

Appendix C

Low Economic Growth Case Projections:

- World Energy Consumption
 - Gross Domestic Product
- Carbon Dioxide Emissions
 - Nuclear Power Capacity

Table C1. World Total Energy Consumption by Region, Low Economic Growth Case, 1990-2020
 (Quadrillion Btu)

| Region/Country | History | | | Projections | | | | Average Annual Percent Change, 1999-2020 |
|---------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--|
| | 1990 | 1998 | 1999 | 2005 | 2010 | 2015 | 2020 | |
| Industrialized Countries | | | | | | | | |
| North America | 99.9 | 113.1 | 115.7 | 126.1 | 133.0 | 138.9 | 144.4 | 1.1 |
| United States ^a | 84.0 | 94.7 | 96.7 | 105.1 | 110.4 | 115.0 | 119.0 | 1.0 |
| Canada. | 10.9 | 12.4 | 12.8 | 13.8 | 14.5 | 14.8 | 15.0 | 0.7 |
| Mexico | 5.0 | 6.0 | 6.1 | 7.2 | 8.1 | 9.1 | 10.4 | 2.6 |
| Western Europe | 59.8 | 65.7 | 65.9 | 69.4 | 71.0 | 72.4 | 74.2 | 0.6 |
| United Kingdom | 9.2 | 9.8 | 9.8 | 10.3 | 10.6 | 10.9 | 11.2 | 0.7 |
| France | 9.3 | 10.8 | 10.9 | 11.6 | 12.0 | 12.2 | 12.4 | 0.6 |
| Germany | 14.8 | 14.2 | 14.0 | 14.8 | 15.0 | 15.3 | 15.5 | 0.5 |
| Italy. | 6.6 | 7.6 | 7.6 | 8.0 | 8.2 | 8.4 | 8.6 | 0.6 |
| Netherlands | 3.3 | 3.7 | 3.7 | 3.8 | 3.9 | 4.0 | 4.1 | 0.5 |
| Other Western Europe. | 16.6 | 19.7 | 20.0 | 20.8 | 21.2 | 21.7 | 22.3 | 0.5 |
| Industrialized Asia | 22.8 | 27.6 | 27.9 | 28.3 | 28.8 | 29.7 | 30.3 | 0.4 |
| Japan | 17.9 | 21.5 | 21.7 | 21.8 | 22.0 | 22.7 | 23.0 | 0.3 |
| Australasia | 4.8 | 6.1 | 6.2 | 6.6 | 6.8 | 7.0 | 7.3 | 0.8 |
| Total Industrialized | 182.4 | 206.4 | 209.6 | 223.8 | 232.8 | 241.1 | 248.8 | 0.8 |
| EE/FSU | | | | | | | | |
| Former Soviet Union | 61.0 | 38.8 | 39.3 | 41.9 | 43.7 | 47.4 | 49.6 | 1.1 |
| Eastern Europe | 15.3 | 11.9 | 11.3 | 11.8 | 12.5 | 13.4 | 14.0 | 1.1 |
| Total EE/FSU | 76.3 | 50.7 | 50.5 | 53.7 | 56.2 | 60.8 | 63.6 | 1.1 |
| Developing Countries | | | | | | | | |
| Developing Asia | 51.0 | 72.9 | 70.9 | 84.6 | 96.7 | 108.7 | 120.2 | 2.5 |
| China. | 27.0 | 35.4 | 32.0 | 38.4 | 44.5 | 50.3 | 55.8 | 2.7 |
| India | 7.8 | 11.6 | 12.2 | 14.6 | 16.6 | 19.0 | 21.4 | 2.7 |
| South Korea | 3.7 | 6.9 | 7.3 | 8.6 | 9.3 | 10.3 | 11.1 | 2.0 |
| Other Asia | 12.6 | 19.0 | 19.5 | 23.1 | 26.3 | 29.2 | 32.0 | 2.4 |
| Middle East | 13.1 | 19.1 | 19.3 | 21.3 | 24.0 | 26.9 | 30.2 | 2.1 |
| Turkey | 2.0 | 3.0 | 2.9 | 3.3 | 3.6 | 4.0 | 4.5 | 2.0 |
| Other Middle East | 11.1 | 16.1 | 16.4 | 18.0 | 20.4 | 22.9 | 25.7 | 2.2 |
| Africa | 9.3 | 11.6 | 11.8 | 13.4 | 14.5 | 15.8 | 16.9 | 1.7 |
| Central and South America . . . | 13.7 | 19.4 | 19.8 | 22.8 | 26.0 | 29.6 | 33.7 | 2.6 |
| Brazil. | 5.4 | 7.8 | 8.1 | 9.1 | 10.3 | 11.4 | 12.7 | 2.2 |
| Other Central/South America . | 8.3 | 11.6 | 11.7 | 13.7 | 15.8 | 18.2 | 21.0 | 2.8 |
| Total Developing | 87.2 | 123.0 | 121.8 | 142.1 | 161.3 | 181.1 | 200.9 | 2.4 |
| Total World | 346.0 | 380.0 | 381.8 | 419.6 | 450.4 | 482.9 | 513.4 | 1.4 |

^aIncludes the 50 States and the District of Columbia. U.S. Territories are included in Australasia.

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

Sources: **History:** Energy Information Administration (EIA), *International Energy Annual 1999*, DOE/EIA-0219(99) (Washington, DC, January 2001). **Projections:** EIA, *Annual Energy Outlook 2001*, DOE/EIA-0383(2001) (Washington, DC, December 2000), Table B1; and World Energy Projection System (2001).

