

Table E1.cap. Electricity installed generating capacity: World, Reference case

gigawatts

Fuel								Average annual
	2020	2025	2030	2035	2040	2045	2050	percentage change, 2020–2050
Liquid fuels	362	346	180	108	83	70	65	-5.6
Natural gas	1,839	2,027	2,183	2,195	2,223	2,304	2,414	0.9
Coal	2,201	2,205	2,157	2,148	2,168	2,221	2,273	0.1
Nuclear	374	419	410	431	436	426	427	0.4
Renewables	2,394	3,593	4,593	5,553	6,604	7,718	8,790	4.4
Hydro	1,120	1,272	1,348	1,387	1,427	1,458	1,507	1.0
Wind	595	940	1,204	1,531	1,903	2,213	2,362	4.7
Geothermal	13	19	26	29	32	34	34	3.2
Solar	511	1,181	1,804	2,375	3,006	3,772	4,640	7.6
Other	155	180	212	231	236	241	247	1.6
Battery storage	3	11	56	134	270	513	778	20.2
Total capacity	7,172	8,601	9,579	10,568	11,784	13,252	14,747	2.4

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run r_210719.163829; and EIA, *Annual Energy Outlook 2021* , (February 2021), www.eia.gov/aeo

Notes:

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

Table E2.cap. Electricity installed generating capacity: OECD, Reference case

gigawatts

Fuel	2020	2025	2030	2035	2040	2045	2050	Average annual
								percentage change, 2020–2050
Liquid fuels	176	160	95	68	59	54	52	-4.0
Natural gas	948	1,047	1,100	1,105	1,135	1,191	1,267	1.0
Coal	543	472	428	418	413	410	410	-0.9
Nuclear	262	281	245	240	220	191	175	-1.3
Renewables	1,119	1,534	1,854	2,133	2,416	2,755	3,073	3.4
Hydro	387	415	435	441	448	455	460	0.6
Wind	341	489	600	764	951	1,153	1,278	4.5
Geothermal	8	9	11	12	13	14	15	2.1
Solar	287	524	691	790	878	1,006	1,193	4.9
Other	96	98	117	125	126	127	128	0.9
Battery storage	3	11	13	18	22	89	156	13.9
Total capacity	3,052	3,504	3,735	3,983	4,266	4,691	5,133	1.7

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run r_210719.163829; and EIA, *Annual Energy Outlook 2021*, (February 2021), www.eia.gov/aeo

Notes:

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

Table E3.cap. Electricity installed generating capacity: United States, Reference case

gigawatts

Fuel								Average annual
	2020	2025	2030	2035	2040	2045	2050	percentage change, 2020–2050
Liquid fuels	74	57	48	44	45	45	45	-1.7
Natural gas	429	510	558	602	653	715	788	2.1
Coal	221	140	122	114	109	106	106	-2.4
Nuclear	97	92	77	74	72	73	72	-1.0
Renewables	331	486	584	667	726	799	888	3.3
Hydro	79	80	80	80	80	80	80	0.0
Wind	127	198	210	226	228	233	241	2.2
Geothermal	2	3	4	4	5	6	7	3.4
Solar	84	167	252	317	372	439	519	6.2
Other	38	39	39	40	41	41	42	0.3
Battery storage	3	11	13	16	16	18	21	6.5
Total capacity	1,155	1,296	1,401	1,518	1,622	1,756	1,919	1.7

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run r_210719.163829; and EIA, *Annual Energy Outlook 2021* , (February 2021), www.eia.gov/aeo

Notes:

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

Table E4.cap. Electricity installed generating capacity: Canada, Reference case

gigawatts

Fuel								Average annual
	2020	2025	2030	2035	2040	2045	2050	percentage change, 2020–2050
Liquid fuels	4	4	0	0	0	0	0	-19.2
Natural gas	24	28	34	37	48	56	62	3.2
Coal	8	8	3	0	0	0	0	-36.8
Nuclear	14	14	11	10	7	6	4	-4.1
Renewables	99	110	123	132	141	150	159	1.6
Hydro	81	85	89	89	89	89	89	0.3
Wind	13	19	26	35	44	53	62	5.4
Geothermal	0	0	0	0	0	0	0	0.0
Solar	3	3	3	3	3	3	3	0.0
Other	3	3	4	4	4	4	4	1.6
Battery storage	0	0	0	0	0	0	0	0.0
Total capacity	150	164	171	179	196	212	225	1.4

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run r_210719.163829.

