

Table E1.cap. Electricity installed generating capacity: World, High Oil Price case

gigawatts

Fuel	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Liquid fuels	391	383	234	158	121	107	98	-4.8%
Natural gas	1,931	2,045	2,178	2,308	2,468	2,678	2,847	1.4%
Coal	2,271	2,316	2,164	2,172	2,214	2,255	2,282	0.0%
Nuclear	400	425	423	445	449	452	464	0.5%
Renewables	3,297	4,068	4,934	5,613	6,492	7,463	8,370	3.4%
Hydro	1,211	1,317	1,376	1,417	1,437	1,467	1,508	0.8%
Wind	873	1,027	1,292	1,492	1,757	1,973	2,081	3.2%
Geothermal	15	17	27	30	33	34	34	3.1%
Solar	1,019	1,502	2,021	2,449	3,025	3,744	4,493	5.4%
Other	179	205	218	225	240	246	253	1.2%
Battery storage	52	71	124	238	386	699	1,041	11.3%
Pumped hydro	169	200	211	213	213	213	213	0.8%
Total capacity	8,511	9,508	10,269	11,147	12,343	13,867	15,315	2.1%

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run hp_230822.081357 and Annual Energy Outlook 2023 (March 2023), www.eia.gov/aeo

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

Table E2.cap. Electricity installed generating capacity: Americas, High Oil Price case

gigawatts

Fuel	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Liquid fuels	141	132	98	76	65	60	55	-3.3%
Natural gas	629	659	753	828	874	900	938	1.4%
Coal	227	191	109	105	102	100	100	-2.9%
Nuclear	114	115	113	104	90	84	83	-1.1%
Renewables	788	968	1,234	1,412	1,642	1,895	2,138	3.6%
Hydro	362	376	382	386	388	389	391	0.3%
Wind	200	238	347	387	430	492	565	3.8%
Geothermal	4	4	5	5	6	6	7	1.7%
Solar	159	287	434	567	752	940	1,108	7.2%
Other	62	63	65	66	67	68	68	0.3%
Battery storage	6	19	34	56	99	151	194	13.0%
Pumped hydro	23	23	23	23	23	23	23	0.0%
Total capacity	1,929	2,106	2,363	2,604	2,895	3,214	3,531	2.2%

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run hp_230822.081357 and Annual Energy Outlook 2023 (March 2023), www.eia.gov/aeo

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

Table E3.cap. Electricity installed generating capacity: United States, High Oil Price case

gigawatts

Fuel	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Liquid fuels	75	65	69	66	62	60	54	-1.1%
Natural gas	445	465	543	604	646	670	700	1.6%
Coal	201	164	91	80	69	63	63	-4.0%
Nuclear	95	96	93	85	74	72	72	-1.0%
Renewables	389	542	789	940	1,128	1,307	1,460	4.8%
Hydro	79	79	80	80	80	80	80	0.0%
Wind	145	171	274	297	310	328	355	3.2%
Geothermal	3	3	3	3	3	4	5	2.1%
Solar	125	251	395	521	694	854	979	7.6%
Other	37	38	38	39	40	41	42	0.4%
Battery storage	6	19	34	56	99	151	193	13.0%
Pumped hydro	22	22	22	22	22	22	22	0.0%
Total capacity	1,234	1,374	1,641	1,852	2,100	2,346	2,565	2.6%

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run hp_230822.081357 and Annual Energy Outlook 2023 (March 2023), www.eia.gov/aeo

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

Table E4.cap. Electricity installed generating capacity: Canada, High Oil Price case

gigawatts

Fuel	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Liquid fuels	4	4	0	0	0	0	0	-13.5%
Natural gas	33	36	53	64	66	66	72	2.9%
Coal	6	6	0	0	0	0	0	-100.0%
Nuclear	14	14	11	10	7	6	4	-4.4%
Renewables	105	109	119	133	158	190	225	2.8%
Hydro	83	86	89	89	89	89	89	0.3%
Wind	16	17	23	37	62	94	129	7.8%
Geothermal	0	0	0	0	0	0	0	0.0%
Solar	4	4	4	4	4	4	4	0.0%
Other	2	2	3	3	3	3	3	1.3%
Battery storage	0	0	0	0	0	0	0	--
Pumped hydro	0	0	0	0	0	0	0	0.0%
Total capacity	161	169	183	207	232	263	302	2.3%

