Appendixes

Table A1. Total Energy Supply, Disposition, and Price Summary
(Quadrillion Btu per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Production								
Crude Oil and Lease Condensate	10.75	10.51	12.41	13.19	13.22	13.34	13.50	0.9%
Natural Gas Plant Liquids	2.41	2.57	2.27	2.31	2.24	2.32	2.37	-0.3%
Dry Natural Gas	19.62	21.14	19.83	20.54	21.90	23.00	23.92	0.5%
Coal[1]	23.49	23.86	23.31	23.71	24.36	24.68	25.19	0.2%
Nuclear Power	8.46	8.46	8.75	9.26	9.29	9.29	9.41	0.4%
Hydropower	2.45	2.46	2.96	2.96	2.98	2.98	2.99	0.7%
Biomass[2]	3.15	3.97	4.60	5.63	6.90	7.93	9.27	3.2%
Other Renewable Energy[3]	0.99	1.17	3.01	3.01	3.07	3.17	3.36	4.0%
Other[4]	0.81	0.10	0.73	0.89	0.94	0.92	0.81	7.9%
Total	**72.14**	**74.23**	**77.88**	**81.51**	**84.91**	**87.63**	**90.83**	**0.8%**
Imports								
Crude Oil	21.91	21.39	19.66	18.95	19.21	19.38	19.34	-0.4%
Liquid Fuels and Other Petroleum[5]	6.98	6.38	5.54	5.61	5.76	5.86	6.08	-0.2%
Natural Gas	4.72	4.06	3.59	4.10	3.94	3.79	3.49	-0.6%
Other Imports[6]	0.99	0.96	0.79	0.96	0.88	0.95	1.32	1.2%
Total	**34.60**	**32.79**	**29.58**	**29.62**	**29.80**	**29.97**	**30.23**	**-0.3%**
Exports								
Petroleum[7]	2.83	3.71	3.53	3.74	3.91	4.02	4.12	0.4%
Natural Gas	0.83	1.01	1.14	1.44	1.69	1.87	1.96	2.5%
Coal	1.51	2.07	1.49	1.33	1.20	0.87	0.79	-3.5%
Total	**5.17**	**6.80**	**6.16**	**6.50**	**6.80**	**6.76**	**6.87**	**0.0%**
Discrepancy[8]	**-0.07**	**0.13**	**-0.30**	**-0.38**	**-0.35**	**-0.33**	**-0.32**	**- -**
Consumption								
Liquid Fuels and Other Petroleum[9]	40.59	38.35	38.81	39.36	40.14	41.08	42.02	0.3%
Natural Gas	23.67	23.91	22.35	23.27	24.24	25.01	25.56	0.2%
Coal[10]	22.71	22.41	22.35	23.01	23.63	24.25	25.11	0.4%
Nuclear Power	8.46	8.46	8.75	9.26	9.29	9.29	9.41	0.4%
Hydropower	2.45	2.46	2.96	2.96	2.98	2.98	2.99	0.7%
Biomass[11]	2.54	3.10	3.17	3.93	4.70	5.19	5.83	2.4%
Other Renewable Energy[3]	0.99	1.17	3.01	3.01	3.07	3.17	3.36	4.0%
Other[12]	0.23	0.24	0.20	0.20	0.21	0.20	0.22	-0.3%
Total	**101.65**	**100.09**	**101.61**	**105.00**	**108.26**	**111.18**	**114.51**	**0.5%**
Prices (2008 dollars per unit)								
Petroleum (dollars per barrel)								
Imported Low Sulfur Light Crude Oil Price[13]	73.93	99.57	94.52	108.28	115.09	123.50	133.22	1.1%
Imported Crude Oil Price[13]	68.69	92.61	86.88	98.14	104.49	111.49	121.37	1.0%
Natural Gas (dollars per million Btu)								
Price at Henry Hub	7.12	8.86	6.27	6.64	6.99	8.05	8.88	0.0%
Wellhead Price[14]	6.38	7.85	5.54	5.87	6.18	7.11	7.84	-0.0%
Natural Gas (dollars per thousand cubic feet)								
Wellhead Price[14]	6.56	8.07	5.70	6.03	6.35	7.31	8.06	-0.0%
Coal (dollars per ton)								
Minemouth Price[15]	26.40	31.26	30.38	30.01	28.19	27.43	28.10	-0.4%
Coal (dollars per million Btu)								
Minemouth Price[15]	1.30	1.55	1.52	1.51	1.44	1.41	1.44	-0.3%
Average Delivered Price[16]	1.89	2.16	2.11	2.08	2.07	2.09	2.13	-0.0%
Average Electricity Price (cents per kilowatthour)	9.3	9.8	8.9	9.0	9.3	9.7	10.2	0.1%

Table A1. Total Energy Supply and Disposition Summary (Continued)
(Quadrillion Btu per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Prices (nominal dollars per unit)								
Petroleum (dollars per barrel)								
Imported Low Sulfur Light Crude Oil Price[13]	72.32	99.57	105.33	132.33	156.20	186.40	223.88	3.0%
Imported Crude Oil Price[13]	67.19	92.61	96.82	119.94	141.80	168.28	203.97	3.0%
Natural Gas (dollars per million Btu)								
Price at Henry Hub	6.96	8.86	6.99	8.11	9.49	12.15	14.92	1.9%
Wellhead Price[14]	6.24	7.85	6.17	7.17	8.38	10.73	13.18	1.9%
Natural Gas (dollars per thousand cubic feet)								
Wellhead Price[14]	6.42	8.07	6.35	7.37	8.62	11.03	13.55	1.9%
Coal (dollars per ton)								
Minemouth Price[15]	25.82	31.26	33.86	36.67	38.25	41.40	47.23	1.5%
Coal (dollars per million Btu)								
Minemouth Price[15]	1.27	1.55	1.69	1.84	1.95	2.13	2.43	1.7%
Average Delivered Price[16]	1.85	2.16	2.35	2.55	2.81	3.16	3.58	1.9%
Average Electricity Price (cents per kilowatthour)	9.1	9.8	9.9	11.1	12.6	14.7	17.1	2.1%

[1]Includes waste coal.
[2]Includes grid-connected electricity from wood and wood waste; biomass, such as corn, used for liquid fuels production; and non-electric energy demand from wood. Refer to Table A17 for details.
[3]Includes grid-connected electricity from landfill gas; biogenic municipal waste; wind; photovoltaic and solar thermal sources; and non-electric energy from renewable sources, such as active and passive solar systems. Excludes electricity imports using renewable sources and nonmarketed renewable energy. See Table A17 for selected nonmarketed residential and commercial renewable energy.
[4]Includes non-biogenic municipal waste, liquid hydrogen, methanol, and some domestic inputs to refineries.
[5]Includes imports of finished petroleum products, unfinished oils, alcohols, ethers, blending components, and renewable fuels such as ethanol.
[6]Includes coal, coal coke (net), and electricity (net).
[7]Includes crude oil and petroleum products.
[8]Balancing item. Includes unaccounted for supply, losses, gains, and net storage withdrawals.
[9]Includes petroleum-derived fuels and non-petroleum derived fuels, such as ethanol and biodiesel, and coal-based synthetic liquids. Petroleum coke, which is a solid, is included. Also included are natural gas plant liquids and crude oil consumed as a fuel. Refer to Table A17 for detailed renewable liquid fuels consumption.
[10]Excludes coal converted to coal-based synthetic liquids and coal-based synthetic natural gas.
[11]Includes grid-connected electricity from wood and wood waste, non-electric energy from wood, and biofuels heat and coproducts used in the production of liquid fuels, but excludes the energy content of the liquid fuels.
[12]Includes non-biogenic municipal waste and net electricity imports.
[13]Weighted average price delivered to U.S. refiners.
[14]Represents lower 48 onshore and offshore supplies.
[15]Includes reported prices for both open market and captive mines.
[16]Prices weighted by consumption; weighted average excludes residential and commercial prices, and export free-alongside-ship (f.a.s.) prices.
Btu = British thermal unit.
- - = Not applicable.
Note: Totals may not equal sum of components due to independent rounding. Data for 2007 and 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2007 natural gas supply values: Energy Information Administration (EIA), *Natural Gas Annual 2007*, DOE/EIA-0131(2007) (Washington, DC, January 2009). 2008 natural gas supply values and natural gas wellhead price: EIA, *Natural Gas Monthly*, DOE/EIA-0130(2009/07) (Washington, DC, July 2009). 2007 natural gas wellhead price: Minerals Management Service and EIA, *Natural Gas Annual 2007*, DOE/EIA-0131(2007) (Washington, DC, January 2009). 2007 and 2008 coal minemouth and delivered coal prices: EIA, *Annual Coal Report 2008*, DOE/EIA-0584(2008) (Washington, DC, September 2009). 2008 petroleum supply values and 2007 crude oil and lease condensate production: EIA, *Petroleum Supply Annual 2008,* DOE/EIA-0340(2008)/1 (Washington, DC, June 2009). Other 2007 petroleum supply values: EIA, *Petroleum Supply Annual 2007,* DOE/EIA-0340(2007)/1 (Washington, DC, July 2008). 2007 and 2008 low sulfur light crude oil price: EIA, Form EIA-856, "Monthly Foreign Crude Oil Acquisition Report." Other 2007 and 2008 coal values: *Quarterly Coal Report, October-December 2008*, DOE/EIA-0121(2008/4Q) (Washington, DC, March 2009). Other 2007 and 2008 values: EIA, *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). **Projections:** EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A.

Table A2. Energy Consumption by Sector and Source
(Quadrillion Btu per Year, Unless Otherwise Noted)

Sector and Source	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Energy Consumption								
Residential								
Liquefied Petroleum Gases	0.48	0.45	0.41	0.40	0.40	0.40	0.40	-0.4%
Kerosene	0.04	0.04	0.04	0.04	0.03	0.03	0.03	-1.0%
Distillate Fuel Oil	0.73	0.68	0.59	0.53	0.49	0.45	0.41	-1.9%
Liquid Fuels and Other Petroleum Subtotal	1.25	1.18	1.04	0.97	0.92	0.88	0.85	-1.2%
Natural Gas	4.84	5.01	4.85	4.97	5.04	5.03	5.01	0.0%
Coal	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-1.3%
Renewable Energy[1]	0.41	0.45	0.40	0.42	0.42	0.42	0.43	-0.1%
Electricity	4.75	4.71	4.78	5.02	5.30	5.58	5.83	0.8%
Delivered Energy	**11.25**	**11.34**	**11.07**	**11.38**	**11.69**	**11.93**	**12.12**	**0.2%**
Electricity Related Losses	10.29	10.20	10.24	10.65	11.08	11.45	11.79	0.5%
Total	**21.54**	**21.54**	**21.31**	**22.03**	**22.76**	**23.38**	**23.92**	**0.4%**
Commercial								
Liquefied Petroleum Gases	0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.5%
Motor Gasoline[2]	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.2%
Kerosene	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1.7%
Distillate Fuel Oil	0.38	0.36	0.31	0.29	0.28	0.27	0.26	-1.2%
Residual Fuel Oil	0.08	0.07	0.09	0.09	0.09	0.09	0.09	0.7%
Liquid Fuels and Other Petroleum Subtotal	0.62	0.58	0.55	0.53	0.53	0.52	0.52	-0.4%
Natural Gas	3.10	3.21	3.32	3.43	3.55	3.66	3.79	0.6%
Coal	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.0%
Renewable Energy[3]	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.0%
Electricity	4.56	4.61	5.00	5.37	5.76	6.16	6.55	1.3%
Delivered Energy	**8.44**	**8.58**	**9.04**	**9.50**	**10.00**	**10.51**	**11.04**	**0.9%**
Electricity Related Losses	9.88	10.00	10.72	11.39	12.03	12.63	13.27	1.1%
Total	**18.32**	**18.58**	**19.77**	**20.89**	**22.03**	**23.14**	**24.30**	**1.0%**
Industrial[4]								
Liquefied Petroleum Gases	2.28	2.14	2.31	2.61	2.55	2.46	2.35	0.3%
Motor Gasoline[2]	0.31	0.30	0.30	0.30	0.30	0.30	0.30	0.1%
Distillate Fuel Oil	1.26	1.19	1.19	1.19	1.17	1.17	1.17	-0.1%
Residual Fuel Oil	0.19	0.18	0.14	0.14	0.14	0.14	0.13	-1.1%
Petrochemical Feedstocks	1.31	1.12	1.09	0.81	0.82	0.82	0.81	-1.2%
Other Petroleum[5]	4.45	4.05	4.01	3.95	3.89	3.94	3.92	-0.1%
Liquid Fuels and Other Petroleum Subtotal	9.80	8.99	9.04	9.01	8.87	8.82	8.70	-0.1%
Natural Gas	6.81	6.84	7.08	7.23	7.14	6.94	6.91	0.0%
Natural-Gas-to-Liquids Heat and Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Lease and Plant Fuel[6]	1.22	1.32	1.11	1.12	1.23	1.26	1.29	-0.1%
Natural Gas Subtotal	8.03	8.16	8.19	8.35	8.37	8.20	8.20	0.0%
Metallurgical Coal	0.60	0.58	0.52	0.54	0.50	0.44	0.36	-1.7%
Other Industrial Coal	1.21	1.17	1.07	1.08	1.07	1.06	1.04	-0.4%
Coal-to-Liquids Heat and Power	0.00	0.00	0.16	0.24	0.34	0.45	0.55	27.6%
Net Coal Coke Imports	0.03	0.04	0.01	0.01	0.01	0.01	-0.00	- -
Coal Subtotal	1.83	1.79	1.76	1.88	1.92	1.96	1.95	0.3%
Biofuels Heat and Coproducts	0.40	1.03	0.77	1.02	1.49	1.90	2.56	3.4%
Renewable Energy[7]	1.62	1.50	1.59	1.69	1.74	1.79	1.83	0.7%
Electricity	3.51	3.35	3.40	3.51	3.49	3.47	3.47	0.1%
Delivered Energy	**25.19**	**24.81**	**24.76**	**25.45**	**25.88**	**26.14**	**26.70**	**0.3%**
Electricity Related Losses	7.60	7.26	7.29	7.45	7.29	7.12	7.01	-0.1%
Total	**32.79**	**32.07**	**32.05**	**32.90**	**33.18**	**33.26**	**33.72**	**0.2%**

Table A2. Energy Consumption by Sector and Source (Continued)
(Quadrillion Btu per Year, Unless Otherwise Noted)

Sector and Source	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Transportation								
Liquefied Petroleum Gases	0.03	0.02	0.02	0.02	0.02	0.02	0.03	0.7%
E85[8]	0.00	0.01	0.01	0.26	0.52	0.82	1.75	23.3%
Motor Gasoline[2]	17.32	16.76	17.02	16.77	16.91	16.97	16.44	-0.1%
Jet Fuel[9]	3.27	3.15	3.26	3.48	3.62	3.72	3.80	0.7%
Distillate Fuel Oil[10]	6.46	6.09	6.32	6.72	7.13	7.69	8.28	1.1%
Residual Fuel Oil	0.99	0.93	0.94	0.95	0.96	0.97	0.97	0.2%
Other Petroleum[11]	0.18	0.17	0.17	0.18	0.18	0.18	0.19	0.3%
Liquid Fuels and Other Petroleum Subtotal	28.26	27.14	27.73	28.38	29.34	30.37	31.47	0.5%
Pipeline Fuel Natural Gas	0.64	0.64	0.61	0.63	0.72	0.74	0.74	0.5%
Compressed Natural Gas	0.04	0.04	0.05	0.08	0.11	0.15	0.19	5.8%
Liquid Hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Electricity	0.02	0.02	0.03	0.03	0.04	0.05	0.06	3.5%
Delivered Energy	**28.96**	**27.85**	**28.42**	**29.12**	**30.21**	**31.30**	**32.46**	**0.6%**
Electricity Related Losses	0.05	0.05	0.05	0.06	0.08	0.09	0.11	3.2%
Total	**29.01**	**27.90**	**28.48**	**29.18**	**30.29**	**31.40**	**32.58**	**0.6%**
Delivered Energy Consumption for All Sectors								
Liquefied Petroleum Gases	2.88	2.70	2.82	3.12	3.06	2.98	2.87	0.2%
E85[8]	0.00	0.01	0.01	0.26	0.52	0.82	1.75	23.3%
Motor Gasoline[2]	17.69	17.12	17.38	17.14	17.28	17.33	16.80	-0.1%
Jet Fuel[9]	3.27	3.15	3.26	3.48	3.62	3.72	3.80	0.7%
Kerosene	0.07	0.06	0.06	0.06	0.06	0.06	0.06	-0.3%
Distillate Fuel Oil	8.83	8.33	8.40	8.73	9.07	9.57	10.13	0.7%
Residual Fuel Oil	1.26	1.19	1.17	1.17	1.18	1.19	1.19	0.0%
Petrochemical Feedstocks	1.31	1.12	1.09	0.81	0.82	0.82	0.81	-1.2%
Other Petroleum[12]	4.62	4.21	4.17	4.12	4.06	4.11	4.10	-0.1%
Liquid Fuels and Other Petroleum Subtotal	39.93	37.89	38.35	38.89	39.66	40.59	41.53	0.3%
Natural Gas	14.79	15.10	15.31	15.71	15.84	15.78	15.91	0.2%
Natural-Gas-to-Liquids Heat and Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Lease and Plant Fuel[6]	1.22	1.32	1.11	1.12	1.23	1.26	1.29	-0.1%
Pipeline Natural Gas	0.64	0.64	0.61	0.63	0.72	0.74	0.74	0.5%
Natural Gas Subtotal	16.65	17.07	17.03	17.46	17.79	17.78	17.94	0.2%
Metallurgical Coal	0.60	0.58	0.52	0.54	0.50	0.44	0.36	-1.7%
Other Coal	1.28	1.24	1.15	1.16	1.15	1.13	1.11	-0.4%
Coal-to-Liquids Heat and Power	0.00	0.00	0.16	0.24	0.34	0.45	0.55	27.6%
Net Coal Coke Imports	0.03	0.04	0.01	0.01	0.01	0.01	-0.00	- -
Coal Subtotal	1.91	1.86	1.84	1.95	2.00	2.03	2.02	0.3%
Biofuels Heat and Coproducts	0.40	1.03	0.77	1.02	1.49	1.90	2.56	3.4%
Renewable Energy[13]	2.13	2.05	2.10	2.21	2.27	2.32	2.37	0.5%
Liquid Hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Electricity	12.84	12.69	13.20	13.93	14.58	15.26	15.90	0.8%
Delivered Energy	**73.84**	**72.59**	**73.30**	**75.45**	**77.78**	**79.88**	**82.33**	**0.5%**
Electricity Related Losses	27.81	27.50	28.31	29.55	30.48	31.29	32.19	0.6%
Total	**101.65**	**100.09**	**101.61**	**105.00**	**108.26**	**111.18**	**114.51**	**0.5%**
Electric Power[14]								
Distillate Fuel Oil	0.11	0.10	0.12	0.13	0.13	0.14	0.14	1.1%
Residual Fuel Oil	0.55	0.36	0.33	0.34	0.34	0.35	0.35	-0.1%
Liquid Fuels and Other Petroleum Subtotal	0.66	0.47	0.46	0.47	0.48	0.49	0.49	0.2%
Natural Gas	7.03	6.84	5.32	5.81	6.45	7.23	7.62	0.4%
Steam Coal	20.81	20.55	20.51	21.06	21.63	22.22	23.09	0.4%
Nuclear Power	8.46	8.46	8.75	9.26	9.29	9.29	9.41	0.4%
Renewable Energy[15]	3.45	3.65	6.27	6.69	7.00	7.13	7.26	2.6%
Electricity Imports	0.11	0.11	0.07	0.07	0.08	0.07	0.09	-0.9%
Total[16]	**40.65**	**40.20**	**41.51**	**43.48**	**45.06**	**46.55**	**48.09**	**0.7%**

Table A2. Energy Consumption by Sector and Source (Continued)
(Quadrillion Btu per Year, Unless Otherwise Noted)

Sector and Source	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Total Energy Consumption								
Liquefied Petroleum Gases	2.88	2.70	2.82	3.12	3.06	2.98	2.87	0.2%
E85[8]	0.00	0.01	0.01	0.26	0.52	0.82	1.75	23.3%
Motor Gasoline[2]	17.69	17.12	17.38	17.14	17.28	17.33	16.80	-0.1%
Jet Fuel[9]	3.27	3.15	3.26	3.48	3.62	3.72	3.80	0.7%
Kerosene	0.07	0.06	0.06	0.06	0.06	0.06	0.06	-0.3%
Distillate Fuel Oil	8.94	8.43	8.53	8.86	9.20	9.71	10.27	0.7%
Residual Fuel Oil	1.81	1.55	1.50	1.51	1.52	1.54	1.55	-0.0%
Petrochemical Feedstocks	1.31	1.12	1.09	0.81	0.82	0.82	0.81	-1.2%
Other Petroleum[12]	4.62	4.21	4.17	4.12	4.06	4.11	4.10	-0.1%
Liquid Fuels and Other Petroleum Subtotal	40.59	38.35	38.81	39.36	40.14	41.08	42.02	0.3%
Natural Gas	21.82	21.94	20.63	21.51	22.29	23.01	23.53	0.3%
Natural-Gas-to-Liquids Heat and Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Lease and Plant Fuel[6]	1.22	1.32	1.11	1.12	1.23	1.26	1.29	-0.1%
Pipeline Natural Gas	0.64	0.64	0.61	0.63	0.72	0.74	0.74	0.5%
Natural Gas Subtotal	23.67	23.91	22.35	23.27	24.24	25.01	25.56	0.2%
Metallurgical Coal	0.60	0.58	0.52	0.54	0.50	0.44	0.36	-1.7%
Other Coal	22.09	21.79	21.66	22.22	22.78	23.36	24.20	0.4%
Coal-to-Liquids Heat and Power	0.00	0.00	0.16	0.24	0.34	0.45	0.55	27.6%
Net Coal Coke Imports	0.03	0.04	0.01	0.01	0.01	0.01	-0.00	- -
Coal Subtotal	22.71	22.41	22.35	23.01	23.63	24.25	25.11	0.4%
Nuclear Power	8.46	8.46	8.75	9.26	9.29	9.29	9.41	0.4%
Biofuels Heat and Coproducts	0.40	1.03	0.77	1.02	1.49	1.90	2.56	3.4%
Renewable Energy[17]	5.58	5.70	8.37	8.90	9.27	9.44	9.63	2.0%
Liquid Hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Electricity Imports	0.11	0.11	0.07	0.07	0.08	0.07	0.09	-0.9%
Total	**101.65**	**100.09**	**101.61**	**105.00**	**108.26**	**111.18**	**114.51**	**0.5%**
Energy Use and Related Statistics								
Delivered Energy Use	73.84	72.59	73.30	75.45	77.78	79.88	82.33	0.5%
Total Energy Use	101.65	100.09	101.61	105.00	108.26	111.18	114.51	0.5%
Ethanol Consumed in Motor Gasoline and E85	0.56	0.82	1.23	1.38	1.56	1.76	2.35	4.0%
Population (millions)	302.41	305.37	326.70	342.55	358.62	374.67	390.70	0.9%
Gross Domestic Product (billion 2000 dollars)	11524	11652	13289	15416	17561	19883	22362	2.4%
Carbon Dioxide Emissions (million metric tons)	5986.4	5814.4	5730.7	5851.5	6015.8	6175.9	6320.4	0.3%

[1]Includes wood used for residential heating. See Table A4 and/or Table A17 for estimates of nonmarketed renewable energy consumption for geothermal heat pumps, solar thermal hot water heating, and electricity generation from wind and solar photovoltaic sources.
[2]Includes ethanol (blends of 10 percent or less) and ethers blended into gasoline.
[3]Excludes ethanol. Includes commercial sector consumption of wood and wood waste, landfill gas, municipal waste, and other biomass for combined heat and power. See Table A5 and/or Table A17 for estimates of nonmarketed renewable energy consumption for solar thermal hot water heating and electricity generation from wind and solar photovoltaic sources.
[4]Includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.
[5]Includes petroleum coke, asphalt, road oil, lubricants, still gas, and miscellaneous petroleum products.
[6]Represents natural gas used in well, field, and lease operations, and in natural gas processing plant machinery.
[7]Includes consumption of energy produced from hydroelectric, wood and wood waste, municipal waste, and other biomass sources. Excludes ethanol blends (10 percent or less) in motor gasoline.
[8]E85 refers to a blend of 85 percent ethanol (renewable) and 15 percent motor gasoline (nonrenewable). To address cold starting issues, the percentage of ethanol varies seasonally. The annual average ethanol content of 74 percent is used for this forecast.
[9]Includes only kerosene type.
[10]Diesel fuel for on- and off- road use.
[11]Includes aviation gasoline and lubricants.
[12]Includes unfinished oils, natural gasoline, motor gasoline blending components, aviation gasoline, lubricants, still gas, asphalt, road oil, petroleum coke, and miscellaneous petroleum products.
[13]Includes electricity generated for sale to the grid and for own use from renewable sources, and non-electric energy from renewable sources. Excludes ethanol and nonmarketed renewable energy consumption for geothermal heat pumps, buildings photovoltaic systems, and solar thermal hot water heaters.
[14]Includes consumption of energy by electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.
[15]Includes conventional hydroelectric, geothermal, wood and wood waste, biogenic municipal waste, other biomass, wind, photovoltaic, and solar thermal sources. Excludes net electricity imports.
[16]Includes non-biogenic municipal waste not included above.
[17]Includes conventional hydroelectric, geothermal, wood and wood waste, biogenic municipal waste, other biomass, wind, photovoltaic, and solar thermal sources. Excludes ethanol, net electricity imports, and nonmarketed renewable energy consumption for geothermal heat pumps, buildings photovoltaic systems, and solar thermal hot water heaters.
Btu = British thermal unit.
- - = Not applicable.
Note: Totals may not equal sum of components due to independent rounding. Data for 2007 and 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2007 and 2008 consumption based on: Energy Information Administration (EIA), *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). 2007 and 2008 population and gross domestic product: IHS Global Insight Industry and Employment models, August 2009. 2007 and 2008 carbon dioxide emissions: EIA, *Emissions of Greenhouse Gases in the United States 2008,* DOE/EIA-0573(2008) (Washington, DC, December 2009). **Projections:** EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A.

Table A3. Energy Prices by Sector and Source
(2008 Dollars per Million Btu, Unless Otherwise Noted)

Sector and Source	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Residential								
Liquefied Petroleum Gases	26.25	29.35	28.03	30.29	31.55	32.81	34.65	0.6%
Distillate Fuel Oil	20.30	24.47	21.08	24.10	25.23	26.61	28.66	0.6%
Natural Gas	12.94	13.48	11.56	11.95	12.29	13.44	14.40	0.2%
Electricity	31.82	33.29	31.43	31.84	32.26	33.46	34.71	0.2%
Commercial								
Liquefied Petroleum Gases	20.65	26.15	24.77	27.02	28.26	29.50	31.32	0.7%
Distillate Fuel Oil	17.48	21.50	18.72	21.60	22.72	24.11	26.13	0.7%
Residual Fuel Oil	8.39	15.52	13.13	15.46	16.54	17.54	18.84	0.7%
Natural Gas	11.20	11.94	9.99	10.35	10.70	11.78	12.66	0.2%
Electricity	28.81	30.47	26.55	27.12	27.72	28.99	30.37	-0.0%
Industrial[1]								
Liquefied Petroleum Gases	22.01	24.20	22.49	24.86	26.12	27.38	29.25	0.7%
Distillate Fuel Oil	18.07	22.31	19.00	21.83	22.97	24.40	26.48	0.6%
Residual Fuel Oil	8.84	16.31	16.47	18.20	19.23	20.27	21.72	1.1%
Natural Gas[2]	7.58	9.11	6.45	6.70	7.02	7.98	8.73	-0.2%
Metallurgical Coal	3.69	4.49	5.08	5.32	5.24	5.11	5.06	0.4%
Other Industrial Coal	2.48	2.84	2.69	2.66	2.63	2.66	2.71	-0.2%
Coal to Liquids	- -	- -	1.42	1.46	1.49	1.44	1.51	- -
Electricity	19.02	20.21	17.37	17.92	18.50	19.58	20.71	0.1%
Transportation								
Liquefied Petroleum Gases[3]	23.83	29.93	27.88	30.13	31.36	32.58	34.38	0.5%
E85[4]	27.43	26.93	25.55	26.95	28.86	30.64	32.23	0.7%
Motor Gasoline[5]	23.66	26.76	25.37	27.59	28.87	30.42	32.33	0.7%
Jet Fuel[6]	15.77	22.71	19.04	21.69	22.92	24.51	26.48	0.6%
Diesel Fuel (distillate fuel oil)[7]	21.55	27.65	22.93	25.60	26.63	27.96	29.96	0.3%
Residual Fuel Oil	9.19	14.49	13.58	14.99	15.93	17.10	18.60	0.9%
Natural Gas[8]	13.84	15.96	13.37	13.44	13.43	14.19	14.78	-0.3%
Electricity	32.03	33.73	28.79	28.55	28.63	31.01	33.26	-0.1%
Electric Power[9]								
Distillate Fuel Oil	15.75	19.37	17.36	20.25	21.35	22.71	24.70	0.9%
Residual Fuel Oil	9.04	14.56	15.53	17.22	18.30	19.55	21.12	1.4%
Natural Gas	7.26	9.09	6.08	6.42	6.75	7.73	8.46	-0.3%
Steam Coal	1.80	2.05	2.01	1.98	1.99	2.03	2.09	0.1%
Average Price to All Users[10]								
Liquefied Petroleum Gases	18.94	20.19	20.30	22.15	23.34	24.55	26.37	1.0%
E85[4]	27.43	26.93	25.55	26.95	28.86	30.64	32.23	0.7%
Motor Gasoline[5]	23.55	26.54	25.36	27.59	28.87	30.41	32.32	0.7%
Jet Fuel	15.77	22.71	19.04	21.69	22.92	24.51	26.48	0.6%
Distillate Fuel Oil	20.71	26.27	22.03	24.79	25.89	27.29	29.34	0.4%
Residual Fuel Oil	9.07	14.77	14.26	15.81	16.80	17.96	19.46	1.0%
Natural Gas	9.19	10.53	8.14	8.44	8.75	9.74	10.54	0.0%
Metallurgical Coal	3.69	4.49	5.08	5.32	5.24	5.11	5.06	0.4%
Other Coal	1.84	2.10	2.05	2.02	2.02	2.06	2.12	0.0%
Coal to Liquids	- -	- -	1.42	1.46	1.49	1.44	1.51	- -
Electricity	27.25	28.81	25.95	26.51	27.17	28.49	29.87	0.1%
Non-Renewable Energy Expenditures by Sector (billion 2008 dollars)								
Residential	241.67	254.66	230.89	245.14	258.70	280.40	301.11	0.6%
Commercial	176.61	191.19	176.90	193.15	210.07	234.79	261.07	1.2%
Industrial	219.69	244.81	213.14	234.86	241.75	253.51	267.18	0.3%
Transportation	613.37	705.86	655.77	729.77	782.71	846.64	908.01	0.9%
Total Non-Renewable Expenditures	1251.35	1396.52	1276.69	1402.91	1493.23	1615.34	1737.37	0.8%
Transportation Renewable Expenditures	0.05	0.17	0.21	7.12	15.06	25.05	56.42	24.1%
Total Expenditures	**1251.39**	**1396.69**	**1276.90**	**1410.03**	**1508.29**	**1640.39**	**1793.79**	**0.9%**

Table A3. Energy Prices by Sector and Source (Continued)
(Nominal Dollars per Million Btu, Unless Otherwise Noted)

Sector and Source	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Residential								
Liquefied Petroleum Gases	25.67	29.35	31.23	37.02	42.82	49.52	58.23	2.6%
Distillate Fuel Oil	19.86	24.47	23.49	29.45	34.24	40.16	48.16	2.5%
Natural Gas	12.66	13.48	12.88	14.61	16.68	20.29	24.20	2.2%
Electricity	31.12	33.29	35.02	38.92	43.78	50.50	58.33	2.1%
Commercial								
Liquefied Petroleum Gases	20.20	26.15	27.61	33.02	38.35	44.53	52.64	2.6%
Distillate Fuel Oil	17.10	21.50	20.86	26.39	30.83	36.38	43.92	2.7%
Residual Fuel Oil	8.21	15.52	14.63	18.90	22.45	26.47	31.66	2.7%
Natural Gas	10.96	11.94	11.14	12.65	14.53	17.78	21.27	2.2%
Electricity	28.18	30.47	29.58	33.15	37.62	43.75	51.04	1.9%
Industrial[1]								
Liquefied Petroleum Gases	21.53	24.20	25.06	30.38	35.45	41.33	49.15	2.7%
Distillate Fuel Oil	17.68	22.31	21.18	26.68	31.18	36.83	44.51	2.6%
Residual Fuel Oil	8.65	16.31	18.35	22.24	26.10	30.60	36.50	3.0%
Natural Gas[2]	7.41	9.11	7.18	8.19	9.52	12.04	14.67	1.8%
Metallurgical Coal	3.61	4.49	5.66	6.50	7.11	7.72	8.50	2.4%
Other Industrial Coal	2.43	2.84	3.00	3.26	3.56	4.01	4.55	1.8%
Coal to Liquids	- -	- -	1.58	1.79	2.02	2.18	2.53	- -
Electricity	18.60	20.21	19.36	21.90	25.11	29.55	34.80	2.0%
Transportation								
Liquefied Petroleum Gases[3]	23.31	29.93	31.07	36.82	42.56	49.17	57.77	2.5%
E85[4]	26.83	26.93	28.47	32.94	39.17	46.25	54.17	2.6%
Motor Gasoline[5]	23.15	26.76	28.27	33.72	39.18	45.91	54.33	2.7%
Jet Fuel[6]	15.42	22.71	21.21	26.51	31.10	36.99	44.51	2.5%
Diesel Fuel (distillate fuel oil)[7]	21.08	27.65	25.56	31.28	36.13	42.20	50.35	2.2%
Residual Fuel Oil	8.99	14.49	15.13	18.32	21.63	25.81	31.26	2.9%
Natural Gas[8]	13.54	15.96	14.90	16.43	18.23	21.42	24.84	1.7%
Electricity	31.32	33.73	32.08	34.89	38.86	46.80	55.89	1.9%
Electric Power[9]								
Distillate Fuel Oil	15.41	19.37	19.35	24.75	28.98	34.28	41.52	2.9%
Residual Fuel Oil	8.84	14.56	17.30	21.05	24.83	29.50	35.49	3.4%
Natural Gas	7.10	9.09	6.77	7.85	9.17	11.66	14.22	1.7%
Steam Coal	1.76	2.05	2.24	2.42	2.69	3.06	3.51	2.0%

Table A3. Energy Prices by Sector and Source (Continued)
(Nominal Dollars per Million Btu, Unless Otherwise Noted)

Sector and Source	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Average Price to All Users[10]								
Liquefied Petroleum Gases	18.53	20.19	22.62	27.06	31.68	37.05	44.32	3.0%
E85[4]	26.83	26.93	28.47	32.94	39.17	46.25	54.17	2.6%
Motor Gasoline[5]	23.03	26.54	28.27	33.71	39.17	45.90	54.32	2.7%
Jet Fuel	15.42	22.71	21.21	26.51	31.10	36.99	44.51	2.5%
Distillate Fuel Oil	20.26	26.27	24.55	30.30	35.14	41.20	49.31	2.4%
Residual Fuel Oil	8.87	14.77	15.89	19.33	22.80	27.11	32.70	3.0%
Natural Gas	8.99	10.53	9.07	10.32	11.88	14.70	17.71	1.9%
Metallurgical Coal	3.61	4.49	5.66	6.50	7.11	7.72	8.50	2.4%
Other Coal	1.80	2.10	2.28	2.47	2.74	3.11	3.56	2.0%
Coal to Liquids	- -	- -	1.58	1.79	2.02	2.18	2.53	- -
Electricity	26.66	28.81	28.92	32.40	36.87	43.00	50.19	2.1%
Non-Renewable Energy Expenditures by Sector (billion nominal dollars)								
Residential	236.38	254.66	257.29	299.59	351.09	423.22	506.03	2.6%
Commercial	172.75	191.19	197.13	236.05	285.09	354.37	438.74	3.1%
Industrial	214.89	244.81	237.51	287.03	328.09	382.62	449.00	2.3%
Transportation	599.94	705.86	730.78	891.87	1062.24	1277.85	1525.95	2.9%
Total Non-Renewable Expenditures	1223.96	1396.52	1422.72	1714.54	2026.51	2438.06	2919.72	2.8%
Transportation Renewable Expenditures	0.04	0.17	0.24	8.70	20.44	37.81	94.81	26.5%
Total Expenditures	**1224.00**	**1396.69**	**1422.95**	**1723.24**	**2046.94**	**2475.87**	**3014.53**	**2.9%**

[1]Includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.
[2]Excludes use for lease and plant fuel.
[3]Includes Federal and State taxes while excluding county and local taxes.
[4]E85 refers to a blend of 85 percent ethanol (renewable) and 15 percent motor gasoline (nonrenewable). To address cold starting issues, the percentage of ethanol varies seasonally. The annual average ethanol content of 74 percent is used for this forecast.
[5]Sales weighted-average price for all grades. Includes Federal, State and local taxes.
[6]Kerosene-type jet fuel. Includes Federal and State taxes while excluding county and local taxes.
[7]Diesel fuel for on-road use. Includes Federal and State taxes while excluding county and local taxes.
[8]Compressed natural gas used as a vehicle fuel. Includes estimated motor vehicle fuel taxes and estimated dispensing costs or charges.
[9]Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.
[10]Weighted averages of end-use fuel prices are derived from the prices shown in each sector and the corresponding sectoral consumption.
Btu = British thermal unit.
- - = Not applicable.
Note: Data for 2007 and 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2007 and 2008 prices for motor gasoline, distillate fuel oil, and jet fuel are based on prices in the Energy Information Administration (EIA), *Petroleum Marketing Annual 2008*, DOE/EIA-0487(2008) (Washington, DC, August 2009). 2007 residential and commercial natural gas delivered prices: EIA,*Natural Gas Annual 2007*, DOE/EIA-0131(2007) (Washington, DC, January 2009). 2008 residential and commercial natural gas delivered prices: EIA, *Natural Gas Monthly*, DOE/EIA-0130(2009/07) (Washington, DC, July 2009). 2007 and 2008 industrial natural gas delivered prices are estimated based on: EIA, *Manufacturing Energy Consumption Survey* and industrial and wellhead prices from the *Natural Gas Annual 2007*, DOE/EIA-0131(2007) (Washington, DC, January 2009) and the *Natural Gas Monthly*, DOE/EIA-0130(2009/07) (Washington, DC, July 2009). 2007 transportation sector natural gas delivered prices are based on: EIA, *Natural Gas Annual 2007*, DOE/EIA-0131(2007) (Washington, DC, January 2009) and estimated State taxes, Federal taxes, and dispensing costs or charges. 2008 transportation sector natural gas delivered prices are model results. 2007 and 2008 electric power sector natural gas prices: EIA, *Electric Power Monthly*, DOE/EIA-0226, April 2008 and April 2009, Table 4.13.B. 2007 and 2008 coal prices based on: EIA, *Quarterly Coal Report, October-December 2008*, DOE/EIA-0121(2008/4Q) (Washington, DC, March 2009) and EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A. 2007 and 2008 electricity prices: EIA, *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). 2007 and 2008 E85 prices derived from monthly prices in the Clean Cities Alternative Fuel Price Report. **Projections:** EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A.

Table A4. Residential Sector Key Indicators and Consumption
(Quadrillion Btu per Year, Unless Otherwise Noted)

Key Indicators and Consumption	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Key Indicators								
Households (millions)								
Single-Family	80.79	81.32	87.69	92.78	97.25	101.30	104.85	0.9%
Multifamily	24.91	25.27	27.01	28.86	30.82	32.73	34.59	1.2%
Mobile Homes	6.77	6.74	6.63	6.94	7.17	7.31	7.36	0.3%
Total	**112.48**	**113.33**	**121.33**	**128.58**	**135.25**	**141.34**	**146.79**	**1.0%**
Average House Square Footage	**1646**	**1658**	**1763**	**1831**	**1888**	**1938**	**1982**	**0.7%**
Energy Intensity								
(million Btu per household)								
Delivered Energy Consumption	100.1	100.1	91.2	88.5	86.4	84.4	82.6	-0.7%
Total Energy Consumption	191.5	190.1	175.7	171.3	168.3	165.4	162.9	-0.6%
(thousand Btu per square foot)								
Delivered Energy Consumption	60.8	60.4	51.8	48.4	45.8	43.5	41.7	-1.4%
Total Energy Consumption	116.4	114.6	99.6	93.6	89.1	85.3	82.2	-1.2%
Delivered Energy Consumption by Fuel								
Electricity								
Space Heating	0.27	0.28	0.28	0.28	0.28	0.28	0.28	-0.1%
Space Cooling	0.91	0.77	0.83	0.87	0.92	0.96	0.99	0.9%
Water Heating	0.43	0.43	0.48	0.51	0.53	0.53	0.53	0.7%
Refrigeration	0.38	0.38	0.36	0.37	0.39	0.41	0.43	0.5%
Cooking	0.10	0.11	0.12	0.12	0.13	0.14	0.15	1.2%
Clothes Dryers	0.26	0.26	0.27	0.28	0.29	0.31	0.32	0.7%
Freezers	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.6%
Lighting	0.73	0.72	0.57	0.53	0.52	0.52	0.52	-1.2%
Clothes Washers[1]	0.03	0.03	0.03	0.03	0.03	0.03	0.03	-0.5%
Dishwashers[1]	0.09	0.09	0.09	0.10	0.10	0.11	0.12	0.9%
Color Televisions and Set-Top Boxes	0.32	0.35	0.39	0.42	0.44	0.47	0.50	1.4%
Personal Computers and Related Equipment	0.15	0.17	0.19	0.19	0.19	0.21	0.21	0.9%
Furnace Fans and Boiler Circulation Pumps	0.13	0.14	0.15	0.16	0.18	0.19	0.19	1.2%
Other Uses[2]	0.86	0.89	0.94	1.07	1.21	1.34	1.46	1.9%
Delivered Energy	**4.75**	**4.71**	**4.78**	**5.02**	**5.30**	**5.58**	**5.83**	**0.8%**
Natural Gas								
Space Heating	3.21	3.38	3.20	3.27	3.31	3.32	3.33	-0.1%
Space Cooling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Water Heating	1.34	1.33	1.35	1.40	1.42	1.40	1.36	0.1%
Cooking	0.22	0.22	0.22	0.23	0.23	0.24	0.24	0.4%
Clothes Dryers	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.6%
Delivered Energy	**4.84**	**5.01**	**4.85**	**4.97**	**5.04**	**5.03**	**5.01**	**0.0%**
Distillate Fuel Oil								
Space Heating	0.61	0.58	0.51	0.47	0.43	0.40	0.37	-1.6%
Water Heating	0.12	0.11	0.08	0.07	0.06	0.05	0.04	-3.3%
Delivered Energy	**0.73**	**0.68**	**0.59**	**0.53**	**0.49**	**0.45**	**0.41**	**-1.9%**
Liquefied Petroleum Gases								
Space Heating	0.22	0.19	0.16	0.14	0.14	0.13	0.12	-1.6%
Water Heating	0.09	0.09	0.06	0.05	0.05	0.04	0.04	-3.3%
Cooking	0.03	0.03	0.03	0.03	0.03	0.03	0.03	-0.7%
Other Uses[3]	0.14	0.15	0.16	0.18	0.19	0.21	0.22	1.5%
Delivered Energy	**0.48**	**0.45**	**0.41**	**0.40**	**0.40**	**0.40**	**0.40**	**-0.4%**
Marketed Renewables (wood)[4]	0.41	0.45	0.40	0.42	0.42	0.42	0.43	-0.1%
Other Fuels[5]	0.05	0.05	0.04	0.04	0.04	0.04	0.04	-1.0%

Table A4. Residential Sector Key Indicators and Consumption (Continued)
(Quadrillion Btu per Year, Unless Otherwise Noted)

Key Indicators and Consumption	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Delivered Energy Consumption by End Use								
Space Heating	4.76	4.93	4.59	4.62	4.62	4.58	4.56	-0.3%
Space Cooling	0.91	0.77	0.83	0.87	0.92	0.96	0.99	0.9%
Water Heating	1.97	1.96	1.97	2.02	2.05	2.02	1.97	0.0%
Refrigeration	0.38	0.38	0.36	0.37	0.39	0.41	0.43	0.5%
Cooking	0.35	0.35	0.36	0.38	0.39	0.40	0.41	0.6%
Clothes Dryers	0.34	0.34	0.35	0.36	0.37	0.39	0.41	0.7%
Freezers	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.6%
Lighting	0.73	0.72	0.57	0.53	0.52	0.52	0.52	-1.2%
Clothes Washers[1]	0.03	0.03	0.03	0.03	0.03	0.03	0.03	-0.5%
Dishwashers[1]	0.09	0.09	0.09	0.10	0.10	0.11	0.12	0.9%
Color Televisions and Set-Top Boxes	0.32	0.35	0.39	0.42	0.44	0.47	0.50	1.4%
Personal Computers and Related Equipment	0.15	0.17	0.19	0.19	0.19	0.21	0.21	0.9%
Furnace Fans and Boiler Circulation Pumps	0.13	0.14	0.15	0.16	0.18	0.19	0.19	1.2%
Other Uses[6]	1.00	1.03	1.11	1.25	1.40	1.55	1.68	1.8%
Delivered Energy	**11.25**	**11.34**	**11.07**	**11.38**	**11.69**	**11.93**	**12.12**	**0.2%**
Electricity Related Losses	**10.29**	**10.20**	**10.24**	**10.65**	**11.08**	**11.45**	**11.79**	**0.5%**
Total Energy Consumption by End Use								
Space Heating	5.34	5.54	5.18	5.22	5.21	5.16	5.13	-0.3%
Space Cooling	2.88	2.45	2.62	2.72	2.83	2.93	3.01	0.8%
Water Heating	2.90	2.90	2.99	3.11	3.16	3.12	3.03	0.2%
Refrigeration	1.21	1.19	1.13	1.16	1.20	1.26	1.31	0.3%
Cooking	0.58	0.58	0.61	0.64	0.67	0.69	0.71	0.7%
Clothes Dryers	0.91	0.91	0.93	0.96	0.99	1.02	1.06	0.6%
Freezers	0.26	0.25	0.25	0.26	0.27	0.28	0.28	0.4%
Lighting	2.30	2.30	1.79	1.67	1.60	1.57	1.58	-1.4%
Clothes Washers[1]	0.11	0.11	0.09	0.08	0.08	0.09	0.09	-0.7%
Dishwashers[1]	0.30	0.29	0.29	0.30	0.32	0.34	0.36	0.7%
Color Televisions and Set-Top Boxes	1.03	1.09	1.23	1.30	1.37	1.44	1.51	1.2%
Personal Computers and Related Equipment	0.48	0.53	0.60	0.60	0.60	0.63	0.64	0.7%
Furnace Fans and Boiler Circulation Pumps	0.41	0.44	0.47	0.51	0.55	0.57	0.58	1.0%
Other Uses[6]	2.86	2.96	3.13	3.51	3.92	4.29	4.63	1.7%
Total	**21.54**	**21.54**	**21.31**	**22.03**	**22.76**	**23.38**	**23.92**	**0.4%**
Nonmarketed Renewables[7]								
Geothermal Heat Pumps	0.00	0.00	0.02	0.03	0.03	0.04	0.04	9.5%
Solar Hot Water Heating	0.00	0.00	0.00	0.00	0.00	0.01	0.01	2.1%
Solar Photovoltaic	0.00	0.00	0.04	0.05	0.05	0.05	0.05	19.0%
Wind	0.00	0.00	0.01	0.01	0.01	0.01	0.01	19.2%
Total	**0.01**	**0.01**	**0.07**	**0.09**	**0.09**	**0.10**	**0.11**	**10.4%**

[1]Does not include water heating portion of load.
[2]Includes small electric devices, heating elements, and motors not listed above.
[3]Includes such appliances as outdoor grills and mosquito traps.
[4]Includes wood used for primary and secondary heating in wood stoves or fireplaces as reported in the *Residential Energy Consumption Survey 2005*.
[5]Includes kerosene and coal.
[6]Includes all other uses listed above.
[7]Represents delivered energy displaced.
Btu = British thermal unit.
- - = Not applicable.
Note: Totals may not equal sum of components due to independent rounding. Data for 2007 and 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2007 and 2008 based on: Energy Information Administration (EIA), *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009).
Projections: EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A.

Table A5. Commercial Sector Key Indicators and Consumption
(Quadrillion Btu per Year, Unless Otherwise Noted)

Key Indicators and Consumption	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Key Indicators								
Total Floorspace (billion square feet)								
Surviving	74.9	76.4	83.0	88.8	95.1	101.5	108.0	1.3%
New Additions	2.4	2.4	2.0	2.3	2.4	2.5	2.6	0.3%
Total	**77.3**	**78.8**	**85.1**	**91.1**	**97.5**	**103.9**	**110.5**	**1.3%**
Energy Consumption Intensity (thousand Btu per square foot)								
Delivered Energy Consumption	109.2	108.9	106.3	104.3	102.6	101.1	99.8	-0.3%
Electricity Related Losses	127.8	126.9	126.0	125.0	123.4	121.5	120.0	-0.2%
Total Energy Consumption	237.0	235.8	232.3	229.3	226.0	222.6	219.8	-0.3%
Delivered Energy Consumption by Fuel								
Purchased Electricity								
Space Heating[1]	0.17	0.18	0.17	0.17	0.17	0.17	0.17	-0.1%
Space Cooling[1]	0.55	0.50	0.55	0.58	0.61	0.64	0.67	1.1%
Water Heating[1]	0.10	0.09	0.09	0.09	0.09	0.09	0.09	-0.1%
Ventilation	0.49	0.49	0.55	0.59	0.63	0.66	0.68	1.2%
Cooking	0.02	0.02	0.02	0.02	0.02	0.02	0.02	-0.1%
Lighting	1.06	1.04	1.04	1.08	1.12	1.16	1.20	0.5%
Refrigeration	0.40	0.40	0.36	0.35	0.36	0.37	0.39	-0.2%
Office Equipment (PC)	0.21	0.23	0.24	0.24	0.24	0.26	0.26	0.5%
Office Equipment (non-PC)	0.22	0.24	0.32	0.37	0.40	0.44	0.46	2.5%
Other Uses[2]	1.34	1.42	1.66	1.88	2.11	2.35	2.61	2.3%
Delivered Energy	**4.56**	**4.61**	**5.00**	**5.37**	**5.76**	**6.16**	**6.55**	**1.3%**
Natural Gas								
Space Heating[1]	1.45	1.54	1.56	1.59	1.60	1.59	1.57	0.1%
Space Cooling[1]	0.04	0.03	0.04	0.04	0.04	0.04	0.04	0.3%
Water Heating[1]	0.44	0.44	0.48	0.52	0.56	0.59	0.61	1.3%
Cooking	0.16	0.17	0.19	0.20	0.21	0.22	0.24	1.3%
Other Uses[3]	1.01	1.03	1.05	1.08	1.14	1.22	1.34	1.0%
Delivered Energy	**3.10**	**3.21**	**3.32**	**3.43**	**3.55**	**3.66**	**3.79**	**0.6%**
Distillate Fuel Oil								
Space Heating[1]	0.16	0.15	0.13	0.12	0.11	0.10	0.10	-1.6%
Water Heating[1]	0.02	0.02	0.02	0.02	0.02	0.02	0.02	-0.4%
Other Uses[4]	0.21	0.19	0.16	0.15	0.15	0.15	0.15	-1.0%
Delivered Energy	**0.38**	**0.36**	**0.31**	**0.29**	**0.28**	**0.27**	**0.26**	**-1.2%**
Marketed Renewables (biomass)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.0%
Other Fuels[5]	0.30	0.29	0.31	0.31	0.32	0.32	0.32	0.5%
Delivered Energy Consumption by End Use								
Space Heating[1]	1.77	1.87	1.86	1.88	1.88	1.86	1.84	-0.1%
Space Cooling[1]	0.59	0.53	0.59	0.61	0.64	0.67	0.70	1.0%
Water Heating[1]	0.56	0.55	0.59	0.63	0.67	0.70	0.72	1.0%
Ventilation	0.49	0.49	0.55	0.59	0.63	0.66	0.68	1.2%
Cooking	0.19	0.19	0.21	0.22	0.24	0.25	0.26	1.2%
Lighting	1.06	1.04	1.04	1.08	1.12	1.16	1.20	0.5%
Refrigeration	0.40	0.40	0.36	0.35	0.36	0.37	0.39	-0.2%
Office Equipment (PC)	0.21	0.23	0.24	0.24	0.24	0.26	0.26	0.5%
Office Equipment (non-PC)	0.22	0.24	0.32	0.37	0.40	0.44	0.46	2.5%
Other Uses[6]	2.95	3.03	3.29	3.53	3.81	4.14	4.52	1.5%
Delivered Energy	**8.44**	**8.58**	**9.04**	**9.50**	**10.00**	**10.51**	**11.04**	**0.9%**

Table A5. Commercial Sector Key Indicators and Consumption (Continued)
(Quadrillion Btu per Year, Unless Otherwise Noted)

Key Indicators and Consumption	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Electricity Related Losses	**9.88**	**10.00**	**10.72**	**11.39**	**12.03**	**12.63**	**13.27**	**1.1%**
Total Energy Consumption by End Use								
Space Heating[1]	2.14	2.26	2.22	2.24	2.24	2.22	2.19	-0.1%
Space Cooling[1]	1.78	1.62	1.76	1.84	1.91	1.98	2.05	0.9%
Water Heating[1]	0.76	0.75	0.79	0.83	0.87	0.89	0.91	0.7%
Ventilation	1.55	1.57	1.74	1.84	1.93	2.00	2.06	1.0%
Cooking	0.24	0.24	0.26	0.27	0.28	0.29	0.30	0.9%
Lighting	3.35	3.29	3.26	3.36	3.47	3.55	3.63	0.4%
Refrigeration	1.27	1.28	1.13	1.10	1.10	1.13	1.17	-0.3%
Office Equipment (PC)	0.67	0.71	0.76	0.75	0.76	0.78	0.79	0.3%
Office Equipment (non-PC)	0.69	0.75	1.00	1.15	1.25	1.34	1.40	2.3%
Other Uses[6]	5.86	6.11	6.85	7.51	8.22	8.97	9.81	1.8%
Total	**18.32**	**18.58**	**19.77**	**20.89**	**22.03**	**23.14**	**24.30**	**1.0%**
Nonmarketed Renewable Fuels[7]								
Solar Thermal	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.7%
Solar Photovoltaic	0.00	0.00	0.01	0.01	0.01	0.01	0.02	6.4%
Wind	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.3%
Total	**0.03**	**0.03**	**0.04**	**0.04**	**0.04**	**0.05**	**0.05**	**2.3%**

[1]Includes fuel consumption for district services.
[2]Includes miscellaneous uses, such as service station equipment, automated teller machines, telecommunications equipment, and medical equipment.
[3]Includes miscellaneous uses, such as pumps, emergency generators, combined heat and power in commercial buildings, and manufacturing performed in commercial buildings.
[4]Includes miscellaneous uses, such as cooking, emergency generators, and combined heat and power in commercial buildings.
[5]Includes residual fuel oil, liquefied petroleum gases, coal, motor gasoline, and kerosene.
[6]Includes miscellaneous uses, such as service station equipment, automated teller machines, telecommunications equipment, medical equipment, pumps, emergency generators, combined heat and power in commercial buildings, manufacturing performed in commercial buildings, and cooking (distillate), plus residual fuel oil, liquefied petroleum gases, coal, motor gasoline, and kerosene.
[7]Represents delivered energy displaced by solar thermal space heating and water heating, and electricity generation by solar photovoltaic systems.
Btu = British thermal unit.
PC = Personal computer.
Note: Totals may not equal sum of components due to independent rounding. Data for 2007 and 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2007 and 2008 based on: Energy Information Administration (EIA), *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009).
Projections: EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A.

