Appendix F

Results from Side Cases

Table F1. Key Results for Residential and Commercial Sector Technology Cases

Energy Consumption	2000	2005				2010			
		2002 Technology	Reference Case	High Technology	Best Available Technology	2002 Technology	Reference Case	High Technology	Best Available Technology
Residential									
Energy Consumption (quadrillion Btu)									
Distillate Fuel	0.83	0.85	0.85	0.84	0.83	0.79	0.79	0.78	0.73
Kerosene	0.09	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07
Liquefied Petroleum Gas	0.47	0.44	0.44	0.44	0.43	0.45	0.45	0.44	0.41
Petroleum Subtotal	1.38	1.38	1.37	1.36	1.33	1.32	1.30	1.29	1.21
Natural Gas	5.14	5.54	5.53	5.48	5.21	5.71	5.68	5.53	4.82
Coal	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Renewable Energy	0.43	0.43	0.43	0.43	0.42	0.44	0.43	0.43	0.42
Electricity	4.07	4.63	4.62	4.59	4.44	4.95	4.92	4.84	4.45
Delivered Energy	**11.06**	**12.03**	**11.99**	**11.91**	**11.44**	**12.47**	**12.40**	**12.14**	**10.95**
Electricity Related Losses	8.79	9.74	9.72	9.66	9.34	9.89	9.85	9.69	8.90
Total	**19.85**	**21.77**	**21.71**	**21.57**	**20.78**	**22.37**	**22.24**	**21.83**	**19.85**
Delivered Energy Consumption per Household (million Btu per household)	**105.2**	**109.0**	**108.6**	**107.9**	**103.7**	**107.5**	**106.9**	**104.7**	**94.4**
Non-Marketed Renewables Consumption (quadrillion Btu)	**0.04**	**0.05**	**0.05**	**0.06**	**0.07**	**0.06**	**0.06**	**0.10**	**0.18**
Commercial									
Energy Consumption (quadrillion Btu)									
Distillate Fuel	0.38	0.42	0.42	0.42	0.41	0.43	0.42	0.42	0.42
Residual Fuel	0.14	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Kerosene	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Liquefied Petroleum Gas	0.08	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.09
Motor Gasoline	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Petroleum Subtotal	0.65	0.67	0.67	0.67	0.67	0.70	0.69	0.69	0.69
Natural Gas	3.36	3.78	3.77	3.77	3.71	4.05	4.04	4.03	3.90
Coal	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Renewable Energy	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Electricity	3.90	4.46	4.46	4.44	4.20	5.07	5.03	4.94	4.42
Delivered Energy	**8.07**	**9.06**	**9.05**	**9.02**	**8.72**	**9.97**	**9.91**	**9.80**	**9.15**
Electricity Related Losses	8.42	9.39	9.38	9.33	8.83	10.15	10.06	9.88	8.85
Total	**16.49**	**18.45**	**18.42**	**18.35**	**17.56**	**20.12**	**19.98**	**19.68**	**18.00**
Delivered Energy Consumption per Square Foot (thousand Btu per square foot)	**125.1**	**126.4**	**126.2**	**125.9**	**121.7**	**128.6**	**127.8**	**126.4**	**118.0**
Net Summer Generation Capability (megawatts)									
Natural Gas	510	564	578	581	588	627	770	812	908
Solar Photovoltaic	15	89	89	89	89	258	258	258	258
Generation (billion kilowatthours)									
Natural Gas	3.63	4.01	4.11	4.13	4.19	4.46	5.48	5.79	6.46
Solar Photovoltaic	0.04	0.19	0.19	0.19	0.19	0.54	0.54	0.54	0.54
Non-Marketed Renewables Consumption (quadrillion Btu)	**0.02**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 2000 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, AEO2002 National Energy Modeling System, runs BLDFRZN.D102201A, AEO2002.D102001B, BLDHIGH.D102201A, BLDBEST.D102301A

2015				2020				Annual Growth 2000-2020			
2002 Technology	Reference Case	High Technology	Best Available Technology	2002 Technology	Reference Case	High Technology	Best Available Technology	2002 Technology	Reference Case	High Technology	Best Available Technology
0.77	0.75	0.73	0.67	0.75	0.73	0.70	0.63	-0.5%	-0.6%	-0.8%	-1.3%
0.07	0.07	0.07	0.06	0.07	0.07	0.06	0.06	-1.2%	-1.5%	-1.7%	-2.0%
0.44	0.42	0.41	0.36	0.43	0.41	0.39	0.33	-0.5%	-0.7%	-0.8%	-1.7%
1.27	1.24	1.21	1.10	1.25	1.20	1.16	1.02	-0.5%	-0.7%	-0.9%	-1.5%
5.94	5.89	5.65	4.52	6.23	6.15	5.81	4.37	1.0%	0.9%	0.6%	-0.8%
0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.7%	0.6%	0.4%	0.3%
0.45	0.44	0.43	0.41	0.46	0.45	0.43	0.41	0.4%	0.2%	0.1%	-0.2%
5.37	5.30	5.15	4.56	5.78	5.70	5.50	4.81	1.8%	1.7%	1.5%	0.8%
13.09	**12.92**	**12.48**	**10.64**	**13.77**	**13.55**	**12.96**	**10.66**	**1.1%**	**1.0%**	**0.8%**	**-0.2%**
10.38	10.25	9.95	8.81	10.87	10.72	10.35	9.05	1.1%	1.0%	0.8%	0.1%
23.47	**23.17**	**22.43**	**19.45**	**24.64**	**24.27**	**23.30**	**19.71**	**1.1%**	**1.0%**	**0.8%**	**-0.0%**
107.7	**106.4**	**102.8**	**87.6**	**108.3**	**106.6**	**101.9**	**83.8**	**0.1%**	**0.1%**	**-0.2%**	**-1.1%**
0.06	**0.07**	**0.14**	**0.25**	**0.07**	**0.08**	**0.19**	**0.32**	**2.5%**	**3.2%**	**7.8%**	**10.7%**
0.43	0.42	0.41	0.41	0.43	0.42	0.41	0.41	0.7%	0.5%	0.5%	0.4%
0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	-0.1%	-0.1%	-0.1%	-0.1%
0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	1.2%	1.2%	1.2%	1.2%
0.09	0.09	0.09	0.09	0.10	0.10	0.10	0.10	0.9%	0.9%	0.9%	0.9%
0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	-0.5%	-0.5%	-0.5%	-0.5%
0.71	0.70	0.70	0.69	0.72	0.71	0.71	0.70	0.5%	0.4%	0.4%	0.4%
4.32	4.33	4.33	4.17	4.58	4.64	4.68	4.52	1.6%	1.6%	1.7%	1.5%
0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.7%	0.7%	0.7%	0.7%
0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.0%	0.0%	0.0%	0.0%
5.74	5.62	5.43	4.71	6.39	6.13	5.84	5.00	2.5%	2.3%	2.0%	1.2%
10.92	**10.80**	**10.60**	**9.72**	**11.85**	**11.64**	**11.39**	**10.38**	**1.9%**	**1.9%**	**1.7%**	**1.3%**
11.08	10.85	10.49	9.10	12.01	11.53	10.99	9.40	1.8%	1.6%	1.3%	0.6%
22.01	**21.65**	**21.09**	**18.82**	**23.86**	**23.18**	**22.38**	**19.78**	**1.9%**	**1.7%**	**1.5%**	**0.9%**
130.4	**128.9**	**126.6**	**116.1**	**132.3**	**130.0**	**127.2**	**115.9**	**0.3%**	**0.2%**	**0.1%**	**-0.4%**
728	1464	1947	2459	853	3047	4559	5828	2.6%	9.3%	11.6%	13.0%
283	283	283	288	309	311	315	368	16.5%	16.5%	20.7%	17.5%
5.17	10.48	13.97	17.67	6.07	21.91	32.88	42.05	2.6%	9.4%	11.6%	13.0%
0.59	0.59	0.59	0.61	0.65	0.65	0.66	0.78	16.7%	16.7%	16.8%	17.8%
0.03	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**1.4%**	**1.2%**	**1.0%**	**1.1%**