Appendix C

Table C2. World Total Energy Consumption by Region and Fuel, Low Economic Growth Case, 1990-2020
 (Quadrillion Btu)

| Region/Country | History | | | Projections | | | | Average Annual Percent Change, 1999-2020 | |
|---------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--|--|
| | 1990 | 1998 | 1999 | 2005 | 2010 | 2015 | 2020 | | |
| Industrialized Countries | | | | | | | | | |
| North America | | | | | | | | | |
| Oil | 40.4 | 44.6 | 45.8 | 48.9 | 52.0 | 55.1 | 58.1 | 1.1 | |
| Natural Gas | 22.7 | 26.2 | 26.8 | 30.4 | 33.1 | 36.2 | 38.8 | 1.8 | |
| Coal | 20.5 | 23.5 | 23.5 | 25.7 | 26.2 | 26.7 | 27.0 | 0.7 | |
| Nuclear. | 7.0 | 8.0 | 8.6 | 8.9 | 8.8 | 7.8 | 7.0 | -1.0 | |
| Other. | 9.3 | 10.8 | 11.1 | 12.3 | 13.0 | 13.2 | 13.5 | 0.9 | |
| Total | 99.9 | 113.1 | 115.7 | 126.1 | 133.0 | 138.9 | 144.4 | 1.1 | |
| Western Europe | | | | | | | | | |
| Oil | 25.8 | 29.1 | 28.7 | 29.5 | 29.6 | 29.5 | 29.2 | 0.1 | |
| Natural Gas | 9.7 | 13.6 | 14.3 | 17.7 | 19.6 | 21.5 | 24.7 | 2.6 | |
| Coal | 12.4 | 8.8 | 8.4 | 7.4 | 6.9 | 6.6 | 5.9 | -1.7 | |
| Nuclear. | 7.4 | 8.8 | 8.9 | 8.4 | 8.1 | 7.7 | 6.8 | -1.2 | |
| Other. | 4.5 | 5.4 | 5.6 | 6.3 | 6.8 | 7.1 | 7.5 | 1.4 | |
| Total | 59.8 | 65.7 | 65.9 | 69.4 | 71.0 | 72.4 | 74.2 | 0.6 | |
| Industrialized Asia | | | | | | | | | |
| Oil | 12.5 | 13.7 | 13.9 | 13.9 | 13.9 | 13.9 | 13.9 | 0.0 | |
| Natural Gas | 2.5 | 3.6 | 3.8 | 4.1 | 4.2 | 4.5 | 5.0 | 1.4 | |
| Coal | 4.2 | 5.3 | 5.4 | 5.5 | 5.6 | 5.6 | 5.5 | 0.1 | |
| Nuclear. | 2.0 | 3.2 | 3.2 | 3.1 | 3.3 | 3.8 | 3.8 | 0.9 | |
| Other. | 1.6 | 1.7 | 1.7 | 1.7 | 1.8 | 1.9 | 2.0 | 0.9 | |
| Total | 22.8 | 27.6 | 27.9 | 28.3 | 28.8 | 29.7 | 30.3 | 0.4 | |
| Total Industrialized | | | | | | | | | |
| Oil | 78.7 | 87.4 | 88.4 | 92.3 | 95.5 | 98.4 | 101.2 | 0.6 | |
| Natural Gas | 35.0 | 43.5 | 44.8 | 52.2 | 56.8 | 62.2 | 68.5 | 2.0 | |
| Coal | 37.1 | 37.5 | 37.3 | 38.6 | 38.7 | 38.8 | 38.5 | 0.1 | |
| Nuclear. | 16.3 | 20.0 | 20.6 | 20.5 | 20.2 | 19.4 | 17.7 | -0.7 | |
| Other. | 15.4 | 18.0 | 18.3 | 20.3 | 21.6 | 22.3 | 23.0 | 1.1 | |
| Total | 182.4 | 206.4 | 209.6 | 223.8 | 232.8 | 241.1 | 248.8 | 0.8 | |
| EE/FSU | | | | | | | | | |
| Oil | 21.0 | 10.9 | 10.8 | 13.0 | 14.2 | 16.2 | 17.5 | 2.3 | |
| Natural Gas | 28.8 | 22.7 | 22.9 | 24.3 | 26.8 | 30.9 | 33.5 | 1.8 | |
| Coal | 20.8 | 11.4 | 11.1 | 10.3 | 9.0 | 7.3 | 6.1 | -2.8 | |
| Nuclear. | 2.9 | 2.7 | 2.7 | 3.1 | 2.9 | 2.8 | 2.5 | -0.5 | |
| Other. | 2.8 | 3.0 | 3.0 | 3.1 | 3.3 | 3.6 | 4.0 | 1.4 | |
| Total | 76.3 | 50.7 | 50.5 | 53.7 | 56.2 | 60.8 | 63.6 | 1.1 | |
| Developing Countries | | | | | | | | | |
| Developing Asia | | | | | | | | | |
| Oil | 16.0 | 26.7 | 27.7 | 32.3 | 37.2 | 42.5 | 47.5 | 2.6 | |
| Natural Gas | 3.2 | 6.0 | 6.4 | 9.6 | 12.0 | 15.0 | 17.8 | 5.0 | |
| Coal | 27.7 | 34.5 | 30.7 | 35.0 | 38.6 | 41.3 | 43.8 | 1.7 | |
| Nuclear. | 0.9 | 1.5 | 1.6 | 2.1 | 2.6 | 3.0 | 3.5 | 3.8 | |
| Other. | 3.2 | 4.3 | 4.6 | 5.6 | 6.2 | 7.0 | 7.6 | 2.4 | |
| Total | 51.0 | 72.9 | 70.9 | 84.6 | 96.7 | 108.7 | 120.2 | 2.5 | |

See notes at end of table.

