

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

1990

Table 1: 1990 U.S. Energy Statistics (Physical Units)

| Fuel Category (Units)           | Fuel Type               | Production | Imports   | Exports | Stock Change | Adjustment | Bunkers | U.S. Territories | Apparent Consumption |
|---------------------------------|-------------------------|------------|-----------|---------|--------------|------------|---------|------------------|----------------------|
| Solid Fuels (1000 Short Tons)   | Anthracite Coal         | 5,165      | [1]       | [1]     | [1]          |            |         |                  | 5,165                |
|                                 | Bituminous Coal         | 621,298    | [1]       | [1]     | [1]          |            |         |                  | 621,298              |
|                                 | Sub-bituminous Coal     | 388,303    | [1]       | [1]     | [1]          |            |         |                  | 388,303              |
|                                 | Lignite                 | 84,354     | [1]       | [1]     | [1]          |            |         |                  | 84,354               |
|                                 | Coke                    |            | 765       | 572     | (1)          |            |         |                  | 194                  |
|                                 | Unspecified Coal        |            | 2,699     | 105,804 | 26,542       | 40,201     |         | 315              | (169,532)            |
| Gas Fuels (Million Cubic Feet)  | Natural Gas             | 17,837,812 | 1,773,313 | 129,244 | (80,186)     | 339,043    |         | 0                | 19,223,024           |
| Liquid Fuels (Thousand Barrels) | Crude Oil               | 2,684,687  | 2,151,387 | 39,653  | (12,761)     |            |         |                  | 4,809,182            |
|                                 | Nat Gas Liquids and     | 568,999    | 71,820    | 15,024  | 15,232       |            |         | 3,756            | 614,319              |
|                                 | Other Liquids           | 29,253     | 173,666   | 0       | (4,117)      |            |         |                  | 207,036              |
|                                 | Motor Gasoline          | 0          | 124,679   | 20,228  | 3,568        | 3,457      |         | 19,227           | 116,652              |
|                                 | Aviation Gasoline       |            | 50        | 0       | (322)        |            |         |                  | 372                  |
|                                 | Kerosene                |            | 1,665     | 1,985   | 437          |            |         | 453              | (304)                |
|                                 | Jet Fuel                |            | 39,377    | 15,744  | 11,239       |            | 115,878 | 10,754           | (92,730)             |
|                                 | Distillate Fuel         |            | 101,455   | 39,933  | 26,504       |            | 27,123  | 12,708           | 20,603               |
|                                 | Residual Fuel           |            | 183,841   | 77,173  | 4,723        | 7,523      | 113,838 | 19,381           | (35)                 |
|                                 | Naphtha for Petrofeed   |            | 16,936    | 1,657   | (496)        |            |         |                  | 15,775               |
|                                 | Petroleum Coke          |            | 731       | 80,207  | (1,419)      | 14,614     |         |                  | (92,671)             |
|                                 | Other Oil for Petrofeed |            | 39,625    | 7,733   | 49           | 5,684      |         |                  | 26,159               |
|                                 | Special Naphthas        |            | 4,188     | 3,784   | 4            |            |         |                  | 400                  |
|                                 | Lubricants              |            | 4,284     | 7,155   | (1,453)      |            |         | 117              | (1,301)              |
|                                 | Waxes                   |            | 418       | 642     | (45)         |            |         |                  | (179)                |
|                                 | Asphalt/Road Oil        |            | 11,597    | 1,055   | (1,828)      |            |         |                  | 12,370               |
|                                 | Still Gas               |            | 0         | 0       | 0            |            |         |                  | 0                    |
|                                 | Misc. Products          |            | 676       | 699     | (101)        |            |         | 14,825           | 14,903               |

[1] Included in Unspecified Coal Totals

### Data Sources:

Solid and Gas Fuels - EIA Annual Energy Review 1999; Liquid Fuels - EIA Stephen Patterson in PSA 90-99 data.xls

