

Appendix A

Reference case projections

- *World energy consumption*
- *Gross domestic product*
- *Carbon dioxide emissions*
- *World population*

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Table A1. World total primary energy consumption by region, Reference case, 2006-2035
(Quadrillion Btu)

Region	History			Projections					Average annual percent change, 2008-2035
	2006	2007	2008	2015	2020	2025	2030	2035	
OECD									
OECD Americas	122.3	124.3	122.9	126.1	131.0	135.9	141.6	147.7	0.7
United States ^a	99.8	101.7	100.1	102.0	104.9	108.0	111.0	114.2	0.5
Canada	14.0	14.3	14.3	14.6	15.7	16.4	17.6	18.8	1.0
Mexico/Chile	8.5	8.3	8.5	9.5	10.4	11.5	13.0	14.7	2.1
OECD Europe	82.8	82.3	82.2	83.6	86.9	89.7	91.8	93.8	0.5
OECD Asia	39.2	39.4	39.2	40.7	42.7	44.2	45.4	46.7	0.7
Japan	23.3	23.0	22.4	22.2	23.2	23.7	23.7	23.8	0.2
South Korea	9.4	9.8	10.0	11.1	11.6	12.4	13.1	13.9	1.2
Australia/New Zealand	6.5	6.6	6.8	7.4	7.8	8.1	8.5	8.9	1.0
Total OECD	244.3	246.1	244.3	250.4	260.6	269.8	278.7	288.2	0.6
Non-OECD									
Non-OECD Europe and Eurasia	48.9	49.6	50.5	51.4	52.3	54.0	56.0	58.4	0.5
Russia	29.1	29.7	30.6	31.1	31.3	32.3	33.7	35.5	0.6
Other	19.8	19.9	19.9	20.4	21.0	21.7	22.3	22.9	0.5
Non-OECD Asia	121.0	128.6	137.9	188.1	215.0	246.4	274.3	298.8	2.9
China	73.4	78.9	86.2	124.2	140.6	160.9	177.9	191.4	3.0
India	18.8	20.0	21.1	27.8	33.1	38.9	44.3	49.2	3.2
Other	28.8	29.7	30.7	36.2	41.3	46.7	52.1	58.2	2.4
Middle East	24.0	24.0	25.6	31.0	33.9	37.3	41.3	45.3	2.1
Africa	17.2	17.8	18.8	21.5	23.6	25.9	28.5	31.4	1.9
Central and South America	25.9	26.5	27.7	31.0	34.2	38.0	42.6	47.8	2.0
Brazil	11.5	12.1	12.7	15.5	17.3	19.9	23.2	26.9	2.8
Other	14.4	14.5	15.0	15.6	16.9	18.1	19.5	20.8	1.2
Total Non-OECD	237.0	246.5	260.5	323.1	358.9	401.7	442.8	481.6	2.3
Total World	481.3	492.6	504.7	573.5	619.5	671.5	721.5	769.8	1.6

^aIncludes the 50 States and the District of Columbia.

Notes: Energy totals include net imports of coal coke and electricity generated from biomass in the United States. Totals may not equal sum of components due to independent rounding. The electricity portion of the national fuel consumption values consists of generation for domestic use plus an adjustment for electricity trade based on a fuel's share of total generation in the exporting country.

Sources: **History:** U.S. Energy Information Administration (EIA), International Energy Statistics database (as of March 2011), website www.eia.gov/ies; and International Energy Agency, "Balances of OECD and Non-OECD Statistics" (2010), website www.iea.org (subscription site). **Projections:** EIA, *Annual Energy Outlook 2011*, DOE/EIA-0383(2011) (Washington, DC: May 2011); AEO2011 National Energy Modeling System, run REF2011, D020911A, website www.eia.gov/aeo, and World Energy Projection System Plus (2011).

Table A2. World total energy consumption by region and fuel, Reference case, 2006-2035
(Quadrillion Btu)

Region	History			Projections					Average annual percent change, 2008-2035
	2006	2007	2008	2015	2020	2025	2030	2035	
OECD									
OECD Americas									
Liquids	49.6	49.9	47.7	48.6	48.9	49.4	50.5	52.1	0.3
Natural gas	28.2	29.5	29.6	31.9	33.1	34.1	36.1	38.1	0.9
Coal	24.4	24.7	24.3	21.3	22.5	24.3	25.2	26.5	0.3
Nuclear	9.4	9.6	9.5	10.1	10.7	10.7	11.0	11.1	0.6
Other	10.7	10.7	11.8	14.2	15.8	17.3	18.8	19.9	2.0
Total	122.3	124.3	122.9	126.1	131.0	135.9	141.6	147.7	0.7
OECD Europe									
Liquids	32.5	32.1	32.0	29.7	30.1	30.4	30.5	30.6	-0.2
Natural gas	19.7	19.6	20.1	20.4	21.0	21.6	22.7	23.9	0.7
Coal	13.2	13.5	12.5	11.5	11.2	10.8	10.5	10.4	-0.7
Nuclear	9.7	9.2	9.1	10.0	10.3	11.1	11.5	11.8	1.0
Other	7.6	8.1	8.4	12.0	14.2	15.8	16.5	17.1	2.7
Total	82.8	82.3	82.2	83.6	86.9	89.7	91.8	93.8	0.5
OECD Asia									
Liquids	17.5	17.3	16.8	15.9	16.6	16.9	16.9	17.0	0.1
Natural gas	6.2	6.6	6.6	6.9	7.3	7.9	8.4	8.6	1.0
Coal	9.2	9.6	9.9	9.7	9.5	9.4	9.5	9.7	-0.1
Nuclear	4.3	3.9	3.9	5.1	5.7	6.0	6.5	7.0	2.2
Other	2.0	1.9	1.9	3.1	3.6	3.9	4.1	4.3	3.1
Total	39.2	39.4	39.2	40.7	42.7	44.2	45.4	46.7	0.7
Total OECD									
Liquids	99.6	99.3	96.5	94.1	95.6	96.7	97.9	99.7	0.1
Natural gas	54.1	55.7	56.3	59.2	61.4	63.6	67.1	70.6	0.8
Coal	46.8	47.8	46.8	42.6	43.1	44.6	45.3	46.7	0.0
Nuclear	23.4	22.6	22.6	25.2	26.7	27.8	29.1	29.8	1.0
Other	20.4	20.7	22.1	29.3	33.6	37.1	39.4	41.4	2.4
Total	244.3	246.1	244.3	250.4	260.6	269.8	278.7	288.2	0.6
Non-OECD									
Non-OECD Europe and Eurasia									
Liquids	8.8	9.5	10.1	10.7	10.5	10.6	11.0	11.3	0.4
Natural gas	25.2	25.4	25.4	24.8	24.9	25.3	26.2	27.0	0.2
Coal	8.8	8.6	8.9	8.5	8.2	8.0	8.1	8.5	-0.2
Nuclear	2.9	3.0	3.0	3.7	4.8	5.8	6.1	6.5	2.9
Other	3.3	3.1	3.0	3.6	3.9	4.2	4.6	5.0	1.9
Total	48.9	49.6	50.5	51.4	52.3	54.0	56.0	58.4	0.5
Non-OECD Asia									
Liquids	33.4	34.0	35.0	47.0	53.5	61.7	66.6	70.2	2.6
Natural gas	9.8	10.8	11.6	17.6	21.4	25.9	29.8	32.9	3.9
Coal	66.3	71.4	77.5	99.6	106.2	119.5	132.8	144.1	2.3
Nuclear	1.1	1.2	1.2	3.7	6.5	8.9	11.0	13.3	9.2
Other	10.5	11.2	12.6	20.3	27.3	30.5	34.1	38.2	4.2
Total	121.0	128.6	137.9	188.1	215.0	246.4	274.3	298.8	2.9