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run hp_230822.081357

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

Table E5.cap. Electricity installed generating capacity: Mexico, High Oil Price case

gigawatts

Fuel	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Liquid fuels	13	14	7	4	1	0	0	-19.1%
Natural gas	44	45	45	50	56	58	60	1.1%
Coal	9	9	9	9	9	9	9	0.0%
Nuclear	2	2	3	4	3	2	2	1.5%
Renewables	30	33	36	39	43	57	71	3.1%
Hydro	13	14	15	15	15	15	16	0.7%
Wind	8	8	8	8	8	8	8	0.0%
Geothermal	1	1	1	1	1	1	1	0.0%
Solar	8	9	10	14	18	31	45	6.6%
Other	1	1	1	1	1	1	1	0.0%
Battery storage	0	0	0	0	0	0	0	0.0%
Pumped hydro	0	0	0	0	0	0	0	0.0%
Total capacity	98	102	99	105	112	126	142	1.3%

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run hp_230822.081357

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

Table E6.cap. Electricity installed generating capacity: Brazil, High Oil Price case

gigawatts

Fuel	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Liquid fuels	14	14	6	1	0	0	0	-15.6%
Natural gas	24	27	27	22	18	17	16	-1.4%
Coal	6	6	4	4	4	4	4	-1.3%
Nuclear	2	2	3	3	3	2	2	0.9%
Renewables	161	173	173	175	179	189	198	0.8%
Hydro	112	117	117	117	117	117	117	0.2%
Wind	20	26	27	28	33	43	52	3.5%
Geothermal	0	0	0	0	0	0	0	0.0%
Solar	13	13	13	13	13	13	13	0.0%
Other	16	16	16	16	16	16	16	0.0%
Battery storage	0	0	0	0	0	0	1	--
Pumped hydro	0	0	0	0	0	0	0	0.0%
Total capacity	207	222	213	205	204	213	222	0.3%

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run hp_230822.081357

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

Table E7.cap. Electricity installed generating capacity: Other Americas, High Oil Price case

gigawatts

Fuel	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Liquid fuels	35	35	16	6	2	0	0	-20.5%
Natural gas	84	85	85	88	88	88	88	0.2%
Coal	6	6	6	12	20	24	24	5.2%
Nuclear	2	2	2	2	2	2	2	0.8%
Renewables	103	111	116	125	134	151	184	2.1%
Hydro	75	79	81	85	87	88	89	0.6%
Wind	12	15	16	17	18	18	21	2.0%
Geothermal	1	1	1	1	1	1	1	2.0%
Solar	10	11	13	16	23	38	67	7.1%
Other	5	5	5	6	6	6	6	0.1%
Battery storage	0	0	0	0	0	0	0	0.0%
Pumped hydro	1	1	1	1	1	1	1	0.0%
Total capacity	230	239	226	235	247	266	299	1.0%

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run hp_230822.081357

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

Table E8.cap. Electricity installed generating capacity: Europe and Eurasia, High Oil Price case

gigawatts

Fuel	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Liquid fuels	77	78	54	41	35	34	34	-2.9%
Natural gas	474	484	509	512	526	544	574	0.7%
Coal	269	272	224	228	228	228	228	-0.6%
Nuclear	168	173	151	156	156	154	155	-0.3%
Renewables	782	907	1,015	1,033	1,064	1,128	1,213	1.6%
Hydro	272	297	300	301	301	302	302	0.4%
Wind	245	283	324	327	330	335	340	1.2%
Geothermal	3	6	8	8	8	8	8	3.1%
Solar	206	247	300	309	331	384	458	2.9%
Other	56	74	83	88	93	99	105	2.2%
Battery storage	0	0	0	0	0	51	102	--
Pumped hydro	50	51	52	52	52	52	52	0.1%
Total capacity	1,820	1,965	2,004	2,022	2,061	2,191	2,357	0.9%