Notes:

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

Table E5.cap. Electricity installed generating capacity: Mexico and other OECD Americas, Reference case

gigawatts

Fuel								Average annual
	2020	2025	2030	2035	2040	2045	2050	percentage change, 2020–2050
Liquid fuels	19	19	9	5	2	1	1	-10.6
Natural gas	57	61	61	57	58	58	58	0.1
Coal	12	12	12	12	12	12	12	0.0
Nuclear	2	2	3	4	3	2	2	1.5
Renewables	46	54	61	70	87	114	147	3.9
Hydro	31	37	39	40	40	40	40	0.8
Wind	7	7	8	11	17	24	26	4.7
Geothermal	1	1	1	1	1	1	1	0.0
Solar	5	7	10	15	25	46	76	9.4
Other	3	3	3	3	3	3	3	0.7
Battery storage	0	0	0	0	0	0	0	0.0
Total capacity	136	147	145	148	163	188	220	1.6

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run r_210719.163829.

Notes:

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

Table E6.cap. Electricity installed generating capacity: OECD Europe, Reference case

gigawatts

Fuel	2020	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2020–2050
Liquid fuels	36	36	17	7	4	4	4	-7.0
Natural gas	267	272	272	254	238	238	238	-0.4
Coal	173	175	175	175	175	175	175	0.0
Nuclear	117	117	99	97	90	67	53	-2.6
Renewables	512	710	877	1,008	1,136	1,284	1,426	3.5
Hydro	160	178	190	195	199	204	209	0.9
Wind	183	233	300	397	506	617	689	4.5
Geothermal	3	3	5	5	5	5	5	2.2
Solar	120	250	319	341	355	388	453	4.5
Other	45	46	62	69	69	69	69	1.4
Battery storage	0	0	0	0	0	63	123	--
Total capacity	1,105	1,310	1,439	1,541	1,643	1,832	2,020	2.0

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run r_210719.163829.

Notes:

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

Table E7.cap. Electricity installed generating capacity: Japan, Reference case

gigawatts

Fuel								Average annual
	2020	2025	2030	2035	2040	2045	2050	percentage change, 2020–2050
Liquid fuels	37	37	20	12	7	4	3	-7.9
Natural gas	103	106	106	94	83	74	71	-1.2
Coal	62	67	48	48	48	48	48	-0.8
Nuclear	9	20	25	25	21	18	18	2.5
Renewables	86	89	94	105	128	163	188	2.6
Hydro	22	22	22	22	22	22	22	0.0
Wind	4	7	12	23	45	81	105	11.8
Geothermal	0	0	0	0	0	0	0	0.0
Solar	55	55	55	55	55	55	55	0.0
Other	4	4	4	4	4	4	4	0.2
Battery storage	0	0	0	0	0	0	0	0.0
Total capacity	296	320	292	283	287	307	328	0.3

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run r_210719.163829.

Notes:

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

Table E8.cap. Electricity installed generating capacity: South Korea, Reference case

gigawatts

Fuel	2020	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2020–2050
Liquid fuels	5	5	1	0	0	0	0	-14.0
Natural gas	46	49	49	42	39	37	37	-0.7
Coal	42	44	44	44	44	44	44	0.2
Nuclear	24	36	31	30	26	25	25	0.1
Renewables	13	21	34	53	85	114	122	7.9
Hydro	1	2	2	2	2	2	2	1.1
Wind	1	5	13	30	62	91	100	15.2
Geothermal	0	0	0	0	0	0	0	--
Solar	7	11	15	17	17	17	17	3.0
Other	3	3	4	4	4	4	4	1.1
Battery storage	0	0	0	0	0	0	0	0.0
Total capacity	130	156	159	171	195	220	228	1.9

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run r_210719.163829.

Notes:

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

Table E9.cap. Electricity installed generating capacity: Australia and New Zealand, Reference case

gigawatts

Fuel	2020	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2020–2050
Liquid fuels	2	2	0	0	0	0	0	-11.1
Natural gas	22	22	22	18	16	13	13	-1.8
Coal	25	25	25	25	25	25	25	0.0
Nuclear	0	0	0	0	0	0	0	0.0
Renewables	31	63	81	97	114	131	143	5.3
Hydro	11	12	12	13	15	18	18	1.6
Wind	6	19	30	41	48	53	54	7.4
Geothermal	1	1	1	1	1	1	1	0.0
Solar	11	31	37	41	49	58	69	6.2
Other	1	1	1	1	1	1	1	0.1
Battery storage	0	0	0	2	5	9	12	--
Total capacity	79	111	128	142	159	177	193	3.0

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run r_210719.163829.

