

**Appendix A**

**Letter from the U.S. Senate Committee on Environment and Public Works**

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DAVE CONOVER, REPUBLICAN STAFF DIRECTOR  
ERIC WACHSBERG, DEMOCRATIC STAFF DIRECTOR

**United States Senate**  
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS  
WASHINGTON, DC 20510-6175

June 8, 2001

Mr. John Weiner  
Director, National Energy Information Center  
Energy Information Administration (EIA), EI 30  
1100 Independence Avenue, SW  
Washington, DC 20585

Dear Mr. Weiner:

We have read with interest the letter sent to you by Senator Jeffords and Senator Lieberman requesting additional analysis regarding the potential costs and cost efficiencies associated with an integrated, multi-emission control strategy for the nation's electricity sector. We agree that more analysis is needed, and we would expect you will be fully responsive to the request of our colleagues. At the same time, it seems that we need analysis of more viable policy options than is currently available, or would be reflected by your response to our colleagues' request.

Accordingly, we request that the Environmental Protection Agency (EPA) and the Energy Information Administration (EIA) analyze the scenarios described below as well as those requested by our colleagues. We believe that the pending debate in the Senate regarding this issue will be better served if we have an analysis covering a range of policy options. Only then will we be able to ensure that legislation amending the Clean Air Act (CAA) meets the multiple goals of 1) enabling the expansion of the electricity supply, 2) correcting the current over-reliance on natural gas as the fuel source for new electricity generation, 3) providing substantial regulatory relief from the requirements of the CAA, 4) ensuring that compliance costs are far below those anticipated from compliance with the current requirements of the CAA, and 5) achieving significant reductions of emissions from power plants.

We believe that the scenarios proposed by our colleagues, like those analyzed previously by EIA, do not reflect the best thinking about the potential to balance emission reductions with market flexibility and regulatory relief. Furthermore, the pending request to examine reduction of CO<sub>2</sub> to 1990 levels by 2007 will be largely redundant of previous EIA analysis. It seems obvious that such a policy would almost certainly result in abrupt and costly fuel switching. Also, it would be inconsistent with the President's stated goal of pursuing "innovative options for addressing concentrations of greenhouse gasses in the atmosphere". We believe the below scenarios would meet the President's desire to rely on technology development, market incentives and other creative means to address global climate change.

Each of the below scenarios would allow banking of emission allowances to begin in 2002 with the first half of the reduction required by 2007 and compliance with the full reduction by 2012. Full trading of NO<sub>x</sub> and SO<sub>2</sub> should be assumed in a manner consistent with SO<sub>2</sub> trading in Title IV of the CAA. Half of the mercury reductions should be assumed to be available for trading, with half of the reductions required in each compliance period to be actual reductions made by each facility. Beyond the requirements of the listed scenarios, the analysis should assume no additional federal requirements to reduce emissions from the analyzed facilities.

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Scenario 1) Reduce NOx emissions by 75 percent below 1997 levels, SO2 emissions 75 percent below full implementation of Title IV of the CAA, mercury emissions by 75 percent below 1999 levels.

Scenario 2) Reduce NOx emissions by 65 percent below 1997 levels, SO2 emissions 65 percent below full implementation of Title IV of the CAA, mercury emissions by 65 percent below 1999 levels.

Scenario 3) Reduce NOx emissions by 50 percent below 1997 levels, SO2 emissions 50 percent below full implementation of Title IV of the CAA, mercury emissions by 50 percent below 1999 levels.

#### Carbon Dioxide

We do not support the strict regulation of CO2 emissions from power plants. We also agree with the President that Global Climate Change needs to be addressed, and we believe that a flexible plan, consistent with the President's direction, could be incorporated into a multi-emission bill. Accordingly, in addition to analyzing the above scenarios as described, each should be analyzed with the following CO2 requirement. Use EIA estimates for anticipated 2008 CO2 emission levels from the electricity sector. Assume emissions increases of CO2 after 2008 must be offset by reductions or sinks in any sector of any greenhouse gas in an amount equal to the warming potential of the emissions to be offset. Assume that verifiable reductions or sinks achieved in any nation could be available on the domestic emissions market to satisfy this requirement.

We would like this work to be conducted in a timeframe consistent with the analysis requested by Senator Jeffords and Senator Lieberman. This will enable us to debate any multi-emission strategy with a more robust understanding of the potential implications of various policy decisions. If you have any questions regarding this request, please contact Chris Hessler with Senator Smith at 224-9134 or Andrew Wheeler with Senator Voinovich at 224-0146. Thank you in advance for your cooperation.

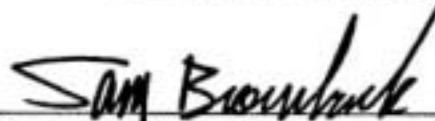
Sincerely yours,



Senator Bob Smith  
Ranking Republican Member, Environment and Public  
Works Committee



Senator George Voinovich  
Ranking Republican Member, Subcommittee on Clean Air,  
Wetlands, Private Property, and Nuclear Safety



Senator Sam Brownback

## **Appendix B**

### **Tables for the 50-Percent Reduction Case**

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

Supply, Disposition, and Prices	1999	Projections								
		2005			2010			2020		
		Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap
<b>Production</b>										
Crude Oil and Lease Condensate . . .	12.45	12.04	12.03	12.03	11.23	11.29	11.27	11.06	11.09	11.11
Natural Gas Plant Liquids . . . . .	2.62	3.11	3.11	3.11	3.36	3.39	3.45	4.14	4.18	4.21
Dry Natural Gas . . . . .	19.16	21.88	21.90	21.93	23.97	24.22	24.66	30.10	30.33	30.61
Coal . . . . .	23.06	25.43	25.18	25.16	26.49	25.86	24.99	27.10	26.44	22.98
Nuclear Power . . . . .	7.79	7.90	7.90	7.90	7.69	7.74	7.79	6.51	6.54	6.81
Renewable Energy <sup>1</sup> . . . . .	6.52	7.09	7.18	7.28	7.86	7.94	8.18	8.37	8.50	9.30
Other <sup>2</sup> . . . . .	1.65	0.35	0.35	0.35	0.30	0.30	0.30	0.33	0.33	0.33
<b>Total . . . . .</b>	<b>73.26</b>	<b>77.79</b>	<b>77.65</b>	<b>77.76</b>	<b>80.90</b>	<b>80.74</b>	<b>80.64</b>	<b>87.61</b>	<b>87.42</b>	<b>85.34</b>
<b>Imports</b>										
Crude Oil <sup>3</sup> . . . . .	18.96	21.42	21.42	21.42	22.49	22.43	22.45	25.91	25.84	25.93
Petroleum Products <sup>4</sup> . . . . .	4.14	6.11	6.17	6.04	8.52	8.49	8.33	10.70	10.68	10.51
Natural Gas . . . . .	3.63	5.14	5.14	5.13	5.55	5.59	5.62	6.55	6.59	6.65
Other Imports <sup>5</sup> . . . . .	0.64	1.11	1.11	1.11	0.96	0.96	0.96	0.96	0.96	0.96
<b>Total . . . . .</b>	<b>27.37</b>	<b>33.78</b>	<b>33.84</b>	<b>33.69</b>	<b>37.52</b>	<b>37.47</b>	<b>37.34</b>	<b>44.11</b>	<b>44.07</b>	<b>44.04</b>
<b>Exports</b>										
Petroleum <sup>6</sup> . . . . .	1.98	1.73	1.74	1.73	1.73	1.71	1.70	1.82	1.83	1.89
Natural Gas . . . . .	0.17	0.33	0.33	0.33	0.43	0.43	0.43	0.63	0.63	0.63
Coal . . . . .	1.48	1.51	1.52	1.52	1.45	1.46	1.46	1.41	1.41	1.45
<b>Total . . . . .</b>	<b>3.62</b>	<b>3.56</b>	<b>3.58</b>	<b>3.58</b>	<b>3.61</b>	<b>3.59</b>	<b>3.59</b>	<b>3.87</b>	<b>3.87</b>	<b>3.97</b>
<b>Discrepancy<sup>7</sup> . . . . .</b>	<b>0.67</b>	<b>0.44</b>	<b>0.42</b>	<b>0.45</b>	<b>0.06</b>	<b>0.06</b>	<b>0.09</b>	<b>0.18</b>	<b>0.13</b>	<b>0.13</b>
<b>Consumption</b>										
Petroleum Products <sup>8</sup> . . . . .	37.92	41.21	41.29	41.14	44.30	44.35	44.24	50.36	50.37	50.26
Natural Gas . . . . .	22.32	26.38	26.40	26.41	28.94	29.21	29.69	35.88	36.12	36.45
Coal . . . . .	21.40	24.37	24.12	24.08	25.57	24.93	24.02	26.30	25.70	22.21
Nuclear Power . . . . .	7.79	7.90	7.90	7.90	7.69	7.74	7.79	6.51	6.54	6.81
Renewable Energy <sup>1</sup> . . . . .	6.53	7.10	7.18	7.28	7.87	7.94	8.19	8.38	8.51	9.31
Other <sup>9</sup> . . . . .	0.35	0.61	0.61	0.61	0.38	0.38	0.38	0.25	0.25	0.25
<b>Total . . . . .</b>	<b>96.33</b>	<b>107.56</b>	<b>107.49</b>	<b>107.43</b>	<b>114.74</b>	<b>114.55</b>	<b>114.31</b>	<b>127.68</b>	<b>127.49</b>	<b>125.28</b>
<b>Net Imports - Petroleum . . . . .</b>	<b>21.12</b>	<b>25.80</b>	<b>25.86</b>	<b>25.72</b>	<b>29.28</b>	<b>29.22</b>	<b>29.07</b>	<b>34.78</b>	<b>34.70</b>	<b>34.55</b>
<b>Prices (1999 dollars per unit)</b>										
World Oil Price (dollars per barrel) <sup>10</sup> . .	17.22	20.83	20.83	20.83	21.37	21.37	21.37	22.41	22.41	22.41
Gas Wellhead Price (dollars per Mcf) <sup>11</sup>	2.08	2.99	3.02	2.99	2.82	2.85	2.92	3.10	3.19	3.28
Coal Minemouth Price (dollars per ton)	17.13	15.22	15.27	15.61	14.19	14.97	14.76	12.93	13.41	13.17
Average Electric Price (cents per Kwh)	6.7	6.4	6.4	6.4	6.1	6.1	6.2	6.1	6.2	7.1

<sup>1</sup>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.

<sup>2</sup>Includes liquid hydrogen, methanol, supplemental natural gas, and some domestic inputs to refineries.

<sup>3</sup>Includes imports of crude oil for the Strategic Petroleum Reserve.

<sup>4</sup>Includes imports of finished petroleum products, imports of unfinished oils, alcohols, ethers, and blending components.

<sup>5</sup>Includes coal, coal coke (net), and electricity (net).

<sup>6</sup>Includes crude oil and petroleum products.

<sup>7</sup>Balancing item. Includes unaccounted for supply, losses, gains, and net storage withdrawals.

<sup>8</sup>Includes natural gas plant liquids, crude oil consumed as a fuel, and nonpetroleum based liquids for blending, such as ethanol.

<sup>9</sup>Includes net electricity imports, methanol, and liquid hydrogen.

<sup>10</sup>Average refiner acquisition cost for imported crude oil.

<sup>11</sup>Represents lower 48 onshore and offshore supplies.

Btu = British thermal unit.

Mcf = Thousand cubic feet.

Kwh = Kilowatthour.

CO<sub>2</sub> = Carbon dioxide.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports.

Sources: 1999 natural gas values: Energy Information Administration (EIA), *Natural Gas Monthly*, DOE/EIA-0130(2000/06) (Washington, DC, June 2000). 1999 petroleum values: EIA, *Petroleum Supply Annual 1999*, DOE/EIA-0340(99/1) (Washington, DC, June 2000). Other 1999 values: EIA, *Annual Energy Review 1999*, DOE/EIA-0384(99) (Washington, DC, July 2000) and EIA, *Quarterly Coal Report*, DOE/EIA-0121(2000/1Q) (Washington, DC, August 2000). Projections: EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC5012.D081701B, REWC5012.D081701A.

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

Sector and Source	1999	Projections								
		2005			2010			2020		
		Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap
<b>Energy Consumption</b>										
<b>Residential</b>										
Distillate Fuel	0.86	0.87	0.87	0.87	0.80	0.80	0.80	0.76	0.76	0.76
Kerosene	0.10	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07
Liquefied Petroleum Gas	0.46	0.46	0.46	0.46	0.43	0.43	0.43	0.41	0.41	0.41
Petroleum Subtotal	1.42	1.41	1.41	1.41	1.30	1.30	1.30	1.23	1.23	1.24
Natural Gas	4.88	5.55	5.55	5.55	5.54	5.54	5.52	6.08	6.06	6.05
Coal	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Renewable Energy <sup>1</sup>	0.41	0.42	0.42	0.42	0.42	0.42	0.42	0.43	0.43	0.43
Electricity	3.91	4.56	4.55	4.56	4.91	4.91	4.89	5.69	5.66	5.50
<b>Delivered Energy</b>	<b>10.66</b>	<b>11.99</b>	<b>11.98</b>	<b>11.98</b>	<b>12.22</b>	<b>12.23</b>	<b>12.18</b>	<b>13.48</b>	<b>13.44</b>	<b>13.27</b>
Electricity Related Losses	8.44	9.66	9.57	9.62	10.00	9.89	9.85	10.65	10.58	9.94
<b>Total</b>	<b>19.10</b>	<b>21.65</b>	<b>21.55</b>	<b>21.60</b>	<b>22.22</b>	<b>22.11</b>	<b>22.04</b>	<b>24.14</b>	<b>24.02</b>	<b>23.21</b>
<b>Commercial</b>										
Distillate Fuel	0.36	0.37	0.37	0.37	0.38	0.38	0.38	0.37	0.37	0.37
Residual Fuel	0.10	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Kerosene	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Liquefied Petroleum Gas	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.10	0.10	0.10
Motor Gasoline <sup>2</sup>	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Petroleum Subtotal	0.60	0.61	0.61	0.61	0.62	0.62	0.62	0.62	0.62	0.62
Natural Gas	3.14	3.99	3.99	3.99	4.19	4.18	4.17	4.47	4.45	4.48
Coal	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Renewable Energy <sup>3</sup>	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Electricity	3.66	4.40	4.39	4.40	4.92	4.91	4.91	5.64	5.62	5.47
<b>Delivered Energy</b>	<b>7.55</b>	<b>9.15</b>	<b>9.13</b>	<b>9.15</b>	<b>9.88</b>	<b>9.86</b>	<b>9.85</b>	<b>10.88</b>	<b>10.84</b>	<b>10.72</b>
Electricity Related Losses	7.91	9.33	9.21	9.29	10.02	9.90	9.90	10.56	10.50	9.89
<b>Total</b>	<b>15.46</b>	<b>18.48</b>	<b>18.34</b>	<b>18.44</b>	<b>19.90</b>	<b>19.77</b>	<b>19.75</b>	<b>21.44</b>	<b>21.35</b>	<b>20.61</b>
<b>Industrial<sup>4</sup></b>										
Distillate Fuel	1.13	1.21	1.22	1.21	1.30	1.30	1.30	1.49	1.49	1.49
Liquefied Petroleum Gas	2.32	2.44	2.45	2.43	2.51	2.53	2.52	2.85	2.85	2.85
Petrochemical Feedstock	1.29	1.36	1.36	1.36	1.53	1.53	1.53	1.69	1.70	1.69
Residual Fuel	0.22	0.16	0.16	0.16	0.25	0.25	0.25	0.27	0.27	0.28
Motor Gasoline <sup>2</sup>	0.21	0.23	0.23	0.23	0.25	0.25	0.25	0.28	0.28	0.28
Other Petroleum <sup>5</sup>	4.29	4.41	4.45	4.42	4.68	4.70	4.68	5.00	5.03	5.02
Petroleum Subtotal	9.45	9.81	9.87	9.81	10.51	10.56	10.52	11.58	11.62	11.61
Natural Gas <sup>6</sup>	9.80	10.42	10.43	10.42	11.27	11.26	11.26	12.71	12.72	12.85
Metallurgical Coal	0.75	0.67	0.67	0.67	0.61	0.61	0.61	0.50	0.50	0.50
Steam Coal	1.73	1.80	1.80	1.80	1.82	1.80	1.80	1.86	1.82	1.81
Net Coal Coke Imports	0.06	0.11	0.12	0.11	0.15	0.16	0.15	0.22	0.22	0.22
Coal Subtotal	2.54	2.59	2.59	2.58	2.58	2.56	2.56	2.59	2.55	2.54
Renewable Energy <sup>7</sup>	2.15	2.40	2.42	2.40	2.63	2.64	2.63	3.07	3.08	3.08
Electricity	3.61	3.88	3.89	3.87	4.16	4.17	4.15	4.76	4.76	4.62
<b>Delivered Energy</b>	<b>27.56</b>	<b>29.10</b>	<b>29.21</b>	<b>29.09</b>	<b>31.14</b>	<b>31.19</b>	<b>31.13</b>	<b>34.72</b>	<b>34.72</b>	<b>34.68</b>
Electricity Related Losses	7.80	8.21	8.18	8.18	8.47	8.40	8.38	8.91	8.89	8.35
<b>Total</b>	<b>35.36</b>	<b>37.31</b>	<b>37.39</b>	<b>37.27</b>	<b>39.61</b>	<b>39.60</b>	<b>39.51</b>	<b>43.63</b>	<b>43.61</b>	<b>43.03</b>

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

Sector and Source	1999	Projections								
		2005			2010			2020		
		Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap
<b>Transportation</b>										
Distillate Fuel	5.13	6.25	6.27	6.24	6.98	6.99	6.96	8.21	8.21	8.17
Jet Fuel <sup>8</sup>	3.46	3.88	3.90	3.88	4.49	4.51	4.49	5.96	5.97	5.96
Motor Gasoline <sup>2</sup>	15.92	17.64	17.68	17.64	18.94	18.97	18.94	21.25	21.27	21.23
Residual Fuel	0.74	0.85	0.85	0.85	0.85	0.85	0.85	0.86	0.86	0.86
Liquefied Petroleum Gas	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.06	0.06	0.06
Other Petroleum <sup>9</sup>	0.26	0.29	0.29	0.29	0.31	0.31	0.31	0.35	0.35	0.35
Petroleum Subtotal	25.54	28.95	29.03	28.94	31.62	31.68	31.61	36.70	36.73	36.65
Pipeline Fuel Natural Gas	0.66	0.82	0.83	0.83	0.90	0.91	0.92	1.10	1.10	1.11
Compressed Natural Gas	0.02	0.05	0.06	0.05	0.09	0.09	0.09	0.16	0.16	0.15
Renewable Energy (E85) <sup>10</sup>	0.01	0.02	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04
Methanol (M85) <sup>11</sup>	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
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	0.09	0.09	0.09	0.12	0.12	0.12	0.17	0.17	0.17
<b>Delivered Energy</b>	<b>26.28</b>	<b>29.94</b>	<b>30.03</b>	<b>29.94</b>	<b>32.77</b>	<b>32.84</b>	<b>32.77</b>	<b>38.16</b>	<b>38.20</b>	<b>38.12</b>
Electricity Related Losses	0.13	0.19	0.19	0.19	0.24	0.24	0.24	0.31	0.31	0.30
<b>Total</b>	<b>26.41</b>	<b>30.12</b>	<b>30.21</b>	<b>30.12</b>	<b>33.01</b>	<b>33.07</b>	<b>33.01</b>	<b>38.47</b>	<b>38.51</b>	<b>38.42</b>
<b>Delivered Energy Consumption for All Sectors</b>										
Distillate Fuel	7.48	8.70	8.74	8.70	9.46	9.47	9.44	10.82	10.83	10.79
Kerosene	0.15	0.13	0.13	0.13	0.12	0.12	0.12	0.12	0.12	0.12
Jet Fuel <sup>8</sup>	3.46	3.88	3.90	3.88	4.49	4.51	4.49	5.96	5.97	5.96
Liquefied Petroleum Gas	2.88	3.02	3.03	3.01	3.07	3.09	3.08	3.41	3.41	3.42
Motor Gasoline <sup>2</sup>	16.17	17.90	17.93	17.89	19.22	19.25	19.22	21.56	21.58	21.54
Petrochemical Feedstock	1.29	1.36	1.36	1.36	1.53	1.53	1.53	1.69	1.70	1.69
Residual Fuel	1.05	1.10	1.10	1.10	1.20	1.20	1.20	1.23	1.23	1.24
Other Petroleum <sup>12</sup>	4.53	4.68	4.72	4.69	4.96	4.99	4.97	5.33	5.36	5.35
Petroleum Subtotal	37.01	40.77	40.92	40.77	44.05	44.16	44.05	50.13	50.20	50.12
Natural Gas <sup>6</sup>	18.50	20.84	20.85	20.84	21.99	21.98	21.96	24.52	24.49	24.64
Metallurgical Coal	0.75	0.67	0.67	0.67	0.61	0.61	0.61	0.50	0.50	0.50
Steam Coal	1.84	1.92	1.92	1.92	1.94	1.92	1.93	1.99	1.95	1.94
Net Coal Coke Imports	0.06	0.11	0.12	0.11	0.15	0.16	0.15	0.22	0.22	0.22
Coal Subtotal	2.65	2.70	2.71	2.70	2.70	2.69	2.68	2.71	2.67	2.66
Renewable Energy <sup>13</sup>	2.65	2.93	2.94	2.93	3.17	3.18	3.17	3.64	3.64	3.64
Methanol (M85) <sup>11</sup>	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Liquid Hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	11.24	12.93	12.92	12.92	14.10	14.11	14.07	16.25	16.20	15.75
<b>Delivered Energy</b>	<b>72.05</b>	<b>80.17</b>	<b>80.35</b>	<b>80.16</b>	<b>86.01</b>	<b>86.12</b>	<b>85.94</b>	<b>97.25</b>	<b>97.21</b>	<b>96.80</b>
Electricity Related Losses	24.28	27.39	27.14	27.27	28.73	28.43	28.37	30.43	30.29	28.48
<b>Total</b>	<b>96.33</b>	<b>107.56</b>	<b>107.49</b>	<b>107.43</b>	<b>114.74</b>	<b>114.55</b>	<b>114.31</b>	<b>127.68</b>	<b>127.49</b>	<b>125.28</b>
<b>Electric Generators<sup>14</sup></b>										
Distillate Fuel	0.05	0.06	0.05	0.05	0.06	0.05	0.05	0.06	0.04	0.02
Residual Fuel	0.86	0.37	0.31	0.32	0.20	0.14	0.14	0.17	0.13	0.12
Petroleum Subtotal	0.91	0.43	0.36	0.37	0.25	0.19	0.19	0.23	0.17	0.14
Natural Gas	3.83	5.54	5.54	5.57	6.96	7.23	7.73	11.36	11.63	11.81
Steam Coal	18.75	21.67	21.41	21.38	22.87	22.25	21.34	23.59	23.03	19.55
Nuclear Power	7.79	7.90	7.90	7.90	7.69	7.74	7.79	6.51	6.54	6.81
Renewable Energy <sup>15</sup>	3.88	4.17	4.24	4.35	4.70	4.77	5.02	4.75	4.87	5.67
Electricity Imports <sup>16</sup>	0.35	0.61	0.61	0.61	0.37	0.37	0.37	0.24	0.24	0.24
<b>Total</b>	<b>35.52</b>	<b>40.32</b>	<b>40.07</b>	<b>40.19</b>	<b>42.83</b>	<b>42.54</b>	<b>42.44</b>	<b>46.68</b>	<b>46.49</b>	<b>44.22</b>



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

Sector and Source	1999	Projections								
		2005			2010			2020		
		Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap
<b>Total Energy Consumption</b>										
Distillate Fuel	7.53	8.77	8.79	8.75	9.51	9.52	9.49	10.88	10.87	10.81
Kerosene	0.15	0.13	0.13	0.13	0.12	0.12	0.12	0.12	0.12	0.12
Jet Fuel <sup>8</sup>	3.46	3.88	3.90	3.88	4.49	4.51	4.49	5.96	5.97	5.96
Liquefied Petroleum Gas	2.88	3.02	3.03	3.01	3.07	3.09	3.08	3.41	3.41	3.42
Motor Gasoline <sup>2</sup>	16.17	17.90	17.93	17.89	19.22	19.25	19.22	21.56	21.58	21.54
Petrochemical Feedstock	1.29	1.36	1.36	1.36	1.53	1.53	1.53	1.69	1.70	1.69
Residual Fuel	1.92	1.48	1.41	1.42	1.39	1.34	1.34	1.41	1.36	1.36
Other Petroleum <sup>12</sup>	4.53	4.68	4.72	4.69	4.96	4.99	4.97	5.33	5.36	5.35
Petroleum Subtotal	37.92	41.21	41.29	41.14	44.30	44.35	44.24	50.36	50.37	50.26
Natural Gas	22.32	26.38	26.40	26.41	28.94	29.21	29.69	35.88	36.12	36.45
Metallurgical Coal	0.75	0.67	0.67	0.67	0.61	0.61	0.61	0.50	0.50	0.50
Steam Coal	20.59	23.59	23.33	23.30	24.81	24.17	23.26	25.58	24.98	21.48
Net Coal Coke Imports	0.06	0.11	0.12	0.11	0.15	0.16	0.15	0.22	0.22	0.22
Coal Subtotal	21.40	24.37	24.12	24.08	25.57	24.93	24.02	26.30	25.70	22.21
Nuclear Power	7.79	7.90	7.90	7.90	7.69	7.74	7.79	6.51	6.54	6.81
Renewable Energy <sup>17</sup>	6.53	7.10	7.18	7.28	7.87	7.94	8.19	8.38	8.51	9.31
Methanol (M85) <sup>11</sup>	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Liquid Hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity Imports <sup>16</sup>	0.35	0.61	0.61	0.61	0.37	0.37	0.37	0.24	0.24	0.24
<b>Total</b>	<b>96.33</b>	<b>107.56</b>	<b>107.49</b>	<b>107.43</b>	<b>114.74</b>	<b>114.56</b>	<b>114.31</b>	<b>127.68</b>	<b>127.50</b>	<b>125.28</b>
<b>Energy Use and Related Statistics</b>										
Delivered Energy Use	72.05	80.17	80.35	80.16	86.01	86.12	85.94	97.25	97.21	96.80
Total Energy Use	96.33	107.56	107.49	107.43	114.74	114.56	114.31	127.68	127.50	125.28
Population (millions)	273.13	288.02	288.02	288.02	300.17	300.17	300.17	325.24	325.24	325.24
Gross Domestic Product (billion 1996 dollars)	8876	10908	10960	10906	12634	12667	12634	16509	16515	16511
Total Carbon Dioxide Emissions (million metric tons carbon equivalent)	1510.8	1701.4	1695.8	1692.6	1820.6	1807.9	1789.9	2043.8	2031.2	1944.5

<sup>1</sup>Includes wood used for residential heating.

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

<sup>3</sup>Includes commercial sector electricity cogenerated by using wood and wood waste, landfill gas, municipal solid waste, and other biomass.

<sup>4</sup>Fuel consumption includes consumption for cogeneration, which produces electricity and other useful thermal energy.

<sup>5</sup>Includes petroleum coke, asphalt, road oil, lubricants, still gas, and miscellaneous petroleum products.

<sup>6</sup>Includes lease and plant fuel and consumption by cogenerators, excludes consumption by nonutility generators.

<sup>7</sup>Includes consumption of energy from hydroelectric, wood and wood waste, municipal solid waste, and other biomass; includes cogeneration, both for sale to the grid and for own use.

<sup>8</sup>Includes only kerosene type.

<sup>9</sup>Includes aviation gas and lubricants.

<sup>10</sup>E85 is 85 percent ethanol (renewable) and 15 percent motor gasoline (nonrenewable).

<sup>11</sup>M85 is 85 percent methanol and 15 percent motor gasoline.

<sup>12</sup>Includes unfinished oils, natural gasoline, motor gasoline blending compounds, aviation gasoline, lubricants, still gas, asphalt, road oil, petroleum coke, and miscellaneous petroleum products.

<sup>13</sup>Includes electricity generated for sale to the grid and for own use from renewable sources, and non-electric energy from renewable sources. Excludes nonmarketed renewable energy consumption for geothermal heat pumps, buildings photovoltaic systems, and solar thermal hot water heaters.

<sup>14</sup>Includes consumption of energy by all electric power generators for grid-connected power except cogenerators, which produce electricity and other useful thermal energy. Includes small power producers and exempt wholesale generators.

<sup>15</sup>Includes conventional hydroelectric, geothermal, wood and wood waste, municipal solid waste, other biomass, petroleum coke, wind, photovoltaic and solar thermal sources. Excludes cogeneration. Excludes net electricity imports.

<sup>16</sup>In 1998 approximately 70 percent of the U.S. electricity imports were provided by renewable sources (hydroelectricity); EIA does not project future proportions for the fuel source of imported electricity.

<sup>17</sup>Includes hydroelectric, geothermal, wood and wood waste, municipal solid waste, other biomass, wind, photovoltaic and solar thermal sources. Includes ethanol components of E85; excludes ethanol blends (10 percent or less) in motor gasoline. Excludes net electricity imports and nonmarketed renewable energy consumption for geothermal heat pumps, buildings photovoltaic systems, and solar thermal hot water heaters.

Btu = British thermal unit.

CO<sub>2</sub> = Carbon dioxide.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports. Consumption values of 0.00 are values that round to 0.00, because they are less than 0.005.

Sources: 1999 electric utility fuel consumption: Energy Information Administration, (EIA) *Electric Power Annual 1998, Volume 1*, DOE/EIA-0348(98)/1 (Washington, DC, April 1999). 1999 nonutility consumption estimates: EIA, Form EIA-860B: "Annual Electric Generator Report - Nonutility." Other 1999 values: EIA, *Short-Term Energy Outlook, April 2001*, <http://www.eia.doe.gov/pub/forecasting/steo/oldsteos/apr01.pdf>. Projections: EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC5012.D081701B, REWC5012.D081701A.



**Table B3. Energy Prices by Sector and Source**  
(1999 Dollars per Million Btu, Unless Otherwise Noted)

Sector and Source	1999	Projections								
		2005			2010			2020		
		Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap
<b>Residential</b>	<b>13.18</b>	<b>13.33</b>	<b>13.40</b>	<b>13.37</b>	<b>13.41</b>	<b>13.49</b>	<b>13.58</b>	<b>13.62</b>	<b>13.82</b>	<b>14.75</b>
Primary Energy <sup>1</sup>	6.71	7.50	7.53	7.51	7.17	7.19	7.25	7.01	7.09	7.14
Petroleum Products <sup>2</sup>	7.55	9.17	9.17	9.17	9.37	9.39	9.37	9.47	9.51	9.44
Distillate Fuel	6.27	7.37	7.38	7.38	7.57	7.57	7.57	7.76	7.79	7.74
Liquefied Petroleum Gas	10.36	12.61	12.61	12.61	12.82	12.86	12.83	12.71	12.78	12.65
Natural Gas	6.52	7.13	7.17	7.14	6.70	6.73	6.80	6.56	6.65	6.72
Electricity	23.69	22.29	22.44	22.37	22.19	22.34	22.49	22.16	22.54	24.92
<b>Commercial</b>	<b>13.28</b>	<b>12.71</b>	<b>12.78</b>	<b>12.76</b>	<b>12.23</b>	<b>12.20</b>	<b>12.36</b>	<b>12.55</b>	<b>12.70</b>	<b>14.10</b>
Primary Energy <sup>1</sup>	5.22	5.58	5.60	5.58	5.65	5.68	5.73	5.69	5.77	5.82
Petroleum Products <sup>2</sup>	4.99	6.08	6.08	6.08	6.27	6.27	6.26	6.37	6.40	6.35
Distillate Fuel	4.37	5.17	5.17	5.17	5.35	5.35	5.34	5.51	5.54	5.49
Residual Fuel	2.63	3.64	3.64	3.64	3.70	3.70	3.70	3.85	3.85	3.85
Natural Gas <sup>3</sup>	5.34	5.57	5.60	5.57	5.63	5.66	5.72	5.67	5.76	5.82
Electricity	21.64	20.28	20.42	20.37	18.76	18.66	18.92	18.83	19.04	21.93
<b>Industrial<sup>4</sup></b>	<b>5.29</b>	<b>5.75</b>	<b>5.77</b>	<b>5.76</b>	<b>5.62</b>	<b>5.65</b>	<b>5.68</b>	<b>5.82</b>	<b>5.91</b>	<b>6.21</b>
Primary Energy	3.91	4.46	4.48	4.47	4.45	4.48	4.49	4.61	4.68	4.66
Petroleum Products <sup>2</sup>	5.54	5.97	5.97	5.97	6.07	6.11	6.08	6.12	6.15	6.07
Distillate Fuel	4.65	5.33	5.33	5.33	5.53	5.54	5.53	5.71	5.73	5.69
Liquefied Petroleum Gas	8.50	7.75	7.75	7.74	7.77	7.84	7.78	7.68	7.74	7.63
Residual Fuel	2.78	3.37	3.37	3.37	3.43	3.42	3.42	3.58	3.58	3.58
Natural Gas <sup>5</sup>	2.79	3.66	3.70	3.67	3.46	3.49	3.55	3.73	3.82	3.90
Metallurgical Coal	1.66	1.58	1.58	1.58	1.54	1.55	1.54	1.44	1.44	1.44
Steam Coal	1.43	1.35	1.35	1.35	1.30	1.31	1.30	1.21	1.21	1.17
Electricity	13.12	12.81	12.87	12.87	12.04	12.00	12.17	12.07	12.31	14.56
<b>Transportation</b>	<b>8.30</b>	<b>9.33</b>	<b>9.34</b>	<b>9.34</b>	<b>9.63</b>	<b>9.63</b>	<b>9.65</b>	<b>9.20</b>	<b>9.20</b>	<b>9.23</b>
Primary Energy	8.29	9.32	9.32	9.32	9.61	9.61	9.64	9.18	9.18	9.20
Petroleum Products <sup>2</sup>	8.28	9.32	9.32	9.32	9.61	9.61	9.64	9.18	9.17	9.20
Distillate Fuel <sup>6</sup>	8.22	8.89	8.90	8.90	8.94	8.95	8.94	8.83	8.83	8.84
Jet Fuel <sup>7</sup>	4.70	5.22	5.24	5.23	5.49	5.49	5.49	5.72	5.72	5.72
Motor Gasoline <sup>8</sup>	9.45	10.75	10.75	10.75	11.20	11.21	11.25	10.60	10.59	10.63
Residual Fuel	2.46	3.11	3.10	3.11	3.18	3.18	3.18	3.33	3.33	3.33
Liquid Petroleum Gas <sup>9</sup>	12.87	14.07	14.08	14.07	14.00	14.05	14.02	13.64	13.70	13.57
Natural Gas <sup>10</sup>	7.02	7.30	7.33	7.31	7.17	7.20	7.28	7.30	7.38	7.45
Ethanol (E85) <sup>11</sup>	14.42	19.20	19.20	19.20	19.13	19.13	19.15	19.34	19.35	19.38
Methanol (M85) <sup>12</sup>	10.38	13.13	13.17	13.14	13.80	13.81	13.81	14.35	14.35	14.37
Electricity	15.64	14.61	14.64	14.56	13.73	13.69	13.94	13.18	13.39	14.49
<b>Average End-Use Energy</b>	<b>8.52</b>	<b>9.16</b>	<b>9.18</b>	<b>9.17</b>	<b>9.16</b>	<b>9.18</b>	<b>9.23</b>	<b>9.13</b>	<b>9.21</b>	<b>9.61</b>
Primary Energy	6.31	7.16	7.18	7.17	7.30	7.32	7.34	7.20	7.23	7.24
Electricity	19.58	18.71	18.81	18.79	17.93	17.93	18.13	17.96	18.23	20.74
<b>Electric Generators<sup>13</sup></b>										
Fossil Fuel Average	1.48	1.63	1.65	1.64	1.59	1.62	1.70	1.85	1.91	2.07
Petroleum Products	2.48	3.60	3.64	3.62	3.96	4.09	4.09	4.20	4.36	4.29
Distillate Fuel	4.07	4.65	4.68	4.67	4.85	4.86	4.85	5.05	5.09	5.14
Residual Fuel	2.39	3.43	3.46	3.45	3.70	3.84	3.85	3.92	4.11	4.13
Natural Gas	2.57	3.42	3.49	3.46	3.23	3.31	3.39	3.62	3.72	3.88
Steam Coal	1.21	1.13	1.13	1.13	1.06	1.05	1.06	0.98	0.98	0.96

**Table B3. Energy Prices by Sector and Source (Continued)**  
(1999 Dollars per Million Btu, Unless Otherwise Noted)

Sector and Source	1999	Projections								
		2005			2010			2020		
		Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap
<b>Average Price to All Users<sup>14</sup></b>										
Petroleum Products <sup>2</sup>	7.46	8.48	8.49	8.49	8.75	8.77	8.78	8.49	8.50	8.50
Distillate Fuel	7.25	8.06	8.07	8.07	8.20	8.20	8.20	8.20	8.20	8.20
Jet Fuel	4.70	5.22	5.24	5.23	5.49	5.49	5.49	5.72	5.72	5.72
Liquefied Petroleum Gas	8.84	8.65	8.65	8.64	8.66	8.72	8.67	8.48	8.54	8.43
Motor Gasoline <sup>8</sup>	9.45	10.75	10.75	10.75	11.20	11.21	11.25	10.60	10.59	10.63
Residual Fuel	2.47	3.25	3.25	3.25	3.33	3.33	3.33	3.49	3.49	3.49
Natural Gas	4.04	4.73	4.77	4.74	4.43	4.46	4.51	4.50	4.58	4.68
Coal	1.23	1.15	1.15	1.15	1.08	1.07	1.08	0.99	0.99	0.98
Ethanol (E85) <sup>11</sup>	14.42	19.20	19.20	19.20	19.13	19.13	19.15	19.34	19.35	19.38
Methanol (M85) <sup>12</sup>	10.38	13.13	13.17	13.14	13.80	13.81	13.81	14.35	14.35	14.37
Electricity	19.58	18.71	18.81	18.79	17.93	17.93	18.13	17.96	18.23	20.74
<b>Non-Renewable Energy Expenditures by Sector (billion 1999 dollars)</b>										
Residential	135.11	154.23	154.97	154.52	158.26	159.25	159.73	177.68	179.72	189.44
Commercial	99.11	115.32	115.67	115.64	119.82	119.33	120.75	135.53	136.67	150.03
Industrial	112.11	126.41	127.42	126.55	131.84	132.61	133.11	152.08	154.42	163.07
Transportation	212.64	271.38	272.23	271.35	306.12	306.82	306.91	340.13	340.36	340.73
Total Non-Renewable Expenditures	558.97	667.34	670.30	668.06	716.05	718.02	720.49	805.42	811.18	843.27
Transportation Renewable Expenditures	0.14	0.42	0.42	0.42	0.62	0.63	0.63	0.85	0.85	0.85
<b>Total Expenditures</b>	<b>559.11</b>	<b>667.75</b>	<b>670.72</b>	<b>668.48</b>	<b>716.67</b>	<b>718.65</b>	<b>721.11</b>	<b>806.27</b>	<b>812.03</b>	<b>844.12</b>

<sup>1</sup>Weighted average price includes fuels below as well as coal.