See notes at end of table.

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Table A2. World total energy consumption by region and fuel, Reference case, 2006-2035 (continued)
(Quadrillion Btu)

Region	History			Projections					Average annual percent change, 2008-2035
	2006	2007	2008	2015	2020	2025	2030	2035	
Middle East									
Liquids	12.5	12.1	12.8	14.8	14.8	15.7	17.3	18.3	1.4
Natural gas	10.8	11.2	12.2	15.4	17.8	20.0	22.4	25.2	2.7
Coal	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3
Nuclear	0.0	0.0	0.0	0.1	0.3	0.5	0.5	0.6	--
Other	0.3	0.3	0.1	0.4	0.6	0.6	0.7	0.8	6.6
Total	24.0	24.0	25.6	31.0	33.9	37.3	41.3	45.3	2.1
Africa									
Liquids	6.2	6.4	6.5	6.8	6.9	7.2	7.6	8.2	0.9
Natural gas	3.1	3.3	3.9	5.1	6.4	7.7	8.8	9.8	3.5
Coal	4.2	4.4	4.6	5.1	5.4	5.7	6.2	7.1	1.6
Nuclear	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	3.8
Other	3.5	3.6	3.7	4.3	4.7	5.1	5.6	6.0	1.9
Total	17.2	17.8	18.8	21.5	23.6	25.9	28.5	31.4	1.9
Central and South America									
Liquids	11.2	11.5	12.1	13.8	14.4	15.1	16.2	17.4	1.4
Natural gas	4.5	4.5	4.8	5.2	6.1	6.9	7.9	9.3	2.5
Coal	0.7	0.8	0.8	1.1	1.2	1.4	1.8	2.3	4.0
Nuclear	0.2	0.2	0.2	0.3	0.4	0.5	0.5	0.7	4.1
Other	9.2	9.6	9.8	10.7	12.1	14.1	16.3	18.1	2.3
Total	25.9	26.5	27.7	31.0	34.2	38.0	42.6	47.8	2.0
Total Non-OECD									
Liquids	72.1	73.4	76.4	93.1	100.1	110.3	118.7	125.5	1.9
Natural gas	53.4	55.2	58.0	68.1	76.6	85.9	95.2	104.1	2.2
Coal	80.4	85.6	92.2	114.7	121.4	135.1	149.4	162.5	2.1
Nuclear	4.4	4.5	4.6	7.9	12.2	15.8	18.3	21.4	5.9
Other	26.8	27.8	29.2	39.3	48.6	54.6	61.2	68.1	3.2
Total	237.0	246.5	260.5	323.1	358.9	401.7	442.8	481.6	2.3
Total World									
Liquids	171.7	172.7	173.0	187.2	195.8	207.0	216.6	225.2	1.0
Natural gas	107.5	110.9	114.3	127.3	138.0	149.4	162.3	174.7	1.6
Coal	127.2	133.3	139.0	157.3	164.6	179.7	194.7	209.1	1.5
Nuclear	27.8	27.1	27.2	33.2	38.9	43.7	47.4	51.2	2.4
Other	47.1	48.5	51.3	68.5	82.2	91.7	100.6	109.5	2.9
Total	481.3	492.6	504.7	573.5	619.5	671.5	721.5	769.8	1.6

Notes: Energy totals include net imports of coal coke and electricity generated from biomass in the United States. Totals may not equal sum of components due to independent rounding. The electricity portion of the national fuel consumption values consists of generation for domestic use plus an adjustment for electricity trade based on a fuel's share of total generation in the exporting country.

Sources: **History:** U.S. Energy Information Administration (EIA), International Energy Statistics database (as of March 2011), website www.eia.gov/; and International Energy Agency, "Balances of OECD and Non-OECD Statistics" (2010), website www.iea.org (subscription site). **Projections:** EIA, *Annual Energy Outlook 2011*, DOE/EIA-0383(2011) (Washington, DC: May 2011); AEO2011 National Energy Modeling System, run REF2011, D020911A, website www.eia.gov/aeo, and World Energy Projection System Plus (2011).

