Appendix H

Reference Case Projections for Electricity Capacity and Generation by Fuel

Table H1. World Total Installed Generating Capacity by Region and Country, 2006-2030
(Gigawatts)

Region/Country	History	Projections					Average Annual Percent Change, 2006-2030
	2006	2010	2015	2020	2025	2030	
OECD							
OECD North America	**1,132**	**1,209**	**1,231**	**1,284**	**1,367**	**1,453**	**1.0**
United States[a]	959	1,021	1,024	1,061	1,130	1,201	0.9
Canada	123	133	146	156	163	170	1.4
Mexico	51	55	61	68	74	81	1.9
OECD Europe	**754**	**838**	**925**	**978**	**1,039**	**1,067**	**1.5**
OECD Asia	**374**	**386**	**410**	**420**	**428**	**436**	**0.6**
Japan	251	253	259	259	257	255	0.1
South Korea	64	70	80	87	94	102	1.9
Australia/New Zealand	58	63	71	74	77	79	1.3
Total OECD	**2,261**	**2,433**	**2,566**	**2,682**	**2,834**	**2,956**	**1.1**
Non-OECD							
Non-OECD Europe and Eurasia	400	430	463	486	502	515	1.1
Russia	218	241	264	280	291	300	1.3
Other	182	189	199	206	211	215	0.7
Non-OECD Asia	**870**	**1,210**	**1,407**	**1,674**	**1,942**	**2,224**	**4.0**
China	518	801	924	1,116	1,310	1,510	4.6
India	144	177	213	247	278	310	3.3
Other Non-OECD Asia	209	231	270	311	354	404	2.8
Middle East	**145**	**156**	**167**	**179**	**192**	**208**	**1.5**
Africa	**110**	**123**	**139**	**154**	**169**	**182**	**2.1**
Central and South America	**220**	**241**	**278**	**315**	**346**	**366**	**2.1**
Brazil	93	108	132	154	177	189	3.0
Other Central and South America	127	134	146	161	169	177	1.4
Total Non-OECD	**1,746**	**2,160**	**2,453**	**2,808**	**3,151**	**3,496**	**2.9**
Total World	**4,006**	**4,593**	**5,019**	**5,490**	**5,985**	**6,452**	**2.0**

[a]Includes the 50 States and the District of Columbia.

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

Sources: **History:** Derived from Energy Information Administration (EIA), *International Energy Annual 2006* (June-December 2008), web site www.eia.doe.gov/iea. **Projections:** EIA, *Annual Energy Outlook 2009*, DOE/EIA-0383(2009) (Washington, DC, March 2009), AEO2009 National Energy Modeling System, run AEO2009.D120908A, web site www.eia.doe.gov/oiaf/aeo; and World Energy Projections Plus (2009).

Table H2. World Installed Liquids-Fired Generating Capacity by Region and Country, 2006-2030
(Gigawatts)

Region/Country	History	Projections					Average Annual Percent Change, 2006-2030
	2006	2010	2015	2020	2025	2030	
OECD							
OECD North America	**140**	**140**	**124**	**123**	**122**	**120**	**-0.6**
United States[a]	121	121	104	104	104	103	-0.7
Canada	5	5	5	5	5	5	-0.6
Mexico	14	14	14	13	13	12	-0.5
OECD Europe	**54**	**54**	**54**	**51**	**49**	**47**	**-0.6**
OECD Asia	**64**	**65**	**65**	**62**	**59**	**56**	**-0.6**
Japan	57	57	57	55	52	50	-0.6
South Korea	6	6	6	6	5	5	-0.5
Australia/New Zealand	1	1	1	1	1	1	-0.4
Total OECD	**258**	**259**	**243**	**236**	**230**	**223**	**-0.6**
Non-OECD							
Non-OECD Europe and Eurasia	**29**	**30**	**30**	**28**	**27**	**26**	**-0.5**
Russia	9	9	9	9	8	8	-0.5
Other	21	21	21	20	19	18	-0.6
Non-OECD Asia	**57**	**59**	**59**	**56**	**54**	**52**	**-0.4**
China	15	16	16	16	15	15	-0.2
India	6	6	6	6	6	5	-0.4
Other Non-OECD Asia	36	36	37	35	33	32	-0.4
Middle East	**43**	**45**	**46**	**44**	**44**	**45**	**0.2**
Africa	**10**	**14**	**14**	**14**	**13**	**12**	**1.0**
Central and South America	**27**	**26**	**26**	**25**	**24**	**23**	**-0.7**
Brazil	3	3	3	3	3	3	-0.6
Other Central and South America	24	23	23	22	21	20	-0.7
Total Non-OECD	**165**	**174**	**175**	**168**	**162**	**158**	**-0.2**
Total World	**423**	**433**	**418**	**404**	**392**	**380**	**-0.4**

[a]Includes the 50 States and the District of Columbia.

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

Sources: **History:** Derived from Energy Information Administration (EIA), *International Energy Annual 2006* (June-December 2008), web site www.eia.doe.gov/iea. **Projections:** EIA, *Annual Energy Outlook 2009*, DOE/EIA-0383(2009) (Washington, DC, March 2009), AEO2009 National Energy Modeling System, run AEO2009.D120908A, web site www.eia.doe.gov/oiaf/aeo; and World Energy Projections Plus (2009).

Table H3. World Installed Natural-Gas-Fired Generating Capacity by Region and Country, 2006-2030
(Gigawatts)