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run hp_230822.081357

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

Table E9.cap. Electricity installed generating capacity: Western Europe, High Oil Price case

gigawatts

Fuel	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Liquid fuels	60	60	41	30	24	24	23	-3.3%
Natural gas	299	305	305	285	268	257	251	-0.6%
Coal	171	171	118	118	118	118	118	-1.3%
Nuclear	124	127	107	108	109	107	107	-0.5%
Renewables	683	801	908	925	956	1,017	1,100	1.7%
Hydro	191	214	217	217	217	217	218	0.5%
Wind	241	277	318	321	324	328	333	1.1%
Geothermal	3	6	8	8	8	8	8	3.1%
Solar	193	233	286	295	317	368	440	3.0%
Other	55	71	79	84	90	96	101	2.2%
Battery storage	0	0	0	0	0	51	102	--
Pumped hydro	47	48	48	48	48	48	48	0.1%
Total capacity	1,384	1,514	1,527	1,515	1,522	1,621	1,749	0.8%

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run hp_230822.081357

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

Table E10.cap. Electricity installed generating capacity: Russia, High Oil Price case

gigawatts

Fuel	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Liquid fuels	7	7	3	1	1	1	0	-10.4%
Natural gas	136	137	163	183	199	212	229	1.9%
Coal	55	55	55	55	55	55	55	0.0%
Nuclear	30	31	32	32	32	32	31	0.2%
Renewables	59	62	62	62	62	62	62	0.2%
Hydro	54	54	54	54	54	54	54	0.0%
Wind	1	3	3	3	3	3	3	2.4%
Geothermal	0	0	0	0	0	0	0	0.4%
Solar	2	2	2	2	2	2	2	0.0%
Other	1	3	3	3	3	3	3	2.5%
Battery storage	0	0	0	0	0	0	0	--
Pumped hydro	1	1	1	1	1	1	1	0.0%
Total capacity	288	294	315	334	350	362	378	1.0%

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run hp_230822.081357

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

Table E11.cap. Electricity installed generating capacity: Eastern Europe and Eurasia, High Oil Price case

gigawatts

Fuel	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Liquid fuels	10	10	10	10	10	10	10	0.0%
Natural gas	38	41	41	44	60	76	94	3.3%
Coal	43	45	51	55	55	55	55	0.9%
Nuclear	15	15	12	16	16	16	17	0.6%
Renewables	40	44	45	46	46	50	52	0.9%
Hydro	26	29	29	30	30	30	30	0.5%
Wind	2	3	3	4	4	4	4	2.4%
Geothermal	0	0	0	0	0	0	0	--
Solar	11	12	12	12	12	15	16	1.3%
Other	0	1	1	1	1	1	1	2.9%
Battery storage	0	0	0	0	0	0	0	0.0%
Pumped hydro	2	2	2	2	2	2	2	0.6%
Total capacity	148	158	161	174	189	209	230	1.6%

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run hp_230822.081357

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

Table E12.cap. Electricity installed generating capacity: Asia Pacific, High Oil Price case

gigawatts

Fuel	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Liquid fuels	93	93	44	25	14	10	9	-8.2%
Natural gas	460	520	533	524	568	688	748	1.8%
Coal	1,725	1,803	1,780	1,790	1,834	1,877	1,904	0.4%
Nuclear	108	126	146	168	183	193	206	2.3%
Renewables	1,633	2,036	2,456	2,906	3,496	4,093	4,606	3.8%
Hydro	523	577	620	651	666	687	713	1.1%
Wind	417	482	578	732	951	1,100	1,130	3.6%
Geothermal	6	6	9	10	11	11	11	2.0%
Solar	628	906	1,183	1,446	1,794	2,221	2,677	5.3%
Other	59	65	66	67	75	75	75	0.9%
Battery storage	46	52	90	182	287	496	744	10.4%
Pumped hydro	91	120	131	133	133	133	133	1.3%
Total capacity	4,158	4,749	5,181	5,726	6,515	7,490	8,350	2.5%