Table A6. Industrial Sector Key Indicators and Consumption

Key Indicators and Consumption	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Key Indicators								
Value of Shipments (billion 2000 dollars)								
Manufacturing	4215	4014	4497	5006	5324	5680	6010	1.5%
Nonmanufacturing	1436	1394	1547	1644	1673	1722	1776	0.9%
Total	**5652**	**5408**	**6044**	**6651**	**6997**	**7401**	**7786**	**1.4%**
Energy Prices								
(2008 dollars per million Btu)								
Liquefied Petroleum Gases	22.01	24.20	22.49	24.86	26.12	27.38	29.25	0.7%
Motor Gasoline	18.05	16.28	25.17	27.41	28.70	30.24	32.15	2.6%
Distillate Fuel Oil	18.07	22.31	19.00	21.83	22.97	24.40	26.48	0.6%
Residual Fuel Oil	8.84	16.31	16.47	18.20	19.23	20.27	21.72	1.1%
Asphalt and Road Oil	4.53	8.23	7.13	7.95	8.43	8.93	9.76	0.6%
Natural Gas Heat and Power	6.61	8.25	5.62	5.88	6.25	7.24	8.03	-0.1%
Natural Gas Feedstocks	8.32	9.85	7.25	7.52	7.82	8.78	9.54	-0.1%
Metallurgical Coal	3.69	4.49	5.08	5.32	5.24	5.11	5.06	0.4%
Other Industrial Coal	2.48	2.84	2.69	2.66	2.63	2.66	2.71	-0.2%
Coal for Liquids	- -	- -	1.42	1.46	1.49	1.44	1.51	- -
Electricity	19.02	20.21	17.37	17.92	18.50	19.58	20.71	0.1%
(nominal dollars per million Btu)								
Liquefied Petroleum Gases	21.53	24.20	25.06	30.38	35.45	41.33	49.15	2.7%
Motor Gasoline	17.66	16.28	28.05	33.50	38.95	45.65	54.04	4.5%
Distillate Fuel Oil	17.68	22.31	21.18	26.68	31.18	36.83	44.51	2.6%
Residual Fuel Oil	8.65	16.31	18.35	22.24	26.10	30.60	36.50	3.0%
Asphalt and Road Oil	4.43	8.23	7.95	9.72	11.43	13.49	16.40	2.6%
Natural Gas Heat and Power	6.47	8.25	6.27	7.18	8.48	10.92	13.49	1.8%
Natural Gas Feedstocks	8.14	9.85	8.08	9.20	10.61	13.26	16.03	1.8%
Metallurgical Coal	3.61	4.49	5.66	6.50	7.11	7.72	8.50	2.4%
Other Industrial Coal	2.43	2.84	3.00	3.26	3.56	4.01	4.55	1.8%
Coal for Liquids	- -	- -	1.58	1.79	2.02	2.18	2.53	- -
Electricity	18.60	20.21	19.36	21.90	25.11	29.55	34.80	2.0%
Energy Consumption (quadrillion Btu)[1]								
Industrial Consumption Excluding Refining								
Liquefied Petroleum Gases Heat and Power	0.30	0.29	0.28	0.28	0.27	0.27	0.27	-0.2%
Liquefied Petroleum Gases Feedstocks	1.97	1.85	2.01	2.31	2.25	2.17	2.06	0.4%
Motor Gasoline	0.31	0.30	0.30	0.30	0.30	0.30	0.30	0.1%
Distillate Fuel Oil	1.26	1.19	1.19	1.19	1.17	1.17	1.17	-0.1%
Residual Fuel Oil	0.18	0.17	0.14	0.14	0.14	0.14	0.13	-0.9%
Petrochemical Feedstocks	1.31	1.12	1.09	0.81	0.82	0.82	0.81	-1.2%
Petroleum Coke	0.35	0.25	0.21	0.21	0.20	0.20	0.19	-1.0%
Asphalt and Road Oil	1.20	1.01	1.08	1.08	1.02	0.99	0.96	-0.2%
Miscellaneous Petroleum[2]	0.63	0.45	0.36	0.35	0.34	0.34	0.32	-1.2%
Petroleum Subtotal	7.51	6.62	6.65	6.66	6.52	6.39	6.22	-0.2%
Natural Gas Heat and Power	5.12	5.00	5.12	5.22	5.11	4.98	4.92	-0.1%
Natural Gas Feedstocks	0.56	0.57	0.55	0.56	0.52	0.48	0.45	-0.9%
Lease and Plant Fuel[3]	1.22	1.32	1.11	1.12	1.23	1.26	1.29	-0.1%
Natural Gas Subtotal	6.90	6.89	6.78	6.90	6.86	6.72	6.65	-0.1%
Metallurgical Coal and Coke[4]	0.62	0.62	0.53	0.55	0.51	0.45	0.36	-2.0%
Other Industrial Coal	1.15	1.10	1.02	1.02	1.01	1.00	0.98	-0.4%
Coal Subtotal	1.77	1.72	1.55	1.57	1.52	1.45	1.34	-0.9%
Renewables[5]	1.62	1.50	1.59	1.69	1.74	1.79	1.83	0.7%
Purchased Electricity	3.35	3.19	3.24	3.34	3.31	3.29	3.28	0.1%
Delivered Energy	**21.14**	**19.93**	**19.82**	**20.17**	**19.96**	**19.63**	**19.33**	**-0.1%**
Electricity Related Losses	7.25	6.91	6.94	7.09	6.92	6.74	6.63	-0.2%
Total	**28.39**	**26.83**	**26.76**	**27.26**	**26.88**	**26.38**	**25.96**	**-0.1%**

Table A6. Industrial Sector Key Indicators and Consumption (Continued)

Key Indicators and Consumption	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Refining Consumption								
Liquefied Petroleum Gases Heat and Power	0.01	0.01	0.03	0.02	0.03	0.03	0.03	4.0%
Distillate Fuel Oil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Residual Fuel Oil	0.01	0.01	0.00	0.00	0.00	0.00	0.00	- -
Petroleum Coke	0.55	0.58	0.59	0.59	0.61	0.61	0.62	0.3%
Still Gas	1.70	1.73	1.74	1.70	1.68	1.77	1.80	0.2%
Miscellaneous Petroleum[2]	0.02	0.04	0.03	0.03	0.03	0.03	0.03	-0.7%
Petroleum Subtotal	2.30	2.36	2.38	2.34	2.35	2.44	2.48	0.2%
Natural Gas Heat and Power	1.13	1.27	1.41	1.46	1.51	1.48	1.54	0.7%
Natural-Gas-to-Liquids Heat and Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Natural Gas Subtotal	1.13	1.27	1.41	1.46	1.51	1.48	1.54	0.7%
Other Industrial Coal	0.06	0.06	0.06	0.06	0.06	0.06	0.06	-0.2%
Coal-to-Liquids Heat and Power	0.00	0.00	0.16	0.24	0.34	0.45	0.55	27.6%
Coal Subtotal	0.06	0.06	0.22	0.30	0.40	0.51	0.61	8.7%
Biofuels Heat and Coproducts	0.40	1.03	0.77	1.02	1.49	1.90	2.56	3.4%
Purchased Electricity	0.16	0.16	0.16	0.17	0.18	0.18	0.19	0.5%
Delivered Energy	**4.05**	**4.89**	**4.94**	**5.28**	**5.93**	**6.51**	**7.38**	**1.5%**
Electricity Related Losses	0.35	0.35	0.35	0.36	0.37	0.37	0.38	0.3%
Total	**4.40**	**5.24**	**5.29**	**5.64**	**6.30**	**6.88**	**7.76**	**1.5%**
Total Industrial Sector Consumption								
Liquefied Petroleum Gases Heat and Power	0.30	0.30	0.31	0.30	0.30	0.29	0.30	-0.0%
Liquefied Petroleum Gases Feedstocks	1.97	1.85	2.01	2.31	2.25	2.17	2.06	0.4%
Motor Gasoline	0.31	0.30	0.30	0.30	0.30	0.30	0.30	0.1%
Distillate Fuel Oil	1.26	1.19	1.19	1.19	1.17	1.17	1.17	-0.1%
Residual Fuel Oil	0.19	0.18	0.14	0.14	0.14	0.14	0.13	-1.1%
Petrochemical Feedstocks	1.31	1.12	1.09	0.81	0.82	0.82	0.81	-1.2%
Petroleum Coke	0.91	0.83	0.80	0.80	0.82	0.81	0.81	-0.1%
Asphalt and Road Oil	1.20	1.01	1.08	1.08	1.02	0.99	0.96	-0.2%
Still Gas	1.70	1.73	1.74	1.70	1.68	1.77	1.80	0.2%
Miscellaneous Petroleum[2]	0.65	0.49	0.39	0.38	0.37	0.37	0.35	-1.2%
Petroleum Subtotal	9.80	8.99	9.04	9.01	8.87	8.82	8.70	-0.1%
Natural Gas Heat and Power	6.25	6.27	6.53	6.67	6.62	6.46	6.47	0.1%
Natural-Gas-to-Liquids Heat and Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Natural Gas Feedstocks	0.56	0.57	0.55	0.56	0.52	0.48	0.45	-0.9%
Lease and Plant Fuel[3]	1.22	1.32	1.11	1.12	1.23	1.26	1.29	-0.1%
Natural Gas Subtotal	8.03	8.16	8.19	8.35	8.37	8.20	8.20	0.0%
Metallurgical Coal and Coke[4]	0.62	0.62	0.53	0.55	0.51	0.45	0.36	-2.0%
Other Industrial Coal	1.21	1.17	1.07	1.08	1.07	1.06	1.04	-0.4%
Coal-to-Liquids Heat and Power	0.00	0.00	0.16	0.24	0.34	0.45	0.55	27.6%
Coal Subtotal	1.83	1.79	1.76	1.88	1.92	1.96	1.95	0.3%
Biofuels Heat and Coproducts	0.40	1.03	0.77	1.02	1.49	1.90	2.56	3.4%
Renewables[5]	1.62	1.50	1.59	1.69	1.74	1.79	1.83	0.7%
Purchased Electricity	3.51	3.35	3.40	3.51	3.49	3.47	3.47	0.1%
Delivered Energy	**25.19**	**24.81**	**24.76**	**25.45**	**25.88**	**26.14**	**26.70**	**0.3%**
Electricity Related Losses	7.60	7.26	7.29	7.45	7.29	7.12	7.01	-0.1%
Total	**32.79**	**32.07**	**32.05**	**32.90**	**33.18**	**33.26**	**33.72**	**0.2%**

Table A6. Industrial Sector Key Indicators and Consumption (Continued)

Key Indicators and Consumption	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Energy Consumption per dollar of Shipment (thousand Btu per 2000 dollars)								
Liquefied Petroleum Gases Heat and Power	0.05	0.05	0.05	0.05	0.04	0.04	0.04	-1.3%
Liquefied Petroleum Gases Feedstocks	0.35	0.34	0.33	0.35	0.32	0.29	0.26	-0.9%
Motor Gasoline	0.05	0.05	0.05	0.05	0.04	0.04	0.04	-1.3%
Distillate Fuel Oil	0.22	0.22	0.20	0.18	0.17	0.16	0.15	-1.4%
Residual Fuel Oil	0.03	0.03	0.02	0.02	0.02	0.02	0.02	-2.5%
Petrochemical Feedstocks	0.23	0.21	0.18	0.12	0.12	0.11	0.10	-2.5%
Petroleum Coke	0.16	0.15	0.13	0.12	0.12	0.11	0.10	-1.4%
Asphalt and Road Oil	0.21	0.19	0.18	0.16	0.15	0.13	0.12	-1.5%
Still Gas	0.30	0.32	0.29	0.26	0.24	0.24	0.23	-1.2%
Miscellaneous Petroleum[2]	0.12	0.09	0.06	0.06	0.05	0.05	0.05	-2.5%
Petroleum Subtotal	1.73	1.66	1.50	1.35	1.27	1.19	1.12	-1.5%
Natural Gas Heat and Power	1.11	1.16	1.08	1.00	0.95	0.87	0.83	-1.2%
Natural-Gas-to-Liquids Heat and Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Natural Gas Feedstocks	0.10	0.10	0.09	0.08	0.07	0.06	0.06	-2.2%
Lease and Plant Fuel[3]	0.22	0.24	0.18	0.17	0.18	0.17	0.17	-1.4%
Natural Gas Subtotal	1.42	1.51	1.36	1.26	1.20	1.11	1.05	-1.3%
Metallurgical Coal and Coke[4]	0.11	0.11	0.09	0.08	0.07	0.06	0.05	-3.3%
Other Industrial Coal	0.21	0.22	0.18	0.16	0.15	0.14	0.13	-1.8%
Coal-to-Liquids Heat and Power	0.00	0.00	0.03	0.04	0.05	0.06	0.07	25.9%
Coal Subtotal	0.32	0.33	0.29	0.28	0.28	0.26	0.25	-1.0%
Biofuels Heat and Coproducts	0.07	0.19	0.13	0.15	0.21	0.26	0.33	2.0%
Renewables[5]	0.29	0.28	0.26	0.25	0.25	0.24	0.24	-0.6%
Purchased Electricity	0.62	0.62	0.56	0.53	0.50	0.47	0.45	-1.2%
Delivered Energy	**4.46**	**4.59**	**4.10**	**3.83**	**3.70**	**3.53**	**3.43**	**-1.1%**
Electricity Related Losses	1.34	1.34	1.21	1.12	1.04	0.96	0.90	-1.5%
Total	**5.80**	**5.93**	**5.30**	**4.95**	**4.74**	**4.49**	**4.33**	**-1.2%**
Industrial Combined Heat and Power								
Capacity (gigawatts)	25.80	25.78	31.32	35.76	44.54	52.39	56.45	2.9%
Generation (billion kilowatthours)	142.17	136.65	175.43	208.16	273.39	331.57	362.91	3.7%

[1]Includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.
[2]Includes lubricants and miscellaneous petroleum products.
[3]Represents natural gas used in well, field, and lease operations, and in natural gas processing plant machinery.
[4]Includes net coal coke imports.
[5]Includes consumption of energy produced from hydroelectric, wood and wood waste, municipal waste, and other biomass sources.
Btu = British thermal unit.
- - = Not applicable.
Note: Totals may not equal sum of components due to independent rounding. Data for 2007 and 2008 are model results and may differ slightly from official EIA data reports.

Sources: 2007 and 2008 prices for motor gasoline and distillate fuel oil are based on: Energy Information Administration (EIA), *Petroleum Marketing Annual 2008*, DOE/EIA-0487(2008) (Washington, DC, August 2009). 2007 and 2008 petrochemical feedstock and asphalt and road oil prices are based on: EIA, *State Energy Data Report 2007*, DOE/EIA-0214(2007) (Washington, DC, August 2009). 2007 and 2008 coal prices are based on: EIA, *Quarterly Coal Report, October-December 2008*, DOE/EIA-0121(2008/4Q) (Washington, DC, March 2009) and EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A. 2007 and 2008 electricity prices: EIA, *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). 2007 and 2008 natural gas prices are based on: EIA, *Manufacturing Energy Consumption Survey* and industrial and wellhead prices from the *Natural Gas Annual 2007*, DOE/EIA-0131(2007) (Washington, DC, January 2009) and the *Natural Gas Monthly*, DOE/EIA-0130(2009/07) (Washington, DC, July 2009). 2007 refining consumption values are based on: *Petroleum Supply Annual 2007*, DOE/EIA-0340(2007)/1 (Washington, DC, July 2008). 2008 refining consumption based on: *Petroleum Supply Annual 2008,* DOE/EIA-0340(2008)/1 (Washington, DC, June 2009). Other 2007 and 2008 consumption values are based on: EIA, *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). 2007 and 2008 shipments: IHS Global Insight Industry model, August 2009. **Projections:** EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A.

Table A7. Transportation Sector Key Indicators and Delivered Energy Consumption

Key Indicators and Consumption	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Key Indicators								
Travel Indicators								
(billion vehicle miles traveled)								
Light-Duty Vehicles less than 8,500 pounds	2746	2676	2916	3193	3554	3891	4203	1.7%
Commercial Light Trucks[1]	74	70	78	85	92	99	105	1.5%
Freight Trucks greater than 10,000 pounds	241	227	248	278	304	333	363	1.7%
(billion seat miles available)								
Air	1040	1030	1163	1264	1341	1408	1470	1.3%
(billion ton miles traveled)								
Rail	1771	1806	1881	2011	2108	2187	2257	0.8%
Domestic Shipping	584	576	587	617	643	667	691	0.7%
Energy Efficiency Indicators								
(miles per gallon)								
New Light-Duty Vehicle CAFE Standard[2]	24.8	25.0	32.5	35.2	35.5	35.6	35.8	1.3%
New Car[2]	28.0	28.0	37.4	40.0	40.0	40.0	40.0	1.3%
New Light Truck[2]	22.2	22.3	27.9	29.7	29.7	29.7	29.7	1.1%
Compliance New Light-Duty Vehicle[3]	27.4	27.6	32.0	35.6	37.2	38.5	40.0	1.4%
New Car[3]	32.1	32.2	37.1	40.3	41.5	42.8	44.2	1.2%
New Light Truck[3]	23.7	23.7	27.4	30.2	31.5	32.6	33.7	1.3%
Tested New Light-Duty Vehicle[4]	27.4	27.6	30.8	34.4	35.9	37.3	38.8	1.3%
New Car[4]	32.1	32.2	35.8	39.1	40.2	41.5	43.0	1.1%
New Light Truck[4]	23.7	23.7	26.2	29.0	30.3	31.4	32.5	1.2%
On-Road New Light-Duty Vehicle[5]	22.7	22.9	25.6	28.7	30.0	31.3	32.5	1.3%
New Car[5]	26.2	26.3	29.5	32.3	33.5	34.8	36.0	1.2%
New Light Truck[5]	19.9	19.9	22.0	24.3	25.4	26.3	27.3	1.2%
Light-Duty Stock[6]	20.4	20.9	22.3	24.3	26.2	28.0	29.3	1.3%
New Commercial Light Truck[1]	15.1	15.2	16.3	17.6	18.2	18.6	19.1	0.8%
Stock Commercial Light Truck[1]	14.1	14.3	15.1	16.2	17.2	18.0	18.5	1.0%
Freight Truck	6.0	6.0	6.3	6.6	6.8	6.9	7.0	0.6%
(seat miles per gallon)								
Aircraft	61.6	61.8	63.0	64.4	65.9	67.8	69.8	0.5%
(ton miles per thousand Btu)								
Rail	3.1	3.1	3.2	3.2	3.2	3.2	3.2	0.1%
Domestic Shipping	2.0	2.0	2.0	2.0	2.0	2.0	2.1	0.2%
Energy Use by Mode								
(quadrillion Btu)								
Light-Duty Vehicles	16.62	16.06	16.27	16.28	16.75	17.21	17.73	0.4%
Commercial Light Trucks[1]	0.65	0.61	0.64	0.66	0.67	0.69	0.71	0.6%
Bus Transportation	0.26	0.26	0.28	0.30	0.31	0.33	0.35	1.1%
Freight Trucks	5.01	4.72	4.93	5.26	5.58	6.00	6.46	1.2%
Rail, Passenger	0.05	0.05	0.05	0.05	0.06	0.06	0.06	1.2%
Rail, Freight	0.61	0.58	0.60	0.64	0.66	0.68	0.70	0.7%
Shipping, Domestic	0.30	0.29	0.30	0.31	0.32	0.33	0.33	0.5%
Shipping, International	0.96	0.90	0.91	0.91	0.92	0.92	0.93	0.1%
Recreational Boats	0.25	0.25	0.26	0.27	0.28	0.29	0.29	0.6%
Air	2.75	2.64	2.78	2.99	3.12	3.21	3.28	0.8%
Military Use	0.71	0.71	0.66	0.67	0.69	0.70	0.72	0.1%
Lubricants	0.15	0.14	0.14	0.15	0.15	0.15	0.15	0.3%
Pipeline Fuel	0.64	0.64	0.61	0.63	0.72	0.74	0.74	0.5%
Total	**28.96**	**27.85**	**28.42**	**29.12**	**30.21**	**31.30**	**32.46**	**0.6%**

Table A7. Transportation Sector Key Indicators and Delivered Energy Consumption (Continued)

Key Indicators and Consumption	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Energy Use by Mode (million barrels per day oil equivalent)								
Light-Duty Vehicles	8.82	8.57	8.76	8.83	9.14	9.45	9.93	0.5%
Commercial Light Trucks[1]	0.33	0.31	0.33	0.34	0.34	0.35	0.36	0.6%
Bus Transportation	0.17	0.18	0.21	0.25	0.30	0.34	0.40	3.1%
Freight Trucks	2.41	2.27	2.37	2.53	2.68	2.89	3.11	1.2%
Rail, Passenger	0.02	0.02	0.02	0.03	0.03	0.03	0.03	1.2%
Rail, Freight	0.29	0.27	0.28	0.30	0.32	0.33	0.33	0.7%
Shipping, Domestic	0.14	0.14	0.14	0.14	0.15	0.15	0.16	0.5%
Shipping, International	0.42	0.39	0.40	0.40	0.40	0.41	0.41	0.1%
Recreational Boats	0.13	0.13	0.14	0.15	0.15	0.15	0.16	0.7%
Air	1.33	1.28	1.35	1.45	1.51	1.55	1.59	0.8%
Military Use	0.34	0.34	0.32	0.32	0.33	0.34	0.35	0.1%
Lubricants	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.3%
Pipeline Fuel	0.32	0.33	0.31	0.32	0.36	0.37	0.38	0.5%
Total	**14.80**	**14.30**	**14.70**	**15.13**	**15.77**	**16.43**	**17.27**	**0.7%**

[1]Commercial trucks 8,500 to 10,000 pounds.
[2]CAFE standard based on projected new vehicle sales.
[3]Includes CAFE credits for alternative fueled vehicle sales, but does not include banked credits used for compliance.
[4]Environmental Protection Agency rated miles per gallon.
[5]Tested new vehicle efficiency revised for on-road performance.
[6]Combined car and light truck "on-the-road" estimate.
Btu = British thermal unit.
Note: Totals may not equal sum of components due to independent rounding. Data for 2007 and 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2007 and 2008: Energy Information Administration (EIA), *Natural Gas Annual 2007*, DOE/EIA-0131(2007) (Washington, DC, January 2009); EIA, *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009); Federal Highway Administration, *Highway Statistics 2007* (Washington, DC, October 2008); Oak Ridge National Laboratory, *Transportation Energy Data Book: Edition 28 and Annual* (Oak Ridge, TN, 2009); National Highway Traffic and Safety Administration, *Summary of Fuel Economy Performance* (Washington, DC, January 15, 2008); U.S. Department of Commerce, Bureau of the Census, "Vehicle Inventory and Use Survey," EC97TV (Washington, DC, December 2004); EIA, Alternatives to Traditional Transportation Fuels 2006 (Part II - User and Fuel Data), May 2008; EIA, *State Energy Data Report 2007*, DOE/EIA-0214(2007) (Washington, DC, August 2009); U.S. Department of Transportation, Research and Special Programs Administration, *Air Carrier Statistics Monthly, December 2008/2007* (Washington, DC, 2008); EIA, *Fuel Oil and Kerosene Sales 2007*, DOE/EIA-0535(2007) (Washington, DC, December 2008); and United States Department of Defense, Defense Fuel Supply Center. **Projections:** EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A.

Table A8. Electricity Supply, Disposition, Prices, and Emissions
(Billion Kilowatthours, Unless Otherwise Noted)

Supply, Disposition, and Prices	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Generation by Fuel Type								
Electric Power Sector[1]								
Power Only[2]								
Coal	1962	1939	1977	2026	2075	2132	2222	0.5%
Petroleum	57	39	41	42	43	43	44	0.4%
Natural Gas[3]	686	682	507	568	650	778	833	0.7%
Nuclear Power	806	806	834	883	886	886	898	0.4%
Pumped Storage/Other[4]	0	1	1	1	1	1	1	-1.3%
Renewable Sources[5]	315	334	587	626	656	666	683	2.7%
Distributed Generation (Natural Gas)	0	0	0	0	0	0	0	- -
Total	**3827**	**3801**	**3946**	**4146**	**4311**	**4506**	**4680**	**0.8%**
Combined Heat and Power[6]								
Coal	36	37	30	31	31	32	32	-0.6%
Petroleum	4	4	0	0	0	0	0	-7.9%
Natural Gas	129	117	97	101	109	107	111	-0.2%
Renewable Sources	4	4	3	5	5	5	5	0.2%
Total	**178**	**165**	**130**	**137**	**145**	**144**	**148**	**-0.4%**
Total Net Generation	**4005**	**3966**	**4077**	**4283**	**4456**	**4650**	**4828**	**0.7%**
Less Direct Use	34	33	33	34	34	34	33	0.0%
Net Available to the Grid	**3971**	**3933**	**4043**	**4249**	**4422**	**4617**	**4794**	**0.7%**
End-Use Generation[7]								
Coal	18	19	31	35	40	46	51	3.8%
Petroleum	4	3	5	5	5	5	5	1.5%
Natural Gas	82	80	86	98	112	129	149	2.3%
Other Gaseous Fuels[8]	5	5	16	15	15	16	16	4.0%
Renewable Sources[9]	34	35	59	82	135	181	204	6.8%
Other[10]	10	8	7	7	7	7	7	-0.3%
Total	**154**	**150**	**204**	**243**	**314**	**383**	**431**	**4.0%**
Less Direct Use	124	119	165	192	243	295	327	3.8%
Total Sales to the Grid	**30**	**30**	**39**	**50**	**71**	**89**	**104**	**4.7%**
Total Electricity Generation by Fuel								
Coal	2017	1995	2037	2093	2147	2210	2305	0.5%
Petroleum	65	45	46	47	48	48	49	0.3%
Natural Gas	897	879	690	767	871	1015	1093	0.8%
Nuclear Power	806	806	834	883	886	886	898	0.4%
Renewable Sources[5,9]	353	373	649	713	795	852	891	3.3%
Other[11]	20	17	23	23	23	23	23	1.2%
Total Electricity Generation	**4159**	**4116**	**4280**	**4525**	**4769**	**5034**	**5259**	**0.9%**
Total Net Generation to the Grid	**4001**	**3963**	**4082**	**4300**	**4493**	**4705**	**4898**	**0.8%**
Net Imports	**31**	**33**	**20**	**20**	**22**	**20**	**25**	**-0.9%**
Electricity Sales by Sector								
Residential	1392	1379	1400	1471	1553	1637	1707	0.8%
Commercial	1336	1352	1466	1573	1687	1805	1921	1.3%
Industrial	1028	982	997	1029	1023	1017	1016	0.1%
Transportation	6	7	7	9	11	13	16	3.5%
Total	**3763**	**3720**	**3870**	**4083**	**4274**	**4472**	**4660**	**0.8%**
Direct Use	158	152	198	226	277	328	361	3.2%
Total Electricity Use	**3921**	**3873**	**4068**	**4308**	**4550**	**4801**	**5021**	**1.0%**

Table A8. Electricity Supply, Disposition, Prices, and Emissions (Continued)
(Billion Kilowatthours, Unless Otherwise Noted)

Supply, Disposition, and Prices	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
End-Use Prices								
(2008 cents per kilowatthour)								
Residential	10.9	11.4	10.7	10.9	11.0	11.4	11.8	0.2%
Commercial	9.8	10.4	9.1	9.3	9.5	9.9	10.4	-0.0%
Industrial	6.5	6.9	5.9	6.1	6.3	6.7	7.1	0.1%
Transportation	10.9	11.5	9.8	9.7	9.8	10.6	11.3	-0.1%
All Sectors Average	**9.3**	**9.8**	**8.9**	**9.0**	**9.3**	**9.7**	**10.2**	**0.1%**
(nominal cents per kilowatthour)								
Residential	10.6	11.4	11.9	13.3	14.9	17.2	19.9	2.1%
Commercial	9.6	10.4	10.1	11.3	12.8	14.9	17.4	1.9%
Industrial	6.3	6.9	6.6	7.5	8.6	10.1	11.9	2.0%
Transportation	10.7	11.5	10.9	11.9	13.3	16.0	19.1	1.9%
All Sectors Average	**9.1**	**9.8**	**9.9**	**11.1**	**12.6**	**14.7**	**17.1**	**2.1%**
Prices by Service Category								
(2008 cents per kilowatthour)								
Generation	6.2	6.7	5.5	5.8	6.1	6.5	7.0	0.1%
Transmission	0.7	0.7	0.9	0.9	0.9	0.9	0.9	1.1%
Distribution	2.4	2.4	2.5	2.5	2.4	2.4	2.4	-0.0%
(nominal cents per kilowatthour)								
Generation	6.0	6.7	6.2	7.1	8.2	9.8	11.7	2.1%
Transmission	0.7	0.7	1.0	1.1	1.2	1.3	1.5	3.0%
Distribution	2.4	2.4	2.8	3.0	3.3	3.6	3.9	1.9%
Electric Power Sector Emissions[1]								
Sulfur Dioxide (million tons)	8.93	7.61	4.69	4.23	3.79	3.70	3.77	-2.6%
Nitrogen Oxide (million tons)	3.29	3.00	2.05	2.02	2.04	2.05	2.07	-1.4%
Mercury (tons)	47.02	45.84	30.48	30.22	30.24	30.45	30.47	-1.5%

[1]Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.
[2]Includes plants that only produce electricity.
[3]Includes electricity generation from fuel cells.
[4]Includes non-biogenic municipal waste. The Energy Information Administration estimates approximately 7 billion kilowatthours of electricity were generated from a municipal waste stream containing petroleum-derived plastics and other non-renewable sources. See Energy Information Administration, *Methodology for Allocating Municipal Solid Waste to Biogenic and Non-Biogenic Energy*, (Washington, DC, May 2007).
[5]Includes conventional hydroelectric, geothermal, wood, wood waste, biogenic municipal waste, landfill gas, other biomass, solar, and wind power.
[6]Includes combined heat and power plants whose primary business is to sell electricity and heat to the public (i.e., those that report North American Industry Classification System code 22).
[7]Includes combined heat and power plants and electricity-only plants in the commercial and industrial sectors; and small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid.
[8]Includes refinery gas and still gas.
[9]Includes conventional hydroelectric, geothermal, wood, wood waste, all municipal waste, landfill gas, other biomass, solar, and wind power.
[10]Includes batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, and miscellaneous technologies.
[11]Includes pumped storage, non-biogenic municipal waste, refinery gas, still gas, batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, and miscellaneous technologies.
- - = Not applicable.
Note: Totals may not equal sum of components due to independent rounding. Data for 2007 and 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2007 and 2008 electric power sector generation; sales to utilities; net imports; electricity sales; and emissions: Energy Information Administration (EIA), *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009), and supporting databases. 2007 and 2008 prices: EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A. **Projections**: EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A.

Table A9. Electricity Generating Capacity
(Gigawatts)

Net Summer Capacity[1]	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Electric Power Sector[2]								
Power Only[3]								
Coal	304.4	303.8	315.2	315.7	315.7	318.7	324.5	0.2%
Oil and Natural Gas Steam[4]	116.2	115.5	90.8	86.8	86.8	86.8	85.8	-1.1%
Combined Cycle	150.7	156.4	168.5	168.5	175.2	201.1	211.6	1.1%
Combustion Turbine/Diesel	130.3	131.7	130.3	133.5	146.3	151.8	172.5	1.0%
Nuclear Power[5]	100.5	100.6	104.5	110.9	110.9	110.9	112.9	0.4%
Pumped Storage	21.8	21.8	21.8	21.8	21.8	21.8	21.8	0.0%
Fuel Cells	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0%
Renewable Sources[6]	100.5	109.4	154.0	154.2	156.3	159.5	167.8	1.6%
Distributed Generation[7]	0.0	0.0	0.0	0.0	0.0	0.0	0.3	- -
Total	**924.5**	**939.2**	**985.2**	**991.5**	**1013.0**	**1050.7**	**1097.1**	**0.6%**
Combined Heat and Power[8]								
Coal	4.6	4.6	4.6	4.6	4.6	4.6	4.6	-0.0%
Oil and Natural Gas Steam[4]	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.0%
Combined Cycle	31.8	31.7	32.3	32.3	32.3	32.3	32.3	0.1%
Combustion Turbine/Diesel	2.9	2.9	2.9	2.9	2.9	2.9	2.9	0.0%
Renewable Sources[6]	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.0%
Total	**40.3**	**40.3**	**40.8**	**40.8**	**40.8**	**40.8**	**40.8**	**0.0%**
Cumulative Planned Additions[9]								
Coal	0.0	0.0	15.6	15.6	15.6	15.6	15.6	- -
Oil and Natural Gas Steam[4]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	- -
Combined Cycle	0.0	0.0	13.0	13.0	13.0	13.0	13.0	- -
Combustion Turbine/Diesel	0.0	0.0	4.1	4.1	4.1	4.1	4.1	- -
Nuclear Power	0.0	0.0	1.2	1.2	1.2	1.2	1.2	- -
Pumped Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	- -
Fuel Cells	0.0	0.0	0.0	0.0	0.0	0.0	0.0	- -
Renewable Sources[6]	0.0	0.0	1.1	1.2	1.3	1.4	1.5	- -
Distributed Generation[7]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	- -
Total	**0.0**	**0.0**	**35.0**	**35.1**	**35.2**	**35.3**	**35.4**	**- -**
Cumulative Unplanned Additions[9]								
Coal	0.0	0.0	0.0	2.0	2.0	5.0	10.8	- -
Oil and Natural Gas Steam[4]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	- -
Combined Cycle	0.0	0.0	0.0	0.0	6.7	32.6	43.0	- -
Combustion Turbine/Diesel	0.0	0.0	3.6	7.0	19.8	25.6	46.3	- -
Nuclear Power	0.0	0.0	0.0	5.2	5.2	5.2	7.2	- -
Pumped Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	- -
Fuel Cells	0.0	0.0	0.0	0.0	0.0	0.0	0.0	- -
Renewable Sources[6]	0.0	0.0	43.6	43.7	45.7	48.8	57.0	- -
Distributed Generation[7]	0.0	0.0	0.0	0.0	0.0	0.0	0.3	- -
Total	**0.0**	**0.0**	**47.2**	**58.0**	**79.4**	**117.2**	**164.6**	**- -**
Cumulative Electric Power Sector Additions	**0.0**	**0.0**	**82.3**	**93.1**	**114.6**	**152.5**	**200.0**	**- -**
Cumulative Retirements[10]								
Coal	0.0	0.0	4.3	5.7	5.7	5.7	5.7	- -
Oil and Natural Gas Steam[4]	0.0	0.0	24.7	28.7	28.7	28.7	29.7	- -
Combined Cycle	0.0	0.0	0.4	0.4	0.4	0.4	0.4	- -
Combustion Turbine/Diesel	0.0	0.0	9.1	9.3	9.3	9.6	9.6	- -
Nuclear Power	0.0	0.0	0.0	0.0	0.0	0.0	0.0	- -
Pumped Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	- -
Fuel Cells	0.0	0.0	0.0	0.0	0.0	0.0	0.0	- -
Renewable Sources[6]	0.0	0.0	0.1	0.1	0.1	0.1	0.1	- -
Total	**0.0**	**0.0**	**38.5**	**44.2**	**44.2**	**44.5**	**45.5**	**- -**
Total Electric Power Sector Capacity	**964.9**	**979.5**	**1026.0**	**1032.3**	**1053.8**	**1091.5**	**1137.9**	**0.6%**

Table A9. Electricity Generating Capacity (Continued)
(Gigawatts)

Net Summer Capacity[1]	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
End-Use Generators[11]								
Coal	3.5	3.5	5.1	5.6	6.3	7.0	7.7	3.0%
Petroleum	0.9	0.9	1.2	1.2	1.2	1.2	1.2	1.2%
Natural Gas	14.7	14.7	15.2	16.7	18.6	20.9	23.7	1.8%
Other Gaseous Fuels	2.0	2.0	3.9	3.8	3.8	3.8	3.9	2.5%
Renewable Sources[6]	6.4	6.8	16.9	21.9	29.3	36.5	41.0	6.9%
Other	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.1%
Total	**28.3**	**28.5**	**43.0**	**50.0**	**59.9**	**70.2**	**78.1**	**3.8%**
Cumulative Capacity Additions[9]	**0.0**	**0.0**	**14.4**	**21.4**	**31.4**	**41.6**	**49.6**	**- -**

[1]Net summer capacity is the steady hourly output that generating equipment is expected to supply to system load (exclusive of auxiliary power), as demonstrated by tests during summer peak demand.
[2]Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.
[3]Includes plants that only produce electricity. Includes capacity increases (uprates) at existing units.
[4]Includes oil-, gas-, and dual-fired capacity.
[5]Nuclear capacity includes 4.0 gigawatts of uprates through 2035.
[6]Includes conventional hydroelectric, geothermal, wood, wood waste, all municipal waste, landfill gas, other biomass, solar, and wind power. Facilities co-firing biomass and coal are classified as coal.
[7]Primarily peak load capacity fueled by natural gas.
[8]Includes combined heat and power plants whose primary business is to sell electricity and heat to the public (i.e., those that report North American Industry Classification System code 22).
[9]Cumulative additions after December 31, 2008.
[10]Cumulative retirements after December 31, 2008.
[11]Includes combined heat and power plants and electricity-only plants in the commercial and industrial sectors; and small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid.
- - = Not applicable.
Note: Totals may not equal sum of components due to independent rounding. Data for 2007 and 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2007 and 2008 capacity and projected planned additions: Energy Information Administration (EIA), Form EIA-860, "Annual Electric Generator Report" (preliminary). **Projections:** EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A.

Table A10. Electricity Trade
(Billion Kilowatthours, Unless Otherwise Noted)

Electricity Trade	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Interregional Electricity Trade								
Gross Domestic Sales								
Firm Power	124.5	122.9	110.9	81.8	44.9	37.6	37.6	-4.3%
Economy	133.1	192.8	145.3	143.0	186.1	185.0	182.2	-0.2%
Total	**257.6**	**315.7**	**256.2**	**224.8**	**231.0**	**222.6**	**219.7**	**-1.3%**
Gross Domestic Sales (million 2008 dollars)								
Firm Power	7292.7	7197.8	6495.1	4788.3	2632.1	2200.9	2200.9	-4.3%
Economy	8933.0	15234.5	6985.2	7455.4	9667.1	10958.5	11841.1	-0.9%
Total	**16225.7**	**22432.3**	**13480.3**	**12243.7**	**12299.2**	**13159.4**	**14041.9**	**-1.7%**
International Electricity Trade								
Imports from Canada and Mexico								
Firm Power	15.8	19.9	12.0	7.3	1.5	0.4	0.4	-13.6%
Economy	35.6	37.0	29.2	33.1	39.2	37.0	41.9	0.5%
Total	**51.4**	**56.9**	**41.2**	**40.4**	**40.8**	**37.4**	**42.2**	**-1.1%**
Exports to Canada and Mexico								
Firm Power	3.9	3.3	0.9	0.5	0.1	0.0	0.0	- -
Economy	16.2	21.0	20.4	19.4	18.5	17.7	16.8	-0.8%
Total	**20.1**	**24.4**	**21.3**	**20.0**	**18.6**	**17.7**	**16.8**	**-1.4%**

- - = Not applicable.

Note: Totals may not equal sum of components due to independent rounding. Data for 2007 and 2008 are model results and may differ slightly from official EIA data reports. Firm Power Sales are capacity sales, meaning the delivery of the power is scheduled as part of the normal operating conditions of the affected electric systems. Economy Sales are subject to curtailment or cessation of delivery by the supplier in accordance with prior agreements or under specified conditions.

Sources: 2007 and 2008 interregional firm electricity trade data: North American Electric Reliability Council (NERC), Electricity Sales and Demand Database 2007. 2007 and 2008 Mexican electricity trade data: Energy Information Administration (EIA), *Annual Energy Review 2008* DOE/EIA-0384(2008) (Washington, DC, June 2009). 2007 Canadian international electricity trade data: National Energy Board, *Canadian Energy Overview 2007* (May 2008). 2008 Canadian electricity trade data: National Energy Board, *Canadian Energy Overview 2008* (May 2009). **Projections:** EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A.

Table A11. Liquid Fuels Supply and Disposition
(Million Barrels per Day, Unless Otherwise Noted)

Supply and Disposition	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Crude Oil								
Domestic Crude Production[1]	5.08	4.96	5.77	6.13	6.13	6.20	6.27	0.9%
Alaska	0.72	0.69	0.49	0.68	0.74	0.58	0.45	-1.6%
Lower 48 States	4.36	4.28	5.28	5.45	5.39	5.62	5.83	1.2%
Net Imports	10.00	9.75	8.88	8.51	8.60	8.65	8.65	-0.4%
Gross Imports	10.03	9.78	8.91	8.54	8.63	8.69	8.68	-0.4%
Exports	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.5%
Other Crude Supply[2]	0.09	-0.06	0.00	0.00	0.00	0.00	0.00	- -
Total Crude Supply	**15.17**	**14.66**	**14.66**	**14.64**	**14.73**	**14.85**	**14.92**	**0.1%**
Other Petroleum Supply	**4.97**	**4.10**	**4.05**	**4.08**	**4.01**	**3.96**	**3.98**	**-0.1%**
Natural Gas Plant Liquids	1.78	1.78	1.77	1.80	1.74	1.79	1.83	0.1%
Net Product Imports	2.09	1.39	1.24	1.16	1.10	1.01	1.02	-1.1%
Gross Refined Product Imports[3]	1.94	1.54	1.23	1.25	1.25	1.18	1.22	-0.9%
Unfinished Oil Imports	0.72	0.76	0.81	0.81	0.82	0.84	0.85	0.4%
Blending Component Imports	0.75	0.79	0.80	0.81	0.82	0.83	0.84	0.2%
Exports	1.32	1.71	1.60	1.71	1.79	1.84	1.89	0.4%
Refinery Processing Gain[4]	1.00	1.00	1.04	1.13	1.17	1.16	1.13	0.5%
Product Stock Withdrawal	0.10	-0.07	0.00	0.00	0.00	0.00	0.00	- -
Other Non-petroleum Supply	**0.57**	**0.78**	**1.42**	**1.71**	**2.11**	**2.55**	**3.11**	**5.2%**
Supply from Renewable Sources	0.48	0.71	1.10	1.28	1.63	2.02	2.58	4.9%
Ethanol	0.45	0.65	0.95	1.07	1.21	1.37	1.82	3.9%
Domestic Production	0.43	0.61	0.91	1.01	1.10	1.12	1.49	3.4%
Net Imports	0.02	0.05	0.04	0.05	0.11	0.25	0.33	7.4%
Biodiesel	0.03	0.05	0.11	0.11	0.11	0.13	0.13	3.9%
Domestic Production	0.03	0.05	0.11	0.11	0.11	0.13	0.13	3.9%
Net Imports	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Other Biomass-derived Liquids[5]	0.00	0.01	0.04	0.10	0.31	0.53	0.63	16.5%
Liquids from Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Liquids from Coal	0.00	0.00	0.07	0.11	0.15	0.20	0.24	- -
Other[6]	0.09	0.07	0.25	0.32	0.33	0.33	0.29	5.3%
Total Primary Supply[7]	**20.71**	**19.54**	**20.13**	**20.44**	**20.86**	**21.36**	**22.00**	**0.4%**
Liquid Fuels Consumption								
by Fuel								
Liquefied Petroleum Gases	2.09	1.95	2.15	2.37	2.33	2.27	2.19	0.4%
E85[8]	0.00	0.00	0.01	0.18	0.36	0.56	1.20	23.3%
Motor Gasoline[9]	9.29	8.99	9.37	9.24	9.32	9.35	9.06	0.0%
Jet Fuel[10]	1.62	1.54	1.57	1.68	1.75	1.80	1.84	0.7%
Distillate Fuel Oil[11]	4.20	3.94	4.08	4.24	4.41	4.65	4.91	0.8%
Diesel	3.47	3.44	3.56	3.75	3.93	4.20	4.48	1.0%
Residual Fuel Oil	0.72	0.62	0.66	0.66	0.66	0.67	0.67	0.3%
Other[12]	2.74	2.47	2.35	2.19	2.17	2.19	2.18	-0.5%
by Sector								
Residential and Commercial	1.05	0.98	0.89	0.85	0.83	0.81	0.79	-0.8%
Industrial[13]	5.16	4.75	4.82	4.89	4.81	4.76	4.67	-0.1%
Transportation	14.39	13.88	14.27	14.61	15.14	15.69	16.38	0.6%
Electric Power[14]	0.29	0.21	0.20	0.21	0.21	0.22	0.22	0.2%
Total	**20.65**	**19.53**	**20.18**	**20.56**	**20.99**	**21.48**	**22.06**	**0.5%**
Discrepancy[15]	**0.06**	**0.01**	**-0.05**	**-0.13**	**-0.13**	**-0.12**	**-0.06**	**- -**

Table A11. Liquid Fuels Supply and Disposition (Continued)
(Million Barrels per Day, Unless Otherwise Noted)

Supply and Disposition	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Domestic Refinery Distillation Capacity[16]	17.4	17.6	17.9	16.8	16.8	16.9	17.3	-0.1%
Capacity Utilization Rate (percent)[17]	89.0	85.0	83.7	89.0	89.5	89.6	88.3	0.1%
Net Import Share of Product Supplied (percent)	58.5	57.3	50.5	47.6	47.1	46.4	45.4	-0.9%
Net Expenditures for Imported Crude Oil and Petroleum Products (billion 2008 dollars)	287.15	437.90	301.44	329.52	356.35	383.33	420.54	-0.1%

[1]Includes lease condensate.
[2]Strategic petroleum reserve stock additions plus unaccounted for crude oil and crude stock withdrawals minus crude product supplied.
[3]Includes other hydrocarbons and alcohols.
[4]The volumetric amount by which total output is greater than input due to the processing of crude oil into products which, in total, have a lower specific gravity than the crude oil processed.
[5]Includes pyrolysis oils, biomass-derived Fischer-Tropsch liquids, and renewable feedstocks used for the production of green diesel and gasoline.
[6]Includes domestic sources of other blending components, other hydrocarbons, and ethers.
[7]Total crude supply plus natural gas plant liquids, other inputs, refinery processing gain, and net product imports.
[8]E85 refers to a blend of 85 percent ethanol (renewable) and 15 percent motor gasoline (nonrenewable). To address cold starting issues, the percentage of ethanol varies seasonally. The annual average ethanol content of 74 percent is used for this forecast.
[9]Includes ethanol and ethers blended into gasoline.
[10]Includes only kerosene type.
[11]Includes distillate fuel oil and kerosene from petroleum and biomass feedstocks.
[12]Includes aviation gasoline, petrochemical feedstocks, lubricants, waxes, asphalt, road oil, still gas, special naphthas, petroleum coke, crude oil product supplied, methanol, and miscellaneous petroleum products.
[13]Includes consumption for combined heat and power, which produces electricity and other useful thermal energy.
[14]Includes consumption of energy by electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.
[15]Balancing item. Includes unaccounted for supply, losses, and gains.
[16]End-of-year operable capacity.
[17]Rate is calculated by dividing the gross annual input to atmospheric crude oil distillation units by their operable refining capacity in barrels per calendar day.
- - = Not applicable.
Note: Totals may not equal sum of components due to independent rounding. Data for 2007 and 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2007 and 2008 petroleum product supplied based on: Energy Information Administration (EIA), *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). Other 2007 data: EIA, *Petroleum Supply Annual 2007,* DOE/EIA-0340(2007)/1 (Washington, DC, July 2008). Other 2008 data: EIA, *Petroleum Supply Annual 2008,* DOE/EIA-0340(2008)/1 (Washington, DC, June 2009). **Projections:** EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A.

Table A12. Petroleum Product Prices
(2008 Cents per Gallon, Unless Otherwise Noted)

Sector and Fuel	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Crude Oil Prices (2008 dollars per barrel)								
Imported Low Sulfur Light Crude Oil[1]	73.93	99.57	94.52	108.28	115.09	123.50	133.22	1.1%
Imported Crude Oil[1]	68.69	92.61	86.88	98.14	104.49	111.49	121.37	1.0%
Delivered Sector Product Prices								
Residential								
Liquefied Petroleum Gases	224.4	251.5	240.2	259.6	270.4	281.2	297.0	0.6%
Distillate Fuel Oil	281.6	339.3	292.4	334.2	349.9	369.1	397.5	0.6%
Commercial								
Distillate Fuel Oil	241.5	296.8	258.0	297.7	313.2	332.3	360.3	0.7%
Residual Fuel Oil	125.6	232.4	196.5	231.5	247.6	262.5	282.0	0.7%
Residual Fuel Oil (2008 dollars per barrel)	52.75	97.61	82.52	97.22	104.01	110.25	118.45	0.7%
Industrial[2]								
Liquefied Petroleum Gases	188.2	207.4	192.7	213.0	223.9	234.7	250.6	0.7%
Distillate Fuel Oil	249.5	307.4	260.9	299.6	315.4	335.0	363.6	0.6%
Residual Fuel Oil	132.3	244.1	246.5	272.4	287.9	303.5	325.1	1.1%
Residual Fuel Oil (2008 dollars per barrel)	55.57	102.52	103.52	114.41	120.91	127.46	136.54	1.1%
Transportation								
Liquefied Petroleum Gases	203.8	256.5	238.9	258.2	268.8	279.2	294.6	0.5%
Ethanol (E85)[3]	260.2	255.5	242.4	255.7	273.8	290.7	305.8	0.7%
Ethanol Wholesale Price	217.2	244.6	198.9	205.7	188.6	199.8	211.5	-0.5%
Motor Gasoline[4]	290.6	326.7	306.9	333.8	349.3	368.0	391.1	0.7%
Jet Fuel[5]	212.9	306.5	257.0	292.8	309.4	330.9	357.5	0.6%
Diesel Fuel (distillate fuel oil)[6]	295.6	379.3	314.3	350.8	364.9	383.1	410.5	0.3%
Residual Fuel Oil	137.5	216.9	203.3	224.4	238.5	255.9	278.5	0.9%
Residual Fuel Oil (2008 dollars per barrel)	57.76	91.11	85.37	94.27	100.18	107.49	116.95	0.9%
Electric Power[7]								
Distillate Fuel Oil	218.5	268.6	240.8	280.8	296.1	315.0	342.6	0.9%
Residual Fuel Oil	135.3	218.0	232.4	257.8	273.9	292.6	316.1	1.4%
Residual Fuel Oil (2008 dollars per barrel)	56.83	91.57	97.61	108.26	115.04	122.90	132.75	1.4%
Refined Petroleum Product Prices[8]								
Liquefied Petroleum Gases	162.0	173.0	174.0	189.8	200.1	210.4	226.0	1.0%
Motor Gasoline[4]	289.1	324.0	306.9	333.8	349.3	368.0	391.1	0.7%
Jet Fuel[5]	212.9	306.5	257.0	292.8	309.4	330.9	357.5	0.6%
Distillate Fuel Oil	285.0	361.2	302.3	340.2	355.2	374.4	402.5	0.4%
Residual Fuel Oil	135.8	221.1	213.4	236.7	251.4	268.8	291.3	1.0%
Residual Fuel Oil (2008 dollars per barrel)	57.03	92.85	89.64	99.43	105.61	112.92	122.34	1.0%
Average	**254.3**	**304.7**	**279.6**	**307.5**	**322.9**	**341.7**	**366.2**	**0.7%**

Table A12. Petroleum Product Prices (Continued)
(Nominal Cents per Gallon, Unless Otherwise Noted)

Sector and Fuel	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Crude Oil Prices (nominal dollars per barrel)								
Imported Low Sulfur Light Crude Oil[1]	72.32	99.57	105.33	132.33	156.20	186.40	223.88	3.0%
Imported Crude Oil[1]	67.19	92.61	96.82	119.94	141.80	168.28	203.97	3.0%
Delivered Sector Product Prices								
Residential								
Liquefied Petroleum Gases	219.5	251.5	267.7	317.3	367.0	424.4	499.1	2.6%
Distillate Fuel Oil	275.4	339.3	325.8	408.4	474.9	557.0	667.9	2.5%
Commercial								
Distillate Fuel Oil	236.2	296.8	287.6	363.9	425.1	501.6	605.5	2.7%
Residual Fuel Oil	122.9	232.4	219.0	282.9	336.1	396.2	474.0	2.7%
Residual Fuel Oil (nominal dollars per barrel)	51.60	97.61	91.96	118.82	141.15	166.40	199.06	2.7%
Industrial[2]								
Liquefied Petroleum Gases	184.1	207.4	214.8	260.3	303.9	354.2	421.2	2.7%
Distillate Fuel Oil	244.1	307.4	290.7	366.2	428.0	505.6	611.0	2.6%
Residual Fuel Oil	129.4	244.1	274.7	332.9	390.7	458.0	546.4	3.0%
Residual Fuel Oil (nominal dollars per barrel)	54.36	102.52	115.36	139.83	164.09	192.38	229.47	3.0%
Transportation								
Liquefied Petroleum Gases	199.3	256.5	266.3	315.6	364.8	421.4	495.1	2.5%
Ethanol (E85)[3]	254.6	255.5	270.1	312.5	371.6	438.8	513.9	2.6%
Ethanol Wholesale Price	212.4	244.6	221.6	251.4	256.0	301.5	355.4	1.4%
Motor Gasoline[4]	284.2	326.7	342.1	408.0	474.0	555.5	657.3	2.6%
Jet Fuel[5]	208.2	306.5	286.4	357.9	419.9	499.4	600.8	2.5%
Diesel Fuel (distillate fuel oil)[6]	289.2	379.3	350.2	428.7	495.2	578.2	689.9	2.2%
Residual Fuel Oil	134.5	216.9	226.5	274.3	323.7	386.3	468.0	2.9%
Residual Fuel Oil (nominal dollars per barrel)	56.49	91.11	95.13	115.21	135.96	162.24	196.55	2.9%
Electric Power[7]								
Distillate Fuel Oil	213.7	268.6	268.4	343.2	401.9	475.4	575.8	2.9%
Residual Fuel Oil	132.4	218.0	259.0	315.0	371.7	441.6	531.2	3.4%
Residual Fuel Oil (nominal dollars per barrel)	55.59	91.57	108.78	132.31	156.12	185.49	223.09	3.4%
Refined Petroleum Product Prices[8]								
Liquefied Petroleum Gases	158.4	173.0	193.9	232.0	271.5	317.6	379.8	3.0%
Motor Gasoline[4]	282.8	324.0	342.0	407.9	474.0	555.4	657.2	2.7%
Jet Fuel[5]	208.2	306.5	286.4	357.9	419.9	499.4	600.8	2.5%
Distillate Fuel Oil	278.7	361.2	336.9	415.8	482.1	565.1	676.4	2.4%
Residual Fuel Oil	132.8	221.1	237.9	289.3	341.2	405.8	489.5	3.0%
Residual Fuel Oil (nominal dollars per barrel)	55.79	92.85	99.90	121.51	143.32	170.42	205.59	3.0%
Average	**248.7**	**304.7**	**311.5**	**375.8**	**438.2**	**515.7**	**615.4**	**2.6%**

[1]Weighted average price delivered to U.S. refiners.
[2]Includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.
[3]E85 refers to a blend of 85 percent ethanol (renewable) and 15 percent motor gasoline (nonrenewable). To address cold starting issues, the percentage of ethanol varies seasonally. The annual average ethanol content of 74 percent is used for this forecast.
[4]Sales weighted-average price for all grades. Includes Federal, State and local taxes.
[5]Includes only kerosene type.
[6]Diesel fuel for on-road use. Includes Federal and State taxes while excluding county and local taxes.
[7]Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.
[8]Weighted averages of end-use fuel prices are derived from the prices in each sector and the corresponding sectoral consumption.
Note: Data for 2007 and 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2007 and 2008 imported low sulfur light crude oil price: Energy Information Administration (EIA), Form EIA-856, "Monthly Foreign Crude Oil Acquisition Report." 2007 and 2008 imported crude oil price: EIA, *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). 2007 and 2008 prices for motor gasoline, distillate fuel oil, and jet fuel are based on: EIA, *Petroleum Marketing Annual 2008*, DOE/EIA-0487(2008) (Washington, DC, August 2009). 2007 and 2008 residential, commercial, industrial, and transportation sector petroleum product prices are derived from: EIA, Form EIA-782A, "Refiners'/Gas Plant Operators' Monthly Petroleum Product Sales Report." 2007 and 2008 electric power prices based on: Federal Energy Regulatory Commission, FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants." 2007 and 2008 E85 prices derived from monthly prices in the Clean Cities Alternative Fuel Price Report. 2007 and 2008 wholesale ethanol prices derived from Bloomberg U.S. average rack price. **Projections:** EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A.

Table A13. Natural Gas Supply, Disposition, and Prices
(Trillion Cubic Feet per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Production								
Dry Gas Production[1]	19.09	20.56	19.29	19.98	21.31	22.38	23.27	0.5%
Supplemental Natural Gas[2]	0.06	0.05	0.06	0.06	0.06	0.06	0.06	0.6%
Net Imports	**3.79**	**2.95**	**2.38**	**2.57**	**2.17**	**1.84**	**1.46**	**-2.6%**
Pipeline[3]	3.06	2.65	1.29	1.07	0.89	0.94	0.64	-5.1%
Liquefied Natural Gas	0.72	0.30	1.09	1.50	1.28	0.89	0.83	3.8%
Total Supply	**22.94**	**23.57**	**21.73**	**22.61**	**23.54**	**24.28**	**24.80**	**0.2%**
Consumption by Sector								
Residential	4.70	4.87	4.71	4.83	4.89	4.89	4.87	0.0%
Commercial	3.01	3.12	3.23	3.33	3.45	3.55	3.69	0.6%
Industrial[4]	6.62	6.65	6.88	7.03	6.94	6.74	6.72	0.0%
Natural-Gas-to-Liquids Heat and Power[5]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Natural Gas to Liquids Production[6]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Electric Power[7]	6.84	6.66	5.18	5.66	6.28	7.04	7.42	0.4%
Transportation[8]	0.04	0.04	0.05	0.08	0.11	0.15	0.19	5.9%
Pipeline Fuel	0.62	0.63	0.60	0.62	0.70	0.72	0.72	0.5%
Lease and Plant Fuel[9]	1.18	1.28	1.08	1.09	1.19	1.23	1.25	-0.1%
Total	**23.02**	**23.25**	**21.74**	**22.63**	**23.57**	**24.33**	**24.86**	**0.2%**
Discrepancy[10]	**-0.08**	**0.32**	**-0.01**	**-0.02**	**-0.03**	**-0.05**	**-0.07**	**- -**
Natural Gas Prices								
(2008 dollars per million Btu)								
Henry Hub Spot Price	7.12	8.86	6.27	6.64	6.99	8.05	8.88	0.0%
Average Lower 48 Wellhead Price[11]	6.38	7.85	5.54	5.87	6.18	7.11	7.84	-0.0%
(2008 dollars per thousand cubic feet)								
Average Lower 48 Wellhead Price[11]	6.56	8.07	5.70	6.03	6.35	7.31	8.06	-0.0%
Delivered Prices								
(2008 dollars per thousand cubic feet)								
Residential	13.32	13.87	11.89	12.30	12.65	13.83	14.82	0.2%
Commercial	11.53	12.29	10.28	10.65	11.01	12.12	13.03	0.2%
Industrial[4]	7.80	9.38	6.63	6.89	7.22	8.21	8.99	-0.2%
Electric Power[7]	7.45	9.34	6.24	6.59	6.94	7.94	8.69	-0.3%
Transportation[12]	14.24	16.42	13.76	13.83	13.82	14.60	15.21	-0.3%
Average[13]	**9.45**	**10.83**	**8.37**	**8.68**	**9.00**	**10.01**	**10.83**	**0.0%**

Table A13. Natural Gas Supply, Disposition, and Prices (Continued)
(Trillion Cubic Feet per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Natural Gas Prices								
(nominal dollars per million Btu)								
Henry Hub Spot Price	6.96	8.86	6.99	8.11	9.49	12.15	14.92	1.9%
Average Lower 48 Wellhead Price[11]	6.24	7.85	6.17	7.17	8.38	10.73	13.18	1.9%
(nominal dollars per thousand cubic feet)								
Average Lower 48 Wellhead Price[11]	6.42	8.07	6.35	7.37	8.62	11.03	13.55	1.9%
Delivered Prices								
(nominal dollars per thousand cubic feet)								
Residential	13.03	13.87	13.25	15.03	17.16	20.88	24.90	2.2%
Commercial	11.28	12.29	11.46	13.02	14.95	18.30	21.89	2.2%
Industrial[4]	7.63	9.38	7.39	8.43	9.80	12.39	15.10	1.8%
Electric Power[7]	7.29	9.34	6.96	8.06	9.41	11.98	14.61	1.7%
Transportation[12]	13.93	16.42	15.33	16.90	18.76	22.04	25.56	1.7%
Average[13]	**9.24**	**10.83**	**9.33**	**10.61**	**12.21**	**15.11**	**18.20**	**1.9%**

[1]Marketed production (wet) minus extraction losses.
[2]Synthetic natural gas, propane air, coke oven gas, refinery gas, biomass gas, air injected for Btu stabilization, and manufactured gas commingled and distributed with natural gas.
[3]Includes any natural gas regasified in the Bahamas and transported via pipeline to Florida, as well as gas from Canada and Mexico.
[4]Includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.
[5]Includes any natural gas used in the process of converting natural gas to liquid fuel that is not actually converted.
[6]Includes any natural gas that is converted into liquid fuel.
[7]Includes consumption of energy by electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.
[8]Compressed natural gas used as vehicle fuel.
[9]Represents natural gas used in well, field, and lease operations, and in natural gas processing plant machinery.
[10]Balancing item. Natural gas lost as a result of converting flow data measured at varying temperatures and pressures to a standard temperature and pressure and the merger of different data reporting systems which vary in scope, format, definition, and respondent type. In addition, 2007 and 2008 values include net storage injections.
[11]Represents lower 48 onshore and offshore supplies.
[12]Compressed natural gas used as a vehicle fuel. Price includes estimated motor vehicle fuel taxes and estimated dispensing costs or charges.
[13]Weighted average prices. Weights used are the sectoral consumption values excluding lease, plant, and pipeline fuel.
- - = Not applicable.
Note: Totals may not equal sum of components due to independent rounding. Data for 2007 and 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2007 supply values; and lease, plant, and pipeline fuel consumption: Energy Information Administration (EIA), *Natural Gas Annual 2007*, DOE/EIA-0131(2007) (Washington, DC, January 2009). 2008 supply values; and lease, plant, and pipeline fuel consumption; and wellhead price: EIA, *Natural Gas Monthly*, DOE/EIA-0130(2009/07) (Washington, DC, July 2009). Other 2007 and 2008 consumption based on: EIA, *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). 2007 wellhead price: Minerals Management Service and EIA, *Natural Gas Annual 2007*, DOE/EIA-0131(2007) (Washington, DC, January 2009). 2007 residential and commercial delivered prices: EIA, *Natural Gas Annual 2007*, DOE/EIA-0131(2007) (Washington, DC, January 2009). 2008 residential and commercial delivered prices: EIA, *Natural Gas Monthly*, DOE/EIA-0130(2009/07) (Washington, DC, July 2009). 2007 and 2008 electric power prices: EIA, *Electric Power Monthly*, DOE/EIA-0226, April 2008 and April 2009, Table 4.13.B. 2007 and 2008 industrial delivered prices are estimated based on: EIA, *Manufacturing Energy Consumption Survey* and industrial and wellhead prices from the *Natural Gas Annual 2007*, DOE/EIA-0131(2007) (Washington, DC, January 2009) and the *Natural Gas Monthly*, DOE/EIA-0130(2009/07) (Washington, DC, July 2009). 2007 transportation sector delivered prices are based on: EIA, *Natural Gas Annual 2007*, DOE/EIA-0131(2007) (Washington, DC, January 2009) and estimated state taxes, federal taxes, and dispensing costs or charges. 2008 transportation sector delivered prices are model results. **Projections:** EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A.