Region/Country	History	Projections					Average Annual Percent Change, 2006-2030
	2006	2010	2015	2020	2025	2030	
OECD							
OECD North America	**348**	**379**	**387**	**415**	**476**	**512**	**1.6**
United States[a]	322	351	353	375	430	460	1.5
Canada	8	8	8	9	9	9	0.7
Mexico	18	20	25	31	37	42	3.6
OECD Europe	**173**	**191**	**205**	**218**	**227**	**230**	**1.2**
OECD Asia	**103**	**105**	**109**	**114**	**115**	**115**	**0.5**
Japan	72	72	74	76	75	74	0.1
South Korea	18	20	22	23	25	25	1.4
Australia/New Zealand	12	13	13	15	15	16	1.0
Total OECD	**624**	**675**	**701**	**747**	**818**	**857**	**1.3**
Non-OECD							
Non-OECD Europe and Eurasia	**144**	**160**	**177**	**187**	**192**	**196**	**1.3**
Russia	97	110	120	127	128	130	1.2
Other	47	51	57	61	64	66	1.4
Non-OECD Asia	**121**	**136**	**163**	**192**	**214**	**228**	**2.7**
China	26	29	35	42	47	49	2.7
India	18	24	30	37	42	46	3.9
Other Non-OECD Asia	77	83	98	113	125	134	2.3
Middle East	**88**	**92**	**100**	**109**	**121**	**133**	**1.7**
Africa	**37**	**40**	**48**	**58**	**65**	**69**	**2.6**
Central and South America	**46**	**54**	**58**	**63**	**70**	**72**	**1.9**
Brazil	9	13	15	17	21	23	4.1
Other Central and South America	37	41	43	46	48	50	1.2
Total Non-OECD	**437**	**483**	**546**	**609**	**661**	**699**	**2.0**
Total World	**1,060**	**1,158**	**1,247**	**1,356**	**1,479**	**1,556**	**1.6**

[a]Includes the 50 States and the District of Columbia.

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

Sources: **History:** Derived from Energy Information Administration (EIA), *International Energy Annual 2006* (June-December 2008), web site www.eia.doe.gov/iea. **Projections:** EIA, *Annual Energy Outlook 2009*, DOE/EIA-0383(2009) (Washington, DC, March 2009), AEO2009 National Energy Modeling System, run AEO2009.D120908A, web site www.eia.doe.gov/oiaf/aeo; and World Energy Projections Plus (2009).

Table H4. World Installed Coal-Fired Generating Capacity by Region and Country, 2006-2030
(Gigawatts)

Region/Country	History	Projections					Average Annual Percent Change, 2006-2030
	2006	2010	2015	2020	2025	2030	
OECD							
OECD North America	**340**	**352**	**358**	**360**	**364**	**391**	**0.6**
United States[a]	314	325	331	333	335	360	0.6
Canada	20	21	21	22	23	23	0.5
Mexico	6	6	6	6	7	8	0.9
OECD Europe	**197**	**201**	**201**	**196**	**193**	**192**	**-0.1**
OECD Asia	**95**	**99**	**100**	**100**	**104**	**110**	**0.6**
Japan	44	44	43	42	41	40	-0.4
South Korea	21	24	25	27	31	36	2.2
Australia/New Zealand	29	31	31	31	32	34	0.6
Total OECD	**633**	**652**	**658**	**656**	**661**	**693**	**0.4**
Non-OECD							
Non-OECD Europe and Eurasia	**98**	**108**	**112**	**111**	**110**	**115**	**0.6**
Russia	44	51	54	54	53	56	1.1
Other	54	57	58	57	57	58	0.3
Non-OECD Asia	**477**	**685**	**721**	**844**	**1,030**	**1,217**	**4.0**
China	350	543	562	668	821	950	4.2
India	78	88	99	108	120	142	2.6
Other Non-OECD Asia	49	54	60	68	88	124	3.9
Middle East	**5**	**5**	**5**	**5**	**6**	**7**	**1.0**
Africa	**39**	**40**	**41**	**43**	**47**	**55**	**1.5**
Central and South America	**9**	**10**	**11**	**11**	**12**	**14**	**1.7**
Brazil	2	3	3	3	4	5	3.2
Other Central and South America	7	7	7	8	8	10	1.2
Total Non-OECD	**629**	**848**	**890**	**1,014**	**1,205**	**1,407**	**3.4**
Total World	**1,261**	**1,500**	**1,548**	**1,670**	**1,866**	**2,101**	**2.1**

[a]Includes the 50 States and the District of Columbia.

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

Sources: **History:** Derived from Energy Information Administration (EIA), *International Energy Annual 2006* (June-December 2008), web site www.eia.doe.gov/iea. **Projections:** EIA, *Annual Energy Outlook 2009*, DOE/EIA-0383(2009) (Washington, DC, March 2009), AEO2009 National Energy Modeling System, run AEO2009.D120908A, web site www.eia.doe.gov/oiaf/aeo; and World Energy Projections Plus (2009).

Table H5. World Installed Nuclear Generating Capacity by Region and Country, 2006-2030
(Gigawatts)

Region/Country	History	Projections					Average Annual Percent Change, 2006-2030
	2006	2010	2015	2020	2025	2030	
OECD							
OECD North America	**115**	**118**	**121**	**126**	**127**	**132**	**0.6**
United States[a]	100	101	104	108	108	113	0.5
Canada	13	15	15	16	17	18	1.3
Mexico	1	1	1	1	1	1	0.1
OECD Europe	**132**	**130**	**127**	**119**	**121**	**121**	**-0.4**
OECD Asia	**67**	**66**	**74**	**80**	**84**	**88**	**1.2**
Japan	50	49	52	54	56	58	0.7
South Korea	17	17	22	26	28	30	2.4
Australia/New Zealand	0	0	0	0	0	0	—
Total OECD	**314**	**314**	**322**	**325**	**331**	**341**	**0.3**
Non-OECD							
Non-OECD Europe and Eurasia	**42**	**41**	**49**	**59**	**68**	**71**	**2.2**
Russia	23	23	28	35	42	44	2.7
Other	19	18	20	24	26	27	1.5
Non-OECD Asia	**16**	**21**	**39**	**60**	**78**	**88**	**7.4**
China	7	9	22	36	47	54	9.0
India	3	5	9	14	18	20	7.7
Other Non-OECD Asia	6	6	8	10	13	14	3.8
Middle East	**0**	**0**	**1**	**2**	**2**	**2**	**—**
Africa	**2**	**2**	**2**	**2**	**3**	**3**	**2.0**
Central and South America	**3**	**3**	**4**	**5**	**5**	**5**	**1.7**
Brazil	2	2	3	3	3	3	1.7
Other Central and South America	1	1	1	2	2	2	1.7
Total Non-OECD	**63**	**67**	**95**	**128**	**156**	**168**	**4.2**
Total World	**377**	**381**	**416**	**453**	**487**	**509**	**1.3**

[a]Includes the 50 States and the District of Columbia.

