

Table A14. World carbon dioxide emissions from power generation by region and fossil fuel type, High Economic Growth case

million metric tons of carbon dioxide

Region and fuel	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Americas								
Liquid fuels	92	110	56	24	11	4	4	-10.3%
Natural gas	852	746	672	624	655	686	708	-0.7%
Coal	907	825	485	505	529	510	482	-2.2%
Total	1,851	1,681	1,213	1,153	1,195	1,200	1,194	-1.6%
United States								
Liquid fuels	8	8	6	5	5	4	4	-3.0%
Natural gas	646	527	449	402	423	448	465	-1.2%
Coal	842	773	416	382	340	312	272	-3.9%
Total	1,496	1,308	870	790	768	764	741	-2.5%
Canada								
Liquid fuels	2	2	0	0	0	0	0	-9.8%
Natural gas	27	29	5	2	3	2	3	-7.7%
Coal	33	16	0	0	0	0	0	-100.0%
Total	61	48	5	2	3	2	3	-10.3%
Mexico								
Liquid fuels	28	36	19	9	3	0	0	-18.3%
Natural gas	70	73	83	89	104	113	119	1.9%
Coal	7	8	19	21	21	21	21	4.1%
Total	105	117	121	120	129	134	141	1.1%
Brazil								
Liquid fuels	10	14	6	1	0	0	0	-10.7%
Natural gas	28	36	46	37	31	29	27	-0.2%
Coal	9	10	12	14	32	14	14	1.8%
Total	47	60	65	52	63	44	42	-0.4%
Other Americas								
Liquid fuels	44	50	25	8	3	0	0	-17.4%
Natural gas	81	80	90	93	93	93	93	0.5%
Coal	17	19	38	88	136	162	175	8.6%
Total	142	149	153	190	232	256	268	2.3%
Europe and Eurasia								
Liquid fuels	58	80	82	57	44	43	41	-1.2%
Natural gas	701	710	770	832	911	990	1,099	1.6%
Coal	848	821	681	656	769	817	799	-0.2%
Total	1,607	1,611	1,533	1,545	1,724	1,850	1,939	0.7%
Western Europe								
Liquid fuels	40	57	63	48	37	36	36	-0.4%
Natural gas	263	297	365	358	354	352	355	1.1%
Coal	481	455	330	334	422	427	405	-0.6%
Total	784	809	758	740	813	815	796	0.1%
Russia								
Liquid fuels	13	19	16	6	5	3	2	-6.3%
Natural gas	315	299	305	351	391	418	465	1.4%
Coal	179	193	171	150	175	219	219	0.7%
Total	508	511	491	507	571	641	686	1.1%
Eastern Europe and Eurasia								
Liquid fuels	4	4	3	3	3	3	3	-0.8%
Natural gas	123	113	100	124	166	220	280	3.0%
Coal	187	173	181	172	171	172	175	-0.2%
Total	315	290	284	298	340	395	458	1.3%
Asia Pacific								
Liquid fuels	49	55	33	18	10	8	6	-7.1%
Natural gas	618	659	694	722	867	1,123	1,465	3.1%
Coal	7,386	7,515	8,666	9,094	9,119	9,112	9,060	0.7%
Total	8,052	8,230	9,393	9,834	9,996	10,242	10,531	1.0%
Japan								
Liquid fuels	9	13	9	5	3	3	3	-4.0%
Natural gas	145	145	134	117	111	92	92	-1.6%
Coal	251	249	147	168	168	202	208	-0.7%
Total	406	406	290	290	281	297	303	-1.0%

South Korea								
Liquid fuels	2	3	4	3	3	3	3	1.3%
Natural gas	69	65	62	56	51	51	53	-0.9%
Coal	130	130	133	142	147	147	144	0.4%
Total	202	198	199	200	200	200	200	0.0%
Australia and New Zealand								
Liquid fuels	1	1	0	0	0	0	0	-7.3%
Natural gas	22	21	23	18	15	15	15	-1.4%
Coal	123	112	128	137	139	137	138	0.4%
Total	145	134	150	155	153	152	153	0.2%
China								
Liquid fuels	2	2	1	0	0	0	0	-10.7%
Natural gas	121	151	180	266	425	700	1,039	8.0%
Coal	5,206	5,279	5,835	5,879	5,634	5,438	5,261	0.0%
Total	5,328	5,432	6,016	6,146	6,059	6,138	6,301	0.6%
India								
Liquid fuels	3	2	1	0	0	0	0	-14.5%
Natural gas	24	24	46	46	46	46	46	2.4%
Coal	1,077	1,141	1,492	1,595	1,678	1,554	1,434	1.0%
Total	1,104	1,167	1,538	1,641	1,724	1,600	1,480	1.1%
Other Asia Pacific								
Liquid fuels	33	34	18	10	5	2	0	-14.5%
Natural gas	237	254	249	219	219	220	220	-0.3%
Coal	598	606	931	1,173	1,354	1,634	1,875	4.2%
Total	867	893	1,199	1,402	1,578	1,855	2,095	3.2%
Africa and Middle East								
Liquid fuels	205	230	119	50	21	8	2	-15.2%
Natural gas	587	612	640	708	757	824	893	1.5%
Coal	212	186	219	251	269	270	267	0.8%
Total	1,004	1,028	978	1,009	1,048	1,101	1,162	0.5%
Africa								
Liquid fuels	31	31	12	2	0	0	0	-16.4%
Natural gas	166	167	172	193	215	253	299	2.1%
Coal	212	185	219	251	269	269	267	0.8%
Total	409	383	402	446	485	523	565	1.2%
Middle East								
Liquid fuels	174	200	107	48	21	8	2	-15.0%
Natural gas	421	445	468	516	542	571	594	1.2%
Coal	0	0	0	0	0	0	0	-5.9%
Total	595	645	576	564	563	579	596	0.0%
World								
Liquid fuels	404	475	290	148	87	63	54	-7.0%
Natural gas	2,757	2,727	2,775	2,887	3,190	3,622	4,165	1.5%
Coal	9,353	9,347	10,051	10,506	10,686	10,708	10,608	0.5%
Total	12,514	12,550	13,117	13,541	13,963	14,393	14,827	0.6%

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run hm_230821.151836 and Annual Energy Outlook 2023 (March 2023), www.eia.gov/aeo

Note: Totals may not equal sum of components due to independent rounding. Net carbon dioxide emissions represent gross emissions less CCS (carbon captured and sequestered) emissions from CCS capable units during the power generation.