Table A14. Oil and Gas Supply

Production and Supply	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Crude Oil								
Lower 48 Average Wellhead Price[1] (2008 dollars per barrel)	**68.52**	**95.24**	**90.84**	**102.00**	**108.31**	**114.75**	**124.69**	**1.0%**
Production (million barrels per day)[2]								
United States Total	5.08	4.96	5.77	6.13	6.13	6.20	6.27	0.9%
Lower 48 Onshore	2.95	3.00	3.34	3.37	3.25	3.43	3.46	0.5%
Lower 48 Offshore	1.40	1.27	1.94	2.08	2.14	2.19	2.36	2.3%
Alaska	0.72	0.69	0.49	0.68	0.74	0.58	0.45	-1.6%
Lower 48 End of Year Reserves[2] (billion barrels)	**18.65**	**17.18**	**19.41**	**20.78**	**22.44**	**23.42**	**23.57**	**1.2%**
Natural Gas								
Lower 48 Average Wellhead Price[1] (2008 dollars per million Btu)								
Henry Hub Spot Price	7.12	8.86	6.27	6.64	6.99	8.05	8.88	0.0%
Average Lower 48 Wellhead Price[1]	6.38	7.85	5.54	5.87	6.18	7.11	7.84	-0.0%
(2008 dollars per thousand cubic feet)								
Average Lower 48 Wellhead Price[1]	6.56	8.07	5.70	6.03	6.35	7.31	8.06	-0.0%
Dry Production (trillion cubic feet)[3]								
United States Total	19.09	20.56	19.29	19.98	21.31	22.38	23.27	0.5%
Lower 48 Onshore	15.70	17.56	16.09	16.23	15.96	16.59	17.07	-0.1%
Associated-Dissolved[4]	1.31	1.39	1.44	1.42	1.25	1.12	1.03	-1.1%
Non-Associated	14.39	16.17	14.65	14.80	14.71	15.47	16.04	-0.0%
Conventional[5]	11.33	12.71	8.92	8.41	8.00	8.13	8.11	-1.7%
Unconventional	3.06	3.46	5.73	6.40	6.71	7.35	7.93	3.1%
Shale Gas	1.15	1.49	3.85	4.51	4.94	5.50	6.00	5.3%
Coalbed Methane	1.91	1.97	1.89	1.88	1.77	1.85	1.93	-0.1%
Lower 48 Offshore	2.98	2.62	2.91	3.48	3.46	3.91	4.33	1.9%
Associated-Dissolved[4]	0.62	0.55	0.79	0.93	0.90	0.95	1.00	2.2%
Non-Associated	2.36	2.06	2.12	2.55	2.56	2.96	3.33	1.8%
Alaska	0.41	0.38	0.29	0.27	1.88	1.88	1.87	6.1%
Lower 48 End of Year Dry Reserves[3] (trillion cubic feet)	**225.81**	**235.63**	**254.61**	**260.13**	**259.77**	**263.33**	**267.94**	**0.5%**
Supplemental Gas Supplies (trillion cubic feet)[6]	**0.06**	**0.05**	**0.06**	**0.06**	**0.06**	**0.06**	**0.06**	**0.6%**
Total Lower 48 Wells Drilled (thousands)	**50.94**	**55.72**	**54.40**	**56.08**	**56.68**	**59.04**	**60.93**	**0.3%**

[1]Represents lower 48 onshore and offshore supplies.
[2]Includes lease condensate.
[3]Marketed production (wet) minus extraction losses.
[4]Gas which occurs in crude oil reservoirs either as free gas (associated) or as gas in solution with crude oil (dissolved).
[5]Includes tight gas.
[6]Synthetic natural gas, propane air, coke oven gas, refinery gas, biomass gas, air injected for Btu stabilization, and manufactured gas commingled and distributed with natural gas.

Note: Totals may not equal sum of components due to independent rounding. Data for 2007 and 2008 are model results and may differ slightly from official EIA data reports.

Sources: 2007 and 2008 crude oil lower 48 average wellhead price: Energy Information Administration (EIA), *Petroleum Marketing Annual 2008*, DOE/EIA-0487(2008) (Washington, DC, August 2009). 2007 and 2008 lower 48 onshore, lower 48 offshore, and Alaska crude oil production: EIA, *Petroleum Supply Annual 2008,* DOE/EIA-0340(2008)/1 (Washington, DC, June 2009). 2007 U.S. crude oil and natural gas reserves: EIA, *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves*, DOE/EIA-0216(2008) (Washington, DC, October 2009). 2007 Alaska and total natural gas production, and supplemental gas supplies: EIA, *Natural Gas Annual 2007*, DOE/EIA-0131(2007) (Washington, DC, January 2009). 2007 natural gas lower 48 average wellhead price: Minerals Management Service and EIA, *Natural Gas Annual 2007*, DOE/EIA-0131(2007) (Washington, DC, January 2009). 2008 natural gas lower 48 average wellhead price, Alaska and total natural gas production, and supplemental gas supplies: EIA, *Natural Gas Monthly*, DOE/EIA-0130(2009/07) (Washington, DC, July 2009). Other 2007 and 2008 values: EIA, Office of Integrated Analysis and Forecasting. **Projections:** EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A.

Table A15. Coal Supply, Disposition, and Prices
(Million Short Tons per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Production[1]								
Appalachia	378	391	317	305	291	278	277	-1.3%
Interior	147	147	184	198	199	197	208	1.3%
West	621	634	654	681	744	785	800	0.9%
East of the Mississippi	478	493	444	444	422	407	415	-0.6%
West of the Mississippi	668	678	710	740	813	854	870	0.9%
Total	**1147**	**1172**	**1155**	**1183**	**1234**	**1260**	**1285**	**0.3%**
Waste Coal Supplied[2]	**14**	**14**	**16**	**15**	**15**	**14**	**15**	**0.3%**
Net Imports								
Imports[3]	34	32	30	37	34	38	53	1.9%
Exports	59	82	60	53	48	36	33	-3.3%
Total	**-25**	**-49**	**-30**	**-15**	**-14**	**2**	**20**	**- -**
Total Supply[4]	**1136**	**1136**	**1141**	**1183**	**1235**	**1276**	**1320**	**0.6%**
Consumption by Sector								
Residential and Commercial	4	4	3	3	3	3	3	-0.2%
Coke Plants	23	22	20	20	19	17	14	-1.7%
Other Industrial[5]	57	55	53	53	53	52	51	-0.2%
Coal-to-Liquids Heat and Power	0	0	11	17	24	31	37	- -
Coal to Liquids Production	0	0	9	15	20	26	31	- -
Electric Power[6]	1045	1042	1044	1073	1116	1147	1183	0.5%
Total	**1128**	**1122**	**1141**	**1183**	**1235**	**1276**	**1319**	**0.6%**
Discrepancy and Stock Change[7]	**8**	**15**	**-0**	**0**	**0**	**0**	**0**	**- -**
Average Minemouth Price[8]								
(2008 dollars per short ton)	26.40	31.26	30.38	30.01	28.19	27.43	28.10	-0.4%
(2008 dollars per million Btu)	1.30	1.55	1.52	1.51	1.44	1.41	1.44	-0.3%
Delivered Prices (2008 dollars per short ton)[9]								
Coke Plants	97.09	118.09	132.98	139.25	137.06	133.66	132.10	0.4%
Other Industrial[5]	55.64	63.44	57.43	56.95	56.11	56.74	57.88	-0.3%
Coal to Liquids	- -	- -	20.14	20.37	21.22	20.91	22.34	- -
Electric Power								
(2008 dollars per short ton)	36.08	40.71	39.46	38.90	38.49	39.29	40.74	0.0%
(2008 dollars per million Btu)	1.80	2.05	2.01	1.98	1.99	2.03	2.09	0.1%
Average	**38.31**	**43.36**	**41.58**	**40.95**	**40.16**	**40.44**	**41.42**	**-0.2%**
Exports[10]	71.82	97.68	109.63	124.95	113.11	102.92	96.29	-0.1%

Table A15. Coal Supply, Disposition, and Prices (Continued)
(Million Short Tons per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Average Minemouth Price[8]								
(nominal dollars per short ton)	25.82	31.26	33.86	36.67	38.25	41.40	47.23	1.5%
(nominal dollars per million Btu)	1.27	1.55	1.69	1.84	1.95	2.13	2.43	1.7%
Delivered Prices (nominal dollars per short ton)[9]								
Coke Plants	94.97	118.09	148.19	170.18	186.00	201.73	221.99	2.4%
Other Industrial[5]	54.42	63.44	64.00	69.59	76.14	85.64	97.27	1.6%
Coal to Liquids	- -	- -	22.44	24.90	28.80	31.55	37.54	- -
Electric Power								
(nominal dollars per short ton)	35.29	40.71	43.97	47.55	52.24	59.30	68.46	1.9%
(nominal dollars per million Btu)	1.76	2.05	2.24	2.42	2.69	3.06	3.51	2.0%
Average	**37.47**	**43.36**	**46.34**	**50.05**	**54.50**	**61.03**	**69.60**	**1.8%**
Exports[10]	70.25	97.68	122.17	152.70	153.50	155.34	161.81	1.9%

[1]Includes anthracite, bituminous coal, subbituminous coal, and lignite.
[2]Includes waste coal consumed by the electric power and industrial sectors. Waste coal supplied is counted as a supply-side item to balance the same amount of waste coal included in the consumption data.
[3]Excludes imports to Puerto Rico and the U.S. Virgin Islands.
[4]Production plus waste coal supplied plus net imports.
[5]Includes consumption for combined heat and power plants, except those plants whose primary business is to sell electricity, or electricity and heat, to the public. Excludes all coal use in the coal-to-liquids process.
[6]Includes all electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.
[7]Balancing item: the sum of production, net imports, and waste coal supplied minus total consumption.
[8]Includes reported prices for both open market and captive mines.
[9]Prices weighted by consumption; weighted average excludes residential and commercial prices, and export free-alongside-ship (f.a.s.) prices.
[10]F.a.s. price at U.S. port of exit.
- - = Not applicable.
Btu = British thermal unit.
Note: Totals may not equal sum of components due to independent rounding. Data for 2007 and 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2007 and 2008 data based on: Energy Information Administration (EIA), *Annual Coal Report 2008*, DOE/EIA-0584(2008) (Washington, DC, September 2009); EIA, *Quarterly Coal Report, October-December 2008*, DOE/EIA-0121(2008/4Q) (Washington, DC, March 2009); and EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A. **Projections:** EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A.

Table A16. Renewable Energy Generating Capacity and Generation
(Gigawatts, Unless Otherwise Noted)

Capacity and Generation	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Electric Power Sector[1]								
Net Summer Capacity								
Conventional Hydropower	76.51	76.51	77.03	77.03	77.34	77.34	77.52	0.0%
Geothermal[2]	2.35	2.44	3.24	3.24	3.27	3.53	3.82	1.7%
Municipal Waste[3]	3.42	3.43	4.75	4.75	4.75	4.75	4.75	1.2%
Wood and Other Biomass[4,5]	2.09	2.17	4.46	4.46	4.75	6.92	11.87	6.5%
Solar Thermal	0.53	0.53	0.87	0.89	0.91	0.93	0.96	2.2%
Solar Photovoltaic[6]	0.04	0.05	0.14	0.22	0.31	0.40	0.45	8.6%
Wind	16.19	24.89	63.98	64.05	65.42	66.08	68.88	3.8%
Offshore Wind	0.00	0.00	0.20	0.20	0.20	0.20	0.20	- -
Total	**101.14**	**110.01**	**154.68**	**154.84**	**156.95**	**160.15**	**168.45**	**1.6%**
Generation (billion kilowatthours)								
Conventional Hydropower	245.13	245.45	296.56	296.63	298.57	298.64	299.45	0.7%
Geothermal[2]	14.64	14.86	23.53	23.54	23.79	25.88	28.13	2.4%
Biogenic Municipal Waste[7]	13.88	14.49	24.95	24.95	24.95	24.95	24.95	2.0%
Wood and Other Biomass[5]	10.59	10.90	47.22	86.80	109.06	114.66	117.45	9.2%
Dedicated Plants	8.65	9.00	26.78	27.11	29.85	46.51	82.01	8.5%
Cofiring	1.94	1.90	20.44	59.69	79.21	68.15	35.43	11.4%
Solar Thermal	0.60	0.81	1.80	1.87	1.94	2.02	2.10	3.6%
Solar Photovoltaic[6]	0.01	0.03	0.34	0.54	0.76	0.98	1.13	14.2%
Wind	34.45	52.03	195.18	195.47	200.51	202.88	213.84	5.4%
Offshore Wind	0.00	0.00	0.75	0.75	0.75	0.75	0.75	- -
Total	**319.29**	**338.56**	**590.33**	**630.56**	**660.33**	**670.76**	**687.80**	**2.7%**
End-Use Generators[8]								
Net Summer Capacity								
Conventional Hydropower[9]	0.68	0.69	0.69	0.69	0.69	0.69	0.69	0.0%
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Municipal Waste[10]	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.0%
Biomass	4.88	4.86	6.31	9.04	16.04	22.07	24.51	6.2%
Solar Photovoltaic[6]	0.47	0.80	8.07	9.91	10.27	11.28	13.14	10.9%
Wind	0.08	0.09	1.52	1.92	2.01	2.11	2.29	12.5%
Total	**6.45**	**6.77**	**16.92**	**21.89**	**29.34**	**36.48**	**40.96**	**6.9%**
Generation (billion kilowatthours)								
Conventional Hydropower[9]	2.38	3.35	3.35	3.35	3.35	3.35	3.35	0.0%
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	- -
Municipal Waste[10]	2.01	2.02	2.79	2.79	2.79	2.79	2.79	1.2%
Biomass	28.43	27.89	37.25	57.37	109.23	153.77	172.75	7.0%
Solar Photovoltaic[6]	0.74	1.26	13.12	16.12	16.73	18.43	21.58	11.1%
Wind	0.10	0.12	2.10	2.66	2.79	2.94	3.19	12.9%
Total	**33.65**	**34.63**	**58.60**	**82.28**	**134.88**	**181.28**	**203.65**	**6.8%**

Table A16. Renewable Energy Generating Capacity and Generation (Continued)
(Gigawatts, Unless Otherwise Noted)

Capacity and Generation	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Total, All Sectors								
Net Summer Capacity								
Conventional Hydropower	77.20	77.19	77.72	77.72	78.03	78.03	78.21	0.0%
Geothermal	2.35	2.44	3.24	3.24	3.27	3.53	3.82	1.7%
Municipal Waste	3.75	3.77	5.08	5.08	5.08	5.08	5.08	1.1%
Wood and Other Biomass[4,5]	6.98	7.02	10.76	13.50	20.80	28.99	36.38	6.3%
Solar[6]	1.04	1.38	9.08	11.02	11.49	12.60	14.55	9.1%
Wind	16.27	24.98	65.71	66.17	67.63	68.39	71.36	4.0%
Total	**107.59**	**116.78**	**171.60**	**176.73**	**186.29**	**196.63**	**209.40**	**2.2%**
Generation (billion kilowatthours)								
Conventional Hydropower	247.51	248.79	299.91	299.98	301.92	301.99	302.80	0.7%
Geothermal	14.64	14.86	23.53	23.54	23.79	25.88	28.13	2.4%
Municipal Waste	15.89	16.51	27.74	27.74	27.74	27.74	27.74	1.9%
Wood and Other Biomass[5]	39.01	38.79	84.47	144.17	218.29	268.44	290.19	7.7%
Solar[6]	1.35	2.10	15.26	18.53	19.44	21.43	24.81	9.6%
Wind	34.55	52.15	198.03	198.88	204.05	206.57	217.78	5.4%
Total	**352.95**	**373.20**	**648.94**	**712.84**	**795.22**	**852.04**	**891.45**	**3.3%**

[1]Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.
[2]Includes hydrothermal resources only (hot water and steam).
[3]Includes municipal waste, landfill gas, and municipal sewage sludge. Incremental growth is assumed to be for landfill gas facilities. All municipal waste is included, although a portion of the municipal waste stream contains petroleum-derived plastics and other non-renewable sources.
[4]Facilities co-firing biomass and coal are classified as coal.
[5]Includes projections for energy crops after 2012.
[6]Does not include off-grid photovoltaics (PV). Based on annual PV shipments from 1989 through 2007, EIA estimates that as much as 221 megawatts of remote electricity generation PV applications (i.e., off-grid power systems) were in service in 2007, plus an additional 542 megawatts in communications, transportation, and assorted other non-grid-connected, specialized applications. See Energy Information Administration, *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009), Table 10.9 (annual PV shipments, 1989-2007). The approach used to develop the estimate, based on shipment data, provides an upper estimate of the size of the PV stock, including both grid-based and off-grid PV. It will overestimate the size of the stock, because shipments include a substantial number of units that are exported, and each year some of the PV units installed earlier will be retired from service or abandoned.
[7]Includes biogenic municipal waste, landfill gas, and municipal sewage sludge. Incremental growth is assumed to be for landfill gas facilities. Only biogenic municipal waste is included. The Energy Information Administration estimates that in 2007 approximately 6 billion kilowatthours of electricity were generated from a municipal waste stream containing petroleum-derived plastics and other non-renewable sources. See Energy Information Administration, *Methodology for Allocating Municipal Solid Waste to Biogenic and Non-Biogenic Energy* (Washington, DC, May 2007).
[8]Includes combined heat and power plants and electricity-only plants in the commercial and industrial sectors; and small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid.
[9]Represents own-use industrial hydroelectric power.
[10]Includes municipal waste, landfill gas, and municipal sewage sludge. All municipal waste is included, although a portion of the municipal waste stream contains petroleum-derived plastics and other non-renewable sources.
- - = Not applicable.
Note: Totals may not equal sum of components due to independent rounding. Data for 2007 and 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2007 and 2008 capacity: Energy Information Administration (EIA), Form EIA-860, "Annual Electric Generator Report" (preliminary). 2007 and 2008 generation: EIA, *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). **Projections:** EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A.

Table A17. Renewable Energy, Consumption by Sector and Source[1]
(Quadrillion Btu per Year)

Sector and Source	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Marketed Renewable Energy[2]								
Residential (wood)	**0.41**	**0.45**	**0.40**	**0.42**	**0.42**	**0.42**	**0.43**	**-0.1%**
Commercial (biomass)	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.0%**
Industrial[3]	**2.02**	**2.53**	**2.37**	**2.70**	**3.23**	**3.69**	**4.39**	**2.1%**
Conventional Hydroelectric	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.0%
Municipal Waste[4]	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.1%
Biomass	1.42	1.30	1.39	1.48	1.54	1.59	1.63	0.8%
Biofuels Heat and Coproducts	0.40	1.03	0.77	1.02	1.49	1.90	2.56	3.4%
Transportation	**0.64**	**0.96**	**1.53**	**1.81**	**2.41**	**3.10**	**3.92**	**5.4%**
Ethanol used in E85[5]	0.00	0.00	0.01	0.17	0.34	0.54	1.15	23.3%
Ethanol used in Gasoline Blending	0.58	0.84	1.22	1.20	1.22	1.23	1.20	1.3%
Biodiesel used in Distillate Blending	0.06	0.09	0.21	0.23	0.22	0.25	0.25	3.9%
Liquids from Biomass	0.00	0.00	0.04	0.16	0.56	1.04	1.27	- -
Green Liquids	0.00	0.02	0.05	0.05	0.06	0.04	0.04	2.6%
Electric Power[6]	**3.45**	**3.65**	**6.27**	**6.69**	**7.00**	**7.13**	**7.26**	**2.6%**
Conventional Hydroelectric	2.42	2.43	2.93	2.93	2.95	2.95	2.96	0.7%
Geothermal	0.31	0.31	0.57	0.57	0.58	0.65	0.73	3.2%
Biogenic Municipal Waste[7]	0.17	0.17	0.31	0.31	0.31	0.31	0.31	2.3%
Biomass	0.21	0.22	0.50	0.91	1.14	1.18	1.11	6.1%
Dedicated Plants	0.14	0.14	0.30	0.31	0.33	0.47	0.74	6.3%
Cofiring	0.07	0.08	0.21	0.61	0.81	0.71	0.37	5.8%
Solar Thermal	0.01	0.01	0.02	0.02	0.02	0.02	0.02	3.6%
Solar Photovoltaic	0.00	0.00	0.00	0.01	0.01	0.01	0.01	14.2%
Wind	0.34	0.51	1.94	1.94	1.99	2.01	2.12	5.4%
Total Marketed Renewable Energy	**6.62**	**7.68**	**10.68**	**11.72**	**13.16**	**14.44**	**16.10**	**2.8%**
Sources of Ethanol								
From Corn	0.55	0.78	1.17	1.19	1.26	1.28	1.49	2.4%
From Cellulose	0.00	0.00	0.02	0.12	0.16	0.16	0.43	- -
Imports	0.03	0.06	0.05	0.07	0.14	0.32	0.43	7.4%
Total	**0.58**	**0.84**	**1.23**	**1.38**	**1.56**	**1.76**	**2.35**	**3.9%**

Table A17. Renewable Energy, Consumption by Sector and Source[1] (Continued)
(Quadrillion Btu per Year)

Sector and Source	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Nonmarketed Renewable Energy[8] Selected Consumption								
Residential	**0.01**	**0.01**	**0.07**	**0.09**	**0.09**	**0.10**	**0.11**	**10.4%**
Solar Hot Water Heating	0.00	0.00	0.00	0.00	0.00	0.01	0.01	2.1%
Geothermal Heat Pumps	0.00	0.00	0.02	0.03	0.03	0.04	0.04	9.5%
Solar Photovoltaic	0.00	0.00	0.04	0.05	0.05	0.05	0.05	19.0%
Wind	0.00	0.00	0.01	0.01	0.01	0.01	0.01	19.2%
Commercial	**0.03**	**0.03**	**0.04**	**0.04**	**0.04**	**0.05**	**0.05**	**2.3%**
Solar Thermal	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.7%
Solar Photovoltaic	0.00	0.00	0.01	0.01	0.01	0.01	0.02	6.4%
Wind	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.3%

[1]Actual heat rates used to determine fuel consumption for all renewable fuels except hydropower, solar, and wind. Consumption at hydroelectric, solar, and wind facilities determined by using the fossil fuel equivalent of 9,884 Btu per kilowatthour.

[2]Includes nonelectric renewable energy groups for which the energy source is bought and sold in the marketplace, although all transactions may not necessarily be marketed, and marketed renewable energy inputs for electricity entering the marketplace on the electric power grid. Excludes electricity imports; see Table A2.

[3]Includes all electricity production by industrial and other combined heat and power for the grid and for own use.

[4]Includes municipal waste, landfill gas, and municipal sewage sludge. All municipal waste is included, although a portion of the municipal waste stream contains petroleum-derived plastics and other non-renewable sources.

[5]Excludes motor gasoline component of E85.

[6]Includes consumption of energy by electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.

[7]Includes biogenic municipal waste, landfill gas, and municipal sewage sludge. Incremental growth is assumed to be for landfill gas facilities. Only biogenic municipal waste is included. The Energy Information Administration estimates that in 2007 approximately 0.3 quadrillion Btus were consumed from a municipal waste stream containing petroleum-derived plastics and other non-renewable sources. See Energy Information Administration, *Methodology for Allocating Municipal Solid Waste to Biogenic and Non-Biogenic Energy* (Washington, DC, May 2007).

[8]Includes selected renewable energy consumption data for which the energy is not bought or sold, either directly or indirectly as an input to marketed energy. The Energy Information Administration does not estimate or project total consumption of nonmarketed renewable energy.

- - = Not applicable.

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 2007 and 2008 are model results and may differ slightly from official EIA data reports.

Sources: 2007 and 2008 ethanol: Energy Information Administration (EIA), *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). 2007 and 2008 electric power sector: EIA, Form EIA-860, "Annual Electric Generator Report" (preliminary). Other 2007 and 2008 values: EIA, Office of Integrated Analysis and Forecasting. **Projections:** EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A.

Table A18. Carbon Dioxide Emissions by Sector and Source
(Million Metric Tons, Unless Otherwise Noted)

Sector and Source	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Residential								
Petroleum	87	80	72	67	63	60	58	-1.2%
Natural Gas	257	265	257	263	267	267	266	0.0%
Coal	1	1	1	1	1	1	0	-1.2%
Electricity[1]	891	875	824	844	885	927	965	0.4%
Total	**1235**	**1220**	**1153**	**1175**	**1216**	**1255**	**1289**	**0.2%**
Commercial								
Petroleum	44	41	40	38	38	38	37	-0.4%
Natural Gas	164	170	176	182	188	194	201	0.6%
Coal	7	6	6	6	6	6	6	0.0%
Electricity[1]	856	858	862	903	961	1022	1086	0.9%
Total	**1071**	**1075**	**1085**	**1130**	**1194**	**1261**	**1331**	**0.8%**
Industrial[2]								
Petroleum	417	385	397	390	387	391	390	0.0%
Natural Gas[3]	404	409	420	429	430	423	423	0.1%
Coal	177	172	171	181	186	189	188	0.3%
Electricity[1]	658	623	586	591	582	576	574	-0.3%
Total	**1655**	**1589**	**1574**	**1590**	**1586**	**1578**	**1575**	**-0.0%**
Transportation								
Petroleum[4]	1985	1889	1879	1914	1970	2028	2065	0.3%
Natural Gas[5]	35	36	35	38	44	47	50	1.2%
Electricity[1]	4	4	4	5	6	8	9	3.0%
Total	**2025**	**1929**	**1918**	**1957**	**2021**	**2083**	**2125**	**0.4%**
Electric Power[6]								
Petroleum	55	40	35	36	37	37	38	-0.2%
Natural Gas	372	362	283	308	342	384	404	0.4%
Coal	1971	1946	1947	1987	2043	2100	2180	0.4%
Other[7]	12	12	12	12	12	12	12	0.0%
Total	**2409**	**2359**	**2277**	**2343**	**2434**	**2533**	**2634**	**0.4%**
Total by Fuel								
Petroleum[3]	2589	2436	2422	2445	2496	2554	2588	0.2%
Natural Gas	1232	1242	1171	1220	1272	1315	1345	0.3%
Coal	2155	2125	2125	2175	2236	2296	2376	0.4%
Other[7]	12	12	12	12	12	12	12	0.0%
Total	**5986**	**5814**	**5731**	**5851**	**6016**	**6176**	**6320**	**0.3%**
Carbon Dioxide Emissions (tons per person)	**19.8**	**19.0**	**17.5**	**17.1**	**16.8**	**16.5**	**16.2**	**-0.6%**

[1]Emissions from the electric power sector are distributed to the end-use sectors.
[2]Fuel consumption includes energy for combined heat and power plants, except those plants whose primary business is to sell electricity, or electricity and heat, to the public.
[3]Includes lease and plant fuel.
[4]This includes carbon dioxide from international bunker fuels, both civilian and military, which are excluded from the accounting of carbon dioxide emissions under the United Nations convention. From 1990 through 2008, international bunker fuels accounted for 86 to 130 million metric tons annually.
[5]Includes pipeline fuel natural gas and compressed natural gas used as vehicle fuel.
[6]Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.
[7]Includes emissions from geothermal power and nonbiogenic emissions from municipal waste.
Note: Totals may not equal sum of components due to independent rounding. Data for 2007 and 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2007 and 2008 emissions and emission factors: Energy Information Administration (EIA), *Emissions of Greenhouse Gases in the United States 2008,* DOE/EIA-0573(2008) (Washington, DC, December 2009). **Projections:** EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A.

Table A19. Energy-Related Carbon Dioxide Emissions by End Use
(Million Metric Tons)

Sector and Source	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Residential								
Space Heating	282.53	289.92	267.63	266.98	265.74	262.58	259.98	-0.4%
Space Cooling	170.72	144.00	143.47	146.33	152.90	159.15	164.77	0.5%
Water Heating	165.45	164.53	163.75	168.19	171.03	169.05	164.76	0.0%
Refrigeration	71.48	69.90	62.10	62.69	64.97	68.33	71.63	0.1%
Cooking	32.94	33.04	33.42	34.70	36.00	37.42	38.75	0.6%
Clothes Dryers	53.45	52.99	50.92	51.42	53.25	55.63	57.68	0.3%
Freezers	15.15	14.86	13.63	13.90	14.43	15.01	15.59	0.2%
Lighting	136.32	134.71	97.95	89.78	86.20	85.58	86.49	-1.6%
Clothes Washers[1]	6.47	6.31	5.16	4.55	4.50	4.70	4.89	-0.9%
Dishwashers[1]	17.51	17.21	15.78	16.18	17.30	18.50	19.64	0.5%
Color Televisions and Set-Top Boxes	60.76	64.14	67.57	69.81	73.77	78.24	82.98	1.0%
Personal Computers and Related Equipment	28.48	31.17	32.95	32.35	32.54	34.37	35.28	0.5%
Furnace Fans and Boiler Circulation Pumps	24.13	25.62	25.89	27.45	29.76	30.87	31.66	0.8%
Other Uses	169.99	174.12	173.01	190.90	213.54	235.34	255.39	1.4%
Discrepancy[2]	0.10	-2.18	0.00	-0.00	0.00	-0.00	0.00	- -
Total Residential	**1235.49**	**1220.34**	**1153.24**	**1175.21**	**1215.92**	**1254.76**	**1289.49**	**0.2%**
Commercial								
Space Heating[3]	119.84	125.84	121.41	121.42	121.61	120.35	118.90	-0.2%
Space Cooling[3]	105.04	94.70	96.71	99.04	103.14	107.54	112.17	0.6%
Water Heating[3]	42.73	42.01	42.97	44.75	46.76	47.98	49.01	0.6%
Ventilation	91.87	91.92	95.19	99.08	104.51	109.07	112.97	0.8%
Cooking	13.12	13.12	13.82	14.39	15.11	15.67	16.21	0.8%
Lighting	198.68	193.19	178.58	181.18	187.41	193.09	198.73	0.1%
Refrigeration	75.22	75.18	61.97	59.05	59.64	61.46	64.10	-0.6%
Office Equipment (PC)	40.01	41.96	41.43	40.61	40.81	42.38	43.03	0.1%
Office Equipment (non-PC)	40.90	44.17	54.90	62.10	67.50	72.73	76.91	2.1%
Other Uses[4]	343.32	353.26	377.86	408.02	447.10	490.32	538.70	1.6%
Total Commercial	**1070.73**	**1075.35**	**1084.84**	**1129.64**	**1193.59**	**1260.59**	**1330.73**	**0.8%**
Industrial								
Manufacturing								
Refining	252.93	266.30	287.20	295.60	310.27	324.85	341.97	0.9%
Food Products	100.43	100.19	101.47	106.04	111.96	117.46	123.83	0.8%
Paper Products	93.07	88.60	80.84	80.66	80.11	79.37	79.15	-0.4%
Bulk Chemicals	321.82	294.24	285.03	279.21	268.46	255.48	241.94	-0.7%
Glass	17.20	17.33	16.59	18.45	19.38	20.04	19.85	0.5%
Cement Manufacturing	41.63	38.73	36.68	38.40	38.33	37.77	35.74	-0.3%
Iron and Steel	140.11	126.80	113.79	122.17	115.24	101.27	80.51	-1.7%
Aluminum	43.56	42.47	40.33	38.33	35.67	32.69	29.63	-1.3%
Fabricated Metal Products	44.84	43.35	40.36	40.19	38.63	36.81	34.90	-0.8%
Machinery	22.56	21.59	21.82	22.48	22.11	21.79	21.01	-0.1%
Computers and Electronics	24.90	23.78	28.34	31.59	31.44	31.11	32.81	1.2%
Transportation Equipment	45.37	41.17	45.61	42.50	41.93	44.66	49.17	0.7%
Electrical Equipment	17.76	17.28	15.95	16.59	16.88	17.40	17.88	0.1%
Wood Products	17.37	16.29	18.70	18.27	17.08	16.24	15.99	-0.1%
Plastics	42.78	40.47	39.58	40.16	41.45	42.79	44.24	0.3%
Balance of Manufacturing	172.70	162.15	145.06	146.22	144.04	143.54	146.95	-0.4%
Total Manufacturing	1399.03	1340.74	1317.36	1336.84	1333.00	1323.26	1315.57	-0.1%
Nonmanufacturing								
Agriculture	85.24	88.58	83.41	82.05	82.07	82.66	84.24	-0.2%
Mining	74.41	68.80	74.07	74.84	72.04	70.60	69.96	0.1%
Construction	82.70	81.80	74.71	72.45	70.91	69.66	69.22	-0.6%
Total Nonmanufacturing	242.34	239.17	232.19	229.34	225.02	222.92	223.42	-0.3%
Discrepancy[2]	14.11	9.36	24.74	23.72	27.60	31.73	36.48	- -
Total Industrial	**1655.48**	**1589.27**	**1574.29**	**1589.91**	**1585.62**	**1577.91**	**1575.47**	**-0.0%**

Table A19. Energy-Related Carbon Dioxide Emissions by End Use (Continued)
(Million Metric Tons)

Sector and Source	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Transportation								
Light-Duty Vehicles	1150.40	1098.07	1070.56	1061.28	1081.68	1101.06	1097.22	-0.0%
Commercial Light Trucks[5]	45.87	42.64	43.46	44.64	45.31	46.61	48.17	0.5%
Bus Transportation	17.92	17.20	17.74	18.18	18.55	18.76	18.96	0.4%
Freight Trucks	361.62	338.57	346.46	369.91	392.68	421.14	454.26	1.1%
Rail, Passenger	5.83	5.84	5.96	6.33	6.70	7.08	7.45	0.9%
Rail, Freight	43.83	41.62	42.23	44.92	46.97	48.41	49.82	0.7%
Shipping, Domestic	22.22	21.78	21.61	22.49	23.21	23.83	24.46	0.4%
Shipping, International	75.26	70.49	70.83	71.35	71.84	72.30	72.76	0.1%
Recreational Boats	17.66	17.00	17.39	17.99	18.62	19.19	19.70	0.5%
Air	194.85	187.28	197.09	211.87	221.07	227.35	232.61	0.8%
Military Use	50.57	50.30	46.94	47.90	49.00	50.03	51.05	0.1%
Lubricants	5.65	5.20	5.30	5.41	5.49	5.60	5.70	0.3%
Pipeline Fuel	33.97	34.21	32.57	33.65	38.05	39.09	39.52	0.5%
Discrepancy[2]	-0.99	-0.79	0.23	0.78	1.46	2.21	3.01	- -
Total Transportation	**2024.67**	**1929.42**	**1918.35**	**1956.71**	**2020.64**	**2082.65**	**2124.70**	**0.4%**

[1]Does not include water heating portion of load.
[2]Represents differences between total emissions by end-use and total emissions by fuel as reported in Table A18. Emissions by fuel may reflect benchmarking and other modeling adjustments to energy use and the associated emissions that are not assigned to specific end uses.
[3]Includes emissions related to fuel consumption for district services.
[4]Includes miscellaneous uses, such as service station equipment, automated teller machines, telecommunications equipment, medical equipment, pumps, emergency generators, combined heat and power in commercial buildings, manufacturing performed in commercial buildings, and cooking (distillate), plus emissions from residual fuel oil, liquefied petroleum gases, coal, motor gasoline, and kerosene.
[5]Commercial trucks 8,500 to 10,000 pounds.
- - = Not applicable.
Note: Totals may not equal sum of components due to independent rounding. Data for 2007 and 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2007 and 2008 emissions and emission factors: Energy Information Administration (EIA), *Emissions of Greenhouse Gases in the United States 2008,* DOE/EIA-0573(2008) (Washington, DC, December 2009). **Projections:** EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A.

Table A20. Macroeconomic Indicators
(Billion 2000 Chain-Weighted Dollars, Unless Otherwise Noted)

Indicators	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Real Gross Domestic Product	**11524**	**11652**	**13289**	**15416**	**17561**	**19883**	**22362**	**2.4%**
Components of Real Gross Domestic Product								
Real Consumption	8253	8272	9343	10776	12348	14082	15932	2.5%
Real Investment	1810	1689	2178	2600	2988	3486	4104	3.3%
Real Government Spending	2012	2070	2085	2202	2319	2446	2569	0.8%
Real Exports	1426	1514	2000	2839	3773	4882	6211	5.4%
Real Imports	1972	1904	2240	2822	3574	4591	5881	4.3%
Energy Intensity (thousand Btu per 2000 dollar of GDP)								
Delivered Energy	6.41	6.23	5.52	4.89	4.43	4.02	3.68	-1.9%
Total Energy	8.82	8.59	7.65	6.81	6.16	5.59	5.12	-1.9%
Price Indices								
GDP Chain-type Price Index (2000=1.000)	1.198	1.225	1.365	1.497	1.662	1.849	2.059	1.9%
Consumer Price Index (1982-4=1.00)								
All-urban	2.07	2.15	2.43	2.72	3.07	3.46	3.92	2.2%
Energy Commodities and Services	2.08	2.36	2.41	2.81	3.23	3.79	4.46	2.4%
Wholesale Price Index (1982=1.00)								
All Commodities	1.73	1.90	1.93	2.09	2.24	2.42	2.62	1.2%
Fuel and Power	1.78	2.14	2.04	2.38	2.76	3.29	3.92	2.3%
Metals and Metal Products	1.93	2.13	2.19	2.30	2.36	2.41	2.45	0.5%
Interest Rates (percent, nominal)								
Federal Funds Rate	5.02	1.93	4.72	5.10	5.07	5.19	5.19	- -
10-Year Treasury Note	4.63	3.67	5.44	5.74	5.84	5.90	5.89	- -
AA Utility Bond Rate	5.94	6.19	7.22	7.59	7.79	8.05	8.30	- -
Value of Shipments (billion 2000 dollars)								
Service Sectors	19128	18812	20956	23808	27205	31356	36289	2.5%
Total Industrial	5652	5408	6044	6651	6997	7401	7786	1.4%
Nonmanufacturing	1436	1394	1547	1644	1673	1722	1776	0.9%
Manufacturing	4215	4014	4497	5006	5324	5680	6010	1.5%
Energy-Intensive	1238	1230	1315	1406	1467	1515	1542	0.8%
Non-energy Intensive	2977	2784	3182	3600	3856	4164	4468	1.8%
Total Shipments	**24779**	**24220**	**27001**	**30458**	**34202**	**38757**	**44074**	**2.2%**
Population and Employment (millions)								
Population, with Armed Forces Overseas	302.4	305.4	326.7	342.6	358.6	374.7	390.7	0.9%
Population, aged 16 and over	237.2	240.0	257.4	270.3	283.6	297.2	310.7	1.0%
Population, over age 65	38.0	38.8	47.0	55.0	64.2	72.3	77.7	2.6%
Employment, Nonfarm	137.5	137.0	142.5	151.0	157.4	165.2	171.4	0.8%
Employment, Manufacturing	13.9	13.4	12.2	12.1	11.3	11.4	12.8	-0.2%
Key Labor Indicators								
Labor Force (millions)	153.1	154.3	161.4	167.2	171.4	176.6	183.4	0.6%
Nonfarm Labor Productivity (1992=1.00)	1.37	1.41	1.57	1.75	1.96	2.17	2.39	2.0%
Unemployment Rate (percent)	4.63	5.81	7.32	5.28	5.31	5.36	5.49	- -
Key Indicators for Energy Demand								
Real Disposable Personal Income	8644	8753	10091	11967	13974	16069	18168	2.7%
Housing Starts (millions)	1.44	0.98	1.88	2.03	1.89	1.78	1.70	2.0%
Commercial Floorspace (billion square feet)	77.3	78.8	85.1	91.1	97.5	103.9	110.5	1.3%
Unit Sales of Light-Duty Vehicles (millions)	16.09	13.13	17.25	17.43	17.92	19.00	20.09	1.6%

GDP = Gross domestic product.
Btu = British thermal unit.
- - = Not applicable.
Sources: 2007 and 2008: IHS Global Insight Industry and Employment models, August 2009. **Projections:** Energy Information Administration, AEO2010 National Energy Modeling System run AEO2010R.D111809A.

Table A21. International Liquids Supply and Disposition Summary
(Million Barrels per Day, Unless Otherwise Noted)

Supply and Disposition	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Crude Oil Prices (2008 dollars per barrel)[1]								
Imported Low Sulfur Light Crude Oil	73.93	99.57	94.52	108.28	115.09	123.50	133.22	1.1%
Imported Crude Oil	68.69	92.61	86.88	98.14	104.49	111.49	121.37	1.0%
Crude Oil Prices (nominal dollars per barrel)[1]								
Imported Low Sulfur Light Crude Oil	72.32	99.57	105.33	132.33	156.20	186.40	223.88	3.0%
Imported Crude Oil	67.19	92.61	96.82	119.94	141.80	168.28	203.97	3.0%
Conventional Production (Conventional)[2]								
OPEC[3]								
Middle East	23.06	24.24	25.42	26.57	27.87	29.50	30.94	0.9%
North Africa	4.02	4.06	4.42	4.31	4.32	4.33	4.53	0.4%
West Africa	4.12	4.18	5.30	5.65	5.87	6.09	6.43	1.6%
South America	2.58	2.50	2.14	2.37	2.60	2.63	2.75	0.4%
Total OPEC	**33.78**	**34.98**	**37.28**	**38.90**	**40.65**	**42.56**	**44.64**	**0.9%**
Non-OPEC								
OECD								
United States (50 states)	8.14	7.68	8.83	9.37	9.32	9.34	9.14	0.6%
Canada	2.05	1.84	1.52	1.23	1.10	1.01	1.02	-2.2%
Mexico	3.50	3.19	2.12	1.76	1.88	2.08	2.21	-1.3%
OECD Europe[4]	5.23	4.96	3.66	3.11	2.95	2.88	2.96	-1.9%
Japan	0.13	0.13	0.14	0.15	0.16	0.17	0.17	1.0%
Australia and New Zealand	0.63	0.65	0.57	0.55	0.54	0.55	0.57	-0.5%
Total OECD	**19.69**	**18.46**	**16.83**	**16.18**	**15.96**	**16.04**	**16.08**	**-0.5%**
Non-OECD								
Russia	9.87	9.79	9.71	10.92	11.63	12.03	12.68	1.0%
Other Europe and Eurasia[5]	2.88	2.88	4.22	4.42	4.63	4.98	5.27	2.3%
China	3.91	3.97	3.62	3.46	3.27	3.15	3.27	-0.7%
Other Asia[6]	3.75	3.76	3.66	3.62	3.56	3.38	3.49	-0.3%
Middle East	1.52	1.54	1.63	1.36	1.30	1.26	1.31	-0.6%
Africa	2.41	2.39	2.49	2.52	2.63	2.70	2.84	0.6%
Brazil	1.94	1.95	3.08	3.93	4.44	4.88	5.18	3.7%
Other Central and South America	1.79	1.82	1.68	1.65	1.82	2.11	2.28	0.8%
Total Non-OECD	**28.08**	**28.09**	**30.09**	**31.88**	**33.28**	**34.50**	**36.32**	**1.0%**
Total Conventional Production	**81.55**	**81.53**	**84.21**	**86.96**	**89.89**	**93.09**	**97.05**	**0.6%**
Unconventional Production[7]								
United States (50 states)	0.46	0.66	1.14	1.34	1.72	2.11	2.86	5.6%
Other North America	1.39	1.53	2.88	3.49	4.10	4.57	4.84	4.4%
OECD Europe[4]	0.16	0.25	0.40	0.48	0.56	0.61	0.64	3.6%
Middle East	0.00	0.00	0.10	0.20	0.21	0.22	0.23	15.2%
Africa.	0.22	0.23	0.35	0.49	0.57	0.65	0.70	4.3%
Central and South America	0.94	1.09	1.48	1.95	2.41	2.81	3.10	3.9%
Other	0.28	0.23	0.36	0.67	1.23	1.82	2.28	8.9%
Total Unconventional Production	**3.46**	**3.98**	**6.71**	**8.61**	**10.79**	**12.79**	**14.65**	**4.9%**
Total Production	**85.01**	**85.51**	**90.92**	**95.57**	**100.68**	**105.88**	**111.69**	**1.0%**

Table A21. International Liquids Supply and Disposition Summary (Continued)
(Million Barrels per Day, Unless Otherwise Noted)

Supply and Disposition	Reference Case							Annual Growth 2008-2035 (percent)
	2007	2008	2015	2020	2025	2030	2035	
Consumption[8]								
OECD								
United States (50 states)	20.65	19.53	20.18	20.56	20.99	21.48	22.06	0.5%
United States Territories	0.39	0.40	0.49	0.53	0.57	0.62	0.62	1.6%
Canada	2.40	2.40	2.34	2.37	2.45	2.55	2.65	0.4%
Mexico	1.62	1.61	1.65	1.81	1.88	1.95	2.02	0.8%
OECD Europe[3]	15.30	15.30	14.36	14.57	14.58	14.58	14.59	-0.2%
Japan	5.00	4.90	4.88	4.99	4.85	4.72	4.59	-0.2%
South Korea	2.83	2.83	2.75	2.59	2.63	2.65	2.67	-0.2%
Australia and New Zealand	1.05	1.05	1.10	1.18	1.24	1.30	1.37	1.0%
Total OECD	**49.24**	**48.03**	**47.75**	**48.60**	**49.20**	**49.84**	**50.55**	**0.2%**
Non-OECD								
Russia	2.66	2.71	2.70	2.72	2.70	2.67	2.64	-0.1%
Other Europe and Eurasia[5]	2.34	2.39	2.34	2.32	2.41	2.50	2.59	0.3%
China	7.60	8.00	10.42	12.36	14.21	15.77	17.50	2.9%
India	2.33	2.37	3.06	3.80	4.18	4.57	5.00	2.8%
Other Asia[6]	6.68	6.73	7.19	7.66	8.50	9.40	10.40	1.6%
Middle East	6.30	6.61	7.62	8.18	9.01	10.06	11.23	2.0%
Africa	3.09	3.24	3.53	3.57	3.70	3.79	3.89	0.7%
Brazil	2.27	2.38	2.86	3.11	3.49	3.94	4.45	2.3%
Other Central and South America	3.44	3.57	3.45	3.25	3.28	3.34	3.44	-0.1%
Total Non-OECD	**36.71**	**38.00**	**43.17**	**46.97**	**51.48**	**56.04**	**61.14**	**1.8%**
Total Consumption	**85.95**	**86.03**	**90.92**	**95.57**	**100.68**	**105.88**	**111.69**	**1.0%**
OPEC Production[9]	34.39	35.63	38.11	39.97	41.91	44.04	46.26	1.0%
Non-OPEC Production[9]	50.62	49.88	52.80	55.60	58.77	61.84	65.43	1.0%
Net Eurasia Exports	9.70	9.52	11.96	14.23	15.58	16.72	17.90	2.4%
OPEC Market Share (percent)	40.5	41.7	41.9	41.8	41.6	41.6	41.4	- -

[1]Weighted average price delivered to U.S. refiners.
[2]Includes production of crude oil (including lease condensate), natural gas plant liquids, other hydrogen and hydrocarbons for refinery feedstocks, alcohol and other sources, and refinery gains.
[3]OPEC = Organization of Petroleum Exporting Countries - Algeria, Angola, Ecuador, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, and Venezuela.
[4]OECD Europe = Organization for Economic Cooperation and Development - Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland, Turkey, and the United Kingdom.
[5]Other Europe and Eurasia = Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Macedonia, Malta, Moldova, Montenegro, Romania, Serbia, Slovenia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan.
[6]Other Asia = Afghanistan, Bangladesh, Bhutan, Brunei, Cambodia (Kampuchea), Fiji, French Polynesia, Guam, Hong Kong, Indonesia, Kiribati, Laos, Malaysia, Macau, Maldives, Mongolia, Myanmar (Burma), Nauru, Nepal, New Caledonia, Niue, North Korea, Pakistan, Papua New Guinea, Philippines, Samoa, Singapore, Solomon Islands, Sri Lanka, Taiwan, Thailand, Tonga, Vanuatu, and Vietnam.
[7]Includes liquids produced from energy crops, natural gas, coal, extra-heavy oil, oil sands, and shale. Includes both OPEC and non-OPEC producers in the regional breakdown.
[8]Includes both OPEC and non-OPEC consumers in the regional breakdown.
[9]Includes both conventional and unconventional liquids production.
- - = Not applicable.
Note: Totals may not equal sum of components due to independent rounding. Data for 2007 and 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2007 and 2008 low sulfur light crude oil price: Energy Information Administration (EIA), Form EIA-856, "Monthly Foreign Crude Oil Acquisition Report." 2007 and 2008 imported crude oil price: EIA, *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). 2007 quantities derived from: EIA, *International Energy Annual 2007*, DOE/EIA-0219(2007) (Washington, DC, August 2009). **2008 quantities and projections:** EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A and EIA, Generate World Oil Balance Model.

Economic Growth Case Comparisons

Table B1. Total Energy Supply, Disposition, and Price Summary
(Quadrillion Btu per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	2008	Projections								
		2015			2025			2035		
		Low Economic Growth	Reference	High Economic Growth	Low Economic Growth	Reference	High Economic Growth	Low Economic Growth	Reference	High Economic Growth
Production										
Crude Oil and Lease Condensate	10.51	12.40	12.41	12.42	12.83	13.22	13.39	13.51	13.50	13.69
Natural Gas Plant Liquids	2.57	2.27	2.27	2.30	2.26	2.24	2.37	2.22	2.37	2.48
Dry Natural Gas	21.14	19.68	19.83	20.12	20.32	21.90	23.17	22.28	23.92	25.26
Coal[1]	23.86	22.96	23.31	23.60	22.81	24.36	25.17	23.54	25.19	27.08
Nuclear Power	8.46	8.75	8.75	8.75	9.29	9.29	9.35	9.26	9.41	9.98
Hydropower	2.46	2.94	2.96	3.00	2.97	2.98	3.00	2.97	2.99	3.03
Biomass[2]	3.97	4.49	4.60	4.81	5.98	6.90	7.11	7.35	9.27	11.30
Other Renewable Energy[3]	1.17	2.33	3.01	4.12	2.45	3.07	4.24	2.57	3.36	4.65
Other[4]	0.10	0.65	0.73	0.80	0.86	0.94	1.04	0.73	0.81	1.05
Total	**74.23**	**76.46**	**77.88**	**79.93**	**79.79**	**84.91**	**88.84**	**84.43**	**90.83**	**98.51**
Imports										
Crude Oil	21.39	18.76	19.66	20.77	18.01	19.21	21.33	16.65	19.34	22.28
Liquid Fuels and Other Petroleum[5]	6.38	5.27	5.54	5.81	5.13	5.76	6.36	5.09	6.08	7.13
Natural Gas	4.06	3.50	3.59	3.66	3.86	3.94	4.29	3.08	3.49	4.07
Other Imports[6]	0.96	0.78	0.79	0.79	0.97	0.88	0.93	0.91	1.32	1.42
Total	**32.79**	**28.31**	**29.58**	**31.04**	**27.98**	**29.80**	**32.90**	**25.72**	**30.23**	**34.90**
Exports										
Petroleum[7]	3.71	3.48	3.53	3.59	3.79	3.91	4.07	3.93	4.12	4.37
Natural Gas	1.01	1.15	1.14	1.13	1.74	1.69	1.64	2.13	1.96	1.80
Coal	2.07	1.49	1.49	1.49	1.12	1.20	1.13	0.77	0.79	0.82
Total	**6.80**	**6.11**	**6.16**	**6.20**	**6.65**	**6.80**	**6.84**	**6.82**	**6.87**	**6.99**
Discrepancy[8]	**0.13**	**-0.29**	**-0.30**	**-0.28**	**-0.24**	**-0.35**	**-0.41**	**-0.29**	**-0.32**	**-0.30**
Consumption										
Liquid Fuels and Other Petroleum[9]	38.35	37.59	38.81	40.23	37.50	40.14	43.11	37.49	42.02	46.82
Natural Gas	23.91	22.10	22.35	22.73	22.52	24.24	25.91	23.33	25.56	27.66
Coal[10]	22.41	21.99	22.35	22.64	22.25	23.63	24.52	23.14	25.11	26.99
Nuclear Power	8.46	8.75	8.75	8.75	9.29	9.29	9.35	9.26	9.41	9.98
Hydropower	2.46	2.94	2.96	3.00	2.97	2.98	3.00	2.97	2.99	3.03
Biomass[11]	3.10	3.05	3.17	3.38	4.15	4.70	4.98	4.68	5.83	7.33
Other Renewable Energy[3]	1.17	2.33	3.01	4.12	2.45	3.07	4.24	2.57	3.36	4.65
Other[12]	0.24	0.20	0.20	0.20	0.21	0.21	0.22	0.18	0.22	0.26
Total	**100.09**	**98.94**	**101.61**	**105.04**	**101.35**	**108.26**	**115.32**	**103.62**	**114.51**	**126.72**
Prices (2008 dollars per unit)										
Petroleum (dollars per barrel)										
Imported Low Sulfur Light Crude Oil Price[13]	99.57	92.93	94.52	96.00	112.85	115.09	118.95	128.73	133.22	138.80
Imported Crude Oil Price[13]	92.61	85.06	86.88	88.52	100.92	104.49	109.41	116.42	121.37	127.98
Natural Gas (dollars per million Btu)										
Price at Henry Hub	8.86	5.99	6.27	6.48	6.86	6.99	7.83	7.50	8.88	9.73
Wellhead Price[14]	7.85	5.29	5.54	5.73	6.06	6.18	6.92	6.62	7.84	8.59
Natural Gas (dollars per thousand cubic feet)										
Wellhead Price[14]	8.07	5.44	5.70	5.89	6.23	6.35	7.11	6.81	8.06	8.83
Coal (dollars per ton)										
Minemouth Price[15]	31.26	29.96	30.38	30.59	27.54	28.19	28.57	27.06	28.10	29.56
Coal (dollars per million Btu)										
Minemouth Price[15]	1.55	1.50	1.52	1.53	1.40	1.44	1.46	1.39	1.44	1.52
Average Delivered Price[16]	2.16	2.08	2.11	2.12	2.04	2.07	2.11	2.06	2.13	2.21
Average Electricity Price (cents per kilowatthour)	9.8	8.6	8.9	9.1	9.0	9.3	9.8	9.3	10.2	10.9

Table B1. Total Energy Supply and Disposition Summary (Continued)
(Quadrillion Btu per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	2008	Projections								
		2015			2025			2035		
		Low Economic Growth	Reference	High Economic Growth	Low Economic Growth	Reference	High Economic Growth	Low Economic Growth	Reference	High Economic Growth
Prices (nominal dollars per unit)										
Petroleum (dollars per barrel)										
Imported Low Sulfur Light Crude Oil Price[13]	99.57	107.49	105.33	102.10	170.24	156.20	143.29	251.80	223.88	195.45
Imported Crude Oil Price[13]	92.61	98.39	96.82	94.14	152.23	141.80	131.80	227.71	203.97	180.22
Natural Gas (dollars per million Btu)										
Price at Henry Hub	8.86	6.93	6.99	6.89	10.34	9.49	9.44	14.66	14.92	13.69
Wellhead Price[14]	7.85	6.12	6.17	6.09	9.14	8.38	8.34	12.95	13.18	12.10
Natural Gas (dollars per thousand cubic feet)										
Wellhead Price[14]	8.07	6.29	6.35	6.26	9.40	8.62	8.57	13.31	13.55	12.43
Coal (dollars per ton)										
Minemouth Price[15]	31.26	34.66	33.86	32.54	41.55	38.25	34.41	52.93	47.23	41.63
Coal (dollars per million Btu)										
Minemouth Price[15]	1.55	1.73	1.69	1.63	2.12	1.95	1.76	2.72	2.43	2.14
Average Delivered Price[16]	2.16	2.41	2.35	2.26	3.07	2.81	2.54	4.03	3.58	3.11
Average Electricity Price (cents per kilowatthour)	9.8	10.0	9.9	9.6	13.6	12.6	11.8	18.2	17.1	15.3

[1]Includes waste coal.
[2]Includes grid-connected electricity from wood and wood waste; biomass, such as corn, used for liquid fuels production; and non-electric energy demand from wood. Refer to Table A17 for details.
[3]Includes grid-connected electricity from landfill gas; biogenic municipal waste; wind; photovoltaic and solar thermal sources; and non-electric energy from renewable sources, such as active and passive solar systems. Excludes electricity imports using renewable sources and nonmarketed renewable energy. See Table A17 for selected nonmarketed residential and commercial renewable energy.
[4]Includes non-biogenic municipal waste, liquid hydrogen, methanol, and some domestic inputs to refineries.
[5]Includes imports of finished petroleum products, unfinished oils, alcohols, ethers, blending components, and renewable fuels such as ethanol.
[6]Includes coal, coal coke (net), and electricity (net).
[7]Includes crude oil and petroleum products.
[8]Balancing item. Includes unaccounted for supply, losses, gains, and net storage withdrawals.
[9]Includes petroleum-derived fuels and non-petroleum derived fuels, such as ethanol and biodiesel, and coal-based synthetic liquids. Petroleum coke, which is a solid, is included. Also included are natural gas plant liquids and crude oil consumed as a fuel. Refer to Table A17 for detailed renewable liquid fuels consumption.
[10]Excludes coal converted to coal-based synthetic liquids and coal-based synthetic natural gas.
[11]Includes grid-connected electricity from wood and wood waste, non-electric energy from wood, and biofuels heat and coproducts used in the production of liquid fuels, but excludes the energy content of the liquid fuels.
[12]Includes non-biogenic municipal waste and net electricity imports.
[13]Weighted average price delivered to U.S. refiners.
[14]Represents lower 48 onshore and offshore supplies.
[15]Includes reported prices for both open market and captive mines.
[16]Prices weighted by consumption; weighted average excludes residential and commercial prices, and export free-alongside-ship (f.a.s.) prices.
Btu = British thermal unit.
Note: Totals may not equal sum of components due to independent rounding. Data for 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2008 natural gas supply values and natural gas wellhead price: EIA, *Natural Gas Monthly*, DOE/EIA-0130(2009/07) (Washington, DC, July 2009). 2008 coal minemouth and delivered coal prices: EIA, *Annual Coal Report 2008*, DOE/EIA-0584(2008) (Washington, DC, September 2009). 2008 petroleum supply values: EIA, *Petroleum Supply Annual 2008,* DOE/EIA-0340(2008)/1 (Washington, DC, June 2009). 2008 low sulfur light crude oil price: EIA, Form EIA-856, "Monthly Foreign Crude Oil Acquisition Report." Other 2008 coal values: *Quarterly Coal Report, October-December 2008*, DOE/EIA-0121(2008/4Q) (Washington, DC, March 2009). Other 2008 values: EIA, *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). **Projections:** EIA, AEO2010 National Energy Modeling System runs LM2010.D011110A, AEO2010R.D111809A, and HM2010.D020310A.