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 2: Conversion Factors to Energy Units (Heat Equivalents)

| Fuel Category (Units)               | Fuel Type               | Production | Imports | Exports | Stock<br>Change | Adjustment | Bunkers | U.S.<br>Territories |
|-------------------------------------|-------------------------|------------|---------|---------|-----------------|------------|---------|---------------------|
| Solid Fuels (Million BTU/Short Ton) | Anthracite Coal         | 22.57      |         |         |                 |            |         |                     |
|                                     | Bituminous Coal         | 23.89      |         |         |                 |            |         |                     |
|                                     | Sub-bituminous Coal     | 17.14      |         |         |                 |            |         |                     |
|                                     | Lignite                 | 12.87      |         |         |                 |            |         |                     |
|                                     | Coke                    |            | 24.80   | 24.80   | 24.80           |            |         |                     |
|                                     | Unspecified             |            | 25.00   | 26.20   | 21.82           | 26.07      |         | 25.14               |
| Natural Gas (BTU/Cubic Foot)        |                         | 1,029      | 1,023   | 1,011   | 1,029           | 1,029      |         | 1,029.00            |
| Liquid Fuels (Million Btu/Barrel)   | Crude Oil               | 5.80       | 5.93    | 5.80    | 5.80            |            | 5.80    | 5.80                |
|                                     | Nat Gas Liquids and     | 3.77       | 3.77    | 3.77    | 3.77            |            | 3.77    | 3.77                |
|                                     | Other Liquids           | 5.83       | 5.83    | 5.83    | 5.83            |            | 5.83    | 5.83                |
|                                     | Motor Gasoline          | 5.25       | 5.25    | 5.25    | 5.25            | 5.25       | 5.25    | 5.25                |
|                                     | Aviation Gasoline       |            | 5.05    | 5.05    | 5.05            |            | 5.05    | 5.05                |
|                                     | Kerosene                |            | 5.67    | 5.67    | 5.67            |            | 5.67    | 5.67                |
|                                     | Jet Fuel                |            | 5.67    | 5.67    | 5.67            |            | 5.67    | 5.67                |
|                                     | Distillate Fuel         |            | 5.83    | 5.83    | 5.83            |            | 5.83    | 5.83                |
|                                     | Residual Oil            |            | 6.29    | 6.29    | 6.29            | 6.29       | 6.29    | 6.29                |
|                                     | Naphtha for Petrofeed   |            | 5.25    | 5.25    | 5.25            |            | 5.25    | 5.25                |
|                                     | Petroleum Coke          |            | 6.02    | 6.02    | 6.02            | 6.02       | 6.02    | 6.02                |
|                                     | Other Oil for Petrofeed |            | 5.83    | 5.83    | 5.83            | 5.83       | 5.83    | 5.83                |
|                                     | Special Naphthas        |            | 5.25    | 5.25    | 5.25            |            | 5.25    | 5.25                |
|                                     | Lubricants              |            | 6.07    | 6.07    | 6.07            |            | 6.07    | 6.07                |
|                                     | Waxes                   |            | 6.07    | 6.07    | 6.07            |            | 6.07    | 6.07                |
|                                     | Asphalt/Road Oil        |            | 6.64    | 6.64    | 6.64            |            | 6.64    | 6.64                |
|                                     | Still Gas               |            | 6.00    | 6.00    | 6.00            |            | 6.00    | 6.00                |
|                                     | Misc. Products          |            | 5.86    | 5.72    | 5.86            |            | 5.86    | 5.86                |

### Data Sources:

Coal and lignite production - EIA State Energy Data Report 1992

Unspecified Solid Fuels, Coke, Natural Gas and Petroleum Products - EIA Annual Energy Review 2003; Tables A1, A2, A4, A5

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 3: 1990 Apparent Consumption of Fossil Fuels (Trillion Btu)

