

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

¹Includes 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.

²Includes ethanol (blends of 10 percent or less) and ethers blended into gasoline.

³Includes 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.

Results from Side Cases

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%

Results from Side Cases

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 Refining¹ (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

¹Fuel 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.

²Includes lubricants and miscellaneous petroleum products.

³Represents natural gas used in the field gathering and processing plant machinery.

⁴Includes net coal coke imports.

⁵Includes 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.

Results from Side Cases

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

¹Commercial trucks 8,500 to 10,000 pounds.

²Environmental Protection Agency rated miles per gallon.

³Combined car and light truck "on-the-road" estimate.

⁴E85 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.

⁵Includes ethanol (blends of 10 percent or less) and ethers blended into gasoline.

⁶Includes only kerosene type.

⁷Diesel fuel for on- and off- road use.

⁸Includes 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.

Results from Side Cases

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

¹Includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.

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

³Includes 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.

⁴Includes 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.

⁵Includes non-biogenic municipal waste and net electricity imports.

⁶Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.

⁷Includes 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 LTRK1TEN.D020510A, AEO2010R.D111809A, and HTRK1TEN.D020510A.

Results from Side Cases

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 Sector² (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

¹Includes 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.

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

³Includes 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.

Results from Side Cases

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 Additions²							
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 Retirements²							
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 Sector³ (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

¹Includes 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.

²Only non-zero categories shown.

³Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.

⁴Includes 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.

Results from Side Cases

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

¹Includes 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 on-site 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.

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

³Includes 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 HCF0SS10.D020510A, AEO2010R.D111809A, and LCF0SS10.D020510A.

Results from Side Cases

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

¹Includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.

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

³Includes 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.

⁴Includes 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.

⁵Includes non-biogenic municipal waste and net electricity imports.

⁶Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.

⁷Includes 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.

Results from Side Cases

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

¹Includes 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.

²Includes 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.

³Includes 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.

Results from Side Cases

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 Sector¹										
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 Sector⁵										
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 Sector¹										
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 Sector⁵										
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

¹Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.

²Includes hydrothermal resources only (hot water and steam).

³Includes 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.

⁴Includes projections for energy crops after 2010.

⁵Includes 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.

⁶Includes 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.

⁷Includes biogenic municipal waste, landfill gas, and municipal sewage sludge. Incremental growth is assumed to be for landfill gas facilities.

⁸Represents own-use industrial hydroelectric power.

⁹Includes 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.

Results from Side Cases

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 Production²	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
Discrepancy¹⁰	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

¹Represents lower 48 onshore and offshore supplies.

²Marketed production (wet) minus extraction losses.

³Includes tight gas.

⁴Synthetic 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.

⁵Includes any natural gas regasified in the Bahamas and transported via pipeline to Florida.

⁶Includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.

⁷Includes 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.

⁸Compressed natural gas used as a vehicle fuel.

⁹Represents natural gas used in field gathering and processing plant machinery.

¹⁰Balancing 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.

Results from Side Cases

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										
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 Supply⁷	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
Discrepancy¹⁰	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

¹Weighted average price delivered to U.S. refiners.

²Includes lease condensate.

³Includes net imports of finished petroleum products, unfinished oils, other hydrocarbons, alcohols, ethers, and blending components.

⁴The 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.

⁵Includes ethanol (including imports), biodiesel (including imports), pyrolysis oils, biomass-derived Fischer-Tropsch liquids, and renewable feedstocks for the production of green diesel and gasoline.

⁶Includes alcohols, ethers, domestic sources of blending components, other hydrocarbons, natural gas converted to liquid fuel, and coal converted to liquid fuel.

⁷Total crude supply plus natural gas plant liquids, other inputs, refinery processing gain, and net product imports.

⁸Includes consumption for combined heat and power, which produces electricity and other useful thermal energy.

⁹Includes 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.

¹⁰Balancing 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 Production²	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
Discrepancy¹⁰	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

¹Represents lower 48 onshore and offshore supplies.

²Marketed production (wet) minus extraction losses.

³Includes tight gas.