Notes:

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

Table E10.cap. Electricity installed generating capacity: Non-OECD, Reference case

gigawatts

Fuel								Average annual
	2020	2025	2030	2035	2040	2045	2050	percentage change, 2020–2050
Liquid fuels	185	186	85	40	24	16	13	-8.6
Natural gas	891	980	1,082	1,090	1,087	1,113	1,147	0.8
Coal	1,658	1,734	1,728	1,730	1,755	1,811	1,863	0.4
Nuclear	111	138	166	191	216	234	253	2.8
Renewables	1,275	2,058	2,739	3,420	4,188	4,963	5,717	5.1
Hydro	733	857	913	946	979	1,003	1,047	1.2
Wind	253	452	604	767	952	1,060	1,084	5.0
Geothermal	5	10	15	17	19	20	20	4.4
Solar	224	658	1,113	1,585	2,129	2,766	3,447	9.5
Other	59	82	95	105	110	114	119	2.4
Battery storage	0	0	43	115	248	424	622	--
Total capacity	4,121	5,096	5,844	6,585	7,518	8,561	9,614	2.9

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run r_210719.163829.

Notes:

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

Table E11.cap. Electricity installed generating capacity: Russia, Reference case

gigawatts

Fuel								Average annual
	2020	2025	2030	2035	2040	2045	2050	percentage change, 2020–2050
Liquid fuels	3	3	0	0	0	0	0	-13.9
Natural gas	134	135	135	135	133	133	133	0.0
Coal	53	53	53	53	53	53	53	0.0
Nuclear	27	33	32	32	32	32	31	0.4
Renewables	54	55	60	69	77	81	87	1.6
Hydro	52	52	52	53	53	53	54	0.1
Wind	0	0	2	8	15	16	19	21.7
Geothermal	0	0	0	0	0	0	0	0.0
Solar	1	1	4	6	7	8	12	10.8
Other	1	1	2	2	3	3	3	2.3
Battery storage	0	0	0	0	0	0	0	0.0
Total capacity	271	280	280	289	296	299	304	0.4

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run r_210719.163829.

Notes:

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

Table E12.cap. Electricity installed generating capacity: Other Europe and Eurasia, Reference case

gigawatts

Fuel								Average annual
	2020	2025	2030	2035	2040	2045	2050	percentage change, 2020–2050
Liquid fuels	13	13	8	5	5	5	5	-3.0
Natural gas	47	48	49	48	46	46	47	0.0
Coal	58	59	53	55	57	59	61	0.2
Nuclear	18	19	21	22	22	22	23	0.8
Renewables	54	66	79	100	128	152	167	3.9
Hydro	42	43	44	44	44	44	44	0.1
Wind	6	10	14	19	29	40	43	7.1
Geothermal	0	0	0	0	0	0	0	--
Solar	5	12	21	36	53	66	79	9.5
Other	1	1	1	1	1	1	1	2.1
Battery storage	0	0	0	0	0	0	0	0.0
Total capacity	189	205	210	230	258	283	304	1.6

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run r_210719.163829.

Notes:

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

Table E13.cap. Electricity installed generating capacity: China, Reference case

gigawatts

Fuel								Average annual
	2020	2025	2030	2035	2040	2045	2050	percentage change, 2020–2050
Liquid fuels	7	7	1	0	0	0	0	-14.3
Natural gas	88	138	231	282	293	308	316	4.3
Coal	1,087	1,101	1,101	1,101	1,101	1,101	1,101	0.0
Nuclear	48	59	77	96	113	129	143	3.7
Renewables	691	1,077	1,342	1,559	1,829	2,107	2,257	4.0
Hydro	322	365	385	398	417	417	417	0.9
Wind	184	298	333	333	333	333	333	2.0
Geothermal	0	0	0	0	0	0	0	0.0
Solar	169	399	602	801	1,052	1,330	1,480	7.5
Other	15	15	22	27	27	27	27	1.9
Battery storage	0	0	0	37	127	229	291	--
Total capacity	1,921	2,381	2,751	3,074	3,463	3,874	4,108	2.6

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run r_210719.163829.

Notes:

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

Table E14.cap. Electricity installed generating capacity: India, Reference case

gigawatts

Fuel								Average annual
	2020	2025	2030	2035	2040	2045	2050	percentage change, 2020–2050
Liquid fuels	6	6	2	0	0	0	0	-15.3
Natural gas	30	30	30	25	21	18	18	-1.7
Coal	278	302	302	302	302	302	302	0.3
Nuclear	6	9	12	13	18	22	26	4.9
Renewables	119	333	582	792	1,002	1,289	1,721	9.3
Hydro	45	73	93	96	98	99	101	2.7
Wind	35	77	139	237	356	438	448	8.8
Geothermal	0	0	0	0	0	0	0	--
Solar	27	168	334	440	526	725	1,140	13.3
Other	12	16	16	19	22	27	32	3.4
Battery storage	0	0	43	79	121	193	328	--
Total capacity	439	680	971	1,212	1,465	1,825	2,394	5.8

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run r_210719.163829.