Table B2. Energy Consumption by Sector and Source
(Quadrillion Btu per Year, Unless Otherwise Noted)

Sector and Source	2008	Projections								
		2015			2025			2035		
		Low Economic Growth	Reference	High Economic Growth	Low Economic Growth	Reference	High Economic Growth	Low Economic Growth	Reference	High Economic Growth
Energy Consumption										
Residential										
Liquefied Petroleum Gases	0.45	0.41	0.41	0.41	0.39	0.40	0.41	0.38	0.40	0.42
Kerosene	0.04	0.04	0.04	0.04	0.03	0.03	0.04	0.03	0.03	0.03
Distillate Fuel Oil	0.68	0.59	0.59	0.59	0.48	0.49	0.49	0.41	0.41	0.42
Liquid Fuels and Other Petroleum Subtotal	1.18	1.03	1.04	1.04	0.91	0.92	0.93	0.82	0.85	0.87
Natural Gas	5.01	4.81	4.85	4.89	4.84	5.04	5.21	4.70	5.01	5.36
Coal	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Renewable Energy[1]	0.45	0.40	0.40	0.41	0.41	0.42	0.44	0.40	0.43	0.47
Electricity	4.71	4.73	4.78	4.83	5.07	5.30	5.52	5.38	5.83	6.29
Delivered Energy	**11.34**	**10.98**	**11.07**	**11.18**	**11.23**	**11.69**	**12.11**	**11.31**	**12.12**	**13.00**
Electricity Related Losses	10.20	10.09	10.24	10.53	10.65	11.08	11.58	11.13	11.79	12.70
Total	**21.54**	**21.06**	**21.31**	**21.70**	**21.88**	**22.76**	**23.69**	**22.44**	**23.92**	**25.69**
Commercial										
Liquefied Petroleum Gases	0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Motor Gasoline[2]	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Kerosene	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Distillate Fuel Oil	0.36	0.31	0.31	0.30	0.28	0.28	0.28	0.26	0.26	0.26
Residual Fuel Oil	0.07	0.09	0.09	0.09	0.08	0.09	0.09	0.09	0.09	0.09
Liquid Fuels and Other Petroleum Subtotal	0.58	0.55	0.55	0.55	0.52	0.53	0.53	0.51	0.52	0.53
Natural Gas	3.21	3.30	3.32	3.35	3.44	3.55	3.62	3.67	3.79	3.97
Coal	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Renewable Energy[3]	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Electricity	4.61	4.94	5.00	5.08	5.53	5.76	5.99	6.20	6.55	6.96
Delivered Energy	**8.58**	**8.96**	**9.04**	**9.15**	**9.66**	**10.00**	**10.32**	**10.55**	**11.04**	**11.63**
Electricity Related Losses	10.00	10.54	10.72	11.06	11.61	12.03	12.58	12.83	13.27	14.05
Total	**18.58**	**19.50**	**19.77**	**20.21**	**21.28**	**22.03**	**22.91**	**23.38**	**24.30**	**25.69**
Industrial[4]										
Liquefied Petroleum Gases	2.14	2.23	2.31	2.41	2.20	2.55	2.87	1.88	2.35	2.87
Motor Gasoline[2]	0.30	0.28	0.30	0.33	0.27	0.30	0.34	0.25	0.30	0.35
Distillate Fuel Oil	1.19	1.12	1.19	1.27	1.05	1.17	1.30	1.00	1.17	1.33
Residual Fuel Oil	0.18	0.14	0.14	0.15	0.13	0.14	0.15	0.11	0.13	0.15
Petrochemical Feedstocks	1.12	0.99	1.09	1.20	0.73	0.82	0.96	0.68	0.81	0.96
Other Petroleum[5]	4.05	3.78	4.01	4.25	3.63	3.89	4.29	3.41	3.92	4.39
Liquid Fuels and Other Petroleum Subtotal	8.99	8.52	9.04	9.61	8.01	8.87	9.91	7.33	8.70	10.06
Natural Gas	6.84	6.82	7.08	7.40	6.43	7.14	7.79	6.02	6.91	7.97
Natural-Gas-to-Liquids Heat and Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lease and Plant Fuel[6]	1.32	1.10	1.11	1.12	1.12	1.23	1.29	1.22	1.29	1.34
Natural Gas Subtotal	8.16	7.93	8.19	8.52	7.55	8.37	9.07	7.24	8.20	9.31
Metallurgical Coal	0.58	0.50	0.52	0.55	0.44	0.50	0.56	0.28	0.36	0.44
Other Industrial Coal	1.17	1.05	1.07	1.10	1.03	1.07	1.12	0.98	1.04	1.10
Coal-to-Liquids Heat and Power	0.00	0.16	0.16	0.16	0.33	0.34	0.36	0.52	0.55	0.59
Net Coal Coke Imports	0.04	0.01	0.01	0.01	0.00	0.01	0.02	-0.01	-0.00	0.01
Coal Subtotal	1.79	1.72	1.76	1.82	1.80	1.92	2.06	1.77	1.95	2.14
Biofuels Heat and Coproducts	1.03	0.77	0.77	0.80	1.14	1.49	1.52	1.70	2.56	3.35
Renewable Energy[7]	1.50	1.52	1.59	1.68	1.58	1.74	1.92	1.54	1.83	2.13
Electricity	3.35	3.24	3.40	3.58	3.12	3.49	3.86	2.88	3.47	4.06
Delivered Energy	**24.81**	**23.70**	**24.76**	**26.00**	**23.20**	**25.88**	**28.34**	**22.46**	**26.70**	**31.05**
Electricity Related Losses	7.26	6.91	7.29	7.79	6.56	7.29	8.10	5.95	7.01	8.19
Total	**32.07**	**30.61**	**32.05**	**33.79**	**29.76**	**33.18**	**36.44**	**28.42**	**33.72**	**39.24**

Table B2. Energy Consumption by Sector and Source (Continued)

(Quadrillion Btu per Year, Unless Otherwise Noted)

Sector and Source	2008	Projections								
		2015			2025			2035		
		Low Economic Growth	Reference	High Economic Growth	Low Economic Growth	Reference	High Economic Growth	Low Economic Growth	Reference	High Economic Growth
Transportation										
Liquefied Petroleum Gases	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.04
E85[8]	0.01	0.07	0.01	0.01	0.44	0.52	0.44	1.26	1.75	2.55
Motor Gasoline[2]	16.76	16.64	17.02	17.43	16.17	16.91	17.93	15.48	16.44	17.27
Jet Fuel[9]	3.15	3.18	3.26	3.34	3.44	3.62	3.82	3.46	3.80	4.17
Distillate Fuel Oil[10]	6.09	6.02	6.32	6.65	6.41	7.13	7.89	6.99	8.28	9.65
Residual Fuel Oil	0.93	0.94	0.94	0.94	0.95	0.96	0.97	0.96	0.97	0.99
Other Petroleum[11]	0.17	0.17	0.17	0.18	0.18	0.18	0.18	0.18	0.19	0.19
Liquid Fuels and Other Petroleum Subtotal	27.14	27.03	27.73	28.57	27.60	29.34	31.25	28.36	31.47	34.86
Pipeline Fuel Natural Gas	0.64	0.61	0.61	0.63	0.62	0.72	0.76	0.70	0.74	0.80
Compressed Natural Gas	0.04	0.05	0.05	0.06	0.10	0.11	0.12	0.17	0.19	0.23
Liquid Hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.02	0.02	0.03	0.03	0.03	0.04	0.05	0.05	0.06	0.07
Delivered Energy	**27.85**	**27.72**	**28.42**	**29.27**	**28.36**	**30.21**	**32.18**	**29.29**	**32.46**	**35.96**
Electricity Related Losses	0.05	0.05	0.05	0.06	0.07	0.08	0.10	0.10	0.11	0.14
Total	**27.90**	**27.77**	**28.48**	**29.33**	**28.43**	**30.29**	**32.28**	**29.39**	**32.58**	**36.10**
Delivered Energy Consumption for All Sectors										
Liquefied Petroleum Gases	2.70	2.73	2.82	2.93	2.70	3.06	3.40	2.37	2.87	3.43
E85[8]	0.01	0.07	0.01	0.01	0.44	0.52	0.44	1.26	1.75	2.55
Motor Gasoline[2]	17.12	16.98	17.38	17.81	16.50	17.28	18.32	15.80	16.80	17.68
Jet Fuel[9]	3.15	3.18	3.26	3.34	3.44	3.62	3.82	3.46	3.80	4.17
Kerosene	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Distillate Fuel Oil	8.33	8.03	8.40	8.81	8.22	9.07	9.96	8.66	10.13	11.66
Residual Fuel Oil	1.19	1.16	1.17	1.18	1.16	1.18	1.21	1.16	1.19	1.23
Petrochemical Feedstocks	1.12	0.99	1.09	1.20	0.73	0.82	0.96	0.68	0.81	0.96
Other Petroleum[12]	4.21	3.94	4.17	4.42	3.80	4.06	4.46	3.57	4.10	4.57
Liquid Fuels and Other Petroleum Subtotal	37.89	37.14	38.35	39.76	37.04	39.66	42.63	37.02	41.53	46.32
Natural Gas	15.10	14.99	15.31	15.70	14.82	15.84	16.74	14.56	15.91	17.52
Natural-Gas-to-Liquids Heat and Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lease and Plant Fuel[6]	1.32	1.10	1.11	1.12	1.12	1.23	1.29	1.22	1.29	1.34
Pipeline Natural Gas	0.64	0.61	0.61	0.63	0.62	0.72	0.76	0.70	0.74	0.80
Natural Gas Subtotal	17.07	16.70	17.03	17.44	16.56	17.79	18.79	16.47	17.94	19.67
Metallurgical Coal	0.58	0.50	0.52	0.55	0.44	0.50	0.56	0.28	0.36	0.44
Other Coal	1.24	1.13	1.15	1.17	1.11	1.15	1.19	1.05	1.11	1.17
Coal-to-Liquids Heat and Power	0.00	0.16	0.16	0.16	0.33	0.34	0.36	0.52	0.55	0.59
Net Coal Coke Imports	0.04	0.01	0.01	0.01	0.00	0.01	0.02	-0.01	-0.00	0.01
Coal Subtotal	1.86	1.79	1.84	1.89	1.88	2.00	2.13	1.84	2.02	2.21
Biofuels Heat and Coproducts	1.03	0.77	0.77	0.80	1.14	1.49	1.52	1.70	2.56	3.35
Renewable Energy[13]	2.05	2.02	2.10	2.19	2.09	2.27	2.46	2.05	2.37	2.70
Liquid Hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	12.69	12.93	13.20	13.51	13.75	14.58	15.42	14.52	15.90	17.38
Delivered Energy	**72.59**	**71.36**	**73.30**	**75.60**	**72.46**	**77.78**	**82.95**	**73.61**	**82.33**	**91.64**
Electricity Related Losses	27.50	27.59	28.31	29.44	28.89	30.48	32.37	30.01	32.19	35.08
Total	**100.09**	**98.94**	**101.61**	**105.04**	**101.35**	**108.26**	**115.32**	**103.62**	**114.51**	**126.72**
Electric Power[14]										
Distillate Fuel Oil	0.10	0.12	0.12	0.12	0.13	0.13	0.14	0.13	0.14	0.14
Residual Fuel Oil	0.36	0.33	0.33	0.34	0.34	0.34	0.35	0.34	0.35	0.37
Liquid Fuels and Other Petroleum Subtotal	0.47	0.45	0.46	0.46	0.47	0.48	0.49	0.48	0.49	0.51
Natural Gas	6.84	5.39	5.32	5.29	5.97	6.45	7.12	6.85	7.62	7.99
Steam Coal	20.55	20.20	20.51	20.75	20.38	21.63	22.39	21.29	23.09	24.78
Nuclear Power	8.46	8.75	8.75	8.75	9.29	9.29	9.35	9.26	9.41	9.98
Renewable Energy[15]	3.65	5.53	6.27	7.51	6.34	7.00	8.22	6.47	7.26	8.95
Electricity Imports	0.11	0.07	0.07	0.07	0.08	0.08	0.09	0.05	0.09	0.13
Total[16]	**40.20**	**40.52**	**41.51**	**42.95**	**42.65**	**45.06**	**47.78**	**44.53**	**48.09**	**52.46**

Table B2. Energy Consumption by Sector and Source (Continued)
(Quadrillion Btu per Year, Unless Otherwise Noted)

Sector and Source	2008	Projections								
		2015			2025			2035		
		Low Economic Growth	Reference	High Economic Growth	Low Economic Growth	Reference	High Economic Growth	Low Economic Growth	Reference	High Economic Growth
Total Energy Consumption										
Liquefied Petroleum Gases	2.70	2.73	2.82	2.93	2.70	3.06	3.40	2.37	2.87	3.43
E85[8]	0.01	0.07	0.01	0.01	0.44	0.52	0.44	1.26	1.75	2.55
Motor Gasoline[2]	17.12	16.98	17.38	17.81	16.50	17.28	18.32	15.80	16.80	17.68
Jet Fuel[9]	3.15	3.18	3.26	3.34	3.44	3.62	3.82	3.46	3.80	4.17
Kerosene	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Distillate Fuel Oil	8.43	8.15	8.53	8.94	8.35	9.20	10.09	8.79	10.27	11.81
Residual Fuel Oil	1.55	1.49	1.50	1.52	1.50	1.52	1.56	1.50	1.55	1.59
Petrochemical Feedstocks	1.12	0.99	1.09	1.20	0.73	0.82	0.96	0.68	0.81	0.96
Other Petroleum[12]	4.21	3.94	4.17	4.42	3.80	4.06	4.46	3.57	4.10	4.57
Liquid Fuels and Other Petroleum Subtotal	38.35	37.59	38.81	40.23	37.50	40.14	43.11	37.49	42.02	46.82
Natural Gas	21.94	20.38	20.63	20.99	20.79	22.29	23.86	21.41	23.53	25.51
Natural-Gas-to-Liquids Heat and Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lease and Plant Fuel[6]	1.32	1.10	1.11	1.12	1.12	1.23	1.29	1.22	1.29	1.34
Pipeline Natural Gas	0.64	0.61	0.61	0.63	0.62	0.72	0.76	0.70	0.74	0.80
Natural Gas Subtotal	23.91	22.10	22.35	22.73	22.52	24.24	25.91	23.33	25.56	27.66
Metallurgical Coal	0.58	0.50	0.52	0.55	0.44	0.50	0.56	0.28	0.36	0.44
Other Coal	21.79	21.33	21.66	21.92	21.48	22.78	23.57	22.34	24.20	25.95
Coal-to-Liquids Heat and Power	0.00	0.16	0.16	0.16	0.33	0.34	0.36	0.52	0.55	0.59
Net Coal Coke Imports	0.04	0.01	0.01	0.01	0.00	0.01	0.02	-0.01	-0.00	0.01
Coal Subtotal	22.41	21.99	22.35	22.64	22.25	23.63	24.52	23.14	25.11	26.99
Nuclear Power	8.46	8.75	8.75	8.75	9.29	9.29	9.35	9.26	9.41	9.98
Biofuels Heat and Coproducts	1.03	0.77	0.77	0.80	1.14	1.49	1.52	1.70	2.56	3.35
Renewable Energy[17]	5.70	7.55	8.37	9.69	8.43	9.27	10.69	8.52	9.63	11.66
Liquid Hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity Imports	0.11	0.07	0.07	0.07	0.08	0.08	0.09	0.05	0.09	0.13
Total	**100.09**	**98.94**	**101.61**	**105.04**	**101.35**	**108.26**	**115.32**	**103.62**	**114.51**	**126.72**
Energy Use and Related Statistics										
Delivered Energy Use	72.59	71.36	73.30	75.60	72.46	77.78	82.95	73.61	82.33	91.64
Total Energy Use	100.09	98.94	101.61	105.04	101.35	108.26	115.32	103.62	114.51	126.72
Ethanol Consumed in Motor Gasoline and E85	0.82	1.24	1.23	1.26	1.45	1.56	1.58	1.95	2.35	2.93
Population (millions)	305.37	322.09	326.70	333.30	340.14	358.62	380.29	352.44	390.70	433.29
Gross Domestic Product (billion 2000 dollars)	11652	12563	13289	14084	15802	17561	19425	18820	22362	25918
Carbon Dioxide Emissions (million metric tons)	5814.4	5612.7	5730.7	5858.7	5646.6	6015.8	6366.5	5767.5	6320.4	6865.2

[1]Includes wood used for residential heating. See Table A4 and/or Table A17 for estimates of nonmarketed renewable energy consumption for geothermal heat pumps, solar thermal hot water heating, and electricity generation from wind and solar photovoltaic sources.
[2]Includes ethanol (blends of 10 percent or less) and ethers blended into gasoline.
[3]Excludes ethanol. Includes commercial sector consumption of wood and wood waste, landfill gas, municipal waste, and other biomass for combined heat and power. See Table A5 and/or Table A17 for estimates of nonmarketed renewable energy consumption for solar thermal hot water heating and electricity generation from wind and solar photovoltaic sources.
[4]Includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.
[5]Includes petroleum coke, asphalt, road oil, lubricants, still gas, and miscellaneous petroleum products.
[6]Represents natural gas used in well, field, and lease operations, and in natural gas processing plant machinery.
[7]Includes consumption of energy produced from hydroelectric, wood and wood waste, municipal waste, and other biomass sources. Excludes ethanol blends (10 percent or less) in motor gasoline.
[8]E85 refers to a blend of 85 percent ethanol (renewable) and 15 percent motor gasoline (nonrenewable). To address cold starting issues, the percentage of ethanol varies seasonally. The annual average ethanol content of 74 percent is used for this forecast.
[9]Includes only kerosene type.
[10]Diesel fuel for on- and off- road use.
[11]Includes aviation gasoline and lubricants.
[12]Includes unfinished oils, natural gasoline, motor gasoline blending components, aviation gasoline, lubricants, still gas, asphalt, road oil, petroleum coke, and miscellaneous petroleum products.
[13]Includes electricity generated for sale to the grid and for own use from renewable sources, and non-electric energy from renewable sources. Excludes ethanol and nonmarketed renewable energy consumption for geothermal heat pumps, buildings photovoltaic systems, and solar thermal hot water heaters.
[14]Includes consumption of energy by electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.
[15]Includes conventional hydroelectric, geothermal, wood and wood waste, biogenic municipal waste, other biomass, wind, photovoltaic, and solar thermal sources. Excludes net electricity imports.
[16]Includes non-biogenic municipal waste not included above.
[17]Includes conventional hydroelectric, geothermal, wood and wood waste, biogenic municipal waste, other biomass, wind, photovoltaic, and solar thermal sources. Excludes ethanol, net electricity imports, and nonmarketed renewable energy consumption for geothermal heat pumps, buildings photovoltaic systems, and solar thermal hot water heaters.
Btu = British thermal unit.
Note: Totals may not equal sum of components due to independent rounding. Data for 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2008 consumption based on: Energy Information Administration (EIA), *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). 2008 population and gross domestic product: IHS Global Insight Industry and Employment models, August 2009. 2008 carbon dioxide emissions: EIA, *Emissions of Greenhouse Gases in the United States 2008,* DOE/EIA-0573(2008) (Washington, DC, December 2009). **Projections:** EIA, AEO2010 National Energy Modeling System runs LM2010.D011110A, AEO2010R.D111809A, and HM2010.D020310A.

Table B3. Energy Prices by Sector and Source
(2008 Dollars per Million Btu, Unless Otherwise Noted)

Sector and Source	2008	Projections								
		2015			2025			2035		
		Low Economic Growth	Reference	High Economic Growth	Low Economic Growth	Reference	High Economic Growth	Low Economic Growth	Reference	High Economic Growth
Residential										
Liquefied Petroleum Gases	29.35	27.70	28.03	28.33	30.81	31.55	32.40	33.92	34.65	35.85
Distillate Fuel Oil	24.47	20.67	21.08	21.78	24.52	25.23	26.35	26.91	28.66	30.86
Natural Gas	13.48	11.29	11.56	11.77	12.15	12.29	13.12	13.08	14.40	15.28
Electricity	33.29	30.69	31.43	32.12	31.34	32.26	34.07	32.00	34.71	36.84
Commercial										
Liquefied Petroleum Gases	26.15	24.45	24.77	25.07	27.54	28.26	29.09	30.63	31.32	32.49
Distillate Fuel Oil	21.50	18.31	18.72	19.31	21.99	22.72	23.79	24.41	26.13	28.34
Residual Fuel Oil	15.52	12.90	13.13	13.35	15.95	16.54	17.00	18.48	18.84	19.26
Natural Gas	11.94	9.71	9.99	10.22	10.47	10.70	11.58	11.27	12.66	13.63
Electricity	30.47	25.64	26.55	27.34	26.60	27.72	29.62	27.37	30.37	32.76
Industrial[1]										
Liquefied Petroleum Gases	24.20	22.07	22.49	22.91	25.39	26.12	26.95	28.23	29.25	30.36
Distillate Fuel Oil	22.31	18.59	19.00	19.54	22.23	22.97	24.04	24.74	26.48	28.81
Residual Fuel Oil	16.31	16.23	16.47	16.70	18.61	19.23	19.99	21.10	21.72	22.95
Natural Gas[2]	9.11	6.21	6.45	6.62	6.89	7.02	7.77	7.53	8.73	9.50
Metallurgical Coal	4.49	5.05	5.08	5.11	5.22	5.24	5.25	4.94	5.06	5.25
Other Industrial Coal	2.84	2.66	2.69	2.70	2.59	2.63	2.66	2.65	2.71	2.80
Coal to Liquids	- -	1.45	1.42	1.42	1.42	1.49	1.50	1.49	1.51	1.52
Electricity	20.21	16.77	17.37	17.92	17.75	18.50	19.89	18.24	20.71	22.48
Transportation										
Liquefied Petroleum Gases[3]	29.93	27.54	27.88	28.21	30.61	31.36	32.22	33.66	34.38	35.58
E85[4]	26.93	23.96	25.55	25.85	28.29	28.86	29.90	30.69	32.23	33.75
Motor Gasoline[5]	26.76	25.13	25.37	25.56	28.21	28.87	29.87	30.69	32.33	34.35
Jet Fuel[6]	22.71	18.64	19.04	19.48	22.16	22.92	23.97	24.88	26.48	28.57
Diesel Fuel (distillate fuel oil)[7]	27.65	22.47	22.93	23.50	25.74	26.63	27.85	28.05	29.96	32.49
Residual Fuel Oil	14.49	13.33	13.58	13.65	15.28	15.93	16.76	17.87	18.60	19.86
Natural Gas[8]	15.96	13.04	13.37	13.66	13.14	13.43	14.44	13.33	14.78	15.85
Electricity	33.73	27.95	28.79	29.36	27.58	28.63	32.31	29.23	33.26	37.20
Electric Power[9]										
Distillate Fuel Oil	19.37	16.98	17.36	18.02	20.67	21.35	22.43	23.03	24.70	26.83
Residual Fuel Oil	14.56	15.28	15.53	15.71	17.58	18.30	19.19	20.27	21.12	22.48
Natural Gas	9.09	5.83	6.08	6.26	6.63	6.75	7.51	7.24	8.46	9.18
Steam Coal	2.05	1.99	2.01	2.02	1.96	1.99	2.02	2.02	2.09	2.16
Average Price to All Users[10]										
Liquefied Petroleum Gases	20.19	20.02	20.30	20.56	22.82	23.34	24.00	25.97	26.37	27.23
E85[4]	26.93	23.96	25.55	25.85	28.29	28.86	29.90	30.69	32.23	33.75
Motor Gasoline[5]	26.54	25.12	25.36	25.56	28.20	28.87	29.87	30.68	32.32	34.34
Jet Fuel	22.71	18.64	19.04	19.48	22.16	22.92	23.97	24.88	26.48	28.57
Distillate Fuel Oil	26.27	21.57	22.03	22.60	25.02	25.89	27.10	27.44	29.34	31.86
Residual Fuel Oil	14.77	14.00	14.26	14.39	16.11	16.80	17.64	18.69	19.46	20.72
Natural Gas	10.53	7.89	8.14	8.32	8.67	8.75	9.48	9.34	10.54	11.32
Metallurgical Coal	4.49	5.05	5.08	5.11	5.22	5.24	5.25	4.94	5.06	5.25
Other Coal	2.10	2.02	2.05	2.06	1.99	2.02	2.06	2.05	2.12	2.19
Coal to Liquids	- -	1.45	1.42	1.42	1.42	1.49	1.50	1.49	1.51	1.52
Electricity	28.81	25.27	25.95	26.56	26.34	27.17	28.78	27.28	29.87	31.85
Non-Renewable Energy Expenditures by Sector (billion 2008 dollars)										
Residential	254.66	223.63	230.89	238.11	242.49	258.70	283.44	258.49	301.11	342.71
Commercial	191.19	169.37	176.90	184.32	195.16	210.07	232.66	224.19	261.07	297.41
Industrial	244.81	196.86	213.14	231.17	206.90	241.75	286.98	202.88	267.18	339.55
Transportation	705.86	629.34	655.77	684.37	717.69	782.71	870.40	782.63	908.01	1057.29
Total Non-Renewable Expenditures	1396.52	1219.20	1276.69	1337.96	1362.23	1493.23	1673.48	1468.19	1737.37	2036.96
Transportation Renewable Expenditures	0.17	1.74	0.21	0.20	12.40	15.06	13.26	38.59	56.42	86.21
Total Expenditures	**1396.69**	**1220.94**	**1276.90**	**1338.17**	**1374.64**	**1508.29**	**1686.74**	**1506.79**	**1793.79**	**2123.18**

Table B3. Energy Prices by Sector and Source (Continued)
(Nominal Dollars per Million Btu, Unless Otherwise Noted)

Sector and Source	2008	Projections								
		2015			2025			2035		
		Low Economic Growth	Reference	High Economic Growth	Low Economic Growth	Reference	High Economic Growth	Low Economic Growth	Reference	High Economic Growth
Residential										
Liquefied Petroleum Gases	29.35	32.04	31.23	30.13	46.47	42.82	39.03	66.34	58.23	50.48
Distillate Fuel Oil	24.47	23.91	23.49	23.16	36.99	34.24	31.74	52.63	48.16	43.46
Natural Gas	13.48	13.06	12.88	12.51	18.34	16.68	15.81	25.59	24.20	21.52
Electricity	33.29	35.50	35.02	34.16	47.27	43.78	41.04	62.60	58.33	51.87
Commercial										
Liquefied Petroleum Gases	26.15	28.28	27.61	26.67	41.54	38.35	35.05	59.90	52.64	45.75
Distillate Fuel Oil	21.50	21.18	20.86	20.54	33.17	30.83	28.66	47.74	43.92	39.91
Residual Fuel Oil	15.52	14.93	14.63	14.19	24.05	22.45	20.48	36.14	31.66	27.12
Natural Gas	11.94	11.23	11.14	10.87	15.80	14.53	13.95	22.04	21.27	19.19
Electricity	30.47	29.66	29.58	29.08	40.13	37.62	35.68	53.53	51.04	46.14
Industrial[1]										
Liquefied Petroleum Gases	24.20	25.53	25.06	24.37	38.30	35.45	32.47	55.21	49.15	42.76
Distillate Fuel Oil	22.31	21.51	21.18	20.78	33.53	31.18	28.96	48.39	44.51	40.57
Residual Fuel Oil	16.31	18.77	18.35	17.77	28.07	26.10	24.08	41.27	36.50	32.32
Natural Gas[2]	9.11	7.18	7.18	7.04	10.39	9.52	9.36	14.74	14.67	13.38
Metallurgical Coal	4.49	5.84	5.66	5.43	7.87	7.11	6.32	9.66	8.50	7.39
Other Industrial Coal	2.84	3.08	3.00	2.87	3.91	3.56	3.21	5.17	4.55	3.94
Coal to Liquids	- -	1.67	1.58	1.51	2.14	2.02	1.80	2.91	2.53	2.13
Electricity	20.21	19.40	19.36	19.06	26.78	25.11	23.96	35.68	34.80	31.65
Transportation										
Liquefied Petroleum Gases[3]	29.93	31.86	31.07	30.00	46.17	42.56	38.81	65.83	57.77	50.10
E85[4]	26.93	27.72	28.47	27.49	42.68	39.17	36.02	60.03	54.17	47.52
Motor Gasoline[5]	26.76	29.07	28.27	27.19	42.55	39.18	35.99	60.02	54.33	48.37
Jet Fuel[6]	22.71	21.56	21.21	20.71	33.43	31.10	28.88	48.65	44.51	40.24
Diesel Fuel (distillate fuel oil)[7]	27.65	25.99	25.56	24.99	38.83	36.13	33.54	54.87	50.35	45.75
Residual Fuel Oil	14.49	15.42	15.13	14.52	23.05	21.63	20.19	34.95	31.26	27.96
Natural Gas[8]	15.96	15.09	14.90	14.52	19.83	18.23	17.39	26.07	24.84	22.32
Electricity	33.73	32.33	32.08	31.22	41.60	38.86	38.92	57.16	55.89	52.38
Electric Power[9]										
Distillate Fuel Oil	19.37	19.64	19.35	19.16	31.18	28.98	27.02	45.05	41.52	37.79
Residual Fuel Oil	14.56	17.68	17.30	16.71	26.51	24.83	23.11	39.64	35.49	31.65
Natural Gas	9.09	6.75	6.77	6.66	10.00	9.17	9.05	14.16	14.22	12.93
Steam Coal	2.05	2.30	2.24	2.15	2.95	2.69	2.44	3.96	3.51	3.04

Table B3. Energy Prices by Sector and Source (Continued)
(Nominal Dollars per Million Btu, Unless Otherwise Noted)

Sector and Source	2008	Projections								
		2015			2025			2035		
		Low Economic Growth	Reference	High Economic Growth	Low Economic Growth	Reference	High Economic Growth	Low Economic Growth	Reference	High Economic Growth
Average Price to All Users[10]										
Liquefied Petroleum Gases	20.19	23.16	22.62	21.86	34.43	31.68	28.91	50.79	44.32	38.35
E85[4]	26.93	27.72	28.47	27.49	42.68	39.17	36.02	60.03	54.17	47.52
Motor Gasoline[5]	26.54	29.06	28.27	27.18	42.55	39.17	35.98	60.01	54.32	48.36
Jet Fuel	22.71	21.56	21.21	20.71	33.43	31.10	28.88	48.65	44.51	40.24
Distillate Fuel Oil	26.27	24.95	24.55	24.04	37.74	35.14	32.64	53.67	49.31	44.87
Residual Fuel Oil	14.77	16.20	15.89	15.31	24.31	22.80	21.25	36.56	32.70	29.18
Natural Gas	10.53	9.13	9.07	8.85	13.07	11.88	11.42	18.28	17.71	15.93
Metallurgical Coal	4.49	5.84	5.66	5.43	7.87	7.11	6.32	9.66	8.50	7.39
Other Coal	2.10	2.34	2.28	2.19	3.00	2.74	2.48	4.02	3.56	3.08
Coal to Liquids	- -	1.67	1.58	1.51	2.14	2.02	1.80	2.91	2.53	2.13
Electricity	28.81	29.23	28.92	28.25	39.74	36.87	34.67	53.36	50.19	44.85
Non-Renewable Energy Expenditures by Sector (billion nominal dollars)										
Residential	254.66	258.67	257.29	253.23	365.80	351.09	341.43	505.59	506.03	482.60
Commercial	191.19	195.92	197.13	196.02	294.40	285.09	280.27	438.51	438.74	418.80
Industrial	244.81	227.71	237.51	245.85	312.11	328.09	345.70	396.82	449.00	478.16
Transportation	705.86	727.96	730.78	727.84	1082.64	1062.24	1048.50	1530.76	1525.95	1488.86
Total Non-Renewable Expenditures	1396.52	1410.26	1422.72	1422.95	2054.95	2026.51	2015.90	2871.68	2919.72	2868.42
Transportation Renewable Expenditures	0.17	2.01	0.24	0.22	18.71	20.44	15.97	75.49	94.81	121.41
Total Expenditures	**1396.69**	**1412.27**	**1422.95**	**1423.17**	**2073.65**	**2046.94**	**2031.87**	**2947.17**	**3014.53**	**2989.83**

[1]Includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.
[2]Excludes use for lease and plant fuel.
[3]Includes Federal and State taxes while excluding county and local taxes.
[4]E85 refers to a blend of 85 percent ethanol (renewable) and 15 percent motor gasoline (nonrenewable). To address cold starting issues, the percentage of ethanol varies seasonally. The annual average ethanol content of 74 percent is used for this forecast.
[5]Sales weighted-average price for all grades. Includes Federal, State and local taxes.
[6]Kerosene-type jet fuel. Includes Federal and State taxes while excluding county and local taxes.
[7]Diesel fuel for on-road use. Includes Federal and State taxes while excluding county and local taxes.
[8]Compressed natural gas used as a vehicle fuel. Includes estimated motor vehicle fuel taxes and estimated dispensing costs or charges.
[9]Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.
[10]Weighted averages of end-use fuel prices are derived from the prices shown in each sector and the corresponding sectoral consumption.
Btu = British thermal unit.
- - = Not applicable.
Note: Data for 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2008 prices for motor gasoline, distillate fuel oil, and jet fuel are based on prices in the Energy Information Administration (EIA), *Petroleum Marketing Annual 2008*, DOE/EIA-0487(2008) (Washington, DC, August 2009). 2008 residential and commercial natural gas delivered prices: EIA, *Natural Gas Monthly*, DOE/EIA-0130(2009/07) (Washington, DC, July 2009). 2008 industrial natural gas delivered prices are estimated based on: EIA, *Manufacturing Energy Consumption Survey* and industrial and wellhead prices from the *Natural Gas Annual 2007*, DOE/EIA-0131(2007) (Washington, DC, January 2009) and the *Natural Gas Monthly*, DOE/EIA-0130(2009/07) (Washington, DC, July 2009). 2008 transportation sector natural gas delivered prices are model results. 2008 electric power sector natural gas prices: EIA, *Electric Power Monthly*, DOE/EIA-0226, April 2008 and April 2009, Table 4.13.B. 2008 coal prices based on: EIA, *Quarterly Coal Report, October-December 2008*, DOE/EIA-0121(2008/4Q) (Washington, DC, March 2009) and EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A. 2008 electricity prices: EIA, *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). 2008 E85 prices derived from monthly prices in the Clean Cities Alternative Fuel Price Report.
Projections: EIA, AEO2010 National Energy Modeling System runs LM2010.D011110A, AEO2010R.D111809A, and HM2010.D020310A.

Table B4. Macroeconomic Indicators
(Billion 2000 Chain-Weighted Dollars, Unless Otherwise Noted)

Indicators	2008	Projections								
		2015			2025			2035		
		Low Economic Growth	Reference	High Economic Growth	Low Economic Growth	Reference	High Economic Growth	Low Economic Growth	Reference	High Economic Growth
Real Gross Domestic Product	**11652**	**12563**	**13289**	**14084**	**15802**	**17561**	**19425**	**18820**	**22362**	**25918**
Components of Real Gross Domestic Product										
Real Consumption	8272	8901	9343	9832	11292	12348	13464	13708	15932	18176
Real Investment	1689	1911	2178	2444	2507	2988	3502	3274	4104	4819
Real Government Spending	2070	2012	2085	2173	2128	2319	2524	2190	2569	2969
Real Exports	1514	1933	2000	2087	3230	3773	4369	5219	6211	7241
Real Imports	1904	2147	2240	2320	3381	3574	3732	5546	5881	6120
Energy Intensity (thousand Btu per 2000 dollar of GDP)										
Delivered Energy	6.23	5.68	5.52	5.37	4.59	4.43	4.27	3.91	3.68	3.54
Total Energy	8.59	7.88	7.65	7.46	6.41	6.16	5.94	5.51	5.12	4.89
Price Indices										
GDP Chain-Type Price Index (2000=1.000)	1.225	1.417	1.365	1.303	1.848	1.662	1.476	2.396	2.059	1.725
Consumer Price Index (1982-4=1)										
All-urban	2.15	2.52	2.43	2.32	3.41	3.07	2.73	4.54	3.92	3.31
Energy Commodities and Services	2.36	2.46	2.41	2.33	3.51	3.23	3.00	4.87	4.46	3.95
Wholesale Price Index (1982=1.00)										
All Commodities	1.90	2.02	1.93	1.83	2.55	2.24	1.95	3.13	2.62	2.11
Fuel and Power	2.14	2.08	2.04	1.98	3.01	2.76	2.59	4.24	3.92	3.50
Metals and Metal Products	2.13	2.26	2.19	2.10	2.61	2.36	2.11	2.82	2.45	2.08
Interest Rates (percent, nominal)										
Federal Funds Rate	1.93	5.32	4.72	4.15	5.79	5.07	4.44	5.94	5.19	4.48
10-Year Treasury Note	3.67	6.06	5.44	4.81	6.61	5.84	5.18	6.62	5.89	5.26
AA Utility Bond Rate	6.19	7.74	7.22	6.69	8.59	7.79	7.08	9.20	8.30	7.39
Value of Shipments (billion 2000 dollars)										
Service Sectors	18812	20075	20956	22027	24883	27205	29753	31251	36289	41680
Total Industrial	5408	5673	6044	6444	6118	6997	7922	6252	7786	9397
Non-manufacturing	1394	1403	1547	1703	1438	1673	1909	1463	1776	2048
Manufacturing	4014	4269	4497	4741	4681	5324	6013	4788	6010	7348
Energy-Intensive	1230	1258	1315	1382	1332	1467	1611	1318	1542	1777
Non-Energy Intensive	2784	3011	3182	3360	3349	3856	4402	3470	4468	5571
Total Shipments	**24220**	**25747**	**27001**	**28471**	**31002**	**34202**	**37675**	**37503**	**44074**	**51077**
Population and Employment (millions)										
Population with Armed Forces Overseas	305.4	322.1	326.7	333.3	340.1	358.6	380.3	352.4	390.7	433.3
Population, aged 16 and over	240.0	253.5	257.4	262.5	271.6	283.6	297.7	285.7	310.7	338.7
Population, over age 65	38.8	46.7	47.0	47.5	62.8	64.2	65.8	74.6	77.7	81.2
Employment, Nonfarm	137.0	133.0	142.5	152.5	146.2	157.4	169.2	153.9	171.4	189.4
Employment, Manufacturing	13.4	11.8	12.2	12.4	10.8	11.3	11.8	11.7	12.8	13.9
Key Labor Indicators										
Labor Force (millions)	154.3	158.4	161.4	165.6	164.1	171.4	179.3	173.7	183.4	193.4
Non-farm Labor Productivity (1992=1.00)	1.41	1.53	1.57	1.63	1.81	1.96	2.12	2.10	2.39	2.69
Unemployment Rate (percent)	5.81	7.47	7.32	7.15	5.52	5.31	5.15	5.63	5.49	5.30
Key Indicators for Energy Demand										
Real Disposable Personal Income	8753	9644	10091	10598	12981	13974	15017	16133	18168	20195
Housing Starts (millions)	0.98	1.54	1.88	2.25	1.40	1.89	2.40	1.07	1.70	2.24
Commercial Floorspace (billion square feet)	78.8	83.3	85.1	87.1	92.1	97.5	103.1	101.6	110.5	120.0
Unit Sales of Light-Duty Vehicles (millions)	13.13	16.44	17.25	18.40	16.13	17.92	19.87	17.39	20.09	22.94

GDP = Gross domestic product.
Btu = British thermal unit.
Sources: 2008: IHS Global Insight Industry and Employment models, August 2009. **Projections:** Energy Information Administration, AEO2010 National Energy Modeling System runs LM2010.D011110A, AEO2010R.D111809A, and HM2010.D020310A.

Price Case Comparisons

Table C1. Total Energy Supply, Disposition, and Price Summary
(Quadrillion Btu per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	2008	Projections								
		2015			2025			2035		
		Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price
Production										
Crude Oil and Lease Condensate	10.51	11.95	12.41	12.56	10.64	13.22	14.67	9.40	13.50	14.83
Natural Gas Plant Liquids	2.57	2.32	2.27	2.22	2.36	2.24	2.26	2.40	2.37	2.35
Dry Natural Gas	21.14	20.43	19.83	19.39	21.52	21.90	22.96	24.64	23.92	25.61
Coal[1]	23.86	22.97	23.31	23.61	24.12	24.36	25.74	24.64	25.19	27.57
Nuclear Power	8.46	8.75	8.75	8.75	9.29	9.29	9.29	9.26	9.41	9.44
Hydropower	2.46	2.95	2.96	2.96	2.97	2.98	2.96	2.98	2.99	3.01
Biomass[2]	3.97	4.63	4.60	4.64	6.32	6.90	8.68	6.78	9.27	12.08
Other Renewable Energy[3]	1.17	2.55	3.01	3.03	2.68	3.07	3.10	2.88	3.36	3.40
Other[4]	0.10	0.53	0.73	1.18	0.68	0.94	1.39	0.66	0.81	1.07
Total	**74.23**	**77.08**	**77.88**	**78.36**	**80.58**	**84.91**	**91.06**	**83.65**	**90.83**	**99.36**
Imports										
Crude Oil	21.39	22.19	19.66	18.25	25.70	19.21	13.21	29.87	19.34	11.95
Liquid Fuels and Other Petroleum[5]	6.38	5.79	5.54	5.29	6.35	5.76	4.78	7.29	6.08	4.96
Natural Gas	4.06	3.90	3.59	3.46	4.50	3.94	3.24	3.68	3.49	2.84
Other Imports[6]	0.96	0.79	0.79	0.78	0.59	0.88	1.36	0.47	1.32	1.78
Total	**32.79**	**32.67**	**29.58**	**27.79**	**37.14**	**29.80**	**22.58**	**41.31**	**30.23**	**21.54**
Exports										
Petroleum[7]	3.71	3.52	3.53	3.58	3.90	3.91	3.71	4.08	4.12	3.86
Natural Gas	1.01	1.17	1.14	1.12	1.80	1.69	1.64	2.16	1.96	1.84
Coal	2.07	1.49	1.49	1.49	1.05	1.20	1.19	0.75	0.79	0.83
Total	**6.80**	**6.18**	**6.16**	**6.18**	**6.76**	**6.80**	**6.54**	**7.00**	**6.87**	**6.53**
Discrepancy[8]	**0.13**	**-0.23**	**-0.30**	**-0.31**	**-0.22**	**-0.35**	**-0.30**	**-0.20**	**-0.32**	**-0.38**
Consumption										
Liquid Fuels and Other Petroleum[9]	38.35	40.88	38.81	37.75	43.83	40.14	37.45	47.61	42.02	38.94
Natural Gas	23.91	23.22	22.35	21.81	24.28	24.24	24.28	26.21	25.56	25.80
Coal[10]	22.41	22.05	22.35	22.59	23.41	23.63	24.63	24.10	25.11	26.59
Nuclear Power	8.46	8.75	8.75	8.75	9.29	9.29	9.29	9.26	9.41	9.44
Hydropower	2.46	2.95	2.96	2.96	2.97	2.98	2.96	2.98	2.99	3.01
Biomass[11]	3.10	3.21	3.17	3.18	4.52	4.70	5.48	4.89	5.83	7.32
Other Renewable Energy[3]	1.17	2.55	3.01	3.03	2.68	3.07	3.10	2.88	3.36	3.40
Other[12]	0.24	0.20	0.20	0.20	0.21	0.21	0.22	0.24	0.22	0.25
Total	**100.09**	**103.80**	**101.61**	**100.27**	**111.19**	**108.26**	**107.41**	**118.17**	**114.51**	**114.75**
Prices (2008 dollars per unit)										
Petroleum (dollars per barrel)										
Imported Low Sulfur Light Crude Oil Price[13]	99.57	51.59	94.52	144.78	51.73	115.09	196.01	51.44	133.22	209.60
Imported Crude Oil Price[13]	92.61	43.88	86.88	137.01	41.36	104.49	185.85	41.99	121.37	199.65
Natural Gas (dollars per million Btu)										
Price at Henry Hub	8.86	5.59	6.27	6.78	6.88	6.99	7.39	8.12	8.88	9.49
Wellhead Price[14]	7.85	4.94	5.54	5.99	6.08	6.18	6.53	7.18	7.84	8.38
Natural Gas (dollars per thousand cubic feet)										
Wellhead Price[14]	8.07	5.08	5.70	6.16	6.25	6.35	6.71	7.38	8.06	8.62
Coal (dollars per ton)										
Minemouth Price[15]	31.26	29.00	30.38	31.40	26.66	28.19	29.71	26.45	28.10	30.08
Coal (dollars per million Btu)										
Minemouth Price[15]	1.55	1.45	1.52	1.57	1.36	1.44	1.53	1.35	1.44	1.57
Average Delivered Price[16]	2.16	1.99	2.11	2.21	1.95	2.07	2.21	1.98	2.13	2.28
Average Electricity Price (cents per kilowatthour)	9.8	8.5	8.9	9.2	9.0	9.3	9.5	9.9	10.2	10.5

Table C1. Total Energy Supply and Disposition Summary (Continued)
(Quadrillion Btu per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	2008	Projections								
		2015			2025			2035		
		Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price
Prices (nominal dollars per unit)										
Petroleum (dollars per barrel)										
Imported Low Sulfur Light Crude Oil Price[13]	99.57	57.24	105.33	161.68	71.01	156.20	263.01	86.58	223.88	348.67
Imported Crude Oil Price[13]	92.61	48.68	96.82	153.00	56.78	141.80	249.37	70.68	203.97	332.11
Natural Gas (dollars per million Btu)										
Price at Henry Hub	8.86	6.20	6.99	7.57	9.45	9.49	9.91	13.67	14.92	15.79
Wellhead Price[14]	7.85	5.48	6.17	6.69	8.35	8.38	8.76	12.08	13.18	13.94
Natural Gas (dollars per thousand cubic feet)										
Wellhead Price[14]	8.07	5.63	6.35	6.87	8.58	8.62	9.00	12.41	13.55	14.34
Coal (dollars per ton)										
Minemouth Price[15]	31.26	32.18	33.86	35.07	36.60	38.25	39.87	44.51	47.23	50.03
Coal (dollars per million Btu)										
Minemouth Price[15]	1.55	1.61	1.69	1.76	1.86	1.95	2.06	2.27	2.43	2.61
Average Delivered Price[16]	2.16	2.21	2.35	2.47	2.68	2.81	2.96	3.33	3.58	3.79
Average Electricity Price (cents per kilowatthour)	9.8	9.4	9.9	10.2	12.4	12.6	12.8	16.6	17.1	17.5

[1]Includes waste coal.
[2]Includes grid-connected electricity from wood and wood waste; biomass, such as corn, used for liquid fuels production; and non-electric energy demand from wood. Refer to Table A17 for details.
[3]Includes grid-connected electricity from landfill gas; biogenic municipal waste; wind; photovoltaic and solar thermal sources; and non-electric energy from renewable sources, such as active and passive solar systems. Excludes electricity imports using renewable sources and nonmarketed renewable energy. See Table A17 for selected nonmarketed residential and commercial renewable energy.
[4]Includes non-biogenic municipal waste, liquid hydrogen, methanol, and some domestic inputs to refineries.
[5]Includes imports of finished petroleum products, unfinished oils, alcohols, ethers, blending components, and renewable fuels such as ethanol.
[6]Includes coal, coal coke (net), and electricity (net).
[7]Includes crude oil and petroleum products.
[8]Balancing item. Includes unaccounted for supply, losses, gains, and net storage withdrawals.
[9]Includes petroleum-derived fuels and non-petroleum derived fuels, such as ethanol and biodiesel, and coal-based synthetic liquids. Petroleum coke, which is a solid, is included. Also included are natural gas plant liquids and crude oil consumed as a fuel. Refer to Table A17 for detailed renewable liquid fuels consumption.
[10]Excludes coal converted to coal-based synthetic liquids and coal-based synthetic natural gas.
[11]Includes grid-connected electricity from wood and wood waste, non-electric energy from wood, and biofuels heat and coproducts used in the production of liquid fuels, but excludes the energy content of the liquid fuels.
[12]Includes non-biogenic municipal waste and net electricity imports.
[13]Weighted average price delivered to U.S. refiners.
[14]Represents lower 48 onshore and offshore supplies.
[15]Includes reported prices for both open market and captive mines.
[16]Prices weighted by consumption; weighted average excludes residential and commercial prices, and export free-alongside-ship (f.a.s.) prices.
Btu = British thermal unit.
Note: Totals may not equal sum of components due to independent rounding. Data for 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2008 natural gas supply values and natural gas wellhead price: EIA, *Natural Gas Monthly*, DOE/EIA-0130(2009/07) (Washington, DC, July 2009). 2008 coal minemouth and delivered coal prices: EIA, *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). 2008 petroleum supply values: EIA, *Petroleum Supply Annual 2008,* DOE/EIA-0340(2008)/1 (Washington, DC, June 2009). 2008 low sulfur light crude oil price: EIA, Form EIA-856, "Monthly Foreign Crude Oil Acquisition Report." Other 2008 coal values: *Quarterly Coal Report, October-December 2008*, DOE/EIA-0121(2008/4Q) (Washington, DC, March 2009). Other 2008 values: EIA, *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). **Projections:** EIA, AEO2010 National Energy Modeling System runs LP2010.D011910A, AEO2010R.D111809A, and HP2010.D011910A.

Table C2. Energy Consumption by Sector and Source
(Quadrillion Btu per Year, Unless Otherwise Noted)

Sector and Source	2008	Projections								
		2015			2025			2035		
		Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price
Energy Consumption										
Residential										
Liquefied Petroleum Gases	0.45	0.44	0.41	0.38	0.45	0.40	0.35	0.47	0.40	0.35
Kerosene	0.04	0.04	0.04	0.03	0.04	0.03	0.03	0.04	0.03	0.03
Distillate Fuel Oil	0.68	0.66	0.59	0.55	0.57	0.49	0.43	0.50	0.41	0.36
Liquid Fuels and Other Petroleum Subtotal	1.18	1.13	1.04	0.97	1.06	0.92	0.82	1.01	0.85	0.74
Natural Gas	5.01	4.91	4.85	4.80	5.05	5.04	5.02	5.06	5.01	4.99
Coal	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Renewable Energy[1]	0.45	0.35	0.40	0.45	0.35	0.42	0.49	0.34	0.43	0.50
Electricity	4.71	4.84	4.78	4.72	5.36	5.30	5.25	5.89	5.83	5.77
Delivered Energy	**11.34**	**11.24**	**11.07**	**10.94**	**11.83**	**11.69**	**11.58**	**12.31**	**12.12**	**12.01**
Electricity Related Losses	10.20	10.23	10.24	10.20	11.17	11.08	10.89	11.87	11.79	11.57
Total	**21.54**	**21.46**	**21.31**	**21.15**	**23.00**	**22.76**	**22.47**	**24.18**	**23.92**	**23.58**
Commercial										
Liquefied Petroleum Gases	0.08	0.09	0.09	0.08	0.09	0.09	0.09	0.09	0.09	0.09
Motor Gasoline[2]	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Kerosene	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Distillate Fuel Oil	0.36	0.35	0.31	0.28	0.35	0.28	0.24	0.36	0.26	0.23
Residual Fuel Oil	0.07	0.10	0.09	0.08	0.10	0.09	0.08	0.10	0.09	0.08
Liquid Fuels and Other Petroleum Subtotal	0.58	0.61	0.55	0.51	0.61	0.53	0.49	0.63	0.52	0.48
Natural Gas	3.21	3.39	3.32	3.27	3.56	3.55	3.53	3.81	3.79	3.77
Coal	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Renewable Energy[3]	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Electricity	4.61	5.06	5.00	4.96	5.82	5.76	5.72	6.63	6.55	6.51
Delivered Energy	**8.58**	**9.23**	**9.04**	**8.91**	**10.17**	**10.00**	**9.90**	**11.24**	**11.04**	**10.93**
Electricity Related Losses	10.00	10.69	10.72	10.71	12.13	12.03	11.85	13.34	13.27	13.05
Total	**18.58**	**19.92**	**19.77**	**19.62**	**22.30**	**22.03**	**21.76**	**24.59**	**24.30**	**23.98**
Industrial[4]										
Liquefied Petroleum Gases	2.14	2.19	2.31	2.64	2.12	2.55	2.60	2.00	2.35	2.40
Motor Gasoline[2]	0.30	0.31	0.30	0.30	0.31	0.30	0.30	0.31	0.30	0.30
Distillate Fuel Oil	1.19	1.22	1.19	1.17	1.21	1.17	1.17	1.23	1.17	1.17
Residual Fuel Oil	0.18	0.22	0.14	0.13	0.25	0.14	0.12	0.25	0.13	0.12
Petrochemical Feedstocks	1.12	1.09	1.09	0.65	1.11	0.82	0.69	1.09	0.81	0.70
Other Petroleum[5]	4.05	4.38	4.01	3.73	4.65	3.89	3.35	4.93	3.92	3.23
Liquid Fuels and Other Petroleum Subtotal	8.99	9.41	9.04	8.61	9.65	8.87	8.23	9.82	8.70	7.92
Natural Gas	6.84	7.02	7.08	7.15	6.91	7.14	7.16	6.73	6.91	6.90
Natural-Gas-to-Liquids Heat and Power	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.65
Lease and Plant Fuel[6]	1.32	1.14	1.11	1.09	1.14	1.23	1.29	1.28	1.29	1.40
Natural Gas Subtotal	8.16	8.16	8.19	8.24	8.05	8.37	8.72	8.01	8.20	8.94
Metallurgical Coal	0.58	0.55	0.52	0.50	0.52	0.50	0.48	0.39	0.36	0.35
Other Industrial Coal	1.17	1.09	1.07	1.06	1.09	1.07	1.07	1.05	1.04	1.03
Coal-to-Liquids Heat and Power	0.00	0.11	0.16	0.22	0.13	0.34	1.35	0.13	0.55	2.08
Net Coal Coke Imports	0.04	0.01	0.01	0.01	0.01	0.01	0.01	-0.00	-0.00	-0.00
Coal Subtotal	1.79	1.76	1.76	1.79	1.75	1.92	2.90	1.57	1.95	3.46
Biofuels Heat and Coproducts	1.03	0.80	0.77	0.81	1.18	1.49	2.51	1.23	2.56	4.19
Renewable Energy[7]	1.50	1.63	1.59	1.57	1.78	1.74	1.71	1.88	1.83	1.80
Electricity	3.35	3.49	3.40	3.33	3.55	3.49	3.44	3.53	3.47	3.41
Delivered Energy	**24.81**	**25.24**	**24.76**	**24.36**	**25.95**	**25.88**	**27.51**	**26.04**	**26.70**	**29.71**
Electricity Related Losses	7.26	7.37	7.29	7.19	7.39	7.29	7.14	7.12	7.01	6.83
Total	**32.07**	**32.61**	**32.05**	**31.55**	**33.34**	**33.18**	**34.65**	**33.16**	**33.72**	**36.54**

Table C2. Energy Consumption by Sector and Source (Continued)
(Quadrillion Btu per Year, Unless Otherwise Noted)

Sector and Source	2008	Projections								
		2015			2025			2035		
		Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price
Transportation										
Liquefied Petroleum Gases	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03
E85[8]	0.01	0.01	0.01	0.21	0.22	0.52	2.53	0.02	1.75	3.86
Motor Gasoline[2]	16.76	18.14	17.02	16.45	19.37	16.91	13.15	21.54	16.44	12.34
Jet Fuel[9]	3.15	3.30	3.26	3.21	3.64	3.62	3.59	3.82	3.80	3.78
Distillate Fuel Oil[10]	6.09	6.47	6.32	6.20	7.36	7.13	7.02	8.71	8.28	8.14
Residual Fuel Oil	0.93	0.94	0.94	0.94	0.96	0.96	0.96	0.97	0.97	0.98
Other Petroleum[11]	0.17	0.18	0.17	0.17	0.18	0.18	0.18	0.19	0.19	0.19
Liquid Fuels and Other Petroleum Subtotal	27.14	29.05	27.73	27.20	31.74	29.34	27.45	35.28	31.47	29.31
Pipeline Fuel Natural Gas	0.64	0.63	0.61	0.61	0.65	0.72	0.72	0.77	0.74	0.74
Compressed Natural Gas	0.04	0.05	0.05	0.07	0.05	0.11	0.22	0.06	0.19	0.36
Liquid Hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.02	0.03	0.03	0.03	0.03	0.04	0.05	0.04	0.06	0.08
Delivered Energy	**27.85**	**29.75**	**28.42**	**27.90**	**32.48**	**30.21**	**28.44**	**36.16**	**32.46**	**30.49**
Electricity Related Losses	0.05	0.05	0.05	0.05	0.07	0.08	0.10	0.09	0.11	0.16
Total	**27.90**	**29.81**	**28.48**	**27.95**	**32.55**	**30.29**	**28.54**	**36.25**	**32.58**	**30.65**
Delivered Energy Consumption for All Sectors										
Liquefied Petroleum Gases	2.70	2.73	2.82	3.13	2.68	3.06	3.06	2.59	2.87	2.87
E85[8]	0.01	0.01	0.01	0.21	0.22	0.52	2.53	0.02	1.75	3.86
Motor Gasoline[2]	17.12	18.51	17.38	16.81	19.73	17.28	13.51	21.91	16.80	12.71
Jet Fuel[9]	3.15	3.30	3.26	3.21	3.64	3.62	3.59	3.82	3.80	3.78
Kerosene	0.06	0.06	0.06	0.06	0.07	0.06	0.06	0.07	0.06	0.06
Distillate Fuel Oil	8.33	8.70	8.40	8.19	9.49	9.07	8.86	10.81	10.13	9.90
Residual Fuel Oil	1.19	1.26	1.17	1.15	1.30	1.18	1.16	1.33	1.19	1.18
Petrochemical Feedstocks	1.12	1.09	1.09	0.65	1.11	0.82	0.69	1.09	0.81	0.70
Other Petroleum[12]	4.21	4.54	4.17	3.89	4.82	4.06	3.51	5.10	4.10	3.40
Liquid Fuels and Other Petroleum Subtotal	37.89	40.20	38.35	37.30	43.06	39.66	36.98	46.74	41.53	38.46
Natural Gas	15.10	15.36	15.31	15.29	15.58	15.84	15.92	15.66	15.91	16.02
Natural-Gas-to-Liquids Heat and Power	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.65
Lease and Plant Fuel[6]	1.32	1.14	1.11	1.09	1.14	1.23	1.29	1.28	1.29	1.40
Pipeline Natural Gas	0.64	0.63	0.61	0.61	0.65	0.72	0.72	0.77	0.74	0.74
Natural Gas Subtotal	17.07	17.13	17.03	16.99	17.37	17.79	18.20	17.71	17.94	18.80
Metallurgical Coal	0.58	0.55	0.52	0.50	0.52	0.50	0.48	0.39	0.36	0.35
Other Coal	1.24	1.16	1.15	1.14	1.16	1.15	1.14	1.13	1.11	1.11
Coal-to-Liquids Heat and Power	0.00	0.11	0.16	0.22	0.13	0.34	1.35	0.13	0.55	2.08
Net Coal Coke Imports	0.04	0.01	0.01	0.01	0.01	0.01	0.01	-0.00	-0.00	-0.00
Coal Subtotal	1.86	1.83	1.84	1.87	1.82	2.00	2.97	1.64	2.02	3.53
Biofuels Heat and Coproducts	1.03	0.80	0.77	0.81	1.18	1.49	2.51	1.23	2.56	4.19
Renewable Energy[13]	2.05	2.08	2.10	2.11	2.23	2.27	2.30	2.33	2.37	2.40
Liquid Hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	12.69	13.41	13.20	13.03	14.76	14.58	14.46	16.10	15.90	15.77
Delivered Energy	**72.59**	**75.45**	**73.30**	**72.11**	**80.43**	**77.78**	**77.44**	**85.76**	**82.33**	**83.15**
Electricity Related Losses	27.50	28.35	28.31	28.16	30.75	30.48	29.97	32.41	32.19	31.60
Total	**100.09**	**103.80**	**101.61**	**100.27**	**111.19**	**108.26**	**107.41**	**118.17**	**114.51**	**114.75**
Electric Power[14]										
Distillate Fuel Oil	0.10	0.13	0.12	0.12	0.14	0.13	0.13	0.15	0.14	0.14
Residual Fuel Oil	0.36	0.55	0.33	0.33	0.62	0.34	0.34	0.72	0.35	0.35
Liquid Fuels and Other Petroleum Subtotal	0.47	0.68	0.46	0.45	0.76	0.48	0.47	0.87	0.49	0.49
Natural Gas	6.84	6.09	5.32	4.82	6.91	6.45	6.07	8.49	7.62	7.00
Steam Coal	20.55	20.22	20.51	20.73	21.59	21.63	21.66	22.47	23.09	23.05
Nuclear Power	8.46	8.75	8.75	8.75	9.29	9.29	9.29	9.26	9.41	9.44
Renewable Energy[15]	3.65	5.82	6.27	6.25	6.76	7.00	6.73	7.19	7.26	7.14
Electricity Imports	0.11	0.07	0.07	0.07	0.08	0.08	0.09	0.10	0.09	0.12
Total[16]	**40.20**	**41.76**	**41.51**	**41.19**	**45.52**	**45.06**	**44.43**	**48.51**	**48.09**	**47.37**

Table C2. Energy Consumption by Sector and Source (Continued)
(Quadrillion Btu per Year, Unless Otherwise Noted)

Sector and Source	2008	Projections								
		2015			2025			2035		
		Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price
Total Energy Consumption										
Liquefied Petroleum Gases	2.70	2.73	2.82	3.13	2.68	3.06	3.06	2.59	2.87	2.87
E85[8]	0.01	0.01	0.01	0.21	0.22	0.52	2.53	0.02	1.75	3.86
Motor Gasoline[2]	17.12	18.51	17.38	16.81	19.73	17.28	13.51	21.91	16.80	12.71
Jet Fuel[9]	3.15	3.30	3.26	3.21	3.64	3.62	3.59	3.82	3.80	3.78
Kerosene	0.06	0.06	0.06	0.06	0.07	0.06	0.06	0.07	0.06	0.06
Distillate Fuel Oil	8.43	8.83	8.53	8.31	9.63	9.20	8.99	10.97	10.27	10.04
Residual Fuel Oil	1.55	1.81	1.50	1.48	1.93	1.52	1.50	2.04	1.55	1.53
Petrochemical Feedstocks	1.12	1.09	1.09	0.65	1.11	0.82	0.69	1.09	0.81	0.70
Other Petroleum[12]	4.21	4.54	4.17	3.89	4.82	4.06	3.51	5.10	4.10	3.40
Liquid Fuels and Other Petroleum Subtotal	38.35	40.88	38.81	37.75	43.83	40.14	37.45	47.61	42.02	38.94
Natural Gas	21.94	21.45	20.63	20.11	22.48	22.29	21.99	24.15	23.53	23.01
Natural-Gas-to-Liquids Heat and Power	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.65
Lease and Plant Fuel[6]	1.32	1.14	1.11	1.09	1.14	1.23	1.29	1.28	1.29	1.40
Pipeline Natural Gas	0.64	0.63	0.61	0.61	0.65	0.72	0.72	0.77	0.74	0.74
Natural Gas Subtotal	23.91	23.22	22.35	21.81	24.28	24.24	24.28	26.21	25.56	25.80
Metallurgical Coal	0.58	0.55	0.52	0.50	0.52	0.50	0.48	0.39	0.36	0.35
Other Coal	21.79	21.38	21.66	21.86	22.75	22.78	22.80	23.59	24.20	24.16
Coal-to-Liquids Heat and Power	0.00	0.11	0.16	0.22	0.13	0.34	1.35	0.13	0.55	2.08
Net Coal Coke Imports	0.04	0.01	0.01	0.01	0.01	0.01	0.01	-0.00	-0.00	-0.00
Coal Subtotal	22.41	22.05	22.35	22.59	23.41	23.63	24.63	24.10	25.11	26.59
Nuclear Power	8.46	8.75	8.75	8.75	9.29	9.29	9.29	9.26	9.41	9.44
Biofuels Heat and Coproducts	1.03	0.80	0.77	0.81	1.18	1.49	2.51	1.23	2.56	4.19
Renewable Energy[17]	5.70	7.91	8.37	8.36	8.99	9.27	9.03	9.52	9.63	9.54
Liquid Hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity Imports	0.11	0.07	0.07	0.07	0.08	0.08	0.09	0.10	0.09	0.12
Total	**100.09**	**103.80**	**101.61**	**100.27**	**111.19**	**108.26**	**107.41**	**118.17**	**114.51**	**114.75**
Energy Use and Related Statistics										
Delivered Energy Use	72.59	75.45	73.30	72.11	80.43	77.78	77.44	85.76	82.33	83.15
Total Energy Use	100.09	103.80	101.61	100.27	111.19	108.26	107.41	118.17	114.51	114.75
Ethanol Consumed in Motor Gasoline and E85	0.82	1.31	1.23	1.32	1.53	1.56	2.59	1.55	2.35	3.46
Population (millions)	305.37	326.70	326.70	326.70	358.62	358.62	358.62	390.70	390.70	390.70
Gross Domestic Product (billion 2000 dollars)	11652	13429	13289	13161	17580	17561	17692	22358	22362	22570
Carbon Dioxide Emissions (million metric tons)	5814.4	5903.1	5730.7	5642.4	6277.8	6015.8	5829.1	6732.5	6320.4	6133.7

[1]Includes wood used for residential heating. See Table A4 and/or Table A17 for estimates of nonmarketed renewable energy consumption for geothermal heat pumps, solar thermal hot water heating, and electricity generation from wind and solar photovoltaic sources.
[2]Includes ethanol (blends of 10 percent or less) and ethers blended into gasoline.
[3]Excludes ethanol. Includes commercial sector consumption of wood and wood waste, landfill gas, municipal waste, and other biomass for combined heat and power. See Table A5 and/or Table A17 for estimates of nonmarketed renewable energy consumption for solar thermal hot water heating and electricity generation from wind and solar photovoltaic sources.
[4]Includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.
[5]Includes petroleum coke, asphalt, road oil, lubricants, still gas, and miscellaneous petroleum products.
[6]Represents natural gas used in well, field, and lease operations, and in natural gas processing plant machinery.
[7]Includes consumption of energy produced from hydroelectric, wood and wood waste, municipal waste, and other biomass sources. Excludes ethanol blends (10 percent or less) in motor gasoline.
[8]E85 refers to a blend of 85 percent ethanol (renewable) and 15 percent motor gasoline (nonrenewable). To address cold starting issues, the percentage of ethanol varies seasonally. The annual average ethanol content of 74 percent is used for this forecast.
[9]Includes only kerosene type.
[10]Diesel fuel for on- and off- road use.
[11]Includes aviation gasoline and lubricants.
[12]Includes unfinished oils, natural gasoline, motor gasoline blending components, aviation gasoline, lubricants, still gas, asphalt, road oil, petroleum coke, and miscellaneous petroleum products.
[13]Includes electricity generated for sale to the grid and for own use from renewable sources, and non-electric energy from renewable sources. Excludes ethanol and nonmarketed renewable energy consumption for geothermal heat pumps, buildings photovoltaic systems, and solar thermal hot water heaters.
[14]Includes consumption of energy by electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.
[15]Includes conventional hydroelectric, geothermal, wood and wood waste, biogenic municipal waste, other biomass, wind, photovoltaic, and solar thermal sources. Excludes net electricity imports.
[16]Includes non-biogenic municipal waste not included above.
[17]Includes conventional hydroelectric, geothermal, wood and wood waste, biogenic municipal waste, other biomass, wind, photovoltaic, and solar thermal sources. Excludes ethanol, net electricity imports, and nonmarketed renewable energy consumption for geothermal heat pumps, buildings photovoltaic systems, and solar thermal hot water heaters.
Btu = British thermal unit.
Note: Totals may not equal sum of components due to independent rounding. Data for 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2008 consumption based on: Energy Information Administration (EIA), *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). 2008 population and gross domestic product: IHS Global Insight Industry and Employment models, August 2009. 2008 carbon dioxide emissions: EIA, *Emissions of Greenhouse Gases in the United States 2008,* DOE/EIA-0573(2008) (Washington, DC, December 2009). **Projections:** EIA, AEO2010 National Energy Modeling System runs LP2010.D011910A, AEO2010R.D111809A, and HP2010.D011910A.

