International Energy Outlook 2023

Release date: October 2023

Table M1. World coal production by region, Low Zero-carbon Technology Cost case

million short tons

Region	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Americas	**781**	**725**	**465**	**435**	**445**	**413**	**376**	**-2.6%**
United States	626	570	304	256	258	215	167	-4.6%
Canada	61	55	49	52	53	62	66	0.2%
Mexico	8	8	12	13	13	13	14	1.9%
Brazil	4	5	4	5	7	5	5	0.2%
Other Americas	81	87	95	110	114	119	125	1.6%
Europe and Eurasia	**1,015**	**979**	**906**	**941**	**939**	**984**	**1,036**	**0.1%**
Western Europe	486	476	376	388	377	416	453	-0.3%
Russia	399	384	402	415	420	423	434	0.3%
Eastern Europe and Eurasia	129	119	128	138	141	145	149	0.5%
Asia Pacific	**6,455**	**6,409**	**6,738**	**6,762**	**6,522**	**6,249**	**5,861**	**-0.3%**
Japan	1	1	1	1	1	1	1	1.4%
South Korea	1	1	1	2	2	2	2	1.6%
Australia and New Zealand	412	480	514	549	573	576	595	1.3%
China	4,366	4,197	4,063	3,850	3,546	3,308	2,901	-1.4%
India	805	886	1,113	1,208	1,235	1,206	1,191	1.4%
Other Asia Pacific	870	843	1,046	1,153	1,165	1,156	1,171	1.1%
Africa and Middle East	**214**	**220**	**271**	**308**	**321**	**333**	**350**	**1.8%**
Africa	212	218	269	306	319	330	348	1.8%
Middle East	2	2	2	2	2	2	3	1.0%
World	**8,464**	**8,332**	**8,380**	**8,447**	**8,226**	**7,979**	**7,624**	**-0.4%**

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run lz_230821.151531 and Annual Energy Outlook 2023 (March 2023), www.eia.gov/aeo

Note: Totals may not equal sum of components due to independent rounding.

Table M2. World thermal coal production by region, Low Zero-carbon Technology Cost case

million short tons

Region	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Americas	**656**	**585**	**322**	**294**	**305**	**266**	**224**	**-3.8%**
United States	548	477	208	161	165	124	76	-6.8%
Canada	26	19	14	16	17	18	19	-1.1%
Mexico	3	3	7	7	7	7	7	3.8%
Brazil	4	5	4	5	7	5	5	0.2%
Other Americas	75	81	89	104	108	112	117	1.6%
Europe and Eurasia	**863**	**826**	**747**	**775**	**771**	**815**	**867**	**0.0%**
Western Europe	468	457	357	368	357	396	433	-0.3%
Russia	284	267	281	288	292	293	304	0.2%
Eastern Europe and Eurasia	111	102	109	119	122	126	130	0.6%
Asia Pacific	**5,694**	**5,688**	**6,087**	**6,169**	**5,973**	**5,743**	**5,385**	**-0.2%**
Japan	1	1	1	1	1	1	1	1.4%
South Korea	1	1	1	2	2	2	2	1.6%
Australia and New Zealand	236	273	305	334	348	348	368	1.6%
China	3,874	3,779	3,718	3,572	3,322	3,130	2,767	-1.2%
India	757	837	1,064	1,159	1,186	1,157	1,129	1.4%
Other Asia Pacific	825	796	998	1,103	1,114	1,105	1,118	1.1%
Africa and Middle East	**205**	**211**	**261**	**299**	**312**	**323**	**339**	**1.8%**
Africa	204	210	261	298	311	322	339	1.8%
Middle East	0	0	0	0	0	0	0	2.0%
World	**7,418**	**7,309**	**7,418**	**7,536**	**7,360**	**7,145**	**6,814**	**-0.3%**

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run lz_230821.151531 and Annual Energy Outlook 2023 (March 2023), www.eia.gov/aeo

Note: Totals may not equal sum of components due to independent rounding.