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run hp_230822.081357

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

Table E13.cap. Electricity installed generating capacity: Japan, High Oil Price case

gigawatts

Fuel	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Liquid fuels	35	35	19	11	7	7	7	-5.8%
Natural gas	95	101	101	89	80	79	79	-0.7%
Coal	64	65	42	41	41	41	41	-1.6%
Nuclear	14	20	25	25	21	18	18	0.9%
Renewables	108	112	118	125	139	153	166	1.6%
Hydro	22	22	22	22	22	22	22	0.0%
Wind	4	4	4	5	13	21	28	6.9%
Geothermal	0	0	0	0	0	0	0	0.0%
Solar	76	81	86	93	99	105	111	1.3%
Other	5	5	5	5	5	5	5	0.1%
Battery storage	0	0	0	0	0	0	0	0.0%
Pumped hydro	28	28	28	28	28	28	28	0.0%
Total capacity	344	362	332	318	316	326	339	-0.1%

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run hp_230822.081357

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

Table E14.cap. Electricity installed generating capacity: South Korea, High Oil Price case

gigawatts

Fuel	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Liquid fuels	5	5	2	2	1	1	1	-4.4%
Natural gas	43	46	46	41	38	37	37	-0.5%
Coal	43	46	46	46	46	46	46	0.3%
Nuclear	27	31	31	31	31	29	29	0.2%
Renewables	22	27	33	45	57	70	80	4.8%
Hydro	2	2	2	2	2	2	2	1.1%
Wind	2	7	13	25	37	50	59	13.1%
Geothermal	0	0	0	0	0	0	0	--
Solar	16	16	16	16	16	16	16	0.0%
Other	2	2	2	2	2	2	2	0.0%
Battery storage	0	0	0	0	0	0	0	--
Pumped hydro	5	5	5	5	5	5	5	0.0%
Total capacity	144	158	162	168	177	188	198	1.1%

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run hp_230822.081357

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

Table E15.cap. Electricity installed generating capacity: Australia and New Zealand, High Oil Price case

gigawatts

Fuel	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Liquid fuels	2	2	0	0	0	0	0	-11.7%
Natural gas	25	25	25	20	17	18	18	-1.1%
Coal	28	28	28	28	28	28	28	0.0%
Nuclear	0	0	0	0	0	0	0	0.0%
Renewables	48	56	62	70	84	95	109	3.0%
Hydro	12	14	16	16	16	16	16	1.1%
Wind	11	16	18	21	24	24	25	2.9%
Geothermal	1	1	1	1	1	1	1	0.0%
Solar	23	24	26	31	42	52	66	3.8%
Other	1	1	1	1	1	1	1	0.1%
Battery storage	0	0	0	0	1	4	9	--
Pumped hydro	2	4	4	4	4	4	4	3.1%
Total capacity	105	115	119	122	133	149	168	1.7%

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run hp_230822.081357

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

Table E16.cap. Electricity installed generating capacity: China, High Oil Price case

gigawatts

Fuel	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Liquid fuels	5	5	1	0	0	0	0	-16.3%
Natural gas	106	144	153	181	251	370	431	5.1%
Coal	1,164	1,203	1,203	1,203	1,203	1,203	1,203	0.1%
Nuclear	55	59	77	96	114	129	142	3.5%
Renewables	1,165	1,431	1,686	1,803	2,031	2,201	2,230	2.3%
Hydro	359	375	398	412	425	437	447	0.8%
Wind	356	380	428	489	615	742	755	2.7%
Geothermal	0	0	0	0	0	0	0	0.1%
Solar	420	646	830	872	961	992	997	3.1%
Other	30	30	30	30	30	30	30	0.0%
Battery storage	46	49	58	65	85	96	105	3.0%
Pumped hydro	47	72	83	84	84	84	84	2.1%
Total capacity	2,587	2,962	3,259	3,432	3,768	4,083	4,194	1.7%

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run hp_230822.081357

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

Table E17.cap. Electricity installed generating capacity: India, High Oil Price case

gigawatts

Fuel	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Liquid fuels	6	6	1	0	0	0	0	-14.5%
Natural gas	31	31	33	36	39	39	39	0.9%
Coal	291	310	310	313	320	320	320	0.3%
Nuclear	7	7	9	11	12	12	12	1.9%
Renewables	158	232	339	577	811	1,154	1,513	8.4%
Hydro	50	64	64	65	66	66	67	1.0%
Wind	39	65	99	163	228	228	228	6.5%
Geothermal	0	0	0	0	0	0	0	--
Solar	58	92	165	338	506	849	1,207	11.4%
Other	11	11	11	11	11	11	11	0.1%
Battery storage	0	3	32	117	201	397	592	--
Pumped hydro	5	6	6	6	6	6	6	1.0%
Total capacity	498	596	731	1,060	1,389	1,929	2,483	5.9%