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

Sources: **History:** Energy Information Administration (EIA), *International Energy Annual 2006* (June-December 2008), web site www.eia.doe.gov/iea. **Projections:** EIA, *Annual Energy Outlook 2009*, DOE/EIA-0383(2009) (Washington, DC, March 2009), AEO2009 National Energy Modeling System, run AEO2009.D120908A, web site www.eia.doe.gov/oiaf/aeo; and World Energy Projections Plus (2009).

Table H6. World Installed Hydroelectric Generating Capacity by Region and Country, 2006-2030
(Gigawatts)

Region/Country	History	Projections					Average Annual Percent Change, 2006-2030
	2006	2010	2015	2020	2025	2030	
OECD							
OECD North America	**160**	**164**	**169**	**175**	**178**	**180**	**0.5**
United States[a]	77	77	78	78	78	78	0.0
Canada	72	75	80	85	86	87	0.8
Mexico	11	11	11	13	14	15	1.3
OECD Europe	**146**	**152**	**156**	**163**	**170**	**173**	**0.7**
OECD Asia	**37**	**37**	**38**	**38**	**38**	**38**	**0.1**
Japan	22	22	23	23	23	23	0.2
South Korea	2	2	2	2	2	2	0.0
Australia/New Zealand	13	13	13	13	13	13	0.1
Total OECD	**342**	**353**	**363**	**376**	**386**	**391**	**0.6**
Non-OECD							
Non-OECD Europe and Eurasia	**87**	**90**	**93**	**98**	**104**	**107**	**0.8**
Russia	46	48	51	55	59	61	1.2
Other	41	42	42	43	44	45	0.4
Non-OECD Asia	**188**	**276**	**381**	**457**	**480**	**493**	**4.1**
China	117	186	265	310	315	318	4.2
India	32	44	55	68	77	83	4.0
Other Non-OECD Asia	38	47	62	79	87	93	3.8
Middle East	**9**	**13**	**13**	**15**	**17**	**17**	**2.9**
Africa	**22**	**25**	**29**	**31**	**33**	**33**	**1.7**
Central and South America	**128**	**139**	**168**	**200**	**225**	**240**	**2.6**
Brazil	71	79	99	118	137	147	3.1
Other Central and South America	58	60	69	82	87	94	2.0
Total Non-OECD	**434**	**543**	**685**	**801**	**857**	**891**	**3.0**
Total World	**776**	**896**	**1,047**	**1,178**	**1,243**	**1,283**	**2.1**

[a]Includes the 50 States and the District of Columbia.

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

Sources: **History:** Energy Information Administration (EIA), *International Energy Annual 2006* (June-December 2008), web site www.eia.doe.gov/iea. **Projections:** EIA, *Annual Energy Outlook 2009*, DOE/EIA-0383(2009) (Washington, DC, March 2009), AEO2009 National Energy Modeling System, run AEO2009.D120908A, web site www.eia.doe.gov/oiaf/aeo; and World Energy Projections Plus (2009).

Table H7. World Installed Wind-Powered Generating Capacity by Region and Country, 2006-2030
(Gigawatts)

Region/Country	History	Projections					Average Annual Percent Change, 2006-2030
	2006	2010	2015	2020	2025	2030	
OECD							
OECD North America	**12**	**37**	**48**	**51**	**61**	**70**	**7.6**
United States[a]	11	30	31	33	39	44	5.8
Canada	1	7	16	16	20	24	16.0
Mexico	0	1	2	2	2	2	—
OECD Europe	**41**	**88**	**149**	**194**	**240**	**263**	**8.1**
OECD Asia	**2**	**6**	**12**	**12**	**13**	**14**	**8.5**
Japan	1	3	3	3	3	3	4.5
South Korea	0	0	0	0	0	0	1.9
Australia/New Zealand	1	3	8	9	10	10	11.5
Total OECD	**55**	**131**	**209**	**258**	**314**	**346**	**8.0**
Non-OECD							
Non-OECD Europe and Eurasia	**0**	**1**	**2**	**2**	**2**	**2**	**9.6**
Russia	0	0	0	0	0	0	2.9
Other	0	1	2	2	2	2	9.8
Non-OECD Asia	**5**	**23**	**29**	**50**	**72**	**132**	**14.3**
China	1	14	20	40	60	120	23.6
India	4	8	9	9	9	9	2.9
Other Non-OECD Asia	0	0	0	2	3	3	14.7
Middle East	**0**	**1**	**1**	**1**	**1**	**1**	**—**
Africa	**0**	**1**	**4**	**4**	**4**	**4**	**12.4**
Central and South America	**0**	**2**	**4**	**4**	**4**	**4**	**14.6**
Brazil	0	1	3	3	3	3	20.5
Other Central and South America	0	0	2	2	2	2	11.1
Total Non-OECD	**6**	**27**	**40**	**62**	**83**	**143**	**14.2**
Total World	**61**	**159**	**249**	**319**	**397**	**490**	**9.1**

[a]Includes the 50 States and the District of Columbia.

Notes: Totals may not equal sum of components due to independent rounding. Numbers for the United States in this table are based on the *published AEO2009* reference case (March 2009). In the *updated AEO2009* reference case (April 2009), which incorporates provisions from the American Recovery and Reinvestment Act of 2009 (ARRA2009) that stimulate increased renewable generation, greater use of renewable fuels is projected. As a result, U.S. installed wind-powered generating capacity would be 66 gigawatts in 2015 and 68 gigawatts in 2030 in the *updated AEO2009* reference case—114 percent higher in 2015 and 54 percent higher in 2030 than in the earlier projections reported in this table.

Sources: **History:** Derived from Energy Information Administration (EIA), *International Energy Annual 2006* (June-December 2008), web site www.eia.doe.gov/iea. **Projections:** EIA, *Annual Energy Outlook 2009*, DOE/EIA-0383(2009) (Washington, DC, March 2009), AEO2009 National Energy Modeling System, run AEO2009.D120908A, web site www.eia.doe.gov/oiaf/aeo; and World Energy Projections Plus (2009).