International Energy Outlook 2023

Release date: October 2023

Table M3. World metallurgical coal production by region, Low Zero-carbon Technology Cost case

million short tons

Region	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Americas	**125**	**139**	**143**	**142**	**140**	**148**	**153**	**0.7%**
United States	78	92	96	95	93	92	91	0.6%
Canada	36	36	36	36	36	44	47	1.0%
Mexico	6	5	6	6	6	6	6	0.6%
Brazil	0	0	0	0	0	0	0	0.0%
Other Americas	6	6	6	6	6	6	8	1.1%
Europe and Eurasia	**151**	**153**	**159**	**166**	**168**	**170**	**170**	**0.4%**
Western Europe	18	18	19	20	20	20	20	0.4%
Russia	116	117	121	127	129	130	130	0.4%
Eastern Europe and Eurasia	17	18	18	19	19	19	20	0.4%
Asia Pacific	**761**	**721**	**650**	**593**	**549**	**506**	**476**	**-1.7%**
Japan	0	0	0	0	0	0	0	0.0%
South Korea	0	0	0	0	0	0	0	0.0%
Australia and New Zealand	175	207	208	215	225	227	227	0.9%
China	491	418	345	278	224	179	134	-4.5%
India	49	49	49	49	49	49	62	0.9%
Other Asia Pacific	45	47	49	50	51	52	53	0.5%
Africa and Middle East	**9**	**9**	**10**	**10**	**10**	**10**	**11**	**0.7%**
Africa	7	7	8	8	8	8	9	0.6%
Middle East	2	2	2	2	2	2	2	0.8%
World	**1,046**	**1,023**	**962**	**910**	**867**	**834**	**809**	**-0.9%**

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run lz_230821.151531 and Annual Energy Outlook 2023 (March 2023), www.eia.gov/aeo

Note: Totals may not equal sum of components due to independent rounding.

International Energy Outlook 2023

Release date: October 2023

Table M4. World coal consumption by region, Low Zero-carbon Technology Cost case

million short tons

Region	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Americas	**574**	**513**	**269**	**239**	**228**	**192**	**158**	**-4.5%**
United States	499	446	195	148	126	90	55	-7.6%
Canada	25	15	5	6	6	6	6	-5.2%
Mexico	7	7	13	14	15	15	15	2.7%
Brazil	25	26	26	28	31	29	29	0.6%
Other Americas	17	19	29	43	51	53	54	4.1%
Europe and Eurasia	**1,018**	**989**	**851**	**856**	**848**	**905**	**958**	**-0.2%**
Western Europe	642	614	481	487	471	516	559	-0.5%
Russia	238	248	232	219	221	224	227	-0.2%
Eastern Europe and Eurasia	138	128	137	149	156	164	172	0.8%
Asia Pacific	**6,694**	**6,662**	**7,073**	**7,135**	**6,892**	**6,616**	**6,228**	**-0.3%**
Japan	193	191	134	133	128	123	119	-1.7%
South Korea	110	108	113	117	119	121	121	0.3%
Australia and New Zealand	100	93	103	107	112	106	109	0.3%
China	4,676	4,574	4,541	4,399	4,055	3,728	3,276	-1.3%
India	1,063	1,141	1,458	1,530	1,600	1,588	1,630	1.5%
Other Asia Pacific	551	555	724	848	878	949	972	2.0%
Africa and Middle East	**177**	**167**	**188**	**217**	**258**	**267**	**279**	**1.6%**
Africa	165	156	177	205	246	255	267	1.7%
Middle East	12	11	11	12	12	12	12	0.1%
World	**8,464**	**8,332**	**8,380**	**8,447**	**8,226**	**7,979**	**7,624**	**-0.4%**

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run lz_230821.151531 and Annual Energy Outlook 2023 (March 2023), www.eia.gov/aeo

Note: Totals may not equal sum of components due to independent rounding.

International Energy Outlook 2023

Release date: October 2023

Table M5. World thermal coal consumption by region, Low Zero-carbon Technology Cost case

