain	273.5	271.1	286.9	279.4	297.1	291.4	274.6	221.4	242.3	260.3	**246.8**	-5.2%	-1.0%	0.7%
Sweden	45.6	44.5	44.7	44.8	44.9	40.9	41.2	38.9	41.2	37.8	**35.8**	-5.3%	-2.4%	0.1%
Switzerland	43.4	38.9	39.6	38.1	38.9	37.1	38.2	32.6	33.3	32.8	**32.7**	-0.1%	-2.8%	0.1%
Türkiye	303.3	335.1	341.1	359.2	404.2	401.8	394.0	384.6	420.7	420.4	**411.1**	-2.2%	3.1%	1.2%
Ukraine	286.5	246.8	195.1	215.6	187.9	198.7	185.5	171.5	167.7	109.4	**105.3**	-3.7%	-9.5%	0.3%
United Kingdom	499.0	458.0	440.9	413.8	403.6	397.1	381.8	320.9	339.4	341.1	**327.3**	-4.1%	-4.1%	0.9%
Other Europe	113.3	102.3	111.7	116.5	120.4	119.4	119.9	117.9	118.2	119.8	**118.3**	-1.3%	0.4%	0.3%
Total Europe	**4434.7**	**4203.5**	**4210.0**	**4250.1**	**4310.8**	**4258.5**	**4081.5**	**3625.0**	**3866.4**	**3783.0**	**3546.8**	**-6.2%**	**-2.2%**	**10.1%**
Azerbaijan	30.4	31.2	33.7	33.2	32.2	34.3	34.3	34.5	36.6	39.3	**42.4**	8.0%	3.4%	0.1%
Belarus	60.0	59.1	54.8	54.9	55.6	60.5	60.8	55.8	57.0	55.1	**52.5**	-4.8%	-1.3%	0.1%
Kazakhstan	210.8	218.0	175.2	197.0	211.3	218.6	217.0	199.3	221.8	220.9	**221.2**	0.1%	0.5%	0.6%
Russian Federation	1548.8	1551.5	1520.8	1529.3	1516.9	1573.3	1557.1	1461.1	1512.4	1599.1	**1614.7**	1.0%	0.4%	4.6%
Turkmenistan	58.2	62.0	68.9	76.0	69.8	78.5	74.4	94.0	93.4	95.4	**93.9**	-1.6%	4.9%	0.3%
Uzbekistan	109.4	114.0	107.6	103.6	105.4	109.0	108.9	110.8	115.7	120.7	**120.1**	-0.5%	0.9%	0.3%
Other CIS	25.3	27.5	28.9	29.3	29.8	33.3	31.3	31.9	33.6	32.9	**34.1**	3.6%	3.0%	0.1%
Total CIS	**2042.8**	**2063.2**	**1989.8**	**2023.5**	**2021.1**	**2107.5**	**2084.0**	**1987.2**	**2070.4**	**2163.3**	**2178.8**	**0.7%**	**0.6%**	**6.2%**
Iran	542.8	552.3	546.9	567.2	575.8	602.3	627.4	653.2	649.3	677.2	**683.6**	1.0%	2.3%	1.9%
Iraq	114.1	112.3	110.6	118.8	140.4	144.5	151.5	134.7	141.9	159.9	**168.2**	5.2%	4.0%	0.5%
Israel	66.8	64.0	66.7	66.0	66.5	67.1	69.1	62.9	63.4	67.2	**65.5**	-2.5%	-0.2%	0.2%
Kuwait	93.2	90.0	97.1	96.3	96.7	100.3	91.1	85.2	91.3	92.1	**93.9**	2.0%	0.1%	0.3%
Oman	65.2	64.7	69.0	69.5	72.2	74.9	74.6	70.1	76.6	82.3	**85.1**	3.4%	2.7%	0.2%
Qatar	100.3	110.3	123.9	124.3	116.8	119.2	125.2	108.6	117.0	119.7	**132.5**	10.7%	2.8%	0.4%
Saudi Arabia	526.0	565.1	601.8	634.5	631.2	612.4	576.3	556.9	572.2	609.4	**620.4**	1.8%	1.7%	1.8%
United Arab Emirates	247.1	243.0	265.1	275.8	264.1	248.8	261.8	255.0	262.0	281.4	**287.2**	2.1%	1.5%	0.8%
Other Middle East	134.2	135.2	124.8	120.3	122.7	123.1	121.2	115.1	119.8	118.3	**121.8**	3.0%	-1.0%	0.3%
Total Middle East	**1889.8**	**1936.8**	**2006.0**	**2072.8**	**2086.4**	**2092.6**	**2098.2**	**2041.7**	**2093.6**	**2207.4**	**2258.3**	**2.3%**	**1.8%**	**6.4%**
Algeria	115.4	123.6	129.0	127.7	130.7	137.3	142.4	132.7	144.5	149.6	**144.7**	-3.3%	2.3%	0.4%
Egypt	202.7	201.6	204.2	216.6	221.6	217.7	209.6	189.7	221.2	235.6	**232.1**	-1.5%	1.4%	0.7%
Morocco	54.4	56.6	56.8	57.2	60.2	61.8	67.9	62.8	69.9	70.3	**69.1**	-1.8%	2.4%	0.2%
South Africa	463.0	467.4	455.3	474.4	470.5	452.4	474.9	448.9	444.8	425.7	**425.0**	-0.1%	-0.9%	1.2%
Eastern Africa	90.7	101.8	106.0	105.0	114.3	121.1	117.7	109.6	119.0	114.3	**116.8**	2.2%	2.6%	0.3%
Middle Africa	45.5	47.9	48.3	46.4	44.5	45.5	47.4	40.5	46.7	51.2	**52.2**	1.9%	1.4%	0.1%
Western Africa	109.2	110.5	127.4	132.5	142.9	160.8	164.2	166.0	194.0	195.7	**189.9**	-3.0%	5.7%	0.5%