<sup>2</sup>This quantity is the weighted average for all petroleum products, not just those listed below.

<sup>3</sup>Excludes independent power producers.

<sup>4</sup>Includes cogenerators.

<sup>5</sup>Excludes uses for lease and plant fuel.

<sup>6</sup>Low sulfur diesel fuel. Price includes Federal and State taxes while excluding county and local taxes.

<sup>7</sup>Kerosene-type jet fuel. Price includes Federal and State taxes while excluding county and local taxes.

<sup>8</sup>Sales weighted-average price for all grades. Includes Federal and State taxes and excludes county and local taxes.

<sup>9</sup>Includes Federal and State taxes while excluding county and local taxes.

<sup>10</sup>Compressed natural gas used as a vehicle fuel. Price includes estimated motor vehicle fuel taxes.

<sup>11</sup>E85 is 85 percent ethanol (renewable) and 15 percent motor gasoline (nonrenewable).

<sup>12</sup>M85 is 85 percent methanol and 15 percent motor gasoline.

<sup>13</sup>Includes all electric power generators except cogenerators, which produce electricity and other useful thermal energy. Includes small power producers and exempt wholesale generators.

<sup>14</sup>Weighted averages of end-use fuel prices are derived from the prices shown in each sector and the corresponding sectoral consumption.

Btu = British thermal unit.

CO<sub>2</sub> = Carbon dioxide.

NO<sub>x</sub> = Nitrogen oxide.

Note: Data for 1999 are model results and may differ slightly from official EIA data reports.

**Sources:** 1999 prices for gasoline, distillate, and jet fuel are based on prices in various issues of Energy Information Administration (EIA), *Petroleum Marketing Monthly*, DOE/EIA-0380 (99/03-2000/04) (Washington, DC, 1999-2000). 1999 prices for all other petroleum products are derived from the EIA, *State Energy Price and Expenditure Report 1997*, DOE/EIA-0376(97) (Washington, DC, July 2000). 1999 industrial gas delivered prices are based on EIA, *Manufacturing Energy Consumption Survey 1994*. 1999 residential and commercial natural gas delivered prices: EIA, *Natural Gas Monthly*, DOE/EIA-0130(2000/06) (Washington, DC, June 2000). 1999 coal prices based on EIA, *Quarterly Coal Report*, DOE/EIA-0121(2000/1Q) (Washington, DC, August 2000), and EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC5012.D081701B, REWC5012.D081701A. 1999 electricity prices for commercial, industrial, and transportation: EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC5012.D081701B, REWC5012.D081701A. **Projections:** EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC5012.D081701B, REWC5012.D081701A.

**Table B4. Electricity Supply, Disposition, Prices, and Emissions**  
(Billion Kilowatthours, Unless Otherwise Noted)

Supply, Disposition, and Prices	1999	Projections								
		2005			2010			2020		
		Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap
<b>Generation by Fuel Type</b>										
<b>Electric Generators<sup>1</sup></b>										
Coal	1830	2105	2080	2074	2238	2162	2066	2302	2221	1894
Petroleum	85	42	36	37	25	19	19	23	17	15
Natural Gas <sup>2</sup>	370	582	606	604	826	903	975	1488	1551	1653
Nuclear Power	730	740	740	740	720	725	729	610	613	637
Pumped Storage	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Renewable Sources <sup>3</sup>	355	372	377	381	396	399	407	399	407	468
<b>Total</b>	<b>3369</b>	<b>3839</b>	<b>3838</b>	<b>3836</b>	<b>4204</b>	<b>4207</b>	<b>4195</b>	<b>4821</b>	<b>4809</b>	<b>4666</b>
Non-Utility Generation for Own Use	16	17	17	17	17	16	16	16	16	23
Distributed Generation	0	0	0	0	1	1	1	5	5	4
<b>Cogenerators<sup>4</sup></b>										
Coal	47	53	52	52	51	51	51	52	49	47
Petroleum	9	10	10	10	10	10	10	10	10	10
Natural Gas	206	236	237	237	259	258	258	317	317	361
Other Gaseous Fuels <sup>5</sup>	4	6	6	6	7	7	7	8	8	9
Renewable Sources <sup>3</sup>	31	34	34	34	39	39	39	48	48	48
Other <sup>6</sup>	5	5	5	5	5	5	5	6	5	6
<b>Total</b>	<b>303</b>	<b>344</b>	<b>345</b>	<b>345</b>	<b>372</b>	<b>370</b>	<b>370</b>	<b>440</b>	<b>438</b>	<b>479</b>
<b>Other End-Use Generators</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>
Sales to Utilities	151	172	171	171	179	177	177	208	205	212
Generation for Own Use	156	177	179	178	197	198	198	237	238	272
<b>Net Imports<sup>8</sup></b>	<b>33</b>	<b>57</b>	<b>57</b>	<b>57</b>	<b>35</b>	<b>35</b>	<b>35</b>	<b>23</b>	<b>23</b>	<b>23</b>
<b>Electricity Sales by Sector</b>										
Residential	1145	1337	1335	1335	1438	1438	1432	1668	1659	1611
Commercial	1073	1291	1286	1289	1442	1440	1439	1653	1647	1603
Industrial	1058	1137	1141	1135	1219	1222	1217	1394	1394	1353
Transportation	17	26	26	26	34	35	34	49	49	49
<b>Total</b>	<b>3294</b>	<b>3790</b>	<b>3788</b>	<b>3785</b>	<b>4133</b>	<b>4135</b>	<b>4123</b>	<b>4763</b>	<b>4749</b>	<b>4615</b>
<b>End-Use Prices (1999 cents per kwh)<sup>9</sup></b>										
Residential	8.1	7.6	7.7	7.6	7.6	7.6	7.7	7.6	7.7	8.5
Commercial	7.4	6.9	7.0	6.9	6.4	6.4	6.5	6.4	6.5	7.5
Industrial	4.5	4.4	4.4	4.4	4.1	4.1	4.2	4.1	4.2	5.0
Transportation	5.3	5.0	5.0	5.0	4.7	4.7	4.8	4.5	4.6	4.9
<b>All Sectors Average</b>	<b>6.7</b>	<b>6.4</b>	<b>6.4</b>	<b>6.4</b>	<b>6.1</b>	<b>6.1</b>	<b>6.2</b>	<b>6.1</b>	<b>6.2</b>	<b>7.1</b>
<b>Prices by Service Category<sup>9</sup></b>										
<b>(1999 cents/kwh)</b>										
Generation	4.1	3.8	3.9	3.9	3.4	3.4	3.5	3.5	3.6	4.4
Transmission	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7
Distribution	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
<b>Emissions (million short tons)</b>										
Sulfur Dioxide	13.49	10.39	8.77	8.76	9.70	6.90	6.90	8.95	4.47	4.48
Nitrogen Oxide	5.43	4.30	4.56	4.57	4.34	3.63	3.65	4.48	3.17	2.90

<sup>1</sup>Includes grid-connected generation at all utilities and nonutilities except for cogenerators. Includes small power producers and exempt wholesale generators.

<sup>2</sup>Includes electricity generation by fuel cells.

<sup>3</sup>Includes conventional hydroelectric, geothermal, wood, wood waste, municipal solid waste, landfill gas, other biomass, solar, and wind power.

<sup>4</sup>Cogenerators produce electricity and other useful thermal energy. Includes sales to utilities and generation for own use.

<sup>5</sup>Other gaseous fuels include refinery and still gas.

<sup>6</sup>Other includes hydrogen, sulfur, batteries, chemicals, fish oil, and spent sulfite liquor.

<sup>7</sup>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.

<sup>8</sup>In 1998 approximately 70 percent of the U.S. electricity imports were provided by renewable sources (hydroelectricity); EIA does not project future proportions for the fuel source of imported electricity.

<sup>9</sup>Prices represent average revenue per kilowatthour.

Kwh = Kilowatthour.

CO<sub>2</sub> = Carbon dioxide.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports.

Source: Energy Information Administration, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC5012.D081701B, REWC5012.D081701A.

**Table B5. Electricity Generating Capability  
(Gigawatts)**

Net Summer Capability <sup>1</sup>	1999	Projections								
		2005			2010			2020		
		Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap
<b>Electric Generators<sup>2</sup></b>										
<b>Capability</b>										
Coal Steam	305.1	303.9	303.8	302.8	317.8	312.0	297.6	317.3	310.0	291.9
Other Fossil Steam <sup>3</sup>	137.4	124.9	121.2	119.0	117.4	108.0	106.7	114.9	107.4	105.0
Combined Cycle	21.0	52.4	67.8	62.8	107.3	133.2	139.4	199.0	215.4	224.5
Combustion Turbine/Diesel	86.8	126.4	119.3	123.6	149.8	142.5	148.6	197.4	195.8	179.4
Nuclear Power	97.4	97.5	97.5	97.5	93.7	94.8	95.3	76.3	76.3	80.7
Pumped Storage	19.3	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5
Fuel Cells	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.3	0.3	0.3
Renewable Sources <sup>4</sup>	88.8	94.7	94.9	95.4	97.9	98.3	99.4	99.4	99.8	101.2
Distributed Generation <sup>5</sup>	0.0	0.8	0.4	0.4	2.5	2.3	2.5	11.0	10.6	8.9
<b>Total</b>	<b>755.9</b>	<b>820.0</b>	<b>824.3</b>	<b>820.9</b>	<b>906.0</b>	<b>910.7</b>	<b>909.2</b>	<b>1035.1</b>	<b>1035.1</b>	<b>1011.4</b>
<b>Cumulative Planned Additions<sup>6</sup></b>										
Coal Steam	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Fossil Steam <sup>3</sup>	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Combined Cycle	0.0	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7
Combustion Turbine/Diesel	0.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Nuclear Power	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pumped Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Cells	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.3	0.3	0.3
Renewable Sources <sup>4</sup>	0.0	5.1	5.1	5.1	6.7	6.7	6.7	8.1	8.1	8.1
Distributed Generation <sup>5</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>0.0</b>	<b>32.0</b>	<b>32.0</b>	<b>32.0</b>	<b>33.7</b>	<b>33.7</b>	<b>33.7</b>	<b>35.3</b>	<b>35.3</b>	<b>35.3</b>
<b>Cumulative Unplanned Additions<sup>6</sup></b>										
Coal Steam	0.0	1.1	1.0	0.0	18.2	14.2	0.0	19.5	14.5	0.0
Other Fossil Steam <sup>3</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Combined Cycle	0.0	18.6	34.0	29.0	73.6	99.5	105.8	165.4	181.8	190.9
Combustion Turbine/Diesel	0.0	30.9	19.7	24.2	55.4	44.1	50.3	103.1	97.5	81.5
Nuclear Power	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pumped Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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 <sup>4</sup>	0.0	0.4	0.6	1.1	1.9	2.3	3.4	1.9	2.4	3.7
Distributed Generation <sup>5</sup>	0.0	0.8	0.4	0.4	2.5	2.3	2.5	11.0	10.6	8.9
<b>Total</b>	<b>0.0</b>	<b>51.7</b>	<b>55.6</b>	<b>54.7</b>	<b>151.5</b>	<b>162.5</b>	<b>161.9</b>	<b>300.8</b>	<b>306.7</b>	<b>285.0</b>
<b>Cumulative Total Additions</b>	<b>0.0</b>	<b>83.7</b>	<b>87.6</b>	<b>86.7</b>	<b>185.2</b>	<b>196.1</b>	<b>195.6</b>	<b>336.1</b>	<b>342.0</b>	<b>320.3</b>
<b>Cumulative Retirements<sup>7</sup></b>										
Coal Steam	0.0	2.3	2.3	2.3	5.5	7.3	7.5	7.3	9.6	13.2
Other Fossil Steam <sup>3</sup>	0.0	12.7	16.5	18.7	20.2	29.7	31.0	22.7	30.2	32.6
Combined Cycle	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2
Combustion Turbine/Diesel	0.0	5.5	5.7	5.9	6.6	7.0	7.0	6.7	7.1	7.4
Nuclear Power	0.0	0.0	0.0	0.0	3.7	2.6	2.2	21.2	21.2	16.8
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 <sup>4</sup>	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
<b>Total</b>	<b>0.0</b>	<b>20.6</b>	<b>24.7</b>	<b>27.1</b>	<b>36.4</b>	<b>46.9</b>	<b>47.9</b>	<b>58.1</b>	<b>68.4</b>	<b>70.4</b>
<b>Cogenerators<sup>8</sup></b>										
<b>Capability</b>										
Coal	8.4	8.9	8.9	8.9	8.6	8.1	8.1	8.6	7.7	7.5
Petroleum	2.7	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Natural Gas	34.6	39.7	40.0	39.9	43.1	43.2	43.2	51.2	51.4	57.3
Other Gaseous Fuels	0.2	0.8	0.8	0.8	0.9	0.9	0.9	1.1	1.1	1.1
Renewable Sources <sup>4</sup>	5.4	5.9	5.9	5.9	6.8	6.8	6.8	8.3	8.2	8.3
Other	1.1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
<b>Total</b>	<b>52.4</b>	<b>59.1</b>	<b>59.3</b>	<b>59.3</b>	<b>63.1</b>	<b>62.7</b>	<b>62.8</b>	<b>73.0</b>	<b>72.2</b>	<b>78.1</b>
<b>Cumulative Additions<sup>6</sup></b>	<b>0.0</b>	<b>6.7</b>	<b>6.9</b>	<b>6.9</b>	<b>10.7</b>	<b>10.3</b>	<b>10.3</b>	<b>20.5</b>	<b>19.8</b>	<b>25.6</b>

**Table B5. Electricity Generating Capability (Continued)**  
(Gigawatts)

Net Summer Capability <sup>1</sup>	1999	Projections								
		2005			2010			2020		
		Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap
<b>Other End-Use Generators<sup>9</sup></b>										
Renewable Sources . . . . .	1.0	1.1	1.1	1.1	1.3	1.3	1.3	1.3	1.3	1.3
Cumulative Additions . . . . .	0.0	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3	0.3

<sup>1</sup>Net summer capability is the steady hourly output that generating equipment is expected to supply to system load (exclusive of auxiliary power), as demonstrated by tests during summer peak demand.

<sup>2</sup>Includes grid-connected utilities and nonutilities except for cogenerators. Includes small power producers and exempt wholesale generators.

<sup>3</sup>Includes oil-, gas-, and dual-fired capability.

<sup>4</sup>Includes conventional hydroelectric, geothermal, wood, wood waste, municipal solid waste, landfill gas, other biomass, solar and wind power.

<sup>5</sup>Primarily peak-load capacity fueled by natural gas.

<sup>6</sup>Cumulative additions after December 31, 1999.

<sup>7</sup>Cumulative total retirements after December 31, 1999.

<sup>8</sup>Nameplate capacity is reported for nonutilities on EIA-860B: "Annual Electric Generator Report - Nonutility." Nameplate capacity is designated by the manufacturer. The nameplate capacity has been converted to the net summer capability based on historic relationships.

<sup>9</sup>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.

CO<sub>2</sub> = Carbon dioxide.

Notes: Totals may not equal sum of components due to independent rounding. Data for 1999 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 capability for electric utility generators.

Source: Energy Information Administration, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC5012.D081701B, REWC5012.D081701A.

**Table B6. Electricity Trade**  
(Billion Kilowatthours, Unless Otherwise Noted)

Electricity Trade	1999	Projections								
		2005			2010			2020		
		Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap
<b>Interregional Electricity Trade</b>										
Gross Domestic Firm Power Trade .....	182.2	125.3	125.3	125.3	102.9	102.9	102.9	0.0	0.0	0.0
Gross Domestic Economy Trade .....	152.1	199.1	208.5	202.7	154.6	128.4	135.6	146.4	118.0	98.3
<b>Gross Domestic Trade .....</b>	<b>334.3</b>	<b>324.4</b>	<b>333.8</b>	<b>328.0</b>	<b>257.5</b>	<b>231.3</b>	<b>238.6</b>	<b>146.4</b>	<b>118.0</b>	<b>98.3</b>
<b>Gross Domestic Firm Power Sales</b>										
(million 1999 dollars) .....	8588.1	5905.8	5905.8	5905.8	4851.2	4851.2	4851.2	0.0	0.0	0.0
<b>Gross Domestic Economy Sales</b>										
(million 1999 dollars) .....	4204.3	6352.8	6771.8	6596.1	4407.4	3726.7	4032.8	4448.7	3776.2	4002.7
<b>Gross Domestic Sales</b>										
<b>(million 1999 dollars) .....</b>	<b>12792.4</b>	<b>12258.6</b>	<b>12677.6</b>	<b>12501.9</b>	<b>9258.7</b>	<b>8578.0</b>	<b>8884.0</b>	<b>4448.7</b>	<b>3776.2</b>	<b>4002.7</b>
<b>International Electricity Trade</b>										
Firm Power Imports From Canada and Mexico <sup>1</sup>	27.0	10.7	10.7	10.7	5.8	5.8	5.8	0.0	0.0	0.0
Economy Imports From Canada and Mexico <sup>1</sup> ..	21.9	63.5	63.5	63.5	45.9	45.9	45.9	30.6	30.6	30.6
<b>Gross Imports From Canada and Mexico<sup>1</sup> ..</b>	<b>48.9</b>	<b>74.1</b>	<b>74.1</b>	<b>74.1</b>	<b>51.7</b>	<b>51.7</b>	<b>51.7</b>	<b>30.6</b>	<b>30.6</b>	<b>30.6</b>
<b>Gross Exports To Canada and Mexico</b>										
Firm Power Exports To Canada and Mexico ...	9.2	9.7	9.7	9.7	8.7	8.7	8.7	0.0	0.0	0.0
Economy Exports To Canada and Mexico .....	6.3	7.0	7.0	7.0	7.7	7.7	7.7	7.7	7.7	7.7
<b>Gross Exports To Canada and Mexico .....</b>	<b>15.5</b>	<b>16.7</b>	<b>16.7</b>	<b>16.7</b>	<b>16.4</b>	<b>16.4</b>	<b>16.4</b>	<b>7.7</b>	<b>7.7</b>	<b>7.7</b>

<sup>1</sup>Historically electricity imports were primarily from renewable resources, principally hydroelectric.  
CO<sub>2</sub> = Carbon dioxide.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports. Firm Power Sales are capacity sales, meaning the delivery of the power is scheduled as part of the normal operating conditions of the affected electric systems. Economy Sales are subject to curtailment or cessation of delivery by the supplier in accordance with prior agreements or under specified conditions.

Source: Energy Information Administration, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC5012.D081701B, REWC5012.D081701A.



**Table B7. Natural Gas Supply and Disposition**  
(Trillion Cubic Feet per Year)

Supply, Disposition, and Prices	1999	Projections								
		2005			2010			2020		
		Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap
<b>Production</b>										
Dry Gas Production <sup>1</sup> . . . . .	18.67	21.32	21.35	21.37	23.36	23.60	24.04	29.34	29.56	29.83
Supplemental Natural Gas <sup>2</sup> . . . . .	0.10	0.11	0.11	0.11	0.06	0.06	0.06	0.06	0.06	0.06
<b>Net Imports</b> . . . . .	<b>3.38</b>	<b>4.70</b>	<b>4.70</b>	<b>4.69</b>	<b>5.01</b>	<b>5.04</b>	<b>5.06</b>	<b>5.78</b>	<b>5.81</b>	<b>5.87</b>
Canada . . . . .	3.29	4.49	4.48	4.48	4.72	4.75	4.78	5.39	5.42	5.47
Mexico . . . . .	-0.01	-0.18	-0.18	-0.18	-0.25	-0.25	-0.25	-0.40	-0.40	-0.40
Liquefied Natural Gas . . . . .	0.10	0.39	0.39	0.39	0.53	0.53	0.53	0.79	0.79	0.80
<b>Total Supply</b> . . . . .	<b>22.15</b>	<b>26.14</b>	<b>26.16</b>	<b>26.18</b>	<b>28.42</b>	<b>28.70</b>	<b>29.16</b>	<b>35.17</b>	<b>35.43</b>	<b>35.75</b>
<b>Consumption by Sector</b>										
Residential . . . . .	4.75	5.40	5.40	5.40	5.39	5.40	5.37	5.92	5.90	5.89
Commercial . . . . .	3.06	3.89	3.88	3.89	4.08	4.07	4.06	4.36	4.33	4.36
Industrial <sup>3</sup> . . . . .	8.31	8.78	8.80	8.78	9.48	9.46	9.44	10.52	10.51	10.63
Electric Generators <sup>4</sup> . . . . .	3.76	5.44	5.44	5.47	6.83	7.09	7.58	11.15	11.41	11.59
Lease and Plant Fuel <sup>5</sup> . . . . .	1.23	1.36	1.36	1.36	1.50	1.51	1.53	1.86	1.87	1.88
Pipeline Fuel . . . . .	0.64	0.80	0.81	0.81	0.88	0.89	0.90	1.07	1.08	1.08
Transportation <sup>6</sup> . . . . .	0.02	0.05	0.05	0.05	0.09	0.09	0.09	0.15	0.15	0.15
<b>Total</b> . . . . .	<b>21.77</b>	<b>25.73</b>	<b>25.75</b>	<b>25.76</b>	<b>28.24</b>	<b>28.50</b>	<b>28.97</b>	<b>35.03</b>	<b>35.26</b>	<b>35.58</b>
<b>Discrepancy</b> <sup>7</sup> . . . . .	<b>0.38</b>	<b>0.41</b>	<b>0.41</b>	<b>0.41</b>	<b>0.19</b>	<b>0.20</b>	<b>0.19</b>	<b>0.15</b>	<b>0.17</b>	<b>0.17</b>

<sup>1</sup>Marketed production (wet) minus extraction losses.

<sup>2</sup>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.

<sup>3</sup>Includes consumption by cogenerators.

<sup>4</sup>Includes all electric power generators except cogenerators, which produce electricity and other useful thermal energy. Includes small power producers and exempt wholesale generators.

<sup>5</sup>Represents natural gas used in the field gathering and processing plant machinery.

<sup>6</sup>Compressed natural gas used as vehicle fuel.

<sup>7</sup>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, 1999 values include net storage injections.

Btu = British thermal unit.

CO<sub>2</sub> = Carbon dioxide.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports.

**Sources:** 1999 supplemental natural gas: Energy Information Administration (EIA), *Natural Gas Monthly*, DOE/EIA-0130(2000/06) (Washington, DC, June 2000). 1999 transportation sector consumption: EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC5012.D081701B, REWC5012.D081701A. Other 1999 consumption: EIA, *Short-Term Energy Outlook, April 2001*, <http://www.eia.doe.gov/pub/forecasting/steo/oldsteos/apr01.pdf> with adjustments to end-use sector consumption levels for consumption of natural gas by electric wholesale generators based on EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC5012.D081701B, REWC5012.D081701A. **Projections:** EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC5012.D081701B, REWC5012.D081701A.

**Table B8. Natural Gas Prices, Margins, and Revenue**  
(1999 Dollars per Thousand Cubic Feet, Unless Otherwise Noted)

Prices, Margins, and Revenue	1999	Projections								
		2005			2010			2020		
		Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap
<b>Source Price</b>										
Average Lower 48 Wellhead Price <sup>1</sup> . . . . .	2.08	2.99	3.02	2.99	2.82	2.85	2.92	3.10	3.19	3.28
Average Import Price . . . . .	2.29	2.99	2.99	2.98	2.66	2.67	2.68	2.71	2.73	2.75
<b>Average<sup>2</sup></b> . . . . .	<b>2.11</b>	<b>2.99</b>	<b>3.02</b>	<b>2.99</b>	<b>2.79</b>	<b>2.82</b>	<b>2.88</b>	<b>3.03</b>	<b>3.11</b>	<b>3.18</b>
<b>Delivered Prices</b>										
Residential . . . . .	6.69	7.33	7.36	7.33	6.88	6.91	6.98	6.74	6.83	6.90
Commercial . . . . .	5.49	5.72	5.75	5.72	5.78	5.81	5.88	5.82	5.91	5.98
Industrial <sup>3</sup> . . . . .	2.87	3.76	3.79	3.77	3.55	3.58	3.65	3.84	3.93	4.00
Electric Generators <sup>4</sup> . . . . .	2.62	3.49	3.56	3.52	3.30	3.37	3.45	3.68	3.79	3.95
Transportation <sup>5</sup> . . . . .	7.21	7.50	7.53	7.51	7.36	7.40	7.47	7.50	7.58	7.65
<b>Average<sup>6</sup></b> . . . . .	<b>4.14</b>	<b>4.85</b>	<b>4.89</b>	<b>4.86</b>	<b>4.55</b>	<b>4.58</b>	<b>4.63</b>	<b>4.61</b>	<b>4.70</b>	<b>4.80</b>
<b>Transmission &amp; Distribution Margins<sup>7</sup></b>										
Residential . . . . .	4.58	4.34	4.34	4.34	4.09	4.10	4.11	3.71	3.72	3.72
Commercial . . . . .	3.37	2.73	2.73	2.73	2.99	3.00	3.00	2.79	2.80	2.80
Industrial <sup>3</sup> . . . . .	0.76	0.78	0.78	0.78	0.76	0.76	0.77	0.81	0.82	0.82
Electric Generators <sup>4</sup> . . . . .	0.51	0.50	0.54	0.53	0.51	0.56	0.58	0.66	0.68	0.77
Transportation <sup>5</sup> . . . . .	5.10	4.52	4.51	4.52	4.57	4.58	4.60	4.47	4.48	4.47
<b>Average<sup>6</sup></b> . . . . .	<b>2.03</b>	<b>1.87</b>	<b>1.88</b>	<b>1.87</b>	<b>1.76</b>	<b>1.76</b>	<b>1.75</b>	<b>1.59</b>	<b>1.59</b>	<b>1.62</b>
<b>Transmission &amp; Distribution Revenue (billion 1999 dollars)</b>										
Residential . . . . .	21.77	23.45	23.48	23.47	22.07	22.11	22.07	21.95	21.99	21.92
Commercial . . . . .	10.32	10.62	10.61	10.63	12.19	12.19	12.17	12.16	12.15	12.19
Industrial <sup>3</sup> . . . . .	6.28	6.82	6.86	6.85	7.20	7.23	7.27	8.50	8.61	8.72
Electric Generators <sup>4</sup> . . . . .	1.90	2.74	2.95	2.92	3.46	3.95	4.36	7.33	7.81	8.93
Transportation <sup>5</sup> . . . . .	0.08	0.24	0.24	0.24	0.40	0.41	0.41	0.68	0.68	0.67
<b>Total</b> . . . . .	<b>40.35</b>	<b>43.87</b>	<b>44.15</b>	<b>44.10</b>	<b>45.33</b>	<b>45.89</b>	<b>46.27</b>	<b>50.61</b>	<b>51.23</b>	<b>52.44</b>

<sup>1</sup>Represents lower 48 onshore and offshore supplies.

<sup>2</sup>Quantity-weighted average of the average lower 48 wellhead price and the average price of imports at the U.S. border.

<sup>3</sup>Includes consumption by cogenerators.

<sup>4</sup>Includes all electric power generators except cogenerators, which produce electricity and other useful thermal energy. Includes small power producers and exempt wholesale generators.

<sup>5</sup>Compressed natural gas used as a vehicle fuel. Price includes estimated motor vehicle fuel taxes.

<sup>6</sup>Weighted average prices and margins. Weights used are the sectoral consumption values excluding lease, plant, and pipeline fuel.

<sup>7</sup>Within the table, "transmission and distribution" margins equal the difference between the delivered price and the source price (average of the wellhead price and the price of imports at the U.S. border) of natural gas and, thus, reflect the total cost of bringing natural gas to market. When the term "transmission and distribution" margins is used in today's natural gas market, it generally does not include the cost of independent natural gas marketers or costs associated with aggregation of supplies, provisions of storage, and other services. As used here, the term includes the cost of all services and the cost of pipeline fuel used in compressor stations.

CO<sub>2</sub> = Carbon dioxide.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports.

Sources: 1999 industrial delivered prices based on Energy Information Administration (EIA), *Manufacturing Energy Consumption Survey 1994*. 1999 residential and commercial delivered prices, average lower 48 wellhead price, and average import price: EIA, *Natural Gas Monthly*, DOE/EIA-0130(2000/06) (Washington, DC, June 2000). Other 1999 values, and projections: EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC5012.D081701B, REWC5012.D081701A.

**Table B9. Oil and Gas Supply**

Production and Supply	1999	Projections								
		2005			2010			2020		
		Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap
<b>Crude Oil</b>										
<b>Lower 48 Average Wellhead Price<sup>1</sup></b> (1999 dollars per barrel) .....	<b>16.49</b>	<b>20.48</b>	<b>21.41</b>	<b>21.43</b>	<b>20.80</b>	<b>20.78</b>	<b>20.81</b>	<b>21.50</b>	<b>21.48</b>	<b>21.45</b>
<b>Production (million barrels per day)<sup>2</sup></b>										
<b>U.S. Total</b> .....	<b>5.88</b>	<b>5.69</b>	<b>5.68</b>	<b>5.68</b>	<b>5.30</b>	<b>5.34</b>	<b>5.32</b>	<b>5.22</b>	<b>5.24</b>	<b>5.25</b>
Lower 48 Onshore .....	3.27	2.80	2.81	2.80	2.50	2.51	2.50	2.71	2.74	2.74
Conventional .....	2.59	2.18	2.18	2.18	1.81	1.81	1.81	1.96	1.97	1.98
Enhanced Oil Recovery .....	0.68	0.62	0.63	0.62	0.69	0.70	0.69	0.74	0.77	0.76
Lower 48 Offshore .....	1.56	2.09	2.09	2.09	2.16	2.18	2.18	1.88	1.86	1.87
Alaska .....	1.05	0.79	0.79	0.79	0.65	0.65	0.65	0.64	0.64	0.64
<b>Lower 48 End of Year Reserves (billion barrels)<sup>2</sup> ..</b>	<b>18.33</b>	<b>15.76</b>	<b>15.78</b>	<b>15.76</b>	<b>14.43</b>	<b>14.54</b>	<b>14.49</b>	<b>14.01</b>	<b>14.10</b>	<b>14.11</b>
<b>Natural Gas</b>										
<b>Lower 48 Average Wellhead Price<sup>1</sup></b> (1999 dollars per thousand cubic feet) .....	<b>2.08</b>	<b>2.99</b>	<b>3.02</b>	<b>2.99</b>	<b>2.82</b>	<b>2.85</b>	<b>2.92</b>	<b>3.10</b>	<b>3.19</b>	<b>3.28</b>
<b>Production (trillion cubic feet)<sup>3</sup></b>										
<b>U.S. Total</b> .....	<b>18.67</b>	<b>21.32</b>	<b>21.35</b>	<b>21.37</b>	<b>23.36</b>	<b>23.60</b>	<b>24.04</b>	<b>29.34</b>	<b>29.56</b>	<b>29.83</b>
Lower 48 Onshore .....	12.83	14.37	14.40	14.42	16.42	16.62	17.02	21.10	21.42	21.56
Associated-Dissolved <sup>4</sup> .....	1.80	1.51	1.51	1.51	1.32	1.32	1.32	1.38	1.39	1.39
Non-Associated .....	11.03	12.86	12.89	12.90	15.10	15.29	15.70	19.72	20.03	20.17
Conventional .....	6.64	7.62	7.63	7.63	7.79	7.85	8.11	11.05	11.13	11.12
Unconventional .....	4.39	5.24	5.26	5.27	7.30	7.44	7.59	8.66	8.91	9.05
Lower 48 Offshore .....	5.43	6.49	6.48	6.49	6.44	6.48	6.51	7.66	7.57	7.70
Associated-Dissolved <sup>4</sup> .....	0.93	1.06	1.06	1.06	1.09	1.09	1.09	1.04	1.04	1.04
Non-Associated .....	4.50	5.42	5.42	5.43	5.35	5.39	5.42	6.63	6.54	6.66
Alaska .....	0.42	0.47	0.47	0.47	0.50	0.50	0.50	0.57	0.57	0.57
<b>Lower 48 End of Year Reserves<sup>3</sup></b> (trillion cubic feet) .....	<b>157.41</b>	<b>169.38</b>	<b>168.97</b>	<b>169.20</b>	<b>184.15</b>	<b>187.08</b>	<b>186.35</b>	<b>199.35</b>	<b>199.42</b>	<b>199.67</b>
<b>Supplemental Gas Supplies (trillion cubic feet)<sup>5</sup> ..</b>	<b>0.10</b>	<b>0.11</b>	<b>0.11</b>	<b>0.11</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>
<b>Total Lower 48 Wells (thousands) .....</b>	<b>17.93</b>	<b>29.02</b>	<b>29.07</b>	<b>29.00</b>	<b>29.30</b>	<b>29.92</b>	<b>30.33</b>	<b>38.07</b>	<b>38.57</b>	<b>39.89</b>

<sup>1</sup>Represents lower 48 onshore and offshore supplies.

<sup>2</sup>Includes lease condensate.

<sup>3</sup>Market production (wet) minus extraction losses.

<sup>4</sup>Gas which occurs in crude oil reserves either as free gas (associated) or as gas in solution with crude oil (dissolved).

<sup>5</sup>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.