Table H8. World Installed Geothermal Generating Capacity by Region and Country, 2006-2030
(Gigawatts)

Region/Country	History	Projections					Average Annual Percent Change, 2006-2030
	2006	2010	2015	2020	2025	2030	
OECD							
OECD North America	**3**	**3**	**4**	**4**	**4**	**4**	**1.0**
United States[a]	2	3	3	3	3	3	1.1
Canada	0	0	0	0	0	0	—
Mexico	1	1	1	1	1	1	0.8
OECD Europe	**1**	**2**	**2**	**2**	**2**	**2**	**1.1**
OECD Asia	**1**	**1**	**2**	**2**	**3**	**3**	**4.1**
Japan	1	1	1	1	1	1	0.0
South Korea	0	0	0	0	0	0	—
Australia/New Zealand	0	1	1	2	2	2	6.4
Total OECD	**6**	**6**	**7**	**8**	**8**	**8**	**1.8**
Non-OECD							
Non-OECD Europe and Eurasia	**0**	**0**	**0**	**0**	**0**	**0**	**5.0**
Russia	0	0	0	0	0	0	4.5
Other	0	0	0	0	0	0	—
Non-OECD Asia	**3**	**4**	**5**	**5**	**5**	**5**	**2.3**
China	0	0	0	0	0	0	1.7
India	0	0	0	0	0	0	—
Other Non-OECD Asia	3	4	5	5	5	5	2.1
Middle East	**0**	**0**	**0**	**0**	**0**	**0**	**—**
Africa	**0**	**0**	**0**	**0**	**0**	**0**	**3.8**
Central and South America	**0**	**1**	**1**	**1**	**1**	**1**	**5.8**
Brazil	0	0	0	0	0	0	—
Other Central and South America	0	1	1	1	1	1	5.8
Total Non-OECD	**3**	**5**	**6**	**6**	**6**	**7**	**2.9**
Total World	**9**	**11**	**14**	**14**	**15**	**15**	**2.2**

[a]Includes the 50 States and the District of Columbia.

Notes: Totals may not equal sum of components due to independent rounding. Numbers for the United States in this table are based on the *published AEO2009* reference case (March 2009). In the *updated AEO2009* reference case (April 2009), which incorporates provisions from the American Recovery and Reinvestment Act of 2009 (ARRA2009) that stimulate increased renewable generation, greater use of renewable fuels is projected. As a result, U.S. installed geothermal generating capacity would be 3.0 gigawatts in 2015 and 3.3 gigawatts in 2030 in the *updated AEO2009* reference case—16 percent higher in 2015 and 10 percent higher in 2030 than in the earlier projections reported in this table.

Sources: **History:** Derived from Energy Information Administration (EIA), *International Energy Annual 2006* (June-December 2008), web site www.eia.doe.gov/iea. **Projections:** EIA, *Annual Energy Outlook 2009*, DOE/EIA-0383(2009) (Washington, DC, March 2009), AEO2009 National Energy Modeling System, run AEO2009.D120908A, web site www.eia.doe.gov/oiaf/aeo; and World Energy Projections Plus (2009).

Table H9. World Installed Other Renewable Generating Capacity by Region and Country, 2006-2030
(Gigawatts)

Region/Country	History	Projections					Average Annual Percent Change, 2006-2030
	2006	2010	2015	2020	2025	2030	
OECD							
OECD North America	**12**	**15**	**21**	**30**	**36**	**43**	**5.4**
United States[a]	11	14	20	27	32	40	5.4
Canada	1	1	1	3	4	4	4.5
Mexico	0	0	0	0	0	0	6.9
OECD Europe	**10**	**21**	**31**	**35**	**39**	**40**	**5.9**
OECD Asia	**5**	**7**	**12**	**12**	**12**	**12**	**3.5**
Japan	4	5	6	6	6	6	1.7
South Korea	0	1	3	3	3	3	16.9
Australia/New Zealand	1	1	2	2	2	2	3.9
Total OECD	**28**	**43**	**64**	**77**	**86**	**96**	**5.3**
Non-OECD							
Non-OECD Europe and Eurasia	**0**	**0**	**0**	**0**	**0**	**0**	**—**
Russia	0	0	0	0	0	0	—
Other	0	0	0	0	0	0	—
Non-OECD Asia	**3**	**6**	**9**	**9**	**9**	**9**	**4.9**
China	1	4	4	4	4	4	5.7
India	2	2	5	5	5	5	4.4
Other Non-OECD Asia	0	0	0	0	0	0	5.9
Middle East	**0**	**0**	**1**	**2**	**2**	**3**	**—**
Africa	**0**	**0**	**0**	**2**	**4**	**5**	**—**
Central and South America	**6**	**6**	**6**	**6**	**6**	**6**	**0.1**
Brazil	6	6	6	6	6	6	0.0
Other Central and South America	0	0	0	0	0	0	1.7
Total Non-OECD	**9**	**13**	**16**	**19**	**22**	**23**	**3.9**
Total World	**37**	**56**	**80**	**96**	**108**	**119**	**5.0**

[a]Includes the 50 States and the District of Columbia.

Notes: Totals may not equal sum of components due to independent rounding. Numbers for the United States in this table are based on the *published AEO2009* reference case (March 2009). In the *updated AEO2009* reference case (April 2009), which incorporates provisions from the American Recovery and Reinvestment Act of 2009 (ARRA2009) that stimulate increased renewable generation, greater use of renewable fuels is projected. Although projections for U.S. solar and municipal waste installed capacity are higher in the *updated AEO2009* reference case, they are offset by lower projections for U.S. installed wood and other biomass generating capacity; as a result, U.S. "other renewable generating capacity" would be 40 gigawatts in 2030 in both the *published* and *updated AEO2009* reference cases.

Sources: **History:** Derived from Energy Information Administration (EIA), *International Energy Annual 2006* (June-December 2008), web site www.eia.doe.gov/iea. **Projections:** EIA, *Annual Energy Outlook 2009*, DOE/EIA-0383(2009) (Washington, DC, March 2009), AEO2009 National Energy Modeling System, run AEO2009.D120908A, web site www.eia.doe.gov/oiaf/aeo; and World Energy Projections Plus (2009).