Other Northern Africa	75.2	74.8	67.9	69.6	74.4	75.6	76.4	68.8	82.3	86.7	**89.6**	3.3%	1.8%	0.3%
Other Southern Africa	12.4	13.7	13.7	13.6	14.5	15.1	14.4	12.3	13.9	15.3	**15.7**	2.2%	2.3%	0.0%
Total Africa	**1168.5**	**1197.9**	**1208.5**	**1243.0**	**1273.5**	**1287.3**	**1314.8**	**1231.4**	**1336.2**	**1344.5**	**1335.1**	**-0.7%**	**1.3%**	**3.8%**
Australia	395.6	399.2	407.4	406.0	404.3	402.5	406.9	376.5	369.2	377.0	**376.1**	-0.2%	-0.5%	1.1%
Bangladesh	64.4	66.9	83.8	83.8	88.4	95.7	107.7	102.2	109.7	119.0	**118.2**	-0.7%	6.3%	0.3%
China	9214.1	9235.5	9172.9	9027.1	9274.3	9612.0	9923.8	10128.4	10543.8	10576.3	**11218.4**	6.1%	2.0%	31.9%
China Hong Kong SAR	91.5	89.6	90.4	92.6	98.8	100.0	94.5	68.0	64.4	57.5	**65.9**	14.6%	-3.2%	0.2%
India	1896.2	2046.5	2114.3	2211.3	2287.9	2385.8	2411.4	2241.6	2469.9	2595.6	**2814.3**	8.4%	4.0%	8.0%
Indonesia	439.2	448.6	465.0	463.8	483.9	521.6	565.7	522.5	528.6	704.4	**701.4**	-0.4%	4.8%	2.0%
Japan	1296.2	1261.5	1223.3	1202.0	1196.6	1174.2	1135.5	1046.0	1080.1	1081.2	**1012.8**	-6.3%	-2.4%	2.9%
Malaysia	234.2	243.2	247.1	252.5	241.3	251.2	255.8	251.2	258.6	277.4	**284.7**	2.6%	2.0%	0.8%
New Zealand	35.1	35.0	35.4	34.6	36.7	36.6	37.9	32.9	32.6	30.5	**31.7**	4.1%	-1.0%	0.1%
Pakistan	145.3	151.7	160.3	114.0	188.7	195.3	195.1	196.1	231.4	208.4	**189.6**	-9.0%	2.7%	0.5%
Philippines	91.9	96.8	105.9	115.9	128.4	132.8	139.9	126.8	134.3	140.7	**152.6**	8.4%	5.2%	0.4%
Singapore	191.3	190.8	202.3	216.8	227.5	222.7	214.9	210.7	213.3	209.8	**224.4**	7.0%	1.6%	0.6%
South Korea	620.0	615.0	622.8	633.2	641.8	659.1	635.3	588.1	603.2	592.9	**571.2**	-3.7%	-0.8%	1.6%
Sri Lanka	15.9	19.9	20.4	24.1	25.9	25.4	26.6	24.7	23.6	20.4	**21.1**	3.7%	2.9%	0.1%
Taiwan	268.5	275.4	275.7	280.9	286.9	284.8	279.3	265.7	281.1	273.3	**265.5**	-2.9%	-0.1%	0.8%
Thailand	265.9	273.6	281.1	286.7	287.4	293.1	288.3	273.0	269.7	274.6	**269.7**	-1.8%	0.1%	0.8%
Vietnam	134.0	150.2	181.9	197.3	199.0	240.3	290.8	285.2	268.2	257.5	**305.4**	18.6%	8.6%	0.9%
Other Asia Pacific	118.4	128.7	136.5	143.0	196.9	201.8	219.8	219.7	211.3	218.2	**230.5**	5.6%	6.9%	0.7%
Total Asia Pacific	**15517.7**	**15728.1**	**15826.7**	**15785.6**	**16294.7**	**16835.0**	**17229.1**	**16959.4**	**17693.0**	**18014.7**	**18853.5**	**4.7%**	**2.0%**	**53.7%**
Total World	**32701.3**	**32805.2**	**32776.9**	**32783.7**	**33346.5**	**34055.0**	**34090.7**	**32341.8**	**34019.0**	**34579.6**	**35129.8**	**1.6%**	**0.7%**	**100.0%**
of which: OECD	12793.4	12572.9	12470.4	12394.5	12438.5	12528.9	12144.2	10876.4	11495.4	11556.7	**11108.5**	-3.9%	-1.4%	31.6%
Non-OECD	19908.0	20232.3	20306.5	20389.2	20908.1	21526.1	21946.5	21465.5	22523.7	23022.9	**24021.3**	4.3%	1.9%	68.4%
European Union	3147.7	2981.4	3040.5	3067.2	3117.0	3065.7	2924.9	2564.2	2751.8	2724.0	**2517.6**	-7.6%	-2.2%	7.2%

Note: The carbon emissions above reflect only those through consumption of oil, gas and coal for combustion related activities, and are based on 'Default CO_2 Emissions Factors for Combustion' listed by the IPCC in its Guidelines for National Greenhouse Gas Inventories (2006). This does not allow for any carbon that is sequestered, for other sources of carbon emissions, or for emissions of other greenhouse gases. Our data is therefore not comparable to official national emissions data.