million short tons

Region	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Americas	**536**	**473**	**227**	**197**	**186**	**149**	**116**	**-5.3%**
United States	483	429	177	131	109	73	39	-8.6%
Canada	22	12	2	3	3	3	3	-7.1%
Mexico	3	4	9	10	10	10	10	4.1%
Brazil	12	13	12	14	16	14	14	0.7%
Other Americas	15	16	26	40	48	49	50	4.4%
Europe and Eurasia	**852**	**822**	**682**	**683**	**670**	**722**	**770**	**-0.4%**
Western Europe	582	557	427	435	420	468	514	-0.4%
Russia	155	163	145	128	127	126	126	-0.7%
Eastern Europe and Eurasia	114	103	110	120	123	127	131	0.5%
Asia Pacific	**5,860**	**5,854**	**6,331**	**6,452**	**6,262**	**6,027**	**5,673**	**-0.1%**
Japan	152	152	99	103	101	100	99	-1.5%
South Korea	72	71	74	77	79	81	81	0.4%
Australia and New Zealand	96	88	99	102	107	100	104	0.3%
China	4,067	3,989	4,030	3,968	3,702	3,445	3,058	-1.0%
India	948	1,028	1,336	1,389	1,434	1,395	1,408	1.4%
Other Asia Pacific	524	527	693	813	839	905	923	2.0%
Africa and Middle East	**170**	**160**	**178**	**205**	**242**	**248**	**255**	**1.5%**
Africa	163	152	171	197	234	240	247	1.5%
Middle East	8	7	7	7	8	8	8	0.1%
World	**7,418**	**7,309**	**7,418**	**7,536**	**7,360**	**7,145**	**6,814**	**-0.3%**

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run lz_230821.151531 and Annual Energy Outlook 2023 (March 2023), www.eia.gov/aeo

Note: Totals may not equal sum of components due to independent rounding.

International Energy Outlook 2023

Release date: October 2023

Table M6. World metallurgical coal consumption by region, Low Zero-carbon Technology Cost case

million short tons

Region	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Americas	**38**	**40**	**42**	**42**	**42**	**42**	**43**	**0.4%**
United States	16	18	18	17	17	16	16	-0.1%
Canada	3	3	3	3	3	3	3	-0.1%
Mexico	4	4	4	4	5	5	5	0.9%
Brazil	13	13	14	14	14	15	15	0.5%
Other Americas	2	3	3	3	4	4	4	1.9%
Europe and Eurasia	**167**	**168**	**169**	**173**	**178**	**183**	**188**	**0.4%**
Western Europe	59	57	54	53	51	48	46	-0.9%
Russia	83	85	88	91	95	98	101	0.7%
Eastern Europe and Eurasia	24	25	27	30	33	37	42	2.0%
Asia Pacific	**834**	**808**	**742**	**683**	**630**	**589**	**555**	**-1.4%**
Japan	41	39	35	31	27	23	20	-2.5%
South Korea	38	38	39	40	40	40	40	0.2%
Australia and New Zealand	4	5	5	5	5	5	6	1.1%
China	609	585	511	431	353	283	218	-3.6%
India	115	113	121	141	166	193	222	2.4%
Other Asia Pacific	27	29	31	35	39	44	50	2.2%
Africa and Middle East	**7**	**8**	**10**	**12**	**16**	**19**	**24**	**4.7%**
Africa	3	4	6	8	11	15	20	7.5%
Middle East	4	4	4	4	4	4	4	0.2%
World	**1,046**	**1,023**	**962**	**910**	**867**	**834**	**809**	**-0.9%**

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run lz_230821.151531 and Annual Energy Outlook 2023 (March 2023), www.eia.gov/aeo

Note: Totals may not equal sum of components due to independent rounding.

International Energy Outlook 2023

Release date: October 2023

Table M7. World coal imports by region, Low Zero-carbon Technology Cost case

million short tons

Region	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Americas	**31**	**31**	**32**	**33**	**32**	**32**	**33**	**0.2%**
United States	6	5	4	4	1	1	2	-4.1%
Canada	5	4	4	4	4	4	4	-0.8%
Mexico	1	1	2	3	3	3	3	5.0%
Brazil	20	21	22	23	24	24	25	0.7%
Other Americas	0	0	0	0	0	0	0	3.0%
Europe and Eurasia	**168**	**150**	**117**	**113**	**110**	**119**	**129**	**-0.9%**
Western Europe	155	138	105	99	94	100	106	-1.3%
Russia	0	0	0	0	0	0	0	0.0%
Eastern Europe and Eurasia	13	11	12	14	16	19	23	2.1%
Asia Pacific	**1,113**	**1,169**	**1,383**	**1,490**	**1,503**	**1,472**	**1,491**	**1.0%**
Japan	192	190	133	132	127	122	118	-1.7%
South Korea	109	107	111	115	118	120	119	0.3%
Australia and New Zealand	0	0	0	0	0	0	0	0.0%
China	311	377	478	549	509	420	375	0.7%
India	258	255	345	323	365	382	439	1.9%
Other Asia Pacific	243	240	316	372	384	427	440	2.1%
Africa and Middle East	**24**	**24**	**26**	**31**	**37**	**36**	**40**	**1.7%**
Africa	15	14	17	22	27	26	30	2.6%
Middle East	10	9	9	9	10	10	9	-0.1%
World	**1,337**	**1,373**	**1,559**	**1,668**	**1,683**	**1,659**	**1,693**	**0.8%**