Table A3. World gross domestic product (GDP) by region expressed in purchasing power parity, Reference case, 2006-2035
(Billion 2005 dollars)

Region	History			Projections					Average annual percent change, 2008-2035
	2006	2007	2008	2015	2020	2025	2030	2035	
OECD									
OECD Americas	15,755	16,090	16,125	18,759	21,457	24,759	28,305	32,246	2.6
United States ^a	12,976	13,229	13,229	15,336	17,421	20,020	22,731	25,692	2.5
Canada	1,200	1,226	1,233	1,408	1,572	1,741	1,942	2,167	2.1
Mexico/Chile	1,579	1,634	1,664	2,015	2,463	2,998	3,632	4,387	3.7
OECD Europe	14,469	14,924	15,007	16,378	18,241	20,150	22,126	24,222	1.8
OECD Asia	5,706	5,883	5,873	6,565	7,124	7,596	8,086	8,584	1.4
Japan	3,952	4,043	3,995	4,235	4,405	4,483	4,558	4,624	0.5
South Korea	938	986	1,009	1,274	1,506	1,737	1,969	2,196	2.9
Australia/NewZealand	816	853	869	1,055	1,213	1,375	1,559	1,764	2.7
Total OECD	35,929	36,897	37,005	41,701	46,822	52,506	58,517	65,052	2.1
Non-OECD									
Non-OECD Europe and Eurasia	3,171	3,431	3,612	4,191	4,847	5,557	6,418	7,349	2.7
Russia	1,835	1,984	2,094	2,377	2,681	3,055	3,589	4,197	2.6
Other	1,336	1,447	1,518	1,814	2,166	2,502	2,829	3,152	2.7
Non-OECD Asia	13,349	14,779	15,783	25,488	34,084	43,465	53,455	63,853	5.3
China	6,130	7,000	7,672	13,358	18,206	23,550	28,953	34,366	5.7
India	2,759	3,025	3,180	5,207	7,147	9,121	11,255	13,433	5.5
Other	4,460	4,753	4,931	6,924	8,730	10,794	13,247	16,054	4.5
Middle East	2,183	2,306	2,415	3,229	3,924	4,682	5,569	6,577	3.8
Africa	2,587	2,743	2,891	3,906	4,744	5,646	6,631	7,776	3.7
Central and South America	3,633	3,872	4,073	5,317	6,454	7,757	9,272	11,041	3.8
Brazil	1,594	1,692	1,778	2,452	3,079	3,840	4,784	5,951	4.6
Other	2,039	2,181	2,295	2,865	3,375	3,916	4,488	5,091	3.0
Total Non-OECD	24,924	27,131	28,774	42,131	54,052	67,107	81,345	96,596	4.6
Total World	60,853	64,028	65,779	83,832	100,874	119,612	139,862	161,648	3.4

^aIncludes the 50 States and the District of Columbia.

Notes: Totals may not equal sum of components due to independent rounding. GDP growth rates for non-OECD Europe and Eurasia (excluding Russia), China, India, Africa, and Central and South America (excluding Brazil) were adjusted, based on the analyst's judgment.

Sources: **History:** IHS Global Insight, *World Overview* (Lexington, MA: various issues). **Projections:** IHS Global Insight, *World Overview*, Third Quarter 2010 (Lexington, MA: November 2010); and U.S. Energy Information Administration (EIA), *Annual Energy Outlook 2011*, DOE/EIA-0383(2011), AEO2011 National Energy Modeling System, run REF2011.D020911A, website www.eia.gov/aeo.

Table A4. World gross domestic product (GDP) by region expressed in market exchange rates, Reference case, 2006-2035
(Billion 2005 dollars)

Region	History			Projections					Average annual percent change, 2008-2035
	2006	2007	2008	2015	2020	2025	2030	2035	
OECD									
OECD Americas	15,157	15,471	15,496	17,974	20,587	23,596	26,940	30,646	2.6
United States ^a	12,976	13,229	13,229	15,313	17,479	19,982	22,726	25,731	2.5
Canada	1,166	1,192	1,198	1,368	1,528	1,692	1,887	2,106	2.1
Mexico/Chile	1,015	1,050	1,069	1,293	1,580	1,922	2,328	2,809	3.6
OECD Europe	15,207	15,664	15,728	17,028	18,836	20,685	22,604	24,637	1.7
OECD Asia	6,408	6,601	6,583	7,315	7,903	8,387	8,890	9,401	1.3
Japan	4,650	4,758	4,701	4,984	5,184	5,276	5,364	5,441	0.5
South Korea	888	934	955	1,206	1,426	1,645	1,864	2,080	2.9
Australia/NewZealand	869	909	926	1,125	1,293	1,465	1,661	1,880	2.7
Total OECD	36,772	37,736	37,806	42,317	47,326	52,667	58,434	64,684	2.0
Non-OECD									
Non-OECD Europe and Eurasia	1,419	1,533	1,613	1,867	2,157	2,473	2,854	3,268	2.7
Russia	824	890	940	1,067	1,204	1,371	1,611	1,884	2.6
Other	595	642	673	801	954	1,101	1,243	1,384	2.7
Non-OECD Asia	5,280	5,846	6,240	10,052	13,394	17,033	20,883	24,869	5.3
China	2,544	2,905	3,184	5,543	7,555	9,772	12,015	14,261	5.7
India	920	1,008	1,060	1,736	2,382	3,040	3,752	4,478	5.5
Other	1,817	1,933	1,997	2,774	3,457	4,220	5,117	6,130	4.2
Middle East	1,166	1,231	1,302	1,748	2,127	2,544	3,031	3,584	3.8
Africa	1,054	1,118	1,175	1,557	1,880	2,235	2,626	3,086	3.6
Central and South America	1,947	2,070	2,172	2,838	3,464	4,185	5,031	6,029	3.9
Brazil	917	972	1,022	1,410	1,770	2,208	2,750	3,421	4.6
Other	1,030	1,097	1,149	1,429	1,694	1,977	2,281	2,608	3.1
Total Non-OECD	10,865	11,798	12,502	18,062	23,022	28,469	34,426	40,836	4.5
Total World	47,637	49,534	50,308	60,380	70,348	81,136	92,860	105,520	2.8

^aIncludes the 50 States and the District of Columbia.