Btu = British thermal unit.

CO<sub>2</sub> = Carbon dioxide.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports.

Sources: 1999 lower 48 onshore, lower 48 offshore, and Alaska crude oil production: Energy Information Administration (EIA), *Petroleum Supply Annual 1999*, DOE/EIA-0340(99/1) (Washington, DC, June 2000). 1999 natural gas lower 48 average wellhead price, Alaska and total natural gas production, and supplemental gas supplies: EIA, *Natural Gas Monthly*, DOE/EIA-0130(2000/06) (Washington, DC, June 2000). Other 1999 values: EIA, Office of Integrated Analysis and Forecasting. Projections: EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC5012.D081701B, REWC5012.D081701A.

**Table B10. Coal Supply, Disposition, and Prices**  
(Million Short Tons per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	1999	Projections								
		2005			2010			2020		
		Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap
<b>Production<sup>1</sup></b>										
Appalachia .....	434	432	425	435	425	427	415	396	398	358
Interior .....	182	185	178	182	183	186	169	164	160	132
West .....	486	612	610	589	681	625	613	775	726	625
East of the Mississippi .....	558	569	560	574	564	574	548	526	534	464
West of the Mississippi .....	544	659	653	632	725	664	649	810	749	650
<b>Total .....</b>	<b>1102</b>	<b>1228</b>	<b>1213</b>	<b>1206</b>	<b>1289</b>	<b>1238</b>	<b>1197</b>	<b>1336</b>	<b>1284</b>	<b>1115</b>
<b>Net Imports</b>										
Imports .....	9	16	16	16	17	17	17	20	20	20
Exports .....	58	60	60	60	58	58	58	56	56	58
<b>Total .....</b>	<b>-49</b>	<b>-44</b>	<b>-45</b>	<b>-45</b>	<b>-40</b>	<b>-40</b>	<b>-40</b>	<b>-36</b>	<b>-36</b>	<b>-38</b>
<b>Total Supply<sup>2</sup> .....</b>	<b>1053</b>	<b>1184</b>	<b>1168</b>	<b>1162</b>	<b>1249</b>	<b>1197</b>	<b>1157</b>	<b>1300</b>	<b>1247</b>	<b>1077</b>
<b>Consumption by Sector</b>										
Residential and Commercial .....	5	5	5	5	5	5	5	5	5	5
Industrial <sup>3</sup> .....	79	82	82	82	83	82	82	85	83	83
Coke Plants .....	28	25	25	25	23	23	23	19	19	19
Electric Generators <sup>4</sup> .....	920	1073	1057	1050	1139	1088	1046	1190	1142	972
<b>Total .....</b>	<b>1031</b>	<b>1185</b>	<b>1169</b>	<b>1162</b>	<b>1250</b>	<b>1198</b>	<b>1156</b>	<b>1299</b>	<b>1249</b>	<b>1079</b>
<b>Discrepancy and Stock Change<sup>5</sup> .....</b>	<b>21</b>	<b>-1</b>	<b>-1</b>	<b>-0</b>	<b>-1</b>	<b>-1</b>	<b>1</b>	<b>1</b>	<b>-2</b>	<b>-3</b>
<b>Average Minemouth Price</b>										
(1999 dollars per short ton) .....	17.13	15.22	15.27	15.61	14.19	14.97	14.76	12.93	13.41	13.17
(1999 dollars per million Btu) .....	0.82	0.74	0.74	0.75	0.69	0.72	0.71	0.64	0.65	0.64
<b>Delivered Prices (1999 dollars per short ton)<sup>6</sup></b>										
Industrial .....	31.37	29.65	29.58	29.67	28.56	28.79	28.51	26.49	26.35	25.63
Coke Plants .....	44.38	42.40	42.41	42.42	41.25	41.45	41.36	38.50	38.64	38.55
Electric Generators										
(1999 dollars per short ton) .....	24.69	22.92	22.98	23.10	21.26	21.53	21.72	19.34	19.69	19.33
(1999 dollars per million Btu) .....	1.21	1.13	1.13	1.13	1.06	1.05	1.06	0.98	0.98	0.96
<b>Average .....</b>	<b>25.74</b>	<b>23.80</b>	<b>23.87</b>	<b>23.98</b>	<b>22.11</b>	<b>22.41</b>	<b>22.59</b>	<b>20.09</b>	<b>20.42</b>	<b>20.15</b>
Exports <sup>7</sup> .....	37.50	36.41	36.31	36.26	35.57	35.81	35.67	33.07	33.07	32.63

<sup>1</sup>Includes anthracite, bituminous coal, lignite, and waste coal delivered to independent power producers. Waste coal deliveries totaled 8.5 million tons in 1995, 8.8 million tons in 1996, 8.1 million tons in 1997, 8.6 million tons in 1998, and are projected to reach 9.6 million tons in 1999, and 12.2 million tons in 2000.

<sup>2</sup>Production plus net imports and net storage withdrawals.

<sup>3</sup>Includes consumption by cogenerators.

<sup>4</sup>Includes all electric power generators except cogenerators, which produce electricity and other useful thermal energy. Includes small power producers and exempt wholesale generators.

<sup>5</sup>Balancing item: the sum of production, net imports, and net storage minus total consumption.

<sup>6</sup>Sectoral prices weighted by consumption tonnage; weighted average excludes residential/ commercial prices and export free-alongside-ship (f.a.s.) prices.

<sup>7</sup>F.a.s. price at U.S. port of exit.

Btu = British thermal unit.

CO<sub>2</sub> = Carbon dioxide.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports.

Sources: 1999 data based on Energy Information Administration (EIA), *Quarterly Coal Report*, DOE/EIA-0121(2000/1Q) (Washington, DC, August 2000), and EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC5012.D081701B, REWC5012.D081701A. Projections: EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC5012.D081701B, REWC5012.D081701A.

**Table B11. Renewable Energy Generating Capability and Generation**  
(Gigawatts, Unless Otherwise Noted)

Capacity and Generation	1999	Projections								
		2005			2010			2020		
		Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap
<b>Electric Generators<sup>1</sup></b>										
<b>(excluding cogenerators)</b>										
<b>Net Summer Capability</b>										
Conventional Hydropower	78.77	79.26	79.26	79.26	79.38	79.38	79.38	79.38	79.38	79.38
Geothermal <sup>2</sup>	2.87	3.36	3.45	3.84	4.81	5.03	6.08	4.83	5.05	6.10
Municipal Solid Waste <sup>3</sup>	2.61	2.96	3.11	3.20	3.42	3.65	3.65	3.93	4.16	4.18
Wood and Other Biomass <sup>4</sup>	1.57	1.75	1.75	1.75	2.12	2.12	2.12	2.45	2.45	2.60
Solar Thermal	0.33	0.35	0.35	0.35	0.40	0.40	0.40	0.48	0.48	0.48
Solar Photovoltaic	0.01	0.08	0.08	0.08	0.21	0.21	0.21	0.54	0.54	0.54
Wind	2.66	6.92	6.92	6.92	7.52	7.52	7.52	7.74	7.76	7.89
<b>Total</b>	<b>88.83</b>	<b>94.68</b>	<b>94.92</b>	<b>95.40</b>	<b>97.85</b>	<b>98.30</b>	<b>99.35</b>	<b>99.35</b>	<b>99.82</b>	<b>101.17</b>
<b>Generation (billion kilowatthours)</b>										
Conventional Hydropower	309.55	301.20	301.20	301.20	301.13	301.13	301.12	300.06	300.06	300.03
Geothermal <sup>2</sup>	13.21	17.71	18.50	21.71	29.92	31.71	40.42	30.13	31.95	40.61
Municipal Solid Waste <sup>3</sup>	18.12	20.68	21.85	22.58	23.88	25.68	25.69	27.76	29.56	29.68
Wood and Other Biomass <sup>4</sup>	8.76	14.92	18.23	18.24	21.22	20.23	19.63	19.29	23.59	75.39
Dedicated Plants	7.73	9.17	9.17	9.17	11.36	11.36	11.36	13.82	13.82	14.90
Cofiring	1.03	5.75	9.06	9.07	9.86	8.87	8.26	5.47	9.77	60.50
Solar Thermal	0.89	0.96	0.96	0.96	1.11	1.11	1.11	1.37	1.37	1.37
Solar Photovoltaic	0.03	0.20	0.20	0.20	0.51	0.51	0.51	1.36	1.36	1.36
Wind	4.61	16.30	16.30	16.30	18.16	18.16	18.16	18.77	18.83	19.25
<b>Total</b>	<b>355.16</b>	<b>371.97</b>	<b>377.23</b>	<b>381.18</b>	<b>395.92</b>	<b>398.53</b>	<b>406.64</b>	<b>398.74</b>	<b>406.72</b>	<b>467.69</b>
<b>Cogenerators<sup>5</sup></b>										
<b>Net Summer Capability</b>										
Municipal Solid Waste	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Biomass	4.65	5.19	5.17	5.19	6.09	6.06	6.10	7.59	7.54	7.59
<b>Total</b>	<b>5.35</b>	<b>5.89</b>	<b>5.87</b>	<b>5.89</b>	<b>6.79</b>	<b>6.76</b>	<b>6.80</b>	<b>8.29</b>	<b>8.24</b>	<b>8.29</b>
<b>Generation (billion kilowatthours)</b>										
Municipal Solid Waste	4.04	4.04	4.04	4.04	4.04	4.04	4.04	4.04	4.04	4.04
Biomass	27.08	30.04	29.92	30.04	35.20	35.01	35.20	43.82	43.52	43.83
<b>Total</b>	<b>31.12</b>	<b>34.08</b>	<b>33.97</b>	<b>34.08</b>	<b>39.24</b>	<b>39.05</b>	<b>39.25</b>	<b>47.87</b>	<b>47.57</b>	<b>47.88</b>
<b>Other End-Use Generators<sup>6</sup></b>										
<b>Net Summer Capability</b>										
Conventional Hydropower <sup>7</sup>	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Solar Photovoltaic	0.01	0.10	0.10	0.10	0.35	0.35	0.35	0.35	0.35	0.35
<b>Total</b>	<b>1.00</b>	<b>1.09</b>	<b>1.09</b>	<b>1.09</b>	<b>1.34</b>	<b>1.34</b>	<b>1.34</b>	<b>1.34</b>	<b>1.34</b>	<b>1.34</b>
<b>Generation (billion kilowatthours)</b>										
Conventional Hydropower <sup>7</sup>	4.57	4.44	4.44	4.44	4.43	4.43	4.43	4.41	4.41	4.41
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Solar Photovoltaic	0.02	0.20	0.20	0.20	0.75	0.75	0.75	0.75	0.75	0.75
<b>Total</b>	<b>4.59</b>	<b>4.64</b>	<b>4.64</b>	<b>4.64</b>	<b>5.18</b>	<b>5.18</b>	<b>5.18</b>	<b>5.17</b>	<b>5.17</b>	<b>5.17</b>

<sup>1</sup>Includes grid-connected utilities and nonutilities other than cogenerators. These nonutility facilities include small power producers and exempt wholesale generators.

<sup>2</sup>Includes hydrothermal resources only (hot water and steam).

<sup>3</sup>Includes landfill gas.

<sup>4</sup>Includes projections for energy crops after 2010.

<sup>5</sup>Cogenerators produce electricity and other useful thermal energy.

<sup>6</sup>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.

<sup>7</sup>Represents own-use industrial hydroelectric power.

CO<sub>2</sub> = Carbon dioxide.

Notes: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports. Net summer capability has been estimated for nonutility generators for AEO2001. Net summer capability is used to be consistent with electric utility capacity estimates. Additional retirements are determined on the basis of the size and age of the units.

Sources: 1999 electric utility capability: Energy Information Administration (EIA), Form EIA-860A: "Annual Electric Generator Report - Utility." 1999 nonutility and cogenerator capability: EIA, Form EIA-860B: "Annual Electric Generator Report - Nonutility." 1999 generation: EIA, *Annual Energy Review 1999*, DOE/EIA-0384(99) (Washington, DC, July 2000). Projections: EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC5012.D081701B, REWC5012.D081701A.

**Table B12. Renewable Energy Consumption by Sector and Source<sup>1</sup>**  
(Quadrillion Btu per Year)

Sector and Source	1999	Projections								
		2005			2010			2020		
		Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap
<b>Marketed Renewable Energy<sup>2</sup></b>										
<b>Residential</b> .....	<b>0.41</b>	<b>0.42</b>	<b>0.42</b>	<b>0.42</b>	<b>0.42</b>	<b>0.42</b>	<b>0.42</b>	<b>0.43</b>	<b>0.43</b>	<b>0.43</b>
Wood .....	0.41	0.42	0.42	0.42	0.42	0.42	0.42	0.43	0.43	0.43
<b>Commercial</b> .....	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>
Biomass .....	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
<b>Industrial<sup>3</sup></b> .....	<b>2.15</b>	<b>2.40</b>	<b>2.42</b>	<b>2.40</b>	<b>2.63</b>	<b>2.64</b>	<b>2.63</b>	<b>3.07</b>	<b>3.08</b>	<b>3.08</b>
Conventional Hydroelectric .....	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Municipal Solid Waste .....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Biomass .....	1.97	2.22	2.23	2.22	2.44	2.45	2.44	2.89	2.89	2.89
<b>Transportation</b> .....	<b>0.12</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.21</b>	<b>0.21</b>	<b>0.21</b>	<b>0.24</b>	<b>0.24</b>	<b>0.24</b>
Ethanol used in E85 <sup>4</sup> .....	0.00	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03
Ethanol used in Gasoline Blending .....	0.12	0.18	0.18	0.18	0.19	0.19	0.19	0.21	0.21	0.21
<b>Electric Generators<sup>5</sup></b> .....	<b>3.88</b>	<b>4.17</b>	<b>4.24</b>	<b>4.35</b>	<b>4.70</b>	<b>4.77</b>	<b>5.02</b>	<b>4.75</b>	<b>4.87</b>	<b>5.67</b>
Conventional Hydroelectric .....	3.19	3.10	3.10	3.10	3.10	3.10	3.10	3.08	3.08	3.08
Geothermal .....	0.28	0.42	0.45	0.55	0.82	0.87	1.13	0.82	0.88	1.14
Municipal Solid Waste <sup>6</sup> .....	0.25	0.28	0.30	0.31	0.32	0.35	0.35	0.38	0.40	0.40
Biomass .....	0.11	0.18	0.21	0.21	0.25	0.24	0.24	0.24	0.29	0.82
Dedicated Plants .....	0.10	0.11	0.11	0.11	0.14	0.14	0.14	0.17	0.17	0.16
Cofiring .....	0.01	0.07	0.11	0.11	0.12	0.11	0.10	0.07	0.12	0.66
Solar Thermal .....	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.03	0.03
Solar Photovoltaic .....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wind .....	0.05	0.17	0.17	0.17	0.19	0.19	0.19	0.19	0.19	0.20
<b>Total Marketed Renewable Energy</b> .....	<b>6.64</b>	<b>7.27</b>	<b>7.36</b>	<b>7.46</b>	<b>8.05</b>	<b>8.12</b>	<b>8.37</b>	<b>8.58</b>	<b>8.71</b>	<b>9.50</b>
<b>Non-Marketed Renewable Energy<sup>7</sup></b>										
<b>Selected Consumption</b>										
<b>Residential</b> .....	<b>0.02</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.04</b>	<b>0.04</b>	<b>0.04</b>
Solar Hot Water Heating .....	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Geothermal Heat Pumps .....	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03
Solar Photovoltaic .....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Commercial</b> .....	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>
Solar Thermal .....	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03
Solar Photovoltaic .....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Ethanol</b>										
From Corn .....	0.12	0.19	0.19	0.19	0.19	0.19	0.19	0.17	0.17	0.17
From Cellulose .....	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.07	0.07	0.07
<b>Total</b> .....	<b>0.12</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.21</b>	<b>0.21</b>	<b>0.21</b>	<b>0.24</b>	<b>0.24</b>	<b>0.24</b>

<sup>1</sup>Actual heat rates used to determine fuel consumption for all renewable fuels except hydropower, solar, and wind. Consumption at hydroelectric, solar, and wind facilities determined by using the fossil fuel equivalent of 10,280 Btu per kilowatt-hour.

<sup>2</sup>Includes nonelectric renewable energy groups for which the energy source is bought and sold in the marketplace, although all transactions may not necessarily be marketed, and marketed renewable energy inputs for electricity entering the marketplace on the electric power grid.

<sup>3</sup>Includes all electricity production by industrial and other cogenerators for the grid and for own use.

<sup>4</sup>Excludes motor gasoline component of E85.

<sup>5</sup>Includes renewable energy delivered to the grid from electric utilities and nonutilities. Renewable energy used in generating electricity for own use is included in the individual sectoral electricity energy consumption values.

<sup>6</sup>Includes landfill gas.

<sup>7</sup>Includes selected renewable energy consumption data for which the energy is not bought or sold, either directly or indirectly as an input to marketed energy. The Energy Information Administration does not estimate or project total consumption of nonmarketed renewable energy.

Btu = British thermal unit.

CO<sub>2</sub> = Carbon dioxide.

Notes: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports.

Sources: 1999 ethanol: Energy Information Administration (EIA), *Annual Energy Review 1999*, DOE/EIA-0384(99) (Washington, DC, July 2000). 1999 electric generators: EIA, Form EIA-860A: "Annual Electric Generator Report - Utility," and EIA, Form EIA-860B: "Annual Electric Generator Report - Nonutility." Other 1999: EIA, Office of Integrated Analysis and Forecasting. Projections: EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC5012.D081701B, REWC5012.D081701A



**Table B13. Carbon Dioxide Emissions by Sector and Source**  
(Million Metric Tons Carbon Equivalent per Year)

Sector and Source	1999	Projections								
		2005			2010			2020		
		Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap
<b>Residential</b>										
Petroleum	26.0	26.6	26.6	26.6	24.6	24.6	24.6	23.3	23.3	23.4
Natural Gas	69.5	79.9	79.9	79.9	79.8	79.8	79.5	87.5	87.3	87.2
Coal	1.1	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3
Electricity	193.4	226.8	223.8	223.8	240.3	235.3	229.5	270.7	265.8	235.1
<b>Total</b>	<b>290.1</b>	<b>334.5</b>	<b>331.5</b>	<b>331.5</b>	<b>346.0</b>	<b>341.0</b>	<b>334.9</b>	<b>382.7</b>	<b>377.7</b>	<b>346.9</b>
<b>Commercial</b>										
Petroleum	13.7	11.9	11.9	11.9	12.1	12.1	12.1	12.0	12.1	12.1
Natural Gas	45.4	57.5	57.4	57.5	60.3	60.2	60.0	64.4	64.1	64.5
Coal	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.9	1.9	1.9
Electricity	181.3	219.0	215.5	216.1	241.0	235.6	230.7	268.3	263.8	233.9
<b>Total</b>	<b>242.1</b>	<b>290.1</b>	<b>286.5</b>	<b>287.2</b>	<b>315.1</b>	<b>309.7</b>	<b>304.6</b>	<b>346.6</b>	<b>341.9</b>	<b>312.4</b>
<b>Industrial<sup>1</sup></b>										
Petroleum	104.2	98.8	99.4	98.7	104.6	105.2	104.8	113.0	113.3	113.3
Natural Gas <sup>2</sup>	141.6	147.7	148.0	147.8	159.5	159.5	159.5	180.1	180.4	182.3
Coal	55.9	65.6	65.7	65.5	65.4	65.0	65.0	65.6	64.6	64.3
Electricity	178.8	192.9	191.3	190.2	203.7	200.0	195.1	226.3	223.3	197.4
<b>Total</b>	<b>480.4</b>	<b>505.0</b>	<b>504.4</b>	<b>502.3</b>	<b>533.2</b>	<b>529.7</b>	<b>524.4</b>	<b>585.0</b>	<b>581.6</b>	<b>557.4</b>
<b>Transportation</b>										
Petroleum <sup>3</sup>	485.8	554.7	556.3	554.6	606.2	607.3	605.9	703.5	704.1	702.5
Natural Gas <sup>4</sup>	9.5	12.6	12.7	12.7	14.3	14.4	14.6	18.0	18.1	18.1
Other <sup>5</sup>	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Electricity	2.9	4.4	4.3	4.3	5.8	5.7	5.5	7.9	7.8	7.1
<b>Total<sup>3</sup></b>	<b>498.2</b>	<b>571.8</b>	<b>573.4</b>	<b>571.7</b>	<b>626.3</b>	<b>627.5</b>	<b>626.1</b>	<b>729.5</b>	<b>730.1</b>	<b>727.8</b>
<b>Total Carbon Dioxide Emissions by Delivered Fuel</b>										
Petroleum <sup>3</sup>	629.7	692.0	694.2	691.8	747.4	749.2	747.4	851.8	852.7	851.3
Natural Gas	266.0	297.8	298.0	297.9	313.9	313.9	313.6	350.0	350.0	352.1
Coal	58.8	68.5	68.7	68.5	68.6	68.1	68.1	68.8	67.7	67.5
Other <sup>5</sup>	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Electricity	556.3	643.1	634.9	634.4	690.7	676.5	660.8	773.1	760.7	673.5
<b>Total<sup>3</sup></b>	<b>1510.8</b>	<b>1701.4</b>	<b>1695.8</b>	<b>1692.6</b>	<b>1820.6</b>	<b>1807.9</b>	<b>1789.9</b>	<b>2043.8</b>	<b>2031.2</b>	<b>1944.5</b>
<b>Electric Generators<sup>6</sup></b>										
Petroleum	20.0	9.1	7.6	7.9	5.3	3.9	4.0	4.8	3.5	3.0
Natural Gas	45.8	79.8	79.8	80.2	100.2	104.0	111.3	163.6	167.5	170.1
Coal	490.5	554.2	547.4	546.3	585.3	568.6	545.5	604.7	589.8	500.4
<b>Total</b>	<b>556.3</b>	<b>643.1</b>	<b>634.9</b>	<b>634.4</b>	<b>690.7</b>	<b>676.5</b>	<b>660.8</b>	<b>773.1</b>	<b>760.7</b>	<b>673.5</b>
<b>Total Carbon Dioxide Emissions by Primary Fuel<sup>7</sup></b>										
Petroleum <sup>3</sup>	649.7	701.1	701.9	699.7	752.6	753.1	751.3	856.5	856.2	854.3
Natural Gas	311.8	377.5	377.8	378.1	414.0	418.0	424.9	513.6	517.4	522.2
Coal	549.3	622.7	616.1	614.8	653.8	636.7	613.7	673.5	657.5	567.9
Other <sup>5</sup>	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
<b>Total<sup>3</sup></b>	<b>1510.8</b>	<b>1701.4</b>	<b>1695.8</b>	<b>1692.6</b>	<b>1820.6</b>	<b>1807.9</b>	<b>1789.9</b>	<b>2043.8</b>	<b>2031.2</b>	<b>1944.5</b>
<b>Carbon Dioxide Emissions (tons carbon equivalent per person) . . . .</b>										
	<b>5.5</b>	<b>5.9</b>	<b>5.9</b>	<b>5.9</b>	<b>6.1</b>	<b>6.0</b>	<b>6.0</b>	<b>6.3</b>	<b>6.2</b>	<b>6.0</b>

<sup>1</sup>Includes consumption by cogenerators.

<sup>2</sup>Includes lease and plant fuel.

<sup>3</sup>This includes international bunker fuel which, by convention are excluded from the international accounting of carbon dioxide emissions. In the years from 1990 through 1998, international bunker fuels accounted for 25 to 30 million metric tons carbon equivalent of carbon dioxide annually.

<sup>4</sup>Includes pipeline fuel natural gas and compressed natural gas used as vehicle fuel.

<sup>5</sup>Includes methanol and liquid hydrogen.

<sup>6</sup>Includes all electric power generators except cogenerators, which produce electricity and other useful thermal energy. Includes small power producers and exempt wholesale generators. Does not include emissions from the nonbiogenic component of municipal solid waste because under international guidelines these are accounted for as waste not energy.

<sup>7</sup>Emissions from electric power generators are distributed to the primary fuels.

CO<sub>2</sub> = Carbon dioxide.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports.

Sources: 1999 emissions and emission factors: Energy Information Administration (EIA), *Emissions of Greenhouse Gases in the United States 1999*, DOE/EIA-0573(99), (Washington, DC, October 2000). Projections: EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC5012.D081701B, REWC5012.D081701A.

**Table B14. Emissions, Allowance Costs, and Retrofits: Electric Generators, Excluding Cogenerators**

Impacts	1999	Projections								
		2005			2010			2020		
		Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap	Reference	50 Percent	50 Percent with CO <sub>2</sub> Cap
<b>Emissions</b>										
Nitrogen Oxide (million tons) .....	5.43	4.30	4.56	4.57	4.34	3.63	3.65	4.48	3.17	2.90
Sulfur Dioxide (million tons) .....	13.49	10.39	8.77	8.76	9.70	6.90	6.90	8.95	4.47	4.48
Mercury (tons) .....	43.35	45.02	37.90	37.90	45.53	25.80	25.80	45.23	21.50	21.50
Carbon Dioxide (million metric tons carbon equivalent) .....	556.3	643.1	634.9	634.4	690.7	676.5	660.8	773.1	760.7	673.5
<b>Allowance Prices</b>										
Nitrogen Oxide (1999 dollars per ton) .....										
Summer Seasonal .....	0	4370	0	0	4404	0	0	5087	0	0
National Annual .....	0	0	772	807	0	1208	1162	0	1108	0
Sulfur Dioxide (1999 dollars per ton) .....	0	184	201	197	180	210	260	200	719	527
Mercury (million 1999 dollars per ton) .....	0	0	57	57	0	29	25	0	42	15
Carbon Dioxide (1999 dollars per ton carbon equivalent) .....	0	0	0	0	0	0	0	0	0	54
<b>Retrofits (gigawatts, cumulative from 1999)</b>										
Scrubber <sup>1</sup> .....	0.0	8.9	21.3	25.6	8.9	47.8	40.2	17.5	90.0	60.4
Combustion .....	0.0	40.4	31.5	31.8	42.5	47.2	48.5	46.6	53.8	52.4
SCR Post-combustion .....	0.0	90.8	0.1	0.9	90.9	46.6	43.1	91.1	98.0	84.4
SNCR Post-combustion .....	0.0	28.5	0.9	0.4	28.5	2.7	4.1	46.0	14.6	17.8
Mercury Spray Cooler .....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0
Mercury Fabric Filter .....	0.0	0.0	0.0	0.0	0.0	45.5	47.2	0.0	45.5	47.2
<b>Coal Production by Sulfur Category (million tons)</b>										
Low Sulfur (< .61 lbs. S/mmBtu) .....	473	582	591	568	633	588	585	714	684	599
Medium Sulfur (.61-1.67 lbs. S/mmBtu) .....	433	456	442	445	465	455	429	442	410	352
High Sulfur (> 1.67 lbs. S/mmBtu) .....	196	190	180	193	191	195	184	180	189	164

<sup>1</sup>Represents scrubbers added by the model. Planned scrubbers added by electricity generators are not shown here.

CO<sub>2</sub> = Carbon dioxide.

lbs. S/mmBtu = Pounds sulfur per million British thermal units.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports.

Source: Energy Information Administration, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC5012.D081701B, REVC5012.D081701A.

## **Appendix C**

### **Tables for the 65-Percent Reduction Case**

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

Supply, Disposition, and Prices	1999	Projections								
		2005			2010			2020		
		Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap
<b>Production</b>										
Crude Oil and Lease Condensate . . . . .	12.45	12.04	12.04	12.03	11.23	11.29	11.22	11.06	11.15	11.10
Natural Gas Plant Liquids . . . . .	2.62	3.11	3.12	3.12	3.36	3.46	3.49	4.14	4.22	4.30
Dry Natural Gas . . . . .	19.16	21.88	21.99	21.97	23.97	24.74	24.90	30.10	30.67	31.23
Coal . . . . .	23.06	25.43	25.01	24.84	26.49	24.85	24.37	27.10	25.64	22.40
Nuclear Power . . . . .	7.79	7.90	7.90	7.90	7.69	7.74	7.79	6.51	6.54	6.74
Renewable Energy <sup>1</sup> . . . . .	6.52	7.09	7.18	7.25	7.86	7.97	8.23	8.37	8.54	9.01
Other <sup>2</sup> . . . . .	1.65	0.35	0.35	0.35	0.30	0.30	0.30	0.33	0.33	0.33
<b>Total . . . . .</b>	<b>73.26</b>	<b>77.79</b>	<b>77.60</b>	<b>77.47</b>	<b>80.90</b>	<b>80.36</b>	<b>80.30</b>	<b>87.61</b>	<b>87.09</b>	<b>85.11</b>
<b>Imports</b>										
Crude Oil <sup>3</sup> . . . . .	18.96	21.42	21.43	21.40	22.49	22.42	22.46	25.91	25.86	25.89
Petroleum Products <sup>4</sup> . . . . .	4.14	6.11	6.10	6.00	8.52	8.37	8.28	10.70	10.59	10.45
Natural Gas . . . . .	3.63	5.14	5.15	5.15	5.55	5.65	5.64	6.55	6.64	6.74
Other Imports <sup>5</sup> . . . . .	0.64	1.11	1.11	1.11	0.96	0.96	0.96	0.96	0.96	0.96
<b>Total . . . . .</b>	<b>27.37</b>	<b>33.78</b>	<b>33.79</b>	<b>33.66</b>	<b>37.52</b>	<b>37.40</b>	<b>37.34</b>	<b>44.11</b>	<b>44.05</b>	<b>44.03</b>
<b>Exports</b>										
Petroleum <sup>6</sup> . . . . .	1.98	1.73	1.73	1.73	1.73	1.71	1.70	1.82	1.87	1.89
Natural Gas . . . . .	0.17	0.33	0.33	0.33	0.43	0.43	0.43	0.63	0.63	0.63
Coal . . . . .	1.48	1.51	1.51	1.52	1.45	1.53	1.53	1.41	1.38	1.41
<b>Total . . . . .</b>	<b>3.62</b>	<b>3.56</b>	<b>3.57</b>	<b>3.58</b>	<b>3.61</b>	<b>3.67</b>	<b>3.66</b>	<b>3.87</b>	<b>3.89</b>	<b>3.93</b>
<b>Discrepancy<sup>7</sup> . . . . .</b>	<b>0.67</b>	<b>0.44</b>	<b>0.42</b>	<b>0.45</b>	<b>0.06</b>	<b>0.01</b>	<b>-0.00</b>	<b>0.18</b>	<b>0.14</b>	<b>0.09</b>
<b>Consumption</b>										
Petroleum Products <sup>8</sup> . . . . .	37.92	41.21	41.24	41.08	44.30	44.30	44.20	50.36	50.35	50.26
Natural Gas . . . . .	22.32	26.38	26.50	26.48	28.94	29.77	29.95	35.88	36.51	37.16
Coal . . . . .	21.40	24.37	23.96	23.78	25.57	23.90	23.44	26.30	24.92	21.70
Nuclear Power . . . . .	7.79	7.90	7.90	7.90	7.69	7.74	7.79	6.51	6.54	6.74
Renewable Energy <sup>1</sup> . . . . .	6.53	7.10	7.19	7.25	7.87	7.97	8.23	8.38	8.55	9.02
Other <sup>9</sup> . . . . .	0.35	0.61	0.61	0.61	0.38	0.38	0.38	0.25	0.25	0.25
<b>Total . . . . .</b>	<b>96.33</b>	<b>107.5</b>	<b>107.4</b>	<b>107.1</b>	<b>114.7</b>	<b>114.0</b>	<b>113.9</b>	<b>127.6</b>	<b>127.1</b>	<b>125.1</b>
<b>Net Imports - Petroleum . . . . .</b>	<b>21.12</b>	<b>25.80</b>	<b>25.79</b>	<b>25.67</b>	<b>29.28</b>	<b>29.08</b>	<b>29.05</b>	<b>34.78</b>	<b>34.58</b>	<b>34.46</b>
<b>Prices (1999 dollars per unit)</b>										
World Oil Price (dollars per barrel) <sup>10</sup> . . . . .	17.22	20.83	20.83	20.83	21.37	21.37	21.37	22.41	22.41	22.41
Gas Wellhead Price (dollars per Mcf) <sup>11</sup> . . . . .	2.08	2.99	3.03	3.01	2.82	2.95	2.94	3.10	3.35	3.43
Coal Minemouth Price (dollars per ton) . . . . .	17.13	15.22	15.78	15.21	14.19	14.69	14.62	12.93	12.87	12.35
Average Electric Price (cents per Kwh) . . . . .	6.7	6.4	6.4	6.4	6.1	6.2	6.2	6.1	6.3	7.0

<sup>1</sup>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.

<sup>2</sup>Includes liquid hydrogen, methanol, supplemental natural gas, and some domestic inputs to refineries.

<sup>3</sup>Includes imports of crude oil for the Strategic Petroleum Reserve.

<sup>4</sup>Includes imports of finished petroleum products, imports of unfinished oils, alcohols, ethers, and blending components.

<sup>5</sup>Includes coal, coal coke (net), and electricity (net).

<sup>6</sup>Includes crude oil and petroleum products.

<sup>7</sup>Balancing item. Includes unaccounted for supply, losses, gains, and net storage withdrawals.

<sup>8</sup>Includes natural gas plant liquids, crude oil consumed as a fuel, and nonpetroleum based liquids for blending, such as ethanol.

<sup>9</sup>Includes net electricity imports, methanol, and liquid hydrogen.

<sup>10</sup>Average refiner acquisition cost for imported crude oil.

<sup>11</sup>Represents lower 48 onshore and offshore supplies.

Btu = British thermal unit.

Mcf = Thousand cubic feet.

Kwh = Kilowatthour.

CO<sub>2</sub> = Carbon dioxide.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports.

Sources: 1999 natural gas values: Energy Information Administration (EIA), *Natural Gas Monthly*, DOE/EIA-0130(2000/06) (Washington, DC, June 2000). 1999 petroleum values: EIA, *Petroleum Supply Annual 1999*, DOE/EIA-0340(99/1) (Washington, DC, June 2000). Other 1999 values: EIA, *Annual Energy Review 1999*, DOE/EIA-0384(99) (Washington, DC, July 2000) and EIA, *Quarterly Coal Report*, DOE/EIA-0121(2000/1Q) (Washington, DC, August 2000). Projections: EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC6512.D081701B, REWC6512.D082001A.