Carbon Emissions from natural gas flaring

Million tonnes of carbon dioxide	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Growth rate per annum 2023	Growth rate per annum 2013–23	Share 2023
Canada	3.3	4.3	3.9	2.9	2.9	2.9	2.3	2.5	2.5	2.3	**2.6**	13.5%	-2.4%	0.8%
Mexico	10.3	11.5	12.1	11.7	9.1	9.2	10.7	13.5	15.8	13.8	**14.4**	4.9%	3.4%	4.6%
US	18.7	23.0	24.2	18.3	19.5	28.6	34.9	25.0	19.6	17.7	**21.0**	18.6%	1.2%	6.6%
Total North America	32.4	38.8	40.2	32.8	31.4	40.6	47.9	41.0	37.9	33.8	**38.1**	12.6%	1.6%	12.0%
Argentina	1.6	1.7	1.5	1.3	1.2	1.6	2.0	2.3	2.7	2.5	**2.4**	-4.9%	4.0%	0.7%
Bolivia	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	**0.1**	-7.3%	1.3%	0.0%
Brazil	3.0	3.4	3.0	3.4	2.6	2.4	2.7	2.3	2.2	2.0	**2.7**	31.8%	-1.0%	0.8%
Colombia	1.7	1.7	1.6	1.2	1.1	1.0	1.1	0.8	0.7	0.5	**0.7**	30.0%	-8.8%	0.2%
Peru	0.4	0.5	0.5	0.4	0.3	0.3	0.2	0.3	0.3	0.3	**0.3**	2.4%	-2.7%	0.1%
Trinidad & Tobago	0.8	0.7	0.6	0.5	0.5	0.5	0.8	0.4	0.3	0.3	**0.3**	-10.5%	-9.4%	0.1%
Venezuela	19.7	21.1	20.0	20.5	16.1	18.7	21.2	18.9	18.5	19.7	**19.1**	-3.2%	-0.3%	6.0%
Other S. & Cent. America	2.1	2.6	2.7	2.9	2.6	2.3	2.3	3.1	3.2	3.4	**3.9**	14.1%	6.6%	1.2%
Total S. & Cent. America	29.3	31.8	30.1	30.2	24.4	26.7	30.3	28.2	28.0	28.9	**29.4**	1.7%	0.0%	9.3%
Denmark	0.2	0.2	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	**0.1**	-13.1%	-8.7%	0.0%
Germany	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	**0.1**	26.2%	0.6%	0.0%
Italy	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	**0.1**	-0.1%	-5.7%	0.0%
Netherlands	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	**0.0**	-6.7%	-2.0%	0.0%
Norway	0.9	0.7	0.8	0.8	0.5	0.4	0.3	0.3	0.4	0.3	**0.3**	-9.7%	-11.1%	0.1%
Poland	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.1	**0.1**	69.9%	7.0%	0.0%
Romania	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	**0.1**	-5.7%	-1.9%	0.0%
Ukraine	0.5	0.5	0.5	0.5	0.3	0.3	0.2	0.2	0.3	0.2	**0.2**	21.6%	-6.3%	0.1%
United Kingdom	2.8	2.7	2.7	2.8	2.8	2.5	2.4	2.2	1.8	1.2	**1.4**	12.0%	-6.7%	0.4%
Other Europe	0.9	1.0	0.9	0.9	0.6	0.7	0.9	0.8	0.8	0.7	**0.7**	2.0%	-2.0%	0.2%
Total Europe	5.6	5.6	5.5	5.7	4.7	4.5	4.2	3.9	3.8	2.8	**3.0**	7.6%	-5.8%	1.0%
Azerbaijan	0.9	0.7	0.4	0.5	0.4	0.5	0.5	0.3	0.3	0.4	**0.8**	68.0%	-1.9%	0.2%
Kazakhstan	7.4	7.8	7.3	5.3	4.8	4.1	3.1	2.9	3.0	2.0	**2.0**	-1.2%	-12.2%	0.6%
Russian Federation	42.3	39.4	42.5	48.2	42.3	42.9	48.0	50.6	53.3	52.6	**59.4**	13.0%	3.5%	18.7%
Turkmenistan	4.5	4.0	3.7	3.6	3.3	3.0	2.7	3.3	2.4	2.2	**2.4**	11.2%	-6.1%	0.8%
Uzbekistan	3.0	2.6	2.2	2.1	1.7	1.6	1.2	1.1	0.9	0.9	**0.8**	-9.8%	-12.5%	0.2%
Other CIS	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	**0.3**	129.7%	7.3%	0.1%
Total CIS	58.2	54.5	56.2	59.8	52.6	52.1	55.9	58.4	60.1	58.2	**65.7**	12.8%	1.2%	20.7%
Bahrain	0.2	0.1	0.1	0.2	0.3	0.2	0.4	0.5	0.3	0.2	**0.2**	-1.7%	2.4%	0.1%
Iran	24.3	26.4	25.7	34.4	37.4	36.5	29.6	28.6	37.3	37.1	**43.1**	16.3%	5.9%	13.6%
Iraq	26.8	27.9	32.0	35.3	35.4	35.5	35.8	34.7	35.8	35.9	**35.6**	-0.9%	2.9%	11.2%
Kuwait	3.0	3.1	2.0	2.6	1.8	2.0	1.7	1.8	2.1	1.5	**1.6**	12.4%	-5.9%	0.5%