| Fuel Category | Fuel Type               | Production      | Imports         | Exports        | Stock<br>Change | Adjustment     | Bunkers        | U.S.<br>Territories | Apparent<br>Consumption |
|---------------|-------------------------|-----------------|-----------------|----------------|-----------------|----------------|----------------|---------------------|-------------------------|
| Solid Fuels   | Anthracite Coal         | 116.6           |                 |                |                 |                |                | 0.0                 | <b>116.6</b>            |
|               | Bituminous Coal         | 14,842.8        |                 |                |                 |                |                | 0.0                 | <b>14,842.8</b>         |
|               | Sub-bituminous Coal     | 6,655.5         |                 |                |                 |                |                | 0.0                 | <b>6,655.5</b>          |
|               | Lignite                 | 1,085.3         |                 |                |                 |                |                | 0.0                 | <b>1,085.3</b>          |
|               | Coke                    | 0.0             | 19.0            | 14.2           | (0.0)           |                |                | 0.0                 | <b>4.8</b>              |
| Gas Fuels     | Unspecified             | 0.0             | 67.5            | 2,772.3        | 579.2           | 1,048.0        |                | 7.9                 | <b>(4,324.1)</b>        |
|               | Natural Gas             | 18,355.1        | 1,814.1         | 130.7          | (82.5)          | 348.9          |                | 0.0                 | <b>19,772.2</b>         |
| Liquid Fuels  | Crude Oil               | 15,571.2        | 12,766.3        | 230.0          | (74.0)          |                | 0.0            | 0.0                 | <b>28,181.5</b>         |
|               | Nat Gas Liquids and LI  | 2,144.6         | 270.7           | 56.6           | 57.4            |                | 0.0            | 14.2                | <b>2,315.4</b>          |
|               | Other Liquids           | 170.4           | 1,011.6         | 0.0            | (24.0)          |                | 0.0            | 0.0                 | <b>1,206.0</b>          |
|               | Motor Gasoline          | 0.0             | 654.9           | 106.3          | 18.7            | 18.2           | 0.0            | 101.0               | <b>612.8</b>            |
|               | Aviation Gasoline       | 0.0             | 0.3             | 0.0            | (1.6)           |                | 0.0            | 0.0                 | <b>1.9</b>              |
|               | Kerosene                | 0.0             | 9.4             | 11.3           | 2.5             |                | 0.0            | 2.6                 | <b>(1.7)</b>            |
|               | Jet Fuel                | 0.0             | 223.3           | 89.3           | 63.7            |                | 657.0          | 61.0                | <b>(525.8)</b>          |
|               | Distillate Fuel         | 0.0             | 591.0           | 232.6          | 154.4           |                | 158.0          | 74.0                | <b>120.0</b>            |
|               | Residual Oil            | 0.0             | 1,155.8         | 485.2          | 29.7            | 47.3           | 715.7          | 121.8               | <b>(0.2)</b>            |
|               | Naphtha for Petrofeed   | 0.0             | 88.9            | 8.7            | (2.6)           |                | 0.0            | 0.0                 | <b>82.8</b>             |
|               | Petroleum Coke          | 0.0             | 4.4             | 483.2          | (8.5)           | 88.0           | 0.0            | 0.0                 | <b>(558.3)</b>          |
|               | Other Oil for Petrofeed | 0.0             | 230.8           | 45.0           | 0.3             | 33.1           | 0.0            | 0.0                 | <b>152.4</b>            |
|               | Special Naphthas        | 0.0             | 22.0            | 19.9           | 0.0             |                | 0.0            | 0.0                 | <b>2.1</b>              |
|               | Lubricants              | 0.0             | 26.0            | 43.4           | (8.8)           |                | 0.0            | 0.7                 | <b>(7.9)</b>            |
|               | Waxes                   | 0.0             | 2.5             | 3.9            | (0.3)           |                | 0.0            | 0.0                 | <b>(1.1)</b>            |
|               | Asphalt/Road Oil        | 0.0             | 77.0            | 7.0            | (12.1)          |                | 0.0            | 0.0                 | <b>82.1</b>             |
|               | Still Gas               | 0.0             | 0.0             | 0.0            | 0.0             |                | 0.0            | 0.0                 | <b>0.0</b>              |
|               | Misc. Products          | 0.0             | 4.0             | 4.0            | (0.6)           |                | 0.0            | 86.9                | <b>87.5</b>             |
| <b>TOTAL</b>  |                         | <b>58,941.5</b> | <b>19,039.4</b> | <b>4,743.4</b> | <b>690.8</b>    | <b>1,583.5</b> | <b>1,530.7</b> | <b>470.1</b>        | <b>69,902.6</b>         |