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

Sector and Source	1999	Projections								
		2005			2010			2020		
		Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap
<b>Energy Consumption</b>										
<b>Residential</b>										
Distillate Fuel	0.86	0.87	0.87	0.87	0.80	0.80	0.80	0.76	0.76	0.76
Kerosene	0.10	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07
Liquefied Petroleum Gas	0.46	0.46	0.46	0.46	0.43	0.43	0.43	0.41	0.41	0.42
Petroleum Subtotal	1.42	1.41	1.41	1.41	1.30	1.31	1.30	1.23	1.24	1.25
Natural Gas	4.88	5.55	5.55	5.55	5.54	5.52	5.52	6.08	6.03	6.02
Coal	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Renewable Energy <sup>1</sup>	0.41	0.42	0.42	0.42	0.42	0.42	0.42	0.43	0.43	0.43
Electricity	3.91	4.56	4.56	4.55	4.91	4.88	4.88	5.69	5.63	5.50
<b>Delivered Energy</b>	<b>10.66</b>	<b>11.99</b>	<b>11.98</b>	<b>11.97</b>	<b>12.22</b>	<b>12.18</b>	<b>12.17</b>	<b>13.48</b>	<b>13.38</b>	<b>13.25</b>
Electricity Related Losses	8.44	9.66	9.53	9.51	10.00	9.71	9.74	10.65	10.47	9.88
<b>Total</b>	<b>19.10</b>	<b>21.65</b>	<b>21.52</b>	<b>21.49</b>	<b>22.22</b>	<b>21.89</b>	<b>21.91</b>	<b>24.14</b>	<b>23.85</b>	<b>23.13</b>
<b>Commercial</b>										
Distillate Fuel	0.36	0.37	0.37	0.37	0.38	0.38	0.38	0.37	0.37	0.37
Residual Fuel	0.10	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Kerosene	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Liquefied Petroleum Gas	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.10	0.10	0.10
Motor Gasoline <sup>2</sup>	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Petroleum Subtotal	0.60	0.61	0.61	0.61	0.62	0.62	0.62	0.62	0.62	0.62
Natural Gas	3.14	3.99	3.99	3.99	4.19	4.16	4.16	4.47	4.42	4.44
Coal	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.08
Renewable Energy <sup>3</sup>	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Electricity	3.66	4.40	4.39	4.39	4.92	4.90	4.91	5.64	5.61	5.49
<b>Delivered Energy</b>	<b>7.55</b>	<b>9.15</b>	<b>9.13</b>	<b>9.14</b>	<b>9.88</b>	<b>9.84</b>	<b>9.85</b>	<b>10.88</b>	<b>10.80</b>	<b>10.70</b>
Electricity Related Losses	7.91	9.33	9.19	9.19	10.02	9.76	9.81	10.56	10.42	9.86
<b>Total</b>	<b>15.46</b>	<b>18.48</b>	<b>18.32</b>	<b>18.33</b>	<b>19.90</b>	<b>19.59</b>	<b>19.66</b>	<b>21.44</b>	<b>21.22</b>	<b>20.56</b>
<b>Industrial<sup>4</sup></b>										
Distillate Fuel	1.13	1.21	1.22	1.21	1.30	1.30	1.30	1.49	1.49	1.49
Liquefied Petroleum Gas	2.32	2.44	2.46	2.44	2.51	2.51	2.52	2.85	2.85	2.85
Petrochemical Feedstock	1.29	1.36	1.36	1.36	1.53	1.53	1.53	1.69	1.70	1.69
Residual Fuel	0.22	0.16	0.16	0.16	0.25	0.25	0.25	0.27	0.28	0.28
Motor Gasoline <sup>2</sup>	0.21	0.23	0.23	0.23	0.25	0.25	0.25	0.28	0.28	0.28
Other Petroleum <sup>5</sup>	4.29	4.41	4.45	4.42	4.68	4.71	4.68	5.00	5.02	5.03
Petroleum Subtotal	9.45	9.81	9.88	9.82	10.51	10.55	10.53	11.58	11.63	11.63
Natural Gas <sup>6</sup>	9.80	10.42	10.43	10.40	11.27	11.31	11.27	12.71	12.73	12.81
Metallurgical Coal	0.75	0.67	0.67	0.67	0.61	0.61	0.61	0.50	0.50	0.50
Steam Coal	1.73	1.80	1.80	1.80	1.82	1.79	1.77	1.86	1.80	1.76
Net Coal Coke Imports	0.06	0.11	0.12	0.11	0.15	0.16	0.15	0.22	0.22	0.22
Coal Subtotal	2.54	2.59	2.59	2.58	2.58	2.55	2.53	2.59	2.52	2.48
Renewable Energy <sup>7</sup>	2.15	2.40	2.42	2.40	2.63	2.64	2.63	3.07	3.08	3.08
Electricity	3.61	3.88	3.89	3.87	4.16	4.17	4.15	4.76	4.75	4.65
<b>Delivered Energy</b>	<b>27.56</b>	<b>29.10</b>	<b>29.20</b>	<b>29.08</b>	<b>31.14</b>	<b>31.22</b>	<b>31.11</b>	<b>34.72</b>	<b>34.70</b>	<b>34.65</b>
Electricity Related Losses	7.80	8.21	8.15	8.09	8.47	8.29	8.30	8.91	8.83	8.35
<b>Total</b>	<b>35.36</b>	<b>37.31</b>	<b>37.35</b>	<b>37.17</b>	<b>39.61</b>	<b>39.51</b>	<b>39.41</b>	<b>43.63</b>	<b>43.53</b>	<b>43.00</b>

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

Sector and Source	1999	Projections								
		2005			2010			2020		
		Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap
<b>Transportation</b>										
Distillate Fuel	5.13	6.25	6.27	6.24	6.98	6.98	6.96	8.21	8.21	8.17
Jet Fuel <sup>8</sup>	3.46	3.88	3.90	3.88	4.49	4.51	4.49	5.96	5.97	5.96
Motor Gasoline <sup>2</sup>	15.92	17.64	17.68	17.64	18.94	18.97	18.95	21.25	21.27	21.23
Residual Fuel	0.74	0.85	0.85	0.85	0.85	0.85	0.85	0.86	0.86	0.86
Liquefied Petroleum Gas	0.02	0.03	0.03	0.03	0.04	0.05	0.04	0.06	0.06	0.06
Other Petroleum <sup>9</sup>	0.26	0.29	0.30	0.29	0.31	0.31	0.31	0.35	0.35	0.35
Petroleum Subtotal	25.54	28.95	29.03	28.94	31.62	31.67	31.60	36.70	36.72	36.65
Pipeline Fuel Natural Gas	0.66	0.82	0.83	0.83	0.90	0.93	0.93	1.10	1.12	1.13
Compressed Natural Gas	0.02	0.05	0.06	0.05	0.09	0.09	0.09	0.16	0.15	0.15
Renewable Energy (E85) <sup>10</sup>	0.01	0.02	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04
Methanol (M85) <sup>11</sup>	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
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	0.09	0.09	0.09	0.12	0.12	0.12	0.17	0.17	0.17
<b>Delivered Energy</b>	<b>26.28</b>	<b>29.94</b>	<b>30.03</b>	<b>29.93</b>	<b>32.77</b>	<b>32.85</b>	<b>32.78</b>	<b>38.16</b>	<b>38.21</b>	<b>38.15</b>
Electricity Related Losses	0.13	0.19	0.18	0.18	0.24	0.23	0.24	0.31	0.31	0.30
<b>Total</b>	<b>26.41</b>	<b>30.12</b>	<b>30.21</b>	<b>30.12</b>	<b>33.01</b>	<b>33.08</b>	<b>33.02</b>	<b>38.47</b>	<b>38.51</b>	<b>38.44</b>
<b>Delivered Energy Consumption for All Sectors</b>										
Distillate Fuel	7.48	8.70	8.73	8.70	9.46	9.47	9.44	10.82	10.83	10.79
Kerosene	0.15	0.13	0.13	0.13	0.12	0.12	0.13	0.12	0.12	0.12
Jet Fuel <sup>8</sup>	3.46	3.88	3.90	3.88	4.49	4.51	4.49	5.96	5.97	5.96
Liquefied Petroleum Gas	2.88	3.02	3.04	3.02	3.07	3.08	3.08	3.41	3.42	3.43
Motor Gasoline <sup>2</sup>	16.17	17.90	17.93	17.89	19.22	19.24	19.22	21.56	21.58	21.54
Petrochemical Feedstock	1.29	1.36	1.36	1.36	1.53	1.53	1.53	1.69	1.70	1.69
Residual Fuel	1.05	1.10	1.10	1.10	1.20	1.20	1.20	1.23	1.24	1.24
Other Petroleum <sup>12</sup>	4.53	4.68	4.72	4.69	4.96	4.99	4.97	5.33	5.35	5.36
Petroleum Subtotal	37.01	40.77	40.92	40.77	44.05	44.14	44.05	50.13	50.21	50.14
Natural Gas <sup>6</sup>	18.50	20.84	20.85	20.82	21.99	22.02	21.97	24.52	24.44	24.55
Metallurgical Coal	0.75	0.67	0.67	0.67	0.61	0.61	0.61	0.50	0.50	0.50
Steam Coal	1.84	1.92	1.92	1.92	1.94	1.91	1.90	1.99	1.92	1.89
Net Coal Coke Imports	0.06	0.11	0.12	0.11	0.15	0.16	0.15	0.22	0.22	0.22
Coal Subtotal	2.65	2.70	2.71	2.70	2.70	2.67	2.66	2.71	2.64	2.61
Renewable Energy <sup>13</sup>	2.65	2.93	2.94	2.93	3.17	3.18	3.17	3.64	3.64	3.64
Methanol (M85) <sup>11</sup>	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Liquid Hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	11.24	12.93	12.93	12.90	14.10	14.06	14.06	16.25	16.16	15.80
<b>Delivered Energy</b>	<b>72.05</b>	<b>80.17</b>	<b>80.35</b>	<b>80.12</b>	<b>86.01</b>	<b>86.08</b>	<b>85.91</b>	<b>97.25</b>	<b>97.09</b>	<b>96.74</b>
Electricity Related Losses	24.28	27.39	27.05	26.98	28.73	27.99	28.08	30.43	30.02	28.38
<b>Total</b>	<b>96.33</b>	<b>107.5</b>	<b>107.4</b>	<b>107.1</b>	<b>114.7</b>	<b>114.0</b>	<b>113.9</b>	<b>127.6</b>	<b>127.1</b>	<b>125.1</b>
<b>Electric Generators<sup>14</sup></b>										
Distillate Fuel	0.05	0.06	0.05	0.05	0.06	0.04	0.04	0.06	0.04	0.02
Residual Fuel	0.86	0.37	0.27	0.26	0.20	0.12	0.12	0.17	0.10	0.09
Petroleum Subtotal	0.91	0.43	0.32	0.31	0.25	0.16	0.16	0.23	0.14	0.11
Natural Gas	3.83	5.54	5.65	5.66	6.96	7.76	7.98	11.36	12.07	12.61
Steam Coal	18.75	21.67	21.25	21.08	22.87	21.23	20.78	23.59	22.28	19.09
Nuclear Power	7.79	7.90	7.90	7.90	7.69	7.74	7.79	6.51	6.54	6.74
Renewable Energy <sup>15</sup>	3.88	4.17	4.25	4.32	4.70	4.80	5.06	4.75	4.91	5.39
Electricity Imports <sup>16</sup>	0.35	0.61	0.61	0.61	0.37	0.37	0.37	0.24	0.24	0.24
<b>Total</b>	<b>35.52</b>	<b>40.32</b>	<b>39.98</b>	<b>39.88</b>	<b>42.83</b>	<b>42.06</b>	<b>42.14</b>	<b>46.68</b>	<b>46.18</b>	<b>44.19</b>



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

Sector and Source	1999	Projections								
		2005			2010			2020		
		Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap
<b>Total Energy Consumption</b>										
Distillate Fuel	7.53	8.77	8.78	8.75	9.51	9.50	9.48	10.88	10.87	10.82
Kerosene	0.15	0.13	0.13	0.13	0.12	0.12	0.13	0.12	0.12	0.12
Jet Fuel <sup>8</sup>	3.46	3.88	3.90	3.88	4.49	4.51	4.49	5.96	5.97	5.96
Liquefied Petroleum Gas	2.88	3.02	3.04	3.02	3.07	3.08	3.08	3.41	3.42	3.43
Motor Gasoline <sup>2</sup>	16.17	17.90	17.93	17.89	19.22	19.24	19.22	21.56	21.58	21.54
Petrochemical Feedstock	1.29	1.36	1.36	1.36	1.53	1.53	1.53	1.69	1.70	1.69
Residual Fuel	1.92	1.48	1.38	1.36	1.39	1.32	1.32	1.41	1.34	1.33
Other Petroleum <sup>12</sup>	4.53	4.68	4.72	4.69	4.96	4.99	4.97	5.33	5.35	5.36
Petroleum Subtotal	37.92	41.21	41.24	41.08	44.30	44.30	44.20	50.36	50.35	50.26
Natural Gas	22.32	26.38	26.50	26.48	28.94	29.77	29.95	35.88	36.51	37.16
Metallurgical Coal	0.75	0.67	0.67	0.67	0.61	0.61	0.61	0.50	0.50	0.50
Steam Coal	20.59	23.59	23.17	22.99	24.81	23.14	22.68	25.58	24.20	20.98
Net Coal Coke Imports	0.06	0.11	0.12	0.11	0.15	0.16	0.15	0.22	0.22	0.22
Coal Subtotal	21.40	24.37	23.96	23.78	25.57	23.90	23.44	26.30	24.92	21.70
Nuclear Power	7.79	7.90	7.90	7.90	7.69	7.74	7.79	6.51	6.54	6.74
Renewable Energy <sup>17</sup>	6.53	7.10	7.19	7.25	7.87	7.97	8.23	8.38	8.55	9.02
Methanol (M85) <sup>11</sup>	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Liquid Hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity Imports <sup>16</sup>	0.35	0.61	0.61	0.61	0.37	0.37	0.37	0.24	0.24	0.24
<b>Total</b>	<b>96.33</b>	<b>107.56</b>	<b>107.40</b>	<b>107.11</b>	<b>114.74</b>	<b>114.07</b>	<b>113.99</b>	<b>127.68</b>	<b>127.12</b>	<b>125.13</b>
<b>Energy Use and Related Statistics</b>										
Delivered Energy Use	72.05	80.17	80.35	80.12	86.01	86.08	85.91	97.25	97.09	96.74
Total Energy Use	96.33	107.56	107.40	107.11	114.74	114.07	113.99	127.68	127.12	125.13
Population (millions)	273.13	288.02	288.02	288.02	300.17	300.17	300.17	325.24	325.24	325.24
Gross Domestic Product (billion 1996 dollars)	8876	10908	10960	10905	12634	12667	12634	16509	16515	16512
Total Carbon Dioxide Emissions (million metric tons carbon equivalent)	1510.8	1701.4	1691.8	1684.9	1820.6	1789.0	1777.9	2043.8	2016.8	1942.4

<sup>1</sup>Includes wood used for residential heating.

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

<sup>3</sup>Includes commercial sector electricity cogenerated by using wood and wood waste, landfill gas, municipal solid waste, and other biomass.

<sup>4</sup>Fuel consumption includes consumption for cogeneration, which provides electricity and other useful thermal energy.

<sup>5</sup>Includes petroleum coke, asphalt, road oil, lubricants, still gas, and miscellaneous petroleum products.

<sup>6</sup>Includes lease and plant fuel and consumption by cogenerators, excludes consumption by nonutility generators.

<sup>7</sup>Includes consumption of energy from hydroelectric, wood and wood waste, municipal solid waste, and other biomass; includes cogeneration, both for sale to the grid and for own use.

<sup>8</sup>Includes only kerosene type.

<sup>9</sup>Includes aviation gas and lubricants.

<sup>10</sup>E85 is 85 percent ethanol (renewable) and 15 percent motor gasoline (nonrenewable).

<sup>11</sup>M85 is 85 percent methanol and 15 percent motor gasoline.

<sup>12</sup>Includes unfinished oils, natural gasoline, motor gasoline blending compounds, aviation gasoline, lubricants, still gas, asphalt, road oil, petroleum coke, and miscellaneous petroleum products.

<sup>13</sup>Includes electricity generated for sale to the grid and for own use from renewable sources, and non-electric energy from renewable sources. Excludes nonmarketed renewable energy consumption for geothermal heat pumps, buildings photovoltaic systems, and solar thermal hot water heaters.

<sup>14</sup>Includes consumption of energy by all electric power generators for grid-connected power except cogenerators, which produce electricity and other useful thermal energy. Includes small power producers and exempt wholesale generators.

<sup>15</sup>Includes conventional hydroelectric, geothermal, wood and wood waste, municipal solid waste, other biomass, petroleum coke, wind, photovoltaic and solar thermal sources. Excludes cogeneration. Excludes net electricity imports.

<sup>16</sup>In 1998 approximately 70 percent of the U.S. electricity imports were provided by renewable sources (hydroelectricity); EIA does not project future proportions for the fuel source of imported electricity.

<sup>17</sup>Includes hydroelectric, geothermal, wood and wood waste, municipal solid waste, other biomass, wind, photovoltaic and solar thermal sources. Includes ethanol components of E85; excludes ethanol blends (10 percent or less) in motor gasoline. Excludes net electricity imports and nonmarketed renewable energy consumption for geothermal heat pumps, buildings photovoltaic systems, and solar thermal hot water heaters.

Btu = British thermal unit.

CO<sub>2</sub> = Carbon dioxide.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports. Consumption values of 0.00 are values that round to 0.00, because they are less than 0.005.

Sources: 1999 electric utility fuel consumption: Energy Information Administration, (EIA) *Electric Power Annual 1998, Volume 1*, DOE/EIA-0348(98)/1 (Washington, DC, April 1999). 1999 nonutility consumption estimates: EIA, Form EIA-860B: "Annual Electric Generator Report - Nonutility." Other 1999 values: EIA, *Short-Term Energy Outlook, April 2001*, <http://www.eia.doe.gov/pub/forecasting/steo/oldsteos/apr01.pdf>. Projections: EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC6512.D081701B, REWC6512.D082001A.

**Table C3. Energy Prices by Sector and Source**  
(1999 Dollars per Million Btu, Unless Otherwise Noted)

Sector and Source	1999	Projections								
		2005			2010			2020		
		Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap
<b>Residential</b>	<b>13.18</b>	<b>13.33</b>	<b>13.42</b>	<b>13.41</b>	<b>13.41</b>	<b>13.70</b>	<b>13.64</b>	<b>13.62</b>	<b>14.04</b>	<b>14.79</b>
Primary Energy <sup>1</sup>	6.71	7.50	7.54	7.52	7.17	7.27	7.27	7.01	7.21	7.25
Petroleum Products <sup>2</sup>	7.55	9.17	9.17	9.17	9.37	9.37	9.37	9.47	9.45	9.38
Distillate Fuel	6.27	7.37	7.38	7.37	7.57	7.57	7.56	7.76	7.75	7.74
Liquefied Petroleum Gas	10.36	12.61	12.61	12.61	12.82	12.81	12.82	12.71	12.66	12.45
Natural Gas	6.52	7.13	7.18	7.16	6.70	6.83	6.82	6.56	6.79	6.85
Electricity	23.69	22.29	22.46	22.46	22.19	22.77	22.63	22.16	22.92	24.81
<b>Commercial</b>	<b>13.28</b>	<b>12.71</b>	<b>12.81</b>	<b>12.80</b>	<b>12.23</b>	<b>12.42</b>	<b>12.36</b>	<b>12.55</b>	<b>12.97</b>	<b>14.08</b>
Primary Energy <sup>1</sup>	5.22	5.58	5.61	5.59	5.65	5.75	5.75	5.69	5.88	5.93
Petroleum Products <sup>2</sup>	4.99	6.08	6.08	6.08	6.27	6.26	6.26	6.37	6.35	6.31
Distillate Fuel	4.37	5.17	5.17	5.17	5.35	5.35	5.34	5.51	5.50	5.49
Residual Fuel	2.63	3.64	3.63	3.63	3.70	3.69	3.69	3.85	3.84	3.84
Natural Gas <sup>3</sup>	5.34	5.57	5.61	5.59	5.63	5.75	5.75	5.67	5.90	5.96
Electricity	21.64	20.28	20.45	20.45	18.76	19.01	18.89	18.83	19.43	21.71
<b>Industrial<sup>4</sup></b>	<b>5.29</b>	<b>5.75</b>	<b>5.78</b>	<b>5.77</b>	<b>5.62</b>	<b>5.71</b>	<b>5.69</b>	<b>5.82</b>	<b>6.00</b>	<b>6.23</b>
Primary Energy	3.91	4.46	4.49	4.48	4.45	4.50	4.50	4.61	4.72	4.69
Petroleum Products <sup>2</sup>	5.54	5.97	5.97	5.97	6.07	6.07	6.07	6.12	6.09	5.96
Distillate Fuel	4.65	5.33	5.33	5.33	5.53	5.54	5.52	5.71	5.70	5.69
Liquefied Petroleum Gas	8.50	7.75	7.76	7.76	7.77	7.75	7.79	7.68	7.64	7.42
Residual Fuel	2.78	3.37	3.36	3.36	3.43	3.42	3.42	3.58	3.58	3.57
Natural Gas <sup>5</sup>	2.79	3.66	3.71	3.69	3.46	3.58	3.57	3.73	3.98	4.04
Metallurgical Coal	1.66	1.58	1.59	1.58	1.54	1.55	1.54	1.44	1.43	1.44
Steam Coal	1.43	1.35	1.36	1.34	1.30	1.30	1.29	1.21	1.18	1.15
Electricity	13.12	12.81	12.89	12.90	12.04	12.26	12.16	12.07	12.67	14.42
<b>Transportation</b>	<b>8.30</b>	<b>9.33</b>	<b>9.34</b>	<b>9.34</b>	<b>9.63</b>	<b>9.66</b>	<b>9.65</b>	<b>9.20</b>	<b>9.20</b>	<b>9.22</b>
Primary Energy	8.29	9.32	9.32	9.32	9.61	9.65	9.63	9.18	9.18	9.20
Petroleum Products <sup>2</sup>	8.28	9.32	9.32	9.32	9.61	9.64	9.63	9.18	9.18	9.19
Distillate Fuel <sup>6</sup>	8.22	8.89	8.90	8.89	8.94	8.95	8.94	8.83	8.82	8.83
Jet Fuel <sup>7</sup>	4.70	5.22	5.23	5.23	5.49	5.49	5.49	5.72	5.72	5.71
Motor Gasoline <sup>8</sup>	9.45	10.75	10.75	10.75	11.20	11.26	11.24	10.60	10.60	10.63
Residual Fuel	2.46	3.11	3.10	3.10	3.18	3.18	3.18	3.33	3.33	3.33
Liquid Petroleum Gas <sup>9</sup>	12.87	14.07	14.08	14.07	14.00	13.98	14.02	13.64	13.59	13.41
Natural Gas <sup>10</sup>	7.02	7.30	7.34	7.33	7.17	7.30	7.30	7.30	7.52	7.59
Ethanol (E85) <sup>11</sup>	14.42	19.20	19.20	19.21	19.13	19.16	19.15	19.34	19.37	19.38
Methanol (M85) <sup>12</sup>	10.38	13.13	13.18	13.15	13.80	13.82	13.81	14.35	14.36	14.37
Electricity	15.64	14.61	14.64	14.64	13.73	14.16	14.07	13.18	13.67	14.51
<b>Average End-Use Energy</b>	<b>8.52</b>	<b>9.16</b>	<b>9.19</b>	<b>9.19</b>	<b>9.16</b>	<b>9.26</b>	<b>9.24</b>	<b>9.13</b>	<b>9.30</b>	<b>9.61</b>
Primary Energy	6.31	7.16	7.18	7.17	7.30	7.35	7.35	7.20	7.27	7.27
Electricity	19.58	18.71	18.84	18.86	17.93	18.27	18.16	17.96	18.60	20.57
<b>Electric Generators<sup>13</sup></b>										
Fossil Fuel Average	1.48	1.63	1.66	1.66	1.59	1.71	1.73	1.85	2.00	2.19
Petroleum Products	2.48	3.60	3.66	3.68	3.96	4.17	4.18	4.20	4.48	4.51
Distillate Fuel	4.07	4.65	4.68	4.67	4.85	4.88	4.86	5.05	5.06	5.12
Residual Fuel	2.39	3.43	3.48	3.49	3.70	3.96	3.96	3.92	4.28	4.35
Natural Gas	2.57	3.42	3.52	3.51	3.23	3.46	3.45	3.62	3.90	4.04
Steam Coal	1.21	1.13	1.13	1.13	1.06	1.05	1.05	0.98	0.96	0.95

**Table C3. Energy Prices by Sector and Source (Continued)**  
(1999 Dollars per Million Btu, Unless Otherwise Noted)

Sector and Source	1999	Projections								
		2005			2010			2020		
		Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap
<b>Average Price to All Users<sup>14</sup></b>										
Petroleum Products <sup>2</sup>	7.46	8.48	8.49	8.50	8.75	8.79	8.78	8.49	8.49	8.47
Distillate Fuel	7.25	8.06	8.07	8.06	8.20	8.20	8.20	8.20	8.19	8.20
Jet Fuel	4.70	5.22	5.23	5.23	5.49	5.49	5.49	5.72	5.72	5.71
Liquefied Petroleum Gas	8.84	8.65	8.65	8.66	8.66	8.65	8.67	8.48	8.44	8.23
Motor Gasoline <sup>8</sup>	9.45	10.75	10.75	10.75	11.20	11.26	11.24	10.60	10.60	10.63
Residual Fuel	2.47	3.25	3.24	3.24	3.33	3.33	3.33	3.49	3.48	3.48
Natural Gas	4.04	4.73	4.78	4.76	4.43	4.55	4.53	4.50	4.73	4.80
Coal	1.23	1.15	1.15	1.15	1.08	1.08	1.07	0.99	0.97	0.97
Ethanol (E85) <sup>11</sup>	14.42	19.20	19.20	19.21	19.13	19.16	19.15	19.34	19.37	19.38
Methanol (M85) <sup>12</sup>	10.38	13.13	13.18	13.15	13.80	13.82	13.81	14.35	14.36	14.37
Electricity	19.58	18.71	18.84	18.86	17.93	18.27	18.16	17.96	18.60	20.57
<b>Non-Renewable Energy Expenditures by Sector (billion 1999 dollars)</b>										
Residential	135.11	154.2	155.1	154.8	158.2	161.0	160.2	177.6	181.8	189.5
Commercial	99.11	115.3	115.9	115.9	119.8	121.1	120.6	135.5	139.0	149.5
Industrial	112.11	126.4	127.6	126.7	131.8	134.0	133.1	152.0	156.8	163.1
Transportation	212.64	271.3	272.1	271.3	306.1	307.7	306.6	340.1	340.4	340.5
Total Non-Renewable Expenditures	558.97	667.3	670.8	668.9	716.0	723.9	720.6	805.4	818.2	842.7
Transportation Renewable Expenditures	0.14	0.42	0.42	0.42	0.62	0.63	0.63	0.85	0.85	0.85
<b>Total Expenditures</b>	<b>559.11</b>	<b>667.7</b>	<b>671.2</b>	<b>669.3</b>	<b>716.6</b>	<b>724.5</b>	<b>721.2</b>	<b>806.2</b>	<b>819.1</b>	<b>843.6</b>

<sup>1</sup>Weighted average price includes fuels below as well as coal.

<sup>2</sup>This quantity is the weighted average for all petroleum products, not just those listed below.

<sup>3</sup>Excludes independent power producers.

<sup>4</sup>Includes cogenerators.

<sup>5</sup>Excludes uses for lease and plant fuel.

<sup>6</sup>Low sulfur diesel fuel. Price includes Federal and State taxes while excluding county and local taxes.

<sup>7</sup>Kerosene-type jet fuel. Price includes Federal and State taxes while excluding county and local taxes.

<sup>8</sup>Sales weighted-average price for all grades. Includes Federal and State taxes and excludes county and local taxes.

<sup>9</sup>Includes Federal and State taxes while excluding county and local taxes.

<sup>10</sup>Compressed natural gas used as a vehicle fuel. Price includes estimated motor vehicle fuel taxes.

<sup>11</sup>E85 is 85 percent ethanol (renewable) and 15 percent motor gasoline (nonrenewable).

<sup>12</sup>M85 is 85 percent methanol and 15 percent motor gasoline.

<sup>13</sup>Includes all electric power generators except cogenerators, which produce electricity and other useful thermal energy. Includes small power producers and exempt wholesale generators.

<sup>14</sup>Weighted averages of end-use fuel prices are derived from the prices shown in each sector and the corresponding sectoral consumption.

Btu = British thermal unit.

CO<sub>2</sub> = Carbon dioxide.

Note: Data for 1999 are model results and may differ slightly from official EIA data reports.

**Sources:** 1999 prices for gasoline, distillate, and jet fuel are based on prices in various issues of Energy Information Administration (EIA), *Petroleum Marketing Monthly*, DOE/EIA-0380 (99/03-2000/04) (Washington, DC, 1999-2000). 1999 prices for all other petroleum products are derived from the EIA, *State Energy Price and Expenditure Report 1997*, DOE/EIA-0376(97) (Washington, DC, July 2000). 1999 industrial gas delivered prices are based on EIA, *Manufacturing Energy Consumption Survey 1994*. 1999 residential and commercial natural gas delivered prices: EIA, *Natural Gas Monthly*, DOE/EIA-0130(2000/06) (Washington, DC, June 2000). 1999 coal prices based on EIA, *Quarterly Coal Report*, DOE/EIA-0121(2000/1Q) (Washington, DC, August 2000), and EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC6512.D081701B, REWC6512.D082001A. 1999 electricity prices for commercial, industrial, and transportation: EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC6512.D081701B, REWC6512.D082001A. **Projections:** EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC6512.D081701B, REWC6512.D082001A.

**Table C4. Electricity Supply, Disposition, Prices, and Emissions**  
(Billion Kilowatthours, Unless Otherwise Noted)

Supply, Disposition, and Prices	1999	Projections								
		2005			2010			2020		
		Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap
<b>Generation by Fuel Type</b>										
<b>Electric Generators<sup>1</sup></b>										
Coal	1830	2105	2062	2049	2238	2064	2014	2302	2135	1842
Petroleum	85	42	32	31	25	16	16	23	14	12
Natural Gas <sup>2</sup>	370	582	629	632	826	989	1026	1488	1626	1767
Nuclear Power	730	740	740	740	720	725	729	610	613	631
Pumped Storage	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Renewable Sources <sup>3</sup>	355	372	378	381	396	401	409	399	409	438
<b>Total</b>	<b>3369</b>	<b>3839</b>	<b>3840</b>	<b>3831</b>	<b>4204</b>	<b>4194</b>	<b>4194</b>	<b>4821</b>	<b>4796</b>	<b>4690</b>
Non-Utility Generation for Own Use	16	17	17	17	17	16	16	16	16	23
Distributed Generation	0	0	0	0	1	1	1	5	4	4
<b>Cogenerators<sup>4</sup></b>										
Coal	47	53	52	52	51	50	49	52	47	42
Petroleum	9	10	10	10	10	10	10	10	10	10
Natural Gas	206	236	237	237	259	259	258	317	320	350
Other Gaseous Fuels <sup>5</sup>	4	6	6	6	7	7	7	8	8	9
Renewable Sources <sup>3</sup>	31	34	34	34	39	39	39	48	48	48
Other <sup>6</sup>	5	5	5	5	5	5	5	6	6	6
<b>Total</b>	<b>303</b>	<b>344</b>	<b>344</b>	<b>345</b>	<b>372</b>	<b>370</b>	<b>368</b>	<b>440</b>	<b>438</b>	<b>464</b>
<b>Other End-Use Generators<sup>7</sup></b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>
Sales to Utilities	151	172	170	170	179	177	175	208	203	207
Generation for Own Use	156	177	179	179	197	198	198	237	240	262
<b>Net Imports<sup>8</sup></b>	<b>33</b>	<b>57</b>	<b>57</b>	<b>57</b>	<b>35</b>	<b>35</b>	<b>35</b>	<b>23</b>	<b>23</b>	<b>23</b>
<b>Electricity Sales by Sector</b>										
Residential	1145	1337	1335	1333	1438	1429	1429	1668	1651	1613
Commercial	1073	1291	1287	1288	1442	1437	1439	1653	1643	1608
Industrial	1058	1137	1141	1134	1219	1221	1217	1394	1392	1362
Transportation	17	26	26	26	34	35	34	49	49	49
<b>Total</b>	<b>3294</b>	<b>3790</b>	<b>3789</b>	<b>3781</b>	<b>4133</b>	<b>4122</b>	<b>4120</b>	<b>4763</b>	<b>4736</b>	<b>4631</b>
<b>End-Use Prices (1999 cents per kwh)<sup>9</sup></b>										
Residential	8.1	7.6	7.7	7.7	7.6	7.8	7.7	7.6	7.8	8.5
Commercial	7.4	6.9	7.0	7.0	6.4	6.5	6.4	6.4	6.6	7.4
Industrial	4.5	4.4	4.4	4.4	4.1	4.2	4.1	4.1	4.3	4.9
Transportation	5.3	5.0	5.0	5.0	4.7	4.8	4.8	4.5	4.7	5.0
<b>All Sectors Average</b>	<b>6.7</b>	<b>6.4</b>	<b>6.4</b>	<b>6.4</b>	<b>6.1</b>	<b>6.2</b>	<b>6.2</b>	<b>6.1</b>	<b>6.3</b>	<b>7.0</b>
<b>Prices by Service Category<sup>9</sup></b> (1999 cents per kwh)										
Generation	4.1	3.8	3.9	3.9	3.4	3.5	3.5	3.5	3.7	4.4
Transmission	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7
Distribution	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
<b>Emissions (million short tons)</b>										
Sulfur Dioxide	13.49	10.39	8.37	8.37	9.70	6.07	6.07	8.95	3.13	3.13
Nitrogen Oxide	5.43	4.30	4.32	4.32	4.34	2.85	2.86	4.48	2.24	1.99

<sup>1</sup>Includes grid-connected generation at all utilities and nonutilities except for cogenerators. Includes small power producers and exempt wholesale generators.

<sup>2</sup>Includes electricity generation by fuel cells.

<sup>3</sup>Includes conventional hydroelectric, geothermal, wood, wood waste, municipal solid waste, landfill gas, other biomass, solar, and wind power.

<sup>4</sup>Cogenerators produce electricity and other useful thermal energy. Includes sales to utilities and generation for own use.

<sup>5</sup>Other gaseous fuels include refinery and still gas.

<sup>6</sup>Other includes hydrogen, sulfur, batteries, chemicals, fish oil, and spent sulfite liquor.

<sup>7</sup>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.

<sup>8</sup>In 1998 approximately 70 percent of the U.S. electricity imports were provided by renewable sources (hydroelectricity); EIA does not project future proportions for the fuel source of imported electricity.

<sup>9</sup>Prices represent average revenue per kilowatthour.

Kwh = Kilowatthour.

CO<sub>2</sub> = Carbon dioxide.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports.

Source: Energy Information Administration, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC6512.D081701B, REWC6512.D082001A.