Table F2. Key Results for Industrial Sector Technology Cases

Consumption	2000	2010			2015			2020		
		2002 Technology	Reference Case	High Technology	2002 Technology	Reference Case	High Technology	2002 Technology	Reference Case	High Technology
Energy Consumption (quadrillion Btu)										
Distillate Fuel	1.11	1.24	1.22	1.21	1.33	1.29	1.28	1.43	1.38	1.35
Liquefied Petroleum Gas	2.36	2.70	2.66	2.64	2.90	2.85	2.82	3.07	3.00	2.96
Petrochemical Feedstocks	1.32	1.47	1.45	1.45	1.57	1.54	1.53	1.62	1.59	1.57
Residual Fuel	0.27	0.25	0.23	0.22	0.28	0.26	0.23	0.31	0.27	0.25
Motor Gasoline	0.22	0.24	0.24	0.24	0.26	0.26	0.25	0.28	0.27	0.27
Other Petroleum	3.96	4.82	4.77	4.75	5.07	4.99	4.96	5.28	5.17	5.12
Petroleum Subtotal	9.23	10.72	10.57	10.51	11.42	11.19	11.07	11.99	11.69	11.52
Natural Gas	9.79	11.51	11.19	10.99	12.25	11.77	11.47	12.78	12.19	11.76
Metallurgical Coal[1]	0.84	0.81	0.75	0.66	0.81	0.72	0.59	0.80	0.70	0.53
Steam Coal	1.69	1.86	1.74	1.69	1.97	1.79	1.73	2.08	1.85	1.75
Coal Subtotal	2.53	2.67	2.50	2.35	2.78	2.51	2.32	2.89	2.55	2.28
Renewable Energy	2.41	2.85	2.89	3.09	3.11	3.18	3.54	3.32	3.43	3.96
Electricity	3.65	4.34	4.20	4.02	4.76	4.53	4.25	5.14	4.83	4.43
Delivered Energy	**27.62**	**32.09**	**31.35**	**30.97**	**34.32**	**33.19**	**32.64**	**36.11**	**34.69**	**33.96**
Electricity Related Losses	7.89	8.69	8.39	8.05	9.21	8.76	8.21	9.66	9.08	8.33
Total	**35.50**	**40.78**	**39.74**	**39.02**	**43.52**	**41.96**	**40.86**	**45.78**	**43.76**	**42.29**
Delivered Energy Use per Dollar of Output (thousand Btu per 1992 dollar)	**5.46**	**4.87**	**4.76**	**4.70**	**4.55**	**4.41**	**4.33**	**4.28**	**4.11**	**4.02**
Onsite Industrial Cogeneration										
Capacity (gigawatts)	21.40	27.21	27.84	31.42	30.39	31.28	36.87	33.61	34.69	42.23
Generation (billion kilowatthours)	116.30	157.80	161.49	186.39	180.61	185.60	224.22	203.92	209.76	261.36

[1]Includes net coal coke imports.

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 2000 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 potential feedbacks were 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, AEO2002 National Energy Modeling System runs INDFRZN.D102201A, AEO2002.D102001B, INDHIGH.D102501A.

Table F3. Key Results for Transportation Sector Technology Cases

Consumption and Indicators	2000	2010			2015			2020		
		2002 Technology	Reference Case	High Technology	2002 Technology	Reference Case	High Technology	2002 Technology	Reference Case	High Technology
Energy Consumption (quadrillion Btu)										
Distillate Fuel	5.42	7.38	7.27	7.15	8.43	8.09	7.82	9.43	8.72	8.29
Jet Fuel	3.58	4.50	4.46	4.41	5.24	5.12	4.94	6.07	5.82	5.44
Motor Gasoline	16.05	19.68	19.32	18.32	21.66	20.86	19.03	23.47	22.12	19.52
Residual Fuel	1.14	1.08	1.08	1.07	1.10	1.09	1.08	1.11	1.10	1.09
Liquefied Petroleum Gas	0.02	0.04	0.04	0.03	0.04	0.04	0.04	0.05	0.05	0.04
Other Petroleum	0.22	0.26	0.26	0.26	0.28	0.28	0.28	0.29	0.29	0.29
Petroleum Subtotal	26.42	32.94	32.43	31.25	36.75	35.48	33.20	40.43	38.11	34.68
Pipeline Fuel Natural Gas	0.79	0.86	0.86	0.86	0.95	0.95	0.95	1.02	1.02	1.02
Compressed Natural Gas	0.02	0.09	0.09	0.09	0.13	0.12	0.12	0.16	0.14	0.14
Renewables (E85)	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.05	0.05	0.04
Liquid Hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.06	0.08	0.08	0.08	0.09	0.09	0.10	0.11	0.11	0.12
Delivered Energy	**27.32**	**34.01**	**33.50**	**32.32**	**37.97**	**36.69**	**34.40**	**41.77**	**39.43**	**35.99**
Electricity Related Losses	0.13	0.16	0.16	0.17	0.17	0.18	0.19	0.20	0.21	0.22
Total	**27.45**	**34.17**	**33.66**	**32.49**	**38.14**	**36.87**	**34.59**	**41.98**	**39.64**	**36.21**
Energy Efficiency Indicators										
New Light-Duty Vehicle (miles per gallon)[1]	24.5	24.6	25.7	29.3	24.6	26.6	31.2	24.6	27.2	32.8
New Car (miles per gallon)[1]	28.6	28.9	30.2	32.7	29.0	31.0	35.2	29.0	31.7	37.2
New Light Truck (miles per gallon)[1]	21.1	21.2	22.3	26.5	21.3	23.3	28.0	21.4	23.8	29.3
Light-Duty Fleet (miles per gallon)[2]	19.8	19.7	20.1	21.2	19.7	20.5	22.6	19.7	21.0	24.0
New Commercial Light Truck (MPG)[3]	14.2	14.1	14.9	17.7	14.1	15.5	18.8	14.1	15.9	19.7
Stock Commercial Light Truck (MPG)[3]	13.6	14.1	14.4	15.8	14.1	14.9	17.2	14.1	15.4	18.4
Aircraft Efficiency (seat miles per gallon)	52.1	55.3	55.9	56.6	56.6	58.1	60.4	57.5	60.3	65.1
Freight Truck Efficiency (miles per gallon)	5.9	6.0	6.0	6.1	6.0	6.1	6.3	6.0	6.3	6.6
Rail Efficiency (ton miles per thousand Btu)	2.8	2.9	3.1	3.3	2.9	3.3	3.5	2.9	3.4	3.8
Domestic Shipping Efficiency (ton miles per thousand Btu)	2.3	2.3	2.3	2.4	2.3	2.4	2.4	2.3	2.4	2.5
Light-Duty Vehicles Less Than 8500 Pounds (vehicle miles traveled)	**2340**	**2979**	**2981**	**2988**	**3313**	**3318**	**3331**	**3622**	**3631**	**3648**

[1]Environmental Protection Agency rated miles per gallon.
[2]Combined car and light truck "on-the-road" estimate.
[3]Commercial trucks 8,500 to 10,000 pounds.
Btu = British thermal unit.
MPG = Miles per gallon.
Note: Totals may not equal sum of components due to independent rounding. Data for 2000 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 potential feedbacks were 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, AEO2002 National Energy Modeling System runs FROZEN.D102401C, AEO2002.D102001B, HIGHTECH.D102401A