Table H10. World Total Net Electricity Generation From Central Producers by Region and Country, 2006-2030
(Billion Kilowatthours)

Region/Country	History	Projections					Average Annual Percent Change, 2006-2030
	2006	2010	2015	2020	2025	2030	
OECD							
OECD North America	**4,889**	**5,095**	**5,356**	**5,694**	**6,052**	**6,420**	**1.1**
United States[a]	4,063	4,217	4,381	4,618	4,879	5,153	1.0
Canada	601	628	680	737	788	831	1.4
Mexico	225	250	295	339	385	436	2.8
OECD Europe	**3,356**	**3,681**	**3,967**	**4,205**	**4,403**	**4,569**	**1.3**
OECD Asia	**1,691**	**1,782**	**1,928**	**2,038**	**2,137**	**2,233**	**1.2**
Japan	1,038	1,063	1,115	1,148	1,168	1,187	0.6
South Korea	376	412	477	534	591	650	2.3
Australia/New Zealand	277	308	335	357	377	397	1.5
Total OECD	**9,936**	**10,558**	**11,251**	**11,937**	**12,592**	**13,223**	**1.2**
Non-OECD							
Non-OECD Europe and Eurasia	**1,522**	**1,737**	**1,980**	**2,178**	**2,320**	**2,445**	**2.0**
Russia	913	1,070	1,234	1,365	1,458	1,540	2.2
Other	609	667	746	813	862	905	1.7
Non-OECD Asia	**4,391**	**5,886**	**7,295**	**8,896**	**10,642**	**12,419**	**4.4**
China	2,773	3,968	4,944	6,079	7,338	8,547	4.8
India	691	863	1,067	1,276	1,467	1,687	3.8
Other Non-OECD Asia	927	1,055	1,284	1,542	1,837	2,186	3.6
Middle East	**646**	**711**	**791**	**879**	**980**	**1,099**	**2.2**
Africa	**543**	**607**	**703**	**802**	**902**	**996**	**2.6**
Central and South America	**946**	**1,084**	**1,209**	**1,339**	**1,480**	**1,601**	**2.2**
Brazil	413	505	594	686	789	874	3.2
Other Central and South America	533	579	614	653	691	727	1.3
Total Non-OECD	**8,047**	**10,026**	**11,978**	**14,094**	**16,323**	**18,559**	**3.5**
Total World	**17,982**	**20,584**	**23,228**	**26,031**	**28,915**	**31,782**	**2.4**

[a]Includes the 50 States and the District of Columbia.

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

Sources: **History:** Derived from Energy Information Administration (EIA), *International Energy Annual 2006* (June-December 2008), web site www.eia.doe.gov/iea. **Projections:** EIA, *Annual Energy Outlook 2009*, DOE/EIA-0383(2009) (Washington, DC, March 2009), AEO2009 National Energy Modeling System, run AEO2009.D120908A, web site www.eia.doe.gov/oiaf/aeo; and World Energy Projections Plus (2009).

Table H11. World Net Liquids-Fired Electricity Generation From Central Producers by Region and Country, 2006-2030
(Billion Kilowatthours)

Region/Country	History	Projections					Average Annual Percent Change, 2006-2030
	2006	2010	2015	2020	2025	2030	
OECD							
OECD North America	**136**	**129**	**130**	**127**	**125**	**124**	**-0.4**
United States[a]	64	56	57	58	59	60	-0.2
Canada	16	16	16	15	15	14	-0.6
Mexico	56	56	56	54	51	49	-0.5
OECD Europe	**69**	**70**	**70**	**67**	**64**	**61**	**-0.5**
OECD Asia	**99**	**100**	**100**	**96**	**92**	**88**	**-0.5**
Japan	80	81	81	78	75	72	-0.5
South Korea	17	18	18	17	16	15	-0.5
Australia/New Zealand	1	1	1	1	1	1	0.4
Total OECD	**303**	**298**	**300**	**289**	**280**	**273**	**-0.4**
Non-OECD							
Non-OECD Europe and Eurasia	**52**	**55**	**56**	**53**	**51**	**49**	**-0.3**
Russia	26	27	27	26	25	24	-0.3
Other	26	28	28	27	26	25	-0.3
Non-OECD Asia	**158**	**168**	**170**	**163**	**157**	**152**	**-0.2**
China	46	52	53	51	49	47	0.1
India	19	20	20	19	18	17	-0.4
Other Non-OECD Asia	93	97	97	93	90	87	-0.3
Middle East	**228**	**243**	**248**	**243**	**244**	**254**	**0.5**
Africa	**58**	**84**	**84**	**80**	**77**	**73**	**1.0**
Central and South America	**78**	**76**	**76**	**73**	**69**	**66**	**-0.7**
Brazil	5	5	5	5	5	5	-0.6
Other Central and South America	72	71	71	67	64	61	-0.7
Total Non-OECD	**574**	**628**	**634**	**612**	**598**	**593**	**0.1**
Total World	**877**	**926**	**934**	**901**	**878**	**866**	**-0.1**

[a]Includes the 50 States and the District of Columbia.

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

Sources: **History:** Derived from Energy Information Administration (EIA), *International Energy Annual 2006* (June-December 2008), web site www.eia.doe.gov/iea. **Projections:** EIA, *Annual Energy Outlook 2009*, DOE/EIA-0383(2009) (Washington, DC, March 2009), AEO2009 National Energy Modeling System, run AEO2009.D120908A, web site www.eia.doe.gov/oiaf/aeo; and World Energy Projections Plus (2009).

Table H12. World Net Natural-Gas-Fired Electricity Generation From Central Producers by Region and Country, 2006-2030
(Billion Kilowatthours)

Region/Country	History	Projections					Average Annual Percent Change, 2006-2030
	2006	2010	2015	2020	2025	2030	
OECD							
OECD North America	**913**	**940**	**981**	**1,114**	**1,313**	**1,320**	**1.5**
United States[a]	812	814	815	898	1,050	1,012	0.9
Canada	22	25	24	33	38	39	2.5
Mexico	80	100	141	183	225	268	5.2
OECD Europe	**729**	**878**	**1,001**	**1,116**	**1,200**	**1,244**	**2.3**
OECD Asia	**360**	**387**	**434**	**485**	**512**	**526**	**1.6**
Japan	265	270	297	323	331	334	1.0
South Korea	60	73	89	102	115	122	3.0
Australia/New Zealand	35	45	47	60	66	70	2.9
Total OECD	**2,002**	**2,204**	**2,415**	**2,715**	**3,025**	**3,089**	**1.8**
Non-OECD							
Non-OECD Europe and Eurasia	**526**	**656**	**791**	**891**	**943**	**993**	**2.7**
Russia	359	458	542	605	627	658	2.6
Other	166	198	249	287	317	335	3.0
Non-OECD Asia	**430**	**542**	**755**	**970**	**1,132**	**1,232**	**4.5**
China	59	79	125	168	199	206	5.3
India	43	83	135	190	230	255	7.7
Other Non-OECD Asia	328	380	496	611	704	771	3.6
Middle East	**365**	**403**	**470**	**549**	**641**	**741**	**3.0**
Africa	**134**	**159**	**222**	**297**	**356**	**391**	**4.6**
Central and South America	**134**	**193**	**220**	**256**	**303**	**322**	**3.7**
Brazil	24	55	69	86	115	124	7.1
Other Central and South America	110	138	151	170	189	198	2.5
Total Non-OECD	**1,589**	**1,953**	**2,457**	**2,963**	**3,375**	**3,680**	**3.6**
Total World	**3,591**	**4,157**	**4,872**	**5,678**	**6,401**	**6,769**	**2.7**