**Table C5. Electricity Generating Capability  
(Gigawatts)**

Net Summer Capability <sup>1</sup>	1999	Projections								
		2005			2010			2020		
		Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap
<b>Electric Generators<sup>2</sup></b>										
<b>Capability</b>										
Coal Steam	305.1	303.9	303.4	302.8	317.8	304.8	295.8	317.3	302.6	291.0
Other Fossil Steam <sup>3</sup>	137.4	124.9	120.4	119.5	117.4	104.8	104.3	114.9	104.3	103.7
Combined Cycle	21.0	52.4	77.4	77.4	107.3	149.8	157.1	199.0	229.4	238.3
Combustion Turbine/Diesel	86.8	126.4	125.1	126.9	149.8	140.1	141.5	197.4	192.1	176.3
Nuclear Power	97.4	97.5	97.5	97.5	93.7	94.8	95.3	76.3	76.3	78.8
Pumped Storage	19.3	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5
Fuel Cells	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.3	0.3	0.3
Renewable Sources <sup>4</sup>	88.8	94.7	94.9	95.3	97.9	98.3	99.4	99.4	99.9	101.0
Distributed Generation <sup>5</sup>	0.0	0.8	0.3	0.3	2.5	2.0	2.2	11.0	9.8	9.1
<b>Total</b>	<b>755.9</b>	<b>820.0</b>	<b>838.3</b>	<b>839.2</b>	<b>906.0</b>	<b>914.2</b>	<b>915.2</b>	<b>1035.</b>	<b>1034.</b>	<b>1018.</b>
<b>Cumulative Planned Additions<sup>6</sup></b>										
Coal Steam	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Fossil Steam <sup>3</sup>	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Combined Cycle	0.0	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7
Combustion Turbine/Diesel	0.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Nuclear Power	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pumped Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Cells	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.3	0.3	0.3
Renewable Sources <sup>4</sup>	0.0	5.1	5.1	5.1	6.7	6.7	6.7	8.1	8.1	8.1
Distributed Generation <sup>5</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>0.0</b>	<b>32.0</b>	<b>32.0</b>	<b>32.0</b>	<b>33.7</b>	<b>33.7</b>	<b>33.7</b>	<b>35.3</b>	<b>35.3</b>	<b>35.3</b>
<b>Cumulative Unplanned Additions<sup>6</sup></b>										
Coal Steam	0.0	1.1	0.6	0.0	18.2	8.6	0.0	19.5	8.9	0.0
Other Fossil Steam <sup>3</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Combined Cycle	0.0	18.6	43.6	43.7	73.6	116.1	123.4	165.4	195.7	204.6
Combustion Turbine/Diesel	0.0	30.9	20.5	22.2	55.4	38.4	39.7	103.1	90.5	75.1
Nuclear Power	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pumped Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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 <sup>4</sup>	0.0	0.4	0.6	1.0	1.9	2.4	3.4	1.9	2.4	3.5
Distributed Generation <sup>5</sup>	0.0	0.8	0.3	0.3	2.5	2.0	2.2	11.0	9.8	9.1
<b>Total</b>	<b>0.0</b>	<b>51.7</b>	<b>65.6</b>	<b>67.1</b>	<b>151.5</b>	<b>167.4</b>	<b>168.8</b>	<b>300.8</b>	<b>307.4</b>	<b>292.4</b>
<b>Cumulative Total Additions</b>	<b>0.0</b>	<b>83.7</b>	<b>97.6</b>	<b>99.1</b>	<b>185.2</b>	<b>201.1</b>	<b>202.4</b>	<b>336.1</b>	<b>342.7</b>	<b>327.7</b>
<b>Cumulative Retirements<sup>7</sup></b>										
Coal Steam	0.0	2.3	2.3	2.3	5.5	9.0	9.3	7.3	11.4	14.1
Other Fossil Steam <sup>3</sup>	0.0	12.7	17.3	18.1	20.2	32.8	33.4	22.7	33.4	33.9
Combined Cycle	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.2	0.1	0.1
Combustion Turbine/Diesel	0.0	5.5	3.4	3.3	6.6	6.3	6.2	6.7	6.4	6.7
Nuclear Power	0.0	0.0	0.0	0.0	3.7	2.6	2.2	21.2	21.2	18.7
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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
<b>Total</b>	<b>0.0</b>	<b>20.6</b>	<b>23.2</b>	<b>23.9</b>	<b>36.4</b>	<b>51.0</b>	<b>51.3</b>	<b>58.1</b>	<b>72.6</b>	<b>73.8</b>
<b>Cogenerators<sup>8</sup></b>										
<b>Capability</b>										
Coal	8.4	8.9	8.9	8.9	8.6	7.9	7.8	8.6	7.5	7.0
Petroleum	2.7	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Natural Gas	34.6	39.7	40.0	40.0	43.1	43.3	43.2	51.2	51.8	55.7
Other Gaseous Fuels	0.2	0.8	0.8	0.8	0.9	0.9	0.9	1.1	1.1	1.1
Renewable Sources <sup>4</sup>	5.4	5.9	5.9	5.9	6.8	6.8	6.8	8.3	8.2	8.3
Other	1.1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
<b>Total</b>	<b>52.4</b>	<b>59.1</b>	<b>59.3</b>	<b>59.4</b>	<b>63.1</b>	<b>62.7</b>	<b>62.5</b>	<b>73.0</b>	<b>72.4</b>	<b>76.0</b>
<b>Cumulative Additions<sup>6</sup></b>	<b>0.0</b>	<b>6.7</b>	<b>6.9</b>	<b>6.9</b>	<b>10.7</b>	<b>10.2</b>	<b>10.1</b>	<b>20.5</b>	<b>20.0</b>	<b>23.6</b>

**Table C5. Electricity Generating Capability (Continued)**  
(Gigawatts)

Net Summer Capability <sup>1</sup>	1999	Projections								
		2005			2010			2020		
		Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap
<b>Other End-Use Generators<sup>9</sup></b>										
Renewable Sources .....	1.0	1.1	1.1	1.1	1.3	1.3	1.3	1.3	1.3	1.3
Cumulative Additions .....	0.0	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3	0.3

<sup>1</sup>Net summer capability is the steady hourly output that generating equipment is expected to supply to system load (exclusive of auxiliary power), as demonstrated by tests during summer peak demand.

<sup>2</sup>Includes grid-connected utilities and nonutilities except for cogenerators. Includes small power producers and exempt wholesale generators.

<sup>3</sup>Includes oil-, gas-, and dual-fired capability.

<sup>4</sup>Includes conventional hydroelectric, geothermal, wood, wood waste, municipal solid waste, landfill gas, other biomass, solar and wind power.

<sup>5</sup>Primarily peak-load capacity fueled by natural gas.

<sup>6</sup>Cumulative additions after December 31, 1999.

<sup>7</sup>Cumulative total retirements after December 31, 1999.

<sup>8</sup>Nameplate capacity is reported for nonutilities on Form EIA-860B, "Annual Electric Generator Report - Nonutility." Nameplate capacity is designated by the manufacturer. The nameplate capacity has been converted to the net summer capability based on historic relationships.

<sup>9</sup>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.

CO<sub>2</sub> = Carbon dioxide.

Notes: Totals may not equal sum of components due to independent rounding. Data for 1999 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 capability for electric utility generators.

Source: Energy Information Administration, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC6512.D081701B, REWC6512.D082001A.

**Table C6. Electricity Trade**  
(Billion Kilowatthours, Unless Otherwise Noted)

Electricity Trade	1999	Projections								
		2005			2010			2020		
		Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap
<b>Interregional Electricity Trade</b>										
Gross Domestic Firm Power Trade .....	182.2	125.3	125.3	125.3	102.9	102.9	102.9	0.0	0.0	0.0
Gross Domestic Economy Trade .....	152.1	199.1	215.8	215.6	154.6	133.2	137.9	146.4	126.0	114.7
<b>Gross Domestic Trade .....</b>	<b>334.3</b>	<b>324.4</b>	<b>341.1</b>	<b>340.9</b>	<b>257.5</b>	<b>236.1</b>	<b>240.8</b>	<b>146.4</b>	<b>126.0</b>	<b>114.7</b>
<b>Gross Domestic Firm Power Sales</b>										
(million 1999 dollars) .....	8588.1	5905.	5905.	5905.	4851.	4851.	4851.	0.0	0.0	0.0
<b>Gross Domestic Economy Sales</b>										
(million 1999 dollars) .....	4204.3	6352.	6978.	6918.	4407.	4001.	4126.	4448.	4228.	4595.
<b>Gross Domestic Sales</b>										
<b>(million 1999 dollars) .....</b>	<b>12792.4</b>	<b>1225</b>	<b>1288</b>	<b>1282</b>	<b>9258.</b>	<b>8852.</b>	<b>8977.</b>	<b>4448.</b>	<b>4228.</b>	<b>4595.</b>
<b>International Electricity Trade</b>										
Firm Power Imports From Canada and	27.0	10.7	10.7	10.7	5.8	5.8	5.8	0.0	0.0	0.0
Economy Imports From Canada and Mexico <sup>1</sup>	21.9	63.5	63.5	63.5	45.9	45.9	45.9	30.6	30.6	30.6
<b>Gross Imports From Canada and Mexico<sup>1</sup></b>	<b>48.9</b>	<b>74.1</b>	<b>74.1</b>	<b>74.1</b>	<b>51.7</b>	<b>51.7</b>	<b>51.7</b>	<b>30.6</b>	<b>30.6</b>	<b>30.6</b>
Firm Power Exports To Canada and Mexico . .	9.2	9.7	9.7	9.7	8.7	8.7	8.7	0.0	0.0	0.0
Economy Exports To Canada and Mexico . . .	6.3	7.0	7.0	7.0	7.7	7.7	7.7	7.7	7.7	7.7
<b>Gross Exports To Canada and Mexico . . . .</b>	<b>15.5</b>	<b>16.7</b>	<b>16.7</b>	<b>16.7</b>	<b>16.4</b>	<b>16.4</b>	<b>16.4</b>	<b>7.7</b>	<b>7.7</b>	<b>7.7</b>

<sup>1</sup>Historically electricity imports were primarily from renewable resources, principally hydroelectric.  
CO<sub>2</sub> = Carbon dioxide.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports. Firm Power Sales are capacity sales, meaning the delivery of the power is scheduled as part of the normal operating conditions of the affected electric systems. Economy Sales are subject to curtailment or cessation of delivery by the supplier in accordance with prior agreements or under specified conditions.

Source: Energy Information Administration, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC6512.D081701B, REWC6512.D082001A.

**Table C7. Natural Gas Supply and Disposition**  
(Trillion Cubic Feet per Year)

Supply, Disposition, and Prices	1999	Projections								
		2005			2010			2020		
		Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap
<b>Production</b>										
Dry Gas Production <sup>1</sup>	18.67	21.32	21.43	21.42	23.36	24.11	24.27	29.34	29.89	30.44
Supplemental Natural Gas <sup>2</sup>	0.10	0.11	0.11	0.11	0.06	0.06	0.06	0.06	0.06	0.06
<b>Net Imports</b>	<b>3.38</b>	<b>4.70</b>	<b>4.72</b>	<b>4.72</b>	<b>5.01</b>	<b>5.10</b>	<b>5.09</b>	<b>5.78</b>	<b>5.87</b>	<b>5.96</b>
Canada	3.29	4.49	4.50	4.50	4.72	4.81	4.80	5.39	5.47	5.56
Mexico	-0.01	-0.18	-0.18	-0.18	-0.25	-0.25	-0.25	-0.40	-0.40	-0.40
Liquefied Natural Gas	0.10	0.39	0.39	0.39	0.53	0.54	0.54	0.79	0.80	0.80
<b>Total Supply</b>	<b>22.15</b>	<b>26.14</b>	<b>26.26</b>	<b>26.25</b>	<b>28.42</b>	<b>29.26</b>	<b>29.41</b>	<b>35.17</b>	<b>35.82</b>	<b>36.46</b>
<b>Consumption by Sector</b>										
Residential	4.75	5.40	5.40	5.40	5.39	5.38	5.37	5.92	5.87	5.86
Commercial	3.06	3.89	3.88	3.88	4.08	4.05	4.05	4.36	4.30	4.32
Industrial <sup>3</sup>	8.31	8.78	8.79	8.76	9.48	9.48	9.43	10.52	10.50	10.56
Electric Generators <sup>4</sup>	3.76	5.44	5.55	5.56	6.83	7.61	7.83	11.15	11.85	12.37
Lease and Plant Fuel <sup>5</sup>	1.23	1.36	1.37	1.37	1.50	1.53	1.54	1.86	1.89	1.92
Pipeline Fuel	0.64	0.80	0.81	0.81	0.88	0.91	0.91	1.07	1.09	1.10
Transportation <sup>6</sup>	0.02	0.05	0.05	0.05	0.09	0.09	0.09	0.15	0.15	0.15
<b>Total</b>	<b>21.77</b>	<b>25.73</b>	<b>25.85</b>	<b>25.83</b>	<b>28.24</b>	<b>29.05</b>	<b>29.22</b>	<b>35.03</b>	<b>35.65</b>	<b>36.28</b>
<b>Discrepancy<sup>7</sup></b>	<b>0.38</b>	<b>0.41</b>	<b>0.41</b>	<b>0.41</b>	<b>0.19</b>	<b>0.21</b>	<b>0.19</b>	<b>0.15</b>	<b>0.17</b>	<b>0.17</b>

<sup>1</sup>Marketed production (wet) minus extraction losses.

<sup>2</sup>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.

<sup>3</sup>Includes consumption by cogenerators.

<sup>4</sup>Includes all electric power generators except cogenerators, which produce electricity and other useful thermal energy. Includes small power producers and exempt wholesale generators.

<sup>5</sup>Represents natural gas used in the field gathering and processing plant machinery.

<sup>6</sup>Compressed natural gas used as vehicle fuel.

<sup>7</sup>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, 1999 values include net storage injections.

Btu = British thermal unit.

CO<sub>2</sub> = Carbon dioxide.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports.

**Sources:** 1999 supplemental natural gas: Energy Information Administration (EIA), *Natural Gas Monthly*, DOE/EIA-0130(2000/06) (Washington, DC, June 2000). 1999 transportation sector consumption: EIA, AEO2001 National Energy Modeling System runs M2BASE.D060801A, M2C7B08.D060801A. Other 1999 consumption: EIA, *Short-Term Energy Outlook, April 2001*, <http://www.eia.doe.gov/pub/forecasting/steo/oldsteos/apr01.pdf> with adjustments to end-use sector consumption levels for consumption of natural gas by electric wholesale generators based on EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC6512.D081701B, REWC6512.D082001A.

**Projections:** EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC6512.D081701B, REWC6512.D082001A.



**Table C8. Natural Gas Prices, Margins, and Revenue**  
(1999 Dollars per Thousand Cubic Feet, Unless Otherwise Noted)

Prices, Margins, and Revenue	1999	Projections								
		2005			2010			2020		
		Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap
<b>Source Price</b>										
Average Lower 48 Wellhead Price <sup>1</sup> . . . . .	2.08	2.99	3.03	3.01	2.82	2.95	2.94	3.10	3.35	3.43
Average Import Price . . . . .	2.29	2.99	3.00	3.00	2.66	2.70	2.69	2.71	2.77	2.79
<b>Average<sup>2</sup></b> . . . . .	<b>2.11</b>	<b>2.99</b>	<b>3.03</b>	<b>3.01</b>	<b>2.79</b>	<b>2.90</b>	<b>2.90</b>	<b>3.03</b>	<b>3.25</b>	<b>3.31</b>
<b>Delivered Prices</b>										
Residential . . . . .	6.69	7.33	7.37	7.35	6.88	7.01	7.01	6.74	6.98	7.04
Commercial . . . . .	5.49	5.72	5.76	5.74	5.78	5.91	5.90	5.82	6.05	6.12
Industrial <sup>3</sup> . . . . .	2.87	3.76	3.81	3.79	3.55	3.68	3.67	3.84	4.08	4.15
Electric Generators <sup>4</sup> . . . . .	2.62	3.49	3.59	3.57	3.30	3.52	3.52	3.68	3.98	4.12
Transportation <sup>5</sup> . . . . .	7.21	7.50	7.54	7.52	7.36	7.49	7.49	7.50	7.73	7.79
<b>Average<sup>6</sup></b> . . . . .	<b>4.14</b>	<b>4.85</b>	<b>4.90</b>	<b>4.88</b>	<b>4.55</b>	<b>4.67</b>	<b>4.65</b>	<b>4.61</b>	<b>4.85</b>	<b>4.93</b>
<b>Transmission &amp; Distribution Margins<sup>7</sup></b>										
Residential . . . . .	4.58	4.34	4.35	4.34	4.09	4.11	4.11	3.71	3.72	3.73
Commercial . . . . .	3.37	2.73	2.74	2.73	2.99	3.00	3.01	2.79	2.80	2.80
Industrial <sup>3</sup> . . . . .	0.76	0.78	0.78	0.78	0.76	0.78	0.77	0.81	0.83	0.84
Electric Generators <sup>4</sup> . . . . .	0.51	0.50	0.56	0.57	0.51	0.62	0.62	0.66	0.73	0.81
Transportation <sup>5</sup> . . . . .	5.10	4.52	4.52	4.52	4.57	4.59	4.60	4.47	4.48	4.48
<b>Average<sup>6</sup></b> . . . . .	<b>2.03</b>	<b>1.87</b>	<b>1.88</b>	<b>1.88</b>	<b>1.76</b>	<b>1.76</b>	<b>1.76</b>	<b>1.59</b>	<b>1.60</b>	<b>1.62</b>
<b>Transmission &amp; Distribution Revenue (billion 1999 dollars)</b>										
Residential . . . . .	21.77	23.45	23.48	23.46	22.07	22.09	22.08	21.95	21.86	21.83
Commercial . . . . .	10.32	10.62	10.61	10.62	12.19	12.17	12.18	12.16	12.06	12.11
Industrial <sup>3</sup> . . . . .	6.28	6.82	6.86	6.83	7.20	7.36	7.30	8.50	8.75	8.83
Electric Generators <sup>4</sup> . . . . .	1.90	2.74	3.13	3.16	3.46	4.70	4.88	7.33	8.61	9.98
Transportation <sup>5</sup> . . . . .	0.08	0.24	0.24	0.24	0.40	0.41	0.41	0.68	0.67	0.67
<b>Total</b> . . . . .	<b>40.35</b>	<b>43.87</b>	<b>44.33</b>	<b>44.31</b>	<b>45.33</b>	<b>46.74</b>	<b>46.85</b>	<b>50.61</b>	<b>51.95</b>	<b>53.42</b>

<sup>1</sup>Represents lower 48 onshore and offshore supplies.

<sup>2</sup>Quantity-weighted average of the average lower 48 wellhead price and the average price of imports at the U.S. border.

<sup>3</sup>Includes consumption by cogenerators.

<sup>4</sup>Includes all electric power generators except cogenerators, which produce electricity and other useful thermal energy. Includes small power producers and exempt wholesale generators.

<sup>5</sup>Compressed natural gas used as a vehicle fuel. Price includes estimated motor vehicle fuel taxes.

<sup>6</sup>Weighted average prices and margins. Weights used are the sectoral consumption values excluding lease, plant, and pipeline fuel.

<sup>7</sup>Within the table, "transmission and distribution" margins equal the difference between the delivered price and the source price (average of the wellhead price and the price of imports at the U.S. border) of natural gas and, thus, reflect the total cost of bringing natural gas to market. When the term "transmission and distribution" margins is used in today's natural gas market, it generally does not include the cost of independent natural gas marketers or costs associated with aggregation of supplies, provisions of storage, and other services. As used here, the term includes the cost of all services and the cost of pipeline fuel used in compressor stations.

CO<sub>2</sub> = Carbon dioxide.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports.

Sources: 1999 industrial delivered prices based on Energy Information Administration (EIA), *Manufacturing Energy Consumption Survey 1994*. 1999 residential and commercial delivered prices, average lower 48 wellhead price, and average import price: EIA, *Natural Gas Monthly*, DOE/EIA-0130(2000/06) (Washington, DC, June 2000). Other 1999 values, and projections: EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC6512.D081701B, REWC6512.D082001A.

**Table C9. Oil and Gas Supply**

Production and Supply	1999	Projections								
		2005			2010			2020		
		Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap
<b>Crude Oil</b>										
<b>Lower 48 Average Wellhead Price<sup>1</sup></b> (1999 dollars per barrel) .....	<b>16.49</b>	<b>20.48</b>	<b>21.17</b>	<b>21.11</b>	<b>20.80</b>	<b>20.80</b>	<b>20.81</b>	<b>21.50</b>	<b>21.50</b>	<b>21.48</b>
<b>Production (million barrels per day)<sup>2</sup></b>										
<b>U.S. Total</b> .....	<b>5.88</b>	<b>5.69</b>	<b>5.69</b>	<b>5.68</b>	<b>5.30</b>	<b>5.33</b>	<b>5.30</b>	<b>5.22</b>	<b>5.26</b>	<b>5.24</b>
Lower 48 Onshore .....	3.27	2.80	2.81	2.80	2.50	2.51	2.50	2.71	2.75	2.74
Conventional .....	2.59	2.18	2.18	2.18	1.81	1.81	1.81	1.96	1.99	1.98
Enhanced Oil Recovery .....	0.68	0.62	0.62	0.62	0.69	0.70	0.69	0.74	0.76	0.76
Lower 48 Offshore .....	1.56	2.09	2.09	2.09	2.16	2.17	2.16	1.88	1.87	1.87
Alaska .....	1.05	0.79	0.79	0.79	0.65	0.65	0.65	0.64	0.64	0.64
<b>Lower 48 End of Year Reserves (billion barrels)<sup>2</sup></b>	<b>18.33</b>	<b>15.76</b>	<b>15.76</b>	<b>15.76</b>	<b>14.43</b>	<b>14.57</b>	<b>14.49</b>	<b>14.01</b>	<b>14.16</b>	<b>14.08</b>
<b>Natural Gas</b>										
<b>Lower 48 Average Wellhead Price<sup>1</sup></b> (1999 dollars per thousand cubic feet) .....	<b>2.08</b>	<b>2.99</b>	<b>3.03</b>	<b>3.01</b>	<b>2.82</b>	<b>2.95</b>	<b>2.94</b>	<b>3.10</b>	<b>3.35</b>	<b>3.43</b>
<b>Production (trillion cubic feet)<sup>3</sup></b>										
<b>U.S. Total</b> .....	<b>18.67</b>	<b>21.32</b>	<b>21.43</b>	<b>21.42</b>	<b>23.36</b>	<b>24.11</b>	<b>24.27</b>	<b>29.34</b>	<b>29.89</b>	<b>30.44</b>
Lower 48 Onshore .....	12.83	14.37	14.47	14.45	16.42	17.08	17.25	21.10	21.58	22.00
Associated-Dissolved <sup>4</sup> .....	1.80	1.51	1.51	1.51	1.32	1.32	1.32	1.38	1.40	1.39
Non-Associated .....	11.03	12.86	12.95	12.93	15.10	15.76	15.93	19.72	20.19	20.61
Conventional .....	6.64	7.62	7.69	7.66	7.79	8.13	8.24	11.05	11.12	11.44
Unconventional .....	4.39	5.24	5.26	5.28	7.30	7.63	7.68	8.66	9.07	9.16
Lower 48 Offshore .....	5.43	6.49	6.50	6.50	6.44	6.52	6.51	7.66	7.74	7.87
Associated-Dissolved <sup>4</sup> .....	0.93	1.06	1.06	1.06	1.09	1.09	1.09	1.04	1.04	1.04
Non-Associated .....	4.50	5.42	5.44	5.44	5.35	5.43	5.43	6.63	6.70	6.84
Alaska .....	0.42	0.47	0.47	0.47	0.50	0.50	0.50	0.57	0.57	0.57
<b>Lower 48 End of Year Reserves<sup>3</sup></b> (trillion cubic feet) .....	<b>157.41</b>	<b>169.38</b>	<b>168.96</b>	<b>169.10</b>	<b>184.15</b>	<b>186.89</b>	<b>186.42</b>	<b>199.35</b>	<b>200.83</b>	<b>197.65</b>
<b>Supplemental Gas Supplies (trillion cubic feet)<sup>5</sup></b>	<b>0.10</b>	<b>0.11</b>	<b>0.11</b>	<b>0.11</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>
<b>Total Lower 48 Wells (thousands)</b> .....	<b>17.93</b>	<b>29.02</b>	<b>29.18</b>	<b>29.06</b>	<b>29.30</b>	<b>30.29</b>	<b>30.34</b>	<b>38.07</b>	<b>40.97</b>	<b>41.02</b>

<sup>1</sup>Represents lower 48 onshore and offshore supplies.

<sup>2</sup>Includes lease condensate.

<sup>3</sup>Market production (wet) minus extraction losses.

<sup>4</sup>Gas which occurs in crude oil reserves either as free gas (associated) or as gas in solution with crude oil (dissolved).

<sup>5</sup>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.

Btu = British thermal unit.

CO<sub>2</sub> = Carbon dioxide.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports.

Sources: 1999 lower 48 onshore, lower 48 offshore, and Alaska crude oil production: Energy Information Administration (EIA), *Petroleum Supply Annual 1999*, DOE/EIA-0340(99/1) (Washington, DC, June 2000). 1999 natural gas lower 48 average wellhead price, Alaska and total natural gas production, and supplemental gas supplies: EIA, *Natural Gas Monthly*, DOE/EIA-0130(2000/06) (Washington, DC, June 2000). Other 1999 values: EIA, Office of Integrated Analysis and Forecasting. Projections: EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC6512.D081701B, REWC6512.D082001A.

**Table C10. Coal Supply, Disposition, and Prices**  
(Million Short Tons per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	1999	Projections								
		2005			2010			2020		
		Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap
<b>Production<sup>1</sup></b>										
Appalachia .....	434	432	438	421	425	408	406	396	367	330
Interior .....	182	185	188	175	183	167	161	164	157	117
West .....	486	612	570	600	681	617	600	775	725	644
East of the Mississippi .....	558	569	583	554	564	539	533	526	505	435
West of the Mississippi .....	544	659	613	642	725	652	634	810	744	656
<b>Total .....</b>	<b>1102</b>	<b>1228</b>	<b>1196</b>	<b>1196</b>	<b>1289</b>	<b>1191</b>	<b>1167</b>	<b>1336</b>	<b>1249</b>	<b>1091</b>
<b>Net Imports</b>										
Imports .....	9	16	16	16	17	17	17	20	20	20
Exports .....	58	60	60	60	58	61	61	56	55	56
<b>Total .....</b>	<b>-49</b>	<b>-44</b>	<b>-44</b>	<b>-45</b>	<b>-40</b>	<b>-43</b>	<b>-43</b>	<b>-36</b>	<b>-36</b>	<b>-36</b>
<b>Total Supply<sup>2</sup> .....</b>	<b>1053</b>	<b>1184</b>	<b>1152</b>	<b>1151</b>	<b>1249</b>	<b>1148</b>	<b>1123</b>	<b>1300</b>	<b>1213</b>	<b>1054</b>
<b>Consumption by Sector</b>										
Residential and Commercial .....	5	5	5	5	5	5	5	5	5	5
Industrial <sup>3</sup> .....	79	82	82	82	83	82	81	85	82	81
Coke Plants .....	28	25	25	25	23	23	23	19	19	19
Electric Generators <sup>4</sup> .....	920	1073	1040	1040	1139	1042	1019	1190	1109	954
<b>Total .....</b>	<b>1031</b>	<b>1185</b>	<b>1153</b>	<b>1152</b>	<b>1250</b>	<b>1151</b>	<b>1128</b>	<b>1299</b>	<b>1215</b>	<b>1058</b>
<b>Discrepancy and Stock Change<sup>5</sup> .....</b>	<b>21</b>	<b>-1</b>	<b>-1</b>	<b>-1</b>	<b>-1</b>	<b>-3</b>	<b>-4</b>	<b>1</b>	<b>-2</b>	<b>-4</b>
<b>Average Minemouth Price</b>										
(1999 dollars per short ton) .....	17.13	15.22	15.78	15.21	14.19	14.69	14.62	12.93	12.87	12.35
(1999 dollars per million Btu) .....	0.82	0.74	0.75	0.73	0.69	0.70	0.70	0.64	0.63	0.60
<b>Delivered Prices (1999 dollars per short ton)<sup>6</sup></b>										
Industrial .....	31.37	29.65	29.75	29.38	28.56	28.42	28.18	26.49	25.86	25.12
Coke Plants .....	44.38	42.40	42.49	42.34	41.25	41.55	41.23	38.50	38.42	38.62
Electric Generators										
(1999 dollars per short ton) .....	24.69	22.92	23.11	22.91	21.26	21.49	21.50	19.34	19.21	18.99
(1999 dollars per million Btu) .....	1.21	1.13	1.13	1.13	1.06	1.05	1.05	0.98	0.96	0.95
<b>Average .....</b>	<b>25.74</b>	<b>23.80</b>	<b>24.01</b>	<b>23.80</b>	<b>22.11</b>	<b>22.38</b>	<b>22.38</b>	<b>20.09</b>	<b>19.96</b>	<b>19.81</b>
Exports <sup>7</sup> .....	37.50	36.41	36.35	36.12	35.57	35.41	35.12	33.07	32.50	32.53

<sup>1</sup>Includes anthracite, bituminous coal, lignite, and waste coal delivered to independent power producers. Waste coal deliveries totaled 8.5 million tons in 1995, 8.8 million tons in 1996, 8.1 million tons in 1997, 8.6 million tons in 1998, and are projected to reach 9.6 million tons in 1999, and 12.2 million tons in 2000..

<sup>2</sup>Production plus net imports and net storage withdrawals.

<sup>3</sup>Includes consumption by cogenerators.

<sup>4</sup>Includes all electric power generators except cogenerators, which produce electricity and other useful thermal energy. Includes small power producers and exempt wholesale generators.

<sup>5</sup>Balancing item: the sum of production, net imports, and net storage minus total consumption.

<sup>6</sup>Sectoral prices weighted by consumption tonnage; weighted average excludes residential/ commercial prices and export free-alongside-ship (f.a.s.) prices.

<sup>7</sup>F.a.s. price at U.S. port of exit.

Btu = British thermal unit.

CO<sub>2</sub> = Carbon dioxide.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports.

**Sources:** 1999 data based on Energy Information Administration (EIA), *Quarterly Coal Report*, DOE/EIA-0121(2000/1Q) (Washington, DC, August 2000), and EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC6512.D081701B, REWC6512.D082001A. **Projections:** EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC6512.D081701B, REWC6512.D082001A.

**Table C11. Renewable Energy Generating Capability and Generation**  
(Gigawatts, Unless Otherwise Noted)

Capacity and Generation	1999	Projections								
		2005			2010			2020		
		Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap
<b>Electric Generators<sup>1</sup></b>										
<b>(excluding cogenerators)</b>										
<b>Net Summer Capability</b>										
Conventional Hydropower	78.77	79.26	79.26	79.26	79.38	79.38	79.38	79.38	79.38	79.38
Geothermal <sup>2</sup>	2.87	3.36	3.46	3.72	4.81	5.07	6.15	4.83	5.12	6.15
Municipal Solid Waste <sup>3</sup>	2.61	2.96	3.11	3.20	3.42	3.65	3.66	3.93	4.16	4.17
Wood and Other Biomass <sup>4</sup>	1.57	1.75	1.75	1.75	2.12	2.12	2.12	2.45	2.45	2.48
Solar Thermal	0.33	0.35	0.35	0.35	0.40	0.40	0.40	0.48	0.48	0.48
Solar Photovoltaic	0.01	0.08	0.08	0.08	0.21	0.21	0.21	0.54	0.54	0.54
Wind	2.66	6.92	6.92	6.92	7.52	7.52	7.52	7.74	7.77	7.78
<b>Total</b>	<b>88.83</b>	<b>94.68</b>	<b>94.93</b>	<b>95.28</b>	<b>97.85</b>	<b>98.35</b>	<b>99.43</b>	<b>99.35</b>	<b>99.89</b>	<b>100.9</b>
<b>Generation (billion kilowatthours)</b>										
Conventional Hydropower	309.55	301.2	301.2	301.2	301.1	301.1	301.1	300.0	300.0	300.0
Geothermal <sup>2</sup>	13.21	17.71	18.52	20.70	29.92	32.10	41.05	30.13	32.51	41.10
Municipal Solid Waste <sup>3</sup>	18.12	20.68	21.85	22.59	23.88	25.68	25.70	27.76	29.56	29.64
Wood and Other Biomass <sup>4</sup>	8.76	14.92	18.60	18.59	21.22	22.18	21.30	19.29	25.38	45.74
Dedicated Plants	7.73	9.17	9.17	9.16	11.36	11.37	11.37	13.82	13.84	14.09
Cofiring	1.03	5.75	9.43	9.43	9.86	10.80	9.93	5.47	11.54	31.65
Solar Thermal	0.89	0.96	0.96	0.96	1.11	1.11	1.11	1.37	1.37	1.37
Solar Photovoltaic	0.03	0.20	0.20	0.20	0.51	0.51	0.51	1.36	1.36	1.36
Wind	4.61	16.30	16.30	16.30	18.16	18.16	18.16	18.77	18.85	18.90
<b>Total</b>	<b>355.16</b>	<b>371.9</b>	<b>377.6</b>	<b>380.5</b>	<b>395.9</b>	<b>400.8</b>	<b>408.9</b>	<b>398.7</b>	<b>409.0</b>	<b>438.1</b>
<b>Cogenerators<sup>5</sup></b>										
<b>Net Summer Capability</b>										
Municipal Solid Waste	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Biomass	4.65	5.19	5.17	5.19	6.09	6.06	6.10	7.59	7.54	7.59
<b>Total</b>	<b>5.35</b>	<b>5.89</b>	<b>5.87</b>	<b>5.89</b>	<b>6.79</b>	<b>6.76</b>	<b>6.80</b>	<b>8.29</b>	<b>8.24</b>	<b>8.29</b>
<b>Generation (billion kilowatthours)</b>										
Municipal Solid Waste	4.04	4.04	4.04	4.04	4.04	4.04	4.04	4.04	4.04	4.04
Biomass	27.08	30.04	29.92	30.03	35.20	35.01	35.20	43.82	43.52	43.83
<b>Total</b>	<b>31.12</b>	<b>34.08</b>	<b>33.97</b>	<b>34.08</b>	<b>39.24</b>	<b>39.05</b>	<b>39.25</b>	<b>47.87</b>	<b>47.57</b>	<b>47.88</b>
<b>Other End-Use Generators<sup>6</sup></b>										
<b>Net Summer Capability</b>										
Conventional Hydropower <sup>7</sup>	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Solar Photovoltaic	0.01	0.10	0.10	0.10	0.35	0.35	0.35	0.35	0.35	0.35
<b>Total</b>	<b>1.00</b>	<b>1.09</b>	<b>1.09</b>	<b>1.09</b>	<b>1.34</b>	<b>1.34</b>	<b>1.34</b>	<b>1.34</b>	<b>1.34</b>	<b>1.34</b>
<b>Generation (billion kilowatthours)</b>										
Conventional Hydropower <sup>7</sup>	4.57	4.44	4.44	4.44	4.43	4.43	4.43	4.41	4.41	4.41
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Solar Photovoltaic	0.02	0.20	0.20	0.20	0.75	0.75	0.75	0.75	0.75	0.75
<b>Total</b>	<b>4.59</b>	<b>4.64</b>	<b>4.64</b>	<b>4.64</b>	<b>5.18</b>	<b>5.18</b>	<b>5.18</b>	<b>5.17</b>	<b>5.17</b>	<b>5.17</b>

<sup>1</sup>Includes grid-connected utilities and nonutilities other than cogenerators. These nonutility facilities include small power producers and exempt wholesale generators.

<sup>2</sup>Includes hydrothermal resources only (hot water and steam).

<sup>3</sup>Includes landfill gas.

<sup>4</sup>Includes projections for energy crops after 2010.

<sup>5</sup>Cogenerators produce electricity and other useful thermal energy.

<sup>6</sup>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.

<sup>7</sup>Represents own-use industrial hydroelectric power.

CO<sub>2</sub> = Carbon dioxide.

Notes: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports. Net summer capability has been estimated for nonutility generators for AEO2001. Net summer capability is used to be consistent with electric utility capacity estimates. Additional retirements are determined on the basis of the size and age of the units.

Sources: 1999 electric utility capability: Energy Information Administration (EIA), Form EIA-860A: "Annual Electric Generator Report - Utility." 1999 nonutility and cogenerator capability: EIA, Form EIA-860B: "Annual Electric Generator Report - Nonutility." 1999 generation: EIA, *Annual Energy Review 1999*, DOE/EIA-0384(99) (Washington, DC, July 2000). Projections: EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC6512.D081701B, REWC6512.D082001A.

**Table C12. Renewable Energy Consumption by Sector and Source<sup>1</sup>**  
(Quadrillion Btu per Year)

Sector and Source	1999	Projections								
		2005			2010			2020		
		Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap
<b>Marketed Renewable Energy<sup>2</sup></b>										
<b>Residential</b> .....	<b>0.41</b>	<b>0.42</b>	<b>0.42</b>	<b>0.42</b>	<b>0.42</b>	<b>0.42</b>	<b>0.42</b>	<b>0.43</b>	<b>0.43</b>	<b>0.43</b>
Wood .....	0.41	0.42	0.42	0.42	0.42	0.42	0.42	0.43	0.43	0.43
<b>Commercial</b> .....	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>
Biomass .....	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
<b>Industrial<sup>3</sup></b> .....	<b>2.15</b>	<b>2.40</b>	<b>2.42</b>	<b>2.40</b>	<b>2.63</b>	<b>2.64</b>	<b>2.63</b>	<b>3.07</b>	<b>3.08</b>	<b>3.08</b>
Conventional Hydroelectric .....	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Municipal Solid Waste .....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Biomass .....	1.97	2.22	2.23	2.22	2.44	2.45	2.44	2.89	2.89	2.89
<b>Transportation</b> .....	<b>0.12</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.21</b>	<b>0.21</b>	<b>0.21</b>	<b>0.24</b>	<b>0.24</b>	<b>0.24</b>
Ethanol used in E85 <sup>4</sup> .....	0.00	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03
Ethanol used in Gasoline Blending .....	0.12	0.18	0.18	0.18	0.19	0.19	0.19	0.21	0.21	0.21
<b>Electric Generators<sup>5</sup></b> .....	<b>3.88</b>	<b>4.17</b>	<b>4.25</b>	<b>4.32</b>	<b>4.70</b>	<b>4.80</b>	<b>5.06</b>	<b>4.75</b>	<b>4.91</b>	<b>5.39</b>
Conventional Hydroelectric .....	3.19	3.10	3.10	3.10	3.10	3.10	3.10	3.08	3.08	3.08
Geothermal .....	0.28	0.42	0.45	0.52	0.82	0.88	1.16	0.82	0.90	1.16
Municipal Solid Waste <sup>6</sup> .....	0.25	0.28	0.30	0.31	0.32	0.35	0.35	0.38	0.40	0.40
Biomass .....	0.11	0.18	0.22	0.22	0.25	0.26	0.25	0.24	0.31	0.52
Dedicated Plants .....	0.10	0.11	0.11	0.11	0.14	0.13	0.14	0.17	0.17	0.16
Cofiring .....	0.01	0.07	0.11	0.11	0.12	0.13	0.12	0.07	0.14	0.36
Solar Thermal .....	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.03	0.03
Solar Photovoltaic .....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wind .....	0.05	0.17	0.17	0.17	0.19	0.19	0.19	0.19	0.19	0.19
<b>Total Marketed Renewable Energy</b> .....	<b>6.64</b>	<b>7.27</b>	<b>7.36</b>	<b>7.43</b>	<b>8.05</b>	<b>8.15</b>	<b>8.41</b>	<b>8.58</b>	<b>8.75</b>	<b>9.22</b>
<b>Non-Marketed Renewable Energy<sup>7</sup></b>										
<b>Selected Consumption</b>										
<b>Residential</b> .....	<b>0.02</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.04</b>	<b>0.04</b>	<b>0.04</b>
Solar Hot Water Heating .....	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Geothermal Heat Pumps .....	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03
Solar Photovoltaic .....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Commercial</b> .....	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>
Solar Thermal .....	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03
Solar Photovoltaic .....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Ethanol</b>										
From Corn .....	0.12	0.19	0.19	0.19	0.19	0.19	0.19	0.17	0.17	0.17
From Cellulose .....	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.07	0.07	0.07
<b>Total</b> .....	<b>0.12</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.21</b>	<b>0.21</b>	<b>0.21</b>	<b>0.24</b>	<b>0.24</b>	<b>0.24</b>

<sup>1</sup>Actual heat rates used to determine fuel consumption for all renewable fuels except hydropower, solar, and wind. Consumption at hydroelectric, solar, and wind facilities determined by using the fossil fuel equivalent of 10,280 Btu per kilowatt-hour.