Table F4. Key Results for Integrated Technology Cases

Consumption and Emissions	2000	2010			2015			2020		
		2002 Technology	Reference Case	High Technology	2002 Technology	Reference Case	High Technology	2002 Technology	Reference Case	High Technology
Consumption by Sector (quadrillion Btu)										
Residential	19.8	22.3	22.2	21.9	23.5	23.2	22.6	24.7	24.3	23.3
Commercial	16.5	20.1	20.0	19.8	22.0	21.6	21.2	24.0	23.2	22.3
Industrial	35.5	40.8	39.7	38.8	43.7	42.0	40.5	46.1	43.8	41.6
Transportation	27.4	34.2	33.7	32.5	38.2	36.9	34.6	42.1	39.6	36.3
Total	**99.3**	**117.4**	**115.6**	**113.0**	**127.4**	**123.6**	**118.9**	**136.9**	**130.9**	**123.5**
Consumption by Fuel (quadrillion Btu)										
Petroleum Products	38.6	46.0	45.2	43.8	50.6	48.9	46.3	55.0	52.0	48.1
Natural Gas	23.4	29.4	28.9	27.9	32.8	32.1	29.9	34.6	34.6	31.6
Coal	22.3	25.8	25.4	24.9	27.5	26.2	25.9	30.4	27.4	26.5
Nuclear Power	8.0	7.9	7.9	7.9	7.6	7.6	7.4	7.5	7.5	7.1
Renewable Energy	6.5	7.9	7.9	8.2	8.4	8.5	9.2	9.0	8.9	9.9
Other	0.4	0.4	0.4	0.3	0.5	0.5	0.3	0.5	0.4	0.3
Total	**99.3**	**117.4**	**115.6**	**113.0**	**127.4**	**123.6**	**118.9**	**136.9**	**130.9**	**123.5**
Energy Intensity (thousand Btu per 1996 dollar of GDP)	**10.8**	**9.5**	**9.4**	**9.2**	**8.8**	**8.6**	**8.3**	**8.3**	**7.9**	**7.5**
Carbon Dioxide Emissions by Sector (million metric tons carbon equivalent)										
Residential	305.9	347.3	346.0	339.8	369.4	361.4	352.7	396.7	381.1	365.5
Commercial	260.9	319.2	317.1	312.5	354.6	344.8	338.2	394.7	371.7	357.6
Industrial	478.1	551.6	532.1	512.8	591.6	558.9	529.8	630.2	582.3	538.0
Transportation	516.9	649.7	639.4	617.2	726.0	700.2	657.4	799.2	752.7	688.5
Total	**1,561.7**	**1,867.8**	**1,834.7**	**1,782.3**	**2,041.6**	**1,965.4**	**1,878.1**	**2,220.8**	**2,087.8**	**1,949.6**
Carbon Dioxide Emissions by End-Use Fuel (million metric tons carbon equivalent)										
Petroleum	637.9	780.0	767.2	742.0	860.9	830.3	784.0	938.2	885.0	814.8
Natural Gas	270.0	316.2	312.2	307.8	334.7	329.3	321.0	351.0	344.5	334.6
Coal	68.2	71.2	66.4	62.5	74.1	66.9	61.5	76.8	67.9	60.3
Other	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Electricity	585.6	700.4	688.8	669.9	771.8	738.7	711.5	854.6	790.2	739.9
Total	**1,561.7**	**1,867.8**	**1,834.7**	**1,782.3**	**2,041.6**	**1,965.4**	**1,878.1**	**2,220.8**	**2,087.8**	**1,949.6**
Carbon Dioxide Emissions by Electric Generators (million metric tons carbon equivalent)										
Petroleum	19.9	5.2	4.3	3.2	7.0	5.1	3.4	7.8	5.9	2.9
Natural Gas	61.1	105.1	100.6	90.7	135.3	130.7	106.4	144.1	151.1	117.2
Coal	504.6	590.1	583.9	576.0	629.5	602.9	601.7	702.7	633.2	619.8
Total	**585.6**	**700.4**	**688.8**	**669.9**	**771.8**	**738.7**	**711.5**	**854.6**	**790.2**	**739.9**
Carbon Dioxide Emissions by Primary Fuel (million metric tons carbon equivalent)										
Petroleum	657.8	785.2	771.5	745.1	867.8	835.4	787.5	946.0	890.9	817.6
Natural Gas	331.2	421.3	412.8	398.6	470.1	460.0	427.4	495.1	495.6	451.8
Coal	572.8	661.2	650.3	638.5	703.6	669.8	663.2	779.5	701.2	680.1
Other	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total	**1,561.7**	**1,867.8**	**1,834.7**	**1,782.3**	**2,041.6**	**1,965.4**	**1,878.1**	**2,220.8**	**2,087.8**	**1,949.6**

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 2000 are model results and may differ slightly from official EIA data reports.
Source: Energy Information Administration, AEO2002 National Energy Modeling System runs LTRKITEN.D102501A, AEO2002.D102001B, HTRKITEN.D102501A.

Table F5. Key Results for Nuclear Generation Cases
(Gigawatts, Unless Otherwise Noted)

Net Summer Capability, Generation, Emissions, and Fuel Prices	2000	Projections							
		2010				2020			
		Reference	Low Nuclear	High Nuclear	Advanced Nuclear Cost	Reference	Low Nuclear	High Nuclear	Advanced Nuclear Cost
Capability									
Coal Steam	304.6	305.7	306.0	305.8	305.9	329.0	331.9	330.2	329.1
Other Fossil Steam	135.0	115.6	115.7	115.8	115.5	113.3	113.4	113.5	113.2
Combined Cycle	30.6	139.9	141.7	140.4	139.6	213.8	219.6	209.8	215.6
Combustion Turbine/Diesel	77.7	128.9	130.4	129.0	129.1	177.9	177.8	176.3	176.8
Nuclear Power	97.5	94.3	94.3	96.3	94.3	88.0	81.3	92.4	89.0
Pumped Storage	19.2	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6
Fuel Cells	0.0	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
Renewable Sources	89.1	97.2	97.2	97.3	97.2	101.2	101.4	101.2	101.2
Distributed Generation	0.0	5.1	5.1	4.9	5.0	19.0	18.3	18.6	18.7
Cogenerators/Other Generators[1]	55.7	65.2	65.2	65.2	65.2	75.6	75.6	75.6	75.6
Total	**809.3**	**971.6**	**975.5**	**974.4**	**971.7**	**1137.8**	**1139.0**	**1137.4**	**1139.0**
Cumulative Additions									
Coal Steam	0.0	6.2	6.4	6.2	6.4	31.2	34.2	32.5	31.4
Other Fossil Steam	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Combined Cycle	0.0	108.5	110.4	109.0	108.3	182.5	188.2	178.4	184.2
Combustion Turbine/Diesel	0.0	57.2	58.9	57.3	57.5	109.6	109.8	108.1	109.1
Nuclear Power	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
Pumped Storage	0.0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Fuel Cells	0.0	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
Renewable Sources	0.0	7.6	7.6	7.6	7.5	11.6	11.7	11.5	11.5
Distributed Generation	0.0	5.1	5.1	4.9	5.0	19.0	18.3	18.6	18.7
Cogenerators/Other Generators[1]	0.0	9.5	9.5	9.5	9.5	19.9	19.9	19.9	19.9
Total	**0.0**	**194.5**	**198.4**	**195.1**	**194.7**	**374.4**	**382.7**	**369.7**	**376.3**
Cumulative Retirements	**0.0**	**33.1**	**33.1**	**30.9**	**33.2**	**46.9**	**53.9**	**42.5**	**47.6**
Generation by Fuel (billion kilowatthours)									
Coal	1922	2215	2214	2208	2212	2423	2446	2427	2422
Petroleum	93	28	26	28	28	38	38	38	37
Natural Gas	417	893	896	886	895	1414	1437	1377	1408
Nuclear Power	752	737	737	752	737	702	655	734	709
Pumped Power	-1	-1	-1	-1	-1	-1	-1	-1	-1
Renewable Sources	321	391	391	391	391	407	407	409	409
Distributed Generation	0	2	2	2	2	8	8	8	8
Cogenerators/Other Generators[1]	311	379	379	379	379	452	452	452	452
Total	**3815**	**4644**	**4645**	**4645**	**4644**	**5444**	**5442**	**5445**	**5444**
Carbon Dioxide Emissions by Electric Generators (million metric tons carbon equivalent)[2]									
Petroleum	19.9	4.3	3.9	4.1	4.1	5.9	5.9	5.9	5.6
Natural Gas	61.1	100.6	100.7	99.5	100.9	151.1	152.7	147.5	149.9
Coal	504.6	583.9	582.7	581.0	582.2	633.2	637.6	633.5	632.7
Total	**585.6**	**688.8**	**687.2**	**684.5**	**687.3**	**790.2**	**796.2**	**786.8**	**788.2**
Prices to Electric Generators (2000 dollars per million Btu)									
Petroleum	4.33	3.97	3.99	3.99	4.00	4.27	4.29	4.27	4.25
Natural Gas	4.41	3.38	3.38	3.37	3.39	3.87	3.90	3.81	3.85
Coal	1.20	1.05	1.05	1.05	1.06	0.97	0.97	0.97	0.97

[1] 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] Excludes cogenerators and other generators.