**Table C2. World Total Energy Consumption by Region and Fuel, Low Economic Growth Case, 1990-2020
(Continued)**
(Quadrillion Btu)

| Region/Country | History | | | Projections | | | | Average Annual Percent Change, 1999-2020 | |
|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--|--|
| | 1990 | 1998 | 1999 | 2005 | 2010 | 2015 | 2020 | | |
| Developing Countries (Continued) | | | | | | | | | |
| Middle East | | | | | | | | | |
| Oil | 8.1 | 10.4 | 10.5 | 11.2 | 12.6 | 14.6 | 17.5 | 2.4 | |
| Natural Gas | 3.9 | 6.9 | 7.1 | 8.2 | 9.4 | 10.1 | 10.4 | 1.8 | |
| Coal | 0.8 | 1.2 | 1.1 | 1.1 | 1.2 | 1.2 | 1.1 | 0.1 | |
| Nuclear. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | -- | |
| Other. | 0.4 | 0.6 | 0.5 | 0.8 | 0.8 | 0.9 | 1.0 | 3.1 | |
| Total | 13.1 | 19.1 | 19.3 | 21.3 | 24.0 | 26.9 | 30.2 | 2.1 | |
| Africa | | | | | | | | | |
| Oil | 4.2 | 5.1 | 5.2 | 6.5 | 7.4 | 8.1 | 9.0 | 2.6 | |
| Natural Gas | 1.5 | 2.0 | 2.1 | 2.4 | 2.6 | 3.0 | 3.2 | 2.0 | |
| Coal | 3.0 | 3.7 | 3.6 | 3.6 | 3.6 | 3.6 | 3.6 | 0.0 | |
| Nuclear. | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.6 | |
| Other. | 0.6 | 0.7 | 0.7 | 0.8 | 0.8 | 0.9 | 1.0 | 1.7 | |
| Total | 9.3 | 11.6 | 11.8 | 13.4 | 14.5 | 15.8 | 16.9 | 1.7 | |
| Central and South America | | | | | | | | | |
| Oil | 7.0 | 9.4 | 9.5 | 10.3 | 11.6 | 13.1 | 14.7 | 2.1 | |
| Natural Gas | 2.2 | 3.4 | 3.5 | 5.6 | 7.7 | 9.9 | 12.3 | 6.1 | |
| Coal | 0.6 | 0.9 | 0.9 | 0.8 | 0.8 | 0.8 | 0.8 | -0.7 | |
| Nuclear. | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 2.1 | |
| Other. | 3.9 | 5.6 | 5.7 | 5.8 | 5.8 | 5.8 | 5.8 | 0.1 | |
| Total | 13.7 | 19.4 | 19.8 | 22.8 | 26.0 | 29.6 | 33.7 | 2.6 | |
| Total Developing Countries | | | | | | | | | |
| Oil | 35.2 | 51.5 | 52.9 | 60.2 | 68.7 | 78.3 | 88.6 | 2.5 | |
| Natural Gas | 10.8 | 18.3 | 19.2 | 25.9 | 31.8 | 37.9 | 43.7 | 4.0 | |
| Coal | 32.1 | 40.3 | 36.3 | 40.6 | 44.2 | 46.9 | 49.3 | 1.5 | |
| Nuclear. | 1.1 | 1.7 | 1.9 | 2.4 | 3.0 | 3.4 | 4.0 | 3.7 | |
| Other. | 8.0 | 11.1 | 11.5 | 13.0 | 13.6 | 14.6 | 15.4 | 1.4 | |
| Total | 87.2 | 123.0 | 121.8 | 142.1 | 161.3 | 181.1 | 200.9 | 2.4 | |
| Total World | | | | | | | | | |
| Oil | 134.9 | 149.8 | 152.2 | 165.5 | 178.4 | 192.9 | 207.3 | 1.5 | |
| Natural Gas | 74.5 | 84.5 | 86.9 | 102.3 | 115.5 | 131.0 | 145.7 | 2.5 | |
| Coal | 90.0 | 89.3 | 84.8 | 89.5 | 91.9 | 93.0 | 93.9 | 0.5 | |
| Nuclear. | 20.4 | 24.4 | 25.3 | 25.9 | 26.1 | 25.6 | 24.1 | -0.2 | |
| Other. | 26.3 | 32.0 | 32.7 | 36.4 | 38.5 | 40.4 | 42.3 | 1.2 | |
| Total | 346.0 | 380.0 | 381.8 | 419.6 | 450.4 | 482.9 | 513.4 | 1.4 | |

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

Sources: **History:** Energy Information Administration (EIA), *International Energy Annual 1999*, DOE/EIA-0219(99) (Washington, DC, January 2001). **Projections:** EIA, *Annual Energy Outlook 2001*, DOE/EIA-0383(2001) (Washington, DC, December 2000), Table B1; and World Energy Projection System (2001).

Appendix C

Table C3. World Gross Domestic Product (GDP) by Region, Low Economic Growth Case, 1990-2020
 (Billion 1997 Dollars)