Notes: Totals may not equal sum of components due to independent rounding. GDP growth rates for non-OECD Europe and Eurasia (excluding Russia), China, India, Africa, and Central and South America (excluding Brazil) were adjusted, based on the analyst's judgment.

Sources: History: IHS Global Insight, *World Overview* (Lexington, MA: various issues). Projections: IHS Global Insight, *World Overview*, Third Quarter 2010 (Lexington, MA: November 2010); and U.S. Energy Information Administration (EIA), *Annual Energy Outlook 2011*, DOE/EIA-0383(2011), AEO2011 National Energy Modeling System, run REF2011.D020911A, website www.eia.gov/aeo.

Table A5. World liquids consumption by region, Reference case, 2006-2035
(Million barrels per day)

Region	History			Projections					Average annual percent change, 2008-2035
	2006	2007	2008	2015	2020	2025	2030	2035	
OECD									
OECD Americas	25.3	25.4	24.2	25.2	25.5	25.8	26.4	27.2	0.4
United States ^a	20.7	20.6	19.5	20.4	20.7	21.0	21.4	21.9	0.4
Canada	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.4	0.2
Mexico/Chile	2.4	2.5	2.4	2.5	2.6	2.6	2.7	2.9	0.7
OECD Europe	15.7	15.6	15.6	14.4	14.6	14.8	14.8	14.9	-0.2
OECD Asia	8.6	8.5	8.3	7.8	8.2	8.3	8.3	8.4	0.1
Japan	5.3	5.2	5.0	4.3	4.6	4.7	4.6	4.5	-0.4
South Korea	2.2	2.2	2.1	2.3	2.4	2.4	2.5	2.6	0.7
Australia/New Zealand	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.3	0.5
Total OECD	49.6	49.6	48.0	47.5	48.3	48.9	49.5	50.4	0.2
Non-OECD									
Non-OECD Europe and Eurasia	4.9	4.6	5.0	5.3	5.2	5.2	5.4	5.6	0.4
Russia	2.8	2.6	2.8	2.9	2.8	2.7	2.8	2.9	0.1
Other	2.1	2.1	2.1	2.3	2.4	2.5	2.6	2.6	0.8
Non-OECD Asia	16.2	16.6	17.1	23.0	26.2	30.2	32.6	34.4	2.6
China	7.3	7.5	7.8	12.1	13.6	15.6	16.4	16.9	2.9
India	2.7	2.8	3.0	3.8	4.6	5.7	6.8	7.5	3.5
Other	6.2	6.3	6.3	7.1	7.9	8.8	9.4	9.9	1.7
Middle East	6.0	6.3	6.6	7.7	7.7	8.1	9.0	9.5	1.4
Africa	3.0	3.1	3.2	3.3	3.4	3.5	3.7	4.0	0.9
Central and South America	5.5	5.6	5.8	6.6	6.9	7.2	7.8	8.3	1.4
Brazil	2.3	2.4	2.5	2.9	3.1	3.3	3.6	3.9	1.7
Other	3.2	3.3	3.3	3.7	3.9	4.0	4.2	4.4	1.1
Total Non-OECD	35.7	36.3	37.7	45.9	49.3	54.3	58.4	61.8	1.9
Total World	85.3	85.9	85.7	93.3	97.6	103.2	108.0	112.2	1.0

^aIncludes the 50 States and the District of Columbia.

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

Sources: **History:** U.S. Energy Information Administration (EIA), International Energy Statistics database (as of March 2011), website www.eia.gov/ies. **Projections:** EIA, *Annual Energy Outlook 2011*, DOE/EIA-0383(2011), AEO2011 National Energy Modeling System, run REF2011.D020911A, website www.eia.gov/aeo, and World Energy Projection System Plus (2011).

Table A6. World natural gas consumption by region, Reference case, 2006-2035
(Trillion cubic feet)

Region	History			Projections					Average annual percent change, 2008-2035
	2006	2007	2008	2015	2020	2025	2030	2035	
OECD									
OECD Americas	27.4	28.7	28.8	31.1	32.2	33.2	35.2	37.1	0.9
United States ^a	21.7	23.1	23.2	25.1	25.3	25.1	25.9	26.5	0.5
Canada	3.3	3.4	3.4	3.5	3.7	4.2	4.6	5.0	1.5
Mexico/Chile	2.5	2.2	2.2	2.5	3.2	4.0	4.7	5.5	3.4
OECD Europe	19.2	19.0	19.5	19.8	20.4	20.9	22.0	23.2	0.7
OECD Asia	5.8	6.2	6.2	6.5	6.8	7.4	7.8	8.0	1.0
Japan	3.4	3.7	3.7	3.7	3.7	3.9	4.0	4.0	0.3
South Korea	1.1	1.2	1.3	1.5	1.6	1.8	1.9	1.9	1.5
Australia/New Zealand	1.2	1.2	1.3	1.3	1.5	1.8	2.0	2.2	2.1
Total OECD	52.4	53.9	54.5	57.4	59.5	61.6	65.0	68.4	0.8
Non-OECD									
Non-OECD Europe and Eurasia	24.8	25.0	25.0	24.4	24.4	24.9	25.8	26.6	0.2
Russia	16.6	16.7	16.8	16.2	16.1	16.2	16.8	17.4	0.1
Other	8.2	8.3	8.2	8.1	8.4	8.7	9.0	9.1	0.4
Non-OECD Asia	9.5	10.5	11.3	17.1	20.8	25.2	28.9	31.9	3.9
China	2.0	2.5	2.7	5.3	6.8	8.6	10.2	11.5	5.5
India	1.4	1.5	1.5	3.3	3.9	4.5	4.9	5.1	4.6
Other	6.2	6.6	7.1	8.5	10.0	12.0	13.9	15.3	2.9
Middle East	10.3	10.7	11.7	14.7	17.0	19.1	21.3	24.0	2.7
Africa	2.9	3.1	3.6	4.7	5.9	7.1	8.3	9.1	3.5
Central and South America	4.3	4.2	4.6	5.0	5.7	6.5	7.5	8.8	2.5
Brazil	0.7	0.7	0.8	1.1	1.5	1.8	2.3	3.2	5.1
Other	3.6	3.5	3.7	3.8	4.2	4.7	5.2	5.7	1.6
Total Non-OECD	51.8	53.5	56.2	65.8	73.9	82.8	91.7	100.4	2.2
Total World	104.1	107.4	110.7	123.1	133.4	144.4	156.8	168.7	1.6