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run lz_230821.151531 and Annual Energy Outlook 2023 (March 2023), www.eia.gov/aeo

Note: Totals may not equal sum of components due to independent rounding. "--" means not applicable. Imports, exports, and net trade coal movements do not include coal trade between countries in the same IEO region. As a result, modeled trade might be lower than published historical coal trade when aggregating all imports or exports within an IEO region.

International Energy Outlook 2023

Release date: October 2023

Table M8. World thermal coal imports by region, Low Zero-carbon Technology Cost case

million short tons

Region	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Americas	**10**	**12**	**12**	**13**	**14**	**14**	**14**	**1.1%**
United States	0	2	1	1	0	0	0	--
Canada	2	1	1	1	1	1	1	-2.2%
Mexico	1	1	2	3	3	3	3	5.0%
Brazil	8	8	8	9	10	10	10	0.9%
Other Americas	0	0	0	0	0	0	0	3.0%
Europe and Eurasia	**117**	**100**	**71**	**68**	**64**	**73**	**82**	**-1.3%**
Western Europe	114	99	70	67	63	72	81	-1.2%
Russia	0	0	0	0	0	0	0	0.0%
Eastern Europe and Eurasia	3	1	1	1	1	1	1	-3.6%
Asia Pacific	**829**	**838**	**1,046**	**1,147**	**1,159**	**1,124**	**1,148**	**1.2%**
Japan	151	151	98	101	100	99	98	-1.5%
South Korea	71	69	72	76	78	80	79	0.4%
Australia and New Zealand	0	0	0	0	0	0	0	0.0%
China	193	210	312	396	380	316	292	1.5%
India	192	191	272	230	248	238	279	1.4%
Other Asia Pacific	222	217	291	344	353	392	400	2.1%
Africa and Middle East	**20**	**19**	**20**	**22**	**25**	**26**	**26**	**1.0%**
Africa	13	11	13	15	18	18	19	1.5%
Middle East	7	7	7	7	7	7	7	0.0%
World	**976**	**968**	**1,149**	**1,250**	**1,262**	**1,237**	**1,270**	**0.9%**

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run lz_230821.151531 and Annual Energy Outlook 2023 (March 2023), www.eia.gov/aeo

Note: Totals may not equal sum of components due to independent rounding. "--" means not applicable. Imports, exports, and net trade coal movements do not include coal trade between countries in the same IEO region. As a result, modeled trade might be lower than published historical coal trade when aggregating all imports or exports within an IEO region.

International Energy Outlook 2023

Release date: October 2023

Table M9. World metallurgical coal imports by region, Low Zero-carbon Technology Cost case

million short tons

Region	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Americas	**21**	**19**	**20**	**20**	**18**	**18**	**19**	**-0.4%**
United States	6	4	3	3	1	1	2	-4.5%
Canada	3	3	3	3	3	3	3	-0.1%
Mexico	0	0	0	0	0	0	0	0.0%
Brazil	13	13	14	14	14	15	15	0.5%
Other Americas	0	0	0	0	0	0	0	0.0%
Europe and Eurasia	**51**	**49**	**46**	**45**	**46**	**46**	**48**	**-0.3%**
Western Europe	41	39	35	33	31	28	26	-1.7%
Russia	0	0	0	0	0	0	0	0.0%
Eastern Europe and Eurasia	10	11	11	13	15	18	22	2.9%
Asia Pacific	**284**	**331**	**337**	**343**	**344**	**348**	**343**	**0.7%**
Japan	41	39	35	31	27	23	20	-2.5%
South Korea	38	38	39	40	40	40	40	0.2%
Australia and New Zealand	0	0	0	0	0	0	0	0.0%
China	118	167	166	152	129	104	83	-1.2%
India	66	64	73	93	117	145	160	3.2%
Other Asia Pacific	22	23	25	28	31	35	40	2.2%
Africa and Middle East	**4**	**5**	**7**	**9**	**12**	**10**	**13**	**4.0%**
Africa	2	3	5	7	9	8	11	6.0%
Middle East	2	2	2	2	2	2	2	-0.3%
World	**361**	**404**	**410**	**418**	**420**	**422**	**423**	**0.6%**

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run lz_230821.151531 and Annual Energy Outlook 2023 (March 2023), www.eia.gov/aeo

Note: Totals may not equal sum of components due to independent rounding. "--" means not applicable. Imports, exports, and net trade coal movements do not include coal trade between countries in the same IEO region. As a result, modeled trade might be lower than published historical coal trade when aggregating all imports or exports within an IEO region.