| Region/Country | History | | | Projections | | | | Average Annual Percent Change, 1999-2020 |
|---------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--|
| | 1990 | 1998 | 1999 | 2005 | 2010 | 2015 | 2020 | |
| Industrialized Countries | | | | | | | | |
| North America | 7,723 | 9,789 | 10,202 | 12,002 | 13,342 | 14,563 | 15,768 | 2.1 |
| United States ^a | 6,836 | 8,706 | 9,074 | 10,668 | 11,831 | 12,873 | 13,885 | 2.0 |
| Canada. | 555 | 662 | 692 | 794 | 862 | 904 | 928 | 1.4 |
| Mexico | 332 | 421 | 436 | 541 | 650 | 786 | 955 | 3.8 |
| Western Europe | 7,597 | 8,721 | 8,906 | 9,811 | 10,472 | 11,116 | 11,753 | 1.3 |
| United Kingdom | 1,146 | 1,345 | 1,372 | 1,544 | 1,662 | 1,810 | 1,938 | 1.7 |
| France | 1,299 | 1,457 | 1,497 | 1,661 | 1,786 | 1,870 | 1,946 | 1.3 |
| Germany | 1,879 | 2,158 | 2,187 | 2,379 | 2,515 | 2,650 | 2,787 | 1.2 |
| Italy. | 1,079 | 1,173 | 1,190 | 1,288 | 1,366 | 1,442 | 1,514 | 1.2 |
| Netherlands | 317 | 391 | 402 | 443 | 475 | 506 | 537 | 1.4 |
| Other Western Europe. | 1,877 | 2,197 | 2,258 | 2,497 | 2,668 | 2,838 | 3,032 | 1.4 |
| Industrialized Asia | 4,054 | 4,598 | 4,644 | 4,733 | 4,898 | 5,125 | 5,316 | 0.6 |
| Japan | 3,673 | 4,106 | 4,133 | 4,167 | 4,290 | 4,470 | 4,607 | 0.5 |
| Australasia | 381 | 491 | 511 | 566 | 608 | 655 | 709 | 1.6 |
| Total Industrialized | 19,374 | 23,107 | 23,752 | 26,547 | 28,713 | 30,803 | 32,836 | 1.6 |
| EE/FSU | | | | | | | | |
| Former Soviet Union | 1,009 | 564 | 579 | 659 | 736 | 898 | 1,013 | 2.7 |
| Eastern Europe | 348 | 356 | 360 | 440 | 512 | 591 | 668 | 3.0 |
| Total EE/FSU | 1,357 | 919 | 939 | 1,099 | 1,248 | 1,489 | 1,681 | 2.8 |
| Developing Countries | | | | | | | | |
| Developing Asia | 1,739 | 2,944 | 3,123 | 3,982 | 4,867 | 5,816 | 6,857 | 3.8 |
| China. | 427 | 967 | 1,036 | 1,341 | 1,667 | 1,986 | 2,336 | 3.9 |
| India | 268 | 414 | 440 | 571 | 699 | 853 | 1,034 | 4.2 |
| South Korea | 297 | 449 | 490 | 595 | 713 | 846 | 996 | 3.4 |
| Other Asia | 748 | 1,115 | 1,157 | 1,476 | 1,788 | 2,132 | 2,492 | 3.7 |
| Middle East | 379 | 518 | 513 | 603 | 702 | 829 | 985 | 3.2 |
| Turkey | 140 | 196 | 186 | 220 | 257 | 301 | 353 | 3.1 |
| Other Middle East | 239 | 322 | 327 | 383 | 446 | 528 | 632 | 3.2 |
| Africa | 405 | 466 | 474 | 566 | 648 | 726 | 806 | 2.6 |
| Central and South America . . . | 1,136 | 1,518 | 1,498 | 1,796 | 2,085 | 2,391 | 2,727 | 2.9 |
| Brazil | 674 | 830 | 836 | 1,006 | 1,178 | 1,353 | 1,548 | 3.0 |
| Other Central/South America . . | 462 | 688 | 662 | 790 | 908 | 1,038 | 1,180 | 2.8 |
| Total Developing | 3,660 | 5,446 | 5,608 | 6,947 | 8,302 | 9,763 | 11,375 | 3.4 |
| Total World | 24,392 | 29,472 | 30,299 | 34,593 | 38,263 | 42,055 | 45,892 | 2.0 |

^aIncludes the 50 States and the District of Columbia. U.S. Territories are included in Australasia.

Notes: EE/FSU = Eastern Europe/Former Soviet Union. Totals may not equal sum of components due to independent rounding.

Sources: Standard & Poor's DRI, *World Economic Outlook*, Vol. 1 (Lexington, MA, 3rd Quarter 2000); Energy Information Administration (EIA), *Annual Energy Outlook 2001*, DOE/EIA-0383(2001) (Washington, DC, December 2000), Table B20; and EIA, *World Energy Projection System* (2001).

Table C4. World Oil Consumption by Region, Low Economic Growth Case, 1990-2020
 (Million Barrels per Day)