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 4: 1990 Potential Carbon Emissions

| Fuel Category | Fuel Type               | Apparent Consumption (QBTU) | Carbon Coefficients (Tg Carbon/QBTU) | Potential Carbon Emissions (Tg CO <sub>2</sub> Eq.) |
|---------------|-------------------------|-----------------------------|--------------------------------------|---|
| Solid Fuels   | Anthracite Coal         | 0.117                       | 28.26                                | 12.1  |
|               | Bituminous Coal         | 14.843                      | 25.43                                | 1,384.0   |
|               | Sub-bituminous Coal     | 6.656                       | 26.50                                | 646.7   |
|               | Lignite                 | 1.085                       | 26.19                                | 104.2   |
|               | Coke                    | 0.005                       | 31.00                                | 0.5   |
|               | Unspecified             | (4.324)                     | 25.66                                | (406.8)   |
| Gas Fuels     | Natural Gas             | 19.772                      | 14.47                                | 1,049.0   |
| Liquid Fuels  | Crude Oil               | 28.182                      | 20.16                                | 2,082.8   |
|               | Nat Gas Liquids and LI  | 2.315                       | 16.99                                | 144.2   |
|               | Other Liquids           | 1.206                       | 20.16                                | 89.1  |
|               | Motor Gasoline          | 0.613                       | 19.41                                | 43.6  |
|               | Aviation Gasoline       | 0.002                       | 18.87                                | 0.1   |
|               | Kerosene                | (0.002)                     | 19.72                                | (0.1)   |
|               | Jet Fuel                | (0.526)                     | 19.40                                | (37.4)  |
|               | Distillate Fuel         | 0.120                       | 19.95                                | 8.8   |
|               | Residual Oil            | (0.000)                     | 21.49                                | (0.0)   |
|               | Naphtha for Petrofeed   | 0.083                       | 18.14                                | 5.5   |
|               | Petroleum Coke          | (0.558)                     | 27.85                                | (57.0)  |
|               | Other Oil for Petrofeed | 0.152                       | 19.95                                | 11.1  |
|               | Special Naphthas        | 0.002                       | 19.86                                | 0.2   |
|               | Lubricants              | (0.008)                     | 20.24                                | (0.6)   |
|               | Waxes                   | (0.001)                     | 19.81                                | (0.1)   |
|               | Asphalt/Road Oil        | 0.082                       | 20.62                                | 6.2   |
|               | Still Gas               | 0.000                       | 17.51                                | 0.0   |
|               | Misc. Products          | 0.087                       | 20.16                                | 6.5   |
| TOTAL         |                         |                             |                                      | 5,092.8   |

### Data Sources:

Coal and Lignite - Revised 1996 IPCC Guidelines Reference Manual, Table 1-1

Unspecified Solid Fuels, Coke, Natural Gas and Liquid Fuels obtained from param01.xls

Note these fuels have carbon contents that vary annually: Coke, Unspecified, Crude Oil

Nat Gas Liquids and LRGs, Other Liquids, Motor Gasoline, Jet Fuel, and Misc. Products

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 5: 1990 Carbon Stored in Products

| Fuel Type                        | Consumption for<br>Non-Energy Use<br>(Trillion BTU) | Carbon Coefficients<br>(Tg Carbon/QBTU) | Carbon<br>Content (Tg<br>Carbon) | Fraction<br>Sequestered | Carbon<br>Stored (Tg<br>CO <sub>2</sub> Eq.) |
|----------------------------------|---|---|----------------------------------|-------------------------|--|
| Industrial Coking Coal           | 20.5  | 31.00                                   | 0.6                              | 0.75                    | 1.75   |
| Natural Gas                      | 244.1   | 14.47                                   | 3.5                              | 0.60                    | 7.77   |
| Asphalt & Road Oil               | 1,170.2   | 20.62                                   | 24.1                             | 1.00                    | 88.47  |
| LPG                              | 1,001.9   | 16.83                                   | 16.9                             | 0.60                    | 37.08  |
| Lubricants                       | 363.0   | 20.24                                   | 7.3                              | 0.09                    | 2.49   |
| Pentanes Plus                    | 69.9  | 18.24                                   | 1.3                              | 0.60                    | 2.81   |
| Petro. Feedstocks                | [1]   | [1]                                     | [1]                              | [1]                     | 40.04  |
| Petroleum Coke                   | 90.7  | 27.85                                   | 2.5                              | 0.50                    | 4.63   |
| Special Naphtha                  | 92.1  | 19.86                                   | 1.8                              | 0.60                    | 4.02   |
| Waxes/Misc.                      | [1]   | [1]                                     | [1]                              | [1]                     | 1.66   |
| Misc. U.S. Territories Petroleum | [1]   | [1]                                     | [1]                              | [1]                     | 0.63   |
| <b>TOTAL</b>                     |   |   |                                  |                         | <b>191.35</b>                                |

[1] Values for Misc. U.S. Territories Petroleum, Petrochemical Feedstocks and Waxes/Misc. are not shown because these categories are aggregates of numerous smaller components.