Oman	4.6	5.1	4.8	5.6	5.2	5.2	5.2	5.1	5.2	4.2	**3.7**	-11.6%	-2.1%	1.2%
Qatar	3.5	3.2	2.8	2.8	2.6	2.6	3.3	2.6	2.8	2.6	**2.6**	1.0%	-2.8%	0.8%
Saudi Arabia	5.4	5.1	5.5	6.3	5.8	5.8	5.2	5.7	5.6	5.1	**6.8**	31.9%	2.3%	2.1%
Syria	0.9	0.8	1.1	1.2	2.4	1.4	1.9	2.0	2.1	2.2	**2.2**	2.1%	9.5%	0.7%
United Arab Emirates	2.7	2.2	2.3	2.0	2.2	2.6	2.0	2.2	2.0	2.2	**2.1**	-5.3%	-2.3%	0.7%
Other Middle East	2.3	2.4	1.3	0.7	0.8	0.9	1.4	1.7	1.9	1.4	**0.9**	-35.6%	-8.6%	0.3%
Total Middle East	73.7	76.2	77.5	91.0	93.9	92.7	86.5	84.9	95.0	92.5	**99.0**	7.1%	3.0%	31.2%
Algeria	17.8	18.5	19.5	19.5	18.6	19.0	19.6	18.8	16.4	17.3	**16.7**	-3.0%	-0.6%	5.3%
Egypt	5.2	6.0	6.1	6.1	5.1	4.9	5.1	5.1	4.7	4.4	**4.4**	-1.0%	-1.7%	1.4%
Libya	8.3	5.9	5.4	4.9	8.0	9.4	10.2	5.0	12.0	11.0	**13.6**	24.5%	5.1%	4.3%
Nigeria	18.7	16.7	15.1	14.6	15.2	14.7	15.7	14.2	13.1	10.7	**11.5**	8.4%	-4.7%	3.6%
Other Africa	18.7	19.5	21.0	21.0	18.9	17.3	16.5	15.8	15.0	15.9	**14.5**	-9.1%	-2.5%	4.6%
Total Africa	68.8	66.7	67.0	66.2	65.8	65.3	67.2	59.0	61.1	59.2	**60.8**	2.6%	-1.2%	19.2%
Australia	1.6	2.2	2.2	1.4	1.4	1.7	2.8	2.0	1.6	1.4	**1.3**	-5.9%	-1.5%	0.4%
Bangladesh	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	**0.0**	-2.5%	6.9%	0.0%
Brunei	0.4	0.4	0.4	0.6	0.6	0.4	0.6	0.3	0.4	0.2	**0.3**	35.3%	-4.5%	0.1%
China	4.9	5.0	5.0	4.7	3.6	4.0	4.4	5.8	5.4	5.0	**4.9**	-2.7%	-0.1%	1.5%
India	4.4	4.8	5.4	4.9	4.1	3.7	3.6	4.1	3.8	4.1	**4.1**	-0.1%	-0.8%	1.3%
Indonesia	6.6	6.4	6.1	5.8	4.9	4.3	4.3	4.0	3.5	3.7	**4.2**	13.1%	-4.4%	1.3%
Malaysia	6.3	7.2	7.9	6.9	6.2	5.1	5.5	5.4	4.3	3.5	**3.4**	-2.4%	-5.8%	1.1%
Myanmar	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	**0.0**	-11.6%	-17.8%	0.0%
Pakistan	1.2	0.9	0.9	0.9	0.7	0.6	0.6	0.6	0.5	0.6	**0.5**	-4.0%	-7.8%	0.2%
Thailand	0.9	0.9	0.9	0.9	0.8	0.7	0.7	0.7	0.7	0.5	**0.5**	2.6%	-6.4%	0.1%
Vietnam	2.1	2.1	2.0	1.8	1.9	1.6	1.6	1.4	1.1	1.2	**1.3**	14.3%	-4.6%	0.4%
Other Asia Pacific	1.4	1.7	1.4	1.4	0.9	0.9	0.6	0.6	0.8	0.9	**0.8**	-15.6%	-5.8%	0.2%
Total Asia Pacific	29.9	31.9	32.4	29.5	25.3	23.1	24.8	25.1	22.4	21.1	**21.3**	1.2%	-3.3%	6.7%
Total World	**297.9**	**305.6**	**309.0**	**315.2**	**298.1**	**305.0**	**316.8**	**300.5**	**308.3**	**296.6**	**317.4**	**7.0%**	**0.6%**	**100.0%**
of which: OECD	41.0	48.0	49.3	41.0	38.5	47.8	55.9	47.7	44.0	38.6	**43.1**	11.7%	0.5%	13.6%
Non-OECD	256.9	257.6	259.6	274.2	259.6	257.2	260.9	252.8	264.3	258.0	**274.3**	6.3%	0.7%	86.4%
European Union	1.4	1.6	1.4	1.4	1.0	1.2	1.2	1.1	1.2	1.0	**1.0**	3.7%	-2.9%	0.3%

Data from 2013 onward: Made utilising VIIRS Nightfire (VNF) nightly data produced by the Earth Observation Group, Payne Institute for Public Policy, Colorado School of Mines. These data include flaring from upstream, downstream oil and gas. Emissions have been calculated using flared natural gas volumes based on standard cubic metres (standardized using a Gross Calorific Value (GCV) of 40 MJ/m^3) and the standard conversion factor for emissions from the IPCC. Perfect combustion has been assumed.
Note: Annual changes and shares of total are calculated using exajoules figures.