Note: Totals may not equal sum of components due to independent rounding. Data for 2000 are model results and may differ slightly from official EIA data reports. Net summer capability has been estimated for nonutility generators to be consistent with electric utility capability estimates. Side cases were run without the fully integrated modeling system, so not all potential feedbacks were captured.

Source: Energy Information Administration, AEO2002 National Energy Modeling System runs AEO2002.D102001B, LNUC02.D102201A, HNUC02.D102201A, ADVNUC02.D102301B.

Table F6. Key Results for Electricity Demand Case

Net Summer Capability, Generation, Consumption, Emissions, and Prices	2000	2005		2010		2020		Annual Growth 2000-2020	
		Reference	High Demand	Reference	High Demand	Reference	High Demand	Reference	High Demand
Electricity Sales (billion kilowatthours)	**3426**	**3793**	**3938**	**4170**	**4468**	**4916**	**5642**	**1.8%**	**2.5%**
Electricity Prices (2000 cents per kilowatthour)	**6.9**	**6.4**	**6.7**	**6.3**	**6.5**	**6.5**	**6.6**	**-0.3%**	**-0.2%**
Capability (gigawatts)									
Coal Steam	304.6	303.7	303.7	305.7	314.1	329.0	413.2	0.4%	1.5%
Other Fossil Steam	135.0	127.4	127.4	115.6	119.3	113.3	115.4	-0.9%	-0.8%
Combined Cycle	30.6	59.6	64.5	139.9	167.7	213.8	247.6	10.2%	11.0%
Combustion Turbine/Diesel	77.7	104.9	113.8	128.9	150.9	177.9	200.5	4.2%	4.9%
Nuclear Power	97.5	97.7	97.7	94.3	96.3	88.0	92.4	-0.5%	-0.3%
Fuel Cells	0.0	0.1	0.1	0.2	0.2	0.3	0.3	35.2%	35.2%
Renewable Sources/Pumped Storage	108.3	114.8	114.8	116.8	117.0	120.9	122.4	0.5%	0.6%
Distributed Generation	0.0	0.9	1.3	5.1	6.9	19.0	25.3	N/A	N/A
Cogenerators/Other Generators[1]	55.7	61.1	61.1	65.2	65.4	75.6	75.6	1.5%	1.5%
Total	**809.3**	**870.2**	**884.4**	**971.6**	**1037.9**	**1137.8**	**1292.6**	**1.7%**	**2.4%**
Cumulative Additions (gigawatts)									
Coal Steam	0.0	1.0	1.0	6.2	14.0	31.2	115.5	N/A	N/A
Other Fossil Steam	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A	N/A
Combined Cycle	0.0	28.3	33.1	108.5	136.4	182.5	216.2	N/A	N/A
Combustion Turbine/Diesel	0.0	31.8	40.8	57.2	79.4	109.6	130.7	N/A	N/A
Nuclear Power	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A	N/A
Fuel Cells	0.0	0.1	0.1	0.2	0.2	0.2	0.2	N/A	N/A
Renewable Sources/Pumped Storage	0.0	6.0	6.0	7.9	8.1	11.9	13.4	N/A	N/A
Distributed Generation	0.0	0.9	1.3	5.1	6.9	19.0	25.3	N/A	N/A
Cogenerators/Other Generators[1]	0.0	5.4	5.4	9.5	9.7	19.9	19.9	N/A	N/A
Total	**0.0**	**73.4**	**87.6**	**194.5**	**254.7**	**374.4**	**521.2**	**N/A**	**N/A**
Generation by Fuel (billion kilowatthours)									
Coal	1922	2086	2111	2215	2297	2423	3042	1.2%	2.3%
Petroleum	93	39	55	28	43	38	44	-4.4%	-3.8%
Natural Gas	417	607	711	893	1088	1414	1515	6.3%	6.5%
Nuclear Power	752	759	759	737	752	702	734	-0.3%	-0.1%
Renewable Sources/Pumped Storage	320	374	372	390	391	406	413	1.2%	1.3%
Distributed Generation	0	0	1	2	3	8	11	N/A	N/A
Cogenerators/Other	311	352	353	379	379	452	451	1.9%	1.9%
Total	**3815**	**4218**	**4362**	**4644**	**4953**	**5444**	**6210**	**1.8%**	**2.4%**
Fossil Fuel Consumption by Electric Generators (quadrillion Btu)[2]									
Petroleum	0.93	0.32	0.48	0.21	0.36	0.28	0.33	-5.9%	-5.3%
Natural Gas	4.32	5.58	6.56	6.98	8.34	10.49	11.10	4.5%	4.6%
Coal	19.69	21.44	21.77	22.80	23.59	24.67	29.39	1.1%	2.0%
Carbon Dioxide Emissions by Electric Generators (million metric tons carbon equivalent)[2]									
Petroleum	19.9	6.8	10.2	4.3	7.5	5.9	6.9	-5.9%	-5.3%
Natural Gas	61.1	80.4	94.5	100.6	120.1	151.1	159.8	4.6%	4.8%
Coal	504.6	548.5	556.6	583.9	604.1	633.2	754.3	1.1%	2.0%
Total	**585.6**	**635.7**	**661.2**	**688.8**	**731.7**	**790.2**	**920.9**	**1.5%**	**2.3%**
Prices to Electric Generators (2000 dollars per million Btu)									
Petroleum	4.33	3.80	3.78	3.97	3.89	4.27	4.25	-0.1%	-0.1%
Natural Gas	4.41	3.19	3.48	3.38	3.89	3.87	4.10	-0.6%	-0.4%
Coal	1.20	1.13	1.13	1.05	1.06	0.97	0.99	-1.1%	-1.0%

[1] 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] Excludes cogenerators and other generators

Btu = British thermal unit.

N/A = not applicable.

Note: Totals may not equal sum of components due to independent rounding. Data for 2000 are model results and may differ slightly from official EIA data reports. Other includes non-coal fossil steam, pumped storage, methane, propane and blast furnace gas. Side case was run without the fully integrated modeling system, so not all potential feedbacks were captured.

Source: Energy Information Administration, AEO2002 National Energy Modeling System runs AEO2002.D102001B, HDEM02.D102201A.