Table C3. Energy Prices by Sector and Source
(2008 Dollars per Million Btu, Unless Otherwise Noted)

Sector and Source	2008	Projections								
		2015			2025			2035		
		Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price
Residential										
Liquefied Petroleum Gases	29.35	20.16	28.03	38.45	19.98	31.55	48.94	20.22	34.65	51.29
Distillate Fuel Oil	24.47	12.95	21.08	30.32	13.88	25.23	38.94	14.83	28.66	41.94
Natural Gas	13.48	10.88	11.56	12.07	12.19	12.29	12.74	13.73	14.40	15.04
Electricity	33.29	30.32	31.43	32.40	31.46	32.26	33.15	33.68	34.71	35.70
Commercial										
Liquefied Petroleum Gases	26.15	16.94	24.77	35.18	16.72	28.26	45.63	16.94	31.32	47.95
Distillate Fuel Oil	21.50	11.14	18.72	27.43	11.78	22.72	36.27	12.40	26.13	39.23
Residual Fuel Oil	15.52	5.63	13.13	21.76	5.56	16.54	30.12	5.46	18.84	30.92
Natural Gas	11.94	9.35	9.99	10.49	10.59	10.70	11.12	12.01	12.66	13.26
Electricity	30.47	25.38	26.55	27.54	26.85	27.72	28.62	29.29	30.37	31.46
Industrial[1]										
Liquefied Petroleum Gases	24.20	14.84	22.49	32.95	14.48	26.12	43.42	14.53	29.25	45.76
Distillate Fuel Oil	22.31	11.75	19.00	27.56	12.24	22.97	36.56	12.82	26.48	39.55
Residual Fuel Oil	16.31	9.95	16.47	24.70	9.94	19.23	32.66	9.79	21.72	34.39
Natural Gas[2]	9.11	5.82	6.45	6.94	6.92	7.02	7.44	8.10	8.73	9.37
Metallurgical Coal	4.49	5.01	5.08	5.18	5.11	5.24	5.42	4.94	5.06	5.20
Other Industrial Coal	2.84	2.57	2.69	2.79	2.51	2.63	2.81	2.55	2.71	2.91
Coal to Liquids	- -	1.36	1.42	1.55	1.34	1.49	1.62	1.38	1.51	1.86
Electricity	20.21	16.66	17.37	18.01	18.05	18.50	18.97	20.10	20.71	21.34
Transportation										
Liquefied Petroleum Gases[3]	29.93	20.06	27.88	38.31	19.81	31.36	48.74	19.99	34.38	51.01
E85[4]	26.93	17.21	25.55	33.27	17.12	28.86	40.95	19.05	32.23	41.62
Motor Gasoline[5]	26.76	17.05	25.37	34.64	17.30	28.87	44.06	17.72	32.33	46.65
Jet Fuel[6]	22.71	10.92	19.04	28.36	11.67	22.92	36.58	12.84	26.48	39.49
Diesel Fuel (distillate fuel oil)[7]	27.65	15.74	22.93	31.48	15.80	26.63	40.44	16.02	29.96	43.24
Residual Fuel Oil	14.49	6.65	13.58	21.66	6.17	15.93	29.38	6.15	18.60	31.66
Natural Gas[8]	15.96	12.78	13.37	13.81	13.40	13.43	13.82	14.17	14.78	15.32
Electricity	33.73	27.95	28.79	29.47	28.50	28.63	30.96	31.17	33.26	35.87
Electric Power[9]										
Distillate Fuel Oil	19.37	9.39	17.36	26.38	10.26	21.35	34.75	11.09	24.70	37.65
Residual Fuel Oil	14.56	7.37	15.53	23.70	6.94	18.30	31.81	6.85	21.12	34.04
Natural Gas	9.09	5.49	6.08	6.51	6.69	6.75	7.09	7.82	8.46	8.98
Steam Coal	2.05	1.88	2.01	2.12	1.85	1.99	2.17	1.91	2.09	2.28
Average Price to All Users[10]										
Liquefied Petroleum Gases	20.19	13.22	20.30	29.55	13.11	23.34	39.17	13.48	26.37	41.50
E85[4]	26.93	17.21	25.55	33.27	17.12	28.86	40.95	19.05	32.23	41.62
Motor Gasoline[5]	26.54	17.05	25.36	34.63	17.30	28.87	44.06	17.72	32.32	46.65
Jet Fuel	22.71	10.92	19.04	28.36	11.67	22.92	36.58	12.84	26.48	39.49
Distillate Fuel Oil	26.27	14.70	22.03	30.65	15.01	25.89	39.66	15.45	29.34	42.59
Residual Fuel Oil	14.77	7.22	14.26	22.38	6.87	16.80	30.23	6.81	19.46	32.38
Natural Gas	10.53	7.45	8.14	8.66	8.63	8.75	9.21	9.81	10.54	11.21
Metallurgical Coal	4.49	5.01	5.08	5.18	5.11	5.24	5.42	4.94	5.06	5.20
Other Coal	2.10	1.92	2.05	2.16	1.89	2.02	2.20	1.94	2.12	2.31
Coal to Liquids	- -	1.36	1.42	1.55	1.34	1.49	1.62	1.38	1.51	1.86
Electricity	28.81	24.90	25.95	26.87	26.41	27.17	27.97	28.89	29.87	30.85
Non-Renewable Energy Expenditures by Sector (billion 2008 dollars)										
Residential	254.66	217.97	230.89	243.46	247.76	258.70	273.37	285.45	301.11	315.63
Commercial	191.19	167.41	176.90	185.72	201.61	210.07	221.52	248.04	261.07	274.49
Industrial	244.81	163.98	213.14	267.98	173.94	241.75	330.70	184.47	267.18	350.42
Transportation	705.86	456.29	655.77	882.66	503.13	782.71	1033.47	581.05	908.01	1123.59
Total Non-Renewable Expenditures	1396.52	1005.65	1276.69	1579.83	1126.44	1493.23	1859.07	1299.01	1737.37	2064.13
Transportation Renewable Expenditures	0.17	0.16	0.21	6.91	3.85	15.06	103.71	0.43	56.42	160.44
Total Expenditures	**1396.69**	**1005.81**	**1276.90**	**1586.74**	**1130.29**	**1508.29**	**1962.77**	**1299.44**	**1793.79**	**2224.57**

Table C3. Energy Prices by Sector and Source (Continued)
(Nominal Dollars per Million Btu, Unless Otherwise Noted)

Sector and Source	2008	Projections								
		2015			2025			2035		
		Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price
Residential										
Liquefied Petroleum Gases	29.35	22.37	31.23	42.94	27.42	42.82	65.67	34.03	58.23	85.33
Distillate Fuel Oil	24.47	14.37	23.49	33.85	19.06	34.24	52.24	24.95	48.16	69.77
Natural Gas	13.48	12.07	12.88	13.48	16.73	16.68	17.09	23.11	24.20	25.01
Electricity	33.29	33.64	35.02	36.18	43.18	43.78	44.48	56.69	58.33	59.39
Commercial										
Liquefied Petroleum Gases	26.15	18.79	27.61	39.29	22.96	38.35	61.23	28.51	52.64	79.76
Distillate Fuel Oil	21.50	12.36	20.86	30.63	16.16	30.83	48.67	20.86	43.92	65.26
Residual Fuel Oil	15.52	6.24	14.63	24.30	7.63	22.45	40.41	9.19	31.66	51.44
Natural Gas	11.94	10.37	11.14	11.71	14.54	14.53	14.91	20.21	21.27	22.05
Electricity	30.47	28.16	29.58	30.75	36.85	37.62	38.40	49.31	51.04	52.33
Industrial[1]										
Liquefied Petroleum Gases	24.20	16.47	25.06	36.79	19.87	35.45	58.26	24.45	49.15	76.12
Distillate Fuel Oil	22.31	13.03	21.18	30.78	16.80	31.18	49.06	21.58	44.51	65.78
Residual Fuel Oil	16.31	11.04	18.35	27.58	13.64	26.10	43.82	16.48	36.50	57.21
Natural Gas[2]	9.11	6.46	7.18	7.75	9.50	9.52	9.98	13.63	14.67	15.59
Metallurgical Coal	4.49	5.56	5.66	5.78	7.01	7.11	7.27	8.31	8.50	8.66
Other Industrial Coal	2.84	2.85	3.00	3.12	3.45	3.56	3.78	4.28	4.55	4.84
Coal to Liquids	- -	1.51	1.58	1.73	1.84	2.02	2.18	2.33	2.53	3.09
Electricity	20.21	18.48	19.36	20.12	24.78	25.11	25.45	33.84	34.80	35.49
Transportation										
Liquefied Petroleum Gases[3]	29.93	22.25	31.07	42.78	27.20	42.56	65.40	33.64	57.77	84.85
E85[4]	26.93	19.09	28.47	37.15	23.50	39.17	54.95	32.06	54.17	69.23
Motor Gasoline[5]	26.76	18.92	28.27	38.68	23.75	39.18	59.12	29.82	54.33	77.61
Jet Fuel[6]	22.71	12.11	21.21	31.67	16.02	31.10	49.08	21.60	44.51	65.69
Diesel Fuel (distillate fuel oil)[7]	27.65	17.46	25.56	35.15	21.69	36.13	54.26	26.96	50.35	71.93
Residual Fuel Oil	14.49	7.38	15.13	24.19	8.46	21.63	39.42	10.36	31.26	52.66
Natural Gas[8]	15.96	14.17	14.90	15.42	18.40	18.23	18.54	23.85	24.84	25.49
Electricity	33.73	31.01	32.08	32.91	39.13	38.86	41.54	52.46	55.89	59.66
Electric Power[9]										
Distillate Fuel Oil	19.37	10.41	19.35	29.45	14.09	28.98	46.63	18.67	41.52	62.64
Residual Fuel Oil	14.56	8.17	17.30	26.46	9.52	24.83	42.68	11.53	35.49	56.63
Natural Gas	9.09	6.09	6.77	7.27	9.18	9.17	9.52	13.16	14.22	14.94
Steam Coal	2.05	2.09	2.24	2.37	2.55	2.69	2.91	3.21	3.51	3.79

Table C3. Energy Prices by Sector and Source (Continued)
(Nominal Dollars per Million Btu, Unless Otherwise Noted)

Sector and Source	2008	Projections								
		2015			2025			2035		
		Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price
Average Price to All Users[10]										
Liquefied Petroleum Gases	20.19	14.67	22.62	33.00	18.00	31.68	52.56	22.68	44.32	69.03
E85[4]	26.93	19.09	28.47	37.15	23.50	39.17	54.95	32.06	54.17	69.23
Motor Gasoline[5]	26.54	18.91	28.27	38.68	23.74	39.17	59.12	29.82	54.32	77.61
Jet Fuel	22.71	12.11	21.21	31.67	16.02	31.10	49.08	21.60	44.51	65.69
Distillate Fuel Oil	26.27	16.31	24.55	34.22	20.61	35.14	53.22	26.01	49.31	70.85
Residual Fuel Oil	14.77	8.01	15.89	25.00	9.43	22.80	40.56	11.47	32.70	53.86
Natural Gas	10.53	8.27	9.07	9.67	11.85	11.88	12.35	16.51	17.71	18.65
Metallurgical Coal	4.49	5.56	5.66	5.78	7.01	7.11	7.27	8.31	8.50	8.66
Other Coal	2.10	2.13	2.28	2.41	2.59	2.74	2.96	3.27	3.56	3.84
Coal to Liquids	- -	1.51	1.58	1.73	1.84	2.02	2.18	2.33	2.53	3.09
Electricity	28.81	27.63	28.92	30.01	36.26	36.87	37.53	48.62	50.19	51.31
Non-Renewable Energy Expenditures by Sector (billion nominal dollars)										
Residential	254.66	241.83	257.29	271.88	340.11	351.09	366.81	480.43	506.03	525.04
Commercial	191.19	185.74	197.13	207.40	276.76	285.09	297.24	417.47	438.74	456.61
Industrial	244.81	181.93	237.51	299.26	238.77	328.09	443.73	310.48	449.00	582.92
Transportation	705.86	506.26	730.78	985.70	690.66	1062.24	1386.69	977.97	1525.95	1869.09
Total Non-Renewable Expenditures	1396.52	1115.76	1422.72	1764.24	1546.29	2026.51	2494.47	2186.36	2919.72	3433.66
Transportation Renewable Expenditures	0.17	0.17	0.24	7.72	5.28	20.44	139.15	0.72	94.81	266.90
Total Expenditures	**1396.69**	**1115.94**	**1422.95**	**1771.96**	**1551.57**	**2046.94**	**2633.62**	**2187.08**	**3014.53**	**3700.55**

[1]Includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.
[2]Excludes use for lease and plant fuel.
[3]Includes Federal and State taxes while excluding county and local taxes.
[4]E85 refers to a blend of 85 percent ethanol (renewable) and 15 percent motor gasoline (nonrenewable). To address cold starting issues, the percentage of ethanol varies seasonally. The annual average ethanol content of 74 percent is used for this forecast.
[5]Sales weighted-average price for all grades. Includes Federal, State and local taxes.
[6]Kerosene-type jet fuel. Includes Federal and State taxes while excluding county and local taxes.
[7]Diesel fuel for on-road use. Includes Federal and State taxes while excluding county and local taxes.
[8]Compressed natural gas used as a vehicle fuel. Includes estimated motor vehicle fuel taxes and estimated dispensing costs or charges.
[9]Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.
[10]Weighted averages of end-use fuel prices are derived from the prices shown in each sector and the corresponding sectoral consumption.
Btu = British thermal unit.
- - = Not applicable.
Note: Data for 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2008 prices for motor gasoline, distillate fuel oil, and jet fuel are based on prices in the Energy Information Administration (EIA), *Petroleum Marketing Annual 2008*, DOE/EIA-0487(2008) (Washington, DC, August 2009). 2008 residential and commercial natural gas delivered prices: EIA, *Natural Gas Monthly*, DOE/EIA-0130(2009/07) (Washington, DC, July 2009). 2008 industrial natural gas delivered prices are estimated based on: EIA, *Manufacturing Energy Consumption Survey* and industrial and wellhead prices from the *Natural Gas Annual 2007*, DOE/EIA-0131(2007) (Washington, DC, January 2009) and the *Natural Gas Monthly*, DOE/EIA-0130(2009/07) (Washington, DC, July 2009). 2008 transportation sector natural gas delivered prices are model results. 2008 electric power sector natural gas prices: EIA, *Electric Power Monthly*, DOE/EIA-0226, April 2008 and April 2009, Table 4.13.B. 2008 coal prices based on: EIA, *Quarterly Coal Report, October-December 2008*, DOE/EIA-0121(2008/4Q) (Washington, DC, March 2009) and EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A. 2008 electricity prices: EIA, *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). 2008 E85 prices derived from monthly prices in the Clean Cities Alternative Fuel Price Report.
Projections: EIA, AEO2010 National Energy Modeling System runs LP2010.D011910A, AEO2010R.D111809A, and HP2010.D011910A.

Table C4. Liquid Fuels Supply and Disposition
(Million Barrels per Day, Unless Otherwise Noted)

Supply and Disposition	2008	Projections								
		2015			2025			2035		
		Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price
Crude Oil										
Domestic Crude Production[1]	4.96	5.56	5.77	5.84	4.95	6.13	6.81	4.37	6.27	6.89
Alaska	0.69	0.49	0.49	0.49	0.53	0.74	0.79	0.21	0.45	0.45
Lower 48 States	4.28	5.07	5.28	5.35	4.42	5.39	6.02	4.16	5.83	6.45
Net Imports	9.75	10.06	8.88	8.21	11.63	8.60	5.87	13.57	8.65	5.30
Gross Imports	9.78	10.09	8.91	8.24	11.66	8.63	5.91	13.59	8.68	5.33
Exports	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.02	0.03	0.04
Other Crude Supply[2]	-0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Crude Supply	**14.66**	**15.62**	**14.66**	**14.05**	**16.58**	**14.73**	**12.68**	**17.94**	**14.92**	**12.19**
Other Petroleum Supply	**4.10**	**4.16**	**4.05**	**3.86**	**4.35**	**4.01**	**3.28**	**4.74**	**3.98**	**3.20**
Natural Gas Plant Liquids	1.78	1.80	1.77	1.73	1.83	1.74	1.75	1.86	1.83	1.82
Net Product Imports	1.39	1.27	1.24	1.06	1.34	1.10	0.61	1.69	1.02	0.52
Gross Refined Product Imports[3]	1.54	1.11	1.23	1.17	1.18	1.25	0.99	1.39	1.22	1.03
Unfinished Oil Imports	0.76	0.93	0.81	0.74	1.05	0.82	0.57	1.22	0.85	0.52
Blending Component Imports	0.79	0.84	0.80	0.78	0.89	0.82	0.74	0.95	0.84	0.74
Exports	1.71	1.60	1.60	1.63	1.78	1.79	1.69	1.87	1.89	1.77
Refinery Processing Gain[4]	1.00	1.08	1.04	1.07	1.18	1.17	0.92	1.19	1.13	0.86
Product Stock Withdrawal	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-petroleum Supply	**0.78**	**1.32**	**1.42**	**1.72**	**1.65**	**2.11**	**3.88**	**1.68**	**3.11**	**5.46**
Supply from Renewable Sources	0.71	1.11	1.10	1.19	1.40	1.63	2.55	1.42	2.58	3.64
Ethanol	0.65	1.01	0.95	1.02	1.19	1.21	2.00	1.20	1.82	2.68
Domestic Production	0.61	0.98	0.91	0.93	1.13	1.10	1.67	1.16	1.49	2.21
Net Imports	0.05	0.03	0.04	0.09	0.05	0.11	0.33	0.04	0.33	0.48
Biodiesel	0.05	0.07	0.11	0.11	0.08	0.11	0.14	0.05	0.13	0.15
Domestic Production	0.05	0.07	0.11	0.11	0.08	0.11	0.14	0.05	0.13	0.15
Net Imports	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Biomass-derived Liquids[5]	0.01	0.03	0.04	0.06	0.13	0.31	0.41	0.18	0.63	0.81
Liquids from Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.50
Liquids from Coal	0.00	0.05	0.07	0.10	0.06	0.15	0.60	0.06	0.24	0.92
Other[6]	0.07	0.16	0.25	0.43	0.20	0.33	0.53	0.20	0.29	0.40
Total Primary Supply[7]	**19.54**	**21.10**	**20.13**	**19.63**	**22.58**	**20.86**	**19.85**	**24.36**	**22.00**	**20.85**
Liquid Fuels Consumption										
by Fuel										
Liquefied Petroleum Gases	1.95	2.08	2.15	2.38	2.04	2.33	2.33	1.97	2.19	2.19
E85[8]	0.00	0.01	0.01	0.14	0.15	0.36	1.74	0.02	1.20	2.65
Motor Gasoline[9]	8.99	9.98	9.37	9.06	10.64	9.32	7.29	11.81	9.06	6.86
Jet Fuel[10]	1.54	1.59	1.57	1.55	1.76	1.75	1.74	1.85	1.84	1.83
Distillate Fuel Oil[11]	3.94	4.23	4.08	3.98	4.61	4.41	4.30	5.25	4.91	4.80
Diesel	3.44	3.66	3.56	3.49	4.07	3.93	3.87	4.73	4.48	4.40
Residual Fuel Oil	0.62	0.79	0.66	0.64	0.84	0.66	0.65	0.89	0.67	0.67
Other[12]	2.47	2.51	2.35	2.01	2.65	2.17	1.86	2.76	2.18	1.82
by Sector										
Residential and Commercial	0.98	0.97	0.89	0.84	0.95	0.83	0.74	0.94	0.79	0.71
Industrial[13]	4.75	4.95	4.82	4.71	5.03	4.81	4.53	5.07	4.67	4.34
Transportation	13.88	14.96	14.27	14.02	16.37	15.14	14.43	18.15	16.38	15.54
Electric Power[14]	0.21	0.30	0.20	0.20	0.34	0.21	0.21	0.38	0.22	0.22
Total	**19.53**	**21.19**	**20.18**	**19.77**	**22.69**	**20.99**	**19.92**	**24.54**	**22.06**	**20.81**
Discrepancy[15]	**0.01**	**-0.08**	**-0.05**	**-0.14**	**-0.11**	**-0.13**	**-0.07**	**-0.19**	**-0.06**	**0.03**

Table C4. Liquid Fuels Supply and Disposition (Continued)
(Million Barrels per Day, Unless Otherwise Noted)

Supply and Disposition	2008	Projections								
		2015			2025			2035		
		Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price
Domestic Refinery Distillation Capacity[16]	17.6	18.0	17.9	17.6	18.5	16.8	15.6	19.7	17.3	15.3
Capacity Utilization Rate (percent)[17]	85.0	88.4	83.7	81.2	91.6	89.5	83.3	93.0	88.3	81.3
Net Import Share of Product Supplied (percent)	57.3	53.9	50.5	47.7	57.7	47.1	34.3	62.8	45.4	30.2
Net Expenditures for Imported Crude Oil and Petroleum Products (billion 2008 dollars)	437.90	172.10	301.44	442.73	187.93	356.35	438.01	223.98	420.54	435.49

[1]Includes lease condensate.
[2]Strategic petroleum reserve stock additions plus unaccounted for crude oil and crude stock withdrawals minus crude product supplied.
[3]Includes other hydrocarbons and alcohols.
[4]The volumetric amount by which total output is greater than input due to the processing of crude oil into products which, in total, have a lower specific gravity than the crude oil processed.
[5]Includes pyrolysis oils, biomass-derived Fischer-Tropsch liquids, and renewable feedstocks used for the production of green diesel and gasoline.
[6]Includes domestic sources of other blending components, other hydrocarbons, and ethers.
[7]Total crude supply plus natural gas plant liquids, other inputs, refinery processing gain, and net product imports.
[8]E85 refers to a blend of 85 percent ethanol (renewable) and 15 percent motor gasoline (nonrenewable). To address cold starting issues, the percentage of ethanol varies seasonally. The annual average ethanol content of 74 percent is used for this forecast.
[9]Includes ethanol and ethers blended into gasoline.
[10]Includes only kerosene type.
[11]Includes distillate fuel oil and kerosene from petroleum and biomass feedstocks.
[12]Includes aviation gasoline, petrochemical feedstocks, lubricants, waxes, asphalt, road oil, still gas, special naphthas, petroleum coke, crude oil product supplied, methanol, and miscellaneous petroleum products.
[13]Includes consumption for combined heat and power, which produces electricity and other useful thermal energy.
[14]Includes consumption of energy by electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.
[15]Balancing item. Includes unaccounted for supply, losses, and gains.
[16]End-of-year operable capacity.
[17]Rate is calculated by dividing the gross annual input to atmospheric crude oil distillation units by their operable refining capacity in barrels per calendar day.
Note: Totals may not equal sum of components due to independent rounding. Data for 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2008 petroleum product supplied based on: Energy Information Administration (EIA), *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). Other 2008 data: EIA, *Petroleum Supply Annual 2008,* DOE/EIA-0340(2008)/1 (Washington, DC, June 2009). **Projections:** EIA, AEO2010 National Energy Modeling System runs LP2010.D011910A, AEO2010R.D111809A, and HP2010.D011910A.

Table C5. Petroleum Product Prices
(2008 Cents per Gallon, Unless Otherwise Noted)

Sector and Fuel	2008	Projections								
		2015			2025			2035		
		Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price
Crude Oil Prices (2008 dollars per barrel)										
Imported Low Sulfur Light Crude Oil[1]	99.57	51.59	94.52	144.78	51.73	115.09	196.01	51.44	133.22	209.60
Imported Crude Oil[1]	92.61	43.88	86.88	137.01	41.36	104.49	185.85	41.99	121.37	199.65
Delivered Sector Product Prices										
Residential										
Liquefied Petroleum Gases	251.5	172.8	240.2	329.6	171.2	270.4	419.5	173.3	297.0	439.6
Distillate Fuel Oil	339.3	179.6	292.4	420.5	192.6	349.9	540.0	205.6	397.5	581.7
Commercial										
Distillate Fuel Oil	296.8	153.6	258.0	378.2	162.4	313.2	500.1	170.9	360.3	540.9
Residual Fuel Oil	232.4	84.2	196.5	325.7	83.2	247.6	450.8	81.7	282.0	462.9
Residual Fuel Oil (2008 dollars per barrel)	97.61	35.38	82.52	136.79	34.96	104.01	189.33	34.32	118.45	194.40
Industrial[2]										
Liquefied Petroleum Gases	207.4	127.2	192.7	282.4	124.1	223.9	372.1	124.5	250.6	392.2
Distillate Fuel Oil	307.4	161.3	260.9	378.4	168.0	315.4	501.9	176.0	363.6	542.9
Residual Fuel Oil	244.1	149.0	246.5	369.7	148.8	287.9	488.9	146.6	325.1	514.8
Residual Fuel Oil (2008 dollars per barrel)	102.52	62.59	103.52	155.27	62.48	120.91	205.34	61.56	136.54	216.23
Transportation										
Liquefied Petroleum Gases	256.5	171.9	238.9	328.4	169.8	268.8	417.7	171.3	294.6	437.2
Ethanol (E85)[3]	255.5	163.3	242.4	315.6	162.4	273.8	388.5	180.7	305.8	394.8
Ethanol Wholesale Price	244.6	210.8	198.9	230.7	171.8	188.6	276.5	173.4	211.5	248.1
Motor Gasoline[4]	326.7	206.3	306.9	419.1	209.3	349.3	533.1	214.4	391.1	564.5
Jet Fuel[5]	306.5	147.4	257.0	382.9	157.5	309.4	493.8	173.3	357.5	533.1
Diesel Fuel (distillate fuel oil)[6]	379.3	215.7	314.3	431.4	216.5	364.9	554.1	219.5	410.5	592.5
Residual Fuel Oil	216.9	99.6	203.3	324.3	92.3	238.5	439.8	92.1	278.5	473.9
Residual Fuel Oil (2008 dollars per barrel)	91.11	41.81	85.37	136.20	38.76	100.18	184.72	38.70	116.95	199.04
Electric Power[7]										
Distillate Fuel Oil	268.6	130.2	240.8	365.8	142.3	296.1	481.9	153.8	342.6	522.2
Residual Fuel Oil	218.0	110.3	232.4	354.7	103.8	273.9	476.1	102.5	316.1	509.6
Residual Fuel Oil (2008 dollars per barrel)	91.57	46.32	97.61	148.98	43.61	115.04	199.98	43.06	132.75	214.01
Refined Petroleum Product Prices[8]										
Liquefied Petroleum Gases	173.0	113.3	174.0	253.3	112.4	200.1	335.7	115.5	226.0	355.6
Motor Gasoline[4]	324.0	206.3	306.9	419.0	209.3	349.3	533.1	214.4	391.1	564.5
Jet Fuel[5]	306.5	147.4	257.0	382.9	157.5	309.4	493.8	173.3	357.5	533.1
Distillate Fuel Oil	361.2	201.8	302.3	420.5	206.0	355.2	544.2	212.0	402.5	584.2
Residual Fuel Oil	221.1	108.0	213.4	335.0	102.9	251.4	452.5	102.0	291.3	484.7
Residual Fuel Oil (2008 dollars per barrel)	92.85	45.38	89.64	140.72	43.21	105.61	190.05	42.84	122.34	203.56
Average	**304.7**	**183.3**	**279.6**	**389.0**	**187.1**	**322.9**	**499.0**	**194.3**	**366.2**	**534.1**

Table C5. Petroleum Product Prices (Continued)
(Nominal Cents per Gallon, Unless Otherwise Noted)

Sector and Fuel	2008	Projections								
		2015			2025			2035		
		Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price
Crude Oil Prices (nominal dollars per barrel)										
Imported Low Sulfur Light Crude Oil[1]	99.57	57.24	105.33	161.68	71.01	156.20	263.01	86.58	223.88	348.67
Imported Crude Oil[1]	92.61	48.68	96.82	153.00	56.78	141.80	249.37	70.68	203.97	332.11
Delivered Sector Product Prices										
Residential										
Liquefied Petroleum Gases	251.5	191.7	267.7	368.0	235.0	367.0	562.8	291.7	499.1	731.3
Distillate Fuel Oil	339.3	199.2	325.8	469.5	264.3	474.9	724.6	346.1	667.9	967.6
Commercial										
Distillate Fuel Oil	296.8	170.4	287.6	422.4	222.9	425.1	671.0	287.7	605.5	899.8
Residual Fuel Oil	232.4	93.5	219.0	363.7	114.3	336.1	604.9	137.5	474.0	770.0
Industrial[2]										
Liquefied Petroleum Gases	207.4	141.1	214.8	315.3	170.3	303.9	499.3	209.6	421.2	652.4
Distillate Fuel Oil	307.4	178.9	290.7	422.6	230.7	428.0	673.4	296.3	611.0	903.1
Residual Fuel Oil	244.1	165.3	274.7	412.8	204.2	390.7	656.0	246.7	546.4	856.4
Transportation										
Liquefied Petroleum Gases	256.5	190.7	266.3	366.7	233.1	364.8	560.5	288.3	495.1	727.2
Ethanol (E85)[3]	255.5	181.2	270.1	352.4	223.0	371.6	521.3	304.1	513.9	656.8
Ethanol Wholesale Price	244.6	233.9	221.6	257.6	235.8	256.0	371.0	291.9	355.4	412.8
Motor Gasoline[4]	326.7	228.9	342.1	468.0	287.3	474.0	715.3	360.9	657.3	939.0
Jet Fuel[5]	306.5	163.5	286.4	427.6	216.2	419.9	662.6	291.7	600.8	886.9
Diesel Fuel (distillate fuel oil)[6]	379.3	239.3	350.2	481.7	297.2	495.2	743.5	369.5	689.9	985.6
Residual Fuel Oil	216.9	110.5	226.5	362.1	126.7	323.7	590.1	155.1	468.0	788.3
Electric Power[7]										
Distillate Fuel Oil	268.6	144.4	268.4	408.5	195.4	401.9	646.7	258.9	575.8	868.7
Residual Fuel Oil	218.0	122.4	259.0	396.1	142.5	371.7	638.9	172.5	531.2	847.6
Refined Petroleum Product Prices[8]										
Liquefied Petroleum Gases	173.0	125.7	193.9	282.8	154.2	271.5	450.4	194.4	379.8	591.6
Motor Gasoline[4]	324.0	228.8	342.0	467.9	287.3	474.0	715.3	360.8	657.2	939.0
Jet Fuel[5]	306.5	163.5	286.4	427.6	216.2	419.9	662.6	291.7	600.8	886.9
Distillate Fuel Oil	361.2	223.9	336.9	469.6	282.8	482.1	730.1	356.8	676.4	971.8
Residual Fuel Oil (nominal dollars per barrel)	92.85	50.35	99.90	157.15	59.31	143.32	255.01	72.11	205.59	338.61
Average	**304.7**	**203.4**	**311.5**	**434.4**	**256.8**	**438.2**	**669.6**	**327.1**	**615.4**	**888.4**

[1]Weighted average price delivered to U.S. refiners.
[2]Includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.
[3]E85 refers to a blend of 85 percent ethanol (renewable) and 15 percent motor gasoline (nonrenewable). To address cold starting issues, the percentage of ethanol varies seasonally. The annual average ethanol content of 74 percent is used for this forecast.
[4]Sales weighted-average price for all grades. Includes Federal, State and local taxes.
[5]Includes only kerosene type.
[6]Diesel fuel for on-road use. Includes Federal and State taxes while excluding county and local taxes.
[7]Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.
[8]Weighted averages of end-use fuel prices are derived from the prices in each sector and the corresponding sectoral consumption.
Note: Data for 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2008 imported low sulfur light crude oil price: Energy Information Administration (EIA), Form EIA-856, "Monthly Foreign Crude Oil Acquisition Report." 2008 imported crude oil price: EIA, *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). 2008 prices for motor gasoline, distillate fuel oil, and jet fuel are based on: EIA, *Petroleum Marketing Annual 2008*, DOE/EIA-0487(2008) (Washington, DC, August 2009). 2008 residential, commercial, industrial, and transportation sector petroleum product prices are derived from: EIA, Form EIA-782A, "Refiners'/Gas Plant Operators' Monthly Petroleum Product Sales Report." 2008 electric power prices based on: Federal Energy Regulatory Commission, FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants." 2008 E85 prices derived from monthly prices in the Clean Cities Alternative Fuel Price Report. 2008 wholesale ethanol prices derived from Bloomberg U.S. average rack price. **Projections:** EIA, AEO2010 National Energy Modeling System runs LP2010.D011910A, AEO2010R.D111809A, and HP2010.D011910A.

Table C6. International Liquids Supply and Disposition Summary
(Million Barrels per Day, Unless Otherwise Noted)

Supply and Disposition	2008	Projections								
		2015			2025			2035		
		Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price
Crude Oil Prices (2008 dollars per barrel)[1]										
Imported Low Sulfur Light Crude Oil Price	99.57	51.59	94.52	144.78	51.73	115.09	196.01	51.44	133.22	209.60
Imported Crude Oil Price	92.61	43.88	86.88	137.01	41.36	104.49	185.85	41.99	121.37	199.65
Crude Oil Prices (nominal dollars per barrel)[1]										
Imported Low Sulfur Light Crude Oil Price	99.57	57.24	105.33	161.68	71.01	156.20	263.01	86.58	223.88	348.67
Imported Crude Oil Price	92.61	48.68	96.82	153.00	56.78	141.80	249.37	70.68	203.97	332.11
Conventional Production (Conventional)[2]										
OPEC[3]										
Middle East	24.24	29.83	25.42	22.58	35.75	27.87	22.05	41.31	30.94	21.38
North Africa	4.06	5.17	4.42	3.96	5.48	4.32	3.43	5.96	4.53	3.15
West Africa	4.18	6.32	5.30	4.71	7.68	5.87	4.55	8.74	6.43	4.29
South America	2.50	2.49	2.14	1.92	3.30	2.60	2.06	3.62	2.75	1.92
Total OPEC	**34.98**	**43.81**	**37.28**	**33.17**	**52.21**	**40.65**	**32.09**	**59.63**	**44.64**	**30.74**
Non-OPEC										
OECD										
United States (50 states)	7.68	8.61	8.83	9.07	8.16	9.32	9.96	7.62	9.14	9.60
Canada	1.84	1.51	1.52	1.60	1.07	1.10	1.07	0.98	1.02	0.97
Mexico	3.19	2.11	2.12	1.43	2.03	1.88	1.05	2.75	2.21	1.28
OECD Europe[4]	4.96	3.67	3.66	3.93	2.85	2.95	2.88	2.76	2.96	2.77
Japan	0.13	0.16	0.14	0.12	0.19	0.16	0.13	0.21	0.17	0.13
Australia and New Zealand	0.65	0.57	0.57	0.62	0.51	0.54	0.54	0.51	0.57	0.54
Total OECD	**18.46**	**16.62**	**16.83**	**16.78**	**14.80**	**15.96**	**15.63**	**14.83**	**16.08**	**15.29**
Non-OECD										
Russia	9.79	9.65	9.71	6.37	12.58	11.63	6.12	15.97	12.68	7.05
Other Europe and Eurasia[5]	2.88	4.19	4.22	2.91	4.90	4.63	2.62	6.34	5.27	3.10
China	3.97	3.61	3.62	4.01	3.03	3.27	3.28	2.84	3.27	3.13
Other Asia[6]	3.76	3.63	3.66	4.01	3.32	3.56	3.57	3.09	3.49	3.37
Middle East	1.54	1.61	1.63	1.81	1.19	1.30	1.32	1.11	1.31	1.28
Africa	2.39	2.47	2.49	2.79	2.39	2.63	2.68	2.38	2.84	2.78
Brazil	1.95	3.07	3.08	1.99	4.82	4.44	2.28	6.57	5.18	2.82
Other Central and South America	1.82	1.67	1.68	1.85	1.69	1.82	1.83	1.97	2.28	2.21
Total Non-OECD	**28.09**	**29.90**	**30.09**	**25.75**	**33.92**	**33.28**	**23.69**	**40.27**	**36.32**	**25.72**
Total Conventional Production	**81.53**	**90.33**	**84.21**	**75.70**	**100.94**	**89.89**	**71.41**	**114.73**	**97.05**	**71.76**
Unconventional Production[7]										
United States (50 states)	0.66	1.13	1.14	1.20	1.40	1.72	3.07	1.44	2.86	4.96
Other North America	1.53	2.31	2.88	2.91	3.56	4.10	4.72	4.10	4.84	5.93
OECD Europe[3]	0.25	0.27	0.40	0.50	0.41	0.56	0.71	0.48	0.64	0.73
Middle East	0.00	0.08	0.10	0.09	0.17	0.21	0.17	0.17	0.23	0.19
Africa.	0.23	0.20	0.35	0.38	0.29	0.57	0.62	0.35	0.70	0.74
Central and South America	1.09	1.82	1.48	1.43	3.23	2.41	2.40	4.70	3.10	2.86
Other	0.23	0.24	0.36	0.44	0.75	1.23	1.71	1.27	2.28	3.74
Total Unconventional Production	**3.98**	**6.05**	**6.71**	**6.94**	**9.80**	**10.79**	**13.41**	**12.52**	**14.65**	**19.16**
Total Production	**85.51**	**96.38**	**90.92**	**82.64**	**110.74**	**100.68**	**84.82**	**127.25**	**111.69**	**90.92**

Table C6. International Liquids Supply and Disposition Summary (Continued)
(Million Barrels per Day, Unless Otherwise Noted)

Supply and Disposition	2008	Projections								
		2015			2025			2035		
		Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price	Low Oil Price	Reference	High Oil Price
Consumption[8]										
OECD										
United States (50 states)	19.53	21.19	20.18	19.77	22.69	20.99	19.92	24.54	22.06	20.81
United States Territories	0.40	0.50	0.49	0.48	0.59	0.57	0.56	0.65	0.62	0.60
Canada	2.40	2.49	2.34	2.06	2.71	2.45	1.98	3.01	2.65	2.05
Mexico	1.61	1.75	1.65	1.47	2.08	1.88	1.51	2.32	2.02	1.53
OECD Europe[3]	15.30	15.29	14.36	12.73	16.02	14.58	11.89	16.44	14.59	11.48
Japan	4.90	5.15	4.88	4.40	5.27	4.85	4.01	5.11	4.59	3.65
South Korea	2.83	2.95	2.75	2.41	2.92	2.63	2.13	3.03	2.67	2.12
Australia and New Zealand	1.05	1.17	1.10	0.97	1.37	1.24	1.01	1.55	1.37	1.08
Total OECD	**48.03**	**50.49**	**47.75**	**44.28**	**53.65**	**49.20**	**43.00**	**56.64**	**50.55**	**43.32**
Non-OECD										
Russia	2.71	2.88	2.70	2.39	2.98	2.70	2.21	3.02	2.64	2.11
Other Europe and Eurasia[5]	2.39	2.50	2.34	2.06	2.67	2.41	1.93	2.97	2.59	1.98
China	8.00	11.14	10.42	9.19	15.74	14.21	11.72	19.83	17.50	14.17
India	2.37	3.25	3.06	2.73	4.59	4.18	3.45	5.65	5.00	4.00
Other Asia	6.73	7.70	7.19	6.35	9.53	8.50	6.91	12.32	10.40	8.20
Middle East	6.61	7.92	7.62	6.89	10.00	9.01	7.08	13.36	11.23	7.92
Africa	3.24	3.79	3.53	3.10	4.15	3.70	2.97	4.56	3.89	3.02
Brazil	2.38	3.03	2.86	2.61	3.81	3.49	2.95	4.99	4.45	3.61
Other Central and South America	3.57	3.69	3.45	3.03	3.63	3.28	2.60	3.91	3.44	2.58
Total Non-OECD	**38.00**	**45.90**	**43.17**	**38.36**	**57.09**	**51.48**	**41.82**	**70.60**	**61.14**	**47.60**
Total Consumption	**86.03**	**96.39**	**90.92**	**82.64**	**110.74**	**100.68**	**84.82**	**127.24**	**111.69**	**90.91**
OPEC Production[9]	35.63	45.21	38.11	33.74	54.60	41.91	32.90	63.22	46.26	31.84
Non-OPEC Production[9]	49.88	51.17	52.80	48.90	56.14	58.77	51.92	64.03	65.43	59.07
Net Eurasia Exports	9.52	11.52	11.96	6.82	16.65	15.58	6.86	22.89	17.90	8.87
OPEC Market Share (percent)	41.7	46.9	41.9	40.8	49.3	41.6	38.8	49.7	41.4	35.0

[1]Weighted average price delivered to U.S. refiners.
[2]Includes production of crude oil (including lease condensate), natural gas plant liquids, other hydrogen and hydrocarbons for refinery feedstocks, alcohol and other sources, and refinery gains.
[3]OPEC = Organization of Petroleum Exporting Countries - Algeria, Angola, Ecuador, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, and Venezuela.
[4]OECD Europe = Organization for Economic Cooperation and Development - Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland, Turkey, and the United Kingdom.
[5]Other Europe and Eurasia = Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Macedonia, Malta, Moldova, Montenegro, Romania, Serbia, Slovenia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan.
[6]Other Asia = Afghanistan, Bangladesh, Bhutan, Brunei, Cambodia (Kampuchea), Fiji, French Polynesia, Guam, Hong Kong, Indonesia, Kiribati, Laos, Malaysia, Macau, Maldives, Mongolia, Myanmar (Burma), Nauru, Nepal, New Caledonia, Niue, North Korea, Pakistan, Papua New Guinea, Philippines, Samoa, Singapore, Solomon Islands, Sri Lanka, Taiwan, Thailand, Tonga, Vanuatu, and Vietnam.
[7]Includes liquids produced from energy crops, natural gas, coal, extra-heavy oil, oil sands, and shale. Includes both OPEC and non-OPEC producers in the regional breakdown.
[8]Includes both OPEC and non-OPEC consumers in the regional breakdown.
[9]Includes both conventional and unconventional liquids production.
Note: Totals may not equal sum of components due to independent rounding. Data for 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2008 low sulfur light crude oil price: Energy Information Administration (EIA), Form EIA-856, "Monthly Foreign Crude Oil Acquisition Report." 2008 imported crude oil price: EIA, *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). **2008 quantities and projections:** EIA, AEO2010 National Energy Modeling System runs LP2010.D011910A, AEO2010R.D111809A, and HP2010.D011910A and EIA, Generate World Oil Balance Model.

Appendix D

Results from Side Cases

Table D1. Key Results for Residential and Commercial Sector Technology Cases

Energy Consumption	2008	2015				2025			
		2009 Technology	Reference	High Technology	Best Available Technology	2009 Technology	Reference	High Technology	Best Available Technology
Residential									
Energy Consumption (quadrillion Btu)									
Liquefied Petroleum Gases	0.45	0.42	0.41	0.39	0.38	0.42	0.40	0.36	0.35
Kerosene	0.04	0.04	0.04	0.04	0.03	0.04	0.03	0.03	0.03
Distillate Fuel Oil	0.68	0.60	0.59	0.58	0.55	0.52	0.49	0.45	0.41
Liquid Fuels and Other Petroleum	1.18	1.06	1.04	1.00	0.96	0.98	0.92	0.84	0.78
Natural Gas	5.01	4.91	4.85	4.40	4.07	5.29	5.04	4.12	3.58
Coal	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Renewable Energy[1]	0.45	0.41	0.40	0.39	0.38	0.46	0.42	0.39	0.36
Electricity	4.71	4.86	4.78	4.39	4.10	5.50	5.30	4.64	4.14
Delivered Energy	**11.34**	**11.25**	**11.07**	**10.19**	**9.51**	**12.24**	**11.69**	**9.99**	**8.86**
Electricity Related Losses	10.20	10.43	10.24	9.40	8.79	11.50	11.08	9.69	8.64
Total	**21.54**	**21.68**	**21.31**	**19.59**	**18.30**	**23.74**	**22.76**	**19.68**	**17.50**
Delivered Energy Intensity (million Btu per household)	**100.1**	**92.7**	**91.2**	**84.0**	**78.4**	**90.5**	**86.4**	**73.9**	**65.5**
Nonmarketed Renewables Consumption (quadrillion Btu)	**0.01**	**0.06**	**0.07**	**0.10**	**0.11**	**0.08**	**0.09**	**0.14**	**0.16**
Commercial									
Energy Consumption (quadrillion Btu)									
Liquefied Petroleum Gases	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Motor Gasoline[2]	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Kerosene	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Distillate Fuel Oil	0.36	0.31	0.31	0.30	0.30	0.28	0.28	0.27	0.27
Residual Fuel Oil	0.07	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Liquid Fuels and Other Petroleum	0.58	0.55	0.55	0.55	0.54	0.53	0.53	0.52	0.52
Natural Gas	3.21	3.33	3.32	3.18	3.18	3.57	3.55	3.30	3.32
Coal	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Renewable Energy[3]	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Electricity	4.61	5.13	5.00	4.74	4.53	6.09	5.76	5.10	4.62
Delivered Energy	**8.58**	**9.18**	**9.04**	**8.64**	**8.43**	**10.36**	**10.00**	**9.09**	**8.63**
Electricity Related Losses	10.00	10.99	10.72	10.17	9.71	12.74	12.03	10.66	9.66
Total	**18.58**	**20.17**	**19.77**	**18.81**	**18.14**	**23.10**	**22.03**	**19.75**	**18.29**
Delivered Energy Intensity (thousand Btu per square foot)	**108.9**	**107.9**	**106.3**	**101.6**	**99.1**	**106.3**	**102.6**	**93.2**	**88.5**
Commercial Sector Generation									
Net Summer Generation Capacity (megawatts)									
Natural Gas	666	805	841	893	914	1334	1893	2601	2739
Solar Photovoltaic	707	1327	1340	1372	1422	1642	1836	2180	2704
Wind	78	135	153	444	567	245	316	1265	1875
Electricity Generation (billion kilowatthours)									
Natural Gas	4.79	5.80	6.07	6.44	6.60	9.61	13.72	18.87	19.87
Solar Photovoltaic	1.12	2.12	2.15	2.20	2.28	2.62	2.98	3.55	4.41
Wind	0.10	0.18	0.21	0.61	0.78	0.34	0.44	1.77	2.59
Nonmarketed Renewables Consumption (quadrillion Btu)	**0.03**	**0.04**	**0.04**	**0.06**	**0.06**	**0.04**	**0.04**	**0.09**	**0.09**

[1]Includes wood used for residential heating. See Table A4 and/or Table A17 for estimates of nonmarketed renewable energy consumption for geothermal heat pumps, solar thermal hot water heating, and solar photovoltaic electricity generation.
[2]Includes ethanol (blends of 10 percent or less) and ethers blended into gasoline.
[3]Includes commercial sector consumption of wood and wood waste, landfill gas, municipal solid waste, and other biomass for combined heat and power.
Btu = British thermal unit.
Note: Totals may not equal sum of components due to independent rounding. Data for 2008 are model results and may differ slightly from official EIA data reports. Side cases were run without the fully integrated modeling system, so not all feedbacks are captured. The reference case ratio of electricity losses to electricity use was used to compute electricity losses for the technology cases.
Source: Energy Information Administration, AEO2010 National Energy Modeling System, runs BLDFRZN.D012010A, AEO2010R.D111809A, BLDHIGH.D012010C, and BLDBEST.D012010A.

2035				Annual Growth 2008-2035 (percent)			
2009 Technology	Reference	High Technology	Best Available Technology	2009 Technology	Reference	High Technology	Best Available Technology
0.43	0.40	0.36	0.35	-0.2%	-0.4%	-0.8%	-0.9%
0.04	0.03	0.03	0.02	-0.6%	-1.0%	-1.5%	-2.2%
0.46	0.41	0.37	0.31	-1.4%	-1.9%	-2.3%	-2.9%
0.92	0.85	0.75	0.68	-0.9%	-1.2%	-1.6%	-2.0%
5.43	5.01	3.94	3.38	0.3%	0.0%	-0.9%	-1.4%
0.01	0.01	0.00	0.00	-0.8%	-1.3%	-1.7%	-1.9%
0.49	0.43	0.38	0.33	0.4%	-0.1%	-0.6%	-1.1%
6.15	5.83	5.05	4.43	1.0%	0.8%	0.3%	-0.2%
13.00	**12.12**	**10.13**	**8.84**	**0.5%**	**0.2%**	**-0.4%**	**-0.9%**
12.44	11.79	10.21	8.97	0.7%	0.5%	0.0%	-0.5%
25.44	**23.92**	**20.34**	**17.81**	**0.6%**	**0.4%**	**-0.2%**	**-0.7%**
88.6	**82.6**	**69.0**	**60.2**	**-0.5%**	**-0.7%**	**-1.4%**	**-1.9%**
0.08	**0.11**	**0.17**	**0.22**	**9.4%**	**10.4%**	**12.1%**	**13.2%**
0.09	0.09	0.09	0.09	0.5%	0.5%	0.5%	0.5%
0.06	0.06	0.06	0.06	0.2%	0.2%	0.2%	0.2%
0.01	0.01	0.01	0.01	1.7%	1.7%	1.7%	1.7%
0.26	0.26	0.25	0.25	-1.2%	-1.2%	-1.4%	-1.4%
0.09	0.09	0.09	0.09	0.7%	0.7%	0.7%	0.7%
0.52	0.52	0.51	0.50	-0.4%	-0.4%	-0.5%	-0.5%
3.74	3.79	3.52	3.57	0.6%	0.6%	0.3%	0.4%
0.07	0.07	0.07	0.07	0.0%	0.0%	0.0%	0.0%
0.10	0.10	0.10	0.10	0.0%	0.0%	0.0%	0.0%
7.13	6.55	5.46	4.86	1.6%	1.3%	0.6%	0.2%
11.56	**11.04**	**9.66**	**9.10**	**1.1%**	**0.9%**	**0.4%**	**0.2%**
14.43	13.27	11.04	9.83	1.4%	1.1%	0.4%	-0.1%
25.99	**24.30**	**20.70**	**18.93**	**1.3%**	**1.0%**	**0.4%**	**0.1%**
104.6	**99.8**	**87.4**	**82.3**	**-0.1%**	**-0.3%**	**-0.8%**	**-1.0%**
2466	5022	7435	8080	5.0%	7.8%	9.3%	9.7%
2137	3624	5066	8084	4.2%	6.2%	7.6%	9.4%
431	595	2727	3939	6.5%	7.8%	14.0%	15.6%
17.75	36.48	54.04	58.73	5.0%	7.8%	9.4%	9.7%
3.40	5.99	8.41	13.40	4.2%	6.4%	7.8%	9.6%
0.62	0.85	3.80	5.40	7.0%	8.3%	14.4%	15.9%
0.04	**0.05**	**0.13**	**0.15**	**1.4%**	**2.3%**	**5.8%**	**6.4%**

Table D2. Key Results for Industrial Sector Technology Cases

Consumption and Indicators	2008	2015			2025			2035		
		2010 Technology	Reference	High Technology	2010 Technology	Reference	High Technology	2010 Technology	Reference	High Technology
Value of Shipments (billion 2000 dollars)										
Manufacturing	4014	4497	4497	4497	5324	5324	5324	6010	6010	6010
Nonmanufacturing	1394	1547	1547	1547	1673	1673	1673	1776	1776	1776
Total	**5408**	**6044**	**6044**	**6044**	**6997**	**6997**	**6997**	**7786**	**7786**	**7786**
Energy Consumption excluding Refining[1] (quadrillion Btu)										
Liquefied Petroleum Gases	2.13	2.39	2.28	2.26	2.66	2.53	2.44	2.47	2.32	2.19
Heat and Power	0.29	0.29	0.28	0.27	0.30	0.27	0.26	0.30	0.27	0.24
Feedstocks	1.85	2.10	2.01	1.99	2.37	2.25	2.18	2.17	2.06	1.95
Motor Gasoline	0.30	0.31	0.30	0.29	0.33	0.30	0.27	0.36	0.30	0.26
Distillate Fuel Oil	1.19	1.24	1.19	1.15	1.31	1.17	1.06	1.39	1.17	1.01
Residual Fuel Oil	0.17	0.15	0.14	0.14	0.15	0.14	0.13	0.16	0.13	0.12
Petrochemical Feedstocks	1.12	1.13	1.09	1.08	0.86	0.82	0.80	0.86	0.81	0.78
Petroleum Coke	0.25	0.23	0.21	0.20	0.25	0.20	0.18	0.26	0.19	0.16
Asphalt and Road Oil	1.01	1.16	1.08	1.02	1.25	1.02	0.87	1.30	0.96	0.77
Miscellaneous Petroleum[2]	0.45	0.38	0.36	0.35	0.38	0.34	0.31	0.37	0.32	0.29
Petroleum Subtotal	6.62	6.99	6.65	6.48	7.21	6.52	6.06	7.17	6.22	5.58
Natural Gas Heat and Power	5.00	5.48	5.12	5.04	6.02	5.11	4.91	6.12	4.92	4.67
Natural Gas Feedstocks	0.57	0.57	0.55	0.54	0.55	0.52	0.50	0.47	0.45	0.41
Lease and Plant Fuel[3]	1.32	1.11	1.11	1.11	1.23	1.23	1.23	1.29	1.29	1.29
Natural Gas Subtotal	6.89	7.16	6.78	6.69	7.80	6.86	6.63	7.87	6.65	6.37
Metallurgical Coal and Coke[4]	0.62	0.56	0.53	0.49	0.57	0.51	0.43	0.43	0.36	0.29
Other Industrial Coal	1.10	1.04	1.02	1.00	1.08	1.01	0.97	1.07	0.98	0.93
Coal Subtotal	1.72	1.59	1.55	1.49	1.65	1.52	1.40	1.50	1.34	1.22
Renewables[5]	1.50	1.58	1.59	1.61	1.70	1.74	1.82	1.74	1.83	1.99
Purchased Electricity	3.19	3.33	3.24	3.17	3.58	3.31	3.14	3.69	3.28	3.02
Delivered Energy	**19.93**	**20.67**	**19.82**	**19.45**	**21.93**	**19.96**	**19.05**	**21.97**	**19.33**	**18.18**
Electricity Related Losses	6.91	7.15	6.94	6.80	7.47	6.92	6.56	7.46	6.63	6.12
Total	**26.83**	**27.81**	**26.76**	**26.26**	**29.40**	**26.88**	**25.62**	**29.43**	**25.96**	**24.30**
Delivered Energy Use per Dollar of Shipments (thousand Btu per 2000 dollar)	**3.68**	**3.42**	**3.28**	**3.22**	**3.13**	**2.85**	**2.72**	**2.82**	**2.48**	**2.33**
Onsite Industrial Combined Heat and Power										
Capacity (gigawatts)	20.82	24.23	24.32	24.91	26.56	27.20	28.88	28.05	29.53	32.41
Generation (billion kilowatthours)	106.61	130.81	131.43	135.36	147.52	152.02	163.04	158.63	169.04	187.91

[1]Fuel consumption includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.
[2]Includes lubricants and miscellaneous petroleum products.
[3]Represents natural gas used in the field gathering and processing plant machinery.
[4]Includes net coal coke imports.
[5]Includes consumption of energy from hydroelectric, wood and wood waste, municipal solid waste, and other biomass.
Btu = British thermal unit.
Note: Totals may not equal sum of components due to independent rounding. Data for 2008 are model results and may differ slightly from official EIA data reports. Side cases were run without the fully integrated modeling system, so not all feedbacks are captured. The reference case ratio of electricity losses to electricity use was used to compute electricity losses for the technology cases.
Source: Energy Information Administration, AEO2010 National Energy Modeling System runs INDFRZN.D012510A, AEO2010R.D111809A, and INDHIGH.D012510A.