^aIncludes the 50 States and the District of Columbia.

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

Sources: History: U.S. Energy Information Administration (EIA), International Energy Statistics database (as of March 2011), website www.eia.gov/ies. Projections: EIA, *Annual Energy Outlook 2011*, DOE/EIA-0383(2011), AEO2011 National Energy Modeling System, run REF2011.D020911A, website www.eia.gov/aeo, and World Energy Projection System Plus (2011).

Table A7. World coal consumption by region, Reference case, 2006-2035
(Quadrillion Btu)

Region	History			Projections					Average annual percent change, 2008-2035
	2006	2007	2008	2015	2020	2025	2030	2035	
OECD									
OECD Americas	24.4	24.7	24.3	21.3	22.5	24.3	25.2	26.5	0.3
United States ^a	22.5	22.7	22.4	19.7	20.8	22.6	23.4	24.3	0.3
Canada	1.4	1.4	1.4	1.0	1.0	1.0	1.0	1.1	-0.7
Mexico/Chile	0.6	0.6	0.5	0.6	0.6	0.7	0.8	1.1	2.6
OECD Europe	13.2	13.5	12.5	11.5	11.2	10.8	10.5	10.4	-0.7
OECD Asia	9.2	9.6	9.9	9.7	9.5	9.4	9.5	9.7	-0.1
Japan	4.6	4.9	4.8	4.6	4.4	4.2	4.0	3.8	-0.8
South Korea	2.1	2.3	2.6	2.6	2.6	2.8	3.1	3.4	1.0
Australia/New Zealand	2.4	2.5	2.6	2.5	2.5	2.5	2.5	2.5	-0.1
Total OECD	46.8	47.8	46.8	42.6	43.1	44.6	45.3	46.7	0.0
Non-OECD									
Non-OECD Europe and Eurasia	8.8	8.6	8.9	8.5	8.2	8.0	8.1	8.5	-0.2
Russia	4.4	4.2	4.5	4.5	4.3	4.3	4.5	4.9	0.3
Other	4.4	4.5	4.5	4.0	3.9	3.8	3.7	3.7	-0.7
Non-OECD Asia	66.3	71.4	77.5	99.6	106.2	119.5	132.8	144.1	2.3
China	51.2	55.2	60.4	80.7	85.5	96.4	106.5	113.6	2.4
India	9.2	10.1	10.9	12.4	13.6	15.3	17.3	19.5	2.2
Other	5.8	6.1	6.3	6.5	7.0	7.7	9.1	11.0	2.1
Middle East	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3
Africa	4.2	4.4	4.6	5.1	5.4	5.7	6.2	7.1	1.6
Central and South America	0.7	0.8	0.8	1.1	1.2	1.4	1.8	2.3	4.0
Brazil	0.4	0.5	0.5	0.8	0.9	1.1	1.4	1.9	5.2
Other	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	1.1
Total Non-OECD	80.4	85.6	92.2	114.7	121.4	135.1	149.4	162.5	2.1
Total World	127.2	133.3	139.0	157.3	164.6	179.7	194.7	209.1	1.5

^aIncludes the 50 States and the District of Columbia.

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

Sources: History: U.S. Energy Information Administration (EIA), International Energy Statistics database (as of March 2011), website www.eia.gov/ies. Projections: EIA, *Annual Energy Outlook 2011*, DOE/EIA-0383(2011), AEO2011 National Energy Modeling System, run REF2011.D020911A, website www.eia.gov/aeo, and World Energy Projection System Plus (2011).

Table A8. World nuclear energy consumption by region, Reference case, 2006-2035
(Billion kilowatthours)

Region	History			Projections					Average annual percent change, 2008-2035
	2006	2007	2008	2015	2020	2025	2030	2035	
OECD									
OECD Americas	891	905	905	963	1,018	1,021	1,047	1,054	0.6
United States ^a	787	806	806	839	877	877	877	874	0.3
Canada	93	89	89	113	131	134	152	162	2.2
Mexico/Chile	10	10	9	10	10	10	18	18	2.4
OECD Europe	935	884	882	965	998	1,067	1,111	1,136	0.9
OECD Asia	430	386	389	502	560	591	641	683	2.1
Japan	288	251	245	319	342	358	388	417	2.0
South Korea	141	136	143	183	218	233	253	266	2.3
Australia/New Zealand	0	0	0	0	0	0	0	0	0.0
Total OECD	2,255	2,176	2,175	2,430	2,576	2,680	2,799	2,873	1.0
Non-OECD									
Non-OECD Europe and Eurasia	263	272	276	342	449	538	567	614	3.0
Russia	144	152	154	197	275	342	366	388	3.5
Other	119	120	121	145	174	196	201	225	2.3
Non-OECD Asia	111	119	119	360	631	855	1,063	1,281	9.2
China	55	63	65	223	419	585	749	916	10.3
India	16	16	13	66	119	157	187	211	10.8
Other	40	41	41	71	92	113	127	153	5.0
Middle East	0	0	0	6	24	51	52	54	0.0
Africa	10	12	11	15	15	21	21	31	3.8
Central and South America	21	19	21	25	35	44	44	63	4.2
Brazil	14	12	14	18	22	31	31	41	4.1
Other	7	7	7	7	13	13	13	22	4.4
Total Non-OECD	405	422	427	748	1,154	1,508	1,747	2,043	6.0
Total World	2,660	2,598	2,602	3,178	3,731	4,188	4,546	4,916	2.4

^aIncludes the 50 States and the District of Columbia.