| Region/Country | History | | | Projections | | | | Average Annual Percent Change, 1999-2020 |
|---------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|--|
| | 1990 | 1998 | 1999 | 2005 | 2010 | 2015 | 2020 | |
| Industrialized Countries | | | | | | | | |
| North America | 20.4 | 22.7 | 23.4 | 24.9 | 26.5 | 28.0 | 29.5 | 1.1 |
| United States ^a | 17.0 | 18.9 | 19.5 | 20.7 | 21.8 | 22.9 | 23.9 | 1.0 |
| Canada. | 1.7 | 1.9 | 1.9 | 2.0 | 2.0 | 2.0 | 2.0 | 0.1 |
| Mexico | 1.7 | 1.9 | 2.0 | 2.3 | 2.6 | 3.1 | 3.7 | 3.0 |
| Western Europe | 12.5 | 14.1 | 13.9 | 14.3 | 14.3 | 14.3 | 14.1 | 0.1 |
| United Kingdom | 1.8 | 1.8 | 1.7 | 2.0 | 2.0 | 2.0 | 2.0 | 0.8 |
| France | 1.8 | 2.0 | 2.0 | 2.1 | 2.1 | 2.1 | 2.0 | 0.0 |
| Germany. | 2.7 | 2.9 | 2.8 | 2.9 | 2.9 | 2.9 | 2.8 | 0.0 |
| Italy. | 1.9 | 2.1 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Netherlands | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.9 | 0.9 | 0.2 |
| Other Western Europe. | 3.6 | 4.5 | 4.5 | 4.5 | 4.5 | 4.4 | 4.4 | -0.1 |
| Industrialized Asia | 6.2 | 6.8 | 6.9 | 6.9 | 6.9 | 6.9 | 6.9 | 0.0 |
| Japan | 5.1 | 5.5 | 5.6 | 5.5 | 5.4 | 5.3 | 5.2 | -0.3 |
| Australasia | 1.0 | 1.3 | 1.3 | 1.4 | 1.5 | 1.5 | 1.6 | 1.0 |
| Total Industrialized | 39.0 | 43.6 | 44.2 | 46.1 | 47.7 | 49.1 | 50.5 | 0.6 |
| EE/FSU | | | | | | | | |
| Former Soviet Union | 8.4 | 3.8 | 3.7 | 4.7 | 5.3 | 6.3 | 6.9 | 3.0 |
| Eastern Europe | 1.6 | 1.4 | 1.5 | 1.5 | 1.5 | 1.5 | 1.4 | 0.0 |
| Total EE/FSU | 10.0 | 5.2 | 5.2 | 6.2 | 6.8 | 7.8 | 8.4 | 2.3 |
| Developing Countries | | | | | | | | |
| Developing Asia | 7.6 | 12.8 | 13.3 | 15.5 | 17.8 | 20.4 | 22.8 | 2.6 |
| China. | 2.3 | 4.1 | 4.3 | 4.7 | 5.4 | 6.2 | 6.9 | 2.3 |
| India | 1.2 | 1.8 | 1.9 | 2.5 | 3.1 | 3.9 | 4.7 | 4.4 |
| South Korea | 1.0 | 2.0 | 2.0 | 2.4 | 2.5 | 2.7 | 2.8 | 1.5 |
| Other Asia | 3.1 | 4.9 | 5.0 | 6.0 | 6.8 | 7.7 | 8.4 | 2.5 |
| Middle East | 3.9 | 5.0 | 5.0 | 5.4 | 6.0 | 7.0 | 8.4 | 2.4 |
| Turkey | 0.5 | 0.6 | 0.6 | 0.8 | 0.9 | 1.0 | 1.1 | 2.6 |
| Other Middle East | 3.4 | 4.3 | 4.4 | 4.6 | 5.2 | 6.1 | 7.3 | 2.4 |
| Africa | 2.1 | 2.5 | 2.5 | 3.1 | 3.6 | 3.9 | 4.3 | 2.6 |
| Central and South America . . . | 3.4 | 4.6 | 4.7 | 5.0 | 5.7 | 6.4 | 7.1 | 2.1 |
| Brazil | 1.3 | 1.9 | 2.0 | 2.2 | 2.6 | 3.1 | 3.6 | 3.0 |
| Other Central/South America . | 2.1 | 2.7 | 2.7 | 2.8 | 3.1 | 3.3 | 3.5 | 1.3 |
| Total Developing | 17.0 | 24.8 | 25.5 | 29.0 | 33.1 | 37.7 | 42.7 | 2.5 |
| Total World | 66.0 | 73.6 | 74.9 | 81.3 | 87.6 | 94.6 | 101.6 | 1.5 |

^aIncludes the 50 States and the District of Columbia. U.S. Territories are included in Australasia.

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

Sources: **History:** Energy Information Administration (EIA), *International Energy Annual 1999*, DOE/EIA-0219(99) (Washington, DC, January 2001). **Projections:** EIA, *Annual Energy Outlook 2001*, DOE/EIA-0383(2001) (Washington, DC, December 2000), Table B21; and World Energy Projection System (2001).

Appendix C

Table C5. World Natural Gas Consumption by Region, Low Economic Growth Case, 1990-2020
 (Trillion Cubic Feet)