[a]Includes the 50 States and the District of Columbia.

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

Sources: **History:** Derived from Energy Information Administration (EIA), *International Energy Annual 2006* (June-December 2008), web site www.eia.doe.gov/iea. **Projections:** EIA, *Annual Energy Outlook 2009*, DOE/EIA-0383(2009) (Washington, DC, March 2009), AEO2009 National Energy Modeling System, run AEO2009.D120908A, web site www.eia.doe.gov/oiaf/aeo; and World Energy Projections Plus (2009).

Table H13. World Net Coal-Fired Electricity Generation From Central Producers by Region and Country, 2006-2030
(Billion Kilowatthours)

Region/Country	History	Projections					Average Annual Percent Change, 2006-2030
	2006	2010	2015	2020	2025	2030	
OECD							
OECD North America	**2,138**	**2,207**	**2,272**	**2,313**	**2,358**	**2,594**	**0.8**
United States[a]	1,992	2,057	2,121	2,156	2,191	2,415	0.8
Canada	106	111	111	117	125	128	0.8
Mexico	40	39	39	40	43	51	1.1
OECD Europe	**967**	**1,000**	**1,003**	**982**	**977**	**987**	**0.1**
OECD Asia	**641**	**669**	**676**	**680**	**711**	**753**	**0.7**
Japan	294	292	288	279	272	266	-0.4
South Korea	153	174	183	192	222	256	2.2
Australia/New Zealand	194	204	204	208	217	231	0.7
Total OECD	**3,746**	**3,877**	**3,950**	**3,975**	**4,046**	**4,334**	**0.6**
Non-OECD							
Non-OECD Europe and Eurasia	**372**	**437**	**470**	**472**	**479**	**524**	**1.4**
Russia	207	253	276	277	277	301	1.6
Other	165	185	194	195	203	223	1.3
Non-OECD Asia	**2,987**	**4,014**	**4,707**	**5,585**	**6,904**	**8,230**	**4.3**
China	2,178	3,092	3,670	4,426	5,513	6,427	4.6
India	489	564	639	707	795	951	2.8
Other Non-OECD Asia	320	358	398	451	597	852	4.2
Middle East	**30**	**30**	**31**	**31**	**34**	**41**	**1.3**
Africa	**247**	**253**	**263**	**277**	**309**	**365**	**1.6**
Central and South America	**49**	**56**	**59**	**61**	**69**	**85**	**2.4**
Brazil	6	12	14	15	19	25	6.2
Other Central and South America	43	44	45	46	49	60	1.4
Total Non-OECD	**3,684**	**4,791**	**5,530**	**6,427**	**7,795**	**9,245**	**3.9**
Total World	**7,430**	**8,668**	**9,480**	**10,401**	**11,841**	**13,579**	**2.5**

[a]Includes the 50 States and the District of Columbia.

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

Sources: **History:** Derived from Energy Information Administration (EIA), *International Energy Annual 2006* (June-December 2008), web site www.eia.doe.gov/iea. **Projections:** EIA, *Annual Energy Outlook 2009*, DOE/EIA-0383(2009) (Washington, DC, March 2009), AEO2009 National Energy Modeling System, run AEO2009.D120908A, web site www.eia.doe.gov/oiaf/aeo; and World Energy Projections Plus (2009).

Table H14. World Net Nuclear Electricity Generation From Central Producers by Region and Country, 2006-2030
(Billion Kilowatthours)

Region/Country	History	Projections					Average Annual Percent Change, 2006-2030
	2006	2010	2015	2020	2025	2030	
OECD							
OECD North America	**891**	**928**	**955**	**992**	**1,004**	**1,053**	**0.7**
United States[a]	787	809	831	862	867	907	0.6
Canada	93	108	113	120	127	135	1.5
Mexico	10	11	11	11	11	11	0.1
OECD Europe	**929**	**922**	**915**	**905**	**896**	**902**	**-0.1**
OECD Asia	**430**	**441**	**494**	**546**	**583**	**624**	**1.6**
Japan	288	299	319	336	358	381	1.2
South Korea	141	142	175	210	225	243	2.3
Australia/New Zealand	0	0	0	0	0	0	—
Total OECD	**2,250**	**2,291**	**2,364**	**2,443**	**2,484**	**2,579**	**0.6**
Non-OECD							
Non-OECD Europe and Eurasia	**269**	**283**	**342**	**424**	**494**	**519**	**2.8**
Russia	144	155	197	251	307	328	3.5
Other	124	128	145	173	187	191	1.8
Non-OECD Asia	**111**	**151**	**290**	**455**	**600**	**678**	**7.8**
China	55	65	164	274	366	425	8.9
India	16	37	66	104	134	149	9.9
Other Non-OECD Asia	40	48	61	77	100	104	4.0
Middle East	**0**	**0**	**6**	**13**	**13**	**13**	**—**
Africa	**10**	**14**	**15**	**15**	**21**	**21**	**3.2**
Central and South America	**21**	**23**	**28**	**34**	**34**	**34**	**2.1**
Brazil	14	15	18	22	22	22	2.0
Other Central and South America	7	8	10	12	12	12	2.2
Total Non-OECD	**411**	**471**	**681**	**941**	**1,162**	**1,266**	**4.8**
Total World	**2,660**	**2,761**	**3,045**	**3,385**	**3,646**	**3,844**	**1.5**

[a]Includes the 50 States and the District of Columbia.