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

Sources: History: U.S. Energy Information Administration (EIA), International Energy Statistics database (as of March 2011), website www.eia.gov/ies. Projections: EIA, *Annual Energy Outlook 2011*, DOE/EIA-0383(2011), AEO2011 National Energy Modeling System, run REF2011.D020911A, website www.eia.gov/aeo, and World Energy Projection System Plus (2011).

Table A9. World consumption of hydroelectricity and other renewable energy by region, Reference case, 2006-2035
(Quadrillion Btu)

Region	History			Projections					Average annual percent change, 2008-2035
	2006	2007	2008	2015	2020	2025	2030	2035	
OECD									
OECD Americas	10.7	10.7	11.8	14.2	15.8	17.3	18.8	19.9	2.0
United States ^a	6.4	6.2	7.0	8.6	9.5	10.6	11.3	11.8	1.9
Canada	3.7	3.9	4.0	4.3	4.9	5.2	5.7	6.0	1.5
Mexico/Chile	0.6	0.6	0.7	1.3	1.4	1.5	1.8	2.1	4.0
OECD Europe	7.6	8.1	8.4	12.0	14.2	15.8	16.5	17.1	2.7
OECD Asia	2.0	1.9	1.9	3.1	3.6	3.9	4.1	4.3	3.1
Japan	1.2	1.1	1.1	1.6	2.0	2.2	2.3	2.4	2.9
South Korea	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	3.0
Australia/NewZealand	0.7	0.7	0.7	1.2	1.4	1.4	1.5	1.6	3.3
Total OECD	20.4	20.7	22.1	29.3	33.6	37.1	39.4	41.4	2.4
Non-OECD									
Non-OECD Europe and Eurasia	3.3	3.1	3.0	3.6	3.9	4.2	4.6	5.0	1.9
Russia	1.9	1.9	1.7	2.1	2.2	2.5	2.8	3.1	2.1
Other	1.4	1.2	1.3	1.5	1.7	1.7	1.8	1.9	1.6
Non-OECD Asia	10.5	11.2	12.6	20.3	27.3	30.5	34.1	38.2	4.2
China	4.7	5.3	6.4	11.2	15.8	17.8	19.7	21.8	4.6
India	2.4	2.5	2.4	3.5	4.7	5.3	6.0	6.7	3.9
Other	3.5	3.5	3.7	5.6	6.8	7.4	8.4	9.7	3.6
Middle East	0.3	0.3	0.1	0.4	0.6	0.6	0.7	0.8	6.6
Africa	3.5	3.6	3.7	4.3	4.7	5.1	5.6	6.0	1.9
Central and South America	9.2	9.6	9.8	10.7	12.1	14.1	16.3	18.1	2.3
Brazil	5.5	5.9	6.0	7.2	8.2	9.7	11.5	13.1	2.9
Other	3.7	3.7	3.8	3.5	3.9	4.4	4.7	5.0	1.0
Total Non-OECD	26.8	27.8	29.2	39.3	48.6	54.6	61.2	68.1	3.2
Total World	47.1	48.5	51.3	68.5	82.2	91.7	100.6	109.5	2.9

^aIncludes the 50 States and the District of Columbia.

Notes: Totals may not equal sum of components due to independent rounding. U.S. totals include net electricity imports, methanol, and liquid hydrogen. Sources: History: U.S. Energy Information Administration (EIA), International Energy Statistics database (as of March 2011), website www.eia.gov/ies; and International Energy Agency, "Balances of OECD and Non-OECD Statistics" (2010), website www.iea.org (subscription site). Projections: EIA, *Annual Energy Outlook 2011*, DOE/EIA-0383(2011), AEO2011 National Energy Modeling System, run REF2011.D020911A, website www.eia.gov/aeo, and World Energy Projection System Plus (2011).

Table A10. World carbon dioxide emissions by region, Reference case, 2006-2035
(Million metric tons carbon dioxide)

Region	History			Projections					Average annual percent change, 2008-2035
	2006	2007	2008	2015	2020	2025	2030	2035	
OECD									
OECD Americas	7,014	7,123	6,926	6,773	6,924	7,169	7,431	7,772	0.4
United States ^a	5,918	6,022	5,838	5,680	5,777	5,938	6,108	6,311	0.3
Canada	594	607	595	569	582	608	635	679	0.5
Mexico/Chile	502	494	493	524	565	623	688	782	1.7
OECD Europe	4,428	4,413	4,345	4,115	4,147	4,156	4,198	4,257	-0.1
OECD Asia	2,165	2,206	2,201	2,143	2,181	2,224	2,253	2,294	0.2
Japan	1,240	1,254	1,215	1,125	1,142	1,136	1,110	1,087	-0.4
South Korea	484	503	522	553	562	597	634	678	1.0
Australia/New Zealand	440	449	464	466	477	492	509	528	0.5
Total OECD	13,606	13,742	13,472	13,031	13,252	13,549	13,882	14,323	0.2
Non-OECD									
Non-OECD Europe and Eurasia	2,823	2,790	2,832	2,803	2,767	2,782	2,863	2,964	0.2
Russia	1,668	1,618	1,663	1,648	1,607	1,603	1,659	1,747	0.2
Other	1,155	1,172	1,169	1,154	1,159	1,179	1,204	1,217	0.2
Non-OECD Asia	8,835	9,416	10,100	13,238	14,475	16,475	18,238	19,688	2.5
China	5,817	6,257	6,801	9,386	10,128	11,492	12,626	13,441	2.6
India	1,281	1,367	1,462	1,802	2,056	2,398	2,728	3,036	2.7
Other	1,737	1,793	1,838	2,050	2,291	2,585	2,884	3,211	2.1
Middle East	1,446	1,479	1,581	1,889	2,019	2,199	2,435	2,659	1.9
Africa	984	1,016	1,078	1,209	1,311	1,430	1,568	1,735	1.8
Central and South America	1,064	1,085	1,128	1,287	1,386	1,497	1,654	1,852	1.9
Brazil	380	397	423	528	579	644	739	874	2.7
Other	684	688	705	759	807	853	916	978	1.2
Total Non-OECD	15,152	15,786	16,718	20,426	21,958	24,383	26,758	28,897	2.1
Total World	28,758	29,529	30,190	33,457	35,210	37,932	40,640	43,220	1.3