Carbon

Carbon dioxide equivalent emissions from energy, process emissions, methane and flaring

Million tonnes of carbon dioxide equivalent	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Growth rate per annum 2023	Growth rate per annum 2013–23	Share 2023
Canada	615.8	625.0	620.3	608.9	627.7	643.8	632.0	567.8	580.0	596.7	**599.4**	0.4%	-0.3%	1.5%
Mexico	570.2	557.5	553.9	562.7	568.2	553.1	544.8	481.3	514.0	538.1	**559.7**	4.0%	-0.2%	1.4%
US	5610.0	5648.5	5540.6	5415.7	5375.0	5579.0	5474.3	4912.9	5197.2	5270.1	**5130.1**	-2.7%	-0.9%	12.7%
Total North America	**6796.0**	**6831.0**	**6714.8**	**6587.3**	**6570.8**	**6776.0**	**6651.0**	**5962.0**	**6291.1**	**6405.0**	**6289.3**	**-1.8%**	**-0.8%**	**15.6%**
Argentina	218.4	218.6	222.1	220.2	218.4	217.6	208.4	193.3	218.3	235.2	**229.4**	-2.5%	0.5%	0.6%
Brazil	544.7	573.0	555.3	514.3	518.5	498.0	494.3	469.2	524.0	505.5	**525.0**	3.9%	-0.4%	1.3%
Chile	90.4	88.7	88.9	93.8	95.2	94.8	96.2	86.5	95.3	94.4	**87.9**	-6.9%	-0.3%	0.2%
Colombia	121.8	128.4	120.7	134.1	126.6	127.4	130.8	112.8	121.8	129.4	**138.2**	6.8%	1.3%	0.3%
Ecuador	47.7	50.5	49.2	47.2	45.7	48.0	46.7	39.1	46.6	50.4	**56.2**	11.7%	1.7%	0.1%
Peru	53.9	55.5	57.5	61.2	58.6	60.4	62.2	52.2	62.3	66.6	**69.2**	3.9%	2.5%	0.2%
Trinidad & Tobago	34.0	33.4	31.9	28.5	27.7	26.6	26.4	22.4	20.8	21.2	**20.4**	-3.7%	-5.0%	0.1%
Venezuela	364.4	359.3	342.7	320.2	287.8	244.1	214.5	156.4	174.8	195.2	**225.0**	15.3%	-4.7%	0.6%
Central America	64.2	66.0	73.0	75.7	76.4	76.9	84.5	66.9	75.8	78.5	**84.5**	7.7%	2.8%	0.2%
Other Caribbean	107.7	109.7	114.2	116.8	113.5	116.0	115.4	104.7	105.4	105.0	**111.2**	5.8%	0.3%	0.3%
Other South America	43.7	44.8	45.4	47.1	47.7	48.4	48.4	44.4	50.1	52.4	**52.1**	-0.5%	1.8%	0.1%
Total S. & Cent. America	**1691.0**	**1727.8**	**1700.7**	**1659.2**	**1616.2**	**1558.2**	**1527.9**	**1347.9**	**1495.1**	**1533.7**	**1599.1**	**4.3%**	**-0.6%**	**4.0%**
Austria	65.0	61.3	63.8	64.4	66.7	64.6	66.0	58.5	61.5	58.5	**56.0**	-4.3%	-1.5%	0.1%
Belgium	120.0	111.7	117.7	119.4	121.2	128.1	124.7	108.0	116.6	112.4	**106.0**	-5.7%	-1.2%	0.3%
Bulgaria	43.1	45.6	48.7	45.8	48.7	45.4	44.2	38.5	44.5	48.8	**37.6**	-22.9%	-1.3%	0.1%
Croatia	18.2	17.9	18.3	18.7	19.2	18.3	18.1	16.7	17.4	17.4	**17.5**	0.7%	-0.4%	0.0%
Czech Republic	111.4	108.3	109.2	111.1	110.9	109.9	104.5	94.0	98.2	96.5	**87.8**	-9.0%	-2.4%	0.2%
Denmark	45.3	41.5	39.0	40.5	37.9	38.0	34.6	29.3	30.6	31.6	**30.1**	-4.6%	-4.0%	0.1%
Estonia	25.0	24.0	21.7	22.5	24.9	24.5	18.7	15.8	16.9	17.9	**15.1**	-15.4%	-4.9%	0.0%
France	349.0	313.3	317.5	323.0	327.7	317.6	310.4	261.0	287.1	280.8	**262.9**	-6.3%	-2.8%	0.7%
Germany	815.0	768.2	772.5	784.5	776.3	748.7	696.1	620.6	658.3	649.2	**589.4**	-9.2%	-3.2%	1.5%
Greece	85.5	81.8	79.0	75.7	80.0	78.3	74.0	59.9	63.2	66.7	**63.3**	-5.2%	-3.0%	0.2%
Hungary	43.7	43.0	45.6	46.5	48.8	49.3	49.5	47.0	48.2	45.2	**41.2**	-8.8%	-0.6%	0.1%
Ireland	39.0	38.9	40.6	43.1	42.1	42.0	40.3	35.8	38.1	38.6	**36.4**	-5.9%	-0.7%	0.1%
Italy	355.3	331.7	347.4	343.8	348.1	348.7	341.3	298.1	331.0	337.0	**312.7**	-7.2%	-1.3%	0.8%
Lithuania	12.1	11.4	11.9	12.3	12.4	13.1	13.0	12.6	13.0	12.5	**12.3**	-1.4%	0.2%	0.0%
Netherlands	212.0	203.1	208.1	208.5	204.8	198.6	193.9	173.3	177.0	165.0	**156.5**	-5.2%	-3.0%	0.4%
North Macedonia	8.1	7.7	7.4	7.5	7.8	7.5	8.3	7.0	7.1	7.9	**8.2**	4.3%	0.1%	0.0%