<sup>2</sup>Includes nonelectric renewable energy groups for which the energy source is bought and sold in the marketplace, although all transactions may not necessarily be marketed, and marketed renewable energy inputs for electricity entering the marketplace on the electric power grid. Excludes electricity imports.

<sup>3</sup>Includes all electricity production by industrial and other cogenerators for the grid and for own use.

<sup>4</sup>Excludes motor gasoline component of E85.

<sup>5</sup>Includes renewable energy delivered to the grid from electric utilities and nonutilities. Renewable energy used in generating electricity for own use is included in the individual sectoral electricity energy consumption values.

<sup>6</sup>Includes landfill gas.

<sup>7</sup>Includes selected renewable energy consumption data for which the energy is not bought or sold, either directly or indirectly as an input to marketed energy. The Energy Information Administration does not estimate or project total consumption of nonmarketed renewable energy.

Btu = British thermal unit.

CO<sub>2</sub> = Carbon dioxide.

Notes: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports.

Sources: 1999 ethanol: Energy Information Administration (EIA), *Annual Energy Review 1999*, DOE/EIA-0384(99) (Washington, DC, July 2000). 1999 electric generators: EIA, Form EIA-860A: "Annual Electric Generator Report - Utility," and EIA, Form EIA-860B: "Annual Electric Generator Report - Nonutility." Other 1999: EIA, Office of Integrated Analysis and Forecasting. Projections: EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC6512.D081701B, REWC6512.D082001A.

**Table C13. Carbon Dioxide Emissions by Sector and Source**  
(Million Metric Tons Carbon Equivalent per Year)

Sector and Source	1999	Projections								
		2005			2010			2020		
		Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap
<b>Residential</b>										
Petroleum	26.0	26.6	26.6	26.6	24.6	24.6	24.6	23.3	23.4	23.5
Natural Gas	69.5	79.9	79.9	79.9	79.8	79.5	79.4	87.5	86.8	86.7
Coal	1.1	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3
Electricity	193.4	226.8	222.4	221.1	240.3	228.1	225.2	270.7	260.6	234.5
<b>Total</b>	<b>290.1</b>	<b>334.5</b>	<b>330.1</b>	<b>328.8</b>	<b>346.0</b>	<b>333.6</b>	<b>330.6</b>	<b>382.7</b>	<b>372.1</b>	<b>345.9</b>
<b>Commercial</b>										
Petroleum	13.7	11.9	11.9	11.9	12.1	12.1	12.1	12.0	12.1	12.1
Natural Gas	45.4	57.5	57.4	57.4	60.3	59.9	59.9	64.4	63.6	63.9
Coal	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.9	1.9	1.9
Electricity	181.3	219.0	214.3	213.5	241.0	229.2	226.9	268.3	259.4	233.9
<b>Total</b>	<b>242.1</b>	<b>290.1</b>	<b>285.3</b>	<b>284.6</b>	<b>315.1</b>	<b>303.1</b>	<b>300.7</b>	<b>346.6</b>	<b>337.0</b>	<b>311.8</b>
<b>Industrial<sup>1</sup></b>										
Petroleum	104.2	98.8	99.5	98.9	104.6	104.9	104.8	113.0	113.5	113.7
Natural Gas <sup>2</sup>	141.6	147.7	147.9	147.5	159.5	160.4	159.6	180.1	180.5	181.8
Coal	55.9	65.6	65.7	65.5	65.4	64.7	64.2	65.6	63.9	63.0
Electricity	178.8	192.9	190.0	188.0	203.7	194.9	191.9	226.3	219.7	198.0
<b>Total</b>	<b>480.4</b>	<b>505.0</b>	<b>503.1</b>	<b>500.0</b>	<b>533.2</b>	<b>524.9</b>	<b>520.5</b>	<b>585.0</b>	<b>577.7</b>	<b>556.5</b>
<b>Transportation</b>										
Petroleum <sup>3</sup>	485.8	554.7	556.2	554.5	606.2	607.1	605.8	703.5	703.9	702.6
Natural Gas <sup>4</sup>	9.5	12.6	12.8	12.7	14.3	14.7	14.7	18.0	18.3	18.5
Other <sup>5</sup>	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Electricity	2.9	4.4	4.3	4.3	5.8	5.5	5.4	7.9	7.7	7.1
<b>Total<sup>3</sup></b>	<b>498.2</b>	<b>571.8</b>	<b>573.3</b>	<b>571.6</b>	<b>626.3</b>	<b>627.4</b>	<b>626.1</b>	<b>729.5</b>	<b>730.0</b>	<b>728.2</b>
<b>Total Carbon Dioxide Emissions by Delivered Fuel</b>										
Petroleum <sup>3</sup>	629.7	692.0	694.2	691.8	747.4	748.7	747.3	851.8	853.0	851.8
Natural Gas	266.0	297.8	297.9	297.6	313.9	314.6	313.7	350.0	349.2	350.8
Coal	58.8	68.5	68.6	68.5	68.6	67.8	67.4	68.8	67.1	66.2
Other <sup>5</sup>	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Electricity	556.3	643.1	631.0	626.9	690.7	657.7	649.4	773.1	747.4	673.5
<b>Total<sup>3</sup></b>	<b>1510.8</b>	<b>1701</b>	<b>1691</b>	<b>1684</b>	<b>1820</b>	<b>1789</b>	<b>1777</b>	<b>2043</b>	<b>2016</b>	<b>1942</b>
<b>Electric Generators<sup>6</sup></b>										
Petroleum	20.0	9.1	6.8	6.5	5.3	3.2	3.3	4.8	2.8	2.4
Natural Gas	45.8	79.8	81.4	81.5	100.2	111.7	114.9	163.6	173.8	181.6
Coal	490.5	554.2	542.8	538.8	585.3	542.8	531.3	604.7	570.8	489.5
<b>Total</b>	<b>556.3</b>	<b>643.1</b>	<b>631.0</b>	<b>626.9</b>	<b>690.7</b>	<b>657.7</b>	<b>649.4</b>	<b>773.1</b>	<b>747.4</b>	<b>673.5</b>
<b>Total Carbon Dioxide Emissions by Primary Fuel<sup>7</sup></b>										
Petroleum <sup>3</sup>	649.7	701.1	701.0	698.4	752.6	751.9	750.6	856.5	855.8	854.2
Natural Gas	311.8	377.5	379.3	379.1	414.0	426.3	428.5	513.6	523.1	532.4
Coal	549.3	622.7	611.4	607.3	653.8	610.6	598.7	673.5	637.8	555.7
Other <sup>5</sup>	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
<b>Total<sup>3</sup></b>	<b>1510.8</b>	<b>1701</b>	<b>1691</b>	<b>1684</b>	<b>1820</b>	<b>1789</b>	<b>1777</b>	<b>2043</b>	<b>2016</b>	<b>1942</b>
<b>Carbon Dioxide Emissions (tons carbon equivalent per person) . . . .</b>	<b>5.5</b>	<b>5.9</b>	<b>5.9</b>	<b>5.8</b>	<b>6.1</b>	<b>6.0</b>	<b>5.9</b>	<b>6.3</b>	<b>6.2</b>	<b>6.0</b>

<sup>1</sup>Includes consumption by cogenerators.

<sup>2</sup>Includes lease and plant fuel.

<sup>3</sup>This includes international bunker fuel which, by convention are excluded from the international accounting of carbon dioxide emissions. In the years from 1990 through 1998, international bunker fuels accounted for 25 to 30 million metric tons carbon equivalent of carbon dioxide annually.

<sup>4</sup>Includes pipeline fuel natural gas and compressed natural gas used as vehicle fuel.

<sup>5</sup>Includes methanol and liquid hydrogen.

<sup>6</sup>Includes all electric power generators except cogenerators, which produce electricity and other useful thermal energy. Includes small power producers and exempt wholesale generators. Does not include emissions from the nonbiogenic component of municipal solid waste because under international guidelines these are accounted for as waste not energy.

<sup>7</sup>Emissions from electric power generators are distributed to the primary fuels.

CO<sub>2</sub> = Carbon dioxide.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports.

Sources: 1999 emissions and emission factors: Energy Information Administration (EIA), *Emissions of Greenhouse Gases in the United States 1999*, DOE/EIA-0573(99), (Washington, DC, October 2000). Projections: EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC6512.D081701B, REWC6512.D082001A.

**Table C14. Emissions, Allowance Costs, and Retrofits: Electric Generators, Excluding Cogenerators**

Impacts	1999	Projections								
		2005			2010			2020		
		Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap	Reference	65 Percent	65 Percent with CO <sub>2</sub> Cap
<b>Emissions</b>										
Nitrogen Oxides (million tons) . . . . .	5.43	4.30	4.32	4.32	4.34	2.85	2.86	4.48	2.24	1.99
Sulfur Dioxide (million tons) . . . . .	13.49	10.39	8.37	8.37	9.70	6.07	6.07	8.95	3.13	3.13
Mercury (tons) . . . . .	43.35	45.02	36.30	36.30	45.53	20.60	20.60	45.23	15.10	15.10
Carbon Dioxide (million metric tons carbon equivalent) . . . . .	556.3	643.1	631.0	626.9	690.7	657.7	649.4	773.1	747.4	673.5
<b>Allowance Prices</b>										
Nitrogen Oxides (1999 dollars per ton) . . . . .										
Summer Seasonal . . . . .	0	4370	0	0	4404	0	0	5087	0	0
National Annual . . . . .	0	0	1123	1077	0	1491	1475	0	1457	931
Sulfur Dioxide (1999 dollars per ton) . . . . .	0	184	149	219	180	415	409	200	1390	2009
Mercury (million 1999 dollars per ton) . . . . .	0	0	57	55	0	40	38	0	82	53
Carbon Dioxide (1999 dollars per ton carbon equivalent) . . . . .	0	0	0	0	0	0	0	0	0	37
<b>Retrofits (gigawatts, cumulative from 1999)</b>										
Scrubber <sup>1</sup> . . . . .	0.0	8.9	33.3	22.4	8.9	42.9	44.4	17.5	127.3	85.9
Combustion . . . . .	0.0	40.4	34.2	35.5	42.5	50.0	54.4	46.6	57.9	57.3
SCR Post-combustion . . . . .	0.0	90.8	4.4	3.3	90.9	93.8	92.0	91.1	156.3	140.9
SNCR Post-combustion . . . . .	0.0	28.5	0.8	0.6	28.5	15.2	14.9	46.0	55.5	58.2
Mercury Spray Cooler . . . . .	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	3.8	5.3
Mercury Fabric Filter . . . . .	0.0	0.0	0.0	0.0	0.0	60.5	60.0	0.0	60.5	60.0
<b>Coal Production by Sulfur Category (million tons)</b>										
Low Sulfur (< .61 lbs. S/mmBtu) . . . . .	473	582	547	580	633	593	579	714	633	606
Medium Sulfur (.61-1.67 lbs. S/mmBtu) . . . . .	433	456	449	437	465	422	412	442	442	352
High Sulfur (> 1.67 lbs. S/mmBtu) . . . . .	196	190	199	179	191	177	176	180	174	133

<sup>1</sup>Represents scrubbers added by the model. Planned scrubbers added by electricity generators are not shown here.  
CO<sub>2</sub> = Carbon dioxide.

lbs. S/mmBtu = Pounds sulfur per million British thermal units.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports.

Source: Energy Information Administration, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC6512.D081701B, REWC6512.D082001A.

## **Appendix D**

### **Tables for the 75-Percent Reduction Case**



**Table D1. Total Energy Supply and Disposition Summary**  
(Quadrillion Btu per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	1999	Projections								
		2005			2010			2020		
		Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap
<b>Production</b>										
Crude Oil and Lease Condensate	12.45	12.04	12.01	12.02	11.23	11.26	11.22	11.06	11.16	11.15
Natural Gas Plant Liquids	2.62	3.11	3.15	3.14	3.36	3.44	3.47	4.14	4.23	4.32
Dry Natural Gas	19.16	21.88	22.15	22.11	23.97	24.57	24.77	30.10	30.78	31.43
Coal	23.06	25.43	24.62	24.63	26.49	24.93	24.51	27.10	25.12	21.83
Nuclear Power	7.79	7.90	7.90	7.90	7.69	7.79	7.79	6.51	6.54	6.74
Renewable Energy <sup>1</sup>	6.52	7.09	7.24	7.27	7.86	8.00	8.23	8.37	8.59	9.07
Other <sup>2</sup>	1.65	0.35	0.35	0.35	0.30	0.30	0.30	0.33	0.33	0.33
<b>Total</b>	<b>73.26</b>	<b>77.79</b>	<b>77.42</b>	<b>77.43</b>	<b>80.90</b>	<b>80.29</b>	<b>80.28</b>	<b>87.61</b>	<b>86.76</b>	<b>84.86</b>
<b>Imports</b>										
Crude Oil <sup>3</sup>	18.96	21.42	21.43	21.41	22.49	22.43	22.48	25.91	25.81	25.85
Petroleum Products <sup>4</sup>	4.14	6.11	6.09	5.97	8.52	8.42	8.33	10.70	10.60	10.43
Natural Gas	3.63	5.14	5.16	5.15	5.55	5.70	5.68	6.55	6.75	6.78
Other Imports <sup>5</sup>	0.64	1.11	1.11	1.11	0.96	0.96	0.96	0.96	0.96	0.96
<b>Total</b>	<b>27.37</b>	<b>33.78</b>	<b>33.79</b>	<b>33.64</b>	<b>37.52</b>	<b>37.51</b>	<b>37.45</b>	<b>44.11</b>	<b>44.12</b>	<b>44.02</b>
<b>Exports</b>										
Petroleum <sup>6</sup>	1.98	1.73	1.73	1.74	1.73	1.72	1.71	1.82	1.88	1.85
Natural Gas	0.17	0.33	0.33	0.33	0.43	0.43	0.43	0.63	0.63	0.63
Coal	1.48	1.51	1.52	1.52	1.45	1.45	1.46	1.41	1.38	1.41
<b>Total</b>	<b>3.62</b>	<b>3.56</b>	<b>3.58</b>	<b>3.59</b>	<b>3.61</b>	<b>3.61</b>	<b>3.61</b>	<b>3.87</b>	<b>3.90</b>	<b>3.90</b>
<b>Discrepancy<sup>7</sup></b>	<b>0.67</b>	<b>0.44</b>	<b>0.41</b>	<b>0.45</b>	<b>0.06</b>	<b>0.12</b>	<b>0.09</b>	<b>0.18</b>	<b>0.17</b>	<b>0.01</b>
<b>Consumption</b>										
Petroleum Products <sup>8</sup>	37.92	41.21	41.22	41.06	44.30	44.29	44.21	50.36	50.33	50.29
Natural Gas	22.32	26.38	26.67	26.62	28.94	29.66	29.85	35.88	36.74	37.40
Coal	21.40	24.37	23.57	23.56	25.57	23.94	23.57	26.30	24.35	21.22
Nuclear Power	7.79	7.90	7.90	7.90	7.69	7.79	7.79	6.51	6.54	6.74
Renewable Energy <sup>1</sup>	6.53	7.10	7.25	7.27	7.87	8.01	8.24	8.38	8.60	9.07
Other <sup>9</sup>	0.35	0.61	0.61	0.61	0.38	0.38	0.38	0.25	0.25	0.25
<b>Total</b>	<b>96.33</b>	<b>107.56</b>	<b>107.23</b>	<b>107.03</b>	<b>114.74</b>	<b>114.07</b>	<b>114.03</b>	<b>127.68</b>	<b>126.82</b>	<b>124.98</b>
<b>Net Imports - Petroleum</b>	<b>21.12</b>	<b>25.80</b>	<b>25.79</b>	<b>25.63</b>	<b>29.28</b>	<b>29.13</b>	<b>29.10</b>	<b>34.78</b>	<b>34.53</b>	<b>34.43</b>
<b>Prices (1999 dollars per unit)</b>										
World Oil Price (dollars per barrel) <sup>10</sup>	17.22	20.83	20.83	20.83	21.37	21.37	21.37	22.41	22.41	22.41
Gas Wellhead Price (dollars per Mcf) <sup>11</sup>	2.08	2.99	3.06	3.02	2.82	2.98	2.96	3.10	3.41	3.55
Coal Minemouth Price (dollars per ton)	17.13	15.22	15.00	15.21	14.19	15.03	15.25	12.93	13.38	12.75
Average Electric Price (cents per Kwh)	6.7	6.4	6.5	6.5	6.1	6.2	6.2	6.1	6.5	7.1

<sup>1</sup>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.

<sup>2</sup>Includes liquid hydrogen, methanol, supplemental natural gas, and some domestic inputs to refineries.

<sup>3</sup>Includes imports of crude oil for the Strategic Petroleum Reserve.

<sup>4</sup>Includes imports of finished petroleum products, imports of unfinished oils, alcohols, ethers, and blending components.

<sup>5</sup>Includes coal, coal coke (net), and electricity (net).

<sup>6</sup>Includes crude oil and petroleum products.

<sup>7</sup>Balancing item. Includes unaccounted for supply, losses, gains, and net storage withdrawals.

<sup>8</sup>Includes natural gas plant liquids, crude oil consumed as a fuel, and nonpetroleum based liquids for blending, such as ethanol.

<sup>9</sup>Includes net electricity imports, methanol, and liquid hydrogen.

<sup>10</sup>Average refiner acquisition cost for imported crude oil.

<sup>11</sup>Represents lower 48 onshore and offshore supplies.

Btu = British thermal unit.

Mcf = Thousand cubic feet.

Kwh = Kilowatthour.

CO<sub>2</sub> = Carbon dioxide.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports.

Sources: 1999 natural gas values: Energy Information Administration (EIA), *Natural Gas Monthly*, DOE/EIA-0130(2000/06) (Washington, DC, June 2000). 1999 petroleum values: EIA, *Petroleum Supply Annual 1999*, DOE/EIA-0340(99/1) (Washington, DC, June 2000). Other 1999 values: EIA, *Annual Energy Review 1999*, DOE/EIA-0384(99) (Washington, DC, July 2000) and EIA, *Quarterly Coal Report*, DOE/EIA-0121(2000/1Q) (Washington, DC, August 2000). Projections: EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC7512.D081701B, REWC7512.D081701B.

**Table D2. Energy Consumption by Sector and Source**  
(Quadrillion Btu per Year, Unless Otherwise Noted)

Sector and Source	1999	Projections								
		2005			2010			2020		
		Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap
<b>Energy Consumption</b>										
<b>Residential</b>										
Distillate Fuel	0.86	0.87	0.87	0.87	0.80	0.80	0.80	0.76	0.76	0.76
Kerosene	0.10	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07
Liquefied Petroleum Gas	0.46	0.46	0.46	0.46	0.43	0.43	0.43	0.41	0.41	0.42
Petroleum Subtotal	1.42	1.41	1.41	1.41	1.30	1.31	1.30	1.23	1.24	1.25
Natural Gas	4.88	5.55	5.54	5.54	5.54	5.52	5.51	6.08	6.01	5.99
Coal	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Renewable Energy <sup>1</sup>	0.41	0.42	0.42	0.42	0.42	0.42	0.42	0.43	0.43	0.43
Electricity	3.91	4.56	4.54	4.54	4.91	4.87	4.87	5.69	5.61	5.49
<b>Delivered Energy</b>	<b>10.66</b>	<b>11.99</b>	<b>11.97</b>	<b>11.97</b>	<b>12.22</b>	<b>12.17</b>	<b>12.16</b>	<b>13.48</b>	<b>13.35</b>	<b>13.20</b>
Electricity Related Losses	8.44	9.66	9.47	9.48	10.00	9.72	9.76	10.65	10.42	9.86
<b>Total</b>	<b>19.10</b>	<b>21.65</b>	<b>21.44</b>	<b>21.45</b>	<b>22.22</b>	<b>21.90</b>	<b>21.92</b>	<b>24.14</b>	<b>23.77</b>	<b>23.06</b>
<b>Commercial</b>										
Distillate Fuel	0.36	0.37	0.37	0.37	0.38	0.38	0.38	0.37	0.37	0.37
Residual Fuel	0.10	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Kerosene	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Liquefied Petroleum Gas	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.10	0.10	0.10
Motor Gasoline <sup>2</sup>	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Petroleum Subtotal	0.60	0.61	0.61	0.61	0.62	0.62	0.62	0.62	0.62	0.62
Natural Gas	3.14	3.99	3.98	3.99	4.19	4.16	4.16	4.47	4.41	4.40
Coal	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.08
Renewable Energy <sup>3</sup>	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Electricity	3.66	4.40	4.38	4.39	4.92	4.90	4.91	5.64	5.58	5.48
<b>Delivered Energy</b>	<b>7.55</b>	<b>9.15</b>	<b>9.12</b>	<b>9.13</b>	<b>9.88</b>	<b>9.83</b>	<b>9.84</b>	<b>10.88</b>	<b>10.77</b>	<b>10.67</b>
Electricity Related Losses	7.91	9.33	9.13	9.16	10.02	9.78	9.84	10.56	10.36	9.84
<b>Total</b>	<b>15.46</b>	<b>18.48</b>	<b>18.25</b>	<b>18.30</b>	<b>19.90</b>	<b>19.61</b>	<b>19.68</b>	<b>21.44</b>	<b>21.13</b>	<b>20.51</b>
<b>Industrial<sup>4</sup></b>										
Distillate Fuel	1.13	1.21	1.22	1.21	1.30	1.30	1.30	1.49	1.49	1.49
Liquefied Petroleum Gas	2.32	2.44	2.46	2.44	2.51	2.51	2.52	2.85	2.86	2.87
Petrochemical Feedstock	1.29	1.36	1.36	1.36	1.53	1.53	1.53	1.69	1.70	1.69
Residual Fuel	0.22	0.16	0.16	0.16	0.25	0.25	0.25	0.27	0.28	0.28
Motor Gasoline <sup>2</sup>	0.21	0.23	0.23	0.23	0.25	0.25	0.25	0.28	0.28	0.28
Other Petroleum <sup>5</sup>	4.29	4.41	4.45	4.42	4.68	4.71	4.68	5.00	5.03	5.04
Petroleum Subtotal	9.45	9.81	9.88	9.82	10.51	10.55	10.53	11.58	11.64	11.66
Natural Gas <sup>6</sup>	9.80	10.42	10.43	10.41	11.27	11.30	11.26	12.71	12.74	12.77
Metallurgical Coal	0.75	0.67	0.67	0.67	0.61	0.61	0.61	0.50	0.50	0.50
Steam Coal	1.73	1.80	1.81	1.80	1.82	1.75	1.77	1.86	1.71	1.69
Net Coal Coke Imports	0.06	0.11	0.12	0.11	0.15	0.16	0.15	0.22	0.22	0.22
Coal Subtotal	2.54	2.59	2.59	2.58	2.58	2.52	2.53	2.59	2.43	2.41
Renewable Energy <sup>7</sup>	2.15	2.40	2.42	2.40	2.63	2.64	2.63	3.07	3.08	3.08
Electricity	3.61	3.88	3.89	3.87	4.16	4.17	4.15	4.76	4.73	4.66
<b>Delivered Energy</b>	<b>27.56</b>	<b>29.10</b>	<b>29.21</b>	<b>29.08</b>	<b>31.14</b>	<b>31.17</b>	<b>31.10</b>	<b>34.72</b>	<b>34.63</b>	<b>34.58</b>
Electricity Related Losses	7.80	8.21	8.11	8.08	8.47	8.31	8.33	8.91	8.79	8.37
<b>Total</b>	<b>35.36</b>	<b>37.31</b>	<b>37.32</b>	<b>37.16</b>	<b>39.61</b>	<b>39.49</b>	<b>39.43</b>	<b>43.63</b>	<b>43.41</b>	<b>42.95</b>

**Table D2. Energy Consumption by Sector and Source (Continued)**  
(Quadrillion Btu per Year, Unless Otherwise Noted)

Sector and Source	1999	Projections								
		2005			2010			2020		
		Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap
<b>Transportation</b>										
Distillate Fuel	5.13	6.25	6.27	6.24	6.98	6.98	6.96	8.21	8.20	8.17
Jet Fuel <sup>8</sup>	3.46	3.88	3.90	3.88	4.49	4.51	4.49	5.96	5.97	5.96
Motor Gasoline <sup>2</sup>	15.92	17.64	17.68	17.64	18.94	18.97	18.94	21.25	21.26	21.24
Residual Fuel	0.74	0.85	0.85	0.85	0.85	0.85	0.85	0.86	0.86	0.86
Liquefied Petroleum Gas	0.02	0.03	0.03	0.03	0.04	0.05	0.04	0.06	0.06	0.06
Other Petroleum <sup>9</sup>	0.26	0.29	0.30	0.29	0.31	0.31	0.31	0.35	0.35	0.35
Petroleum Subtotal	25.54	28.95	29.03	28.93	31.62	31.67	31.60	36.70	36.71	36.65
Pipeline Fuel Natural Gas	0.66	0.82	0.84	0.84	0.90	0.93	0.93	1.10	1.12	1.14
Compressed Natural Gas	0.02	0.05	0.06	0.05	0.09	0.09	0.09	0.16	0.15	0.15
Renewable Energy (E85) <sup>10</sup>	0.01	0.02	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04
Methanol (M85) <sup>11</sup>	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00
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	0.09	0.09	0.09	0.12	0.12	0.12	0.17	0.17	0.17
<b>Delivered Energy</b>	<b>26.28</b>	<b>29.94</b>	<b>30.04</b>	<b>29.94</b>	<b>32.77</b>	<b>32.84</b>	<b>32.77</b>	<b>38.16</b>	<b>38.20</b>	<b>38.15</b>
Electricity Related Losses	0.13	0.19	0.18	0.18	0.24	0.24	0.24	0.31	0.31	0.30
<b>Total</b>	<b>26.41</b>	<b>30.12</b>	<b>30.22</b>	<b>30.12</b>	<b>33.01</b>	<b>33.08</b>	<b>33.01</b>	<b>38.47</b>	<b>38.51</b>	<b>38.45</b>
<b>Delivered Energy Consumption for All Sectors</b>										
Distillate Fuel	7.48	8.70	8.73	8.70	9.46	9.47	9.44	10.82	10.83	10.80
Kerosene	0.15	0.13	0.13	0.13	0.12	0.12	0.12	0.12	0.12	0.12
Jet Fuel <sup>8</sup>	3.46	3.88	3.90	3.88	4.49	4.51	4.49	5.96	5.97	5.96
Liquefied Petroleum Gas	2.88	3.02	3.04	3.02	3.07	3.08	3.09	3.41	3.42	3.44
Motor Gasoline <sup>2</sup>	16.17	17.90	17.93	17.89	19.22	19.25	19.21	21.56	21.57	21.55
Petrochemical Feedstock	1.29	1.36	1.36	1.36	1.53	1.53	1.53	1.69	1.70	1.69
Residual Fuel	1.05	1.10	1.10	1.10	1.20	1.20	1.20	1.23	1.24	1.24
Other Petroleum <sup>12</sup>	4.53	4.68	4.72	4.69	4.96	4.99	4.96	5.33	5.36	5.37
Petroleum Subtotal	37.01	40.77	40.92	40.77	44.05	44.14	44.05	50.13	50.21	50.18
Natural Gas <sup>6</sup>	18.50	20.84	20.85	20.83	21.99	21.99	21.95	24.52	24.45	24.46
Metallurgical Coal	0.75	0.67	0.67	0.67	0.61	0.61	0.61	0.50	0.50	0.50
Steam Coal	1.84	1.92	1.92	1.92	1.94	1.88	1.89	1.99	1.83	1.81
Net Coal Coke Imports	0.06	0.11	0.12	0.11	0.15	0.16	0.15	0.22	0.22	0.22
Coal Subtotal	2.65	2.70	2.71	2.70	2.70	2.64	2.65	2.71	2.56	2.53
Renewable Energy <sup>13</sup>	2.65	2.93	2.94	2.93	3.17	3.18	3.17	3.64	3.64	3.63
Methanol (M85) <sup>11</sup>	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00
Liquid Hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	11.24	12.93	12.90	12.89	14.10	14.06	14.05	16.25	16.09	15.80
<b>Delivered Energy</b>	<b>72.05</b>	<b>80.17</b>	<b>80.33</b>	<b>80.12</b>	<b>86.01</b>	<b>86.01</b>	<b>85.87</b>	<b>97.25</b>	<b>96.95</b>	<b>96.60</b>
Electricity Related Losses	24.28	27.39	26.90	26.91	28.73	28.05	28.16	30.43	29.88	28.37
<b>Total</b>	<b>96.33</b>	<b>107.5</b>	<b>107.2</b>	<b>107.0</b>	<b>114.7</b>	<b>114.0</b>	<b>114.0</b>	<b>127.6</b>	<b>126.8</b>	<b>124.9</b>
<b>Electric Generators<sup>14</sup></b>										
Distillate Fuel	0.05	0.06	0.05	0.05	0.06	0.03	0.04	0.06	0.03	0.03
Residual Fuel	0.86	0.37	0.25	0.25	0.20	0.11	0.13	0.17	0.09	0.09
Petroleum Subtotal	0.91	0.43	0.30	0.29	0.25	0.15	0.16	0.23	0.12	0.11
Natural Gas	3.83	5.54	5.82	5.79	6.96	7.67	7.89	11.36	12.30	12.94
Steam Coal	18.75	21.67	20.87	20.86	22.87	21.30	20.92	23.59	21.79	18.69
Nuclear Power	7.79	7.90	7.90	7.90	7.69	7.79	7.79	6.51	6.54	6.74
Renewable Energy <sup>15</sup>	3.88	4.17	4.31	4.35	4.70	4.83	5.07	4.75	4.96	5.44
Electricity Imports <sup>16</sup>	0.35	0.61	0.61	0.61	0.37	0.37	0.37	0.24	0.24	0.24
<b>Total</b>	<b>35.52</b>	<b>40.32</b>	<b>39.80</b>	<b>39.80</b>	<b>42.83</b>	<b>42.11</b>	<b>42.21</b>	<b>46.68</b>	<b>45.97</b>	<b>44.17</b>

**Table D2. Energy Consumption by Sector and Source (Continued)**  
(Quadrillion Btu per Year, Unless Otherwise Noted)

Sector and Source	1999	Projections								
		2005			2010			2020		
		Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap
<b>Total Energy Consumption</b>										
Distillate Fuel	7.53	8.77	8.78	8.75	9.51	9.50	9.47	10.88	10.86	10.82
Kerosene	0.15	0.13	0.13	0.13	0.12	0.12	0.12	0.12	0.12	0.12
Jet Fuel <sup>8</sup>	3.46	3.88	3.90	3.88	4.49	4.51	4.49	5.96	5.97	5.96
Liquefied Petroleum Gas	2.88	3.02	3.04	3.02	3.07	3.08	3.09	3.41	3.42	3.44
Motor Gasoline <sup>2</sup>	16.17	17.90	17.93	17.89	19.22	19.25	19.21	21.56	21.57	21.55
Petrochemical Feedstock	1.29	1.36	1.36	1.36	1.53	1.53	1.53	1.69	1.70	1.69
Residual Fuel	1.92	1.48	1.35	1.35	1.39	1.31	1.33	1.41	1.33	1.33
Other Petroleum <sup>12</sup>	4.53	4.68	4.72	4.69	4.96	4.99	4.96	5.33	5.36	5.37
Petroleum Subtotal	37.92	41.21	41.22	41.06	44.30	44.29	44.21	50.36	50.33	50.29
Natural Gas	22.32	26.38	26.67	26.62	28.94	29.66	29.85	35.88	36.74	37.40
Metallurgical Coal	0.75	0.67	0.67	0.67	0.61	0.61	0.61	0.50	0.50	0.50
Steam Coal	20.59	23.59	22.79	22.78	24.81	23.18	22.81	25.58	23.63	20.50
Net Coal Coke Imports	0.06	0.11	0.12	0.11	0.15	0.16	0.15	0.22	0.22	0.22
Coal Subtotal	21.40	24.37	23.57	23.56	25.57	23.94	23.57	26.30	24.35	21.22
Nuclear Power	7.79	7.90	7.90	7.90	7.69	7.79	7.79	6.51	6.54	6.74
Renewable Energy <sup>17</sup>	6.53	7.10	7.25	7.28	7.87	8.01	8.24	8.38	8.60	9.08
Methanol (M85) <sup>11</sup>	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00
Liquid Hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity Imports <sup>16</sup>	0.35	0.61	0.61	0.61	0.37	0.37	0.37	0.24	0.24	0.24
<b>Total</b>	<b>96.33</b>	<b>107.56</b>	<b>107.23</b>	<b>107.03</b>	<b>114.74</b>	<b>114.07</b>	<b>114.03</b>	<b>127.68</b>	<b>126.82</b>	<b>124.98</b>
<b>Energy Use and Related Statistics</b>										
Delivered Energy Use	72.05	80.17	80.33	80.12	86.01	86.01	85.87	97.25	96.95	96.60
Total Energy Use	96.33	107.56	107.23	107.03	114.74	114.07	114.03	127.68	126.82	124.98
Population (millions)	273.13	288.02	288.02	288.02	300.17	300.17	300.17	325.24	325.24	325.24
Gross Domestic Product (billion 1996 dollars)	8876	10908	10960	10904	12634	12667	12634	16509	16515	16513
Total Carbon Dioxide Emissions (million metric tons carbon equivalent)	1510.8	1701.4	1684.7	1680.9	1820.6	1787.8	1779.4	2043.8	2004.5	1933.9

<sup>1</sup>Includes wood used for residential heating.

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

<sup>3</sup>Includes commercial sector electricity cogenerated by using wood and wood waste, landfill gas, municipal solid waste, and other biomass.

<sup>4</sup>Fuel consumption includes consumption for cogeneration, which produces electricity and other useful thermal energy.

<sup>5</sup>Includes petroleum coke, asphalt, road oil, lubricants, still gas, and miscellaneous petroleum products.

<sup>6</sup>Includes lease and plant fuel and consumption by cogenerators, excludes consumption by nonutility generators.

<sup>7</sup>Includes consumption of energy from hydroelectric, wood and wood waste, municipal solid waste, and other biomass; includes cogeneration, both for sale to the grid and for own use.

<sup>8</sup>Includes only kerosene type.

<sup>9</sup>Includes aviation gas and lubricants.

<sup>10</sup>E85 is 85 percent ethanol (renewable) and 15 percent motor gasoline (nonrenewable).