Conversion  
CO<sub>2</sub>/C  
3.7

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 6: Reference Approach CO<sub>2</sub> Emissions from Fossil Fuel Consumption (Tg CO<sub>2</sub> Eq. unless otherwise noted)

| Fuel Category | Potential Carbon Emissions | Carbon Sequestered | Net Carbon Emissions | Fraction Oxidized (percent) | CO <sub>2</sub> Emissions |
|---------------|----------------------------|--------------------|----------------------|-----------------------------|---------------------------|
| Coal          | 1,740.7                    | 1.7                | 1,739.0              | 99.0%                       | <b>1,721.6</b>            |
| Petroleum     | 2,303.0                    | 181.8              | 2,121.2              | 99.0%                       | <b>2,099.9</b>            |
| Natural Gas   | 1,049.0                    | 7.8                | 1,041.3              | 99.5%                       | <b>1,036.1</b>            |
| <b>TOTAL</b>  | <b>5,092.8</b>             | <b>191.4</b>       | <b>4,901.4</b>       | <b>-</b>                    | <b>4,857.6</b>            |

Table 7: 1990 Fuel Consumption in the United States: Sectoral vs. Reference Approaches (Trillion BTU)

| Approach                          | Coal     | Natural Gas | Petroleum | TOTAL    |
|-----------------------------------|----------|-------------|-----------|----------|
| Sectoral <sup>a</sup>             | 18,063.6 | 19,367.0    | 32,293.4  | 69,724.0 |
| Reference (Apparent) <sup>a</sup> | 18,381.0 | 19,772.2    | 31,749.4  | 69,902.6 |
| Difference                        | 1.8%     | 2.1%        | -1.7%     | 0.3%     |

<sup>a</sup> Includes U.S. territories

Note: Totals may not sum due to independent rounding

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 8: 1990 CO<sub>2</sub> Emissions from Fossil Fuel Combustion by  
Estimating Approach (Tg CO<sub>2</sub>)

| Approach               | Coal    | Natural Gas | Petroleum | TOTAL   |
|------------------------|---------|-------------|-----------|---------|
| Sectoral <sup>a</sup>  | 1,681.8 | 1,014.7     | 2,122.8   | 4,819.3 |
| Reference <sup>a</sup> | 1,721.6 | 1,036.1     | 2,099.9   | 4,857.6 |
| Difference             | 2.4%    | 2.1%        | -1.1%     | 0.8%    |

<sup>a</sup> Includes U.S. territories

Note: Totals may not sum due to independent rounding

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

1991

Table 1: 1991 U.S. Energy Statistics (Physical Units)