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

Sources: **History:** Energy Information Administration (EIA), *International Energy Annual 2006* (June-December 2008), web site www.eia.doe.gov/iea. **Projections:** EIA, *Annual Energy Outlook 2009*, DOE/EIA-0383(2009) (Washington, DC, March 2009), AEO2009 National Energy Modeling System, run AEO2009.D120908A, web site www.eia.doe.gov/oiaf/aeo; and World Energy Projections Plus (2009).

Table H15. World Net Hydroelectric Generation From Central Producers by Region and Country, 2006-2030
(Billion Kilowatthours)

Region/Country	History	Projections					Average Annual Percent Change, 2006-2030
	2006	2010	2015	2020	2025	2030	
OECD							
OECD North America	**671**	**656**	**714**	**742**	**767**	**789**	**0.7**
United States[a]	289	271	298	299	300	301	0.2
Canada	352	354	384	407	427	447	1.0
Mexico	30	32	32	36	39	41	1.3
OECD Europe	**476**	**532**	**545**	**569**	**592**	**604**	**1.0**
OECD Asia	**127**	**133**	**137**	**137**	**137**	**137**	**0.3**
Japan	85	88	91	91	91	91	0.3
South Korea	3	4	4	4	4	4	0.4
Australia/New Zealand	39	41	41	42	42	42	0.3
Total OECD	**1,274**	**1,321**	**1,396**	**1,447**	**1,496**	**1,530**	**0.8**
Non-OECD							
Non-OECD Europe and Eurasia	**300**	**303**	**317**	**332**	**347**	**354**	**0.7**
Russia	174	177	191	206	221	228	1.1
Other	126	126	126	126	126	127	0.0
Non-OECD Asia	**670**	**929**	**1,250**	**1,560**	**1,643**	**1,693**	**3.9**
China	431	642	876	1,071	1,089	1,098	4.0
India	113	138	174	215	244	262	3.6
Other Non-OECD Asia	126	148	200	274	309	333	4.1
Middle East	**23**	**33**	**33**	**37**	**41**	**44**	**2.7**
Africa	**91**	**91**	**106**	**117**	**122**	**126**	**1.4**
Central and South America	**640**	**704**	**785**	**865**	**946**	**1,026**	**2.0**
Brazil	345	396	458	521	584	647	2.6
Other Central and South America	294	308	326	344	362	379	1.1
Total Non-OECD	**1,723**	**2,060**	**2,491**	**2,911**	**3,098**	**3,242**	**2.7**
Total World	**2,997**	**3,381**	**3,887**	**4,359**	**4,594**	**4,773**	**2.0**

[a]Includes the 50 States and the District of Columbia.

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

Sources: **History:** Energy Information Administration (EIA), *International Energy Annual 2006* (June-December 2008), web site www.eia.doe.gov/iea. **Projections:** EIA, *Annual Energy Outlook 2009*, DOE/EIA-0383(2009) (Washington, DC, March 2009), AEO2009 National Energy Modeling System, run AEO2009.D120908A, web site www.eia.doe.gov/oiaf/aeo; and World Energy Projections Plus (2009).

Table H16. World Net Wind-Powered Electricity Generation From Central Producers by Region and Country, 2006-2030
(Billion Kilowatthours)

Region/Country	History	Projections					Average Annual Percent Change, 2006-2030
	2006	2010	2015	2020	2025	2030	
OECD							
OECD North America	**29**	**87**	**108**	**127**	**156**	**183**	**7.9**
United States[a]	27	81	85	93	113	131	6.8
Canada	2	4	18	29	38	48	13.1
Mexico	0	2	4	5	5	5	19.4
OECD Europe	**80**	**160**	**283**	**414**	**522**	**621**	**8.9**
OECD Asia	**4**	**12**	**27**	**31**	**35**	**38**	**9.8**
Japan	2	4	6	7	8	9	7.4
South Korea	0	0	0	0	1	1	2.7
Australia/New Zealand	2	7	22	24	27	28	11.5
Total OECD	**113**	**258**	**418**	**572**	**713**	**842**	**8.7**
Non-OECD							
Non-OECD Europe and Eurasia	**0**	**2**	**3**	**4**	**4**	**4**	**12.9**
Russia	0	0	0	0	0	0	5.9
Other	0	2	3	4	4	4	13.1
Non-OECD Asia	**12**	**45**	**62**	**92**	**124**	**343**	**14.8**
China	2	28	42	70	99	315	23.2
India	10	16	19	20	22	23	3.5
Other Non-OECD Asia	0	1	1	2	4	4	12.3
Middle East	**0**	**1**	**2**	**2**	**2**	**3**	**—**
Africa	**1**	**3**	**9**	**10**	**11**	**11**	**11.1**
Central and South America	**1**	**2**	**5**	**7**	**9**	**11**	**13.4**
Brazil	0	1	3	4	6	7	14.8
Other Central and South America	0	1	2	3	3	4	11.8
Total Non-OECD	**14**	**53**	**82**	**115**	**150**	**372**	**14.6**
Total World	**127**	**312**	**500**	**687**	**864**	**1,214**	**9.9**

[a]Includes the 50 States and the District of Columbia.

Notes: Totals may not equal sum of components due to independent rounding. Numbers for the United States in this table are based on the *published AEO2009* reference case (March 2009). In the *updated AEO2009* reference case (April 2009), which incorporates provisions from the American Recovery and Reinvestment Act of 2009 (ARRA2009) that stimulate increased renewable generation, greater use of renewable fuels is projected. As a result, U.S. installed wind-powered generation would be 203 billion kilowatthours in 2015 and 208 billion kilowatthours in 2030 in the *updated AEO2009* reference case—138 percent higher in 2015 and 59 percent higher in 2030 than in the earlier projections reported in this table.

Sources: **History:** Derived from Energy Information Administration (EIA), *International Energy Annual 2006* (June-December 2008), web site www.eia.doe.gov/iea. **Projections:** EIA, *Annual Energy Outlook 2009*, DOE/EIA-0383(2009) (Washington, DC, March 2009), AEO2009 National Energy Modeling System, run AEO2009.D120908A, web site www.eia.doe.gov/oiaf/aeo; and World Energy Projections Plus (2009).