| Region/Country | History | | | Projections | | | | Average Annual Percent Change, 1999-2020 |
|---------------------------------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|--|
| | 1990 | 1998 | 1999 | 2005 | 2010 | 2015 | 2020 | |
| Industrialized Countries | | | | | | | | |
| North America | 22.0 | 25.4 | 26.1 | 29.6 | 32.2 | 35.3 | 37.8 | 1.8 |
| United States ^a | 18.7 | 21.3 | 21.7 | 24.7 | 27.0 | 29.9 | 32.2 | 1.9 |
| Canada. | 2.4 | 2.9 | 3.1 | 3.3 | 3.5 | 3.7 | 3.8 | 1.0 |
| Mexico | 0.9 | 1.3 | 1.3 | 1.6 | 1.7 | 1.7 | 1.7 | 1.6 |
| Western Europe | 10.1 | 13.4 | 14.0 | 17.3 | 19.0 | 20.9 | 24.0 | 2.6 |
| United Kingdom | 2.1 | 3.1 | 3.3 | 3.7 | 4.1 | 4.5 | 5.1 | 2.2 |
| France | 1.0 | 1.3 | 1.3 | 1.8 | 2.1 | 2.4 | 2.9 | 3.8 |
| Germany. | 2.7 | 3.0 | 3.0 | 3.9 | 4.2 | 4.6 | 5.4 | 2.8 |
| Italy. | 1.7 | 2.2 | 2.4 | 2.7 | 2.9 | 3.1 | 3.3 | 1.5 |
| Netherlands | 1.5 | 1.8 | 1.7 | 1.9 | 2.0 | 2.1 | 2.1 | 1.1 |
| Other Western Europe. | 1.2 | 2.0 | 2.3 | 3.3 | 3.7 | 4.2 | 5.1 | 3.9 |
| Industrialized Asia | 2.6 | 3.5 | 3.6 | 3.9 | 4.1 | 4.3 | 4.8 | 1.4 |
| Japan | 1.9 | 2.5 | 2.6 | 2.8 | 2.8 | 3.0 | 3.4 | 1.3 |
| Australasia | 0.8 | 0.9 | 1.0 | 1.1 | 1.2 | 1.3 | 1.4 | 1.8 |
| Total Industrialized | 34.8 | 42.3 | 43.7 | 50.8 | 55.3 | 60.5 | 66.6 | 2.0 |
| EE/FSU | | | | | | | | |
| Former Soviet Union | 25.0 | 19.9 | 20.1 | 20.8 | 22.0 | 24.5 | 26.3 | 1.3 |
| Eastern Europe | 3.1 | 2.5 | 2.4 | 3.0 | 4.4 | 5.9 | 6.8 | 5.1 |
| Total EE/FSU | 28.1 | 22.4 | 22.5 | 23.9 | 26.4 | 30.4 | 33.0 | 1.8 |
| Developing Countries | | | | | | | | |
| Developing Asia | 3.0 | 5.6 | 6.0 | 8.9 | 11.2 | 13.8 | 16.4 | 4.9 |
| China. | 0.5 | 0.8 | 0.9 | 1.7 | 2.3 | 3.3 | 4.2 | 7.9 |
| India | 0.4 | 0.8 | 0.8 | 1.3 | 1.6 | 2.0 | 2.3 | 5.5 |
| South Korea | 0.1 | 0.5 | 0.6 | 0.9 | 1.1 | 1.5 | 1.9 | 5.6 |
| Other Asia | 1.9 | 3.6 | 3.8 | 5.1 | 6.2 | 7.0 | 7.9 | 3.6 |
| Middle East | 3.7 | 6.6 | 6.8 | 7.8 | 9.0 | 9.6 | 9.9 | 1.8 |
| Turkey | 0.1 | 0.4 | 0.4 | 0.5 | 0.6 | 0.8 | 0.9 | 3.7 |
| Other Middle East | 3.6 | 6.2 | 6.3 | 7.3 | 8.4 | 8.9 | 9.0 | 2.0 |
| Africa | 1.4 | 1.8 | 2.0 | 2.2 | 2.4 | 2.8 | 3.0 | 2.0 |
| Central and South America . . . | 2.0 | 3.1 | 3.2 | 5.2 | 7.1 | 9.1 | 11.3 | 6.1 |
| Brazil | 0.1 | 0.2 | 0.2 | 0.6 | 1.0 | 1.3 | 1.6 | 9.6 |
| Other Central/South America . . | 1.9 | 2.9 | 3.0 | 4.6 | 6.0 | 7.8 | 9.7 | 5.7 |
| Total Developing | 10.1 | 17.2 | 18.0 | 24.2 | 29.7 | 35.3 | 40.6 | 3.9 |
| Total World | 72.9 | 81.9 | 84.2 | 98.9 | 111.4 | 126.2 | 140.2 | 2.5 |

^aIncludes the 50 States and the District of Columbia. U.S. Territories are included in Australasia.

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

Sources: **History:** Energy Information Administration (EIA), *International Energy Annual 1999*, DOE/EIA-0219(99) (Washington, DC, January 2001). **Projections:** EIA, *Annual Energy Outlook 2001*, DOE/EIA-0383(2001) (Washington, DC, December 2000), Table B13; and World Energy Projection System (2001).

Table C6. World Coal Consumption by Region, Low Economic Growth Case, 1990-2020
 (Million Short Tons)

| Region/Country | History | | | Projections | | | | Average Annual Percent Change, 1999-2020 |
|---------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--|
| | 1990 | 1998 | 1999 | 2005 | 2010 | 2015 | 2020 | |
| Industrialized Countries | | | | | | | | |
| North America | 959 | 1,121 | 1,122 | 1,253 | 1,280 | 1,306 | 1,328 | 0.8 |
| United States ^a | 895 | 1,040 | 1,045 | 1,174 | 1,202 | 1,226 | 1,245 | 0.8 |
| Canada. | 55 | 66 | 63 | 60 | 58 | 61 | 62 | -0.1 |
| Mexico | 9 | 15 | 13 | 19 | 20 | 20 | 21 | 2.3 |
| Western Europe | 894 | 566 | 546 | 477 | 457 | 435 | 397 | -1.5 |
| United Kingdom | 119 | 70 | 65 | 58 | 55 | 49 | 40 | -2.2 |
| France | 35 | 29 | 26 | 19 | 11 | 12 | 8 | -5.7 |
| Germany | 528 | 269 | 258 | 228 | 225 | 217 | 202 | -1.2 |
| Italy. | 23 | 19 | 19 | 17 | 16 | 15 | 14 | -1.5 |
| Netherlands | 15 | 16 | 14 | 12 | 9 | 9 | 7 | -3.1 |
| Other Western Europe. | 173 | 164 | 165 | 143 | 140 | 134 | 126 | -1.3 |
| Industrialized Asia | 231 | 287 | 295 | 299 | 300 | 299 | 297 | 0.0 |
| Japan | 125 | 144 | 149 | 156 | 158 | 159 | 159 | 0.3 |
| Australasia | 106 | 142 | 145 | 143 | 141 | 140 | 138 | -0.2 |
| Total Industrialized | 2,084 | 1,974 | 1,963 | 2,029 | 2,037 | 2,040 | 2,022 | 0.1 |
| EE/FSU | | | | | | | | |
| Former Soviet Union | 848 | 396 | 414 | 381 | 351 | 304 | 265 | -2.1 |
| Eastern Europe | 527 | 414 | 363 | 341 | 274 | 198 | 153 | -4.0 |
| Total EE/FSU | 1,375 | 810 | 778 | 722 | 625 | 502 | 419 | -2.9 |
| Developing Countries | | | | | | | | |
| Developing Asia | 1,583 | 1,903 | 1,686 | 1,925 | 2,122 | 2,269 | 2,405 | 1.7 |
| China. | 1,124 | 1,300 | 1,075 | 1,276 | 1,456 | 1,589 | 1,715 | 2.2 |
| India | 242 | 333 | 348 | 375 | 384 | 382 | 380 | 0.4 |
| South Korea | 42 | 60 | 65 | 67 | 72 | 75 | 74 | 0.6 |
| Other Asia | 175 | 210 | 197 | 207 | 210 | 222 | 236 | 0.9 |
| Middle East | 66 | 99 | 96 | 97 | 103 | 101 | 97 | 0.1 |
| Turkey | 60 | 86 | 84 | 80 | 85 | 84 | 83 | -0.1 |
| Other Middle East | 6 | 12 | 12 | 16 | 18 | 17 | 15 | 0.8 |
| Africa | 152 | 181 | 177 | 176 | 174 | 176 | 175 | 0.0 |
| Central and South America . . . | 26 | 42 | 41 | 39 | 37 | 36 | 35 | -0.7 |
| Brazil | 17 | 28 | 27 | 26 | 27 | 27 | 27 | -0.1 |
| Other Central/South America . . | 9 | 15 | 14 | 12 | 10 | 9 | 9 | -2.1 |
| Total Developing | 1,827 | 2,226 | 2,000 | 2,237 | 2,436 | 2,582 | 2,713 | 1.5 |
| Total World | 5,287 | 5,009 | 4,740 | 4,988 | 5,098 | 5,124 | 5,154 | 0.4 |