International Energy Outlook 2023

Release date: October 2023

Table M10. World coal exports by region, Low Zero-carbon Technology Cost case

million short tons

Region	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Americas	**238**	**242**	**229**	**230**	**249**	**254**	**251**	**0.2%**
United States	132	129	114	111	134	127	114	-0.5%
Canada	41	43	48	50	51	60	63	1.6%
Mexico	2	2	1	1	1	1	2	-0.3%
Brazil	0	0	0	0	0	0	0	0.0%
Other Americas	64	68	66	67	63	66	71	0.4%
Europe and Eurasia	**164**	**139**	**173**	**198**	**200**	**199**	**207**	**0.8%**
Western Europe	0	0	0	0	0	0	0	-0.1%
Russia	161	136	170	196	199	199	207	0.9%
Eastern Europe and Eurasia	3	3	3	2	1	0	0	-100.0%
Asia Pacific	**874**	**915**	**1,048**	**1,118**	**1,133**	**1,105**	**1,124**	**0.9%**
Japan	0	0	0	0	0	0	0	0.0%
South Korea	0	0	0	0	0	0	0	0.0%
Australia and New Zealand	311	388	410	441	461	470	486	1.6%
China	0	0	0	0	0	0	0	0.0%
India	0	0	0	0	0	0	0	0.0%
Other Asia Pacific	563	528	638	676	671	635	638	0.5%
Africa and Middle East	**61**	**76**	**109**	**122**	**101**	**102**	**111**	**2.1%**
Africa	61	76	109	122	101	102	111	2.1%
Middle East	0	0	0	0	0	0	0	0.0%
World	**1,337**	**1,373**	**1,559**	**1,668**	**1,683**	**1,659**	**1,693**	**0.8%**

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run lz_230821.151531 and Annual Energy Outlook 2023 (March 2023), www.eia.gov/aeo

Note: Totals may not equal sum of components due to independent rounding. "--" means not applicable. Imports, exports, and net trade coal movements do not include coal trade between countries in the same IEO region. As a result, modeled trade might be lower than published historical coal trade when aggregating all imports or exports within an IEO region.

International Energy Outlook 2023

Release date: October 2023

Table M11. World thermal coal exports by region, Low Zero-carbon Technology Cost case

million short tons

Region	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Americas	**130**	**123**	**107**	**110**	**133**	**130**	**122**	**-0.2%**
United States	65	51	33	31	56	51	37	-2.0%
Canada	5	8	12	15	15	16	17	4.4%
Mexico	0	0	0	0	0	0	0	5.0%
Brazil	0	0	0	0	0	0	0	0.0%
Other Americas	60	65	63	64	61	64	67	0.4%
Europe and Eurasia	**129**	**104**	**136**	**160**	**165**	**167**	**178**	**1.2%**
Western Europe	0	0	0	0	0	0	0	-0.1%
Russia	129	104	136	160	165	167	178	1.2%
Eastern Europe and Eurasia	0	0	0	0	0	0	0	0.0%
Asia Pacific	**663**	**672**	**802**	**864**	**870**	**840**	**860**	**0.9%**
Japan	0	0	0	0	0	0	0	0.0%
South Korea	0	0	0	0	0	0	0	0.0%
Australia and New Zealand	140	185	207	231	242	248	265	2.3%
China	0	0	0	0	0	0	0	0.0%
India	0	0	0	0	0	0	0	0.0%
Other Asia Pacific	523	487	596	633	628	592	595	0.5%
Africa and Middle East	**54**	**69**	**103**	**116**	**95**	**100**	**111**	**2.6%**
Africa	54	69	103	116	95	100	111	2.6%
Middle East	0	0	0	0	0	0	0	0.0%
World	**976**	**968**	**1,149**	**1,250**	**1,262**	**1,237**	**1,270**	**0.9%**

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run lz_230821.151531 and Annual Energy Outlook 2023 (March 2023), www.eia.gov/aeo

Note: Totals may not equal sum of components due to independent rounding. "--" means not applicable. Imports, exports, and net trade coal movements do not include coal trade between countries in the same IEO region. As a result, modeled trade might be lower than published historical coal trade when aggregating all imports or exports within an IEO region.