^aIncludes the 50 States and the District of Columbia.

Notes: The U.S. numbers include carbon dioxide emissions attributable to renewable energy sources.

Sources: **History:** U.S. Energy Information Administration (EIA), International Energy Statistics database (as of March 2011), website www.eia.gov/ies. **Projections:** EIA, *Annual Energy Outlook 2011*, DOE/EIA-0383(2011), AEO2011 National Energy Modeling System, run REF2011.D020911A, website www.eia.gov/aeo, and World Energy Projection System Plus (2011).

Table A11. World carbon dioxide emissions from liquids use by region, Reference case, 2006-2035
(Million metric tons carbon dioxide)

Region	History			Projections					Average annual percent change, 2008-2035
	2006	2007	2008	2015	2020	2025	2030	2035	
OECD									
OECD Americas	3,198	3,219	3,050	3,053	3,044	3,059	3,128	3,245	0.2
United States ^a	2,603	2,603	2,444	2,434	2,423	2,430	2,479	2,561	0.2
Canada	281	292	283	286	285	285	290	299	0.2
Mexico/Chile	314	325	323	333	336	344	359	385	0.7
OECD Europe	2,135	2,090	2,076	1,924	1,954	1,969	1,980	1,984	-0.2
OECD Asia	993	966	934	880	921	936	935	941	0.0
Japan	622	599	574	498	534	538	524	516	-0.4
South Korea	221	216	206	223	227	235	243	251	0.7
Australia/NewZealand	149	152	153	159	160	163	169	174	0.5
Total OECD	6,326	6,276	6,059	5,857	5,918	5,965	6,043	6,169	0.1
Non-OECD									
Non-OECD Europe and Eurasia	670	624	637	678	666	674	697	720	0.5
Russia	368	328	340	352	335	331	340	351	0.1
Other	302	296	297	325	331	343	357	368	0.8
Non-OECD Asia	2,147	2,185	2,242	2,999	3,415	3,931	4,242	4,473	2.6
China	928	959	995	1,533	1,736	1,982	2,087	2,154	2.9
India	349	354	372	478	580	725	857	948	3.5
Other	870	872	874	988	1,099	1,224	1,298	1,370	1.7
Middle East	839	845	894	1,034	1,035	1,098	1,210	1,283	1.4
Africa	428	437	447	469	473	496	524	563	0.9
Central and South America	757	777	799	910	953	997	1,069	1,146	1.3
Brazil	301	315	332	394	408	435	478	525	1.7
Other	456	462	467	516	544	562	590	621	1.1
Total Non-OECD	4,841	4,868	5,018	6,089	6,541	7,196	7,741	8,185	1.8
Total World	11,167	11,144	11,077	11,946	12,460	13,161	13,784	14,354	1.0

^aIncludes the 50 States and the District of Columbia.

Sources: **History:** U.S. Energy Information Administration (EIA), International Energy Statistics database (as of March 2011), website www.eia.gov/ies. **Projections:** EIA, *Annual Energy Outlook 2011*, DOE/EIA-0383(2011), AEO2011 National Energy Modeling System, run REF2011.D020911A, website www.eia.gov/aeo, and World Energy Projection System Plus (2011).

Table A12. World carbon dioxide emissions from natural gas use by region, Reference case, 2006-2035
(Million metric tons carbon dioxide)

Region	History			Projections					Average annual percent change, 2008-2035
	2006	2007	2008	2015	2020	2025	2030	2035	
OECD									
OECD Americas	1,473	1,540	1,549	1,678	1,740	1,794	1,902	2,008	1.0
United States ^a	1,157	1,235	1,243	1,352	1,365	1,351	1,398	1,434	0.5
Canada	180	187	186	191	204	228	249	275	1.5
Mexico/Chile	136	118	120	135	171	215	256	299	3.4
OECD Europe	1,047	1,045	1,070	1,088	1,123	1,150	1,210	1,275	0.7
OECD Asia	326	352	351	367	388	420	443	456	1.0
Japan	193	210	205	204	208	216	221	221	0.3
South Korea	68	74	75	88	94	105	110	112	1.5
Australia/New Zealand	66	68	71	74	86	99	112	123	2.1
Total OECD	2,847	2,937	2,970	3,132	3,250	3,364	3,555	3,739	0.9
Non-OECD									
Non-OECD Europe and Eurasia	1,332	1,353	1,354	1,319	1,324	1,349	1,397	1,438	0.2
Russia	889	897	899	867	860	864	895	932	0.1
Other	443	456	454	452	464	485	502	506	0.4
Non-OECD Asia	518	573	617	934	1,138	1,377	1,584	1,746	3.9
China	111	138	151	297	378	477	566	641	5.5
India	78	83	86	184	223	257	276	288	4.6
Other	330	352	380	453	537	643	742	818	2.9
Middle East	572	595	650	817	946	1,063	1,186	1,335	2.7
Africa	166	176	206	268	338	406	469	517	3.5
Central and South America	241	238	256	278	321	366	419	494	2.5
Brazil	38	39	46	62	85	102	126	175	5.1
Other	203	199	210	217	236	264	293	320	1.6
Total Non-OECD	2,829	2,934	3,083	3,616	4,068	4,561	5,055	5,531	2.2
Total World	5,675	5,870	6,052	6,748	7,318	7,925	8,611	9,270	1.6

^aIncludes the 50 States and the District of Columbia.