| Fuel Category (Units)           | Fuel Type           | Production | Imports   | Exports | Stock Change | Adjustment | Bunkers | U.S. Territories | Apparent Consumption |
|---------------------------------|---------------------|------------|-----------|---------|--------------|------------|---------|------------------|----------------------|
| Solid Fuels (1000 Short Tons)   | Anthracite Coal     | 3,445      | [1]       | [1]     | [1]          |            |         |                  | 3,445                |
|                                 | Bituminous Coal     | 650,700    | [1]       | [1]     | [1]          |            |         |                  | 650,700              |
|                                 | Sub-bituminous Coal | 255,325    | [1]       | [1]     | [1]          |            |         |                  | 255,325              |
|                                 | Lignite             | 86,514     | [1]       | [1]     | [1]          |            |         |                  | 86,514               |
|                                 | Coke                |            | 1,183     | 792     | 189          |            |         |                  | 202                  |
|                                 | Unspecified Coal    |            | 3,390     | 108,969 | (947)        | 34,874     |         | 347              | (139,159)            |
| Gas Fuels (Million Cubic Feet)  | Natural Gas         | 17,837,812 | 1,773,313 | 129,244 | (80,186)     | 342,020    |         | 0                | 19,220,047           |
| Liquid Fuels (Thousand Barrels) | Crude Oil           | 2,707,039  | 2,110,532 | 42,385  | (15,285)     |            |         |                  | 4,790,471            |
|                                 | Nat Gas Liquids and | 605,658    | 61,939    | 15,301  | (4,408)      |            |         | 3,593            | 660,297              |
|                                 | Other Liquids       | 33,531     | 165,020   | 0       | 528          |            |         |                  | 198,023              |
|                                 | Motor Gasoline      | 0          | 108,462   | 29,905  | 1,087        | 2,741      |         | 23,733           | 98,463               |
|                                 | Aviation Gasoline   |            | 68        | 0       | (166)        |            |         |                  | 234                  |
|                                 | Kerosene            |            | 4,351     | 1,213   | 192          |            |         | 488              | 3,434                |
|                                 | Jet Fuel            |            | 24,524    | 15,704  | (3,283)      |            | 116,608 | 13,798           | (90,707)             |
|                                 | Distillate Fuel     |            | 74,778    | 78,404  | 11,311       |            | 25,633  | 12,249           | (28,320)             |
|                                 | Residual Fuel       |            | 165,424   | 82,542  | 1,338        | 10,022     | 127,487 | 21,414           | (34,551)             |
|                                 | Petrofeed           |            | 9,172     | 0       | 60           |            |         |                  | 9,112                |
|                                 | Petroleum Coke      |            | 805       | 85,836  | 2,582        | 14,455     |         |                  | (102,068)            |
|                                 | Other Oil for       |            | 41,662    | 0       | (357)        | 3,166      |         |                  | 38,853               |
|                                 | Special Naphthas    |            | 2,676     | 5,521   | (814)        |            |         |                  | (2,031)              |
|                                 | Lubricants          |            | 2,915     | 6,516   | (47)         |            |         | 98               | (3,456)              |
|                                 | Waxes               |            | 0         | 0       | 0            |            |         |                  | 0                    |
|                                 | Asphalt/Road Oil    |            | 10,154    | 1,161   | 3,606        |            |         |                  | 5,387                |
|                                 | Still Gas           |            | 0         | 0       | 0            |            |         |                  | 0                    |
|                                 | Misc. Products      |            | 790       | 85      | (84)         |            |         | 19,614           | 20,403               |

[1] Included in Unspecified Coal Totals

### Data Sources:

Solid and Gas Fuels - EIA Annual Energy Review 1999; Liquid Fuels - EIA Stephen Patterson in PSA 90-99 data.xls



## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 2: Conversion Factors to Energy Units (Heat Equivalents)