Table D3. Key Results for Transportation Sector Technology Cases

Consumption and Indicators	2008	2015			2025			2035		
		Low Technology	Reference	High Technology	Low Technology	Reference	High Technology	Low Technology	Reference	High Technology
Level of Travel										
(billion vehicle miles traveled)										
Light-Duty Vehicles less than 8,500	2676	2915	2916	2918	3548	3554	3562	4171	4203	4244
Commercial Light Trucks[1]	70	77	78	78	92	92	92	105	105	105
Freight Trucks greater than 10,000	227	248	248	248	304	304	304	363	363	363
(billion seat miles available)										
Air	1030	1163	1163	1163	1341	1341	1341	1470	1470	1470
(billion ton miles traveled)										
Rail	1806	1881	1881	1881	2108	2108	2108	2257	2257	2257
Domestic Shipping	576	587	587	587	643	643	643	691	691	691
Energy Efficiency Indicators										
(miles per gallon)										
Tested New Light-Duty Vehicle[2]	27.6	30.0	30.8	31.2	35.1	35.9	37.1	37.0	38.8	40.4
New Car[2]	32.2	34.9	35.8	36.4	39.5	40.2	41.8	41.3	43.0	45.1
New Light Truck[2]	23.7	25.4	26.2	26.6	29.1	30.3	31.3	30.1	32.5	34.1
Light-Duty Stock[3]	20.9	22.2	22.3	22.4	25.9	26.2	26.7	28.4	29.3	30.3
New Commercial Light Truck[1]	15.2	15.9	16.3	16.4	17.6	18.2	18.7	17.8	19.1	19.8
Stock Commercial Light Truck[1]	14.3	15.1	15.1	15.2	17.0	17.2	17.4	17.7	18.5	19.1
Freight Truck	6.0	6.2	6.3	6.4	6.5	6.8	7.1	6.7	7.0	7.4
(seat miles per gallon)										
Aircraft	61.8	62.9	63.0	63.2	65.0	65.9	67.0	67.7	69.8	72.2
(ton miles per thousand Btu)										
Rail	3.1	3.1	3.2	3.2	3.1	3.2	3.3	3.1	3.2	3.3
Domestic Shipping	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1
Energy Use (quadrillion Btu)										
by Mode										
Light-Duty Vehicles	16.06	16.35	16.27	16.16	16.96	16.75	16.51	18.16	17.73	17.32
Commercial Light Trucks[1]	0.61	0.64	0.64	0.64	0.68	0.67	0.66	0.74	0.71	0.69
Bus Transportation	0.26	0.28	0.28	0.28	0.31	0.31	0.31	0.35	0.35	0.35
Freight Trucks	4.72	5.04	4.93	4.82	5.84	5.58	5.33	6.78	6.46	6.14
Rail, Passenger	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06
Rail, Freight	0.58	0.60	0.60	0.59	0.67	0.66	0.65	0.72	0.70	0.68
Shipping, Domestic	0.29	0.30	0.30	0.29	0.33	0.32	0.31	0.35	0.33	0.32
Shipping, International	0.90	0.91	0.91	0.90	0.92	0.92	0.91	0.94	0.93	0.92
Recreational Boats	0.25	0.26	0.26	0.26	0.28	0.28	0.28	0.29	0.29	0.29
Air	2.64	2.79	2.78	2.77	3.16	3.12	3.07	3.38	3.28	3.17
Military Use	0.71	0.66	0.66	0.66	0.69	0.69	0.69	0.72	0.72	0.72
Lubricants	0.14	0.14	0.14	0.14	0.15	0.15	0.15	0.15	0.15	0.15
Pipeline Fuel	0.64	0.61	0.61	0.61	0.72	0.72	0.72	0.74	0.74	0.74
Total	**27.85**	**28.63**	**28.42**	**28.19**	**30.76**	**30.21**	**29.64**	**33.39**	**32.46**	**31.56**
by Fuel										
Liquefied Petroleum Gases	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03
E85[4]	0.01	0.01	0.01	0.01	0.53	0.52	0.51	1.74	1.75	1.72
Motor Gasoline[5]	16.76	17.10	17.02	16.91	17.11	16.91	16.71	16.83	16.44	16.19
Jet Fuel[6]	3.15	3.26	3.26	3.25	3.66	3.62	3.56	3.90	3.80	3.69
Distillate Fuel Oil[7]	6.09	6.43	6.32	6.21	7.42	7.13	6.83	8.71	8.28	7.78
Residual Fuel Oil	0.93	0.94	0.94	0.94	0.96	0.96	0.95	0.98	0.97	0.96
Other Petroleum[8]	0.17	0.17	0.17	0.17	0.18	0.18	0.18	0.19	0.19	0.19
Liquid Fuels and Other Petroleum	27.14	27.93	27.73	27.50	29.89	29.34	28.76	32.38	31.47	30.56
Pipeline Fuel Natural Gas	0.64	0.61	0.61	0.61	0.72	0.72	0.72	0.74	0.74	0.74
Compressed Natural Gas	0.04	0.06	0.05	0.05	0.12	0.11	0.12	0.22	0.19	0.19
Liquid Hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.02	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.06	0.06
Delivered Energy	**27.85**	**28.63**	**28.42**	**28.19**	**30.76**	**30.21**	**29.64**	**33.39**	**32.46**	**31.56**
Electricity Related Losses	0.05	0.06	0.05	0.06	0.07	0.08	0.08	0.09	0.11	0.11
Total	**27.90**	**28.68**	**28.48**	**28.25**	**30.82**	**30.29**	**29.72**	**33.48**	**32.58**	**31.68**

[1]Commercial trucks 8,500 to 10,000 pounds.
[2]Environmental Protection Agency rated miles per gallon.
[3]Combined car and light truck "on-the-road" estimate.
[4]E85 refers to a blend of 85 percent ethanol (renewable) and 15 percent motor gasoline (nonrenewable). To address cold starting issues, the percentage of ethanol varies seasonally. The annual average ethanol content of 74 percent is used for this forecast.
[5]Includes ethanol (blends of 10 percent or less) and ethers blended into gasoline.
[6]Includes only kerosene type.
[7]Diesel fuel for on- and off- road use.
[8]Includes aviation gasoline and lubricants.
Btu = British thermal unit.
Note: Totals may not equal sum of components due to independent rounding. Data for 2008 are model results and may differ slightly from official EIA data reports. Side cases were run without the fully integrated modeling system, so not all feedbacks are captured. The reference case ratio of electricity losses to electricity use was used to compute electricity losses for the technology cases.
Source: Energy Information Administration, AEO2010 National Energy Modeling System runs TRNLOW.D120409A, AEO2010R.D111809A, and TRNHIGH.D120409A.

Table D4. Key Results for Integrated Technology Cases

Consumption and Emissions	2008	2015			2025			2035		
		Low Technology	Reference	High Technology	Low Technology	Reference	High Technology	Low Technology	Reference	High Technology
Energy Consumption by Sector (quadrillion Btu)										
Residential	11.34	11.25	11.07	10.21	12.21	11.69	10.01	12.92	12.12	10.26
Commercial	8.58	9.17	9.04	8.71	10.31	10.00	9.19	11.45	11.04	9.89
Industrial[1]	24.81	24.74	24.76	24.83	25.49	25.88	26.15	25.85	26.70	27.42
Transportation	27.85	28.64	28.42	28.17	30.69	30.21	29.51	33.29	32.46	31.65
Electric Power[2]	40.20	42.30	41.51	39.58	46.49	45.06	41.51	49.97	48.09	44.08
Total	**100.09**	**102.69**	**101.61**	**98.87**	**110.14**	**108.26**	**102.94**	**116.90**	**114.51**	**108.85**
Energy Consumption by Fuel (quadrillion Btu)										
Liquid Fuels and Other Petroleum[3]	38.35	39.06	38.81	38.50	40.70	40.14	39.41	42.93	42.02	41.06
Natural Gas	23.91	22.47	22.35	21.56	25.02	24.24	21.80	26.80	25.56	22.88
Coal	22.41	22.61	22.35	21.63	24.06	23.63	22.22	25.76	25.11	23.72
Nuclear Power	8.46	8.75	8.75	8.75	9.29	9.29	9.29	9.26	9.41	9.52
Renewable Energy[4]	6.73	9.60	9.14	8.23	10.85	10.75	10.01	11.89	12.18	11.50
Other[5]	0.24	0.20	0.20	0.20	0.22	0.21	0.20	0.26	0.22	0.17
Total	**100.09**	**102.69**	**101.61**	**98.87**	**110.14**	**108.26**	**102.94**	**116.90**	**114.51**	**108.85**
Energy Intensity (thousand Btu per 2000 dollar of GDP)	**8.59**	**7.72**	**7.65**	**7.45**	**6.28**	**6.16**	**5.86**	**5.23**	**5.12**	**4.86**
Carbon Dioxide Emissions by Sector (million metric tons)										
Residential	346	334	329	304	348	331	276	351	324	263
Commercial	218	223	222	217	233	233	221	241	245	233
Industrial[1]	966	989	988	987	1005	1003	998	1010	1001	1006
Transportation	1925	1930	1914	1897	2049	2015	1962	2190	2115	2052
Electric Power[6]	2359	2304	2277	2193	2505	2434	2235	2739	2634	2412
Total	**5814**	**5779**	**5731**	**5597**	**6140**	**6016**	**5692**	**6531**	**6320**	**5966**
Carbon Dioxide Emissions by Fuel (million metric tons)										
Petroleum	2436	2440	2422	2399	2537	2496	2437	2671	2588	2509
Natural Gas	1242	1178	1171	1129	1314	1272	1143	1410	1345	1202
Coal	2125	2150	2125	2057	2277	2236	2101	2438	2376	2244
Other[7]	12	12	12	12	12	12	12	12	12	12
Total	**5814**	**5779**	**5731**	**5597**	**6140**	**6016**	**5692**	**6531**	**6320**	**5966**
Carbon Dioxide Emissions (tons per person)	**19.0**	**17.7**	**17.5**	**17.1**	**17.1**	**16.8**	**15.9**	**16.7**	**16.2**	**15.3**

[1]Includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.
[2]Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.
[3]Includes petroleum-derived fuels and non-petroleum derived fuels, such as ethanol and biodiesel, and coal-based synthetic liquids. Petroleum coke, which is a solid, is included. Also included are natural gas plant liquids, crude oil consumed as a fuel, and liquid hydrogen.
[4]Includes grid-connected electricity from conventional hydroelectric; wood and wood waste; landfill gas; biogenic municipal solid waste; other biomass; wind; photovoltaic and solar thermal sources; and non-electric energy from renewable sources, such as active and passive solar systems, and wood; and both the ethanol and gasoline components of E85, but not the ethanol component of blends less than 85 percent. Excludes electricity imports using renewable sources and nonmarketed renewable energy.
[5]Includes non-biogenic municipal waste and net electricity imports.
[6]Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.
[7]Includes emissions from geothermal power and nonbiogenic emissions from municipal solid waste.
Btu = British thermal unit.
GDP = Gross domestic product.
Note: Includes end-use, fossil electricity, and renewable technology assumptions. Totals may not equal sum of components due to independent rounding. Data for 2008 are model results and may differ slightly from official EIA data reports.
Source: Energy Information Administration, AEO2010 National Energy Modeling System runs LTRKITEN.D020510A, AEO2010R.D111809A, and HTRKITEN.D020510A.

Table D5. Key Results for Advanced Nuclear Cost Cases
(Gigawatts, Unless Otherwise Noted)

Net Summer Capacity, Generation, Emissions, and Fuel Prices	2008	2015			2025			2035		
		High Nuclear Cost	Reference	Low Nuclear Cost	High Nuclear Cost	Reference	Low Nuclear Cost	High Nuclear Cost	Reference	Low Nuclear Cost
Capacity										
Coal Steam	308.4	319.7	319.7	319.7	320.2	320.3	320.2	330.6	329.1	325.4
Oil and Natural Gas Steam	115.9	91.3	91.2	91.4	87.2	87.2	87.9	86.2	86.2	86.5
Combined Cycle	188.2	200.8	200.8	200.9	207.9	207.5	204.4	244.7	243.8	225.0
Combustion Turbine/Diesel	134.6	132.6	133.2	133.3	148.0	149.2	149.0	175.6	175.4	179.2
Nuclear Power	100.6	104.5	104.5	104.5	110.9	110.9	114.6	110.9	112.9	141.2
Pumped Storage	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8
Fuel Cells	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Sources	110.0	154.7	154.7	152.8	157.1	157.0	155.6	167.2	168.4	161.0
Distributed Generation (Natural Gas)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3
Combined Heat and Power[1]	28.5	43.1	43.0	43.0	60.1	59.9	60.1	78.3	78.1	78.1
Total	**1008.0**	**1068.5**	**1068.9**	**1067.4**	**1113.2**	**1113.7**	**1113.7**	**1215.7**	**1216.0**	**1218.5**
Cumulative Additions										
Coal Steam	0.0	15.6	15.6	15.6	17.6	17.6	17.6	28.0	26.4	22.8
Oil and Natural Gas Steam	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Combined Cycle	0.0	13.0	13.0	13.2	20.1	19.7	16.7	57.0	56.1	37.3
Combustion Turbine/Diesel	0.0	7.7	7.7	7.7	23.2	23.9	23.6	51.0	50.4	54.0
Nuclear Power	0.0	1.2	1.2	1.2	6.4	6.4	10.1	6.4	8.4	36.6
Pumped Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Cells	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Sources	0.0	44.7	44.7	42.8	47.2	47.0	45.7	57.3	58.5	51.0
Distributed Generation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3
Combined Heat and Power[1]	0.0	14.5	14.4	14.5	31.6	31.4	31.5	49.7	49.6	49.6
Total	**0.0**	**96.8**	**96.7**	**95.0**	**146.0**	**146.0**	**145.2**	**249.7**	**249.5**	**251.6**
Cumulative Retirements	**0.0**	**39.2**	**38.5**	**38.4**	**44.8**	**44.2**	**43.4**	**46.0**	**45.5**	**45.1**
Generation by Fuel (billion kilowatthours)										
Coal	1976	2005	2006	2010	2106	2107	2105	2262	2254	2207
Petroleum	42	41	41	41	43	43	43	44	44	44
Natural Gas	799	606	604	608	759	759	745	954	944	833
Nuclear Power	806	834	834	834	886	886	913	883	898	1119
Pumped Storage	1	1	1	1	1	1	1	1	1	1
Renewable Sources	339	590	590	584	659	660	654	680	688	647
Distributed Generation	0	0	0	0	0	0	0	0	0	0
Combined Heat and Power[1]	150	204	204	204	314	314	314	432	431	431
Total	**4116**	**4281**	**4280**	**4282**	**4769**	**4769**	**4775**	**5256**	**5259**	**5282**
Carbon Dioxide Emissions by the Electric Power Sector (million metric tons)[2]										
Petroleum	40	35	35	35	37	37	37	38	38	38
Natural Gas	362	283	283	284	342	342	338	408	404	368
Coal	1946	1947	1947	1952	2043	2043	2041	2186	2180	2138
Other[3]	12	12	12	12	12	12	12	12	12	12
Total	**2359**	**2277**	**2277**	**2283**	**2434**	**2434**	**2427**	**2643**	**2634**	**2554**
Prices to the Electric Power Sector[2] (2008 dollars per million Btu)										
Petroleum	15.63	16.02	16.02	16.06	19.12	19.16	19.17	22.08	22.13	22.22
Natural Gas	9.09	6.09	6.08	6.11	6.74	6.75	6.69	8.51	8.46	8.11
Coal	2.05	2.01	2.01	2.01	1.99	1.99	1.99	2.09	2.09	2.07

[1]Includes combined heat and power plants and electricity-only plants in commercial and industrial sectors. Includes small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid. Excludes off-grid photovoltaics and other generators not connected to the distribution or transmission systems.
[2]Includes electricity-only and combined heat and power plants whose primary business to sell electricity, or electricity and heat, to the public.
[3]Includes emissions from geothermal power and nonbiogenic emissions from municipal solid waste.
Btu = British thermal unit.
Note: Totals may not equal sum of components due to independent rounding. Data for 2008 are model results and may differ slightly from official EIA data reports.
Source: Energy Information Administration, AEO2010 National Energy Modeling System runs HCNUC10.D121109A, AEO2010R.D111809A, and LCNUC10.D121109A.

Table D6. Key Results for Nuclear 60 Year Life Case
(Gigawatts, Unless Otherwise Noted)

Net Summer Capacity, Generation, Emissions, and Fuel Prices	2008	2015		2025		2035	
		Reference	Nuclear 60 Year Life	Reference	Nuclear 60 Year Life	Reference	Nuclear 60 Year Life
Capacity							
Coal Steam	308.4	319.7	319.7	320.3	320.4	329.1	333.7
Oil and Natural Gas Steam	115.9	91.2	91.1	87.2	87.2	86.2	86.1
Combined Cycle	188.2	200.8	200.8	207.5	207.7	243.8	257.7
Combustion Turbine/Diesel	134.6	133.2	130.9	149.2	144.7	175.4	172.5
Nuclear Power	100.6	104.5	104.5	110.9	110.9	112.9	84.5
Pumped Storage	21.8	21.8	21.8	21.8	21.8	21.8	21.8
Fuel Cells	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Sources	110.0	154.7	154.4	157.0	157.3	168.4	168.5
Distributed Generation (Natural Gas)	0.0	0.0	0.0	0.0	0.0	0.3	0.2
Combined Heat and Power[1]	28.5	43.0	43.1	59.9	60.2	78.1	79.4
Total	**1008.0**	**1068.9**	**1066.4**	**1113.7**	**1110.4**	**1216.0**	**1204.4**
Cumulative Additions[2]							
Coal Steam	0.0	15.6	15.6	17.6	17.6	26.4	30.9
Combined Cycle	0.0	13.0	13.0	19.7	20.0	56.1	69.9
Combustion Turbine/Diesel	0.0	7.7	7.7	23.9	21.7	50.4	49.5
Nuclear Power	0.0	1.2	1.2	6.4	6.4	8.4	10.7
Renewable Sources	0.0	44.7	44.4	47.0	47.3	58.5	58.5
Distributed Generation	0.0	0.0	0.0	0.0	0.0	0.3	0.2
Combined Heat and Power[1]	0.0	14.4	14.5	31.4	31.7	49.6	50.8
Total	**0.0**	**96.7**	**96.5**	**146.0**	**144.7**	**249.5**	**270.6**
Cumulative Retirements[2]							
Coal Steam	0.0	4.3	4.3	5.7	5.6	5.7	5.6
Oil and Natural Gas Steam	0.0	24.7	24.7	28.7	28.6	29.7	29.7
Combined Cycle	0.0	0.4	0.4	0.4	0.4	0.4	0.4
Combustion Turbine/Diesel	0.0	9.1	11.4	9.3	11.6	9.6	11.6
Nuclear Power	0.0	0.0	0.0	0.0	0.0	0.0	30.8
Renewable Sources	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Total	**0.0**	**38.5**	**40.9**	**44.2**	**46.3**	**45.5**	**78.2**
Generation by Fuel (billion kilowatthours)							
Coal	1976	2006	2008	2107	2108	2254	2293
Petroleum	42	41	41	43	43	44	44
Natural Gas	799	604	604	759	756	944	1078
Nuclear Power	806	834	834	886	886	898	671
Pumped Storage	1	1	1	1	1	1	1
Renewable Sources	339	590	588	660	659	688	688
Distributed Generation	0	0	0	0	0	0	0
Combined Heat and Power[1]	150	204	204	314	315	431	439
Total	**4116**	**4280**	**4280**	**4769**	**4767**	**5259**	**5214**
Carbon Dioxide Emissions by the Electric Power Sector (million metric tons)[3]							
Petroleum	40	35	35	37	37	38	38
Natural Gas	362	283	283	342	341	404	451
Coal	1946	1947	1949	2043	2044	2180	2213
Other[4]	12	12	12	12	12	12	12
Total	**2359**	**2277**	**2279**	**2434**	**2433**	**2634**	**2714**
Prices to the Electric Power Sector[3] (2008 dollars per million Btu)							
Petroleum	15.63	16.02	16.07	19.16	19.23	22.13	22.29
Natural Gas	9.09	6.08	6.09	6.75	6.73	8.46	8.95
Coal	2.05	2.01	2.01	1.99	1.99	2.09	2.10

[1]Includes combined heat and power plants and electricity-only plants in commercial and industrial sectors. Includes small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid. Excludes off-grid photovoltaics and other generators not connected to the distribution or transmission systems.
[2]Only non-zero categories shown.
[3]Includes electricity-only and combined heat and power plants whose primary business to sell electricity, or electricity and heat, to the public.
[4]Includes emissions from geothermal power and nonbiogenic emissions from municipal solid waste.
Btu = British thermal unit.
Note: Totals may not equal sum of components due to independent rounding. Data for 2008 are model results and may differ slightly from official EIA data reports.
Source: Energy Information Administration, AEO2010 National Energy Modeling System runs AEO2010R.D111809A, and NUCRET.D123009A.

Table D7. Key Results for Electric Power Sector Fossil Technology Cases
(Gigawatts, Unless Otherwise Noted)

Net Summer Capacity, Generation Consumption, and Emissions	2008	2015			2025			2035		
		High Fossil Cost	Reference	Low Fossil Cost	High Fossil Cost	Reference	Low Fossil Cost	High Fossil Cost	Reference	Low Fossil Cost
Capacity										
Pulverized Coal	307.8	318.5	318.6	318.5	317.0	317.1	318.3	322.5	324.4	338.3
Coal Gasification Combined-Cycle	0.5	1.1	1.1	1.1	3.1	3.1	3.1	3.2	4.6	20.6
Conventional Natural Gas Combined-Cycle	188.2	200.8	200.8	200.8	201.0	201.1	201.1	201.1	201.1	201.1
Advanced Natural Gas Combined-Cycle	0.0	0.0	0.0	0.0	3.7	6.4	17.6	34.2	42.8	49.2
Conventional Combustion Turbine	134.6	127.5	131.4	133.9	127.1	131.4	134.2	127.3	131.2	134.2
Advanced Combustion Turbine	0.0	2.9	1.9	2.8	17.6	17.8	16.7	45.2	44.2	37.7
Fuel Cells	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nuclear	100.6	104.5	104.5	104.5	110.9	110.9	110.9	112.4	112.9	110.9
Oil and Natural Gas Steam	115.9	91.5	91.2	92.4	87.1	87.2	87.8	87.0	86.2	86.0
Renewable Sources/Pumped Storage	131.8	175.2	176.5	173.4	178.9	178.8	176.1	193.7	190.3	180.7
Distributed Generation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.3	0.0
Combined Heat and Power[1]	28.5	43.0	43.0	42.9	60.1	59.9	59.8	78.7	78.1	77.3
Total	**1008.0**	**1064.9**	**1068.9**	**1070.4**	**1106.4**	**1113.7**	**1125.6**	**1206.1**	**1216.0**	**1235.9**
Cumulative Additions										
Pulverized Coal	0.0	15.0	15.0	15.0	17.0	17.0	18.1	22.5	24.3	38.2
Coal Gasification Combined-Cycle	0.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	2.1	18.0
Conventional Natural Gas Combined-Cycle	0.0	13.0	13.0	13.0	13.2	13.3	13.3	13.3	13.3	13.3
Advanced Natural Gas Combined-Cycle	0.0	0.0	0.0	0.0	3.7	6.4	17.6	34.2	42.8	49.2
Conventional Combustion Turbine	0.0	4.9	5.8	5.0	4.9	6.1	5.2	5.1	6.2	5.2
Advanced Combustion Turbine	0.0	2.9	1.9	2.8	17.6	17.8	16.7	45.2	44.2	37.7
Fuel Cells	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nuclear	0.0	1.2	1.2	1.2	6.4	6.4	6.4	7.8	8.4	6.4
Oil and Natural Gas Steam	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Sources	0.0	43.4	44.7	41.6	47.1	47.0	44.3	61.9	58.5	48.9
Distributed Generation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.3	0.0
Combined Heat and Power[1]	0.0	14.4	14.4	14.4	31.5	31.4	31.2	50.1	49.6	48.8
Total	**0.0**	**95.4**	**96.7**	**93.6**	**142.0**	**146.0**	**153.5**	**241.8**	**249.5**	**265.6**
Cumulative Retirements	**0.0**	**41.3**	**38.5**	**33.9**	**47.6**	**44.2**	**39.9**	**47.7**	**45.5**	**41.6**
Generation by Fuel (billion kilowatthours)										
Coal	1976	2013	2006	2012	2108	2107	2108	2228	2254	2441
Petroleum	42	41	41	41	43	43	43	44	44	45
Natural Gas	799	602	604	612	750	759	777	932	944	852
Nuclear Power	806	834	834	834	886	886	886	893	898	883
Renewable Sources/Pumped Storage	340	588	591	579	664	661	653	719	688	648
Distributed Generation	0	0	0	0	0	0	0	1	0	0
Combined Heat and Power[1]	150	204	204	203	314	314	313	433	431	428
Total	**4116**	**4282**	**4280**	**4282**	**4766**	**4769**	**4780**	**5252**	**5259**	**5297**
Fuel Consumption by the Electric Power Sector (quadrillion Btu)[2]										
Coal	20.55	20.58	20.51	20.57	21.65	21.63	21.63	22.87	23.09	24.51
Petroleum	0.47	0.46	0.46	0.46	0.48	0.48	0.48	0.49	0.49	0.50
Natural Gas	6.84	5.31	5.32	5.38	6.41	6.45	6.52	7.60	7.62	6.92
Nuclear Power	8.46	8.75	8.75	8.75	9.29	9.29	9.29	9.37	9.41	9.26
Renewable Sources	3.65	6.27	6.27	6.12	7.05	7.00	6.88	7.54	7.26	6.86
Total	**40.09**	**41.50**	**41.44**	**41.41**	**45.01**	**44.98**	**44.92**	**47.99**	**48.00**	**48.17**
Carbon Dioxide Emissions by the Electric Power Sector (million metric tons)[2]										
Coal	1946	1954	1947	1953	2045	2043	2043	2161	2180	2315
Petroleum	40	35	35	36	37	37	37	38	38	39
Natural Gas	362	282	283	286	340	342	346	403	404	367
Other[3]	12	12	12	12	12	12	12	12	12	12
Total	**2359**	**2283**	**2277**	**2286**	**2434**	**2434**	**2437**	**2613**	**2634**	**2732**

[1]Includes combined heat and power plants and electricity-only plants in the commercial and industrial sectors. Includes small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid. Excludes off-grid photovoltaics and other generators not connected to the distribution or transmission systems.

[2]Includes electricity-only and combined heat and power plants whose primary business to sell electricity, or electricity and heat, to the public.

[3]Includes emissions from geothermal power and nonbiogenic emissions from municipal solid waste.

Note: Totals may not equal sum of components due to independent rounding. Data for 2008 are model results and may differ slightly from official EIA data reports.

Source: Energy Information Administration, AEO2010 National Energy Modeling System runs HCFOSS10.D020510A, AEO2010R.D111809A, and LCFOSS10.D020510A.

Table D8. Energy Consumption and Carbon Dioxide Emissions for Extended Policy Cases

Consumption and Emissions	2008	2015			2025			2035		
		Reference	Extended Policies	No Sunset	Reference	Extended Policies	No Sunset	Reference	Extended Policies	No Sunset
Energy Consumption by Sector (quadrillion Btu)										
Residential	11.34	11.07	10.88	11.01	11.69	10.81	11.25	12.12	10.83	11.33
Commercial	8.58	9.04	9.03	9.04	10.00	10.04	10.03	11.04	11.11	11.10
Industrial[1]	24.81	24.76	24.77	24.76	25.88	25.96	26.78	26.70	26.54	27.95
Transportation	27.85	28.42	28.42	28.48	30.21	29.93	30.25	32.46	31.39	32.48
Electric Power[2]	40.20	41.51	41.07	41.38	45.06	43.65	44.47	48.09	46.76	47.56
Total	**100.09**	**101.61**	**101.06**	**101.49**	**108.26**	**106.28**	**108.39**	**114.51**	**111.41**	**114.89**
Energy Consumption by Fuel (quadrillion Btu)										
Liquid Fuels and Other Petroleum[3]	38.35	38.81	38.80	38.86	40.14	39.80	40.10	42.02	40.86	41.90
Natural Gas	23.91	22.35	22.41	22.27	24.24	23.49	23.77	25.56	24.03	24.40
Coal	22.41	22.35	22.29	22.33	23.63	23.43	23.72	25.11	24.52	24.91
Nuclear Power	8.46	8.75	8.75	8.75	9.29	9.29	9.29	9.41	9.26	9.26
Renewable Energy[4]	6.73	9.14	8.62	9.07	10.75	10.06	11.30	12.18	12.55	14.22
Other[5]	0.24	0.20	0.20	0.20	0.21	0.20	0.21	0.22	0.20	0.20
Total	**100.09**	**101.61**	**101.06**	**101.49**	**108.26**	**106.28**	**108.39**	**114.51**	**111.41**	**114.89**
Energy Intensity (thousand Btu per 2000 dollar of GDP)	**8.59**	**7.65**	**7.61**	**7.64**	**6.16**	**6.05**	**6.17**	**5.12**	**4.98**	**5.14**
Carbon Dioxide Emissions by Sector (million metric tons)										
Residential	346	329	324	327	331	311	318	324	295	302
Commercial	218	222	222	222	233	235	234	245	249	249
Industrial[1]	966	988	988	989	1003	1003	1008	1001	1000	1000
Transportation	1925	1914	1914	1916	2015	1995	1967	2115	2062	2060
Electric Power[6]	2359	2277	2279	2272	2434	2388	2417	2634	2514	2563
Total	**5814**	**5731**	**5727**	**5726**	**6016**	**5932**	**5945**	**6320**	**6120**	**6174**
Carbon Dioxide Emissions by Fuel (million metric tons)										
Petroleum	2436	2422	2422	2424	2496	2471	2442	2588	2525	2523
Natural Gas	1242	1171	1174	1167	1272	1233	1247	1345	1263	1283
Coal	2125	2125	2119	2124	2236	2217	2244	2376	2320	2357
Other[7]	12	12	12	12	12	12	12	12	12	12
Total	**5814**	**5731**	**5727**	**5726**	**6016**	**5932**	**5945**	**6320**	**6120**	**6174**
Carbon Dioxide Emissions (tons per person)	**19.0**	**17.5**	**17.5**	**17.5**	**16.8**	**16.5**	**16.6**	**16.2**	**15.7**	**15.8**

[1]Includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.
[2]Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.
[3]Includes petroleum-derived fuels and non-petroleum derived fuels, such as ethanol and biodiesel, and coal-based synthetic liquids. Petroleum coke, which is a solid, is included. Also included are natural gas plant liquids, crude oil consumed as a fuel, and liquid hydrogen.
[4]Includes grid-connected electricity from conventional hydroelectric; wood and wood waste; landfill gas; biogenic municipal solid waste; other biomass; wind; photovoltaic and solar thermal sources; and non-electric energy from renewable sources, such as active and passive solar systems, and wood; and both the ethanol and gasoline components of E85, but not the ethanol component of blends less than 85 percent. Excludes electricity imports using renewable sources and nonmarketed renewable energy.
[5]Includes non-biogenic municipal waste and net electricity imports.
[6]Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.
[7]Includes emissions from geothermal power and nonbiogenic emissions from municipal solid waste.
Btu = British thermal unit.
GDP = Gross domestic product.
Note: Includes end-use, fossil electricity, and renewable technology assumptions. Totals may not equal sum of components due to independent rounding. Data for 2008 are model results and may differ slightly from official EIA data reports.
Source: Energy Information Administration, AEO2010 National Energy Modeling System runs AEO2010R.D111809A, EXTENDED.D122409A, and NOSUNSET.D012510A.

Table D9. Electricity Generation and Generating Capacity in Extended Policy Cases
(Gigawatts, Unless Otherwise Noted)

Net Summer Capacity, Generation Consumption, and Emissions	2008	2015			2025			2035		
		Reference	Extended Policies	No Sunset	Reference	Extended Policies	No Sunset	Reference	Extended Policies	No Sunset
Capacity	**1008.0**	**1068.9**	**1050.2**	**1061.7**	**1113.7**	**1102.2**	**1110.5**	**1216.0**	**1214.0**	**1216.7**
Electric Power Sector[1]	979.5	1026.0	1007.3	1018.5	1053.8	1014.6	1022.9	1137.9	1070.9	1070.4
Pulverized Coal	307.8	318.6	316.9	318.5	317.1	315.3	316.1	324.4	317.7	319.6
Coal Gasification Combined-Cycle	0.5	1.1	1.1	1.1	3.1	3.1	3.1	4.6	3.1	3.9
Conventional Natural Gas Combined-Cycle	188.2	200.8	200.8	200.8	201.1	200.8	200.8	201.1	200.8	200.8
Advanced Natural Gas Combined-Cycle	0.0	0.0	0.0	0.0	6.4	0.8	1.2	42.8	8.7	9.0
Conventional Combustion Turbine	134.6	131.4	126.0	126.1	131.4	124.8	124.0	131.2	124.8	123.9
Advanced Combustion Turbine	0.0	1.9	2.3	1.9	17.8	4.5	4.3	44.2	13.0	9.0
Fuel Cells	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nuclear	100.6	104.5	104.5	104.5	110.9	110.9	110.9	112.9	110.9	110.9
Oil and Natural Gas Steam	115.9	91.2	90.2	88.6	87.2	85.0	82.6	86.2	83.8	81.8
Renewable Sources	110.0	154.7	143.5	155.2	157.0	147.4	158.1	168.4	186.1	189.6
Pumped Storage	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8
Distributed Generation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.1
Combined Heat and Power[2]	28.5	43.0	42.9	43.1	59.9	87.6	87.7	78.1	143.1	146.3
Fossil Fuels/Other	21.8	26.0	26.0	26.1	30.6	31.0	31.4	37.2	38.2	38.9
Renewable Fuels	6.8	16.9	17.0	17.0	29.3	56.6	56.2	41.0	104.9	107.4
Cumulative Additions	**0.0**	**96.7**	**85.3**	**97.2**	**146.0**	**144.1**	**155.4**	**249.5**	**257.2**	**262.5**
Electric Power Sector[1]	0.0	82.3	70.9	82.6	114.6	85.1	96.3	200.0	142.7	144.7
Pulverized Coal	0.0	15.0	15.0	15.0	17.0	17.0	17.0	24.3	19.4	20.5
Coal Gasification Combined-Cycle	0.0	0.6	0.6	0.6	0.6	0.6	0.6	2.1	0.6	1.4
Conventional Natural Gas Combined-Cycle	0.0	13.0	13.0	13.0	13.3	13.0	13.0	13.3	13.0	13.0
Advanced Natural Gas Combined-Cycle	0.0	0.0	0.0	0.0	6.4	0.8	1.2	42.8	8.7	9.0
Conventional Combustion Turbine	0.0	5.8	5.2	5.6	6.1	5.2	5.6	6.2	5.2	5.6
Advanced Combustion Turbine	0.0	1.9	2.3	1.9	17.8	4.5	4.3	44.2	13.0	9.0
Nuclear	0.0	1.2	1.2	1.2	6.4	6.4	6.4	8.4	6.4	6.4
Renewable Sources	0.0	44.7	33.6	45.2	47.0	37.5	48.1	58.5	76.1	79.6
Distributed Generation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.1
Combined Heat and Power[2]	0.0	14.4	14.4	14.6	31.4	59.0	59.1	49.6	114.6	117.7
Fossil Fuels/Other	0.0	4.3	4.2	4.3	8.8	9.2	9.6	15.4	16.4	17.1
Renewable Fuels	0.0	10.1	10.2	10.3	22.6	49.8	49.5	34.2	98.2	100.7
Cumulative Retirements	**0.0**	**38.5**	**45.9**	**46.3**	**44.2**	**53.9**	**56.8**	**45.5**	**55.1**	**57.7**
Generation by Fuel (billion kilowatthours)	**4116**	**4280**	**4253**	**4273**	**4769**	**4668**	**4749**	**5259**	**5163**	**5263**
Electric Power Sector[1]	3966	4077	4049	4068	4456	4308	4385	4828	4626	4694
Coal	1976	2006	2001	2005	2107	2091	2117	2254	2190	2230
Petroleum	42	41	41	40	43	43	42	44	43	43
Natural Gas	799	604	626	595	759	689	695	944	759	788
Nuclear Power	806	834	834	834	886	886	886	898	883	883
Renewable Sources	339	590	547	593	660	599	644	688	750	750
Pumped Storage	1	1	1	1	1	1	1	1	1	1
Distributed Generation	0	0	0	0	0	0	0	0	0	0
Combined Heat and Power[1]	150	204	203	204	314	361	364	431	538	569
Fossil Fuels/Other	115	145	145	146	179	182	185	228	234	240
Renewable Fuels	35	59	59	59	135	179	179	204	303	329
Average Electricity Price (cents per kilowatthour)	**9.8**	**8.9**	**8.8**	**8.9**	**9.3**	**9.0**	**9.1**	**10.2**	**9.6**	**9.7**

[1]Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.

[2]Includes combined heat and power plants and electricity-only plants in the commercial and industrial sectors. Includes small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid. Excludes off-grid photovoltaics and other generators not connected to the distribution or transmission systems.

[2]Includes electricity-only and combined heat and power plants whose primary business to sell electricity, or electricity and heat, to the public.

Note: Totals may not equal sum of components due to independent rounding. Data for 2008 are model results and may differ slightly from official EIA data reports.

Source: Energy Information Administration, AEO2010 National Energy Modeling System runs AEO2010R.D111809A, EXTENDED.D122409A, and NOSUNSET.D012510A.

Table D10. Key Results for Renewable Technology Cases

Capacity, Generation, and Emissions	2008	2015			2025			2035		
		High Renewable Cost	Reference	Low Renewable Cost	High Renewable Cost	Reference	Low Renewable Cost	High Renewable Cost	Reference	Low Renewable Cost
Net Summer Capacity (gigawatts)										
Electric Power Sector[1]										
Conventional Hydropower	76.51	77.08	77.03	77.24	77.38	77.34	77.24	77.79	77.52	78.14
Geothermal[2]	2.44	3.28	3.24	3.89	3.28	3.27	4.13	3.43	3.82	6.27
Municipal Waste[3]	3.43	4.76	4.75	4.77	4.76	4.75	4.77	4.76	4.75	4.77
Wood and Other Biomass[4]	2.17	4.59	4.46	5.53	4.90	4.75	7.67	7.49	11.87	31.01
Solar Thermal	0.53	0.87	0.87	0.87	0.91	0.91	0.91	0.96	0.96	0.96
Solar Photovoltaic	0.05	0.14	0.14	0.14	0.31	0.31	0.31	0.45	0.45	0.45
Wind	24.89	61.60	64.18	74.63	64.43	65.62	75.86	67.88	69.08	84.37
Total	**110.01**	**152.32**	**154.68**	**167.06**	**155.97**	**156.95**	**170.88**	**162.76**	**168.45**	**205.97**
End-Use Sector[5]										
Conventional Hydropower	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Municipal Waste[6]	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Wood and Other Biomass	4.86	6.12	6.31	6.49	10.80	16.04	18.90	14.51	24.51	28.36
Solar Photovoltaic	0.80	6.77	8.07	10.06	8.30	10.27	13.41	8.87	13.14	18.46
Wind	0.09	1.50	1.52	4.30	1.93	2.01	6.24	2.14	2.29	7.90
Total	**6.77**	**15.42**	**16.92**	**21.87**	**22.05**	**29.34**	**39.57**	**26.54**	**40.96**	**55.73**
Generation (billion kilowatthours)										
Electric Power Sector[1]										
Coal	1976	2011	2006	1989	2106	2107	2108	2243	2254	2201
Petroleum	42	41	41	41	43	43	43	44	44	44
Natural Gas	799	615	604	568	788	759	689	976	944	818
Total Fossil	**2817**	**2667**	**2651**	**2598**	**2937**	**2909**	**2840**	**3263**	**3242**	**3062**
Conventional Hydropower	245.45	296.67	296.56	297.29	298.68	298.57	297.43	300.35	299.45	302.12
Geothermal	14.86	23.87	23.53	28.60	23.90	23.79	30.55	25.05	28.13	47.42
Municipal Waste[7]	14.49	25.05	24.95	25.09	25.05	24.95	25.09	25.05	24.95	25.09
Wood and Other Biomass[4]	10.90	46.22	47.22	60.97	106.18	109.06	128.02	106.25	117.45	258.18
Dedicated Plants	9.00	27.73	26.78	34.92	29.66	29.85	52.16	50.06	82.01	219.49
Cofiring	1.90	18.49	20.44	26.05	76.53	79.21	75.86	56.19	35.43	38.70
Solar Thermal	0.81	1.80	1.80	1.80	1.94	1.94	1.94	2.10	2.10	2.10
Solar Photovoltaic	0.03	0.34	0.34	0.34	0.76	0.76	0.76	1.13	1.13	1.13
Wind	52.03	183.40	195.93	230.29	193.06	201.26	234.56	205.03	214.59	259.85
Total Renewable	**338.56**	**577.36**	**590.33**	**644.39**	**649.58**	**660.33**	**718.34**	**664.97**	**687.80**	**895.90**
End-Use Sector[5]										
Total Fossil	**102**	**122**	**122**	**122**	**157**	**157**	**154**	**207**	**205**	**197**
Conventional Hydropower[8]	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Municipal Waste[6]	2.02	2.79	2.79	2.79	2.79	2.79	2.79	2.79	2.79	2.79
Wood and Other Biomass	27.89	36.03	37.25	38.40	70.58	109.23	129.86	97.94	172.75	202.06
Solar Photovoltaic	1.26	10.77	13.12	16.14	13.20	16.73	21.56	14.12	21.58	30.12
Wind	0.12	2.08	2.10	5.45	2.69	2.79	8.04	2.98	3.19	10.38
Total Renewable	**34.63**	**55.01**	**58.60**	**66.12**	**92.61**	**134.88**	**165.60**	**121.17**	**203.65**	**248.69**
Carbon Dioxide Emissions by the Electric Power Sector (million metric tons)[1]										
Coal	1945.9	1952.2	1947.5	1929.6	2042.6	2043.2	2043.3	2167.2	2180.4	2130.7
Petroleum	39.7	35.4	35.4	35.1	37.0	37.0	36.8	38.0	38.0	37.7
Natural Gas	362.0	286.7	282.5	268.6	352.9	342.3	315.5	415.6	404.3	360.2
Other [9]	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6
Total	**2359.1**	**2285.9**	**2276.9**	**2244.9**	**2444.0**	**2434.1**	**2407.2**	**2632.3**	**2634.2**	**2540.2**

[1]Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.
[2]Includes hydrothermal resources only (hot water and steam).
[3]Includes all municipal waste, landfill gas, and municipal sewage sludge. Incremental growth is assumed to be for landfill gas facilities. All municipal waste is included, although a portion of the municipal waste stream contains petroleum-derived plastics and other non-renewable sources.
[4]Includes projections for energy crops after 2010.
[5]Includes combined heat and power plants and electricity-only plants in the commercial and industrial sectors; and small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid. Excludes off-grid photovoltaics and other generators not connected to the distribution or transmission systems.
[6]Includes municipal waste, landfill gas, and municipal sewage sludge. All municipal waste is included, although a portion of the municipal waste stream contains petroleum-derived plastics and other non-renewable sources.
[7]Includes biogenic municipal waste, landfill gas, and municipal sewage sludge. Incremental growth is assumed to be for landfill gas facilities.
[8]Represents own-use industrial hydroelectric power.
[9]Includes emissions from geothermal power and nonbiogenic emissions from municipal solid waste.
Note: Totals may not equal sum of components due to independent rounding. Data for 2008 are model results and may differ slightly from official EIA data reports.
Source: Energy Information Administration, AEO2010 National Energy Modeling System runs HIRENCST10.D011410A, AEO2010R.D111809A, and LORENCST10.D011510A.

Table D11. Natural Gas Supply and Disposition, Oil and Gas Technological Progress Cases
(Trillion Cubic Feet per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	2008	2015			2025			2035		
		Slow Technology	Reference	Rapid Technology	Slow Technology	Reference	Rapid Technology	Slow Technology	Reference	Rapid Technology
Natural Gas Prices										
(2008 dollars per million Btu)										
Henry Hub Spot Price	8.86	6.73	6.27	6.01	7.98	6.99	6.95	9.75	8.88	8.14
Average Lower 48 Wellhead Price[1]	7.85	5.95	5.54	5.31	7.05	6.18	6.14	8.61	7.84	7.19
(2008 dollars per thousand cubic feet)										
Average Lower 48 Wellhead Price[1]	8.07	6.11	5.70	5.46	7.24	6.35	6.31	8.85	8.06	7.39
Dry Gas Production[2]	**20.56**	**18.66**	**19.29**	**19.75**	**20.64**	**21.31**	**21.01**	**22.32**	**23.27**	**24.00**
Lower 48 Onshore	17.56	15.50	16.09	16.47	15.36	15.96	17.06	16.26	17.07	17.48
Associated-Dissolved	1.39	1.41	1.44	1.43	1.26	1.25	1.25	1.03	1.03	1.04
Non-Associated	16.17	14.09	14.65	15.04	14.11	14.71	15.81	15.23	16.04	16.44
Conventional[3]	12.71	8.77	8.92	8.84	7.86	8.00	8.12	7.72	8.11	7.84
Unconventional	3.46	5.32	5.73	6.20	6.25	6.71	7.69	7.51	7.93	8.60
Gas Shale	1.49	3.58	3.85	4.26	4.62	4.94	5.77	5.63	6.00	6.65
Coalbed Methane	1.97	1.74	1.89	1.93	1.63	1.77	1.91	1.87	1.93	1.95
Lower 48 Offshore	2.62	2.88	2.91	2.99	3.40	3.46	3.67	4.20	4.33	4.65
Associated-Dissolved	0.55	0.78	0.79	0.81	0.86	0.90	0.94	0.94	1.00	1.07
Non-Associated	2.06	2.10	2.12	2.18	2.54	2.56	2.73	3.26	3.33	3.59
Alaska	0.38	0.29	0.29	0.29	1.88	1.88	0.28	1.87	1.87	1.87
Supplemental Natural Gas[4]	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Net Imports	**2.95**	**2.39**	**2.38**	**2.39**	**2.19**	**2.17**	**2.54**	**1.52**	**1.46**	**1.86**
Pipeline[5]	2.65	1.27	1.29	1.33	0.83	0.89	1.27	0.65	0.64	1.07
Liquefied Natural Gas	0.30	1.13	1.09	1.06	1.36	1.28	1.26	0.87	0.83	0.79
Total Supply	**23.57**	**21.12**	**21.73**	**22.21**	**22.90**	**23.54**	**23.62**	**23.91**	**24.80**	**25.93**
Consumption by Sector										
Residential	4.87	4.68	4.71	4.73	4.83	4.89	4.90	4.81	4.87	4.92
Commercial	3.12	3.18	3.23	3.25	3.37	3.45	3.46	3.59	3.69	3.75
Industrial[6]	6.65	6.83	6.88	6.93	6.82	6.94	6.94	6.58	6.72	6.86
Electric Power[7]	6.66	4.75	5.18	5.54	5.95	6.28	6.44	6.90	7.42	8.23
Transportation[8]	0.04	0.05	0.05	0.05	0.11	0.11	0.11	0.18	0.19	0.20
Pipeline Fuel	0.63	0.58	0.60	0.61	0.68	0.70	0.64	0.70	0.72	0.75
Lease and Plant Fuel[9]	1.28	1.05	1.08	1.10	1.16	1.19	1.15	1.20	1.25	1.29
Total	**23.25**	**21.13**	**21.74**	**22.21**	**22.93**	**23.57**	**23.65**	**23.97**	**24.86**	**26.00**
Discrepancy[10]	**0.32**	**-0.01**	**-0.01**	**-0.01**	**-0.03**	**-0.03**	**-0.03**	**-0.06**	**-0.07**	**-0.07**
Lower 48 End of Year Reserves	**235.63**	**250.97**	**254.61**	**256.88**	**253.38**	**259.77**	**263.45**	**264.86**	**267.94**	**270.89**

[1]Represents lower 48 onshore and offshore supplies.
[2]Marketed production (wet) minus extraction losses.
[3]Includes tight gas.
[4]Synthetic natural gas, propane air, coke oven gas, refinery gas, biomass gas, air injected for Btu stabilization, and manufactured gas commingled and distributed with natural gas.
[5]Includes any natural gas regasified in the Bahamas and transported via pipeline to Florida.
[6]Includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.
[7]Includes consumption of energy by electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.
[8]Compressed natural gas used as a vehicle fuel.
[9]Represents natural gas used in field gathering and processing plant machinery.
[10]Balancing item. Natural gas lost as a result of converting flow data measured at varying temperatures and pressures to a standard temperature and pressure and the merger of different data reporting systems which vary in scope, format, definition, and respondent type. In addition, 2008 values include net storage injections.

Note: Totals may not equal sum of components due to independent rounding. Data for 2008 are model results and may differ slightly from official EIA data reports.

Sources: 2008 supply values: Energy Information Administration (EIA), *Natural Gas Monthly*, DOE/EIA-0130(2009/07) (Washington, DC, July 2009). 2008 consumption based on: EIA, *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). **Projections:** EIA, AEO2010 National Energy Modeling System runs OGLTEC10.D121409A, AEO2010R.D111809A, and OGHTEC10.D121309A.

Table D12. Liquid Fuels Supply and Disposition, Oil and Gas Technological Progress Cases
(Million Barrels per Day, Unless Otherwise Noted)

Supply, Disposition, and Prices	2008	2015			2025			2035		
		Slow Technology	Reference	Rapid Technology	Slow Technology	Reference	Rapid Technology	Slow Technology	Reference	Rapid Technology
Prices (2008 dollars per barrel)										
Imported Low Sulfur Light Crude Oil[1]	**99.57**	**94.91**	**94.52**	**94.57**	**116.58**	**115.09**	**114.90**	**135.27**	**133.22**	**133.05**
Imported Crude Oil[1]	**92.61**	**87.29**	**86.88**	**86.77**	**106.12**	**104.49**	**103.45**	**123.30**	**121.37**	**121.13**
Crude Oil Supply										
Domestic Crude Oil Production[2]	4.96	5.71	5.77	5.81	5.89	6.13	6.37	5.93	6.27	6.68
Alaska	0.69	0.49	0.49	0.49	0.73	0.74	0.76	0.43	0.45	0.45
Lower 48 Onshore	3.00	3.32	3.34	3.33	3.11	3.25	3.36	3.29	3.46	3.65
Lower 48 Offshore	1.27	1.90	1.94	1.99	2.04	2.14	2.25	2.20	2.36	2.59
Net Crude Oil Imports	9.75	8.96	8.88	8.83	8.84	8.60	8.39	8.94	8.65	8.22
Other Crude Oil Supply	-0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Crude Oil Supply	**14.66**	**14.67**	**14.66**	**14.64**	**14.73**	**14.73**	**14.75**	**14.87**	**14.92**	**14.90**
Other Petroleum Supply	**4.09**	**4.01**	**4.05**	**4.08**	**3.98**	**4.01**	**4.05**	**3.93**	**3.98**	**3.99**
Natural Gas Plant Liquids	1.78	1.72	1.77	1.80	1.69	1.74	1.83	1.77	1.83	1.87
Net Petroleum Product Imports[3]	1.39	1.25	1.24	1.24	1.11	1.10	1.06	1.04	1.02	1.00
Refinery Processing Gain[4]	1.00	1.05	1.04	1.04	1.18	1.17	1.16	1.12	1.13	1.12
Product Stock Withdrawal	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-petroleum Supply	**0.78**	**1.42**	**1.42**	**1.43**	**2.12**	**2.11**	**2.10**	**3.22**	**3.11**	**3.13**
From Renewable Sources[5]	0.71	1.10	1.10	1.10	1.63	1.63	1.62	2.68	2.58	2.57
From Non-renewable Sources[6]	0.07	0.32	0.32	0.32	0.49	0.48	0.48	0.54	0.53	0.57
Total Primary Supply[7]	**19.54**	**20.11**	**20.13**	**20.15**	**20.83**	**20.86**	**20.90**	**22.02**	**22.00**	**22.02**
Refined Petroleum Products Supplied										
Residential and Commercial	0.98	0.89	0.89	0.89	0.83	0.83	0.83	0.79	0.79	0.79
Industrial[8]	4.75	4.81	4.82	4.83	4.82	4.81	4.83	4.68	4.67	4.67
Transportation	13.88	14.25	14.27	14.27	15.11	15.14	15.15	16.38	16.38	16.40
Electric Power[9]	0.21	0.20	0.20	0.21	0.21	0.21	0.21	0.22	0.22	0.22
Total	**19.53**	**20.16**	**20.18**	**20.20**	**20.97**	**20.99**	**21.02**	**22.07**	**22.06**	**22.09**
Discrepancy[10]	**0.01**	**-0.05**	**-0.05**	**-0.05**	**-0.14**	**-0.13**	**-0.11**	**-0.05**	**-0.06**	**-0.07**
Lower 48 End of Year Reserves (billion barrels)[2]	**17.18**	**19.24**	**19.41**	**19.49**	**21.10**	**22.44**	**23.24**	**22.83**	**23.57**	**24.71**

[1]Weighted average price delivered to U.S. refiners.
[2]Includes lease condensate.
[3]Includes net imports of finished petroleum products, unfinished oils, other hydrocarbons, alcohols, ethers, and blending components.
[4]The volumetric amount by which total output is greater than input due to the processing of crude oil into products which, in total, have a lower specific gravity than the crude oil processed.
[5]Includes ethanol (including imports), biodiesel (including imports), pyrolysis oils, biomass-derived Fischer-Tropsch liquids, and renewable feedstocks for the production of green diesel and gasoline.
[6]Includes alcohols, ethers, domestic sources of blending components, other hydrocarbons, natural gas converted to liquid fuel, and coal converted to liquid fuel.
[7]Total crude supply plus natural gas plant liquids, other inputs, refinery processing gain, and net product imports.
[8]Includes consumption for combined heat and power, which produces electricity and other useful thermal energy.
[9]Includes consumption of energy by electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.
[10]Balancing item. Includes unaccounted for supply, losses and gains.
Note: Totals may not equal sum of components due to independent rounding. Data for 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2008 product supplied data and imported crude oil price based on: Energy Information Administration (EIA), *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). 2008 imported low sulfur light crude oil price: EIA, Form EIA-856, "Monthly Foreign Crude Oil Acquisition Report." Other 2008 data: EIA, *Petroleum Supply Annual 2008,* DOE/EIA-0340(2008)/1 (Washington, DC, June 2009). **Projections:** EIA, AEO2010 National Energy Modeling System runs OGLTEC10.D121409A, AEO2010R.D111809A, and OGHTEC10.D121309A.

Table D13. Natural Gas Supply and Disposition, Low Permeability Cases
(Trillion Cubic Feet per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	2008	2025				2035			
		High Shale Gas	Reference	No Shale Gas	No Low Permeability	High Shale Gas	Reference	No Shale Gas	No Low Permeability
Natural Gas Prices									
(2008 dollars per million Btu)									
Henry Hub Spot Price	8.86	6.60	6.99	8.34	8.71	7.62	8.88	10.37	10.88
Average Lower 48 Wellhead Price[1]	7.85	5.83	6.18	7.37	7.69	6.73	7.84	9.16	9.60
(2008 dollars per thousand cubic feet)									
Average Lower 48 Wellhead Price[1]	8.07	5.99	6.35	7.58	7.91	6.92	8.06	9.42	9.87
Dry Gas Production[2]	**20.56**	**22.13**	**21.31**	**18.30**	**17.19**	**25.86**	**23.27**	**19.05**	**17.40**
Lower 48 Onshore	17.56	18.69	15.96	12.30	11.03	19.97	17.07	12.53	10.40
Associated-Dissolved	1.39	1.29	1.25	1.25	1.25	1.07	1.03	1.04	1.04
Non-Associated	16.17	17.39	14.71	11.04	9.77	18.90	16.04	11.48	9.36
Conventional[3]	12.71	7.41	8.00	8.88	7.49	7.10	8.11	9.20	6.88
Unconventional	3.46	9.98	6.71	2.17	2.28	11.81	7.93	2.29	2.48
Gas Shale	1.49	8.39	4.94	0.17	0.17	10.18	6.00	0.06	0.06
Coalbed Methane	1.97	1.59	1.77	2.00	2.10	1.63	1.93	2.23	2.42
Lower 48 Offshore	2.62	3.17	3.46	4.12	4.29	4.02	4.33	4.65	5.13
Associated-Dissolved	0.55	0.86	0.90	0.97	0.98	0.99	1.00	1.01	1.05
Non-Associated	2.06	2.31	2.56	3.15	3.30	3.03	3.33	3.64	4.08
Alaska	0.38	0.28	1.88	1.88	1.88	1.87	1.87	1.87	1.87
Supplemental Natural Gas[4]	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Net Imports	**2.95**	**1.89**	**2.17**	**3.77**	**4.41**	**0.82**	**1.46**	**3.71**	**4.49**
Pipeline[5]	2.65	0.66	0.89	1.49	1.64	0.06	0.64	1.86	2.11
Liquefied Natural Gas	0.30	1.22	1.28	2.27	2.77	0.76	0.83	1.85	2.37
Total Supply	**23.57**	**24.08**	**23.54**	**22.13**	**21.67**	**26.75**	**24.80**	**22.82**	**21.95**
Consumption by Sector									
Residential	4.87	4.93	4.89	4.80	4.78	4.96	4.87	4.78	4.74
Commercial	3.12	3.50	3.45	3.33	3.30	3.80	3.69	3.55	3.50
Industrial[6]	6.65	7.04	6.94	6.73	6.69	6.97	6.72	6.49	6.42
Electric Power[7]	6.66	6.72	6.28	5.45	5.16	8.74	7.42	6.12	5.53
Transportation[8]	0.04	0.12	0.11	0.11	0.10	0.23	0.19	0.17	0.17
Pipeline Fuel	0.63	0.64	0.70	0.67	0.64	0.76	0.72	0.69	0.65
Lease and Plant Fuel[9]	1.28	1.18	1.19	1.08	1.03	1.36	1.25	1.08	1.01
Total	**23.25**	**24.12**	**23.57**	**22.16**	**21.70**	**26.82**	**24.86**	**22.88**	**22.00**
Discrepancy[10]	**0.32**	**-0.04**	**-0.03**	**-0.03**	**-0.03**	**-0.07**	**-0.07**	**-0.06**	**-0.06**
Lower 48 End of Year Reserves	**235.63**	**258.77**	**259.77**	**252.42**	**241.11**	**264.39**	**267.94**	**261.33**	**244.95**

[1]Represents lower 48 onshore and offshore supplies.
[2]Marketed production (wet) minus extraction losses.
[3]Includes tight gas.
[4]Synthetic natural gas, propane air, coke oven gas, refinery gas, biomass gas, air injected for Btu stabilization, and manufactured gas commingled and distributed with natural gas.
[5]Includes any natural gas regasified in the Bahamas and transported via pipeline to Florida.
[6]Includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.
[7]Includes consumption of energy by electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.
[8]Compressed natural gas used as a vehicle fuel.
[9]Represents natural gas used in field gathering and processing plant machinery.
[10]Balancing item. Natural gas lost as a result of converting flow data measured at varying temperatures and pressures to a standard temperature and pressure and the merger of different data reporting systems which vary in scope, format, definition, and respondent type. In addition, 2008 values include net storage injections.