Norway	39.8	39.5	40.1	39.2	39.1	39.2	37.7	35.5	36.4	36.4	**35.5**	-2.6%	-1.2%	0.1%
Poland	336.6	319.5	319.7	334.1	347.7	353.0	335.4	317.3	343.7	326.9	**299.1**	-8.5%	-1.2%	0.7%
Romania	80.0	80.6	81.6	78.6	82.5	82.2	80.8	74.4	79.6	74.5	**69.6**	-6.6%	-1.4%	0.2%
Slovakia	33.9	31.5	31.9	32.4	34.5	33.8	31.5	29.4	32.8	29.9	**29.1**	-2.6%	-1.5%	0.1%
Slovenia	14.5	13.1	13.1	14.0	14.3	14.4	13.8	12.4	12.6	12.1	**10.9**	-10.0%	-2.8%	0.0%
Spain	281.5	280.4	296.3	288.9	306.7	301.3	283.8	229.8	251.0	268.5	**254.9**	-5.1%	-1.0%	0.6%
Sweden	47.1	45.9	46.3	46.4	46.5	42.5	42.6	40.3	42.5	39.1	**37.1**	-4.9%	-2.3%	0.1%
Türkiye	342.4	375.1	380.1	402.0	448.8	446.9	433.0	432.2	471.9	464.0	**457.1**	-1.5%	2.9%	1.1%
Ukraine	323.9	280.6	225.4	246.0	217.2	229.6	215.5	200.8	196.8	132.6	**131.4**	-1.0%	-8.6%	0.3%
United Kingdom	511.1	470.1	453.5	427.0	416.6	409.8	394.4	332.6	350.4	351.2	**338.5**	-3.6%	-4.0%	0.8%
Other Europe	297.2	276.4	288.2	293.9	302.7	298.4	293.1	264.4	264.9	267.2	**279.6**	4.6%	-0.6%	0.7%
Total Europe	**4655.5**	**4422.3**	**4424.5**	**4469.8**	**4534.0**	**4483.6**	**4299.4**	**3844.9**	**4091.5**	**3988.3**	**3775.8**	**-5.3%**	**-2.1%**	**9.3%**
Azerbaijan	40.8	41.2	43.2	42.5	41.1	43.8	44.1	43.4	46.2	49.2	**54.3**	10.4%	2.9%	0.1%
Belarus	63.9	62.9	58.1	58.3	59.2	64.5	65.0	59.3	60.5	58.3	**55.2**	-5.4%	-1.5%	0.1%
Kazakhstan	278.0	284.1	237.9	256.2	274.6	283.6	277.7	259.8	279.4	277.5	**308.7**	11.2%	1.1%	0.8%
Russian Federation	2060.5	2055.3	2029.5	2055.0	2052.9	2136.1	2139.2	2015.4	2103.4	2165.6	**2176.1**	0.5%	0.5%	5.4%
Turkmenistan	133.1	135.3	143.8	148.7	142.0	152.5	150.2	168.1	178.6	181.8	**222.2**	22.3%	5.3%	0.5%
Uzbekistan	137.8	140.0	133.1	129.7	131.5	138.4	138.7	140.3	147.7	150.8	**152.9**	1.4%	1.0%	0.4%
Other CIS	27.1	29.9	31.3	31.7	33.4	37.7	36.1	36.6	38.8	37.7	**39.0**	3.4%	3.7%	0.1%
Total CIS	**2741.3**	**2748.8**	**2676.9**	**2722.1**	**2734.8**	**2856.7**	**2851.1**	**2723.0**	**2854.7**	**2920.9**	**3008.4**	**3.0%**	**0.9%**	**7.4%**
Iran	740.9	762.1	756.2	810.7	834.3	859.9	856.1	879.6	896.3	927.6	**937.0**	1.0%	2.4%	2.3%
Iraq	225.3	228.6	245.7	270.7	294.1	304.0	314.9	286.1	295.6	321.6	**278.3**	-13.5%	2.1%	0.7%
Israel	69.4	66.8	69.5	68.6	69.2	69.5	71.3	65.3	66.1	70.0	**68.2**	-2.6%	-0.2%	0.2%
Kuwait	119.5	116.1	122.2	123.8	121.6	125.7	116.2	108.5	114.9	117.2	**125.8**	7.3%	0.5%	0.3%
Oman	87.8	87.4	91.9	94.3	95.9	99.9	99.7	94.9	102.8	108.6	**110.0**	1.3%	2.3%	0.3%
Qatar	125.8	135.1	148.5	149.0	141.1	143.5	149.7	132.1	140.8	143.8	**164.2**	14.3%	2.7%	0.4%
Saudi Arabia	629.1	669.7	709.0	745.8	734.5	719.0	679.2	658.1	676.3	720.9	**725.9**	0.7%	1.4%	1.8%
United Arab Emirates	298.6	294.7	320.1	330.5	316.7	301.2	315.8	305.6	312.7	336.3	**340.8**	1.3%	1.3%	0.8%
Other Middle East	172.8	170.0	149.3	141.2	147.4	146.0	145.0	138.7	144.3	142.7	**149.4**	4.7%	-1.4%	0.4%
Total Middle East	**2469.2**	**2530.4**	**2612.3**	**2734.6**	**2754.7**	**2768.7**	**2747.9**	**2668.8**	**2749.8**	**2888.7**	**2899.5**	**0.4%**	**1.6%**	**7.2%**
Algeria	206.7	219.1	225.7	228.8	231.6	239.5	243.2	229.2	248.5	254.7	**248.5**	-2.4%	1.9%	0.6%
Egypt	249.9	250.3	253.1	267.2	271.0	267.6	259.1	236.1	269.7	282.4	**279.3**	-1.1%	1.1%	0.7%
Morocco	60.6	61.9	62.2	62.5	65.3	66.8	73.0	67.4	75.1	75.5	**74.4**	-1.5%	2.1%	0.2%