Table F7. Key Results for Electricity Sector Fossil Technology Cases
(Gigawatts, Unless Otherwise Noted)

Net Summer Capability, Generation Consumption, and Emissions	2000	2005			2010			2020		
		Low Fossil	Reference	High Fossil	Low Fossil	Reference	High Fossil	Low Fossil	Reference	High Fossil
Capability										
Pulverized Coal	304.1	303.2	303.2	303.2	305.8	304.9	304.1	344.1	322.6	302.5
Coal Gasification Combined-Cycle	0.5	0.5	0.5	0.5	0.9	0.8	3.1	4.3	6.4	59.4
Conventional Natural Gas Combined-Cycle	30.6	52.9	52.9	52.9	117.6	95.6	71.6	175.7	108.0	71.6
Advanced Natural Gas Combined-Cycle	0.00	6.8	6.7	6.7	21.0	44.3	62.9	21.6	105.9	141.5
Conventional Combustion Turbine	77.7	102.5	102.4	101.8	124.3	120.2	122.0	166.9	150.1	135.8
Advanced Combustion Turbine	0.00	2.4	2.5	2.7	5.3	8.6	11.9	5.4	27.7	31.8
Fuel Cells	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3
Nuclear	97.5	97.7	97.7	97.7	94.3	94.3	94.3	88.0	88.0	85.5
Oil and Gas Steam	135.0	127.5	127.4	127.5	115.5	115.6	115.5	113.3	113.3	109.2
Renewable Sources/Pumped Storage	108.3	114.8	114.8	114.8	116.8	116.8	116.7	122.4	120.9	118.8
Distributed Generation	0.0	0.9	0.9	0.9	4.9	5.1	4.7	19.0	19.0	14.9
Cogenerators/Other Generators[1]	55.7	61.1	61.1	61.1	65.2	65.2	65.2	75.6	75.6	75.5
Total	**809.3**	**870.4**	**870.2**	**870.0**	**971.8**	**971.6**	**972.2**	**1136.7**	**1137.8**	**1146.7**
Cumulative Additions										
Pulverized Coal	0.0	1.0	1.0	1.0	6.6	5.8	5.0	46.8	25.4	5.2
Coal Gasification Combined-Cycle	0.0	0.0	0.0	0.0	0.4	0.4	2.6	3.8	5.9	58.9
Conventional Natural Gas Combined-Cycle	0.0	21.5	21.6	21.6	86.3	64.3	40.3	144.4	76.6	40.3
Advanced Natural Gas Combined-Cycle	0.0	6.8	6.7	6.7	21.0	44.3	62.9	21.6	105.9	141.5
Conventional Combustion Turbine	0.0	29.5	29.3	28.8	52.7	48.6	50.4	99.0	81.9	68.2
Advanced Combustion Turbine	0.0	2.4	2.5	2.7	5.3	8.6	11.9	5.4	27.7	31.8
Fuel Cells	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oil and 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	6.0	6.0	6.0	7.9	7.9	7.7	13.5	11.9	9.8
Distributed Generation	0.0	0.9	0.9	0.9	4.9	5.1	4.7	19.0	19.0	14.9
Cogenerators/Other Generators[1]	0.0	5.4	5.4	5.4	9.5	9.5	9.5	19.9	19.9	19.8
Total	**0.0**	**73.5**	**73.4**	**73.1**	**194.7**	**194.5**	**195.2**	**373.7**	**374.4**	**390.5**
Cumulative Retirements	**0.0**	**13.2**	**13.3**	**13.2**	**33.1**	**33.1**	**33.2**	**47.2**	**46.9**	**54.0**
Generation by Fuel (billion kilowatthours)										
Coal	1922	2087	2086	2087	2219	2215	2217	2564	2423	2632
Petroleum	93	39	39	40	29	28	28	40	38	27
Natural Gas	417	607	607	607	886	893	895	1262	1414	1261
Nuclear Power	752	759	759	759	737	737	737	702	702	684
Renewable Sources/Pumped Storage	320	373	374	373	390	390	389	413	406	393
Distributed Generation	0	0	0	0	2	2	2	8	8	7
Cogenerators/Other Generators[1]	311	352	352	352	379	379	379	453	452	450
Total	**3815**	**4218**	**4218**	**4218**	**4643**	**4644**	**4647**	**5443**	**5444**	**5454**
Fuel Consumption by Electric Generators (quadrillion Btu)[2]										
Coal	19.69	21.45	21.44	21.46	22.79	22.80	22.73	26.00	24.67	25.46
Petroleum	0.93	0.33	0.32	0.33	0.21	0.21	0.20	0.31	0.28	0.16
Natural Gas	4.32	5.58	5.58	5.57	7.09	6.98	6.82	9.93	10.49	8.29
Nuclear Power	8.03	8.10	8.10	8.10	7.87	7.87	7.87	7.49	7.49	7.31
Renewable Sources	3.55	4.18	4.18	4.18	4.46	4.46	4.44	5.03	4.94	4.67
Total	**36.53**	**39.63**	**39.62**	**39.64**	**42.41**	**42.31**	**42.06**	**48.76**	**47.88**	**45.89**
Carbon Dioxide Emissions by Electric Generators (million metric tons carbon equivalent)[2]										
Petroleum	19.9	6.8	6.8	6.9	4.3	4.3	4.1	6.4	5.9	3.4
Natural Gas	61.1	80.3	80.4	80.2	102.0	100.6	98.2	143.0	151.1	119.4
Coal	504.6	548.8	548.5	549.0	584.0	583.9	582.3	667.4	633.2	653.2
Total	**585.6**	**635.9**	**635.7**	**636.2**	**690.4**	**688.8**	**684.6**	**816.8**	**790.2**	**776.0**

[1] 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] Excludes cogenerators and other generators.

Note: Totals may not equal sum of components due to independent rounding. Data for 2000 are model results and may differ slightly from official EIA data reports. Net summer capability has been estimated for nonutility generators to be consistent with electric utility capability estimates. Side cases were run without the fully integrated modeling system, so not all potential feedbacks were captured.

Source: Energy Information Administration, AEO2002 National Energy Modeling System runs LFOSS02.D102401A, AEO2002.D102001B, HFOSS02.D102301A.

Table F8. Key Results for High Renewable Energy Case

Capacity, Generation, and Emissions	2000	2010		2020	
		Reference	High Renewables	Reference	High Renewables
Renewable Capability (gigawatts) Net Summer Capability					
Electric Generators[1]					
Conventional Hydropower	79.29	79.90	79.90	79.90	79.90
Geothermal[2]	2.85	3.57	4.03	5.32	7.99
Municipal Solid Waste[3]	2.84	3.88	3.88	4.30	4.30
Wood and Other Biomass[4]	1.39	1.73	1.73	1.97	2.09
Solar Thermal	0.33	0.36	0.36	0.41	0.41
Solar Photovoltaic[5]	0.01	0.11	0.11	0.27	0.27
Wind	2.42	7.65	8.72	9.06	25.27
Total	**89.13**	**97.19**	**98.72**	**101.22**	**120.23**
Cogenerators[6]					
Municipal Solid Waste	0.51	0.51	0.51	0.51	0.51
Wood and Other Biomass	5.26	6.64	7.27	8.43	10.21
Total	**5.77**	**7.15**	**7.78**	**8.94**	**10.72**
Other End-Use Generators[7]					
Conventional Hydropower	0.98	0.98	0.98	0.98	0.98
Geothermal	0.00	0.00	0.00	0.00	0.00
Solar Photovoltaic[5]	0.02	0.39	0.39	0.46	1.01
Total	**0.99**	**1.36**	**1.36**	**1.44**	**1.99**
Generation (billion kilowatthours)					
Electric Generators					
Coal	1922	2215	2213	2423	2395
Petroleum	93	28	27	38	35
Natural Gas	417	893	887	1414	1354
Total Fossil	**2432**	**3136**	**3126**	**3876**	**3784**
Conventional Hydropower	272.33	301.14	301.14	300.00	300.00
Geothermal	13.52	20.20	24.01	34.71	56.52
Municipal Solid Waste[3]	20.15	27.78	27.78	30.98	30.98
Wood and Other Biomass[4]	8.37	20.86	21.15	15.32	16.06
Dedicated Plants	7.46	9.72	9.72	11.25	12.09
Cofiring	0.91	11.14	11.43	4.07	3.97
Solar Thermal	0.87	0.96	0.96	1.12	1.12
Solar Photovoltaic	0.01	0.26	0.26	0.68	0.68
Wind	5.30	19.45	23.44	24.07	87.06
Total Renewable	**320.54**	**390.65**	**398.74**	**406.87**	**492.40**
Cogenerators[6]					
Total Fossil	**264**	**319**	**319**	**378**	**377**
Municipal Solid Waste	3.29	3.29	3.29	3.29	3.29
Wood and Other Biomass	29.63	38.04	41.85	48.99	59.92
Total Renewables	**32.93**	**41.34**	**45.14**	**52.28**	**63.22**
Other End-Use Generators[7]					
Conventional Hydropower[8]	3.98	4.32	4.32	4.31	4.31
Geothermal	0.00	0.00	0.00	0.00	0.00
Solar Photovoltaic	0.04	0.81	0.81	0.98	2.13
Total	**4.02**	**5.14**	**5.14**	**5.29**	**6.44**
Sources of Ethanol					
From Corn	0.14	0.22	0.22	0.22	0.11
From Cellulose	0.00	0.02	0.02	0.06	0.17
Total	**0.14**	**0.24**	**0.24**	**0.28**	**0.28**
Carbon Dioxide Emissions by Electric Generators (million metric tons carbon equivalent)[9]					
Petroleum	19.9	4.3	4.0	5.9	5.2
Natural Gas	61.1	100.6	99.9	151.1	144.5
Coal	504.6	583.9	582.3	633.2	625.7
Total	**585.6**	**688.8**	**686.1**	**790.2**	**775.5**