Note: Totals may not equal sum of components due to independent rounding. Data for 2008 are model results and may differ slightly from official EIA data reports.

Sources: 2008 supply values: Energy Information Administration (EIA), *Natural Gas Monthly*, DOE/EIA-0130(2009/07) (Washington, DC, July 2009). 2008 consumption based on: EIA, *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). **Projections:** EIA, AEO2010 National Energy Modeling System runs HISHALE.D012210A, AEO2010R.D111809A, NOSHALE.D021110A, and NOLOPERM.D020510A.

Table D14. Natural Gas Supply and Disposition, Liquefied Natural Gas Supply Case
(Trillion Cubic Feet per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	2008	2015		2025		2035	
		Reference	High LNG	Reference	High LNG	Reference	High LNG
Dry Gas Production[1]	**20.56**	**19.29**	**18.88**	**21.31**	**18.54**	**23.27**	**21.23**
Lower 48 Onshore	17.56	16.09	15.75	15.96	15.15	17.07	15.41
Associated-Dissolved	1.39	1.44	1.43	1.25	1.25	1.03	1.04
Non-Associated	16.17	14.65	14.32	14.71	13.90	16.04	14.38
Conventional[2]	12.71	8.92	8.62	8.00	7.55	8.11	7.21
Unconventional	3.46	5.73	5.70	6.71	6.34	7.93	7.16
Gas Shale	1.49	3.85	3.88	4.94	4.69	6.00	5.49
Coalbed Methane	1.97	1.89	1.82	1.77	1.66	1.93	1.67
Lower 48 Offshore	2.62	2.91	2.84	3.46	3.11	4.33	3.95
Associated-Dissolved	0.55	0.79	0.79	0.90	0.86	1.00	0.97
Non-Associated	2.06	2.12	2.04	2.56	2.25	3.33	2.98
Alaska	0.38	0.29	0.29	1.88	0.28	1.87	1.87
Supplemental Natural Gas[3]	0.05	0.06	0.06	0.06	0.06	0.06	0.06
Net Imports	**2.95**	**2.38**	**3.34**	**2.17**	**5.54**	**1.46**	**5.25**
Pipeline[4]	2.65	1.29	1.38	0.89	1.23	0.64	1.09
Liquefied Natural Gas	0.30	1.09	1.96	1.28	4.31	0.83	4.16
Total Supply	**23.57**	**21.73**	**22.28**	**23.54**	**24.14**	**24.80**	**26.54**
Consumption by Sector							
Residential	4.87	4.71	4.74	4.89	4.96	4.87	4.97
Commercial	3.12	3.23	3.26	3.45	3.54	3.69	3.80
Industrial[5]	6.65	6.88	6.94	6.94	7.11	6.72	7.03
Electric Power[6]	6.66	5.18	5.65	6.28	6.80	7.42	8.72
Transportation[7]	0.04	0.05	0.05	0.11	0.12	0.19	0.22
Pipeline Fuel	0.63	0.60	0.60	0.70	0.61	0.72	0.71
Lease and Plant Fuel[8]	1.28	1.08	1.06	1.19	1.04	1.25	1.17
Total	**23.25**	**21.74**	**22.29**	**23.57**	**24.18**	**24.86**	**26.61**
Discrepancy[9]	**0.32**	**-0.01**	**-0.01**	**-0.03**	**-0.04**	**-0.07**	**-0.07**
Lower 48 End of Year Reserves	**235.63**	**254.61**	**254.41**	**259.77**	**252.44**	**267.94**	**257.68**
Natural Gas Prices							
(2008 dollars per million Btu)							
Henry Hub Spot Price	8.86	6.27	5.87	6.99	6.20	8.88	7.31
Average Lower 48 Wellhead Price[10]	7.85	5.54	5.19	6.18	5.48	7.84	6.46
(2008 dollars per thousand cubic feet)							
Average Lower 48 Wellhead Price[10]	8.07	5.70	5.33	6.35	5.63	8.06	6.64
Delivered Prices							
(2008 dollars per thousand cubic feet)							
Residential	13.87	11.89	11.50	12.65	11.94	14.82	13.36
Commercial	12.29	10.28	9.90	11.01	10.29	13.03	11.61
Industrial[5]	9.38	6.63	6.24	7.22	6.45	8.99	7.56
Electric Power[6]	9.34	6.24	5.90	6.94	6.23	8.69	7.37
Transportation[11]	16.42	13.76	13.39	13.82	13.15	15.21	13.79
Average[12]	**10.83**	**8.37**	**7.95**	**9.00**	**8.23**	**10.83**	**9.33**

[1]Marketed production (wet) minus extraction losses.
[2]Includes tight gas.
[3]Synthetic natural gas, propane air, coke oven gas, refinery gas, biomass gas, air injected for Btu stabilization, and manufactured gas commingled and distributed with natural gas.
[4]Includes any natural gas regasified in the Bahamas and transported via pipeline to Florida.
[5]Includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.
[6]Includes consumption of energy by electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.
[7]Compressed natural gas used as vehicle fuel.
[8]Represents natural gas used in field gathering and processing plant machinery.
[9]Balancing item. Natural gas lost as a result of converting flow data measured at varying temperatures and pressures to a standard temperature and pressure and the merger of different data reporting systems which vary in scope, format, definition, and respondent type. In addition, 2008 values include net storage injections.
[10]Represents lower 48 onshore and offshore supplies.
[11]Compressed natural gas used as a vehicle fuel. Price includes estimated motor vehicle fuel taxes and estimated dispensing costs or charges.
[12]Weighted average prices. Weights used are the sectoral consumption values excluding lease, plant, and pipeline fuel.
LNG = Liquefied natural gas.
Btu = British thermal unit.
Note: Totals may not equal sum of components due to independent rounding. Data for 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2008 supply values: Energy Information Administration (EIA), *Natural Gas Monthly*, DOE/EIA-0130(2009/07) (Washington, DC, July 2009). 2008 consumption based on: EIA, *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). **Projections:** EIA, AEO2010 National Energy Modeling System runs AEO2010R.D111809A and HILNG10.D112509A.

Table D15. Key Results for Heavy Truck Cases, Reference World Oil Price

Sales, Consumption, Supply, and Prices	2008	2015			2025			2035		
		Reference	2019 Phase Out	2027 Phase Out	Reference	2019 Phase Out	2027 Phase Out	Reference	2019 Phase Out	2027 Phase Out
Truck Sales by Size Class (millions)	**0.41**	**0.56**	**0.56**	**0.56**	**0.68**	**0.68**	**0.68**	**0.78**	**0.78**	**0.78**
Medium	0.21	0.30	0.30	0.30	0.37	0.37	0.37	0.46	0.46	0.46
Diesel	0.12	0.22	0.22	0.21	0.27	0.26	0.19	0.32	0.32	0.23
Motor Gasoline	0.08	0.08	0.08	0.08	0.09	0.09	0.07	0.11	0.11	0.09
Liquefied Petroleum Gases	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01
Natural Gas	0.00	0.00	0.00	0.01	0.01	0.01	0.10	0.02	0.02	0.13
Heavy	0.21	0.26	0.26	0.26	0.30	0.30	0.30	0.32	0.32	0.32
Diesel	0.18	0.24	0.24	0.24	0.29	0.28	0.17	0.30	0.30	0.17
Motor Gasoline	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Liquefied Petroleum Gases	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas	0.00	0.00	0.00	0.01	0.00	0.01	0.12	0.00	0.01	0.14
Consumption by Size Class (quadrillion Btu)	**4.72**	**4.93**	**4.93**	**4.93**	**5.58**	**5.58**	**5.62**	**6.46**	**6.46**	**6.54**
Medium	0.85	1.04	1.04	1.05	1.32	1.33	1.46	1.70	1.72	2.02
Diesel	0.59	0.76	0.76	0.76	0.99	0.99	0.93	1.27	1.27	1.12
Motor Gasoline	0.25	0.27	0.27	0.27	0.30	0.30	0.30	0.35	0.35	0.34
Liquefied Petroleum Gases	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02
Natural Gas	0.01	0.00	0.01	0.01	0.02	0.03	0.21	0.05	0.07	0.54
Heavy	3.87	3.88	3.88	3.88	4.25	4.25	4.17	4.75	4.75	4.52
Diesel	3.75	3.80	3.80	3.78	4.18	4.15	3.64	4.67	4.62	3.44
Motor Gasoline	0.10	0.07	0.07	0.07	0.05	0.05	0.05	0.05	0.05	0.05
Liquefied Petroleum Gases	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Natural Gas	0.00	0.00	0.00	0.02	0.02	0.04	0.47	0.03	0.07	1.03
Natural Gas Prices (2008 dollars per thousand cubic feet)										
Wellhead[1]	8.07	5.70	5.71	5.72	6.35	6.34	6.58	8.06	8.12	8.38
Transportation Sector[1]	16.42	13.76	10.17	10.15	13.82	13.79	11.01	15.21	15.26	15.46
Average End Use[3]	10.83	8.37	8.37	8.38	9.00	9.00	9.27	10.83	10.91	11.45
Natural Gas Supply and Dispostion (trillion cubic feet)										
Dry Gas Production[4]	20.56	19.29	19.29	19.32	21.31	21.35	21.74	23.27	23.33	23.95
Supplemental Natural Gas[5]	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Net Imports	2.95	2.38	2.38	2.38	2.17	2.17	2.25	1.46	1.49	2.02
Consumption	23.25	21.74	21.75	21.77	23.57	23.63	24.11	24.86	24.97	26.12
Transportation	0.04	0.05	0.06	0.08	0.11	0.16	0.76	0.19	0.27	1.67
Petroleum Supply and Disposition (million barrels per day)										
Domestic Crude Oil Production[6]	4.96	5.77	5.76	5.76	6.13	6.12	6.11	6.27	6.28	6.29
Net Petroleum Imports	11.14	10.12	10.13	10.12	9.70	9.67	9.45	9.66	9.59	9.03
Other Petroleum Supply[7]	2.71	2.81	2.81	2.81	2.91	2.91	2.94	2.96	2.95	3.01
Other Non-petroleum Supply[8]	0.78	1.42	1.42	1.42	2.11	2.12	2.09	3.11	3.16	3.00
Consumption	19.53	20.18	20.17	20.17	20.99	20.96	20.71	22.06	22.04	21.37
Diesel	3.44	3.56	3.56	3.55	3.93	3.91	3.64	4.48	4.44	3.83
Diesel Fuel Price (2008 dollars per gallon)	3.79	3.14	3.15	3.15	3.65	3.66	3.60	4.11	4.12	3.93

[1]Represents lower 48 onshore and offshore supply.
[2]Natural gas used as a vehicle fuel. Price includes estimated motor vehicle fuel taxes and estimated dispensing costs or charges.
[3]Weighted average prices. Weights used are the sectoral consumption values excluding lease, plant, and pipeline fuel.
[4]Marketed production (wet) minus extraction losses.
[5]Synthetic natural gas, propane air, coke oven gas, refinery gas, biomass gas, air injected for Btu stabilization, and manufactured gas commingled and distributed with natural gas.
[6]Includes lease condensate.
[7]Includes natural gas plant liquids, refinery processing gain, other crude oil supply, and stock withdrawals.
[8]Includes liquids, such as ethanol and biodiesel, derived from biomass, natural gas, and coal.
- - = Not applicable.
Btu = British thermal unit.
Note: Totals may not equal sum of components due to independent rounding. Data for 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2008 data based on: Oak Ridge National Laboratory, *Transportation Energy Data Book: Edition 28 and Annual* (Oak Ridge, TN, 2009); U.S. Department of Commerce, Bureau of the Census, "Vehicle Inventory and Use Survey," EC02TV (Washington, DC, December 2004); Federal Highway Administration, *Highway Statistics 2007* (Washington, DC, October 2008); Energy Information Administration (EIA), *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009); and EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A. **Projections:** EIA, AEO2010 National Energy Modeling System runs AEO2010R.D111809A, ATHNG80SNM19.D032510A, and ATHNG80S27.D033010A.

Table D16. Key Results for Heavy Truck Cases, Low World Oil Price

Sales, Consumption, Supply, and Prices	2008	2015			2025			2035		
		Low Price	2019 Phase Out	2027 Phase Out	Low Price	2019 Phase Out	2027 Phase Out	Low Price	2019 Phase Out	2027 Phase Out
Truck Sales by Size Class (millions)	**0.41**	**0.61**	**0.61**	**0.61**	**0.74**	**0.74**	**0.74**	**0.85**	**0.85**	**0.85**
Medium	0.21	0.32	0.32	0.32	0.40	0.40	0.40	0.48	0.48	0.48
Diesel	0.12	0.23	0.23	0.23	0.29	0.28	0.22	0.35	0.35	0.28
Motor Gasoline	0.08	0.09	0.09	0.09	0.10	0.10	0.08	0.12	0.12	0.10
Liquefied Petroleum Gases	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01
Natural Gas	0.00	0.00	0.00	0.01	0.00	0.01	0.09	0.00	0.01	0.10
Heavy	0.21	0.28	0.28	0.28	0.34	0.34	0.34	0.37	0.37	0.37
Diesel	0.18	0.27	0.27	0.27	0.33	0.32	0.22	0.35	0.35	0.25
Motor Gasoline	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01
Liquefied Petroleum Gases	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas	0.00	0.00	0.00	0.01	0.00	0.01	0.11	0.00	0.01	0.11
Consumption by Size Class (quadrillion Btu)	**4.72**	**5.05**	**5.05**	**5.06**	**5.75**	**5.75**	**5.78**	**6.77**	**6.78**	**6.80**
Medium	0.85	1.06	1.06	1.06	1.35	1.36	1.45	1.76	1.77	1.96
Diesel	0.59	0.78	0.77	0.77	1.03	1.02	0.97	1.37	1.35	1.21
Motor Gasoline	0.25	0.27	0.27	0.27	0.30	0.30	0.30	0.37	0.37	0.35
Liquefied Petroleum Gases	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02
Natural Gas	0.01	0.00	0.00	0.01	0.00	0.02	0.17	0.00	0.04	0.38
Heavy	3.87	4.00	4.00	3.99	4.40	4.39	4.33	5.02	5.01	4.84
Diesel	3.75	3.91	3.91	3.90	4.34	4.31	3.88	4.96	4.91	4.04
Motor Gasoline	0.10	0.07	0.07	0.07	0.05	0.05	0.05	0.05	0.05	0.05
Liquefied Petroleum Gases	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.01
Natural Gas	0.00	0.00	0.00	0.01	0.00	0.03	0.39	0.00	0.04	0.75
Natural Gas Prices (2008 dollars per thousand cubic feet)										
Wellhead[1]	8.07	5.08	5.08	5.09	6.25	6.26	6.36	7.38	7.44	7.57
Transportation Sector[1]	16.42	13.15	9.53	9.50	13.79	13.71	10.81	14.58	14.54	14.60
Average End Use[3]	10.83	7.66	7.66	7.67	8.87	8.89	9.02	10.09	10.17	10.51
Natural Gas Supply and Dispostion (trillion cubic feet)										
Dry Gas Production[4]	20.56	19.87	19.89	19.91	20.93	20.94	21.29	23.96	23.92	24.54
Supplemental Natural Gas[5]	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Net Imports	2.95	2.64	2.65	2.65	2.61	2.61	2.68	1.44	1.46	1.57
Consumption	23.25	22.58	22.61	22.64	23.61	23.64	24.07	25.49	25.48	26.21
Transportation	0.04	0.05	0.06	0.07	0.05	0.11	0.62	0.06	0.15	1.18
Petroleum Supply and Disposition (million barrels per day)										
Domestic Crude Oil Production[6]	4.96	5.56	5.55	5.57	4.95	4.95	4.95	4.37	4.38	4.38
Net Petroleum Imports	11.14	11.33	11.33	11.31	12.97	12.94	12.73	15.26	15.26	14.80
Other Petroleum Supply[7]	2.71	2.89	2.89	2.89	3.01	3.01	3.01	3.05	3.05	3.09
Other Non-petroleum Supply[8]	0.78	1.32	1.32	1.33	1.65	1.65	1.64	1.68	1.67	1.65
Consumption	19.53	21.19	21.18	21.17	22.69	22.65	22.44	24.54	24.54	24.07
Diesel	3.44	3.66	3.65	3.65	4.07	4.05	3.82	4.73	4.70	4.23
Diesel Fuel Price (2008 dollars per gallon)	3.79	2.16	2.15	2.15	2.17	2.17	2.13	2.20	2.18	2.11

[1]Represents lower 48 onshore and offshore supply.
[2]Natural gas used as a vehicle fuel. Price includes estimated motor vehicle fuel taxes and estimated dispensing costs or charges.
[3]Weighted average prices. Weights used are the sectoral consumption values excluding lease, plant, and pipeline fuel.
[4]Marketed production (wet) minus extraction losses.
[5]Synthetic natural gas, propane air, coke oven gas, refinery gas, biomass gas, air injected for Btu stabilization, and manufactured gas commingled and distributed with natural gas.
[6]Includes lease condensate.
[7]Includes natural gas plant liquids, refinery processing gain, other crude oil supply, and stock withdrawals.
[8]Includes liquids, such as ethanol and biodiesel, derived from biomass, natural gas, and coal.
- - = Not applicable.
Btu = British thermal unit.
Note: Totals may not equal sum of components due to independent rounding. Data for 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2008 data based on: Oak Ridge National Laboratory, *Transportation Energy Data Book: Edition 28 and Annual* (Oak Ridge, TN, 2009); U.S. Department of Commerce, Bureau of the Census, "Vehicle Inventory and Use Survey," EC02TV (Washington, DC, December 2004); Federal Highway Administration, *Highway Statistics 2007* (Washington, DC, October 2008); Energy Information Administration (EIA), *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009); and EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A. **Projections:** EIA, AEO2010 National Energy Modeling System runs AEO2010R.D111809A, ATHNG80LPNM19.D032510A, and ATHNG80LP27.D033110A.

Table D17. Key Results for No Greenhouse Gas Concern Case
(Million Short Tons per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	2008	2015		2025		2035	
		Reference	No GHG Concern	Reference	No GHG Concern	Reference	No GHG Concern
Production[1]	**1172**	**1155**	**1157**	**1234**	**1262**	**1285**	**1423**
Appalachia	391	317	318	291	295	277	308
Interior	147	184	185	199	204	208	221
West	634	654	653	744	763	800	894
Waste Coal Supplied[2]	**14**	**16**	**16**	**15**	**15**	**15**	**16**
Net Imports[3]	**-49**	**-30**	**-30**	**-14**	**-12**	**20**	**20**
Total Supply[4]	**1136**	**1141**	**1143**	**1235**	**1266**	**1320**	**1458**
Consumption by Sector							
Residential and Commercial	4	3	3	3	3	3	3
Coke Plants	22	20	20	19	19	14	14
Other Industrial[5]	55	53	53	53	53	51	51
Coal-to-Liquids Heat and Power	0	11	12	24	37	37	78
Coal-to-Liquids Liquids Production	0	9	10	20	31	31	66
Electric Power[6]	1042	1044	1044	1116	1122	1183	1246
Total Coal Use	**1122**	**1141**	**1143**	**1235**	**1265**	**1319**	**1458**
Average Minemouth Price[7]							
(2008 dollars per short ton)	31.26	30.38	30.43	28.19	28.44	28.10	29.04
(2008 dollars per million Btu)	1.55	1.52	1.52	1.44	1.45	1.44	1.50
Delivered Prices[8]							
(2008 dollars per short ton)							
Coke Plants	118.09	132.98	133.01	137.06	137.01	132.10	132.91
Other Industrial[5]	63.44	57.43	57.51	56.11	56.71	57.88	59.51
Coal to Liquids	- -	20.14	20.39	21.22	22.53	22.34	23.87
Electric Power[6]							
(2008 dollars per short ton)	40.71	39.46	39.52	38.49	38.92	40.74	42.38
(2008 dollars per million Btu)	2.05	2.01	2.01	1.99	2.00	2.09	2.16
Average	**43.36**	**41.58**	**41.61**	**40.16**	**40.27**	**41.42**	**42.03**
Exports[9]	97.68	109.63	109.66	113.11	111.08	96.29	95.64
Cumulative Electricity Generating Capacity Additions (gigawatts)[10]							
Coal	0.0	17.2	17.3	20.4	27.3	30.6	64.8
Conventional	0.0	15.0	15.0	15.0	18.4	22.3	37.9
Advanced without Sequestration	0.0	0.6	0.6	0.6	2.6	2.1	16.4
Advanced with Sequestration	0.0	0.0	0.0	2.0	2.0	2.0	2.0
End-Use Generators[11]	0.0	1.6	1.7	2.8	4.3	4.2	8.5
Petroleum	0.0	0.3	0.3	0.3	0.3	0.3	0.3
Natural Gas	0.0	21.2	21.2	47.5	43.0	115.7	97.6
Nuclear	0.0	1.2	1.2	6.4	6.4	8.4	6.4
Renewables [12]	0.0	54.9	52.2	69.6	67.7	92.7	84.7
Other	0.0	1.9	1.9	1.8	1.8	1.9	1.9
Total	**0.0**	**96.7**	**94.0**	**146.0**	**146.5**	**249.5**	**255.7**
Liquids from Coal (million barrels per day)	0.00	0.07	0.08	0.15	0.25	0.24	0.52

[1]Includes anthracite, bituminous coal, subbituminous coal, and lignite.
[2]Includes waste coal consumed by the electric power and industrial sectors. Waste coal supplied is counted as a supply-side item to balance the same amount of waste coal included in the consumption data.
[3]Excludes imports to Puerto Rico and the U.S. Virgin Islands.
[4]Production plus waste coal supplied plus net imports.
[5]Includes consumption for combined heat and power plants, except those plants whose primary business is to sell electricity, or electricity and heat, to the public. Excludes all coal use in the coal to liquids process.
[6]Includes all electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.
[7]Includes reported prices for both open market and captive mines.
[8]Prices weighted by consumption tonnage; weighted average excludes residential and commercial prices, and export free-alongside-ship (f.a.s.) prices.
[9]F.a.s. price at U.S. port of exit.
[10]Cumulative additions after December 31, 2008. Includes all additions of electricity only and combined heat and power plants projected for the electric power, industrial, and commercial sectors.
[11]Includes combined heat and power plants and electricity-only plants in the commercial and industrial sectors; and small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid.
[12]Includes conventional hydroelectric, geothermal, wood, wood waste, municipal waste, landfill gas, other biomass, solar, and wind power. Facilities co-firing biomass and coal are classified as coal.
- - = Not applicable.
Btu = British thermal unit.
GHG = Greenhouse gas.
Note: Totals may not equal sum of components due to independent rounding. Data for 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2008 data based on: Energy Information Administration (EIA), *Annual Coal Report 2008*, DOE/EIA-0584(2008) (Washington, DC, September 2009); EIA, *Quarterly Coal Report, October-December 2008*, DOE/EIA-0121(2008/4Q) (Washington, DC, March 2009); and EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A.
Projections: EIA, AEO2010 National Energy Modeling System runs AEO2010R.D111809A and NORSK2010.D012510A.

Table D18. Key Results for Coal Cost Cases

(Million Short Tons per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	2008	2020			2035			Growth Rate, 2008-2035		
		Low Coal Cost	Reference	High Coal Cost	Low Coal Cost	Reference	High Coal Cost	Low Coal Cost	Reference	High Coal Cost
Production[1]	**1172**	**1235**	**1183**	**1143**	**1425**	**1285**	**1101**	**0.7%**	**0.3%**	**-0.2%**
Appalachia	391	322	305	293	300	277	288	-1.0%	-1.3%	-1.1%
Interior	147	188	198	216	159	208	274	0.3%	1.3%	2.3%
West	634	725	681	633	965	800	540	1.6%	0.9%	-0.6%
Waste Coal Supplied[2]	**14**	**15**	**15**	**15**	**9**	**15**	**27**	**-1.4%**	**0.3%**	**2.5%**
Net Imports[3]	**-49**	**-31**	**-15**	**-0**	**-25**	**20**	**70**	**-2.5%**	**- -**	**- -**
Total Supply[4]	**1136**	**1219**	**1183**	**1157**	**1409**	**1320**	**1199**	**0.8%**	**0.6%**	**0.2%**
Consumption by Sector										
Residential and Commercial	4	3	3	3	3	3	3	-0.2%	-0.2%	-0.2%
Coke Plants	22	21	20	20	14	14	14	-1.6%	-1.7%	-1.7%
Other Industrial[5]	55	54	53	53	51	51	50	-0.2%	-0.2%	-0.3%
Coal-to-Liquids Heat and Power	0	17	17	18	38	37	36	- -	- -	- -
Coal-to-Liquids Liquids Production	0	15	15	15	32	31	31	- -	- -	- -
Electric Power[6]	1042	1109	1073	1048	1270	1183	1065	0.7%	0.5%	0.1%
Total Coal Use	**1122**	**1219**	**1183**	**1157**	**1409**	**1319**	**1198**	**0.8%**	**0.6%**	**0.2%**
Average Minemouth Price[7]										
(2008 dollars per short ton)	31.26	23.11	30.01	39.25	13.30	28.10	61.33	-3.1%	-0.4%	2.5%
(2008 dollars per million Btu)	1.55	1.16	1.51	1.98	0.69	1.44	3.09	-3.0%	-0.3%	2.6%
Delivered Prices[8]										
(2008 dollars per short ton)										
Coke Plants	118.09	117.33	139.25	162.90	92.14	132.10	219.95	-0.9%	0.4%	2.3%
Other Industrial[5]	63.44	47.84	56.95	67.36	38.95	57.88	91.94	-1.8%	-0.3%	1.4%
Coal to Liquids	- -	15.57	20.37	26.45	12.13	22.34	43.17	- -	- -	- -
Electric Power[6]										
(2008 dollars per short ton)	40.71	31.58	38.90	48.72	24.77	40.74	73.07	-1.8%	0.0%	2.2%
(2008 dollars per million Btu)	2.05	1.61	1.98	2.48	1.28	2.09	3.65	-1.7%	0.1%	2.2%
Average	**43.36**	**33.33**	**40.95**	**50.96**	**25.33**	**41.42**	**73.87**	**-2.0%**	**-0.2%**	**2.0%**
Exports[9]	97.68	106.33	124.95	142.80	76.77	96.29	168.47	-0.9%	-0.1%	2.0%
Cumulative Electricity Generating Capacity Additions (gigawatts)[10]										
Coal	0.0	19.8	19.8	19.8	48.0	30.6	22.1	- -	- -	- -
Conventional	0.0	15.0	15.0	15.0	38.1	22.3	15.5	- -	- -	- -
Advanced without Sequestration	0.0	0.6	0.6	0.6	3.6	2.1	0.6	- -	- -	- -
Advanced with Sequestration	0.0	2.0	2.0	2.0	2.0	2.0	2.0	- -	- -	- -
End-Use Generators[11]	0.0	2.1	2.1	2.1	4.2	4.2	4.0			
Petroleum	0.0	0.3	0.3	0.3	0.3	0.3	0.3	- -	- -	- -
Natural Gas	0.0	26.1	26.2	26.0	109.9	115.7	115.5	- -	- -	- -
Nuclear	0.0	6.4	6.4	6.4	6.4	8.4	9.1	- -	- -	- -
Renewables[12]	0.0	62.7	60.0	56.7	88.5	92.7	89.3	- -	- -	- -
Other	0.0	1.8	1.8	1.8	1.9	1.9	1.9	- -	- -	- -
Total	**0.0**	**117.1**	**114.5**	**111.0**	**255.0**	**249.5**	**238.2**	**- -**	**- -**	**- -**
Liquids from Coal (million barrels per day)	0.00	0.11	0.11	0.11	0.24	0.24	0.23	- -	- -	- -

Table D18. Key Results for Coal Cost Cases (Continued)

(Million Short Tons per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	2008	2020			2035			Growth Rate, 2008-2035		
		Low Coal Cost	Reference	High Coal Cost	Low Coal Cost	Reference	High Coal Cost	Low Coal Cost	Reference	High Coal Cost
Cost Indices (constant dollar index, 2008=1.000)										
Transportation Rate Multipliers										
Eastern Railroads	1.000	0.900	1.006	1.110	0.750	0.997	1.250	-1.1%	-0.0%	0.8%
Western Railroads	1.000	0.920	1.027	1.140	0.790	1.050	1.310	-0.9%	0.2%	1.0%
Mine Equipment Costs										
Underground	1.000	0.936	1.045	1.166	0.805	1.045	1.354	-0.8%	0.2%	1.1%
Surface	1.000	0.916	1.023	1.141	0.788	1.023	1.325	-0.9%	0.1%	1.0%
Other Mine Supply Costs										
East of the Mississippi: All Mines	1.000	0.843	0.942	1.051	0.673	0.873	1.131	-1.5%	-0.5%	0.5%
West of the Mississippi: Underground	1.000	0.843	0.942	1.051	0.673	0.873	1.131	-1.5%	-0.5%	0.5%
West of the Mississippi: Surface	1.000	0.843	0.942	1.051	0.673	0.873	1.131	-1.5%	-0.5%	0.5%
Coal Mining Labor Productivity (short tons per miner per hour)	5.96	8.23	6.10	4.46	13.85	6.51	2.63	3.2%	0.3%	-3.0%
Average Coal Miner Wage (2008 dollars per hour)	23.27	20.83	23.27	25.97	17.92	23.27	30.14	-1.0%	0.0%	1.0%

[1]Includes anthracite, bituminous coal, subbituminous coal, and lignite.
[2]Includes waste coal consumed by the electric power and industrial sectors. Waste coal supplied is counted as a supply-side item to balance the same amount of waste coal included in the consumption data.
[3]Excludes imports to Puerto Rico and the U.S. Virgin Islands.
[4]Production plus waste coal supplied plus net imports.
[5]Includes consumption for combined heat and power plants, except those plants whose primary business is to sell electricity, or electricity and heat, to the public. Excludes all coal use in the coal to liquids process.
[6]Includes all electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.
[7]Includes reported prices for both open market and captive mines.
[8]Prices weighted by consumption tonnage; weighted average excludes residential and commercial prices, and export free-alongside-ship (f.a.s.) prices.
[9]F.a.s. price at U.S. port of exit.
[10]Cumulative additions after December 31, 2008. Includes all additions of electricity only and combined heat and power plants projected for the electric power, industrial, and commercial sectors.
[11]Includes combined heat and power plants and electricity-only plants in the commercial and industrial sectors; and small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid.
[12]Includes conventional hydroelectric, geothermal, wood, wood waste, municipal waste, landfill gas, other biomass, solar, and wind power. Facilities co-firing biomass and coal are classified as coal.
- - = Not applicable.
Btu = British thermal unit.
Note: Totals may not equal sum of components due to independent rounding. Data for 2008 are model results and may differ slightly from official EIA data reports.
Sources: 2008 data based on: Energy Information Administration (EIA), *Annual Coal Report 2008*, DOE/EIA-0584(2008) (Washington, DC, September 2009); EIA, *Quarterly Coal Report, October-December 2008*, DOE/EIA-0121(2008/4Q) (Washington, DC, March 2009); U.S. Department of Labor, Bureau of Labor Statistics, Average Hourly Earnings of Production Workers: Coal Mining, Series ID : ceu1021210008; and EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A. **Projections:** EIA, AEO2010 National Energy Modeling System runs LCCST10.D120909A, AEO2010R.D111809A, and HCCST10.D120909A.

Appendix E

NEMS Overview and Brief Description of Cases

The National Energy Modeling System

Projections in the *Annual Energy Outlook 2010* (*AEO2010*) are generated from the National Energy Modeling System (NEMS) [*1*], developed and maintained by the Office of Integrated Analysis and Forecasting (OIAF) of the U.S. Energy Information Administration (EIA). In addition to its use in developing the *Annual Energy Outlook* (*AEO*) projections, NEMS is also used in analytical studies for the U.S. Congress, the Executive Office of the President, other offices within the U.S. Department of Energy (DOE), and other Federal agencies. The *AEO* projections are also used by analysts and planners in other government agencies and nongovernment organizations.

The projections in NEMS are developed with the use of a market-based approach to energy analysis. For each fuel and consuming sector, NEMS balances energy supply and demand, accounting for economic competition among the various energy fuels and sources. The time horizon of NEMS is the period through 2035, approximately 25 years into the future. In order to represent regional differences in energy markets, the component modules of NEMS function at the regional level: the nine Census divisions for the end-use demand modules; production regions specific to oil, natural gas, and coal supply and distribution; the North American Electric Reliability Council regions and subregions for electricity; and the Petroleum Administration for Defense Districts (PADDs) for refineries (see Appendix F for details).

NEMS is organized and implemented as a modular system. The modules represent each of the fuel supply markets, conversion sectors, and end-use consumption sectors of the energy system. NEMS also includes macroeconomic and international modules. The primary flows of information among the modules are the delivered prices of energy to end users and the quantities consumed, by product, region, and sector. The delivered fuel prices encompass all the activities necessary to produce, import, and transport fuels to end users. The information flows also include other data on such areas as economic activity, domestic production, and international liquids supply.

The Integrating Module controls the execution of each of the component modules. To facilitate modularity, the components do not pass information to each other directly but communicate through a central data structure. This modular design provides the capability to execute modules individually, thus allowing decentralized development of the system and independent analysis and testing of individual modules. The modular design also permits the use of the methodology and level of detail most appropriate for each energy sector. NEMS calls each supply, conversion, and end-use demand module in sequence until the delivered prices of energy and the quantities demanded have converged within tolerance, thus achieving an economic equilibrium of supply and demand in the consuming sectors. A solution is reached annually through the projection horizon. Other variables, such as petroleum product imports, crude oil imports, and several macroeconomic indicators, also are evaluated for convergence.

Each NEMS component represents the impacts and costs of legislation and environmental regulations that affect that sector. NEMS accounts for all combustion-related carbon dioxide (CO_2) emissions, as well as emissions of sulfur dioxide (SO_2), nitrogen oxides (NO_x), and mercury from the electricity generation sector.

The version of NEMS used for *AEO2010* represents current legislation and environmental regulations as of October 31, 2009 (such as the American Recovery and Reinvestment Act of 2009 [ARRA], which was enacted in mid-February 2009; the Energy Improvement and Extension Act of 2008 [EIEA2008], signed into law on October 3, 2008; the Food, Conservation, and Energy Act of 2008; the Energy Independence and Security Act of 2007 [EISA2007], which was signed into law on December 19, 2007; the Energy Policy Act of 2005 [EPACT2005]; the Working Families Tax Relief Act of 2004; and the American Jobs Creation Act of 2004), and the costs of compliance with regulations (such as the new stationary diesel regulations issued by the U.S. Environmental Protection Agency [EPA] in July 2006). The *AEO2010* models do not represent the Clean Air Mercury Rule, which was vacated and remanded by the D.C. Circuit Court of the U.S. Court of Appeals on February 8, 2008, but they do represent State requirements for reduction of mercury emissions.

The *AEO2010* Reference case reflects the temporary reinstatement of the NO_x and SO_2 cap-and-trade programs included in the Clean Air Interstate Rule

(CAIR), according to the ruling issued by the U.S. Court of Appeals for the District of Columbia on December 23, 2008. The potential impacts of proposed Federal and State legislation, regulations, or standards—or of sections of legislation that have been enacted but require funds or implementing regulations that have not been provided or specified—are not reflected in NEMS.

In general, the historical data used for the *AEO2010* projections are based on EIA's *Annual Energy Review 2008*, published in June 2009 [*2*]; however, data were taken from multiple sources. In some cases, only partial or preliminary data were available for 2008. CO_2 emissions were calculated by using CO_2 coefficients from the EIA report, *Emissions of Greenhouse Gases in the United States 2008*, published in December 2009 [*3*]. Historical numbers are presented for comparison only and may be estimates. Source documents should be consulted for the official data values. Footnotes to the *AEO2010* appendix tables indicate the definitions and sources of historical data.

The *AEO2010* projections for 2009 and 2010 incorporate short-term projections from EIA's September 2009 *Short-Term Energy Outlook* (*STEO*). For short-term energy projections, readers are referred to monthly updates of the *STEO* [*4*].

Component modules

The component modules of NEMS represent the individual supply, demand, and conversion sectors of domestic energy markets and also include international and macroeconomic modules. In general, the modules interact through values representing the prices or expenditures for energy delivered to the consuming sectors and the quantities of end-use energy consumption.

Macroeconomic Activity Module

The Macroeconomic Activity Module (MAM) provides a set of macroeconomic drivers to the energy modules and receives energy-related indicators from the NEMS energy components as part of the macroeconomic feedback mechanism within NEMS. Key macroeconomic variables used in the energy modules include gross domestic product (GDP), disposable income, value of industrial shipments, new housing starts, sales of new light-duty vehicles (LDVs), interest rates, and employment. Key energy indicators fed back to the MAM include aggregate energy prices and costs. The MAM uses the following models from IHS Global Insight: Macroeconomic Model of the U.S. Economy, National Industry Model, and National Employment Model. In addition, EIA has constructed a Regional Economic and Industry Model to project regional economic drivers, and a Commercial Floorspace Model to project 13 floorspace types in 9 Census divisions. The accounting framework for industrial value of shipments uses the North American Industry Classification System (NAICS).

International Module

The International Energy Module (IEM) uses assumptions of economic growth and expectations of future U.S. and world petroleum liquids production and consumption, by year, to project the interaction of U.S. and international liquids markets. The IEM computes world oil prices, provides a world crude-like liquids supply curve, generates a worldwide oil supply/demand balance for each year of the projection period, and computes initial estimates of crude oil and light and heavy petroleum product imports for the United States.

The supply-curve calculations are based on historical market data and a world oil supply/demand balance, which is developed from reduced-form models of international liquids supply and demand, current investment trends in exploration and development, and long-term resource economics for 221 countries/territories. The oil production estimates include both conventional and unconventional supply recovery technologies. In the interaction with the rest of NEMS, the IEM changes the world oil price (WOP), which is defined as the price of foreign light, low sulfur crude oil delivered to Cushing, Oklahoma, (Petroleum Allocation Defense District 2), in response to changes in expected crude and product liquids produced and consumed in the United States.

Residential and Commercial Demand Modules

The Residential Demand Module projects energy consumption in the residential sector by housing type and end use, based on delivered energy prices, the menu of equipment available, the availability and cost of renewable sources of energy, and housing starts. The Commercial Demand Module projects energy consumption in the commercial sector by building type and nonbuilding uses of energy and by category of end use, based on delivered prices of energy, availability of renewable sources of energy, and macroeconomic variables representing interest rates and floorspace construction.

Both modules estimate the equipment stock for the major end-use services, incorporating assessments of advanced technologies, including representations of renewable energy technologies, and the effects of both building shell and appliance standards, including the recent regional standards for furnaces, heat pumps, and central air conditioners agreed to by manufacturers and environmental interest groups. The Commercial Demand Module incorporates combined heat and power (CHP) technology. The modules also include projections of distributed generation. Both modules incorporate changes to "normal" heating and cooling degree-days by Census division, based on a 10-year average and on State-level population projections. The Residential Demand Module projects an increase in the average square footage of both new construction and existing structures, based on trends in the size of new construction and the remodeling of existing homes.

Industrial Demand Module

The Industrial Demand Module projects the consumption of energy for heat and power, feedstocks, and raw materials in each of 21 industries, subject to the delivered prices of energy and the values of macroeconomic variables representing employment and the value of shipments for each industry. As noted in the description of the MAM, the value of shipments is based on NAICS. The industries are classified into three groups—energy-intensive manufacturing, non-energy-intensive manufacturing, and nonmanufacturing. Of the eight energy-intensive industries, seven are modeled in the Industrial Demand Module, with energy-consuming components for boiler/steam/cogeneration, buildings, and process/assembly use of energy.

A new bulk chemical model was implemented for the *AEO2010*. The new model calculates the production (in physical units), process shares, and process energy requirements for 26 specific chemicals and four aggregate groups of bulk chemicals. Details are included in the forthcoming Industrial Demand Module documentation. A generalized representation of CHP and a recycling component also are included. The use of energy for petroleum refining is modeled in the Petroleum Market Module (PMM), and the projected consumption is included in the industrial totals.

Transportation Demand Module

The Transportation Demand Module projects consumption of fuels in the transportation sector, including petroleum products, electricity, methanol, ethanol, compressed natural gas, and hydrogen, by transportation mode, vehicle vintage, and size class, subject to delivered prices of energy fuels and macroeconomic variables representing disposable personal income, GDP, population, interest rates, and industrial shipments. Fleet vehicles are represented separately to allow analysis of other legislation and legislative proposals specific to those market segments. The Transportation Demand Module also includes a component to assess the penetration of alternative-fuel vehicles. Provisions of EPACT2005, EIEA2008, and ARRA are reflected in the assessment of the impacts of tax credits on the purchase of hybrid gas-electric, plug-in electric, alternative-fuel, and fuel-cell vehicles. The corporate average fuel economy (CAFE) and biofuel representation in the module reflect standards proposed by the National Highway Traffic Safety Administration (NHTSA), the EPA, and provisions in EISA2007.

The air transportation component of the Transportation Demand Module explicitly represents air travel in domestic and foreign markets and includes the industry practice of parking aircraft in both domestic and international markets to reduce operating costs, as well as the movement of aging aircraft from passenger to cargo markets [*5*]. For passenger travel and air freight shipments, the module represents regional fuel use in regional, narrow-body, and wide-body aircraft. An infrastructure constraint, which is also modeled, can potentially limit overall growth in passenger and freight air travel to levels commensurate with industry-projected infrastructure expansion and capacity growth.

Electricity Market Module

There are three primary submodules of the Electricity Market Module—capacity planning, fuel dispatching, and finance and pricing. To project the optimal mix of new generation capacity that should be added in future years, the Capacity Planning Submodule uses the stock of existing generation capacity; the menu, cost, and performance of future generation capacity; expected fuel prices; expected financial parameters; expected electricity demand; and expected environmental regulations. The Fuel Dispatching Submodule uses the existing stock of generation equipment, their operating and maintenance (O&M) costs and performance, fuel prices to the electricity sector, electricity demand, and all applicable environmental regulations to determine the least-cost way to meet that demand; the submodule also

projects transmission and pricing of electricity. The Finance and Pricing Submodule uses capital costs, fuel costs, macroeconomic parameters, and environmental regulations, along with load shapes, to estimate generation costs for each technology.

All specifically identified options promulgated by the EPA for compliance with the Clean Air Act Amendments of 1990 (CAAA90) are explicitly represented in the capacity expansion and dispatch decisions; those that have not been promulgated (e.g., fine particulate proposals) are not incorporated. All financial incentives for power generation expansion and dispatch specifically identified in EPACT2005 have been implemented. Several States, primarily in the Northeast, have recently enacted air emission regulations for CO_2 that affect the electricity generation sector, and those regulations are represented in *AEO2010*. The *AEO2010* Reference case reflects the temporary reinstatement of the NO_x and SO_2 cap-and-trade programs included in CAIR, as well as State regulations on mercury emissions.

Although currently there is no Federal legislation in place that restricts greenhouse gas (GHG) emissions, regulators and the investment community have continued to push energy companies to invest in technologies that are less GHG-intensive. The trend is captured in the *AEO2010* Reference case through a 3-percentage-point increase in the cost of capital when investments in new coal-fired power plants and new coal-to-liquids (CTL) plants without carbon capture and sequestration (CCS) are evaluated.

Renewable Fuels Module

The Renewable Fuels Module (RFM) includes submodules representing renewable resource supply and technology input information for central-station, grid-connected electricity generation technologies, including conventional hydroelectricity, biomass (dedicated biomass plants and co-firing in existing coal plants), geothermal, landfill gas, solar thermal electricity, photovoltaics (PV), and wind energy. The RFM contains renewable resource supply estimates representing the regional opportunities for renewable energy development. Investment tax credits (ITCs) for renewable fuels are incorporated, as currently enacted, including a permanent 10-percent ITC for business investment in solar energy (thermal nonpower uses as well as power uses) and geothermal power (available only to those projects not accepting the production tax credit [PTC] for geothermal power). In addition, the module reflects the increase in the ITC to 30 percent for solar energy systems installed before January 1, 2017, and the extension of the credit to individual homeowners under EIEA-2008.

PTCs for wind, geothermal, landfill gas, and some types of hydroelectric and biomass-fueled plants also are represented. They provide a credit of up to 2.1 cents per kilowatthour for electricity produced in the first 10 years of plant operation. For *AEO2010*, new wind plants coming on line before January 1, 2013, are eligible to receive the PTC; other eligible plants must be in service before January 1, 2014. As part of ARRA, plants eligible for the PTC may instead elect to receive a 30-percent ITC or an equivalent direct grant. *AEO2010* also accounts for new renewable energy capacity resulting from State renewable portfolio standard (RPS) programs, mandates, and goals, as described in *Assumptions to the Annual Energy Outlook 2010* [*6*].

Oil and Gas Supply Module

The Oil and Gas Supply Module (OGSM) represents domestic crude oil and natural gas supply within an integrated framework that captures the interrelationships among the various sources of supply: onshore, offshore, and Alaska by all production techniques, including natural gas recovery from coalbeds and low-permeability formations of sandstone and shale. The framework analyzes cash flow and profitability to compute investment and drilling for each of the supply sources, based on the prices for crude oil and natural gas, the domestic recoverable resource base, and the state of technology. Oil and natural gas production activities are modeled for 12 supply regions, including 6 onshore, 3 offshore and 3 Alaskan regions.

The *AEO2010* OGSM includes a revised representation of onshore oil and gas supply, the new Onshore Lower 48 Oil and Gas Supply Submodule (OLOGSS), which evaluates the economics of future exploration and development projects for crude oil and natural gas at the play level. Crude oil resources are divided into known plays and undiscovered plays, and include highly fractured continuous zones, such as the Austin chalk and Bakken shale formations. Production potential from advanced secondary recovery techniques (e.g., in-fill drilling, horizontal continuity, and horizontal profile) and enhanced oil recovery (e.g., CO_2 flooding, steam flooding, polymer flooding, and profile modification) are explicitly represented. Natural gas resources are divided into known producing

plays, known developing plays, and undiscovered plays in high-permeability carbonate and sandstone, tight gas, shale gas, and coalbed formations.

Domestic crude oil production quantities are used as inputs to the PMM in NEMS for conversion and blending into refined petroleum products. Supply curves for natural gas are used as inputs to the Natural Gas Transmission and Distribution Module for determining natural gas wellhead prices and domestic production.

Natural Gas Transmission and Distribution Module

The Natural Gas Transmission and Distribution Module represents the transmission, distribution, and pricing of natural gas, subject to end-use demand for natural gas, the potential for converting coal to pipeline-quality natural gas, and the availability of domestic natural gas and natural gas traded on the international market. The module tracks the flows of natural gas and determines the associated capacity expansion requirements in an aggregate pipeline network, connecting the domestic and foreign supply regions with 12 U.S. demand regions. The flow of natural gas is determined for both a peak and off-peak period in the year. Key components of pipeline and distributor tariffs are included in separate pricing algorithms. The module also represents foreign sources and destinations of natural gas, including pipeline imports and exports (Canada and Mexico) and liquefied natural gas (LNG) imports and exports. For *AEO2010*, an algorithm was added to project the addition of compressed natural gas retail fueling capability.

Petroleum Market Module

The PMM projects prices of petroleum products, crude oil and product import activity, and domestic refinery operations (including fuel consumption), subject to the demand for petroleum products, the availability and price of imported petroleum, and the domestic production of crude oil, natural gas liquids, and biofuels (ethanol, biodiesel, and biomass-to-liquids [BTL]). The module represents refining activities in the five PADDs, as well as a less detailed representation of refining activities in the rest of the world. It explicitly models the requirements of EISA2007 and CAAA90 and the costs of automotive fuels, such as conventional and reformulated gasoline, and includes the production of biofuels for blending in gasoline and diesel.

The PMM in NEMS represents regulations that limit the sulfur content of all nonroad and locomotive/marine diesel to 15 parts per million (ppm) by mid-2012. The module also reflects the renewable fuels standard (RFS) in EISA2007, which requires the use of 36 billion ethanol-equivalent gallons per year of biofuels by 2022 if achievable, with corn ethanol credits limited to 15 billion gallons per year [*7*]. Demand growth and regulatory changes necessitate capacity expansion for refinery processing units. U.S. end-use prices for petroleum products are based on the marginal costs of production, plus markups representing the costs of product marketing, importing, transportation, and distribution, as well as applicable State and Federal taxes [*8*]. Refinery capacity expansion at existing sites is permitted in each of the five refining regions modeled. Additional detailed information on the PMM can be found in *Assumptions to the Annual Energy Outlook 2010* [*9*].

Fuel ethanol and biodiesel are included in the PMM because they are commonly blended into petroleum products. The module allows ethanol blending into gasoline at 10 percent or less by volume (E10) and up to 85 percent by volume (E85) for use in flex-fuel vehicles. Although blending into gasoline at 15 percent or less by volume (E15) is currently being considered for certification by the EPA as a viable motor fuel, its use in LDVs has not been approved and thus is not modeled for *AEO2010*. In addition, the model reflects the allowable level of non-E85 ethanol blending in California, which has been raised from 5.7 percent to 10 percent in recent regulatory changes that have set a framework for E10 emissions standards starting in year 2010 [*10*].

Ethanol is produced primarily in the Midwest from corn or other starchy crops, and in the future it may be produced from cellulosic material, such as switchgrass, poplar, and crop residues. Biodiesel (diesel-like fuel made in a transesterification process) is produced from seed oil, imported palm oil, animal fats, or yellow grease (primarily, recycled cooking oil). Renewable or "green" diesel is also modeled as a blending component in petroleum diesel. Unlike the more common biodiesel, renewable diesel is made by hydrogenation of vegetable oils or tallow and is completely fungible with petroleum diesel. Imports and limited exports of these biofuels are modeled in the PMM.

Both domestic and imported ethanol count toward the EISA2007 RFS. Domestic ethanol production from three feedstock categories (corn, cellulosic, and advanced) is modeled. Corn-based ethanol plants are

numerous (more than 180 are now in operation, with a total operating production capacity of more than 11 billion gallons annually) and are based on a well-known technology that converts starch and sugar into ethanol. Ethanol from cellulosic sources is a new technology, with only a few small pilot plants in operation. Large-scale commercialization of the cellulosic technology is not expected to ramp up quickly enough to meet the cellulosic ethanol mandate in EISA2007.

DOE and the U.S. Department of Agriculture (USDA) have awarded numerous grants to biorefinery projects (over $600 million in 2009 alone), and the USDA has provided a loan guarantee to a small commercial-sized cellulosic biofuel plant scheduled to begin production next year; however, reduced investment during the recent recession is expected to cause significant delays in the startup of large commercial plants, and the delays are reflected in the projections. Imported ethanol can be produced from cane sugar or from bagasse (the cellulosic byproduct of sugar milling). For *AEO2010*, assumptions about ethanol import availability have been reviewed and updated from the previous Reference case, to reflect greater expected availability of ethanol from sugar cane. The sources of ethanol are modeled to compete on an economic basis.

Fuels produced by gasification and Fischer-Tropsch synthesis, or through a pyrolysis process, also are modeled in the PMM, based on their economics relative to competing feedstocks and products. The four processes modeled are CTL, gas-to-liquids (GTL), BTL, and pyrolysis. CTL facilities are likely to be built at locations close to coal supplies and water sources, where liquid products and surplus electricity could also be distributed to nearby demand regions. In addition, a hybrid coal-biomass-to-liquids process was implemented for *AEO2010*. GTL facilities may be built in Alaska, but they would compete with the Alaska Natural Gas Transportation System for available natural gas resources. BTL and pyrolysis facilities are likely to be built where there are large supplies of biomass, such as crop residues and forestry waste. Because the BTL process uses cellulosic feedstocks, it is also modeled as a choice to meet the EISA2007 requirement for cellulosic biofuels.

Coal Market Module

The Coal Market Module (CMM) simulates mining, transportation, and pricing of coal, subject to end-use demand for coal differentiated by heat and sulfur content. U.S. coal production is represented in the CMM by 40 separate supply curves—differentiated by region, mine type, coal rank, and sulfur content. The coal supply curves include a response to capacity utilization of mines, mining capacity, labor productivity, and factor input costs (mining equipment, mining labor, and fuel requirements). Projections of U.S. coal distribution are determined by minimizing the cost of coal supplied, given coal demand by region and sector, environmental restrictions, and accounting for mine-mouth prices, transportation costs, and coal supply contracts. Over the projection horizon, coal transportation costs in the CMM vary in response to changes in the cost of rail investments.

The CMM produces projections of U.S. steam and metallurgical coal exports and imports in the context of world coal trade, determining the pattern of world coal trade flows that minimizes the production and transportation costs of meeting a specified set of regional world coal import demands, subject to constraints on export capacities and trade flows. The international coal market component of the module computes trade in 3 types of coal for 17 export regions and 20 import regions. U.S. coal production and distribution are computed for 14 supply regions and 16 demand regions.

Annual Energy Outlook 2010 cases

Table E1 provides a summary of the cases produced as part of *AEO2010*. For each case, the table gives the name used in this report, a brief description of the major assumptions underlying the projections, the mode in which the case was run in NEMS (either fully integrated, partially integrated, or standalone), and a reference to the pages in the body of the report and in this appendix where the case is discussed. The text sections following Table E1 describe the various cases. The Reference case assumptions for each sector are described in *Assumptions to the Annual Energy Outlook 2010* [*11*]. Regional results and other details of the projections are available at web site www.eia.doe.gov/oiaf/aeo/supplement.

Macroeconomic growth cases

In addition to the *AEO2010* Reference case, the Low Economic Growth and High Economic Growth cases were developed to reflect the uncertainty in projections of economic growth. The alternative cases are intended to show the effects of alternative growth assumptions on energy market projections. The cases are described as follows:

Table E1. Summary of the *AEO2010* cases

Case name	Description	Integration mode	Reference in text	Reference in Appendix E
Reference	Baseline economic growth (2.4 percent per year from 2008 through 2035), world oil price, and technology assumptions. Complete projection tables in Appendix A.	Fully integrated	—	—
Low Economic Growth	Real GDP grows at an average annual rate of 1.8 percent from 2008 to 2035. Other energy market assumptions are the same as in the Reference case. Partial projection tables in Appendix B.	Fully integrated	p. 52	p. 204
High Economic Growth	Real GDP grows at an average annual rate of 3.0 percent from 2008 to 2035. Other energy market assumptions are the same as in the Reference case. Partial projection tables in Appendix B.	Fully integrated	p. 52	p. 204
Low Oil Price	More optimistic assumptions for economic access to non-OPEC resources and for OPEC behavior than in the Reference case. World light, sweet crude oil prices are $51 per barrel in 2035, compared with $133 per barrel in the Reference case (2008 dollars). Other assumptions are the same as in the Reference case. Partial projection tables in Appendix C.	Fully integrated	p. 54	p. 205
High Oil Price	More pessimistic assumptions for economic access to non-OPEC resources and for OPEC behavior than in the Reference case. World light, sweet crude oil prices are about $210 per barrel (2008 dollars) in 2035. Other assumptions are the same as in the Reference case. Partial projection tables in Appendix C.	Fully integrated	p. 54	p. 205
Extended Policies	Begins with the Reference case and selectively extends PTC, ITC, and other energy efficiency tax credit policies with sunset provisions, and promulgates new efficiency standards as they satisfy the consumer-related cost-effectiveness criteria of DOE's Office of Energy Efficiency and Renewable Energy. Introduces new CAFE and tailpipe emissions proposal. Partial projection tables in Appendix D.	Fully integrated	p. 22	p. 210
No Sunset	Begins with the Reference case and extends all energy policies and legislation with sunset provisions, except those requiring additional funding (e.g., loan guarantee programs). Also extends the RFS requirement to 36 billion gallons by 2026 and continues increasing proportional to transport demand thereafter. Partial projection tables in Appendix D.	Fully integrated	p. 22	p. 210
Residential: 2009 Technology	Future equipment purchases based on equipment available in 2009. Existing building shell efficiencies fixed at 2009 levels. Partial projection tables in Appendix D.	With commercial	p. 31	p. 205
Residential: High Technology	Earlier availability, lower costs, and higher efficiencies assumed for more advanced equipment. Building shell efficiencies for new construction meet ENERGY STAR requirements after 2016. Consumers evaluate efficiency investments at a 7-percent real discount rate. Partial projection tables in Appendix D.	With commercial	p. 31	p. 205
Residential: Best Available Technology	Future equipment purchases and new building shells based on most efficient technologies available by fuel. Building shell efficiencies for new construction meet the criteria for most efficient components after 2009. Partial projection tables in Appendix D.	With commercial	p. 31	p. 205

Table E1. Summary of the *AEO2010* cases (continued)

Case name	Description	Integration mode	Reference in text	Reference in Appendix E
Commercial: 2009 Technology	Future equipment purchases based on equipment available in 2009. Building shell efficiencies fixed at 2009 levels. Partial projection tables in Appendix D.	With residential	p. 31	p. 205
Commercial: High Technology	Earlier availability, lower costs, and higher efficiencies for more advanced equipment. Energy efficiency investments evaluated at a 7-percent real discount rate. Building shell efficiencies for new and existing buildings increase by 17.4 and 7.5 percent, respectively, from 2003 values by 2035. Partial projection tables in Appendix D.	With residential	p. 31	p. 205
Commercial: Best Available Technology	Future equipment purchases based on most efficient technologies available by fuel. Building shell efficiencies for new and existing buildings increase by 20.8 and 9.0 percent, respectively, from 2003 values by 2035. Partial projection tables in Appendix D.	With residential	p. 31	p. 205
Industrial: 2010 Technology	Efficiency of plant and equipment fixed at 2010 levels. Partial projection tables in Appendix D.	Standalone	p. 176	p. 206
Industrial: High Technology	Earlier availability, lower costs, and higher efficiencies for more advanced equipment. Partial projection tables in Appendix D.	Standalone	p. 176	p. 206
Transportation: Low Technology	Advanced technologies are more costly and less efficient than in the Reference case. Partial projection tables in Appendix D.	Standalone	p. 64	p. 206
Transportation: High Technology	Advanced technologies are less costly and more efficient than in the Reference case. Partial projection tables in Appendix D.	Standalone	p. 64	p. 206
Transportation: Reference Case 2019 Phaseout With Base Market Potential	Modified Reference case incorporating lower incremental costs for all classes of heavy-duty natural gas vehicles and tax incentives for natural gas refueling stations and natural gas fuel beginning in 2011 and phased out by 2019. Partial projection tables in Appendix D.	Fully integrated	p. 34	p. 206
Transportation: Reference Case 2027 Phaseout With Expanded Market Potential	Modified Reference case incorporating lower incremental costs for all classes of heavy-duty natural gas vehicles and tax incentives for natural gas refueling stations and natural gas fuel beginning in 2011 and phased out by 2027, with assumed increases in the potential market for all classes of heavy-duty natural gas vehicles. Partial projection tables in Appendix D.	Fully integrated	p. 35	p. 207
Transportation: Low Oil Price Case 2019 Phaseout With Base Market Potential	Modified Low Oil Price case incorporating lower incremental costs for all classes of heavy-duty natural gas vehicles and tax incentives for natural gas refueling stations and natural gas fuel beginning in 2011 and phased out by 2019. Partial projection tables in Appendix D.	Fully integrated	p. 35	p. 207
Transportation: Low Oil Price Case 2027 Phaseout With Expanded Market Potential	Modified Low Oil Price case incorporating lower incremental costs for all classes of heavy-duty natural gas vehicles and tax incentives for natural gas refueling stations and natural gas fuel beginning in 2011 and phased out by 2027, with assumed increases in the potential market for all classes of heavy-duty natural gas vehicles. Partial projection tables in Appendix D.	Fully integrated	p. 35	p. 207
Electricity: Low Fossil Technology Cost	Capital and operating costs for all new fossil-fired generating technologies start 10 percent below the Reference case and decline to 25 percent below the Reference case in 2035. Partial projection tables in Appendix D.	Fully integrated	p. 181	p. 207
Electricity: High Fossil Technology Cost	Costs for new advanced fossil-fired generating technologies do not improve due to learning over time from 2010. Partial projection tables in Appendix D.	Fully integrated	p. 181	p. 207

Table E1. Summary of the *AEO2010* cases (continued)

Case name	Description	Integration mode	Reference in text	Reference in Appendix E
Electricity: Low Nuclear Cost	Capital and operating costs for new nuclear capacity start 10 percent below the Reference case and decline to 25 percent below the Reference case in 2035. Partial projection tables in Appendix D.	Fully integrated	p. 179	p. 207
Electricity: High Nuclear Cost	Costs for new nuclear technology do not improve due to learning from 2010 levels in the Reference case. Partial projection tables in Appendix D.	Fully integrated	p. 179	p. 207
Electricity: Nuclear 60-Year Life	All existing nuclear plants are retired after 60 years of operation. Partial projection tables in Appendix D.	Fully integrated	p. 43	p. 208
Renewable Fuels: Low Renewable Technology Cost	Levelized cost of energy for nonhydropower renewable generating technologies start 10 percent below the Reference case in 2010 and decline to 25 percent below the Reference case in 2035. Partial projection tables in Appendix D.	Fully integrated	p. 69	p. 208
Renewable Fuels: High Renewable Technology Cost	New renewable generating technologies do not improve through learning over time from 2010. Partial projection tables in Appendix D.	Fully integrated	p. 69	p. 208
Oil and Gas: Slow Technology	Improvements in exploration and development costs, production rates, and success rates due to technological advancement are reduced by 50 percent to reflect slower improvement than in the Reference case. Partial projection tables in Appendix D.	Fully integrated	p. 71	p. 208
Oil and Gas: Rapid Technology	Improvements in exploration and development costs, production rates, and success rates due to technological advancement are increased by 50 percent to reflect more rapid improvement than in the Reference case. Partial projection tables in Appendix D.	Fully integrated	p. 71	p. 208
Oil and Gas: No Low-Permeability Gas Drilling	No drilling is permitted in onshore, lower 48 low-permeability natural gas reservoirs after 2009 (i.e., no new tight gas or shale gas drilling). Partial projection tables in Appendix D.	Fully integrated	p. 41	p. 209
Oil and Gas: No Shale Gas Drilling	No drilling is permitted in onshore, lower 48 shale gas reservoirs after 2009 (i.e., no new shale gas drilling). Partial projection tables in Appendix D.	Fully integrated	p. 41	p. 209
Oil and Gas: High Shale Gas Resource	Shale gas resources in the onshore, lower 48 are assumed to be higher than in the Reference case. Partial projection tables in Appendix D.	Fully integrated	p. 41	p. 209
Oil and Gas: High LNG Supply	LNG imports into North America are set exogenously to a factor times the levels projected in the Reference case from 2010 forward. The factor starts at 1.0 in 2010 and increases linearly to 5.0 in 2035. Partial projection tables in Appendix D.	Fully integrated	p. 74	p. 208
Coal: Low Coal Cost	Productivity growth rates for coal mining are higher than in the Reference case, and coal mining wages, mine equipment, and coal transportation rates are lower. Partial projection tables in Appendix D.	Fully integrated	p. 80	p. 209
Coal: High Coal Cost	Productivity growth rates for coal mining are lower than in the Reference case, and coal mining wages, mine equipment, and coal transportation rates are higher. Partial projection tables in Appendix D.	Fully integrated	p. 80	p. 209

Table E1. Summary of the *AEO2010* cases (continued)

Case name	Description	Integration mode	Reference in text	Reference in Appendix E
Integrated Low Technology	Combination of the Residential, Commercial, and Industrial 2010 Technology cases and the Electricity High Fossil Technology Cost, High Renewable Technology Cost, and High Nuclear Cost cases. Partial projection tables in Appendix D.	Fully integrated	p. 32	p. 209
Integrated High Technology	Combination of the Residential, Commercial, Industrial, and Transportation High Technology cases and the Electricity Low Fossil Technology Cost, Low Renewable Technology Cost, and Low Nuclear Cost cases. Partial projection tables in Appendix D.	Fully integrated	p. 32	p. 209
No GHG Concern	No GHG emissions reduction policy is enacted, and market investment decisions are not altered in anticipation of such a policy.	Fully integrated	p. 81	p. 209

- In the Reference case, population grows by 0.9 percent per year, nonfarm employment by 0.8 percent per year, and labor productivity by 2.0 percent per year from 2008 to 2035. Economic output as measured by real GDP increases by 2.4 percent per year from 2008 through 2035, and growth in real disposable income per capita averages 1.8 percent per year.
- The *Low Economic Growth case* assumes lower growth rates for population (0.5 percent per year) and labor productivity (1.5 percent per year), resulting in lower nonfarm employment (0.4 percent per year), higher prices and interest rates, and lower growth in industrial output. In the Low Economic Growth case, economic output as measured by real GDP increases by 1.8 percent per year from 2008 through 2035, and growth in real disposable income per capita averages 1.7 percent per year.
- The *High Economic Growth case* assumes higher growth rates for population (1.3 percent per year) and labor productivity (2.4 percent per year), resulting in higher nonfarm employment (1.2 percent per year). With higher productivity gains and employment growth, inflation and interest rates are lower than in the Reference case, and consequently economic output grows at a higher rate (3.0 percent per year) than in the Reference case (2.4 percent). Disposable income per capita grows by 1.82 percent per year, compared with 1.8 percent in the Reference case.