⁴Synthetic 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.

⁵Includes any natural gas regasified in the Bahamas and transported via pipeline to Florida.

⁶Includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.

⁷Includes 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.

⁸Compressed natural gas used as a vehicle fuel.

⁹Represents natural gas used in field gathering and processing plant machinery.

¹⁰Balancing 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.

Results from Side Cases

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 Production¹	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
Discrepancy⁹	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
Average¹²	10.83	8.37	7.95	9.00	8.23	10.83	9.33

¹Marketed production (wet) minus extraction losses.

²Includes tight gas.

³Synthetic 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.

⁴Includes any natural gas regasified in the Bahamas and transported via pipeline to Florida.

⁵Includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.

⁶Includes 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.

⁷Compressed natural gas used as vehicle fuel.

⁸Represents natural gas used in field gathering and processing plant machinery.

⁹Balancing 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.

¹⁰Represents lower 48 onshore and offshore supplies.

¹¹Compressed natural gas used as a vehicle fuel. Price includes estimated motor vehicle fuel taxes and estimated dispensing costs or charges.

¹²Weighted 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.

Results from Side Cases

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 Disposition (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

¹Represents lower 48 onshore and offshore supply.
²Natural gas used as a vehicle fuel. Price includes estimated motor vehicle fuel taxes and estimated dispensing costs or charges.
³Weighted average prices. Weights used are the sectoral consumption values excluding lease, plant, and pipeline fuel.
⁴Marketed production (wet) minus extraction losses.
⁵Synthetic 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.
⁶Includes lease condensate.
⁷Includes natural gas plant liquids, refinery processing gain, other crude oil supply, and stock withdrawals.
⁸Includes 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.

Results from Side Cases

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 Disposition (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

¹Represents lower 48 onshore and offshore supply.
²Natural gas used as a vehicle fuel. Price includes estimated motor vehicle fuel taxes and estimated dispensing costs or charges.
³Weighted average prices. Weights used are the sectoral consumption values excluding lease, plant, and pipeline fuel.
⁴Marketed production (wet) minus extraction losses.
⁵Synthetic 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.
⁶Includes lease condensate.
⁷Includes natural gas plant liquids, refinery processing gain, other crude oil supply, and stock withdrawals.
⁸Includes 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.

Results from Side Cases

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
Production¹	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 Supplied²	14	16	16	15	15	15	16
Net Imports³	-49	-30	-30	-14	-12	20	20
Total Supply⁴	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 Price⁷							
(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 Prices⁸							
(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

¹Includes anthracite, bituminous coal, subbituminous coal, and lignite.

²Includes 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.

³Excludes imports to Puerto Rico and the U.S. Virgin Islands.

⁴Production plus waste coal supplied plus net imports.

⁵Includes 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.

⁶Includes all electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.

⁷Includes reported prices for both open market and captive mines.

⁸Prices weighted by consumption tonnage; weighted average excludes residential and commercial prices, and export free-alongside-ship (f.a.s.) prices.

⁹F.a.s. price at U.S. port of exit.

¹⁰Cumulative 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.

¹¹Includes 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.

¹²Includes 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 NORSE2010.D012510A.

Results from Side Cases

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
Production¹	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 Supplied²	14	15	15	15	9	15	27	-1.4%	0.3%	2.5%
Net Imports³	-49	-31	-15	-0	-25	20	70	-2.5%	--	--
Total Supply⁴	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 Price⁷										
(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 Prices⁸										
(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%

¹Includes anthracite, bituminous coal, subbituminous coal, and lignite.

²Includes 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.

³Excludes imports to Puerto Rico and the U.S. Virgin Islands.

⁴Production plus waste coal supplied plus net imports.

⁵Includes 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.

⁶Includes all electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.

⁷Includes reported prices for both open market and captive mines.

⁸Prices weighted by consumption tonnage; weighted average excludes residential and commercial prices, and export free-alongside-ship (f.a.s.) prices.

⁹F.a.s. price at U.S. port of exit.

¹⁰Cumulative 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.

¹¹Includes 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.

¹²Includes 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.