[1]Includes grid-connected utilities and nonutilities other than cogenerators. These nonutility facilities include small power producers and exempt wholesale generators.
[2]Includes hydrothermal resources only (hot water and steam).
[3]Includes landfill gas.
[4]Includes projections for energy crops after 2010.
[5]Does not include off-grid photovoltaics (PV). EIA estimates that another 76 megawatts of remote electricity generation PV applications were in service in 1999, plus an additional 205 megawatts in communications, transportation, and assorted other non-grid-connected applications.
[6]Cogenerators produce electricity and other useful thermal energy.
[7]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.
[8]Represents own-use industrial hydroelectric power.
[9]Excludes cogenerators and other generators.
Note: Totals may not equal sum of components due to independent rounding. Data for 2000 are model results and may differ slightly from official EIA data reports.
Source: Energy Information Administration, AEO2002 National Energy Modeling System runs AEO2002.D102001B, HIRENEW02.D102301A.

Table F9. Total Energy Supply and Disposition Summary, Oil and Gas Technological Progress Cases

(Quadrillion Btu per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	2000	Projections								
		2010			2015			2020		
		Slow Technology Progress	Reference	Rapid Technology Progress	Slow Technology Progress	Reference	Rapid Technology Progress	Slow Technology Progress	Reference	Rapid Technology Progress
Production										
Crude Oil and Lease Condensate	12.33	10.06	10.76	11.31	10.76	11.76	12.50	11.28	11.92	12.67
Natural Gas Plant Liquids	2.71	3.29	3.37	3.42	3.54	3.74	3.82	3.67	4.03	4.20
Dry Natural Gas	19.59	23.51	24.12	24.49	25.58	27.03	27.60	26.59	29.25	30.46
Coal	22.58	26.41	26.23	26.15	27.45	26.91	26.70	29.29	28.11	27.47
Nuclear Power	8.03	7.87	7.87	7.87	7.55	7.55	7.55	7.49	7.49	7.49
Renewable Energy[1]	6.46	7.88	7.89	7.89	8.49	8.47	8.42	8.96	8.93	8.91
Other[2]	1.10	0.80	0.85	0.86	0.45	1.04	1.06	0.42	0.93	1.06
Total	**72.80**	**79.82**	**81.09**	**81.99**	**83.83**	**86.51**	**87.66**	**87.70**	**90.66**	**92.26**
Imports										
Crude Oil[3]	19.69	25.09	24.36	23.87	25.12	24.04	23.31	25.41	24.45	23.73
Petroleum Products[4]	4.73	7.99	7.83	7.68	11.05	10.31	10.18	13.57	12.69	12.28
Natural Gas	3.85	5.61	5.64	5.64	6.05	6.04	6.08	6.19	6.20	6.35
Other Imports[5]	0.76	1.00	0.95	0.91	1.14	1.07	1.02	1.15	1.09	1.02
Total	**29.04**	**39.69**	**38.79**	**38.09**	**43.37**	**41.46**	**40.59**	**46.32**	**44.44**	**43.38**
Exports										
Petroleum[6]	2.15	1.88	1.91	1.92	1.98	2.02	2.04	2.08	2.11	2.13
Natural Gas	0.25	0.63	0.63	0.63	0.66	0.66	0.66	0.56	0.56	0.56
Coal	1.53	1.44	1.36	1.44	1.34	1.34	1.33	1.37	1.38	1.38
Total	**3.93**	**3.95**	**3.90**	**3.99**	**3.97**	**4.01**	**4.03**	**4.02**	**4.05**	**4.07**
Consumption										
Petroleum Products[8]	38.63	45.27	45.20	45.16	49.17	48.85	48.83	52.56	51.99	51.88
Natural Gas	23.43	28.25	28.85	29.20	30.71	32.14	32.73	31.94	34.63	35.97
Coal	22.34	25.51	25.41	25.26	26.70	26.16	25.95	28.55	27.35	26.72
Nuclear Power	8.03	7.87	7.87	7.87	7.55	7.55	7.55	7.49	7.49	7.49
Renewable Energy[1]	6.48	7.89	7.90	7.90	8.50	8.48	8.43	8.97	8.94	8.92
Other[9]	0.38	0.43	0.38	0.34	0.53	0.46	0.41	0.50	0.44	0.37
Total	**99.29**	**115.22**	**115.61**	**115.74**	**123.16**	**123.64**	**123.90**	**130.02**	**130.85**	**131.35**
Net Imports - Petroleum	**22.28**	**31.20**	**30.29**	**29.62**	**34.20**	**32.33**	**31.45**	**36.89**	**35.04**	**33.88**
Prices (2000 dollars per unit)										
World Oil Price (dollars per barrel)[10]	27.72	23.36	23.36	23.36	24.00	24.00	24.00	24.68	24.68	24.68
Natural Gas Wellhead Price (dollars per thousand cubic feet)[11]	3.60	3.22	2.85	2.62	3.54	3.07	2.75	4.06	3.26	2.73
Coal Minemouth Price (dollars per ton)	16.45	13.93	14.11	13.61	13.36	13.44	13.16	12.94	12.79	12.64
Average Electricity Price (cents per kilowatthour)	6.9	6.5	6.3	6.3	6.6	6.3	6.2	6.8	6.5	6.2
Carbon Dioxide Emissions (million metric tons carbon equivalent)	**1561.7**	**1830.0**	**1834.7**	**1835.5**	**1964.9**	**1965.4**	**1968.2**	**2091.1**	**2087.8**	**2088.5**

[1]Includes grid-connected electricity from conventional hydroelectric; wood and wood waste; landfill gas; municipal solid waste; other biomass; wind; photovoltaic and solar thermal sources; 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 components of blends less than 85 percent. Excludes electricity imports using renewable sources and nonmarketed renewable energy.
[2]Includes liquid hydrogen, methanol, supplemental natural gas, and some domestic inputs to refineries.
[3]Includes imports of crude oil for the Strategic Petroleum Reserve.
[4]Includes imports of finished petroleum products, imports of unfinished oils, alcohols, ethers, and blending components.
[5]Includes coal, coal coke (net), and electricity (net).
[6]Includes crude oil and petroleum products.
[7]Balancing item. Includes unaccounted for supply, losses, gains, and net storage withdrawals.
[8]Includes natural gas plant liquids, crude oil consumed as a fuel, and nonpetroleum-based liquids for blending, such as ethanol.
[9]Includes net electricity imports, methanol, and liquid hydrogen.
[10]Average refiner acquisition cost for imported crude oil.
[11]Represents lower 48 onshore and offshore supplies.
Btu = British thermal unit.
Note: Totals may not equal sum of components due to independent rounding. Data for 2000 are model results and may differ slightly from official EIA data reports.
Sources: 2000 natural gas values: Energy Information Administration (EIA), *Natural Gas Monthly*, DOE/EIA-0130(2001/06) (Washington, DC, June 2001). 2000 petroleum values: EIA, *Petroleum Supply Annual 2000,* DOE/EIA-0340(2000/1) (Washington, DC, June 2001). Other 2000 values: EIA, *Annual Energy Review 2000*, DOE/EIA-0384(2000) (Washington, DC, August 2001) and EIA, *Quarterly Coal Report*, DOE/EIA-0121(2000/4Q) (Washington, DC, October-December 2000). **Projections:** EIA, AEO2002 National Energy Modeling System runs OGLTEC02.D102501A, AEO2002.D102001B, OGHTEC02.D102501A.