Table H17. World Net Geothermal Electricity Generation From Central Producers by Region and Country, 2006-2030
(Billion Kilowatthours)

Region/Country	History	Projections					Average Annual Percent Change, 2006-2030
	2006	2010	2015	2020	2025	2030	
OECD							
OECD North America	**21**	**25**	**27**	**28**	**28**	**30**	**1.5**
United States[a]	15	18	19	19	20	22	1.7
Canada	0	0	0	0	0	0	—
Mexico	7	7	9	9	9	9	0.9
OECD Europe	**8**	**11**	**12**	**12**	**12**	**12**	**1.8**
OECD Asia	**6**	**9**	**14**	**17**	**19**	**20**	**5.1**
Japan	3	4	4	4	4	4	1.3
South Korea	0	0	0	0	0	0	—
Australia/New Zealand	3	6	10	13	15	16	7.1
Total OECD	**35**	**45**	**54**	**57**	**59**	**62**	**2.4**
Non-OECD							
Non-OECD Europe and Eurasia	**0**	**1**	**1**	**1**	**2**	**2**	**6.5**
Russia	0	0	1	1	1	2	5.9
Other	0	0	0	0	0	0	—
Non-OECD Asia	**16**	**23**	**32**	**33**	**34**	**35**	**3.4**
China	0	0	0	0	0	0	—
India	0	0	1	1	1	1	—
Other Non-OECD Asia	16	23	30	32	33	34	3.2
Middle East	**0**	**0**	**0**	**0**	**0**	**0**	**—**
Africa	**1**	**2**	**2**	**2**	**2**	**2**	**4.0**
Central and South America	**2**	**3**	**4**	**5**	**6**	**7**	**5.5**
Brazil	0	0	0	0	0	0	—
Other Central and South America	2	3	4	5	6	7	5.5
Total Non-OECD	**19**	**29**	**40**	**42**	**45**	**47**	**3.8**
Total World	**55**	**75**	**93**	**99**	**104**	**109**	**2.9**

[a]Includes the 50 States and the District of Columbia.

Notes: Totals may not equal sum of components due to independent rounding. Numbers for the United States in this table are based on the *published AEO2009* reference case (March 2009). In the *updated AEO2009* reference case (April 2009), which incorporates provisions from the American Recovery and Reinvestment Act of 2009 (ARRA2009) that stimulate increased renewable generation, greater use of renewable fuels is projected. As a result, U.S. installed geothermal generation would be 22 billion kilowatthours in 2015 and 24 billion kilowatthours in 2030 in the *updated AEO2009* reference case—17 percent higher in 2015 and 11 percent higher in 2030 than in the earlier projections reported in this table.

Sources: **History:** Derived from Energy Information Administration (EIA), *International Energy Annual 2006* (June-December 2008), web site www.eia.doe.gov/iea. **Projections:** EIA, *Annual Energy Outlook 2009*, DOE/EIA-0383(2009) (Washington, DC, March 2009), AEO2009 National Energy Modeling System, run AEO2009.D120908A, web site www.eia.doe.gov/oiaf/aeo; and World Energy Projections Plus (2009).

Table H18. World Net Other Renewable Electricity Generation From Central Producers by Region and Country, 2006-2030
(Billion Kilowatthours)

Region/Country	History	Projections					Average Annual Percent Change, 2006-2030
	2006	2010	2015	2020	2025	2030	
OECD							
OECD North America	**90**	**123**	**169**	**252**	**300**	**328**	**5.5**
United States[a]	78	111	153	234	279	305	5.8
Canada	9	9	13	16	18	21	3.5
Mexico	3	3	3	3	3	2	-0.2
OECD Europe	**99**	**109**	**139**	**139**	**139**	**138**	**1.4**
OECD Asia	**24**	**32**	**46**	**47**	**47**	**48**	**2.9**
Japan	21	25	29	29	29	29	1.4
South Korea	0	2	8	8	9	9	12.8
Australia/New Zealand	2	5	9	9	9	10	5.8
Total OECD	**212**	**263**	**354**	**438**	**487**	**513**	**3.7**
Non-OECD							
Non-OECD Europe and Eurasia	**3**	**0**	**0**	**0**	**0**	**0**	**—**
Russia	3	0	0	0	0	0	—
Other	0	0	0	0	0	0	—
Non-OECD Asia	**7**	**13**	**30**	**39**	**47**	**56**	**9.2**
China	1	8	14	19	23	28	13.2
India	2	5	15	20	24	28	10.8
Other Non-OECD Asia	3	0	0	0	0	0	-10.1
Middle East	**0**	**0**	**1**	**3**	**3**	**3**	**—**
Africa	**1**	**0**	**1**	**3**	**5**	**5**	**8.9**
Central and South America	**23**	**27**	**33**	**38**	**44**	**50**	**3.3**
Brazil	19	21	27	33	38	44	3.6
Other Central and South America	4	5	6	6	6	6	1.2
Total Non-OECD	**33**	**41**	**64**	**83**	**100**	**114**	**5.3**
Total World	**246**	**304**	**418**	**521**	**587**	**628**	**4.0**

[a]Includes the 50 States and the District of Columbia.

Notes: Totals may not equal sum of components due to independent rounding. Numbers for the United States in this table are based on the *published AEO2009* reference case (March 2009). In the *updated AEO2009* reference case (April 2009), which incorporates provisions from the American Recovery and Reinvestment Act of 2009 (ARRA2009) that stimulate increased renewable generation, greater use of renewable fuels is projected. Although the projections for U.S. solar and municipal waste generation are higher in the *updated AEO2009* reference case, they are more than offset by lower U.S. generation from wood and other biomass; as a result, U.S. "other renewable generation" would be 266 billion kilowatthours in 2030 in the *updated AEO2009* reference case—4 percent lower than in the earlier projections reported in this table.

Sources: **History:** Derived from Energy Information Administration (EIA), *International Energy Annual 2006* (June-December 2008), web site www.eia.doe.gov/iea. **Projections:** EIA, *Annual Energy Outlook 2009*, DOE/EIA-0383(2009) (Washington, DC, March 2009), AEO2009 National Energy Modeling System, run AEO2009.D120908A, web site www.eia.doe.gov/oiaf/aeo; and World Energy Projections Plus (2009).