<sup>11</sup>M85 is 85 percent methanol and 15 percent motor gasoline.

<sup>12</sup>Includes unfinished oils, natural gasoline, motor gasoline blending compounds, aviation gasoline, lubricants, still gas, asphalt, road oil, petroleum coke, and miscellaneous petroleum products.

<sup>13</sup>Includes electricity generated for sale to the grid and for own use from renewable sources, and non-electric energy from renewable sources. Excludes nonmarketed renewable energy consumption for geothermal heat pumps, buildings photovoltaic systems, and solar thermal hot water heaters.

<sup>14</sup>Includes consumption of energy by all electric power generators for grid-connected power except cogenerators, which produce electricity and other useful thermal energy. Includes small power producers and exempt wholesale generators.

<sup>15</sup>Includes conventional hydroelectric, geothermal, wood and wood waste, municipal solid waste, other biomass, petroleum coke, wind, photovoltaic and solar thermal sources. Excludes cogeneration. Excludes net electricity imports.

<sup>16</sup>In 1998 approximately 70 percent of the U.S. electricity imports were provided by renewable sources (hydroelectricity); EIA does not project future proportions for the fuel source of imported electricity.

<sup>17</sup>Includes hydroelectric, geothermal, wood and wood waste, municipal solid waste, other biomass, wind, photovoltaic and solar thermal sources. Includes ethanol components of E85; excludes ethanol blends (10 percent or less) in motor gasoline. Excludes net electricity imports and nonmarketed renewable energy consumption for geothermal heat pumps, buildings photovoltaic systems, and solar thermal hot water heaters.

Btu = British thermal unit.

CO<sub>2</sub> = Carbon dioxide.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports. Consumption values of 0.00 are values that round to 0.00, because they are less than 0.005.

Sources: 1999 electric utility fuel consumption: Energy Information Administration, (EIA) *Electric Power Annual 1998, Volume 1*, DOE/EIA-0348(98)/1 (Washington, DC, April 1999). 1999 nonutility consumption estimates: EIA, Form EIA-860B: "Annual Electric Generator Report - Nonutility." Other 1999 values: EIA, *Short-Term Energy Outlook, April 2001*, <http://www.eia.doe.gov/pub/forecasting/steo/oldsteos/apr01.pdf>. Projections: EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC7512.D081701B, REWC7512.D081701B.

**Table D3. Energy Prices by Sector and Source**  
(1999 Dollars per Million Btu, Unless Otherwise Noted)

Sector and Source	1999	Projections								
		2005			2010			2020		
		Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap
<b>Residential</b>	<b>13.18</b>	<b>13.33</b>	<b>13.51</b>	<b>13.44</b>	<b>13.41</b>	<b>13.73</b>	<b>13.69</b>	<b>13.62</b>	<b>14.21</b>	<b>14.93</b>
Primary Energy <sup>1</sup>	6.71	7.50	7.56	7.53	7.17	7.30	7.29	7.01	7.26	7.34
Petroleum Products <sup>2</sup>	7.55	9.17	9.17	9.16	9.37	9.38	9.38	9.47	9.48	9.38
Distillate Fuel	6.27	7.37	7.38	7.37	7.57	7.57	7.57	7.76	7.75	7.74
Liquefied Petroleum Gas	10.36	12.61	12.62	12.61	12.82	12.81	12.84	12.71	12.74	12.43
Natural Gas	6.52	7.13	7.20	7.17	6.70	6.86	6.85	6.56	6.86	6.96
Electricity	23.69	22.29	22.67	22.55	22.19	22.81	22.71	22.16	23.25	25.00
<b>Commercial</b>	<b>13.28</b>	<b>12.71</b>	<b>12.94</b>	<b>12.86</b>	<b>12.23</b>	<b>12.43</b>	<b>12.40</b>	<b>12.55</b>	<b>13.23</b>	<b>14.27</b>
Primary Energy <sup>1</sup>	5.22	5.58	5.63	5.60	5.65	5.78	5.77	5.69	5.94	6.02
Petroleum Products <sup>2</sup>	4.99	6.08	6.08	6.07	6.27	6.26	6.27	6.37	6.36	6.31
Distillate Fuel	4.37	5.17	5.17	5.16	5.35	5.35	5.35	5.51	5.50	5.49
Residual Fuel	2.63	3.64	3.63	3.63	3.70	3.69	3.69	3.85	3.84	3.84
Natural Gas <sup>3</sup>	5.34	5.57	5.63	5.60	5.63	5.78	5.77	5.67	5.96	6.06
Electricity	21.64	20.28	20.70	20.57	18.76	19.00	18.95	18.83	19.90	21.95
<b>Industrial<sup>4</sup></b>	<b>5.29</b>	<b>5.75</b>	<b>5.82</b>	<b>5.78</b>	<b>5.62</b>	<b>5.72</b>	<b>5.71</b>	<b>5.82</b>	<b>6.10</b>	<b>6.33</b>
Primary Energy	3.91	4.46	4.50	4.48	4.45	4.52	4.52	4.61	4.77	4.76
Petroleum Products <sup>2</sup>	5.54	5.97	5.97	5.97	6.07	6.07	6.09	6.12	6.13	5.97
Distillate Fuel	4.65	5.33	5.33	5.32	5.53	5.54	5.53	5.71	5.70	5.69
Liquefied Petroleum Gas	8.50	7.75	7.76	7.76	7.77	7.75	7.80	7.68	7.72	7.42
Residual Fuel	2.78	3.37	3.36	3.36	3.43	3.42	3.42	3.58	3.57	3.57
Natural Gas <sup>5</sup>	2.79	3.66	3.73	3.70	3.46	3.62	3.59	3.73	4.03	4.16
Metallurgical Coal	1.66	1.58	1.58	1.58	1.54	1.54	1.54	1.44	1.44	1.44
Steam Coal	1.43	1.35	1.34	1.34	1.30	1.30	1.30	1.21	1.19	1.26
Electricity	13.12	12.81	13.06	12.96	12.04	12.22	12.17	12.07	13.01	14.60
<b>Transportation</b>	<b>8.30</b>	<b>9.33</b>	<b>9.34</b>	<b>9.33</b>	<b>9.63</b>	<b>9.67</b>	<b>9.68</b>	<b>9.20</b>	<b>9.22</b>	<b>9.22</b>
Primary Energy	8.29	9.32	9.32	9.32	9.61	9.65	9.66	9.18	9.20	9.19
Petroleum Products <sup>2</sup>	8.28	9.32	9.32	9.31	9.61	9.65	9.66	9.18	9.20	9.19
Distillate Fuel <sup>6</sup>	8.22	8.89	8.90	8.89	8.94	8.95	8.94	8.83	8.82	8.83
Jet Fuel <sup>7</sup>	4.70	5.22	5.23	5.22	5.49	5.49	5.49	5.72	5.72	5.71
Motor Gasoline <sup>8</sup>	9.45	10.75	10.75	10.75	11.20	11.26	11.28	10.60	10.63	10.62
Residual Fuel	2.46	3.11	3.10	3.10	3.18	3.18	3.18	3.33	3.32	3.32
Liquid Petroleum Gas <sup>9</sup>	12.87	14.07	14.08	14.07	14.00	13.98	14.07	13.64	13.66	13.40
Natural Gas <sup>10</sup>	7.02	7.30	7.37	7.34	7.17	7.32	7.32	7.30	7.58	7.69
Ethanol (E85) <sup>11</sup>	14.42	19.20	19.21	19.21	19.13	19.16	19.17	19.34	19.39	19.40
Methanol (M85) <sup>12</sup>	10.38	13.13	13.20	13.16	13.80	13.82	13.82	14.35	14.36	14.36
Electricity	15.64	14.61	14.79	14.74	13.73	14.22	14.18	13.18	13.81	14.58
<b>Average End-Use Energy</b>	<b>8.52</b>	<b>9.16</b>	<b>9.23</b>	<b>9.20</b>	<b>9.16</b>	<b>9.28</b>	<b>9.27</b>	<b>9.13</b>	<b>9.39</b>	<b>9.68</b>
Primary Energy	6.31	7.16	7.19	7.17	7.30	7.37	7.37	7.20	7.31	7.31
Electricity	19.58	18.71	19.05	18.94	17.93	18.27	18.21	17.96	18.98	20.76
<b>Electric Generators<sup>13</sup></b>										
Fossil Fuel Average	1.48	1.63	1.69	1.67	1.59	1.70	1.73	1.85	2.05	2.30
Petroleum Products	2.48	3.60	3.70	3.70	3.96	4.21	4.13	4.20	4.56	4.55
Distillate Fuel	4.07	4.65	4.68	4.67	4.85	4.88	4.87	5.05	5.06	5.08
Residual Fuel	2.39	3.43	3.50	3.51	3.70	4.00	3.92	3.92	4.37	4.39
Natural Gas	2.57	3.42	3.56	3.53	3.23	3.48	3.47	3.62	3.97	4.16
Steam Coal	1.21	1.13	1.13	1.13	1.06	1.04	1.05	0.98	0.96	0.99

**Table D3. Energy Prices by Sector and Source (Continued)**  
(1999 Dollars per Million Btu, Unless Otherwise Noted)

Sector and Source	1999	Projections								
		2005			2010			2020		
		Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap
<b>Average Price to All Users<sup>14</sup></b>										
Petroleum Products <sup>2</sup>	7.46	8.48	8.50	8.50	8.75	8.79	8.80	8.49	8.51	8.46
Distillate Fuel	7.25	8.06	8.07	8.06	8.20	8.21	8.20	8.20	8.19	8.19
Jet Fuel	4.70	5.22	5.23	5.22	5.49	5.49	5.49	5.72	5.72	5.71
Liquefied Petroleum Gas	8.84	8.65	8.65	8.66	8.66	8.65	8.69	8.48	8.52	8.22
Motor Gasoline <sup>8</sup>	9.45	10.75	10.75	10.75	11.20	11.26	11.28	10.60	10.63	10.62
Residual Fuel	2.47	3.25	3.24	3.24	3.33	3.33	3.33	3.49	3.48	3.48
Natural Gas	4.04	4.73	4.80	4.77	4.43	4.58	4.56	4.50	4.78	4.91
Coal	1.23	1.15	1.15	1.15	1.08	1.07	1.07	0.99	0.98	1.01
Ethanol (E85) <sup>11</sup>	14.42	19.20	19.21	19.21	19.13	19.16	19.17	19.34	19.39	19.40
Methanol (M85) <sup>12</sup>	10.38	13.13	13.20	13.16	13.80	13.82	13.82	14.35	14.36	14.36
Electricity	19.58	18.71	19.05	18.94	17.93	18.27	18.21	17.96	18.98	20.76
<b>Non-Renewable Energy Expenditures by Sector (billion 1999 dollars)</b>										
Residential	135.11	154.2	155.9	155.1	158.2	161.3	160.6	177.6	183.5	190.7
Commercial	99.11	115.3	116.8	116.3	119.8	121.1	120.9	135.5	141.3	151.0
Industrial	112.11	126.4	128.3	127.0	131.8	134.1	133.5	152.0	159.1	165.4
Transportation	212.64	271.3	272.2	271.2	306.1	307.8	307.5	340.1	341.0	340.3
Total Non-Renewable Expenditures	558.97	667.3	673.4	669.7	716.0	724.4	722.6	805.4	825.1	847.5
Transportation Renewable Expenditures	0.14	0.42	0.42	0.42	0.62	0.63	0.63	0.85	0.85	0.85
<b>Total Expenditures</b>	<b>559.11</b>	<b>667.7</b>	<b>673.8</b>	<b>670.1</b>	<b>716.6</b>	<b>725.0</b>	<b>723.2</b>	<b>806.2</b>	<b>825.9</b>	<b>848.3</b>

<sup>1</sup>Weighted average price includes fuels below as well as coal.

<sup>2</sup>This quantity is the weighted average for all petroleum products, not just those listed below.

<sup>3</sup>Excludes independent power producers.

<sup>4</sup>Includes cogenerators.

<sup>5</sup>Excludes uses for lease and plant fuel.

<sup>6</sup>Low sulfur diesel fuel. Price includes Federal and State taxes while excluding county and local taxes.

<sup>7</sup>Kerosene-type jet fuel. Price includes Federal and State taxes while excluding county and local taxes.

<sup>8</sup>Sales weighted-average price for all grades. Includes Federal and State taxes and excludes county and local taxes.

<sup>9</sup>Includes Federal and State taxes while excluding county and local taxes.

<sup>10</sup>Compressed natural gas used as a vehicle fuel. Price includes estimated motor vehicle fuel taxes.

<sup>11</sup>E85 is 85 percent ethanol (renewable) and 15 percent motor gasoline (nonrenewable).

<sup>12</sup>M85 is 85 percent methanol and 15 percent motor gasoline.

<sup>13</sup>Includes all electric power generators except cogenerators, which produce electricity and other useful thermal energy. Includes small power producers and exempt wholesale generators.

<sup>14</sup>Weighted averages of end-use fuel prices are derived from the prices shown in each sector and the corresponding sectoral consumption.

Btu = British thermal unit.

CO<sub>2</sub> = Carbon dioxide.

Note: Data for 1999 are model results and may differ slightly from official EIA data reports.

**Sources:** 1999 prices for gasoline, distillate, and jet fuel are based on prices in various issues of Energy Information Administration (EIA), *Petroleum Marketing Monthly*, DOE/EIA-0380 (99/03-2000/04) (Washington, DC, 1999-2000). 1999 prices for all other petroleum products are derived from the EIA, *State Energy Price and Expenditure Report 1997*, DOE/EIA-0376(97) (Washington, DC, July 2000). 1999 industrial gas delivered prices are based on EIA, *Manufacturing Energy Consumption Survey 1994*. 1999 residential and commercial natural gas delivered prices: EIA, *Natural Gas Monthly*, DOE/EIA-0130(2000/06) (Washington, DC, June 2000). 1999 coal prices based on EIA, *Quarterly Coal Report*, DOE/EIA-0121(2000/1Q) (Washington, DC, August 2000), and EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC7512.D081701B, REWC7512.D081701B. 1999 electricity prices for commercial, industrial, and transportation: EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC7512.D081701B, REWC7512.D081701B. **Projections:** EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC7512.D081701B, REWC7512.D081701B.

**Table D4. Electricity Supply, Disposition, Prices, and Emissions**  
(Billion Kilowatthours, Unless Otherwise Noted)

Supply, Disposition, and Prices	1999	Projections								
		2005			2010			2020		
		Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap
<b>Generation by Fuel Type</b>										
<b>Electric Generators<sup>1</sup></b>										
Coal .....	1830	2105	2029	2027	2238	2068	2022	2302	2083	1794
Petroleum .....	85	42	30	29	25	15	17	23	13	13
Natural Gas <sup>2</sup> .....	370	582	654	651	826	984	1016	1488	1661	1816
Nuclear Power .....	730	740	740	740	720	729	729	610	613	631
Pumped Storage .....	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Renewable Sources <sup>3</sup> .....	355	372	380	381	396	401	409	399	411	442
<b>Total .....</b>	<b>3369</b>	<b>3839</b>	<b>3832</b>	<b>3828</b>	<b>4204</b>	<b>4196</b>	<b>4191</b>	<b>4821</b>	<b>4781</b>	<b>4694</b>
Non-Utility Generation for Own Use .....	16	17	17	17	17	16	16	16	16	22
Distributed Generation .....	0	0	0	0	1	1	1	5	4	4
<b>Cogenerators<sup>4</sup></b>										
Coal .....	47	53	52	52	51	47	48	52	38	36
Petroleum .....	9	10	10	10	10	10	10	10	10	10
Natural Gas .....	206	236	237	237	259	259	258	317	327	344
Other Gaseous Fuels <sup>5</sup> .....	4	6	6	6	7	7	7	8	8	9
Renewable Sources <sup>3</sup> .....	31	34	34	34	39	39	39	48	48	48
Other <sup>6</sup> .....	5	5	5	5	5	5	5	6	6	6
<b>Total .....</b>	<b>303</b>	<b>344</b>	<b>345</b>	<b>345</b>	<b>372</b>	<b>367</b>	<b>368</b>	<b>440</b>	<b>437</b>	<b>452</b>
<b>Other End-Use Generators<sup>7</sup></b>										
Sales to Utilities .....	151	172	170	170	179	174	175	208	198	200
Generation for Own Use .....	156	177	179	179	197	198	198	237	244	257
<b>Net Imports<sup>8</sup> .....</b>	<b>33</b>	<b>57</b>	<b>57</b>	<b>57</b>	<b>35</b>	<b>35</b>	<b>35</b>	<b>23</b>	<b>23</b>	<b>23</b>
<b>Electricity Sales by Sector</b>										
Residential .....	1145	1337	1332	1331	1438	1428	1427	1668	1645	1609
Commercial .....	1073	1291	1284	1286	1442	1436	1439	1653	1635	1607
Industrial .....	1058	1137	1140	1134	1219	1221	1217	1394	1387	1367
Transportation .....	17	26	26	26	34	35	34	49	49	49
<b>Total .....</b>	<b>3294</b>	<b>3790</b>	<b>3781</b>	<b>3777</b>	<b>4133</b>	<b>4120</b>	<b>4117</b>	<b>4763</b>	<b>4716</b>	<b>4631</b>
<b>End-Use Prices (1999 cents per kwh)<sup>9</sup></b>										
Residential .....	8.1	7.6	7.7	7.7	7.6	7.8	7.7	7.6	7.9	8.5
Commercial .....	7.4	6.9	7.1	7.0	6.4	6.5	6.5	6.4	6.8	7.5
Industrial .....	4.5	4.4	4.5	4.4	4.1	4.2	4.2	4.1	4.4	5.0
Transportation .....	5.3	5.0	5.0	5.0	4.7	4.9	4.8	4.5	4.7	5.0
<b>All Sectors Average .....</b>	<b>6.7</b>	<b>6.4</b>	<b>6.5</b>	<b>6.5</b>	<b>6.1</b>	<b>6.2</b>	<b>6.2</b>	<b>6.1</b>	<b>6.5</b>	<b>7.1</b>
<b>Prices by Service Category<sup>9</sup></b>										
<b>(1999 cents per kwh)</b>										
Generation .....	4.1	3.8	3.9	3.9	3.4	3.5	3.5	3.5	3.9	4.5
Transmission .....	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7
Distribution .....	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
<b>Emissions (million short tons)</b>										
Sulfur Dioxide .....	13.49	10.39	7.98	7.98	9.70	5.51	5.51	8.95	2.24	2.24
Nitrogen Oxide .....	5.43	4.30	4.18	4.18	4.34	2.34	2.41	4.48	1.64	1.42

<sup>1</sup>Includes grid-connected generation at all utilities and nonutilities except for cogenerators. Includes small power producers and exempt wholesale generators.

<sup>2</sup>Includes electricity generation by fuel cells.

<sup>3</sup>Includes conventional hydroelectric, geothermal, wood, wood waste, municipal solid waste, landfill gas, other biomass, solar, and wind power.

<sup>4</sup>Cogenerators produce electricity and other useful thermal energy. Includes sales to utilities and generation for own use.

<sup>5</sup>Other gaseous fuels include refinery and still gas.

<sup>6</sup>Other includes hydrogen, sulfur, batteries, chemicals, fish oil, and spent sulfite liquor.

<sup>7</sup>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.

<sup>8</sup>In 1998 approximately 70 percent of the U.S. electricity imports were provided by renewable sources (hydroelectricity); EIA does not project future proportions for the fuel source of imported electricity.

<sup>9</sup>Prices represent average revenue per kilowatthour.

Kwh = Kilowatthour.

CO<sub>2</sub> = Carbon dioxide.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports.

Source: Energy Information Administration, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC7512.D081701B, REWC7512.D081701B.



**Table D5. Electricity Generating Capability  
(Gigawatts)**

Net Summer Capability <sup>1</sup>	1999	Projections								
		2005			2010			2020		
		Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap
<b>Electric Generators<sup>2</sup></b>										
<b>Capability</b>										
Coal Steam	305.1	303.9	303.0	302.8	317.8	303.4	294.2	317.3	300.4	288.6
Other Fossil Steam <sup>3</sup>	137.4	124.9	120.6	120.9	117.4	107.7	109.2	114.9	106.7	107.5
Combined Cycle	21.0	52.4	78.9	78.6	107.3	154.5	159.0	199.0	233.0	246.3
Combustion Turbine/Diesel	86.8	126.4	125.6	126.5	149.8	138.2	139.5	197.4	185.7	171.2
Nuclear Power	97.4	97.5	97.5	97.5	93.7	95.3	95.3	76.3	76.3	78.8
Pumped Storage	19.3	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5
Fuel Cells	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.3	0.3	0.3
Renewable Sources <sup>4</sup>	88.8	94.7	95.1	95.4	97.9	98.5	99.5	99.4	100.1	101.3
Distributed Generation <sup>5</sup>	0.0	0.8	0.2	0.2	2.5	1.6	1.9	11.0	9.2	8.6
<b>Total</b>	<b>755.9</b>	<b>820.0</b>	<b>840.4</b>	<b>841.3</b>	<b>906.0</b>	<b>918.9</b>	<b>918.2</b>	<b>1035.1</b>	<b>1031.2</b>	<b>1022.0</b>
<b>Cumulative Planned Additions<sup>6</sup></b>										
Coal Steam	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Fossil Steam <sup>3</sup>	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Combined Cycle	0.0	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7
Combustion Turbine/Diesel	0.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Nuclear Power	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pumped Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Cells	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.3	0.3	0.3
Renewable Sources <sup>4</sup>	0.0	5.1	5.1	5.1	6.7	6.7	6.7	8.1	8.1	8.1
Distributed Generation <sup>5</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>0.0</b>	<b>32.0</b>	<b>32.0</b>	<b>32.0</b>	<b>33.7</b>	<b>33.7</b>	<b>33.7</b>	<b>35.3</b>	<b>35.3</b>	<b>35.3</b>
<b>Cumulative Unplanned Additions<sup>6</sup></b>										
Coal Steam	0.0	1.1	0.2	0.0	18.2	9.2	0.0	19.5	9.2	0.0
Other Fossil Steam <sup>3</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Combined Cycle	0.0	18.6	45.1	44.9	73.6	120.8	125.3	165.4	199.3	212.6
Combustion Turbine/Diesel	0.0	30.9	23.1	23.9	55.4	38.1	39.1	103.1	85.7	70.9
Nuclear Power	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pumped Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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 <sup>4</sup>	0.0	0.4	0.8	1.1	1.9	2.6	3.5	1.9	2.7	3.9
Distributed Generation <sup>5</sup>	0.0	0.8	0.2	0.2	2.5	1.6	1.9	11.0	9.2	8.6
<b>Total</b>	<b>0.0</b>	<b>51.7</b>	<b>69.4</b>	<b>69.9</b>	<b>151.5</b>	<b>172.2</b>	<b>169.9</b>	<b>300.8</b>	<b>306.1</b>	<b>295.9</b>
<b>Cumulative Total Additions</b>	<b>0.0</b>	<b>83.7</b>	<b>101.4</b>	<b>101.9</b>	<b>185.2</b>	<b>205.9</b>	<b>203.6</b>	<b>336.1</b>	<b>341.4</b>	<b>331.2</b>
<b>Cumulative Retirements<sup>7</sup></b>										
Coal Steam	0.0	2.3	2.3	2.3	5.5	11.0	10.9	7.3	14.0	16.5
Other Fossil Steam <sup>3</sup>	0.0	12.7	17.0	16.8	20.2	29.9	28.5	22.7	31.0	30.1
Combined Cycle	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.2	0.1	0.1
Combustion Turbine/Diesel	0.0	5.5	5.5	5.3	6.6	7.8	7.6	6.7	7.9	7.7
Nuclear Power	0.0	0.0	0.0	0.0	3.7	2.2	2.2	21.2	21.2	18.7
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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
<b>Total</b>	<b>0.0</b>	<b>20.6</b>	<b>25.0</b>	<b>24.6</b>	<b>36.4</b>	<b>51.1</b>	<b>49.4</b>	<b>58.1</b>	<b>74.3</b>	<b>73.3</b>
<b>Cogenerators<sup>8</sup></b>										
<b>Capability</b>										
Coal	8.4	8.9	8.9	8.9	8.6	7.5	7.7	8.6	6.4	6.4
Petroleum	2.7	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Natural Gas	34.6	39.7	40.1	40.0	43.1	43.3	43.2	51.2	52.6	54.9
Other Gaseous Fuels	0.2	0.8	0.8	0.8	0.9	0.9	0.9	1.1	1.1	1.1
Renewable Sources <sup>4</sup>	5.4	5.9	5.9	5.9	6.8	6.8	6.8	8.3	8.2	8.3
Other	1.1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
<b>Total</b>	<b>52.4</b>	<b>59.1</b>	<b>59.4</b>	<b>59.4</b>	<b>63.1</b>	<b>62.3</b>	<b>62.4</b>	<b>73.0</b>	<b>72.2</b>	<b>74.6</b>
<b>Cumulative Additions<sup>6</sup></b>	<b>0.0</b>	<b>6.7</b>	<b>7.0</b>	<b>7.0</b>	<b>10.7</b>	<b>9.8</b>	<b>9.9</b>	<b>20.5</b>	<b>19.8</b>	<b>22.2</b>



**Table D5. Electricity Generating Capability (Continued)**  
(Gigawatts)

Net Summer Capability <sup>1</sup>	1999	Projections								
		2005			2010			2020		
		Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap
<b>Other End-Use Generators<sup>9</sup></b>										
Renewable Sources . . . . .	1.0	1.1	1.1	1.1	1.3	1.3	1.3	1.3	1.3	1.3
Cumulative Additions . . . . .	0.0	0.1	0.1	0.1	0.3	0.3	0.3	0.3	0.3	0.3

<sup>1</sup>Net summer capability is the steady hourly output that generating equipment is expected to supply to system load (exclusive of auxiliary power), as demonstrated by tests during summer peak demand.

<sup>2</sup>Includes grid-connected utilities and nonutilities except for cogenerators. Includes small power producers and exempt wholesale generators.

<sup>3</sup>Includes oil-, gas-, and dual-fired capability.

<sup>4</sup>Includes conventional hydroelectric, geothermal, wood, wood waste, municipal solid waste, landfill gas, other biomass, solar and wind power.

<sup>5</sup>Primarily peak-load capacity fueled by natural gas.

<sup>6</sup>Cumulative additions after December 31, 1999.

<sup>7</sup>Cumulative total retirements after December 31, 1999.

<sup>8</sup>Nameplate capacity is reported for nonutilities on Form EIA-860B, "Annual Electric Generator Report - Nonutility." Nameplate capacity is designated by the manufacturer. The nameplate capacity has been converted to the net summer capability based on historic relationships.

<sup>9</sup>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.

CO<sub>2</sub> = Carbon dioxide.

Notes: Totals may not equal sum of components due to independent rounding. Data for 1999 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 capability for electric utility generators.

Source: Energy Information Administration, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC7512.D081701B, REWC7512.D081701B.

**Table D6. Electricity Trade**  
(Billion Kilowatthours, Unless Otherwise Noted)

Electricity Trade	1999	Projections								
		2005			2010			2020		
		Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap
<b>Interregional Electricity Trade</b>										
Gross Domestic Firm Power Trade .....	182.2	125.3	125.3	125.3	102.9	102.9	102.9	0.0	0.0	0.0
Gross Domestic Economy Trade .....	152.1	199.1	207.8	209.1	154.6	154.0	154.8	146.4	132.0	120.4
<b>Gross Domestic Trade .....</b>	<b>334.3</b>	<b>324.4</b>	<b>333.1</b>	<b>334.4</b>	<b>257.5</b>	<b>256.9</b>	<b>257.7</b>	<b>146.4</b>	<b>132.0</b>	<b>120.4</b>
<b>Gross Domestic Sales</b>										
Gross Domestic Firm Power Sales (million 1999 dollars) .....	8588.1	5905.8	5905.8	5905.8	4851.2	4851.2	4851.2	0.0	0.0	0.0
Gross Domestic Economy Sales (million 1999 dollars) .....	4204.3	6352.8	6889.5	6864.0	4407.4	4610.3	4633.0	4448.7	4582.4	4886.1
<b>Gross Domestic Sales (million 1999 dollars) .....</b>	<b>12792.4</b>	<b>12258.</b>	<b>12795.</b>	<b>12769.</b>	<b>9258.7</b>	<b>9461.6</b>	<b>9484.3</b>	<b>4448.7</b>	<b>4582.4</b>	<b>4886.1</b>
<b>International Electricity Trade</b>										
Firm Power Imports From Canada and Mexico <sup>1</sup>	27.0	10.7	10.7	10.7	5.8	5.8	5.8	0.0	0.0	0.0
Economy Imports From Canada and Mexico <sup>1</sup> ..	21.9	63.5	63.5	63.5	45.9	45.9	45.9	30.6	30.6	30.6
<b>Gross Imports From Canada and Mexico<sup>1</sup> ..</b>	<b>48.9</b>	<b>74.1</b>	<b>74.1</b>	<b>74.1</b>	<b>51.7</b>	<b>51.7</b>	<b>51.7</b>	<b>30.6</b>	<b>30.6</b>	<b>30.6</b>
Firm Power Exports To Canada and Mexico ...	9.2	9.7	9.7	9.7	8.7	8.7	8.7	0.0	0.0	0.0
Economy Exports To Canada and Mexico .....	6.3	7.0	7.0	7.0	7.7	7.7	7.7	7.7	7.7	7.7
<b>Gross Exports To Canada and Mexico .....</b>	<b>15.5</b>	<b>16.7</b>	<b>16.7</b>	<b>16.7</b>	<b>16.4</b>	<b>16.4</b>	<b>16.4</b>	<b>7.7</b>	<b>7.7</b>	<b>7.7</b>

<sup>1</sup>Historically electricity imports were primarily from renewable resources, principally hydroelectric.  
CO<sub>2</sub> = Carbon dioxide.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports. Firm Power Sales are capacity sales, meaning the delivery of the power is scheduled as part of the normal operating conditions of the affected electric systems. Economy Sales are subject to curtailment or cessation of delivery by the supplier in accordance with prior agreements or under specified conditions.

Source: Energy Information Administration, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC7512.D081701B, REWC7512.D081701B.

**Table D7. Natural Gas Supply and Disposition**  
(Trillion Cubic Feet per Year)

Supply, Disposition, and Prices	1999	Projections								
		2005			2010			2020		
		Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap
<b>Production</b>										
Dry Gas Production <sup>1</sup> . . . . .	18.67	21.32	21.59	21.55	23.36	23.95	24.14	29.34	30.00	30.64
Supplemental Natural Gas <sup>2</sup> . . .	0.10	0.11	0.11	0.11	0.06	0.06	0.06	0.06	0.06	0.06
<b>Net Imports</b> . . . . .	<b>3.38</b>	<b>4.70</b>	<b>4.73</b>	<b>4.71</b>	<b>5.01</b>	<b>5.15</b>	<b>5.12</b>	<b>5.78</b>	<b>5.97</b>	<b>6.00</b>
Canada . . . . .	3.29	4.49	4.51	4.50	4.72	4.86	4.83	5.39	5.58	5.61
Mexico . . . . .	-0.01	-0.18	-0.18	-0.18	-0.25	-0.25	-0.25	-0.40	-0.40	-0.40
Liquefied Natural Gas . . . . .	0.10	0.39	0.39	0.39	0.53	0.54	0.54	0.79	0.80	0.80
<b>Total Supply</b> . . . . .	<b>22.15</b>	<b>26.14</b>	<b>26.43</b>	<b>26.38</b>	<b>28.42</b>	<b>29.15</b>	<b>29.32</b>	<b>35.17</b>	<b>36.03</b>	<b>36.70</b>
<b>Consumption by Sector</b>										
Residential . . . . .	4.75	5.40	5.40	5.40	5.39	5.37	5.37	5.92	5.86	5.83
Commercial . . . . .	3.06	3.89	3.88	3.88	4.08	4.05	4.05	4.36	4.29	4.29
Industrial <sup>3</sup> . . . . .	8.31	8.78	8.79	8.76	9.48	9.48	9.43	10.52	10.51	10.51
Electric Generators <sup>4</sup> . . . . .	3.76	5.44	5.71	5.68	6.83	7.53	7.75	11.15	12.07	12.70
Lease and Plant Fuel <sup>5</sup> . . . . .	1.23	1.36	1.37	1.37	1.50	1.53	1.53	1.86	1.90	1.93
Pipeline Fuel . . . . .	0.64	0.80	0.82	0.81	0.88	0.91	0.91	1.07	1.10	1.11
Transportation <sup>6</sup> . . . . .	0.02	0.05	0.05	0.05	0.09	0.09	0.09	0.15	0.15	0.15
<b>Total</b> . . . . .	<b>21.77</b>	<b>25.73</b>	<b>26.02</b>	<b>25.96</b>	<b>28.24</b>	<b>28.94</b>	<b>29.13</b>	<b>35.03</b>	<b>35.87</b>	<b>36.52</b>
<b>Discrepancy</b> <sup>7</sup> . . . . .	<b>0.38</b>	<b>0.41</b>	<b>0.41</b>	<b>0.41</b>	<b>0.19</b>	<b>0.21</b>	<b>0.20</b>	<b>0.15</b>	<b>0.16</b>	<b>0.18</b>

<sup>1</sup>Marketed production (wet) minus extraction losses.

<sup>2</sup>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.

<sup>3</sup>Includes consumption by cogenerators.

<sup>4</sup>Includes all electric power generators except cogenerators, which produce electricity and other useful thermal energy. Includes small power producers and exempt wholesale generators.

<sup>5</sup>Represents natural gas used in the field gathering and processing plant machinery.

<sup>6</sup>Compressed natural gas used as vehicle fuel.

<sup>7</sup>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, 1999 values include net storage injections.

Btu = British thermal unit.

CO<sub>2</sub> = Carbon dioxide.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports.

**Sources:** 1999 supplemental natural gas: Energy Information Administration (EIA), *Natural Gas Monthly*, DOE/EIA-0130(2000/06) (Washington, DC, June 2000). 1999 transportation sector consumption: EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC7512.D081701B, REWC7512.D081701B. Other 1999 consumption: EIA, *Short-Term Energy Outlook, April 2001*, <http://www.eia.doe.gov/pub/forecasting/steo/oldsteos/apr01.pdf> with adjustments to end-use sector consumption levels for consumption of natural gas by electric wholesale generators based on EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC7512.D081701B, REWC7512.D081701B. **Projections:** EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC7512.D081701B, REWC7512.D081701B.