South Africa	501.4	506.2	494.2	513.5	509.3	491.4	513.9	486.0	479.9	461.7	**478.1**	3.6%	-0.5%	1.2%
Eastern Africa	109.0	122.7	128.0	127.0	136.8	144.4	141.9	134.0	143.0	139.8	**142.7**	2.0%	2.7%	0.4%
Middle Africa	98.9	105.3	109.7	107.3	101.9	100.9	102.3	92.3	94.8	99.9	**113.7**	13.9%	1.4%	0.3%
Western Africa	214.0	212.3	226.3	225.2	238.1	258.2	267.2	263.8	286.2	278.2	**276.5**	-0.6%	2.6%	0.7%
Other Northern Africa	140.3	123.0	113.8	113.6	138.4	148.7	154.2	107.6	168.7	161.5	**158.8**	-1.7%	1.2%	0.4%
Other Southern Africa	12.7	14.0	14.1	13.9	14.9	15.6	14.9	12.8	14.4	15.9	**16.2**	2.4%	2.5%	0.0%
Total Africa	**1593.5**	**1614.8**	**1627.1**	**1659.0**	**1707.4**	**1733.2**	**1769.5**	**1629.2**	**1780.3**	**1769.6**	**1788.3**	**1.1%**	**1.2%**	**4.4%**
Australia	448.3	456.4	466.8	464.2	464.1	462.7	472.2	440.6	429.9	437.6	**440.4**	0.6%	-0.2%	1.1%
Bangladesh	73.7	76.4	94.5	95.3	100.0	107.0	119.2	113.8	121.7	130.2	**124.6**	-4.3%	5.4%	0.3%
China	10443.7	10493.8	10372.3	10213.0	10481.9	10856.5	11241.3	11489.1	11941.3	11895.5	**12603.5**	6.0%	1.9%	31.2%
China Hong Kong SAR	92.1	90.3	91.1	93.3	99.4	100.6	95.1	68.6	65.0	58.1	**66.5**	14.4%	-3.2%	0.2%
India	2091.1	2252.5	2325.9	2429.3	2497.7	2617.3	2649.5	2454.4	2705.6	2865.0	**3121.5**	9.0%	4.1%	7.7%
Indonesia	575.4	584.0	592.9	597.7	619.8	665.5	715.4	660.2	666.4	852.1	**861.5**	1.1%	4.1%	2.1%
Japan	1328.6	1293.6	1254.5	1233.5	1228.4	1205.5	1165.6	1075.4	1109.3	1108.7	**1038.6**	-6.3%	-2.4%	2.6%
Malaysia	260.3	271.5	275.5	280.0	267.2	276.4	281.5	278.0	284.6	303.1	**321.9**	6.2%	2.1%	0.8%
New Zealand	37.0	36.9	37.5	36.4	38.4	38.1	39.3	34.3	33.8	31.5	**32.8**	4.2%	-1.2%	0.1%
Pakistan	171.3	177.6	186.2	140.7	215.0	223.1	222.8	226.3	263.1	237.1	**222.0**	-6.4%	2.6%	0.5%
Philippines	100.7	106.2	116.4	126.0	139.5	144.6	151.6	136.7	145.6	152.1	**164.0**	7.8%	5.0%	0.4%
South Korea	645.1	640.4	648.6	659.9	668.2	683.9	660.3	611.0	627.0	616.3	**594.2**	-3.6%	-0.8%	1.5%
Taiwan	276.6	282.6	282.1	286.4	292.3	290.3	284.8	271.5	287.1	279.1	**270.8**	-3.0%	-0.2%	0.7%
Thailand	300.5	309.1	316.5	325.1	324.4	330.0	325.3	308.4	304.0	306.2	**302.1**	-1.3%	0.1%	0.7%
Vietnam	179.2	197.8	231.3	248.0	255.3	303.6	361.6	358.9	343.3	329.7	**372.4**	12.9%	7.6%	0.9%
Other Asia Pacific	342.8	355.1	375.1	405.1	477.7	479.3	494.7	485.9	480.7	479.3	**520.9**	8.7%	4.3%	1.3%
Total Asia Pacific	**17366.3**	**17624.4**	**17667.2**	**17633.7**	**18169.3**	**18784.4**	**19280.4**	**19013.0**	**19808.6**	**20081.8**	**21057.6**	**4.9%**	**1.9%**	**52.1%**
Total World	**37312.8**	**37499.4**	**37423.5**	**37465.7**	**38087.3**	**38960.8**	**39127.3**	**37188.9**	**39071.1**	**39588.0**	**40417.9**	**2.1%**	**0.8%**	**100.0%**
of which: OECD	13600.5	13424.7	13327.7	13229.2	13293.4	13433.6	13094.1	11771.4	12397.3	12475.9	**12079.9**	-3.2%	-1.2%	29.9%
Non-OECD	23712.2	24074.8	24095.9	24236.4	24793.9	25527.2	26033.2	25417.5	26673.8	27112.1	**28338.0**	4.5%	1.8%	70.1%
European Union	3271.7	3106.3	3165.1	3192.3	3245.0	3194.0	3052.9	2686.8	2876.9	2844.0	**2656.0**	-6.6%	-2.1%	6.6%

Note: The emissions above are the sum of carbon dioxide emissions from energy, carbon dioxide emissions from flaring, methane emissions (in carbon dioxide equivalent) associated with the production, transportation and distribution of fossil fuels, and carbon dioxide emissions from industrial processes.