Table F10. Natural Gas Supply and Disposition, Oil and Gas Technological Progress Cases
(Trillion Cubic Feet per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	2000	Projections								
		2010			2015			2020		
		Slow Technology Progress	Reference	Rapid Technology Progress	Slow Technology Progress	Reference	Rapid Technology Progress	Slow Technology Progress	Reference	Rapid Technology Progress
Lower 48 Average Wellhead Price (2000 dollars per thousand cubic feet)	**3.60**	**3.22**	**2.85**	**2.62**	**3.54**	**3.07**	**2.75**	**4.06**	**3.26**	**2.73**
Dry Gas Production[1]										
U.S. Total	**19.08**	**22.89**	**23.48**	**23.84**	**24.91**	**26.32**	**26.88**	**25.89**	**28.48**	**29.65**
Lower 48 Onshore	13.31	15.86	16.45	16.80	18.00	19.40	19.87	18.62	21.13	22.56
Associated-Dissolved	1.79	1.41	1.43	1.45	1.33	1.37	1.41	1.31	1.36	1.41
Non-Associated	11.52	14.45	15.02	15.35	16.67	18.04	18.46	17.31	19.77	21.14
Conventional	6.89	7.65	7.89	7.94	9.04	9.94	9.60	9.81	10.77	10.84
Unconventional	4.63	6.79	7.13	7.41	7.63	8.09	8.86	7.50	8.99	10.30
Lower 48 Offshore	5.34	6.50	6.50	6.51	6.34	6.35	6.43	6.67	6.75	6.49
Associated-Dissolved	1.16	1.18	1.22	1.26	1.21	1.27	1.31	1.25	1.25	1.25
Non-Associated	4.18	5.32	5.28	5.25	5.12	5.08	5.12	5.42	5.50	5.24
Alaska	0.43	0.53	0.53	0.53	0.57	0.57	0.57	0.60	0.60	0.60
Supplemental Natural Gas[2]	**0.10**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**
Net Imports	**3.52**	**4.86**	**4.89**	**4.89**	**5.27**	**5.26**	**5.29**	**5.49**	**5.51**	**5.65**
Canada	3.46	4.50	4.51	4.53	4.92	4.90	4.94	4.93	5.06	5.20
Mexico	-0.09	-0.45	-0.45	-0.45	-0.47	-0.47	-0.47	-0.26	-0.38	-0.38
Liquefied Natural Gas	0.16	0.81	0.83	0.81	0.83	0.83	0.83	0.83	0.83	0.83
Total Supply	**22.69**	**27.86**	**28.49**	**28.84**	**30.29**	**31.69**	**32.28**	**31.50**	**34.10**	**35.42**
Consumption by Sector										
Residential	5.00	5.45	5.53	5.58	5.61	5.73	5.81	5.77	5.98	6.13
Commercial	3.27	3.87	3.93	3.97	4.11	4.21	4.28	4.35	4.52	4.63
Industrial[3]	8.41	9.26	9.39	9.45	9.38	9.79	9.86	9.51	10.06	10.26
Electric Generators[4]	4.24	6.59	6.85	7.01	8.24	8.91	9.22	8.80	10.30	11.03
Transportation[6]	0.02	0.09	0.09	0.09	0.12	0.12	0.12	0.14	0.14	0.14
Pipeline Fuel	0.77	0.82	0.84	0.85	0.88	0.93	0.95	0.91	0.99	1.03
Lease and Plant Fuel[5]	1.12	1.47	1.50	1.51	1.59	1.66	1.69	1.67	1.80	1.85
Total	**22.83**	**27.54**	**28.13**	**28.47**	**29.95**	**31.34**	**31.92**	**31.15**	**33.78**	**35.09**
Natural Gas to Liquids	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discrepancy[7]	**-0.14**	**0.33**	**0.36**	**0.37**	**0.34**	**0.35**	**0.36**	**0.35**	**0.32**	**0.33**
Lower 48 End of Year Reserves	**162.31**	**162.44**	**174.09**	**188.58**	**161.07**	**181.49**	**216.13**	**152.47**	**187.79**	**238.66**

[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 consumption by cogenerators.
[4]Includes all electric power generators except cogenerators, which produce electricity and other useful thermal energy. Includes small power producers and exempt wholesale generators.
[5]Represents natural gas used in the field gathering and processing plant machinery.
[6]Compressed natural gas used as vehicle fuel.
[7]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, 2000 values include net storage injections.
Btu = British thermal unit.
Note: Totals may not equal sum of components due to independent rounding. Data for 2000 are model results and may differ slightly from official EIA data reports.
Sources: 2000 transportation sector consumption: Energy Information Administration (EIA), AEO2002 National Energy Modeling System runs OGLTEC02.D102501A, AEO2002.D102001B, OGHTEC02.D102501A. 2000 natural gas lower 48 average wellhead price, Alaska and total natural gas production, and supplemental gas supplies: EIA, *Natural Gas Monthly*, DOE/EIA-0130(2001/06) (Washington, DC, June 2001). Other 2000 consumption: EIA, *Short-Term Energy Outlook, October 2001,* http://www.eia.doe.gov/pub/forecasting/steo/oldsteos/oct01.pdf with adjustments to end-use sector consumption levels for consumption of natural gas by electric wholesale generators based on EIA, AEO2002 National Energy Modeling System runs OGLTEC02.D102501A, AEO2002.D102001B, OGHTEC02.D102501A. **Other 2000 values and projections:** EIA, AEO2002 National Energy Modeling System runs OGLTEC02.D102501A, AEO2002.D102001B, OGHTEC02.D102501A.

Table F11. Crude Oil Supply and Disposition, Oil and Gas Technological Progress Cases
(Million Barrels per Day, Unless Otherwise Noted)