Sources: **History:** U.S. Energy Information Administration (EIA), International Energy Statistics database (as of March 2011), website www.eia.gov/ies. **Projections:** EIA, *Annual Energy Outlook 2011*, DOE/EIA-0383(2011), AEO2011 National Energy Modeling System, run REF2011.D020911A, website www.eia.gov/aeo, and World Energy Projection System Plus (2011).

Table A13. World carbon dioxide emissions from coal use by region, Reference case, 2006-2035
(Million metric tons carbon dioxide)

Region	History			Projections					Average annual percent change, 2008-2035
	2006	2007	2008	2015	2020	2025	2030	2035	
OECD									
OECD Americas	2,331	2,352	2,315	2,030	2,128	2,304	2,389	2,507	0.3
United States ^a	2,147	2,172	2,139	1,882	1,977	2,145	2,219	2,304	0.3
Canada	132	128	126	92	93	96	96	105	-0.7
Mexico/Chile	53	51	50	55	58	63	74	98	2.6
OECD Europe	1,245	1,279	1,200	1,103	1,071	1,036	1,008	999	-0.7
OECD Asia	846	888	917	896	872	868	875	897	-0.1
Japan	425	446	436	422	400	382	364	350	-0.8
South Korea	195	213	240	242	241	257	281	316	1.0
Australia/New Zealand	226	229	240	232	230	229	229	231	-0.1
Total OECD	4,422	4,518	4,431	4,029	4,071	4,208	4,272	4,403	0.0
Non-OECD									
Non-OECD Europe and Eurasia	821	813	841	806	777	759	769	806	-0.2
Russia	412	393	424	429	413	408	424	464	0.3
Other	410	420	417	378	364	351	344	342	-0.7
Non-OECD Asia	6,170	6,659	7,241	9,306	9,922	11,167	12,412	13,468	2.3
China	4,779	5,160	5,654	7,556	8,013	9,033	9,973	10,646	2.4
India	854	931	1,003	1,140	1,254	1,416	1,595	1,800	2.2
Other	537	569	583	609	655	718	843	1,023	2.1
Middle East	36	39	37	38	38	38	39	41	0.3
Africa	390	403	426	472	500	528	575	655	1.6
Central and South America	65	70	72	99	112	134	167	211	4.1
Brazil	41	43	44	72	86	107	134	174	5.2
Other	25	27	28	27	26	27	33	37	1.1
Total Non-OECD	7,482	7,985	8,618	10,721	11,349	12,626	13,961	15,181	2.1
Total World	11,904	12,503	13,049	14,750	15,420	16,834	18,234	19,584	1.5

^aIncludes the 50 States and the District of Columbia.

Sources: History: U.S. Energy Information Administration (EIA), International Energy Statistics database (as of March 2011), website www.eia.gov/ies. Projections: EIA, *Annual Energy Outlook 2011*, DOE/EIA-0383(2011), AEO2011 National Energy Modeling System, run REF2011.D020911A, website www.eia.gov/aeo, and World Energy Projection System Plus (2011).

Table A14. World population by region, Reference case, 2006-2035
(Millions)

Region	History			Projections					Average annual percent change, 2008-2035
	2006	2007	2008	2015	2020	2025	2030	2035	
OECD									
OECD Americas	455	459	464	495	518	540	562	582	0.9
United States ^a	299	302	305	326	342	358	374	390	0.9
Canada	33	33	33	36	38	40	42	43	1.0
Mexico/Chile	123	124	125	133	138	142	146	149	0.6
OECD Europe	538	541	544	560	567	573	577	580	0.2
OECD Asia	200	201	201	203	202	201	199	196	-0.1
Japan	128	128	128	126	124	122	119	116	-0.4
South Korea	48	48	48	49	49	49	49	48	0.0
Australia/New Zealand	25	25	25	27	28	30	31	32	0.8
Total OECD	1,193	1,201	1,209	1,257	1,287	1,314	1,338	1,358	0.4
Non-OECD									
Non-OECD Europe and Eurasia	341	340	340	338	336	333	329	324	-0.2
Russia	143	142	141	138	135	132	129	125	-0.4
Other	198	198	199	200	200	201	200	198	0.0
Non-OECD Asia	3,487	3,526	3,565	3,840	4,021	4,175	4,300	4,400	0.8
China	1,314	1,321	1,328	1,385	1,419	1,441	1,451	1,450	0.3
India	1,148	1,165	1,181	1,294	1,367	1,431	1,485	1,528	1.0
Other	1,025	1,040	1,055	1,162	1,234	1,302	1,365	1,422	1.1
Middle East	196	200	205	234	255	275	293	311	1.6
Africa	921	941	961	1,101	1,202	1,302	1,401	1,501	1.7
Central and South America	441	446	451	486	509	528	545	559	0.8
Brazil	188	190	192	203	209	214	217	219	0.5
Other	253	256	259	283	299	315	328	340	1.0
Total Non-OECD	5,385	5,454	5,522	5,999	6,321	6,613	6,869	7,095	0.9
Total World	6,579	6,655	6,731	7,257	7,609	7,927	8,207	8,453	0.9

^aIncludes the 50 States and the District of Columbia.

Sources: **United States:** U.S. Energy Information Administration (EIA), *Annual Energy Outlook 2011*, DOE/EIA-0383(2011), AEO2011 National Energy Modeling System, run REF2011.D020911A, website www.eia.gov/aeo. **Other Countries:** IHS Global Insight, *World Overview* (Lexington, MA: various issues).