Carbon Carbon capture, usage and storage (CCUS)

Capture capacity Million tonnes per year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	**2023**	Growth rate per annum 2023	Growth rate per annum 2013–23	Share 2023
Canada	0.1	1.1	2.3	2.3	2.3	2.3	2.3	4.0	4.0	4.0	**4.0**	–	48.0%	7.3%
Mexico	–	–	–	–	–	–	–	–	–	–	**–**	–	–	–
US	19.5	19.5	19.5	19.5	21.9	21.9	21.6	21.6	21.6	21.8	**22.5**	3.4%	1.5%	40.9%
Total North America	19.5	20.5	21.7	21.7	24.1	24.1	23.9	25.6	25.6	25.8	**26.5**	2.9%	3.1%	48.3%
Brazil	1.1	2.1	2.8	4.1	4.6	6.5	8.9	9.6	10.3	10.5	**10.6**	1.0%	25.4%	19.3%
Total S. & Cent. America	1.1	2.1	2.8	4.1	4.6	6.5	8.9	9.6	10.3	10.5	**10.6**	1.0%	25.4%	19.3%
Norway	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	**1.7**	–	–	3.1%
Other Europe	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3	0.6	**0.7**	16.1%	-5.0%	1.3%
Total Europe	2.9	2.9	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.3	**2.4**	4.3%	-1.8%	4.4%
Russian Federation	–	–	–	–	–	–	–	–	0.4	0.4	**0.4**	–	–	0.8%
Total CIS	–	–	–	–	–	–	–	–	0.4	0.4	**0.4**	–	–	0.8%
Qatar	–	–	0.2	0.2	0.2	0.2	2.3	2.3	2.3	2.3	**2.3**	–	–	4.1%
Saudi Arabia	–	–	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	**1.3**	–	–	2.4%
Other Middle East	0.3	0.3	0.3	1.1	1.1	1.1	1.1	1.4	1.4	1.4	**1.4**	–	16.4%	2.6%
Total Middle East	0.3	0.3	1.8	2.6	2.6	2.6	4.7	5.0	5.0	5.0	**5.0**	–	32.0%	9.1%
Algeria	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	**1.2**	–	–	2.2%
Total Africa	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	**1.2**	–	–	2.2%
Australia	–	–	–	–	–	–	4.0	4.0	4.0	4.0	**4.0**	–	–	7.3%
China	0.3	0.3	0.4	0.4	0.4	0.7	0.7	0.7	0.9	1.1	**3.5**	221.8%	28.4%	6.4%
Other Asia Pacific	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.3	1.3	1.3	**1.3**	–	2.5%	2.3%
Total Asia Pacific	1.3	1.3	1.4	1.4	1.5	1.8	5.8	6.0	6.2	6.4	**8.8**	38.2%	21.2%	16.0%
Total World	**26.3**	**28.4**	**31.9**	**34.0**	**37.0**	**39.3**	**47.6**	**50.4**	**51.7**	**51.6**	**55.0**	**6.6%**	**7.6%**	**100.0%**
of which: OECD	22.1	23.1	24.4	24.4	26.9	26.9	30.7	32.6	32.5	32.1	**32.9**	2.6%	4.1%	59.8%
Non-OECD	4.2	5.2	7.5	9.6	10.1	12.4	16.9	17.9	19.2	19.6	**22.1**	13.0%	18.0%	40.2%
European Union	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3	0.6	**0.7**	16.7%	-5.2%	1.3%

Source: Rystad Energy. For further information please contact **billy.snaith@rystadenergy.com**

Carbon Prices

	Compliance Markets				Voluntary Markets				
	UK Emissions trading scheme GBP£/teCO_2	EU Emissions trading scheme EUR€/teCO_2	California carbon allowance USD$/te$CO_2$	Regional greenhouse gas initiative USD$/ton$CO_2$	Platts CORSIA-eligible credits (CEC) USD$/te$CO_2$e	Platts carbon removal credits (CRC) USD$/te$CO_2$e	Platts CAC USD$/te$CO_2$e	Platts technological carbon capture USD$/te$CO_2$e	Platts renewable energy USD$/te$CO_2$e
2012	–	6.87	–	–	–	–	–	–	–
2013	–	4.53	–	–	–	–	–	–	–
2014	–	6.01	–	–	–	–	–	–	–
2015	–	7.72	–	–	–	–	–	–	–
2016	–	5.36	–	–	–	–	–	–	–
2017	–	5.84	–	–	–	–	–	–	–
2018	–	15.85	–	–	–	–	–	–	–
2019	–	24.91	–	–	–	–	–	–	–
2020	–	24.83	–	–	–	–	–	–	–
2021	66.76	53.52	–	–	4.09	14.53	8.53	7.32	112.80
2022	92.81	81.17	92.81	13.42	4.77	16.00	9.55	6.81	138.84
2023	**63.53**	**85.27**	**63.53**	**13.61**	**1.41**	**13.36**	**1.96**	**3.02**	**129.72**

Source: S&P Global Commodity Insights, ©2024 by S&P Global Inc.