| Fuel Category (Units)               | Fuel Type               | Production | Imports | Exports | Stock<br>Change | Adjustment | Bunkers | U.S.<br>Territories |
|-------------------------------------|-------------------------|------------|---------|---------|-----------------|------------|---------|---------------------|
| Solid Fuels (Million BTU/Short Ton) | Anthracite Coal         | 22.57      |         |         |                 |            |         |                     |
|                                     | Bituminous Coal         | 23.89      |         |         |                 |            |         |                     |
|                                     | Sub-bituminous Coal     | 17.14      |         |         |                 |            |         |                     |
|                                     | Lignite                 | 12.87      |         |         |                 |            |         |                     |
|                                     | Coke                    |            | 24.80   | 24.80   | 24.80           |            |         |                     |
|                                     | Unspecified             |            | 25.00   | 26.19   | 21.68           | 25.97      |         | 25.14               |
| Natural Gas (BTU/Cubic Foot)        |                         | 1,030      | 1,023   | 1,011   | 1,030           | 1,030      |         | 1,030.00            |
| Liquid Fuels (Million Btu/Barrel)   | Crude Oil               | 5.80       | 5.95    | 5.80    | 5.80            |            | 5.80    | 5.80                |
|                                     | Nat Gas Liquids and     | 3.77       | 3.77    | 3.77    | 3.77            |            | 3.77    | 3.77                |
|                                     | Other Liquids           | 5.83       | 5.83    | 5.83    | 5.83            |            | 5.83    | 5.83                |
|                                     | Motor Gasoline          | 5.25       | 5.25    | 5.25    | 5.25            | 5.25       | 5.25    | 5.25                |
|                                     | Aviation Gasoline       |            | 5.05    | 5.05    | 5.05            |            | 5.05    | 5.05                |
|                                     | Kerosene                |            | 5.67    | 5.67    | 5.67            |            | 5.67    | 5.67                |
|                                     | Jet Fuel                |            | 5.67    | 5.67    | 5.67            |            | 5.67    | 5.67                |
|                                     | Distillate Fuel         |            | 5.83    | 5.83    | 5.83            |            | 5.83    | 5.83                |
|                                     | Residual Oil            |            | 6.29    | 6.29    | 6.29            | 6.29       | 6.29    | 6.29                |
|                                     | Naphtha for Petrofeed   |            | 5.25    | 5.25    | 5.25            |            | 5.25    | 5.25                |
|                                     | Petroleum Coke          |            | 6.02    | 6.02    | 6.02            | 6.02       | 6.02    | 6.02                |
|                                     | Other Oil for Petrofeed |            | 5.83    | 5.83    | 5.83            | 5.83       | 5.83    | 5.83                |
|                                     | Special Naphthas        |            | 5.25    | 5.25    | 5.25            |            | 5.25    | 5.25                |
|                                     | Lubricants              |            | 6.07    | 6.07    | 6.07            |            | 6.07    | 6.07                |
|                                     | Waxes                   |            | 6.07    | 6.07    | 6.07            |            | 6.07    | 6.07                |
|                                     | Asphalt/Road Oil        |            | 6.64    | 6.64    | 6.64            |            | 6.64    | 6.64                |
|                                     | Still Gas               |            | 6.00    | 6.00    | 6.00            |            | 6.00    | 6.00                |
|                                     | Misc. Products          |            | 5.86    | 5.72    | 5.86            |            | 5.86    | 5.86                |

### Data Sources:

Coal and lignite production - EIA State Energy Data Report 1992

Unspecified Solid Fuels, Coke, Natural Gas and Petroleum Products - EIA Annual Energy Review 2003; Tables A1, A2, A4, A5

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 3: 1991 Apparent Consumption of Fossil Fuels (Trillion Btu)