^aIncludes the 50 States and the District of Columbia. U.S. Territories are included in Australasia.

Notes: EE/FSU = Eastern Europe/Former Soviet Union. Totals may not equal sum of components due to independent rounding. The electricity portion of the national fuel consumption values consists of generation for domestic use plus an adjustment for electricity trade based on a fuel's share of total generation in the exporting country. To convert short tons to metric tons, divide each number in the table by 1.102.

Sources: **History:** Energy Information Administration (EIA), *International Energy Annual 1999*, DOE/EIA-0219(99) (Washington, DC, January 2001). **Projections:** EIA, *Annual Energy Outlook 2001*, DOE/EIA-0383(2001) (Washington, DC, December 2000), Table B16; and World Energy Projection System (2001).

Appendix C

Table C7. World Nuclear Energy Consumption by Region, Low Economic Growth Case, 1990-2020
 (Billion Kilowatthours)

| Region/Country | History | | | Projections | | | | Average Annual Percent Change, 1999-2020 |
|---------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--|
| | 1990 | 1998 | 1999 | 2005 | 2010 | 2015 | 2020 | |
| Industrialized Countries | | | | | | | | |
| North America | 649 | 750 | 808 | 833 | 818 | 729 | 651 | -1.0 |
| United States ^a | 577 | 674 | 728 | 740 | 720 | 632 | 554 | -1.3 |
| Canada. | 69 | 68 | 70 | 85 | 90 | 90 | 90 | 1.2 |
| Mexico | 3 | 9 | 10 | 8 | 8 | 8 | 7 | -1.1 |
| Western Europe | 703 | 836 | 846 | 808 | 780 | 743 | 659 | -1.2 |
| United Kingdom | 59 | 95 | 91 | 66 | 57 | 48 | 32 | -4.8 |
| France | 298 | 369 | 375 | 394 | 391 | 389 | 376 | 0.0 |
| Germany | 145 | 154 | 161 | 148 | 139 | 124 | 95 | -2.5 |
| Italy. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 |
| Netherlands | 3 | 4 | 4 | 4 | 3 | 0 | 0 | -100.0 |
| Other Western Europe. | 198 | 215 | 215 | 197 | 189 | 182 | 156 | -1.5 |
| Industrialized Asia | 192 | 316 | 309 | 305 | 324 | 377 | 373 | 0.9 |
| Japan | 192 | 316 | 309 | 305 | 324 | 377 | 373 | 0.9 |
| Australasia | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 |
| Total Industrialized | 1,544 | 1,902 | 1,962 | 1,946 | 1,922 | 1,849 | 1,684 | -0.7 |
| EE/FSU | | | | | | | | |
| Former Soviet Union | 201 | 183 | 190 | 202 | 198 | 185 | 157 | -0.9 |
| Eastern Europe | 54 | 61 | 60 | 76 | 66 | 69 | 68 | 0.6 |
| Total EE/FSU | 256 | 244 | 250 | 278 | 264 | 254 | 226 | -0.5 |
| Developing Countries | | | | | | | | |
| Developing Asia | 88 | 145 | 160 | 209 | 258 | 290 | 345 | 3.7 |
| China. | 0 | 13 | 14 | 41 | 60 | 66 | 98 | 9.6 |
| India | 6 | 11 | 11 | 14 | 23 | 34 | 43 | 6.6 |
| South Korea | 50 | 85 | 98 | 117 | 116 | 134 | 147 | 1.9 |
| Other Asia | 32 | 36 | 37 | 36 | 58 | 56 | 57 | 2.1 |
| Middle East | 0 | 0 | 0 | 0 | 5 | 10 | 11 | 0.0 |
| Turkey | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 |
| Other Middle East | 0 | 0 | 0 | 0 | 5 | 10 | 11 | 0.0 |
| Africa | 8 | 14 | 13 | 13 | 14 | 14 | 15 | 0.6 |
| Central and South America . . . | 9 | 10 | 11 | 12 | 13 | 16 | 16 | 2.1 |
| Brazil | 2 | 3 | 4 | 8 | 8 | 15 | 15 | 6.8 |
| Other Central/South America . . | 7 | 7 | 7 | 5 | 4 | 1 | 1 | -8.3 |
| Total Developing | 105 | 169 | 184 | 234 | 289 | 330 | 387 | 3.6 |
| Total World | 1,905 | 2,315 | 2,396 | 2,458 | 2,475 | 2,433 | 2,296 | -0.2 |

^aIncludes the 50 States and the District of Columbia. U.S. Territories are included in Australasia.