International Energy Outlook 2023

Release date: October 2023

Table M12. World metallurgical coal exports by region, Low Zero-carbon Technology Cost case

million short tons

Region	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Americas	**108**	**119**	**121**	**120**	**116**	**124**	**129**	**0.6%**
United States	67	78	81	80	77	76	77	0.5%
Canada	36	36	36	36	36	44	47	1.0%
Mexico	2	2	1	1	1	1	2	-0.3%
Brazil	0	0	0	0	0	0	0	0.0%
Other Americas	3	3	3	3	2	3	4	0.4%
Europe and Eurasia	**36**	**35**	**36**	**38**	**35**	**32**	**29**	**-0.7%**
Western Europe	0	0	0	0	0	0	0	0.0%
Russia	32	32	34	36	34	32	29	-0.4%
Eastern Europe and Eurasia	3	3	3	2	1	0	0	-100.0%
Asia Pacific	**211**	**244**	**246**	**253**	**263**	**265**	**265**	**0.8%**
Japan	0	0	0	0	0	0	0	0.0%
South Korea	0	0	0	0	0	0	0	0.0%
Australia and New Zealand	171	203	204	210	220	222	222	0.9%
China	0	0	0	0	0	0	0	0.0%
India	0	0	0	0	0	0	0	0.0%
Other Asia Pacific	40	41	42	43	43	43	43	0.3%
Africa and Middle East	**7**	**7**	**7**	**6**	**6**	**1**	**0**	**-100.0%**
Africa	7	7	7	6	6	1	0	-100.0%
Middle East	0	0	0	0	0	0	0	0.0%
World	**361**	**404**	**410**	**418**	**420**	**422**	**423**	**0.6%**

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run lz_230821.151531 and Annual Energy Outlook 2023 (March 2023), www.eia.gov/aeo

Note: Totals may not equal sum of components due to independent rounding. "--" means not applicable. Imports, exports, and net trade coal movements do not include coal trade between countries in the same IEO region. As a result, modeled trade might be lower than published historical coal trade when aggregating all imports or exports within an IEO region.

International Energy Outlook 2023

Release date: October 2023

Table M13. World coal net trade by region, Low Zero-carbon Technology Cost case

million short tons

Region	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Americas	**-207**	**-211**	**-196**	**-196**	**-217**	**-222**	**-218**	**--**
United States	-127	-124	-110	-107	-132	-126	-113	--
Canada	-36	-39	-44	-47	-47	-56	-60	--
Mexico	-1	-1	1	1	2	2	1	--
Brazil	20	21	22	23	24	24	25	0.7%
Other Americas	-64	-68	-66	-67	-63	-66	-71	--
Europe and Eurasia	**4**	**10**	**-56**	**-85**	**-90**	**-80**	**-78**	**--**
Western Europe	155	138	105	99	94	100	106	-1.3%
Russia	-161	-136	-170	-196	-199	-199	-207	--
Eastern Europe and Eurasia	10	9	9	12	15	19	23	3.1%
Asia Pacific	**240**	**253**	**335**	**373**	**370**	**367**	**367**	**1.5%**
Japan	192	190	133	132	127	122	118	-1.7%
South Korea	109	107	111	115	118	120	119	0.3%
Australia and New Zealand	-311	-388	-410	-441	-461	-470	-486	--
China	311	377	478	549	509	420	375	0.7%
India	258	255	345	323	365	382	439	1.9%
Other Asia Pacific	-319	-288	-322	-305	-287	-208	-198	--
Africa and Middle East	**-37**	**-52**	**-83**	**-91**	**-64**	**-65**	**-71**	**--**
Africa	-47	-62	-92	-101	-73	-75	-81	--
Middle East	10	9	9	9	10	10	9	-0.1%
World	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**--**

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run lz_230821.151531 and Annual Energy Outlook 2023 (March 2023), www.eia.gov/aeo

Note: Totals may not equal sum of components due to independent rounding. "--" means not applicable. Imports, exports, and net trade coal movements do not include coal trade between countries in the same IEO region. As a result, modeled trade might be lower than published historical coal trade when aggregating all imports or exports within an IEO region.