Supply, Disposition, and Prices	2000	Projections								
		2010			2015			2020		
		Slow Technology Progress	Reference	Rapid Technology Progress	Slow Technology Progress	Reference	Rapid Technology Progress	Slow Technology Progress	Reference	Rapid Technology Progress
World Oil Price (2000 dollars per barrel)	**27.72**	**23.36**	**23.36**	**23.36**	**24.00**	**24.00**	**24.00**	**24.68**	**24.68**	**24.68**
Production[1]										
U.S. Total	**5.82**	**4.75**	**5.08**	**5.34**	**5.08**	**5.56**	**5.91**	**5.33**	**5.63**	**5.98**
Lower 48 Onshore	3.25	2.49	2.64	2.73	2.41	2.64	2.83	2.41	2.70	2.90
Conventional	2.60	1.87	1.91	1.95	1.74	1.82	1.91	1.75	1.87	1.98
Enhanced Oil Recovery	0.65	0.63	0.73	0.78	0.67	0.82	0.92	0.66	0.83	0.91
Lower 48 Offshore	1.61	1.59	1.74	1.87	1.82	2.01	2.13	1.86	1.83	1.93
Alaska	0.97	0.67	0.70	0.74	0.86	0.90	0.95	1.06	1.10	1.15
Net Crude Imports	**9.02**	**11.53**	**11.18**	**10.94**	**11.53**	**11.01**	**10.66**	**11.65**	**11.20**	**10.85**
Other Crude Supply	**0.23**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Total Crude Supply	**15.07**	**16.29**	**16.26**	**16.28**	**16.61**	**16.57**	**16.57**	**16.98**	**16.83**	**16.83**
Natural Gas Plant Liquids	**1.91**	**2.32**	**2.38**	**2.41**	**2.49**	**2.64**	**2.69**	**2.58**	**2.84**	**2.96**
Other Inputs[2]	**0.35**	**0.39**	**0.42**	**0.42**	**0.25**	**0.51**	**0.52**	**0.24**	**0.47**	**0.52**
Refinery Processing Gain[3]	**0.95**	**1.01**	**1.00**	**1.00**	**1.03**	**1.01**	**1.01**	**1.04**	**1.02**	**1.03**
Net Product Imports[4]	**1.40**	**3.18**	**3.09**	**3.02**	**4.82**	**4.29**	**4.22**	**6.06**	**5.44**	**5.20**
Total Primary Supply[5]	**19.68**	**23.18**	**23.15**	**23.13**	**25.20**	**25.01**	**25.00**	**26.91**	**26.61**	**26.55**
Refined Petroleum Products Supplied										
Residential and Commercial	1.12	1.09	1.09	1.09	1.07	1.06	1.06	1.05	1.04	1.04
Industrial[6]	4.96	5.69	5.66	5.65	6.16	6.00	6.00	6.47	6.27	6.23
Transportation	13.26	16.35	16.37	16.38	17.89	17.90	17.92	19.20	19.22	19.24
Electric Generators[7]	0.41	0.11	0.09	0.07	0.16	0.11	0.08	0.24	0.12	0.08
Total	**19.74**	**23.25**	**23.21**	**23.19**	**25.26**	**25.07**	**25.06**	**26.96**	**26.66**	**26.59**
Discrepancy[8]	**-0.07**	**-0.06**	**-0.06**	**-0.06**	**-0.06**	**-0.06**	**-0.06**	**-0.05**	**-0.05**	**-0.05**
Lower 48 End of Year Reserves (billion barrels)[1]	**18.29**	**13.39**	**14.23**	**14.66**	**13.50**	**14.63**	**15.31**	**13.24**	**14.45**	**15.25**

[1]Includes lease condensate.
[2]Includes alcohols, ethers, petroleum product stock withdrawals, domestic sources of blending components, other hydrocarbons, and natural gas converted to liquid fuel.
[3]Represents volumetric gain in refinery distillation and cracking processes.
[4]Includes net imports of finished petroleum products, unfinished oils, other hydrocarbons, alcohols, ethers, and blending components.
[5]Total crude supply plus natural gas plant liquids, other inputs, refinery processing gain, and net petroleum imports.
[6]Includes consumption by cogenerators.
[7]Includes all electric power generators except cogenerators, which produce electricity and other useful thermal energy. Includes small power producers and exempt wholesale generators.
[8]Balancing item. Includes unaccounted for supply, losses and gains.
Note: Totals may not equal sum of components due to independent rounding. Data for 2000 are model results and may differ slightly from official EIA data reports.
Sources: 2000 product supplied data from Table A2. Other 2000 data: Energy Information Administration (EIA), *Petroleum Supply Annual 2000,* DOE/EIA-0340(2000/1) (Washington, DC, June 2001). **Projections:** EIA, AEO2002 National Energy Modeling System runs OGLTEC02.D102501A, AEO2002.D102001B, OGHTEC02.D102501A.

Table F12. Key Results for Federal MTBE Ban Case

Supply, Disposition, and Prices	2000	Projections									
		2006		2007		2008		2009		2010	
		Reference	MTBE Ban	Reference	MTBE Ban	Reference	MTBE Ban	Reference	MTBE Ban	Reference	MTBE Ban
MTBE Blended with Gasoline (thousand barrels per day)	**247**	**123**	**0**	**128**	**0**	**118**	**0**	**120**	**0**	**125**	**0**
Ethanol Blended with Gasoline (thousand barrels per day)	**106**	**178**	**257**	**180**	**260**	**181**	**265**	**183**	**271**	**187**	**276**
Gasoline Consumption (million barrels per day)	**8.50**	**9.59**	**9.53**	**9.75**	**9.68**	**9.94**	**9.87**	**10.13**	**10.06**	**10.32**	**10.24**
Gasoline Prices (2000 cents per gallon)											
National Average	153	139	142	139	142	139	143	140	143	140	143
Reformulated National Average	161	145	154	145	154	146	156	147	157	146	155
World Oil Price (2000 dollars per barrel)	**27.72**	**22.85**	**22.85**	**22.99**	**22.99**	**23.11**	**23.11**	**23.24**	**23.24**	**23.36**	**23.36**

MTBE = Methyl tertiary butyl ether.
RFG = Reformulated gasoline.
Note: The oxygen requirement on RFG is assumed to continue. Side case was run without the fully integrated modeling system, so not all potential feedbacks were captured. Totals may not equal sum of components due to independent rounding.
Sources: Energy Information Administration, AEO2002 National Energy Modeling System runs AEO2002.D102001B, MTBEB02.D102201A.

Table F13. Key Results for Coal Mining Cost Cases

Prices, Productivity, Wages, and Emissions	2000	2005			2010			2020		
		Low Cost	Reference Case	High Cost	Low Cost	Reference Case	High Cost	Low Cost	Reference Case	High Cost
Minemouth Price (2000 dollars per short ton)	**16.45**	**14.23**	**14.99**	**15.53**	**12.71**	**14.11**	**15.16**	**10.76**	**12.79**	**15.74**
Delivered Price to Electric Generators (2000 dollars per million Btu)	**1.20**	**1.09**	**1.13**	**1.16**	**1.00**	**1.05**	**1.12**	**0.85**	**0.97**	**1.11**
Labor Productivity (short tons per miner per hour)	**6.99**	**9.12**	**8.40**	**7.84**	**10.97**	**9.31**	**8.17**	**14.56**	**10.76**	**7.85**
Labor Productivity (average annual growth from 2000)	**N/A**	**5.5**	**3.7**	**2.3**	**4.6**	**2.9**	**1.6**	**3.7**	**2.2**	**0.6**
Average Coal Miner Wage (2000 dollars per hour)	**19.09**	**18.62**	**19.09**	**19.57**	**18.16**	**19.09**	**20.07**	**17.27**	**19.09**	**21.09**
Average Coal Miner Wage (average annual growth from 2000)	**N/A**	**-0.5**	**0.0**	**0.5**	**-0.5**	**0.0**	**0.5**	**-0.5**	**0.0**	**0.5**
Carbon Dioxide Emissions by Electric Generators (million metric tons carbon equivalent)[1]										
Petroleum	19.9	6.8	6.8	6.9	4.0	4.3	4.3	5.5	5.9	6.6
Natural Gas	61.1	80.3	80.4	80.5	100.4	100.6	101.5	145.5	151.1	154.4
Coal	504.6	548.8	548.5	548.5	583.2	583.9	580.7	645.3	633.2	623.0
Total	**585.6**	**635.9**	**635.7**	**635.9**	**687.7**	**688.8**	**686.5**	**796.3**	**790.2**	**784.0**

[1] Excludes cogenerators and other generators.
Btu = British thermal unit.
N/A = Not applicable.
Note: Side cases were run without the fully integrated modeling system, so not all potential feedbacks are captured. Totals may not equal sum of components due to independent rounding. Data for 2000 are model results and may differ slightly from official EIA data reports.
Source: Energy Information Administration, AEO2002 National Energy Modeling System runs LMCST02.D102201A, AEO2002.D102001B, HMCST02.D102201A.