Notes:

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

Table E15.cap. Electricity installed generating capacity: Other Non-OECD Asia, Reference case

gigawatts

Fuel								Average annual
	2020	2025	2030	2035	2040	2045	2050	percentage change, 2020–2050
Liquid fuels	42	42	23	11	5	2	0	-18.3
Natural gas	155	170	170	151	135	120	117	-0.9
Coal	124	151	151	151	174	228	278	2.7
Nuclear	6	6	5	5	5	5	5	-0.2
Renewables	92	169	225	313	416	465	500	5.8
Hydro	66	96	109	122	125	129	139	2.5
Wind	3	12	28	58	89	92	94	11.7
Geothermal	4	7	9	9	9	9	9	2.7
Solar	9	27	50	93	162	205	227	11.2
Other	9	27	30	31	31	31	31	4.2
Battery storage	0	0	0	0	0	0	0	0.0
Total capacity	419	538	574	632	735	820	901	2.6

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run r_210719.163829.

Notes:

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

Table E16.cap. Electricity installed generating capacity: Middle East, Reference case

gigawatts

Fuel								Average annual
	2020	2025	2030	2035	2040	2045	2050	percentage change, 2020–2050
Liquid fuels	60	60	32	16	7	3	1	-13.2
Natural gas	244	261	261	234	234	246	266	0.3
Coal	2	8	8	8	8	8	8	5.1
Nuclear	1	6	9	11	12	12	12	9.1
Renewables	18	49	97	180	245	272	288	9.6
Hydro	15	15	15	15	15	15	15	0.0
Wind	1	10	20	24	25	27	29	13.8
Geothermal	0	0	0	0	0	0	0	--
Solar	2	24	61	140	203	229	244	16.8
Other	0	0	0	0	0	0	0	3.8
Battery storage	0	0	0	0	0	0	0	0.0
Total capacity	325	385	407	448	506	541	576	1.9

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run r_210719.163829.

Notes:

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

Table E17.cap. Electricity installed generating capacity: Africa, Reference case

gigawatts

Fuel								Average annual
	2020	2025	2030	2035	2040	2045	2050	percentage change, 2020–2050
Liquid fuels	21	21	7	2	0	0	0	-16.0
Natural gas	120	123	132	147	160	180	187	1.5
Coal	48	50	50	50	50	50	50	0.2
Nuclear	2	2	4	6	7	7	7	4.7
Renewables	47	82	115	147	206	283	354	7.0
Hydro	33	42	43	45	50	60	80	3.0
Wind	5	18	30	33	35	38	41	6.9
Geothermal	1	2	5	6	9	9	9	9.1
Solar	6	18	33	59	108	172	221	12.7
Other	2	2	3	4	4	4	4	3.2
Battery storage	0	0	0	0	0	0	0	0.0
Total capacity	237	279	309	352	424	521	599	3.1

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run r_210719.163829.

Notes:

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

Table E18.cap. Electricity installed generating capacity: Brazil, Reference case

gigawatts

Fuel								Average annual
	2020	2025	2030	2035	2040	2045	2050	percentage change, 2020–2050
Liquid fuels	9	9	3	0	0	0	0	-14.7
Natural gas	14	16	16	12	9	7	7	-2.3
Coal	4	4	4	4	4	4	4	0.0
Nuclear	2	2	3	3	3	2	2	0.9
Renewables	136	145	156	173	190	199	208	1.4
Hydro	104	106	106	106	108	110	115	0.3
Wind	14	21	31	46	61	67	70	5.4
Geothermal	0	0	0	0	0	0	0	0.0
Solar	2	4	4	4	5	5	5	3.3
Other	15	15	16	17	17	17	17	0.4
Battery storage	0	0	0	0	0	1	3	--
Total capacity	165	176	182	193	206	214	224	1.0

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run r_210719.163829.

Notes:

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

Table E19.cap. Electricity installed generating capacity: Other Non-OECD Americas, Reference case

gigawatts

Fuel	2020	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2020–2050
Liquid fuels	24	24	10	6	6	6	6	-4.6
Natural gas	58	60	60	56	56	56	56	-0.1
Coal	5	5	5	5	5	5	5	0.0
Nuclear	2	2	2	2	2	2	2	0.9
Renewables	66	82	84	86	96	114	134	2.4
Hydro	54	66	66	66	69	75	81	1.4
Wind	4	7	8	8	8	8	8	2.0
Geothermal	1	1	1	1	1	1	1	2.0
Solar	2	4	4	7	13	26	40	9.7
Other	4	4	4	5	5	5	5	0.4
Battery storage	0	0	0	0	0	0	0	0.0
Total capacity	155	173	161	156	165	183	204	0.9

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run r_210719.163829.

Notes:

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