Oil price cases

The world oil price in *AEO2010* is defined as the average price of light, low-sulfur crude oil delivered in Cushing, Oklahoma, and is similar to the price for light, sweet crude oil traded on the New York Mercantile Exchange. *AEO2010* also includes a projection of the U.S. annual average refiners' acquisition cost of imported crude oil, which is more representative of the average cost of all crude oils used by domestic refiners.

The historical record shows substantial variability in world oil prices, and there is arguably even more uncertainty about future prices in the long term. *AEO2010* considers three price cases (Reference, Low Oil Price, and High Oil Price) to allow an assessment of alternative views on the course of future oil prices. The Low and High Oil Price cases define a wide range of potential price paths, reflecting different assumptions about decisions by OPEC members regarding the preferred rate of oil production and about the future finding and development costs and accessibility of conventional oil resources outside the United States. Because the Low and High Oil Price cases are not fully integrated with a world economic model, the impact of world oil prices on international economies is not accounted for directly.

- In the *Reference case*, real world oil prices rise from a low of $70 per barrel (2008 dollars) in 2010 to $95 per barrel in 2015, then increase more slowly to $133 per barrel in 2035. The Reference case represents EIA's current best judgment regarding exploration and development costs and accessibility of oil resources outside the United States. It also assumes that OPEC producers will choose to maintain their share of the market and will schedule investments in incremental production capacity so that OPEC's conventional oil production will represent about 40 percent of the world's total liquids production.

- In the *Low Oil Price case*, real world oil prices are $51 per barrel (2008 dollars) in 2035, compared with $133 per barrel in the Reference case. The Low Oil Price case assumes that OPEC countries will increase their conventional oil production to obtain a 47-percent share of total world liquids production, and that oil resources outside the United States will be more accessible and/or less costly to produce (as a result of technology advances, more attractive fiscal regimes, or both) than in the Reference case. With these assumptions, conventional oil production outside the United States is higher in the Low Oil Price case than in the Reference case.
- In the *High Oil Price case*, real world oil prices reach about $210 per barrel (2008 dollars) in 2035. The High Oil Price case assumes that OPEC countries will reduce their production from the current rate, sacrificing market share as global liquids production increases, and that oil resources outside the United States will be less accessible and/or more costly to produce than assumed in the Reference case.

Buildings sector cases

In addition to the *AEO2010* Reference case, three standalone technology-focused cases using the Residential and Commercial Demand Modules of NEMS were developed to examine the effects of changes in equipment and building shell efficiencies.

For the residential sector, the three technology-focused cases are as follows:

- The *2009 Technology case* assumes that all future equipment purchases are based only on the range of equipment available in 2009. Existing building shell efficiencies are assumed to be fixed at 2009 levels (no further improvements). For new construction, building shell technology options are constrained to those available in 2009.
- The *High Technology case* assumes earlier availability, lower costs, and higher efficiencies for more advanced equipment [*12*]. For new construction, building shell efficiencies are assumed to meet ENERGY STAR requirements after 2016. Consumers evaluate investments in energy efficiency at a 7-percent real discount rate.
- The *Best Available Technology case* assumes that all future equipment purchases are made from a menu of technologies that includes only the most efficient models available in a particular year for each fuel, regardless of cost. For new construction, building shell efficiencies are assumed to meet the criteria for the most efficient components after 2009.

For the commercial sector, the three technology-focused cases are as follows:

- The *2009 Technology case* assumes that all future equipment purchases are based only on the range of equipment available in 2009. Building shell efficiencies are assumed to be fixed at 2009 levels.
- The *High Technology case* assumes earlier availability, lower costs, and/or higher efficiencies for more advanced equipment than in the Reference case [*13*]. Energy efficiency investments are evaluated at a 7-percent real discount rate. Building shell efficiencies for new and existing buildings in 2035 are assumed to be 17.4 percent and 7.5 percent higher, respectively, than their 2003 levels—a 25-percent improvement relative to the Reference case.
- The *Best Available Technology case* assumes that all future equipment purchases are made from a menu of technologies that includes only the most efficient models available in a particular year for each fuel, regardless of cost. Building shell efficiencies for new and existing buildings in 2035 are assumed to be 20.8 percent and 9.0 percent higher, respectively, than their 2003 values—a 50-percent improvement relative to the Reference case.

The Residential and Commercial Demand Modules of NEMS were also used to complete the High and Low Renewable Technology Cost cases, which are discussed in more detail below (see "Renewable Fuels Cases"). In combination with assumptions for electricity generation from renewable fuels in the electric power sector and industrial sector, these sensitivity cases analyze the impacts of changes in generating technologies that use renewable fuels and in the availability of renewable energy sources. For the Residential and Commercial Demand Modules:

- The *Low Renewable Technology Cost case* assumes greater improvements in residential and commercial PV and wind systems than in the Reference case. The assumptions result in capital cost estimates that are 10 percent below Reference case assumptions in 2010 and decline to at least 25 percent below Reference case costs in 2035.

- The *High Renewable Technology Cost case* assumes that costs and performance levels for residential and commercial PV and wind systems remain constant at 2009 levels through 2035.

Industrial sector cases

In addition to the *AEO2010* Reference case, two standalone cases using the Industrial Demand Module of NEMS were developed to examine the effects of less rapid and more rapid technology change and adoption. Because they are standalone cases, the energy intensity changes discussed in this section exclude the refining industry. (Energy use in the refining industry is estimated as part of the PMM.) The Industrial Demand Module also was used as part of the Integrated Low and High Renewable Technology Cost cases. For the industrial sector:

- The *2010 Technology case* holds the energy efficiency of plant and equipment constant at the 2010 level over the projection period. In this case, delivered energy intensity falls by 0.7 percent annually from 2008 to 2035, as compared with 1.1 percent annually in the Reference case. Changes in aggregate energy intensity may result both from changing equipment and production efficiency and from changing composition of industrial output. Because the level and composition of industrial output are the same in the Reference, 2010 Technology, and High Technology cases, any change in energy intensity in the two technology cases is attributable to efficiency changes.
- The *High Technology case* assumes earlier availability, lower costs, and higher efficiency for more advanced equipment [*14*] and a more rapid rate of improvement in the recovery of biomass byproducts from industrial processes (0.7 percent per year, as compared with 0.4 percent per year in the Reference case). The same assumption is incorporated in the integrated Low Renewable Technology Cost case, which focuses on electricity generation. Although the choice of the 0.7-percent annual rate of improvement in byproduct recovery is an assumption in the High Technology case, it is based on the expectation that there would be higher recovery rates and substantially increased use of CHP in that case. Delivered energy intensity falls by 1.2 percent annually in the High Technology case.

The 2010 Technology case was run with only the Industrial Demand Module, rather than in fully integrated NEMS runs. Consequently, no potential feedback effects from energy market interactions are captured, and energy consumption and production in the refining industry, which are modeled in the PMM, are excluded.

Transportation sector cases

In addition to the *AEO2010* Reference case, two standalone cases using the NEMS Transportation Demand Module were developed to examine the effects of advanced technology costs and efficiency improvement on technology adoption and vehicle fuel economy [*15*]. For the transportation sector:

- In the *Low Technology case*, the characteristics of conventional technologies, advanced technologies, and alternative-fuel LDVs, heavy-duty vehicles, and aircraft reflect more pessimistic assumptions about cost and efficiency improvements achieved over the projection. More pessimistic assumptions for fuel efficiency improvement also are reflected in the rail and shipping sectors.
- In the *High Technology case*, the characteristics of conventional and alternative-fuel LDVs reflect more optimistic assumptions about incremental improvements in fuel economy and costs. In the freight truck sector, the High Technology case assumes more rapid incremental improvement in fuel efficiency for engine and emissions control technologies. More optimistic assumptions for fuel efficiency improvements also are made for the air, rail, and shipping sectors.

The Low Technology and High Technology cases were run with only the Transportation Demand Module rather than as fully integrated NEMS runs. Consequently, no potential macroeconomic feedback related to vehicle costs or travel demand was captured, nor were changes in fuel prices incorporated.

- The *Reference Case 2019 Phaseout With Base Market Potential case* is a modified Reference case that incorporates lower incremental costs for all classes of heavy-duty natural gas vehicles (zero incremental cost relative to their diesel-powered counterparts after accounting for incentives) and tax incentives for natural gas refueling stations ($100,000 per new facility) and for natural gas fuel ($0.50 per gallon of gasoline equivalent) that begin in 2011 and are phased out by 2019.
- The *Reference Case 2027 Phaseout With Expanded Market Potential case* is a modified Reference case with the same added assumptions of

lower incremental costs for heavy-duty natural gas vehicles and subsidies for fueling stations and natural gas fuel as in the Reference Case 2019 Phaseout With Base Market Potential case but with the subsidies extended to 2027 before phaseout and, in addition, assumed increases in the potential market for both "fleet" and "non-fleet" natural gas vehicles.

- The *Low Oil Price Case 2019 Phaseout With Base Market Potential case* is a modified Low Oil Price case that incorporates lower incremental costs for all classes of heavy-duty natural gas vehicles (zero incremental cost relative to their diesel-powered counterparts after accounting for incentives) and tax incentives for natural gas refueling stations ($100,000 per new facility) and for natural gas fuel ($0.50 per gallon of gasoline equivalent) that begin in 2011 and are phased out by 2019.
- The *Low Oil Price Case 2027 Phaseout With Expanded Market Potential case* is a modified Low Oil Price case with the same added assumptions of lower incremental costs for heavy-duty natural gas vehicles and subsidies for fueling stations and natural gas fuel as in the Reference Case 2019 Phaseout With Base Market Potential case but with the subsidies extended to 2027 before phaseout and, in addition, assumed increases in the potential market for both "fleet" and "non-fleet" natural gas vehicles.

Electricity sector cases

In addition to the Reference case, several integrated cases with alternative electric power assumptions were developed to analyze uncertainties about the future costs and performance of new generating technologies. Two of the cases examine alternative assumptions for nuclear power technologies, and two examine alternative assumptions for fossil fuel technologies. Reference case values for technology characteristics are determined in consultation with industry and government specialists; however, there is always uncertainty surrounding the major component costs. The electricity cases analyze what could happen if costs of new plants were either higher or lower than assumed in the Reference case. The cases are fully integrated to allow feedback between the potential shifts in fuel consumption and fuel prices.

In addition, for *AEO2010* an alternate retirement case was run for nuclear power plants, to address uncertainties about the operating lives of existing reactors. This scenario is discussed in the Issues in Focus article, "U.S. nuclear power plants: Continued life or replacement after 60?"

Nuclear technology cost cases

- The cost assumptions for the *Low Nuclear Cost case* reflect an approximate 10-percent reduction in capital and operating costs for advanced nuclear technology in 2010, relative to the Reference case, and fall to 25 percent below the Reference case in 2035. The Reference case projects a 35-percent reduction in the capital costs of nuclear power plants from 2010 to 2035; the Low Nuclear Cost case assumes a 45-percent reduction from 2010 to 2035.
- The *High Nuclear Cost case* assumes that capital costs for advanced nuclear technology remain fixed at the 2010 levels assumed in the Reference case. The capital costs still are tied to key commodity price indices, so they change over time; however, no cost improvement from "learning-by-doing" effects is assumed.

Fossil cost technology cases

- In the *Low Fossil Technology Cost case*, capital costs and operating costs for all coal- and natural-gas-fired generating technologies are assumed to start 10 percent lower than Reference case levels and fall to 25 percent lower than Reference case levels in 2035. Because learning in the Reference case reduces costs with manufacturing experience, costs in the Low Fossil Cost case are reduced by 37 to 49 percent between 2010 and 2035, depending on the technology.
- In the *High Fossil Technology Cost case*, capital costs for all coal- and natural-gas-fired generating technologies remain fixed at the 2010 values assumed in the Reference case. Costs still are adjusted year to year by the commodity price index, but no learning-related cost reductions are assumed.

Additional details about annual capital costs, operating and maintenance costs, plant efficiencies, and other factors used in the High and Low Fossil Technology Cost cases will be provided in *Assumptions to the Annual Energy Outlook 2010* [*16*].

Alternative Nuclear Retirement Case

- In the *Nuclear 60-Year Life case*, all existing nuclear plants are assumed to retire after 60 years

of operation. In the Reference case, existing plants are assumed to run as long as they continue to be economic, implicitly assuming that a second 20-year license renewal will be obtained for those plants reaching 60 years before 2035. This case was run to analyze the impact of additional nuclear retirements, which could occur if the oldest plants do not receive a second license extension. In this case, 31 gigawatts of nuclear capacity is assumed to be retired by 2035.

Renewable fuels cases

In addition to the *AEO2010* Reference case, two integrated cases with alternative assumptions about renewable fuels were developed to examine the effects of less aggressive and more aggressive improvement in the cost of renewable technologies. The cases are as follows:

- In the *High Renewable Technology Cost case*, capital costs, O&M costs, and performance levels for wind, solar, biomass, and geothermal resources are assumed to remain constant at 2010 levels through 2035. Costs still are tied to key commodity price indexes, but no cost improvement from "learning-by-doing" effects is assumed. Although biomass prices are not changed from the Reference case, this case assumes that dedicated energy crops (also known as "closed-loop" biomass fuel supply) do not become available.
- In the *Low Renewable Technology Cost case*, the levelized costs of energy resources for generating technologies using renewable resources are assumed to start at 10 percent below Reference case levels in 2010 and decline to 25 percent below the Reference case costs for the same resources in 2035. In general, lower costs are represented by reducing the capital costs of new plant construction. Biomass fuel supplies also are assumed to be 25 percent less expensive than in the Reference case for the same resource quantities used in the Reference case. Assumptions for other generating technologies are unchanged from those in the Reference case. In the Low Renewable Technology Cost case, the rate of improvement in recovery of biomass byproducts from industrial processes also is increased.

Oil and gas supply cases

The sensitivity of the projections to changes in the assumed rates of technological progress in oil and natural gas supply and LNG imports is examined in three cases:

- In the *Rapid Technology case*, the parameters representing the effects of technological progress on production rates, exploration and development costs, and success rates for oil and natural gas drilling in the Reference case are improved by 50 percent. Key supply parameters for Canadian natural gas also are modified to simulate the assumed impacts of more rapid natural gas technology penetration on Canadian supply potential. All other parameters in the model are kept at the Reference case values, including technology parameters for other modules, parameters affecting foreign oil supply, and assumptions about imports and exports of LNG and natural gas trade between the United States and Mexico. Specific detail by region and fuel category is provided in *Assumptions to the Annual Energy Outlook 2010* [*17*].
- In the *Slow Technology case*, the parameters representing the effects of technological progress on production rates, exploration and development costs, and success rates for oil and natural gas drilling are 50 percent less optimistic than those in the Reference case. Key Canadian supply parameters also are modified to simulate the assumed impacts of slow natural gas technology penetration on Canadian supply potential. All other parameters in the model are kept at the Reference case values.
- The *High LNG Supply case* exogenously specifies North American LNG import levels for 2010 through 2030 as being equal to a factor times the Reference case levels. The factor starts at 1 in 2010 and increases linearly to 5 in 2035. The intent is to project the potential impact on domestic natural gas markets if LNG imports turn out to be higher than projected in the Reference case.

Three additional cases examine the importance of low-permeability reservoirs on future domestic natural gas supply:

- In the *No Low-Permeability Drilling case*, no new onshore, lower 48 wells are drilled in low permeability natural gas reservoirs (includes shale gas and tight sandstone gas) after 2009. Natural gas production from low-permeability wells drilled before 2010 declines continuously through 2035.
- In the *No Shale Gas Drilling case*, no new onshore, lower 48 shale gas wells are drilled after 2009. Natural gas production from shale gas wells

drilled before 2010 declines continuously through 2035.

- In the *High Shale Gas Resource case*, the resource base for shale gas in the onshore, lower 48 States is assumed to be higher than in the Reference case. Each well can support twice as many shale gas plays as in the Reference case, increasing the resource base from 347 trillion cubic feet in the Reference case to 652 trillion cubic feet in the High Shale Gas Resource case. The estimated recovery from each well is the same as in the Reference case.

Coal market cases

Two alternative coal cost cases examine the impacts on U.S. coal supply, demand, distribution, and prices that result from alternative assumptions about mining productivity, labor costs, mine equipment costs, and coal transportation rates. The alternative productivity and cost assumptions are applied in every year from 2010 through 2035. For the coal cost cases, adjustments to the Reference case assumptions for coal mining productivity are based on variation in the average annual productivity growth of 2.7 percent observed since 2000. Transportation rates are lowered (in the Low Coal Cost case) or raised (in the High Coal Cost case) from Reference case levels to achieve a 25-percent change in rates relative to the Reference case in 2035. The Low and High Coal Cost cases represent fully integrated NEMS runs, with feedback from the macroeconomic activity, international, supply, conversion, and end-use demand modules.

- In the *Low Coal Cost case*, the average annual growth rates for coal mining productivity are higher than those in the Reference case and are applied at the supply curve level. As an example, the average annual growth rate for Wyoming's Southern Powder River Basin supply curve is increased from -0.5 percent in the Reference case for the years 2010 through 2035 to 2.2 percent in the Low Coal Cost case. Coal mining wages, mine equipment costs, and other mine supply costs all are assumed to be about 25 percent lower in 2035 in real terms in the Low Coal Cost case than in the Reference case. Coal transportation rates, excluding the impact of fuel surcharges, are assumed to be 25 percent lower in 2035.
- In the *High Coal Cost case*, the average annual productivity growth rates for coal mining are lower than those in the Reference case and are applied as described in the *Low Coal Cost case*. Coal mining wages, mine equipment costs, and other mine supply costs in 2035 are assumed to be about 30 percent higher than in the Reference case, and coal transportation rates in 2035 are assumed to be 25 percent higher.

Additional details about the productivity, wage, mine equipment cost, and coal transportation rate assumptions for the Reference and alternative Coal Cost cases are provided in Appendix D.

Cross-cutting integrated cases

In addition to the sector-specific cases described above, a series of cross-cutting integrated cases are used in *AEO2010* to analyze specific scenarios with broader sectoral impacts. For example, two integrated technology progress cases combine the assumptions from the other technology progress cases to analyze the broader impacts of more rapid and slower technology improvement rates. In addition, a No GHG Concern case was run that excludes the 3-percent cost-of-capital adjustment for new coal-fired generating capacity and for CTL plants without CCS. In the Reference case, this adjustment is included to simulate the reluctance of regulators and the investment community to invest in GHG-intensive technologies, given uncertainty about the possible enactment of limits on GHG emissions.

Integrated technology cases

The *Integrated Low Technology case* combines the assumptions from the residential, commercial, and industrial 2010 Technology cases and the electricity High Fossil Technology Cost, High Renewable Technology Cost, and High Nuclear Cost cases. The *Integrated High Technology case* combines the assumptions from the residential, commercial, industrial, and transportation High Technology cases and the electricity High Fossil Technology Cost, Low Renewable Technology Cost, and Low Nuclear Cost cases.

Extended Policies case

In addition to the *AEO2010* Reference case, an additional case was run assuming that selected policies with sunset provisions (such as the PTC, ITC, and tax credits for energy-efficient equipment in the buildings sector) will be extended indefinitely rather than allowed to sunset as the law currently prescribes. Further, updates to Federal appliance efficiency standards were assumed to occur at intervals

provided by law and at levels determined by the consumer impact test in DOE testing procedures or Federal Energy Management Program (FEMP) purchasing guidelines. Finally, proposed rules by NHTSA and the EPA for national tailpipe CO_2-equivalent emissions and fuel economy standards for LDVs, including both passenger cars and light-duty trucks, were harmonized and incorporated in this case.

In the electricity market, tax credits for renewable generation capacity that are available currently but are scheduled to expire are instead assumed to be extended indefinitely—including the PTC of 2.1 cents per kilowatthour or, as appropriate, the 30-percent ITC available for wind, geothermal, biomass, hydroelectric, and landfill gas resources. For solar capacity, a 30-percent ITC that is scheduled to revert to a 10-percent tax credit in 2016 is, instead, assumed to be extended indefinitely at 30 percent.

In the buildings sector, tax credits for the purchase of energy-efficient equipment, including PV and new houses, are extended indefinitely, as opposed to ending in 2010 or 2016 as prescribed by current law. The business ITCs for commercial-sector generation technologies and geothermal heat pumps are extended indefinitely, as opposed to expiring in 2016, and the business ITC for solar systems is kept at 30 percent instead of reverting to 10 percent. In addition, updates to appliance standards are assumed to occur as prescribed by the timeline in DOE's multiyear plan. The efficiency levels chosen for the updated standard were based on the technology menu in the *AEO2010* Reference case and whether or not the efficiency level passed the consumer impact test prescribed in DOE's standards-setting process. The efficiency levels chosen for updated commercial equipment standards are based on the technology menu from the *AEO2010* Reference case and FEMP-designated purchasing specifications for Federal agencies.

NHTSA and the EPA have proposed rules for coordinated national CO_2-equivalent tailpipe emissions and fuel economy standards for LDVs, including both passenger cars and light-duty trucks. The harmonized fuel economy standards begin in model year (MY) 2012 and increase in stringency to MY 2016, based on NHTSA's recently proposed CAFE standards. NHTSA has estimated the impact of the new CAFE standards and has projected that the proposed fleet-wide standards for LDVs will increase fuel economy from 27.3 miles per gallon in MY 2011 to 34.1 miles per gallon in MY 2016, based on projected sales of vehicles by type and footprint. Separate mathematical functions representing the CAFE standards are established for passenger cars and light trucks, reflecting their different design capabilities. As required by EISA2007, the fuel economy standards increase to 35 miles per gallon by 2020. The Extended Policies case assumes that these standards are further increased so that the minimum fuel economy standard achieved for LDVs increases to 45.6 miles per gallon in 2035.

No Sunset case

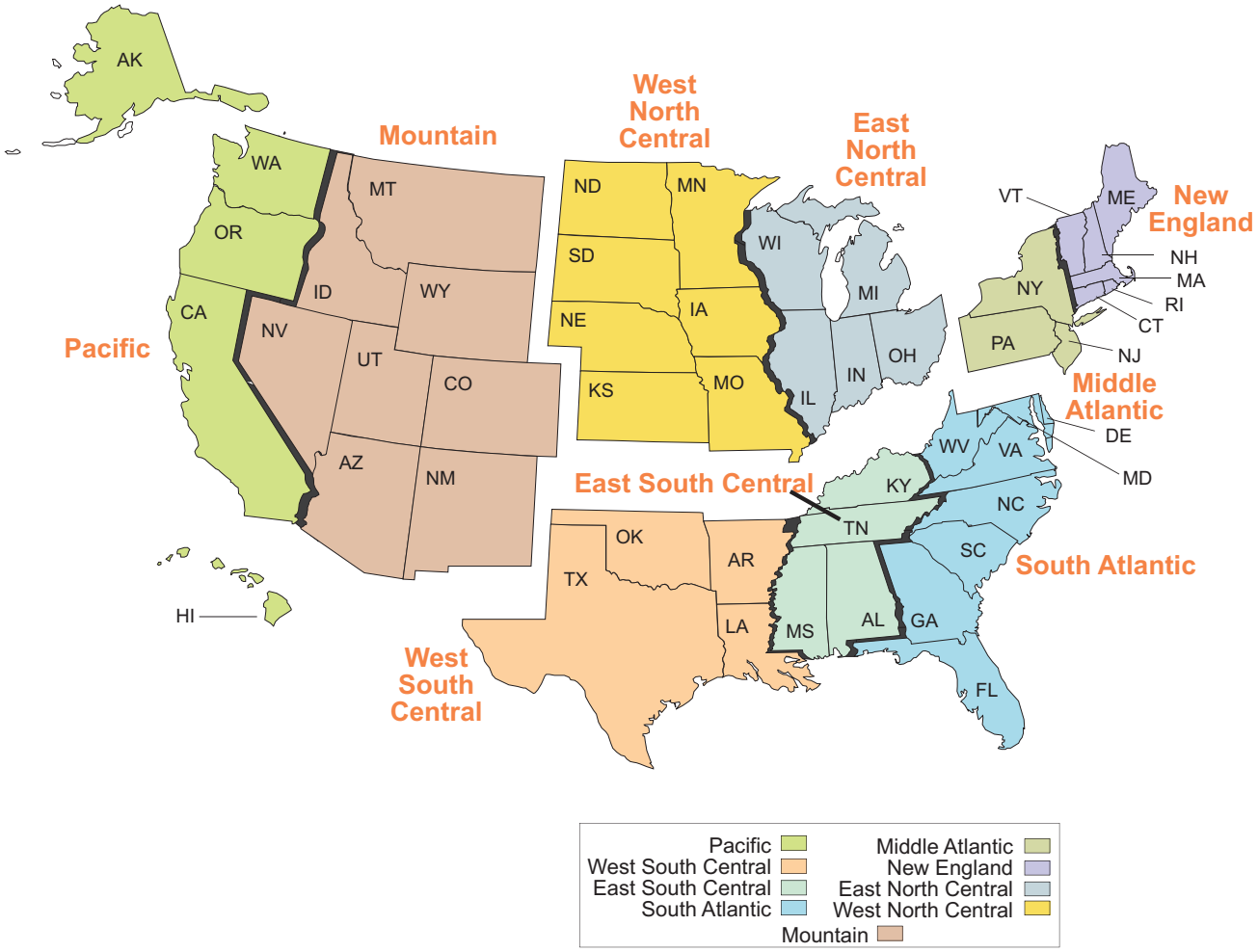
Assumptions for extensions of the renewable energy tax credit and the buildings tax credit are the same as in the Extended Policies case described above. No updates to appliance or CAFE standards are assumed. This case also extends the RFS target to that originally set by law (36 billion ethanol-equivalent gallons) and assumes that the target is achieved by 2026 instead of 2022; after 2026, the RFS requirement continues to increase so that it remains at the same percentage of total transport fuel demand as achieved in 2026. Biofuel tax credits and the import tariffs also are extended.

Endnotes

1. U.S. Energy Information Administration, *The National Energy Modeling System: An Overview 2009*, DOE/EIA-0581(2009) (Washington, DC, March 2009), web site http://www.eia.doe.gov/oiaf/aeo/overview/index.html.
2. U.S. Energy Information Administration, *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009), web site www.eia.doe.gov/emeu/aer/contents.html.
3. U.S. Energy Information Administration, *Emissions of Greenhouse Gases in the United States 2007*, DOE/EIA-0573(2008) (Washington, DC, December 2009), web site www.eia.doe.gov/oiaf/1605/ggrpt/index.html.
4. U.S. Energy Information Administration, *Short-Term Energy Outlook*, web site www.eia.doe.gov/emeu/steo/pub/contents.html. Portions of the preliminary information were also used to initialize the NEMS Petroleum Market Module projection.
5. Jet Information Services, Inc., *World Jet Inventory Year-End 2006* (Utica, NY, March 2007); and personal communication from Stuart Miller (Jet Information Services).
6. U.S. Energy Information Administration, *Assumptions to the Annual Energy Outlook 2010*, DOE/EIA-0554(2010) (Washington, DC, March 2010), web site www.eia.doe.gov/oiaf/aeo/assumption.
7. Corn ethanol production may exceed 15 billion gallons if it is economical to do so without the RFS credit.
8. For gasoline blended with ethanol, the tax credit of 51 cents (nominal) per gallon of ethanol is assumed to be available for 2008; however, it is reduced to 45 cents starting in 2009 (the year after annual U.S. ethanol consumption surpasses 7.5 billion gallons), as mandated by the Food, Conservation, and Energy Act of 2008 (the Farm Bill), and it is set to expire after 2010. In addition, modeling updates include the Farm Bill's mandated extension of the ethanol import tariff, at 54 cents per gallon, to December 31, 2010. Finally, again in accordance with the Farm Bill, a new cellulosic ethanol producer's tax credit of $1.01 per gallon, valid through 2012, is implemented in the model; however, it is reduced by the amount of the blender's tax credit. Thus, in 2009 and 2010, the cellulosic ethanol producer's tax credit is modeled as $1.01 - $0.45 = $0.56 per gallon, and in 2011 and 2012 it is set at $1.01 per gallon. (Note: Taxes discussed in this footnote are in nominal dollars.)
9. U.S. Energy Information Administration, *Assumptions to the Annual Energy Outlook 2010*, DOE/EIA-0554(2010) (Washington, DC, March 2010), web site www.eia.doe.gov/oiaf/aeo/assumption.
10. California Environmental Protection Agency, Air Resources Board, "Phase 3 California Reformulated Gasoline Regulations," web site www.arb.ca.gov/regact/2007/carfg07/carfg07.htm.
11. U.S. Energy Information Administration, *Assumptions to the Annual Energy Outlook 2010*, DOE/EIA-0554(2010) (Washington, DC, March 2010), web site www.eia.doe.gov/oiaf/aeo/assumption.
12. High technology assumptions for the residential sector are based on Energy Information Administration, *EIA—Technology Forecast Updates—Residential and Commercial Building Technologies—Advanced Case Second Edition (Revised)* (Navigant Consulting, Inc., September 2007), and *EIA—Technology Forecast Updates—Residential and Commercial Building Technologies—Advanced Case: Residential and Commercial Lighting, Commercial Refrigeration, and Commercial Ventilation Technologies* (Navigant Consulting, Inc., September 2008).
13. High technology assumptions for the commercial sector are based on Energy Information Administration, *EIA—Technology Forecast Updates—Residential and Commercial Building Technologies—Advanced Case Second Edition (Revised)* (Navigant Consulting, Inc., September 2007), and *EIA—Technology Forecast Updates—Residential and Commercial Building Technologies—Advanced Case: Residential and Commercial Lighting, Commercial Refrigeration, and Commercial Ventilation Technologies* (Navigant Consulting, Inc., September 2008).
14. These assumptions are based in part on Energy Information Administration, *Industrial Technology and Data Analysis Supporting the NEMS Industrial Model* (FOCIS Associates, October 2005).
15. U.S. Energy Information Administration, *Documentation of Technologies Included in the NEMS Fuel Economy Model for Passenger Cars and Light Trucks* (Energy and Environmental Analysis, September 2003).
16. U.S. Energy Information Administration, *Assumptions to the Annual Energy Outlook 2010*, DOE/EIA-0554(2010) (Washington, DC, March 2010), web site www.eia.doe.gov/oiaf/aeo/assumption.
17. U.S. Energy Information Administration, *Assumptions to the Annual Energy Outlook 2010*, DOE/EIA-0554(2010) (Washington, DC, March 2010), web site www.eia.doe.gov/oiaf/aeo/assumption.

Regional Maps

Figure F1. United States Census Divisions



Source: U.S. Energy Information Administration, Office of Integrated Analysis and Forecasting.

Figure F1. United States Census Divisions (cont.)

Division 1
New England

Connecticut
Maine
Massachusetts
New Hampshire
Rhode Island
Vermont

Division 2
Middle Atlantic

New Jersey
New York
Pennsylvania

Division 3
East North Central

Illinois
Indiana
Michigan
Ohio
Wisconsin

Division 4
West North Central

Iowa
Kansas
Minnesota
Missouri
Nebraska
North Dakota
South Dakota

Division 5
South Atlantic

Delaware
District of Columbia
Florida
Georgia
Maryland
North Carolina
South Carolina
Virginia
West Virginia

Division 6
East South Central

Alabama
Kentucky
Mississippi
Tennessee

Division 7
West South Central

Arkansas
Louisiana
Oklahoma
Texas

Division 8
Mountain

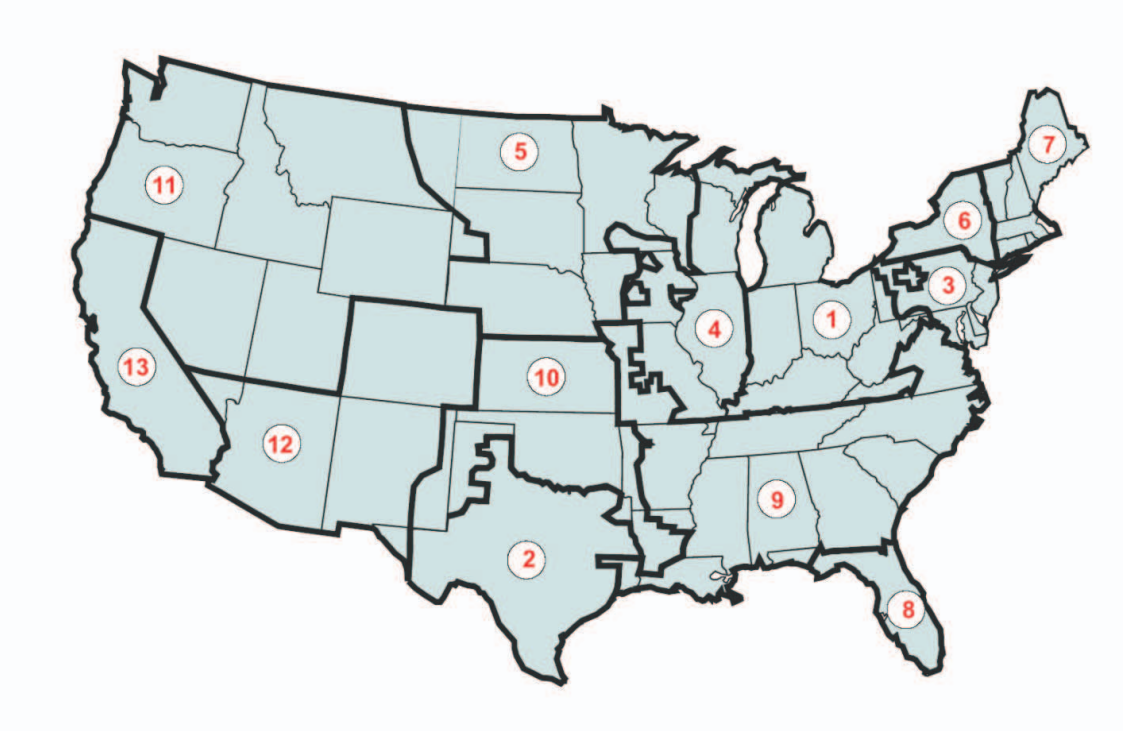
Arizona
Colorado
Idaho
Montana
Nevada
New Mexico
Utah
Wyoming

Division 9
Pacific

Alaska
California
Hawaii
Oregon
Washington

Source: U.S. Energy Information Administration, Office of Integrated Analysis and Forecasting.

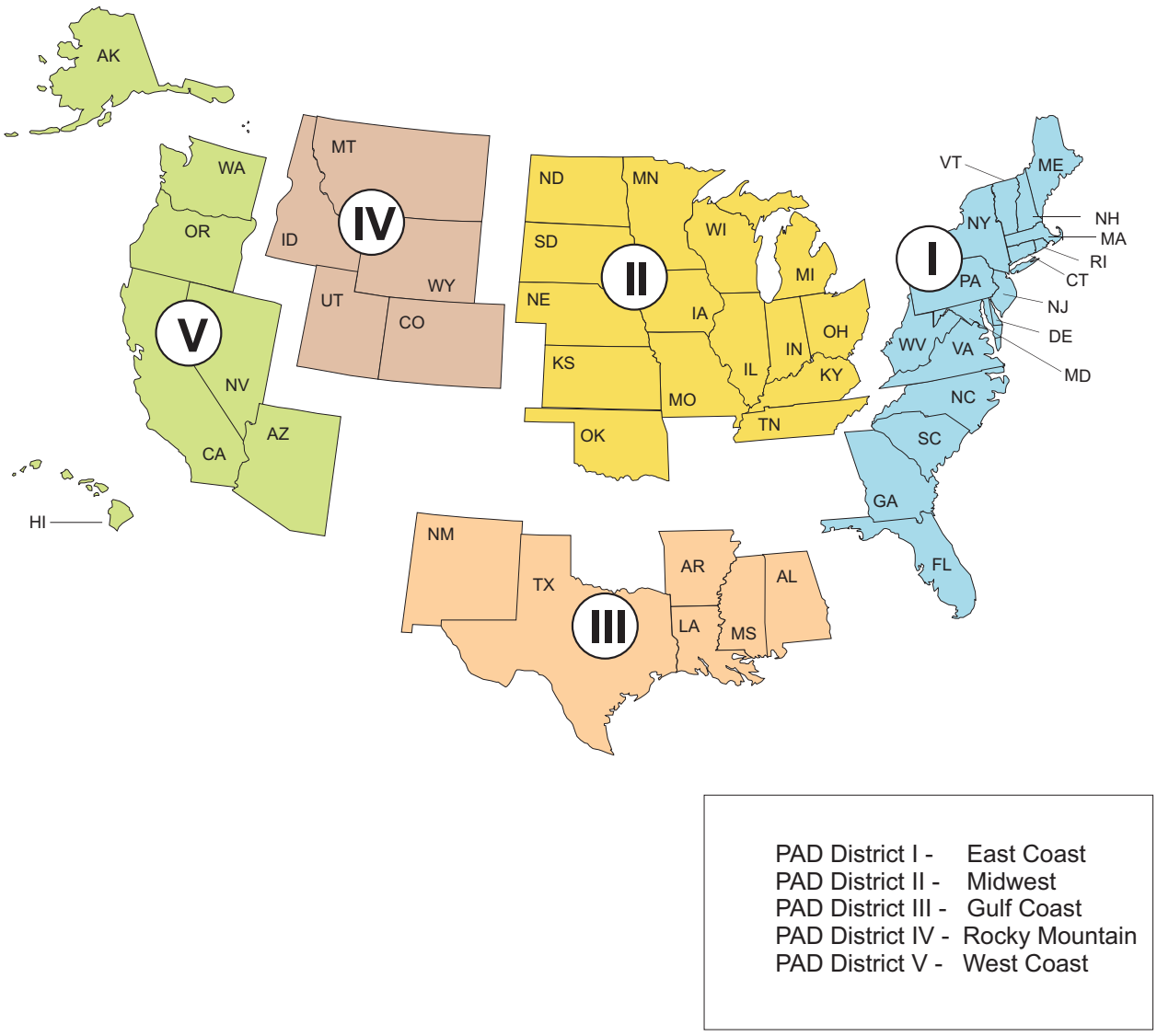
Figure F2. Electricity Market Module Regions



1 East Central Area Reliability Coordination Agreement (ECAR)
2 Electric Reliability Council of Texas (ERCOT)
3 Mid-Atlantic Area Council (MAAC)
4 Mid-America Interconnected Network (MAIN)
5Mid-Continent Area Power Pool (MAPP)
6 New York (NY)
7. New England (NE)
8 Florida Reliability Coordinating Council (FL)
9 Southeastern Electric Reliability Council (SERC)
10 Southwest Power Pool (SPP)
11 Northwest Power Pool (NPP)
12 Rocky Mountain Power Area, Arizona, New New Mexico, and Southern Nevada (RA)
13 California (CA)

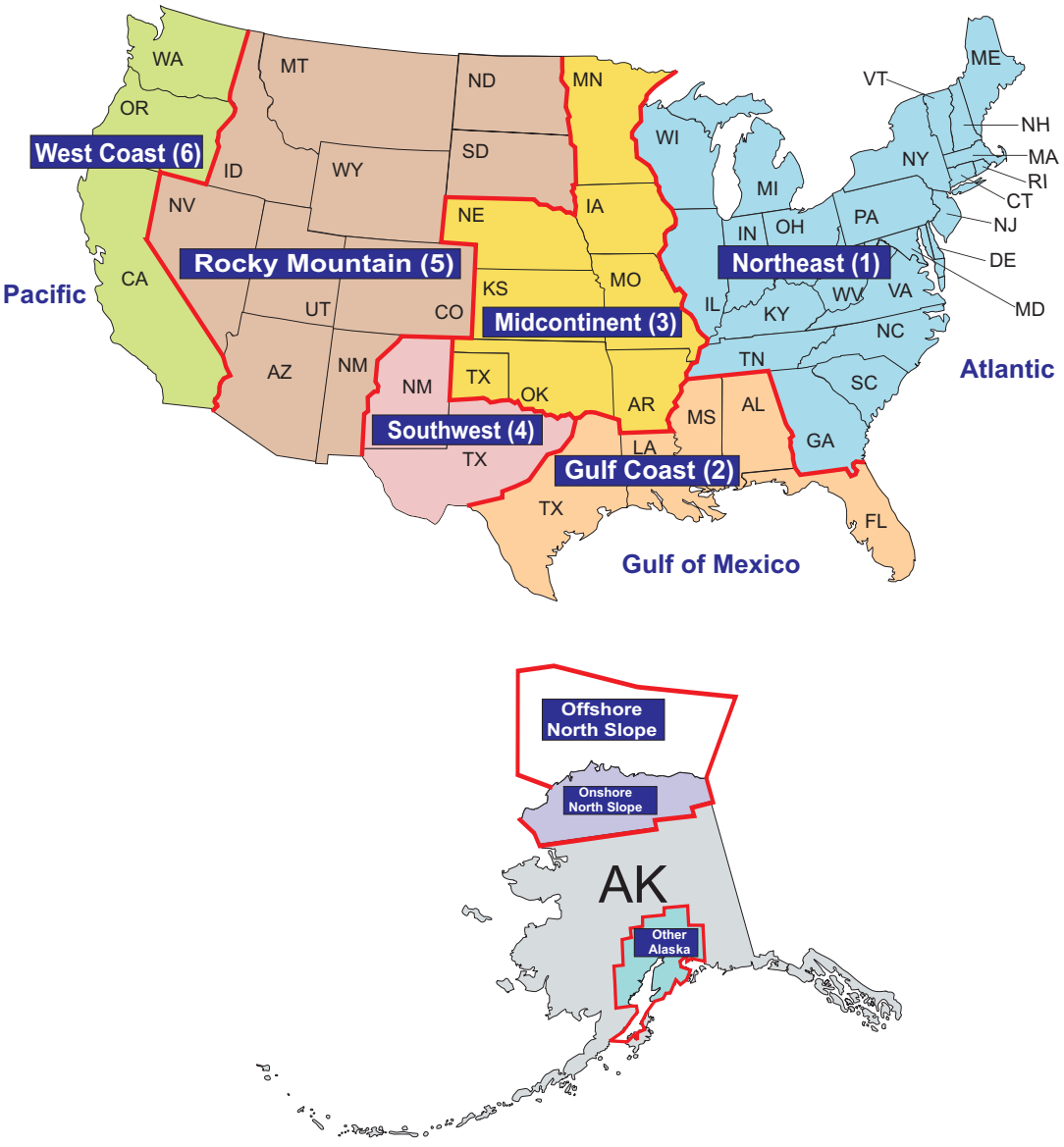
Source: U.S. Energy Information Administration, Office of Integrated Analysis and Forecasting.

Figure F3. Petroleum Administration for Defense Districts



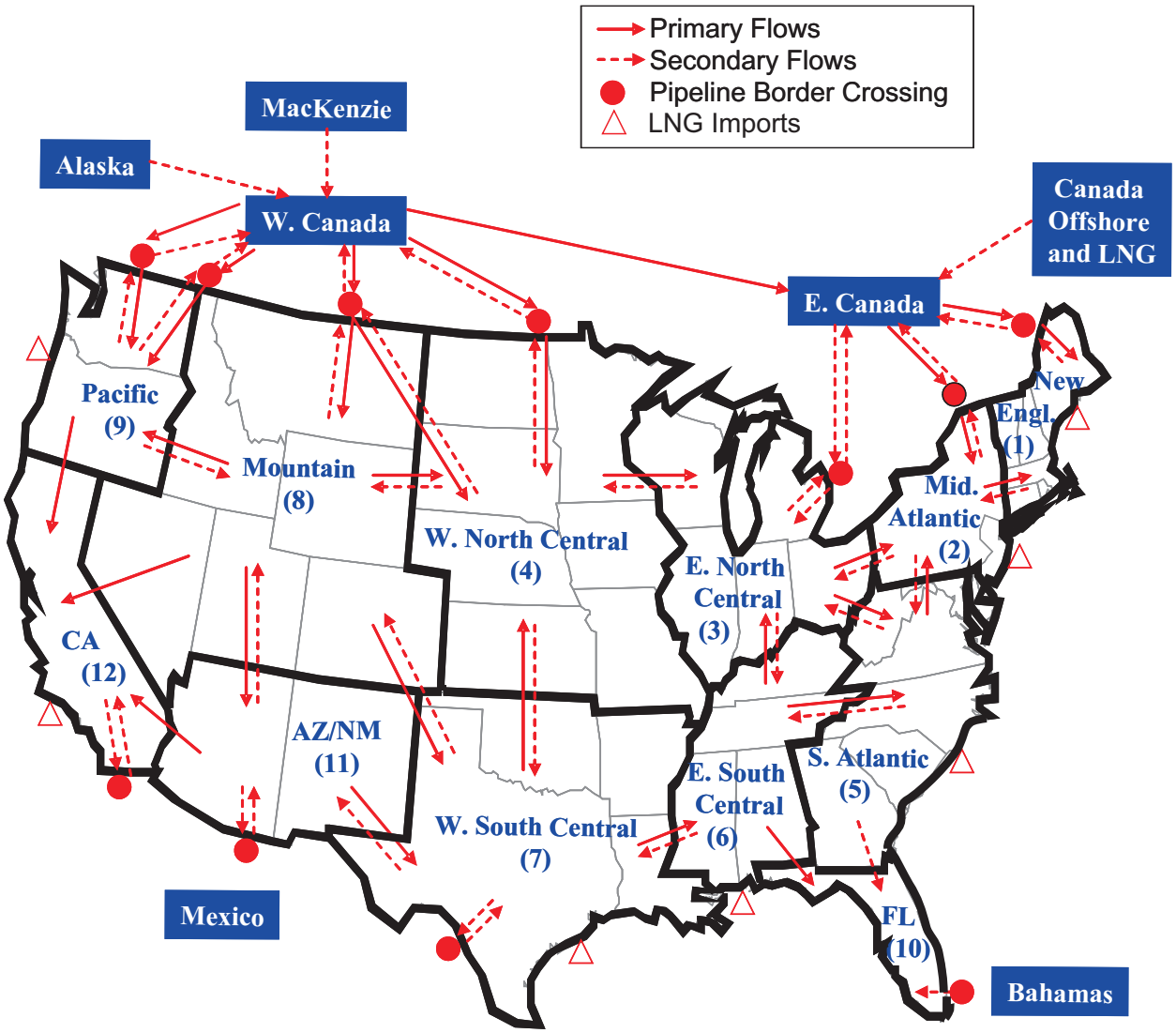
Source: U.S. Energy Information Administration, Office of Integrated Analysis and Forecasting.

Figure F4. Oil and Gas Supply Model Regions



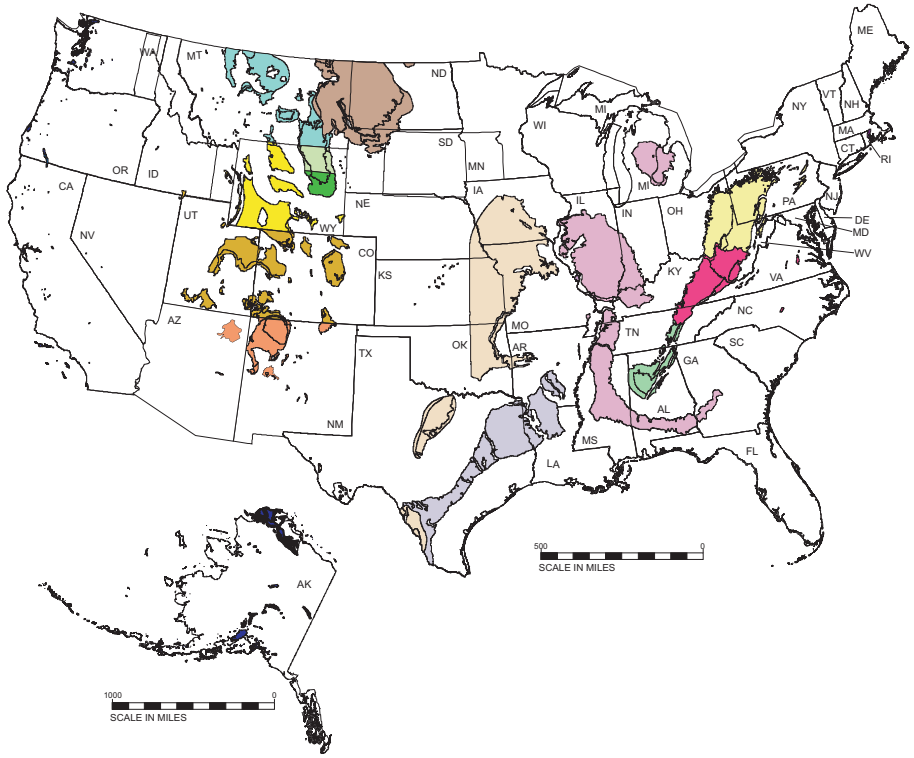
Source: U.S. Energy Information Administration, Office of Integrated Analysis and Forecasting.

Figure F5. Natural Gas Transmission and Distribution Model Regions



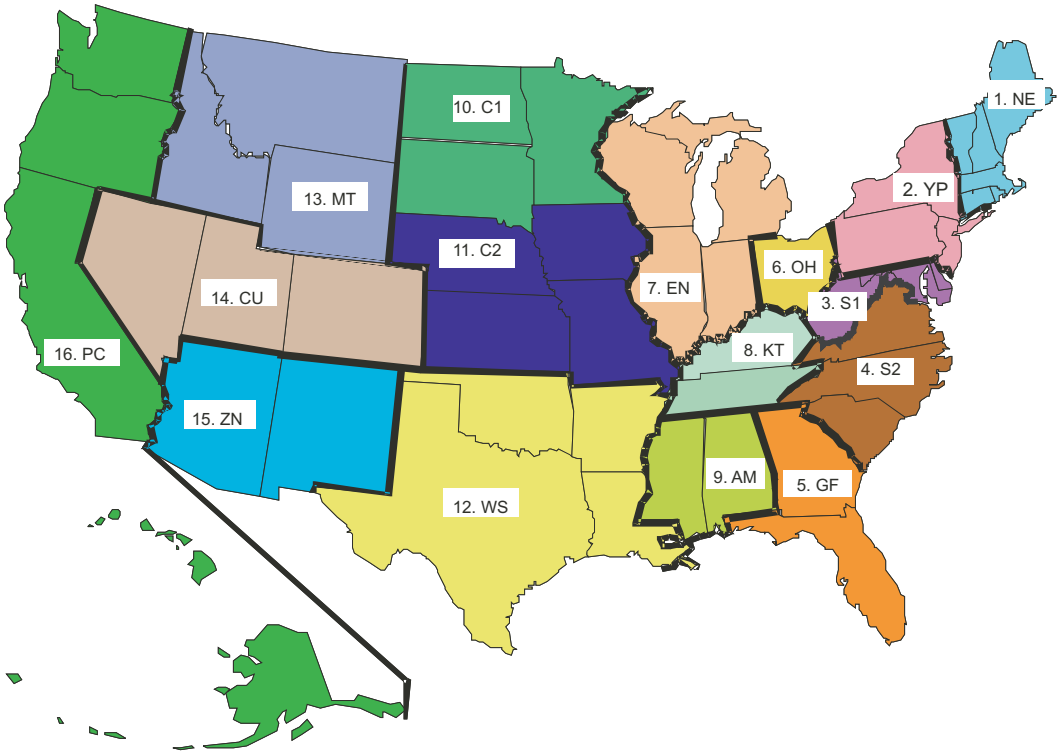
Source: U.S. Energy Information Administration, Office of Integrated Analysis and Forecasting.

Figure F6. Coal Supply Regions



Source: U.S. Energy Information Administration, Office of Integrated Analysis and Forecasting.

Figure F7. Coal Demand Regions



Region Code	Region Content
1. NE	CT,MA,ME,NH,RI,VT
2. YP	NY,PA,NJ
3. S1	WV,MD,DC,DE
4. S2	VA,NC,SC
5. GF	GA,FL
6. OH	OH
7. EN	IN,IL,MI,WI
8. KT	KY,TN

Region Code	Region Content
9. AM	AL,MS
10. C1	MN,ND,SD
11. C2	IA,NE,MO,KS
12. WS	TX,LA,OK,AR
13. MT	MT,WY,ID
14. CU	CO,UT,NV
15. ZN	AZ,NM
16. PC	AK,HI,WA,OR,CA

Source: U.S. Energy Information Administration, Office of Integrated Analysis and Forecasting.

Conversion Factors

Table G1. Heat Rates

Fuel	Units	Approximate Heat Content
Coal[1]		
Production	million Btu per short ton	20.213
Consumption	million Btu per short ton	19.989
Coke Plants	million Btu per short ton	26.280
Industrial	million Btu per short ton	22.361
Residential and Commercial	million Btu per short ton	21.359
Electric Power Sector	million Btu per short ton	19.726
Imports	million Btu per short ton	25.116
Exports	million Btu per short ton	25.393
Coal Coke	million Btu per short ton	24.800
Crude Oil		
Production	million Btu per barrel	5.800
Imports[1]	million Btu per barrel	5.990
Liquids		
Consumption[1]	million Btu per barrel	5.301
Motor Gasoline[1]	million Btu per barrel	5.128
Jet Fuel	million Btu per barrel	5.670
Distillate Fuel Oil[1]	million Btu per barrel	5.775
Diesel Fuel[1]	million Btu per barrel	5.766
Residual Fuel Oil	million Btu per barrel	6.287
Liquefied Petroleum Gases[1]	million Btu per barrel	3.600
Kerosene	million Btu per barrel	5.670
Petrochemical Feedstocks[1]	million Btu per barrel	5.565
Unfinished Oils	million Btu per barrel	6.118
Imports[1]	million Btu per barrel	5.542
Exports[1]	million Btu per barrel	5.840
Ethanol	million Btu per barrel	3.539
Biodiesel	million Btu per barrel	5.376
Natural Gas Plant Liquids		
Production[1]	million Btu per barrel	3.948
Natural Gas[1]		
Production, Dry	Btu per cubic foot	1,028
Consumption	Btu per cubic foot	1,028
End-Use Sectors	Btu per cubic foot	1,029
Electric Power Sector	Btu per cubic foot	1,027
Imports	Btu per cubic foot	1,025
Exports	Btu per cubic foot	1,009
Electricity Consumption	Btu per kilowatthour	3,412

[1]Conversion factor varies from year to year. The value shown is for 2008.
Btu = British thermal unit.
Sources: Energy Information Administration (EIA), *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009), and EIA, AEO2010 National Energy Modeling System run AEO2010R.D111809A.