Notes: EE/FSU = Eastern Europe/Former Soviet Union. Totals may not equal sum of components due to independent rounding. The electricity portion of the national fuel consumption values consists of generation for domestic use plus an adjustment for electricity trade based on a fuel's share of total generation in the exporting country.

Sources: **History:** Energy Information Administration (EIA), *International Energy Annual 1999*, DOE/EIA-0219(99) (Washington, DC, January 2001). **Projections:** EIA, *Annual Energy Outlook 2001*, DOE/EIA-0383(2001) (Washington, DC, December 2000), Table B8; and World Energy Projection System (2001).

**Table C8. World Consumption of Hydroelectricity and Other Renewable Energy by Region,
Low Economic Growth Case, 1990-2020
(Quadrillion Btu)**

| Region/Country | History | | | Projections | | | | Average Annual Percent Change, 1999-2020 |
|---------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--|
| | 1990 | 1998 | 1999 | 2005 | 2010 | 2015 | 2020 | |
| Industrialized Countries | | | | | | | | |
| North America | 9.3 | 10.8 | 11.1 | 12.3 | 13.0 | 13.2 | 13.5 | 0.9 |
| United States ^a | 5.8 | 7.0 | 7.0 | 7.6 | 7.9 | 8.0 | 8.1 | 0.7 |
| Canada. | 3.1 | 3.5 | 3.6 | 4.2 | 4.6 | 4.6 | 4.7 | 1.3 |
| Mexico | 0.3 | 0.4 | 0.4 | 0.5 | 0.6 | 0.6 | 0.6 | 1.6 |
| Western Europe | 4.5 | 5.4 | 5.6 | 6.3 | 6.8 | 7.1 | 7.5 | 1.4 |
| United Kingdom | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.3 | 3.3 |
| France | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 | 1.0 | 1.0 | 1.4 |
| Germany | 0.3 | 0.3 | 0.4 | 0.6 | 0.7 | 0.8 | 0.9 | 4.5 |
| Italy. | 0.4 | 0.5 | 0.6 | 0.6 | 0.7 | 0.7 | 0.8 | 1.4 |
| Netherlands | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 | 6.1 |
| Other Western Europe. | 3.2 | 3.7 | 3.7 | 4.0 | 4.1 | 4.2 | 4.4 | 0.8 |
| Industrialized Asia | 1.6 | 1.7 | 1.7 | 1.7 | 1.8 | 1.9 | 2.0 | 0.9 |
| Japan | 1.1 | 1.2 | 1.2 | 1.2 | 1.2 | 1.3 | 1.4 | 0.9 |
| Australasia | 0.4 | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.9 |
| Total Industrialized | 15.4 | 18.0 | 18.3 | 20.3 | 21.6 | 22.3 | 23.0 | 1.1 |
| EE/FSU | | | | | | | | |
| Former Soviet Union | 2.4 | 2.3 | 2.3 | 2.5 | 2.5 | 2.5 | 2.5 | 0.3 |
| Eastern Europe | 0.4 | 0.6 | 0.6 | 0.6 | 0.8 | 1.1 | 1.5 | 4.2 |
| Total EE/FSU | 2.8 | 3.0 | 3.0 | 3.1 | 3.3 | 3.6 | 4.0 | 1.4 |
| Developing Countries | | | | | | | | |
| Developing Asia | 3.2 | 4.3 | 4.6 | 5.6 | 6.2 | 7.0 | 7.6 | 2.4 |
| China. | 1.3 | 2.1 | 2.3 | 3.1 | 3.5 | 4.0 | 4.4 | 3.1 |
| India | 0.7 | 0.8 | 0.9 | 1.0 | 1.1 | 1.2 | 1.4 | 2.3 |
| South Korea | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 | 7.0 |
| Other Asia | 1.1 | 1.3 | 1.4 | 1.5 | 1.5 | 1.6 | 1.6 | 0.8 |
| Middle East | 0.4 | 0.6 | 0.5 | 0.8 | 0.8 | 0.9 | 1.0 | 3.1 |
| Turkey | 0.2 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 | 1.1 |
| Other Middle East | 0.1 | 0.2 | 0.2 | 0.4 | 0.4 | 0.5 | 0.5 | 5.8 |
| Africa | 0.6 | 0.7 | 0.7 | 0.8 | 0.8 | 0.9 | 1.0 | 1.7 |
| Central and South America . . . | 3.9 | 5.6 | 5.7 | 5.8 | 5.8 | 5.8 | 5.8 | 0.1 |
| Brazil | 2.2 | 3.1 | 3.3 | 3.3 | 3.2 | 3.1 | 3.0 | -0.5 |
| Other Central/South America . . | 1.7 | 2.5 | 2.4 | 2.5 | 2.5 | 2.7 | 2.8 | 0.8 |
| Total Developing | 8.0 | 11.1 | 11.5 | 13.0 | 13.6 | 14.6 | 15.4 | 1.4 |
| Total World | 26.3 | 32.0 | 32.7 | 36.4 | 38.5 | 40.4 | 42.3 | 1.2 |

^aIncludes the 50 States and the District of Columbia. U.S. Territories are included in Australasia.

Notes: EE/FSU = Eastern Europe/Former Soviet Union. Totals may not equal sum of components due to independent rounding. The electricity portion of the national fuel consumption values consists of generation for domestic use plus an adjustment for electricity trade based on a fuel's share of total generation in the exporting country. U.S. totals include net electricity imports, methanol, and liquid hydrogen.

Sources: **History:** Energy Information Administration (EIA), *International Energy Annual 1999*, DOE/EIA-0219(99) (Washington, DC, January 2001). **Projections:** EIA, *Annual Energy Outlook 2001*, DOE/EIA-0383(2001) (Washington, DC, December 2000), Table B1; and World Energy Projection System (2001).