International Energy Outlook 2023

Release date: October 2023

Table M14. World thermal coal net trade by region, Low Zero-carbon Technology Cost case

million short tons

Region	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Americas	**-120**	**-112**	**-95**	**-97**	**-119**	**-116**	**-108**	**--**
United States	-65	-49	-32	-30	-56	-50	-37	--
Canada	-3	-7	-11	-14	-14	-15	-16	--
Mexico	1	1	2	3	3	3	3	5.0%
Brazil	8	8	8	9	10	10	10	0.9%
Other Americas	-60	-65	-63	-64	-61	-64	-67	--
Europe and Eurasia	**-12**	**-4**	**-65**	**-92**	**-101**	**-93**	**-96**	**--**
Western Europe	114	99	70	67	63	72	81	-1.2%
Russia	-129	-104	-136	-160	-165	-167	-178	--
Eastern Europe and Eurasia	3	1	1	1	1	1	1	-3.6%
Asia Pacific	**166**	**166**	**244**	**283**	**289**	**284**	**288**	**2.0%**
Japan	151	151	98	101	100	99	98	-1.5%
South Korea	71	69	72	76	78	80	79	0.4%
Australia and New Zealand	-140	-185	-207	-231	-242	-248	-265	--
China	193	210	312	396	380	316	292	1.5%
India	192	191	272	230	248	238	279	1.4%
Other Asia Pacific	-301	-270	-305	-289	-276	-200	-195	--
Africa and Middle East	**-34**	**-51**	**-83**	**-94**	**-70**	**-75**	**-84**	**--**
Africa	-42	-58	-90	-101	-77	-82	-92	--
Middle East	7	7	7	7	7	7	7	0.0%
World	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**--**

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run lz_230821.151531 and Annual Energy Outlook 2023 (March 2023), www.eia.gov/aeo

Note: Totals may not equal sum of components due to independent rounding. "--" means not applicable. Imports, exports, and net trade coal movements do not include coal trade between countries in the same IEO region. As a result, modeled trade might be lower than published historical coal trade when aggregating all imports or exports within an IEO region.

International Energy Outlook 2023

Release date: October 2023

Table M15. World metallurgical coal net trade by region, Low Zero-carbon Technology Cost case

million short tons

Region	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Americas	**-87**	**-100**	**-101**	**-100**	**-98**	**-105**	**-110**	**--**
United States	-61	-75	-78	-77	-76	-75	-75	--
Canada	-33	-33	-33	-33	-33	-41	-44	--
Mexico	-2	-2	-1	-1	-1	-1	-2	--
Brazil	13	13	14	14	14	15	15	0.5%
Other Americas	-3	-3	-3	-3	-2	-3	-4	--
Europe and Eurasia	**16**	**14**	**10**	**7**	**10**	**14**	**18**	**0.5%**
Western Europe	41	39	35	33	31	28	26	-1.7%
Russia	-32	-32	-34	-36	-34	-32	-29	--
Eastern Europe and Eurasia	7	8	8	11	14	18	22	4.3%
Asia Pacific	**73**	**87**	**91**	**90**	**81**	**83**	**79**	**0.2%**
Japan	41	39	35	31	27	23	20	-2.5%
South Korea	38	38	39	40	40	40	40	0.2%
Australia and New Zealand	-171	-203	-204	-210	-220	-222	-222	--
China	118	167	166	152	129	104	83	-1.2%
India	66	64	73	93	117	145	160	3.2%
Other Asia Pacific	-18	-19	-17	-15	-12	-8	-3	--
Africa and Middle East	**-2**	**-2**	**0**	**3**	**6**	**9**	**13**	**--**
Africa	-5	-4	-2	0	4	7	11	--
Middle East	2	2	2	2	2	2	2	-0.3%
World	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**-1.4%**

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run lz_230821.151531 and Annual Energy Outlook 2023 (March 2023), www.eia.gov/aeo

Note: Totals may not equal sum of components due to independent rounding. "--" means not applicable. Imports, exports, and net trade coal movements do not include coal trade between countries in the same IEO region. As a result, modeled trade might be lower than published historical coal trade when aggregating all imports or exports within an IEO region.