**Table D8. Natural Gas Prices, Margins, and Revenue**  
(1999 Dollars per Thousand Cubic Feet, Unless Otherwise Noted)

Prices, Margins, and Revenue	1999	Projections								
		2005			2010			2020		
		Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap
<b>Source Price</b>										
Average Lower 48 Wellhead Price <sup>1</sup> . . . .	2.08	2.99	3.06	3.02	2.82	2.98	2.96	3.10	3.41	3.55
Average Import Price . . . . .	2.29	2.99	3.01	3.00	2.66	2.71	2.70	2.71	2.81	2.82
<b>Average<sup>2</sup> . . . . .</b>	<b>2.11</b>	<b>2.99</b>	<b>3.05</b>	<b>3.02</b>	<b>2.79</b>	<b>2.93</b>	<b>2.91</b>	<b>3.03</b>	<b>3.30</b>	<b>3.42</b>
<b>Delivered Prices</b>										
Residential . . . . .	6.69	7.33	7.39	7.36	6.88	7.04	7.03	6.74	7.04	7.15
Commercial . . . . .	5.49	5.72	5.79	5.75	5.78	5.94	5.92	5.82	6.12	6.23
Industrial <sup>3</sup> . . . . .	2.87	3.76	3.83	3.80	3.55	3.71	3.69	3.84	4.14	4.27
Electric Generators <sup>4</sup> . . . . .	2.62	3.49	3.63	3.59	3.30	3.55	3.54	3.68	4.04	4.24
Transportation <sup>5</sup> . . . . .	7.21	7.50	7.57	7.53	7.36	7.52	7.52	7.50	7.79	7.90
<b>Average<sup>6</sup> . . . . .</b>	<b>4.14</b>	<b>4.85</b>	<b>4.92</b>	<b>4.89</b>	<b>4.55</b>	<b>4.70</b>	<b>4.68</b>	<b>4.61</b>	<b>4.91</b>	<b>5.04</b>
<b>Transmission &amp; Distribution Margins<sup>7</sup></b>										
Residential . . . . .	4.58	4.34	4.35	4.34	4.09	4.11	4.12	3.71	3.74	3.73
Commercial . . . . .	3.37	2.73	2.74	2.74	2.99	3.01	3.01	2.79	2.81	2.81
Industrial <sup>3</sup> . . . . .	0.76	0.78	0.79	0.78	0.76	0.78	0.78	0.81	0.84	0.85
Electric Generators <sup>4</sup> . . . . .	0.51	0.50	0.58	0.58	0.51	0.61	0.62	0.66	0.74	0.82
Transportation <sup>5</sup> . . . . .	5.10	4.52	4.52	4.52	4.57	4.59	4.60	4.47	4.48	4.48
<b>Average<sup>6</sup> . . . . .</b>	<b>2.03</b>	<b>1.87</b>	<b>1.87</b>	<b>1.87</b>	<b>1.76</b>	<b>1.77</b>	<b>1.76</b>	<b>1.59</b>	<b>1.60</b>	<b>1.62</b>
<b>Transmission &amp; Distribution Revenue (billion 1999 dollars)</b>										
Residential . . . . .	21.77	23.45	23.46	23.46	22.07	22.09	22.10	21.95	21.88	21.75
Commercial . . . . .	10.32	10.62	10.61	10.62	12.19	12.17	12.19	12.16	12.08	12.04
Industrial <sup>3</sup> . . . . .	6.28	6.82	6.90	6.86	7.20	7.40	7.33	8.50	8.82	8.93
Electric Generators <sup>4</sup> . . . . .	1.90	2.74	3.32	3.28	3.46	4.62	4.81	7.33	8.93	10.46
Transportation <sup>5</sup> . . . . .	0.08	0.24	0.24	0.24	0.40	0.41	0.41	0.68	0.67	0.67
<b>Total . . . . .</b>	<b>40.35</b>	<b>43.87</b>	<b>44.53</b>	<b>44.45</b>	<b>45.33</b>	<b>46.69</b>	<b>46.82</b>	<b>50.61</b>	<b>52.38</b>	<b>53.86</b>

<sup>1</sup>Represents lower 48 onshore and offshore supplies.

<sup>2</sup>Quantity-weighted average of the average lower 48 wellhead price and the average price of imports at the U.S. border.

<sup>3</sup>Includes consumption by cogenerators.

<sup>4</sup>Includes all electric power generators except cogenerators, which produce electricity and other useful thermal energy. Includes small power producers and exempt wholesale generators.

<sup>5</sup>Compressed natural gas used as a vehicle fuel. Price includes estimated motor vehicle fuel taxes.

<sup>6</sup>Weighted average prices and margins. Weights used are the sectoral consumption values excluding lease, plant, and pipeline fuel.

<sup>7</sup>Within the table, "transmission and distribution" margins equal the difference between the delivered price and the source price (average of the wellhead price and the price of imports at the U.S. border) of natural gas and, thus, reflect the total cost of bringing natural gas to market. When the term "transmission and distribution" margins is used in today's natural gas market, it generally does not include the cost of independent natural gas marketers or costs associated with aggregation of supplies, provisions of storage, and other services. As used here, the term includes the cost of all services and the cost of pipeline fuel used in compressor stations.

CO<sub>2</sub> = Carbon dioxide.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports.

Sources: 1999 industrial delivered prices based on Energy Information Administration (EIA), *Manufacturing Energy Consumption Survey 1994*. 1999 residential and commercial delivered prices, average lower 48 wellhead price, and average import price: EIA, *Natural Gas Monthly*, DOE/EIA-0130(2000/06) (Washington, DC, June 2000). Other 1999 values, and projections: EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC7512.D081701B, REWC7512.D081701B.

**Table D9. Oil and Gas Supply**

Production and Supply	1999	Projections								
		2005			2010			2020		
		Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap
<b>Crude Oil</b>										
<b>Lower 48 Average Wellhead Price<sup>1</sup></b> (1999 dollars per barrel) .....	<b>16.49</b>	<b>20.48</b>	<b>21.14</b>	<b>20.45</b>	<b>20.80</b>	<b>20.80</b>	<b>20.80</b>	<b>21.50</b>	<b>21.50</b>	<b>21.46</b>
<b>Production (million barrels per day)<sup>2</sup></b>										
<b>U.S. Total</b> .....	<b>5.88</b>	<b>5.69</b>	<b>5.67</b>	<b>5.68</b>	<b>5.30</b>	<b>5.32</b>	<b>5.30</b>	<b>5.22</b>	<b>5.27</b>	<b>5.27</b>
Lower 48 Onshore .....	3.27	2.80	2.80	2.80	2.50	2.51	2.50	2.71	2.76	2.76
Conventional .....	2.59	2.18	2.18	2.18	1.81	1.81	1.81	1.96	2.00	2.00
Enhanced Oil Recovery .....	0.68	0.62	0.62	0.62	0.69	0.70	0.69	0.74	0.76	0.76
Lower 48 Offshore .....	1.56	2.09	2.08	2.09	2.16	2.16	2.16	1.88	1.88	1.87
Alaska .....	1.05	0.79	0.79	0.79	0.65	0.65	0.65	0.64	0.64	0.64
<b>Lower 48 End of Year Reserves (billion barrels)<sup>2</sup> ..</b>	<b>18.33</b>	<b>15.76</b>	<b>15.76</b>	<b>15.76</b>	<b>14.43</b>	<b>14.56</b>	<b>14.48</b>	<b>14.01</b>	<b>14.15</b>	<b>14.14</b>
<b>Natural Gas</b>										
<b>Lower 48 Average Wellhead Price<sup>3</sup></b> (1999 dollars per thousand cubic feet) .....	<b>2.08</b>	<b>2.99</b>	<b>3.06</b>	<b>3.02</b>	<b>2.82</b>	<b>2.98</b>	<b>2.96</b>	<b>3.10</b>	<b>3.41</b>	<b>3.55</b>
<b>Production (trillion cubic feet)<sup>3</sup></b>										
<b>U.S. Total</b> .....	<b>18.67</b>	<b>21.32</b>	<b>21.59</b>	<b>21.55</b>	<b>23.36</b>	<b>23.95</b>	<b>24.14</b>	<b>29.34</b>	<b>30.00</b>	<b>30.64</b>
Lower 48 Onshore .....	12.83	14.37	14.57	14.53	16.42	17.11	17.11	21.10	21.85	22.28
Associated-Dissolved <sup>4</sup> .....	1.80	1.51	1.51	1.51	1.32	1.33	1.32	1.38	1.40	1.40
Non-Associated .....	11.03	12.86	13.05	13.02	15.10	15.79	15.79	19.72	20.45	20.88
Conventional .....	6.64	7.62	7.76	7.72	7.79	8.09	8.09	11.05	11.27	11.56
Unconventional .....	4.39	5.24	5.29	5.30	7.30	7.70	7.70	8.66	9.18	9.32
Lower 48 Offshore .....	5.43	6.49	6.56	6.55	6.44	6.33	6.53	7.66	7.58	7.79
Associated-Dissolved <sup>4</sup> .....	0.93	1.06	1.06	1.06	1.09	1.09	1.09	1.04	1.04	1.04
Non-Associated .....	4.50	5.42	5.50	5.49	5.35	5.24	5.44	6.63	6.54	6.75
Alaska .....	0.42	0.47	0.47	0.47	0.50	0.50	0.50	0.57	0.57	0.57
<b>Lower 48 End of Year Reserves</b> (trillion cubic feet) .....	<b>157.41</b>	<b>169.38</b>	<b>168.78</b>	<b>168.99</b>	<b>184.15</b>	<b>187.65</b>	<b>186.76</b>	<b>199.35</b>	<b>203.04</b>	<b>198.70</b>
<b>Supplemental Gas Supplies (trillion cubic feet)<sup>5</sup> ..</b>	<b>0.10</b>	<b>0.11</b>	<b>0.11</b>	<b>0.11</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>
<b>Total Lower 48 Wells (thousands)</b> .....	<b>17.93</b>	<b>29.02</b>	<b>29.31</b>	<b>29.07</b>	<b>29.30</b>	<b>30.35</b>	<b>30.39</b>	<b>38.07</b>	<b>41.64</b>	<b>41.81</b>

<sup>1</sup>Represents lower 48 onshore and offshore supplies.

<sup>2</sup>Includes lease condensate.

<sup>3</sup>Market production (wet) minus extraction losses.

<sup>4</sup>Gas which occurs in crude oil reserves either as free gas (associated) or as gas in solution with crude oil (dissolved).

<sup>5</sup>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.

Btu = British thermal unit.

CO<sub>2</sub> = Carbon dioxide.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports.

Sources: 1999 lower 48 onshore, lower 48 offshore, and Alaska crude oil production: Energy Information Administration (EIA), *Petroleum Supply Annual 1999*, DOE/EIA-0340(99/1) (Washington, DC, June 2000). 1999 natural gas lower 48 average wellhead price, Alaska and total natural gas production, and supplemental gas supplies: EIA, *Natural Gas Monthly*, DOE/EIA-0130(2000/06) (Washington, DC, June 2000). Other 1999 values: EIA, Office of Integrated Analysis and Forecasting. Projections: EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC7512.D081701B, REWC7512.D081701B.

**Table D10. Coal Supply, Disposition, and Prices**  
(Million Short Tons per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	1999	Projections								
		2005			2010			2020		
		Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap
<b>Production<sup>1</sup></b>										
Appalachia .....	434	432	411	417	425	422	422	396	371	329
Interior .....	182	185	162	168	183	169	173	164	152	133
West .....	486	612	615	600	681	597	568	775	686	596
East of the Mississippi .....	558	569	533	544	564	558	563	526	513	444
West of the Mississippi .....	544	659	656	641	725	630	600	810	696	615
<b>Total .....</b>	<b>1102</b>	<b>1228</b>	<b>1188</b>	<b>1185</b>	<b>1289</b>	<b>1188</b>	<b>1163</b>	<b>1336</b>	<b>1209</b>	<b>1059</b>
<b>Net Imports</b>										
Imports .....	9	16	16	16	17	17	17	20	20	20
Exports .....	58	60	60	60	58	58	58	56	55	56
<b>Total .....</b>	<b>-49</b>	<b>-44</b>	<b>-45</b>	<b>-45</b>	<b>-40</b>	<b>-40</b>	<b>-41</b>	<b>-36</b>	<b>-36</b>	<b>-37</b>
<b>Total Supply<sup>2</sup> .....</b>	<b>1053</b>	<b>1184</b>	<b>1144</b>	<b>1140</b>	<b>1249</b>	<b>1148</b>	<b>1122</b>	<b>1300</b>	<b>1173</b>	<b>1022</b>
<b>Consumption by Sector</b>										
Residential and Commercial .....	5	5	5	5	5	5	5	5	5	5
Industrial <sup>3</sup> .....	79	82	82	82	83	80	81	85	78	77
Coke Plants .....	28	25	25	25	23	23	23	19	19	19
Electric Generators <sup>4</sup> .....	920	1073	1033	1029	1139	1038	1014	1190	1070	930
<b>Total .....</b>	<b>1031</b>	<b>1185</b>	<b>1146</b>	<b>1141</b>	<b>1250</b>	<b>1146</b>	<b>1123</b>	<b>1299</b>	<b>1173</b>	<b>1031</b>
<b>Discrepancy and Stock Change<sup>5</sup> .....</b>	<b>21</b>	<b>-1</b>	<b>-2</b>	<b>-1</b>	<b>-1</b>	<b>2</b>	<b>-1</b>	<b>1</b>	<b>1</b>	<b>-9</b>
<b>Average Minemouth Price</b>										
(1999 dollars per short ton) .....	17.13	15.22	15.00	15.21	14.19	15.03	15.25	12.93	13.38	12.75
(1999 dollars per million Btu) .....	0.82	0.74	0.72	0.73	0.69	0.72	0.72	0.64	0.64	0.62
<b>Delivered Prices (1999 dollars per short ton)<sup>6</sup></b>										
Industrial .....	31.37	29.65	29.29	29.32	28.56	28.54	28.47	26.49	25.95	27.47
Coke Plants .....	44.38	42.40	42.39	42.32	41.25	41.32	41.25	38.50	38.60	38.50
Electric Generators										
(1999 dollars per short ton) .....	24.69	22.92	22.88	22.90	21.26	21.45	21.62	19.34	19.53	19.90
(1999 dollars per million Btu) .....	1.21	1.13	1.13	1.13	1.06	1.04	1.05	0.98	0.96	0.99
<b>Average .....</b>	<b>25.74</b>	<b>23.80</b>	<b>23.77</b>	<b>23.79</b>	<b>22.11</b>	<b>22.34</b>	<b>22.51</b>	<b>20.09</b>	<b>20.27</b>	<b>20.81</b>
Exports <sup>7</sup> .....	37.50	36.41	36.12	36.08	35.57	35.50	35.42	33.07	32.75	32.28

<sup>1</sup>Includes anthracite, bituminous coal, lignite, and waste coal delivered to independent power producers. Waste coal deliveries totaled 8.5 million tons in 1995, 8.8 million tons in 1996, 8.1 million tons in 1997, 8.6 million tons in 1998, and are projected to reach 9.6 million tons in 1999, and 12.2 million tons in 2000.

<sup>2</sup>Production plus net imports and net storage withdrawals.

<sup>3</sup>Includes consumption by cogenerators.

<sup>4</sup>Includes all electric power generators except cogenerators, which produce electricity and other useful thermal energy. Includes small power producers and exempt wholesale generators.

<sup>5</sup>Balancing item: the sum of production, net imports, and net storage minus total consumption.

<sup>6</sup>Sectoral prices weighted by consumption tonnage; weighted average excludes residential/ commercial prices and export free-alongside-ship (f.a.s.) prices.

<sup>7</sup>F.a.s. price at U.S. port of exit.

Btu = British thermal unit.

CO<sub>2</sub> = Carbon dioxide.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports.

**Sources:** 1999 data based on Energy Information Administration (EIA), *Quarterly Coal Report*, DOE/EIA-0121(2000/1Q) (Washington, DC, August 2000), and EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC7512.D081701B, REWC7512.D081701B. **Projections:** EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC7512.D081701B, REWC7512.D081701B.

**Table D11. Renewable Energy Generating Capability and Generation**  
(Gigawatts, Unless Otherwise Noted)

Capacity and Generation	1999	Projections								
		2005			2010			2020		
		Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap
<b>Electric Generators<sup>1</sup></b>										
<b>(excluding cogenerators)</b>										
<b>Net Summer Capability</b>										
Conventional Hydropower	78.77	79.26	79.26	79.26	79.38	79.38	79.38	79.38	79.38	79.38
Geothermal <sup>2</sup>	2.87	3.36	3.67	3.81	4.81	5.30	6.22	4.83	5.34	6.30
Municipal Solid Waste <sup>3</sup>	2.61	2.96	3.11	3.20	3.42	3.63	3.66	3.93	4.14	4.17
Wood and Other Biomass <sup>4</sup>	1.57	1.75	1.75	1.75	2.12	2.12	2.12	2.45	2.45	2.59
Solar Thermal	0.33	0.35	0.35	0.35	0.40	0.40	0.40	0.48	0.48	0.48
Solar Photovoltaic	0.01	0.08	0.08	0.08	0.21	0.21	0.21	0.54	0.54	0.54
Wind	2.66	6.92	6.92	6.92	7.52	7.52	7.52	7.74	7.79	7.87
<b>Total</b>	<b>88.83</b>	<b>94.68</b>	<b>95.14</b>	<b>95.38</b>	<b>97.85</b>	<b>98.55</b>	<b>99.50</b>	<b>99.35</b>	<b>100.1</b>	<b>101.3</b>
<b>Generation (billion kilowatthours)</b>										
Conventional Hydropower	309.55	301.2	301.2	301.2	301.1	301.1	301.1	300.0	300.0	300.0
Geothermal <sup>2</sup>	13.21	17.71	20.30	21.48	29.92	33.96	41.62	30.13	34.34	42.28
Municipal Solid Waste <sup>3</sup>	18.12	20.68	21.85	22.59	23.88	25.51	25.71	27.76	29.39	29.62
Wood and Other Biomass <sup>4</sup>	8.76	14.92	18.88	18.39	21.22	20.31	20.68	19.29	25.33	47.90
Dedicated Plants	7.73	9.17	9.17	9.17	11.36	11.38	11.37	13.82	13.84	14.83
Cofiring	1.03	5.75	9.71	9.21	9.86	8.94	9.30	5.47	11.49	33.07
Solar Thermal	0.89	0.96	0.96	0.96	1.11	1.11	1.11	1.37	1.37	1.37
Solar Photovoltaic	0.03	0.20	0.20	0.20	0.51	0.51	0.51	1.36	1.36	1.36
Wind	4.61	16.30	16.30	16.30	18.16	18.16	18.16	18.77	18.94	19.19
<b>Total</b>	<b>355.16</b>	<b>371.9</b>	<b>379.6</b>	<b>381.1</b>	<b>395.9</b>	<b>400.6</b>	<b>408.9</b>	<b>398.7</b>	<b>410.7</b>	<b>441.7</b>
<b>Cogenerators<sup>5</sup></b>										
<b>Net Summer Capability</b>										
Municipal Solid Waste	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Biomass	4.65	5.19	5.17	5.19	6.09	6.06	6.10	7.59	7.54	7.59
<b>Total</b>	<b>5.35</b>	<b>5.89</b>	<b>5.87</b>	<b>5.89</b>	<b>6.79</b>	<b>6.76</b>	<b>6.80</b>	<b>8.29</b>	<b>8.24</b>	<b>8.29</b>
<b>Generation (billion kilowatthours)</b>										
Municipal Solid Waste	4.04	4.04	4.04	4.04	4.04	4.04	4.04	4.04	4.04	4.04
Biomass	27.08	30.04	29.92	30.03	35.20	35.01	35.20	43.82	43.52	43.83
<b>Total</b>	<b>31.12</b>	<b>34.08</b>	<b>33.97</b>	<b>34.07</b>	<b>39.24</b>	<b>39.05</b>	<b>39.25</b>	<b>47.87</b>	<b>47.57</b>	<b>47.88</b>
<b>Other End-Use Generators<sup>6</sup></b>										
<b>Net Summer Capability</b>										
Conventional Hydropower <sup>7</sup>	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Solar Photovoltaic	0.01	0.10	0.10	0.10	0.35	0.35	0.35	0.35	0.35	0.35
<b>Total</b>	<b>1.00</b>	<b>1.09</b>	<b>1.09</b>	<b>1.09</b>	<b>1.34</b>	<b>1.34</b>	<b>1.34</b>	<b>1.34</b>	<b>1.34</b>	<b>1.34</b>
<b>Generation (billion kilowatthours)</b>										
Conventional Hydropower <sup>7</sup>	4.57	4.44	4.44	4.44	4.43	4.43	4.43	4.41	4.41	4.41
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Solar Photovoltaic	0.02	0.20	0.20	0.20	0.75	0.75	0.75	0.75	0.75	0.75
<b>Total</b>	<b>4.59</b>	<b>4.64</b>	<b>4.64</b>	<b>4.64</b>	<b>5.18</b>	<b>5.18</b>	<b>5.18</b>	<b>5.17</b>	<b>5.17</b>	<b>5.17</b>

<sup>1</sup>Includes grid-connected utilities and nonutilities other than cogenerators. These nonutility facilities include small power producers and exempt wholesale generators.

<sup>2</sup>Includes hydrothermal resources only (hot water and steam).

<sup>3</sup>Includes landfill gas.

<sup>4</sup>Includes projections for energy crops after 2010.

<sup>5</sup>Cogenerators produce electricity and other useful thermal energy.

<sup>6</sup>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.

<sup>7</sup>Represents own-use industrial hydroelectric power.

CO<sub>2</sub> = Carbon dioxide.

Notes: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports. Net summer capability has been estimated for nonutility generators for AEO2001. Net summer capability is used to be consistent with electric utility capacity estimates. Additional retirements are determined on the basis of the size and age of the units.

Sources: 1999 electric utility capability: Energy Information Administration (EIA), Form EIA-860A: "Annual Electric Generator Report - Utility." 1999 nonutility and cogenerator capability: EIA, Form EIA-860B: "Annual Electric Generator Report - Nonutility." 1999 generation: EIA, *Annual Energy Review 1999*, DOE/EIA-0384(99) (Washington, DC, July 2000). Projections: EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC7512.D081701B, REWC7512.D081701B.

**Table D12. Renewable Energy Consumption by Sector and Source<sup>1</sup>**  
(Quadrillion Btu per Year)

Sector and Source	1999	Projections								
		2005			2010			2020		
		Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap
<b>Marketed Renewable Energy<sup>2</sup></b>										
<b>Residential</b> .....	<b>0.41</b>	<b>0.42</b>	<b>0.42</b>	<b>0.42</b>	<b>0.42</b>	<b>0.42</b>	<b>0.42</b>	<b>0.43</b>	<b>0.43</b>	<b>0.43</b>
Wood .....	0.41	0.42	0.42	0.42	0.42	0.42	0.42	0.43	0.43	0.43
<b>Commercial</b> .....	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>
Biomass .....	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
<b>Industrial<sup>3</sup></b> .....	<b>2.15</b>	<b>2.40</b>	<b>2.42</b>	<b>2.40</b>	<b>2.63</b>	<b>2.64</b>	<b>2.63</b>	<b>3.07</b>	<b>3.08</b>	<b>3.08</b>
Conventional Hydroelectric .....	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Municipal Solid Waste .....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Biomass .....	1.97	2.22	2.23	2.22	2.44	2.45	2.44	2.89	2.89	2.89
<b>Transportation</b> .....	<b>0.12</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.21</b>	<b>0.21</b>	<b>0.21</b>	<b>0.24</b>	<b>0.24</b>	<b>0.24</b>
Ethanol used in E85 <sup>4</sup> .....	0.00	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03
Ethanol used in Gasoline Blending .....	0.12	0.18	0.18	0.18	0.19	0.19	0.19	0.21	0.20	0.21
<b>Electric Generators<sup>5</sup></b> .....	<b>3.88</b>	<b>4.17</b>	<b>4.31</b>	<b>4.35</b>	<b>4.70</b>	<b>4.83</b>	<b>5.07</b>	<b>4.75</b>	<b>4.96</b>	<b>5.44</b>
Conventional Hydroelectric .....	3.19	3.10	3.10	3.10	3.10	3.10	3.10	3.08	3.08	3.08
Geothermal .....	0.28	0.42	0.51	0.54	0.82	0.94	1.17	0.82	0.95	1.19
Municipal Solid Waste <sup>6</sup> .....	0.25	0.28	0.30	0.31	0.32	0.35	0.35	0.38	0.40	0.40
Biomass .....	0.11	0.18	0.22	0.22	0.25	0.24	0.25	0.24	0.31	0.54
Dedicated Plants .....	0.10	0.11	0.11	0.11	0.14	0.14	0.14	0.17	0.17	0.17
Cofiring .....	0.01	0.07	0.11	0.11	0.12	0.11	0.11	0.07	0.14	0.37
Solar Thermal .....	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.03	0.03
Solar Photovoltaic .....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wind .....	0.05	0.17	0.17	0.17	0.19	0.19	0.19	0.19	0.19	0.20
<b>Total Marketed Renewable Energy</b> .....	<b>6.64</b>	<b>7.27</b>	<b>7.42</b>	<b>7.45</b>	<b>8.05</b>	<b>8.19</b>	<b>8.42</b>	<b>8.58</b>	<b>8.79</b>	<b>9.27</b>
<b>Non-Marketed Renewable Energy<sup>7</sup></b>										
<b>Selected Consumption</b>										
<b>Residential</b> .....	<b>0.02</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.04</b>	<b>0.04</b>	<b>0.04</b>
Solar Hot Water Heating .....	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Geothermal Heat Pumps .....	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03
Solar Photovoltaic .....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Commercial</b> .....	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.02</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>
Solar Thermal .....	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03
Solar Photovoltaic .....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Ethanol</b>										
From Corn .....	0.12	0.19	0.19	0.19	0.19	0.19	0.19	0.17	0.17	0.17
From Cellulose .....	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.07	0.07	0.07
<b>Total</b> .....	<b>0.12</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.21</b>	<b>0.21</b>	<b>0.21</b>	<b>0.24</b>	<b>0.24</b>	<b>0.24</b>

<sup>1</sup>Actual heat rates used to determine fuel consumption for all renewable fuels except hydropower, solar, and wind. Consumption at hydroelectric, solar, and wind facilities determined by using the fossil fuel equivalent of 10,280 Btu per kilowatt-hour.

<sup>2</sup>Includes nonelectric renewable energy groups for which the energy source is bought and sold in the marketplace, although all transactions may not necessarily be marketed, and marketed renewable energy inputs for electricity entering the marketplace on the electric power grid. Excludes electricity imports.

<sup>3</sup>Includes all electricity production by industrial and other cogenerators for the grid and for own use.

<sup>4</sup>Excludes motor gasoline component of E85.

<sup>5</sup>Includes renewable energy delivered to the grid from electric utilities and nonutilities. Renewable energy used in generating electricity for own use is included in the individual sectoral electricity energy consumption values.

<sup>6</sup>Includes landfill gas.

<sup>7</sup>Includes selected renewable energy consumption data for which the energy is not bought or sold, either directly or indirectly as an input to marketed energy. The Energy Information Administration does not estimate or project total consumption of nonmarketed renewable energy.

Btu = British thermal unit.

CO<sub>2</sub> = Carbon dioxide.

Notes: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports.

Sources: 1999 ethanol: Energy Information Administration (EIA), *Annual Energy Review 1999*, DOE/EIA-0384(99) (Washington, DC, July 2000). 1999 electric generators: EIA, Form EIA-860A: "Annual Electric Generator Report - Utility," and EIA, Form EIA-860B: "Annual Electric Generator Report - Nonutility." Other 1999: EIA, Office of Integrated Analysis and Forecasting. Projections: EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC7512.D081701B, REWC7512.D081701B.



**Table D13. Carbon Dioxide Emissions by Sector and Source**  
(Million Metric Tons Carbon Equivalent per Year)

Sector and Source	1999	Projections								
		2005			2010			2020		
		Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap
<b>Residential</b>										
Petroleum	26.0	26.6	26.6	26.6	24.6	24.6	24.6	23.3	23.4	23.5
Natural Gas	69.5	79.9	79.8	79.8	79.8	79.5	79.4	87.5	86.6	86.2
Coal	1.1	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3
Electricity	193.4	226.8	219.6	219.5	240.3	228.0	225.7	270.7	257.2	232.0
<b>Total</b>	<b>290.1</b>	<b>334.5</b>	<b>327.3</b>	<b>327.2</b>	<b>346.0</b>	<b>333.4</b>	<b>331.0</b>	<b>382.7</b>	<b>368.5</b>	<b>343.0</b>
<b>Commercial</b>										
Petroleum	13.7	11.9	11.9	11.9	12.1	12.1	12.1	12.0	12.1	12.1
Natural Gas	45.4	57.5	57.3	57.4	60.3	59.9	59.9	64.4	63.5	63.4
Coal	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.9	1.9	1.9
Electricity	181.3	219.0	211.7	212.1	241.0	229.3	227.6	268.3	255.6	231.7
<b>Total</b>	<b>242.1</b>	<b>290.1</b>	<b>282.7</b>	<b>283.1</b>	<b>315.1</b>	<b>303.1</b>	<b>301.4</b>	<b>346.6</b>	<b>333.2</b>	<b>309.2</b>
<b>Industrial<sup>1</sup></b>										
Petroleum	104.2	98.8	99.5	98.9	104.6	104.9	104.8	113.0	113.8	114.2
Natural Gas <sup>2</sup>	141.6	147.7	148.0	147.6	159.5	160.3	159.6	180.1	180.6	181.2
Coal	55.9	65.6	65.7	65.5	65.4	63.8	64.0	65.6	61.7	61.1
Electricity	178.8	192.9	188.1	186.9	203.7	195.0	192.6	226.3	216.9	197.0
<b>Total</b>	<b>480.4</b>	<b>505.0</b>	<b>501.3</b>	<b>499.0</b>	<b>533.2</b>	<b>523.9</b>	<b>521.0</b>	<b>585.0</b>	<b>573.0</b>	<b>553.5</b>
<b>Transportation</b>										
Petroleum <sup>3</sup>	485.8	554.7	556.3	554.5	606.2	607.1	605.7	703.5	703.8	702.5
Natural Gas <sup>4</sup>	9.5	12.6	12.9	12.8	14.3	14.7	14.7	18.0	18.4	18.6
Other <sup>5</sup>	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Electricity	2.9	4.4	4.3	4.3	5.8	5.5	5.5	7.9	7.6	7.0
<b>Total<sup>3</sup></b>	<b>498.2</b>	<b>571.8</b>	<b>573.5</b>	<b>571.6</b>	<b>626.3</b>	<b>627.4</b>	<b>626.0</b>	<b>729.5</b>	<b>729.9</b>	<b>728.2</b>
<b>Total Carbon Dioxide Emissions by Delivered Fuel</b>										
Petroleum <sup>3</sup>	629.7	692.0	694.2	691.8	747.4	748.7	747.2	851.8	853.1	852.4
Natural Gas	266.0	297.8	298.0	297.7	313.9	314.3	313.5	350.0	349.2	349.4
Coal	58.8	68.5	68.7	68.5	68.6	66.9	67.2	68.8	64.9	64.3
Other <sup>5</sup>	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Electricity	556.3	643.1	623.7	622.8	690.7	657.8	651.3	773.1	737.3	667.7
<b>Total<sup>3</sup></b>	<b>1510.8</b>	<b>1701.4</b>	<b>1684.7</b>	<b>1680.9</b>	<b>1820.6</b>	<b>1787.8</b>	<b>1779.4</b>	<b>2043.8</b>	<b>2004.5</b>	<b>1933.9</b>
<b>Electric Generators<sup>6</sup></b>										
Petroleum	20.0	9.1	6.3	6.2	5.3	3.1	3.4	4.8	2.6	2.4
Natural Gas	45.8	79.8	83.8	83.3	100.2	110.4	113.7	163.6	177.1	186.4
Coal	490.5	554.2	533.6	533.3	585.3	544.3	534.2	604.7	557.6	478.9
<b>Total</b>	<b>556.3</b>	<b>643.1</b>	<b>623.7</b>	<b>622.8</b>	<b>690.7</b>	<b>657.8</b>	<b>651.3</b>	<b>773.1</b>	<b>737.3</b>	<b>667.7</b>
<b>Total Carbon Dioxide Emissions by Primary Fuel<sup>7</sup></b>										
Petroleum <sup>3</sup>	649.7	701.1	700.5	698.0	752.6	751.8	750.7	856.5	855.7	854.8
Natural Gas	311.8	377.5	381.8	381.0	414.0	424.7	427.2	513.6	526.2	535.8
Coal	549.3	622.7	602.3	601.7	653.8	611.2	601.4	673.5	622.5	543.2
Other <sup>5</sup>	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
<b>Total<sup>3</sup></b>	<b>1510.8</b>	<b>1701.4</b>	<b>1684.7</b>	<b>1680.9</b>	<b>1820.6</b>	<b>1787.8</b>	<b>1779.4</b>	<b>2043.8</b>	<b>2004.5</b>	<b>1933.9</b>
<b>Carbon Dioxide Emissions (tons carbon equivalent per person) . . . .</b>										
	<b>5.5</b>	<b>5.9</b>	<b>5.8</b>	<b>5.8</b>	<b>6.1</b>	<b>6.0</b>	<b>5.9</b>	<b>6.3</b>	<b>6.2</b>	<b>5.9</b>

<sup>1</sup>Includes consumption by cogenerators.

<sup>2</sup>Includes lease and plant fuel.

<sup>3</sup>This includes international bunker fuel which, by convention are excluded from the international accounting of carbon dioxide emissions. In the years from 1990 through 1998, international bunker fuels accounted for 25 to 30 million metric tons carbon equivalent of carbon dioxide annually.

<sup>4</sup>Includes pipeline fuel natural gas and compressed natural gas used as vehicle fuel.

<sup>5</sup>Includes methanol and liquid hydrogen.

<sup>6</sup>Includes all electric power generators except cogenerators, which produce electricity and other useful thermal energy. Includes small power producers and exempt wholesale generators. Does not include emissions from the nonbiogenic component of municipal solid waste because under international guidelines these are accounted for as waste not energy.

<sup>7</sup>Emissions from electric power generators are distributed to the primary fuels.

CO<sub>2</sub> = Carbon dioxide.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports.

Sources: 1999 emissions and emission factors: Energy Information Administration (EIA), *Emissions of Greenhouse Gases in the United States 1999*, DOE/EIA-0573(99), (Washington, DC, October 2000). Projections: EIA, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC7512.D081701B, REWC7512.D081701B.

**Table D14. Emissions, Allowance Costs, and Retrofits: Electric Generators, Excluding Cogenerators**

Impacts	1999	Projections								
		2005			2010			2020		
		Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap	Reference	75 Percent	75 Percent with CO <sub>2</sub> Cap
<b>Emissions</b>										
Nitrogen Oxides (million tons) . . . . .	5.43	4.30	4.18	4.18	4.34	2.34	2.41	4.48	1.64	1.42
Sulfur Dioxide (million tons) . . . . .	13.49	10.39	7.98	7.98	9.70	5.51	5.51	8.95	2.24	2.24
Mercury (tons) . . . . .	43.35	45.02	35.30	35.30	45.53	17.20	17.20	45.23	10.80	10.80
Carbon Dioxide (million metric tons carbon equivalent) . . . . .	556.3	643.1	623.7	622.8	690.7	657.8	651.3	773.1	737.3	667.7
<b>Allowance Prices</b>										
Nitrogen Oxides (1999 dollars per ton) . . . . .										
Summer Seasonal . . . . .	0	4370	0	0	4404	0	0	5087	0	0
National Annual . . . . .	0	0	1190	1180	0	2072	1891	0	2825	432
Sulfur Dioxide (1999 dollars per ton) . . . . .	0	184	376	323	180	296	195	200	1737	2812
Mercury (million 1999 dollars per ton) . . . . .	0	0	60	58	0	64	69	0	170	98
Carbon Dioxide (1999 dollars per ton carbon equivalent) . . . . .	0	0	0	0	0	0	0	0	0	33
<b>Retrofits (gigawatts, cumulative from 1999)</b>										
Scrubber <sup>1</sup> . . . . .	0.0	8.9	19.4	23.8	8.9	61.7	66.2	17.5	151.5	115.2
Combustion . . . . .	0.0	40.4	35.0	34.4	42.5	51.4	52.7	46.6	65.6	63.7
SCR Post-combustion . . . . .	0.0	90.8	6.3	6.2	90.9	141.7	136.5	91.1	218.1	211.4
SNCR Post-combustion . . . . .	0.0	28.5	0.8	0.8	28.5	10.3	10.5	46.0	43.8	45.3
Mercury Spray Cooler . . . . .	0.0	0.0	0.0	0.0	0.0	11.9	1.6	0.0	29.3	18.8
Mercury Fabric Filter . . . . .	0.0	0.0	0.0	0.0	0.0	57.7	58.1	0.0	66.9	65.1
<b>Coal Production by Sulfur Category (million tons)</b>										
Low Sulfur (< .61 lbs. S/mmBtu) . . . . .	473	582	601	583	633	568	536	714	627	517
Medium Sulfur (.61-1.67 lbs. S/mmBtu) . . . . .	433	456	420	427	465	427	427	442	422	391
High Sulfur (> 1.67 lbs. S/mmBtu) . . . . .	196	190	167	175	191	194	200	180	160	151

<sup>1</sup>Represents scrubbers added by the model. Planned scrubbers added by electricity generators are not shown here.

CO<sub>2</sub> = Carbon dioxide.

lbs. S/mmBtu = Pounds sulfur per million British thermal units.

Note: Totals may not equal sum of components due to independent rounding. Data for 1999 are model results and may differ slightly from official EIA data reports.

Source: Energy Information Administration, AEO2001 National Energy Modeling System runs SCENABS.D080301A, RENC7512.D081701B, REWC7512.D081701B.