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run hp_230822.081357

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

Table E18.cap. Electricity installed generating capacity: Other Asia Pacific, High Oil Price case

gigawatts

Fuel	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Liquid fuels	40	41	22	12	6	2	0	-14.9%
Natural gas	160	175	176	157	144	144	144	-0.4%
Coal	136	151	151	159	197	239	266	2.4%
Nuclear	6	8	5	5	5	5	5	-0.2%
Renewables	133	177	219	287	373	420	509	4.9%
Hydro	78	100	118	134	135	144	159	2.6%
Wind	5	10	15	30	34	35	35	7.2%
Geothermal	4	4	7	8	9	9	9	2.6%
Solar	35	47	61	97	170	207	281	7.7%
Other	10	16	17	18	26	26	26	3.4%
Battery storage	0	0	0	0	0	0	38	--
Pumped hydro	5	5	5	5	5	5	5	0.0%
Total capacity	480	556	578	625	730	815	968	2.5%

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run hp_230822.081357

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

Table E19.cap. Electricity installed generating capacity: Africa and Middle East, High Oil Price case

gigawatts

Fuel	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Liquid fuels	79	80	38	16	7	3	1	-15.5%
Natural gas	368	383	383	444	500	545	587	1.7%
Coal	49	51	50	50	50	50	51	0.1%
Nuclear	10	12	13	17	20	20	20	2.6%
Renewables	94	157	229	261	290	347	413	5.4%
Hydro	55	67	74	80	82	89	102	2.3%
Wind	10	24	43	45	46	46	47	5.7%
Geothermal	1	1	5	6	9	9	9	8.5%
Solar	26	61	104	126	149	199	250	8.4%
Other	2	3	4	4	4	4	5	3.7%
Battery storage	0	0	0	0	0	0	0	--
Pumped hydro	5	6	6	6	6	6	6	0.7%
Total capacity	604	688	721	794	873	972	1,077	2.1%

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run hp_230822.081357

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

Table E20.cap. Electricity installed generating capacity: Africa, High Oil Price case

gigawatts

Fuel	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Liquid fuels	21	21	7	1	0	0	0	-16.4%
Natural gas	122	126	127	157	187	207	226	2.2%
Coal	49	50	50	50	50	50	50	0.1%
Nuclear	2	2	4	6	7	7	7	5.1%
Renewables	64	92	126	154	179	232	293	5.6%
Hydro	39	50	56	62	65	72	85	2.8%
Wind	9	16	26	27	28	28	28	4.3%
Geothermal	1	1	4	6	8	8	8	8.5%
Solar	14	23	36	54	74	120	168	9.2%
Other	2	3	3	4	4	4	4	3.6%
Battery storage	0	0	0	0	0	0	0	--
Pumped hydro	3	4	4	4	4	4	4	0.4%
Total capacity	261	296	319	372	428	500	581	2.9%

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run hp_230822.081357

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

Table E21.cap. Electricity installed generating capacity: Middle East, High Oil Price case

gigawatts

Fuel	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Liquid fuels	57	59	31	15	7	2	1	-15.2%
Natural gas	246	256	256	286	312	339	361	1.4%
Coal	0	0	0	0	0	0	0	-5.9%
Nuclear	8	10	9	11	12	12	12	1.6%
Renewables	29	64	103	108	111	116	119	5.1%
Hydro	16	17	17	17	17	17	17	0.4%
Wind	1	9	17	18	18	18	18	10.2%
Geothermal	0	0	0	0	0	0	0	--
Solar	12	38	68	72	75	79	83	7.0%
Other	0	0	0	0	0	0	1	5.4%
Battery storage	0	0	0	0	0	0	0	0.0%
Pumped hydro	2	2	2	2	2	2	2	1.4%
Total capacity	343	392	401	422	445	472	496	1.3%

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run hp_230822.081357

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