| Fuel Category | Fuel Type               | Production | Imports  | Exports | Stock Change | Adjustment | Bunkers | U.S. Territories | Apparent Consumption |
|---------------|-------------------------|------------|----------|---------|--------------|------------|---------|------------------|----------------------|
| Solid Fuels   | Anthracite Coal         | 77.8       |          |         |              |            |         | 0.0              | 77.8                 |
|               | Bituminous Coal         | 15,545.2   |          |         |              |            |         | 0.0              | 15,545.2             |
|               | Sub-bituminous Coal     | 4,376.3    |          |         |              |            |         | 0.0              | 4,376.3              |
|               | Lignite                 | 1,113.1    |          |         |              |            |         | 0.0              | 1,113.1              |
|               | Coke                    | 0.0        | 29.3     | 19.6    | 4.7          |            |         | 0.0              | 5.0                  |
|               | Unspecified             | 0.0        | 84.7     | 2,853.7 | (20.5)       | 905.6      |         | 8.7              | (3,645.2)            |
| Gas Fuels     | Natural Gas             | 18,372.9   | 1,814.1  | 130.7   | (82.6)       | 352.3      |         | 0.0              | 19,786.7             |
| Liquid Fuels  | Crude Oil               | 15,700.8   | 12,553.4 | 245.8   | (88.7)       |            | 0.0     | 0.0              | 28,097.1             |
|               | Nat Gas Liquids and LI  | 2,282.7    | 233.4    | 57.7    | (16.6)       |            | 0.0     | 13.5             | 2,488.7              |
|               | Other Liquids           | 195.3      | 961.2    | 0.0     | 3.1          |            | 0.0     | 0.0              | 1,153.5              |
|               | Motor Gasoline          | 0.0        | 569.8    | 157.1   | 5.7          | 14.4       | 0.0     | 124.7            | 517.2                |
|               | Aviation Gasoline       | 0.0        | 0.3      | 0.0     | (0.8)        |            | 0.0     | 0.0              | 1.2                  |
|               | Kerosene                | 0.0        | 24.7     | 6.9     | 1.1          |            | 0.0     | 2.8              | 19.5                 |
|               | Jet Fuel                | 0.0        | 139.1    | 89.0    | (18.6)       |            | 661.2   | 78.2             | (514.3)              |
|               | Distillate Fuel         | 0.0        | 435.6    | 456.7   | 65.9         |            | 149.3   | 71.4             | (165.0)              |
|               | Residual Oil            | 0.0        | 1,040.0  | 518.9   | 8.4          | 63.0       | 801.5   | 134.6            | (217.2)              |
|               | Naphtha for Petrofeed   | 0.0        | 48.1     | 0.0     | 0.3          |            | 0.0     | 0.0              | 47.8                 |
|               | Petroleum Coke          | 0.0        | 4.8      | 517.1   | 15.6         | 87.1       | 0.0     | 0.0              | (614.9)              |
|               | Other Oil for Petrofeed | 0.0        | 242.7    | 0.0     | (2.1)        | 18.4       | 0.0     | 0.0              | 226.3                |
|               | Special Naphthas        | 0.0        | 14.0     | 29.0    | (4.3)        |            | 0.0     | 0.0              | (10.7)               |
|               | Lubricants              | 0.0        | 17.7     | 39.5    | (0.3)        |            | 0.0     | 0.6              | (21.0)               |
|               | Waxes                   | 0.0        | 0.0      | 0.0     | 0.0          |            | 0.0     | 0.0              | 0.0                  |
|               | Asphalt/Road Oil        | 0.0        | 67.4     | 7.7     | 23.9         |            | 0.0     | 0.0              | 35.7                 |
|               | Still Gas               | 0.0        | 0.0      | 0.0     | 0.0          |            | 0.0     | 0.0              | 0.0                  |
|               | Misc. Products          | 0.0        | 4.6      | 0.5     | (0.5)        |            | 0.0     | 115.0            | 119.6                |
| TOTAL         |                         | 57,664.2   | 18,285.1 | 5,129.9 | (106.3)      | 1,440.8    | 1,612.0 | 549.5            | 68,422.5             |

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 4: 1991 Potential Carbon Emissions

| Fuel Category | Fuel Type               | Apparent<br>Consumption<br>(QBTU) | Carbon Coefficients<br>(Tg Carbon/QBTU) | Potential Carbon<br>Emissions (Tg CO <sub>2</sub><br>Eq.) |
|---------------|-------------------------|-----------------------------------|---|---|
| Solid Fuels   | Anthracite Coal         | 0.078                             | 28.26                                   | 8.1   |
|               | Bituminous Coal         | 15.545                            | 25.45                                   | 1,450.6   |
|               | Sub-bituminous Coal     | 4.376                             | 26.49                                   | 425.1   |
|               | Lignite                 | 1.113                             | 26.21                                   | 107.0   |
|               | Coke                    | 0.005                             | 31.00                                   | 0.6   |
|               | Unspecified             | (3.645)                           | 25.67                                   | (343.1)   |
| Gas Fuels     | Natural Gas             | 19.787                            | 14.47                                   | 1,049.8   |
| Liquid Fuels  | Crude Oil               | 28.097                            | 20.18                                   | 2,079.1   |
|               | Nat Gas Liquids and LI  | 2.489                             | 16.98                                   | 155.0   |
|               | Other Liquids           | 1.153                             | 20.18                                   | 85.4  |
|               | Motor Gasoline          | 0.517                             | 19.41                                   | 36.8  |
|               | Aviation Gasoline       | 0.001                             | 18.87                                   | 0.1   |
|               | Kerosene                | 0.019                             | 19.72                                   | 1.4   |
|               | Jet Fuel                | (0.514)                           | 19.40                                   | (36.6)  |
|               | Distillate Fuel         | (0.165)                           | 19.95                                   | (12.1)  |
|               | Residual Oil            | (0.217)                           | 21.49                                   | (17.1)  |
|               | Naphtha for Petrofeed   | 0.048                             | 18.14                                   | 3.2   |
|               | Petroleum Coke          | (0.615)                           | 27.85                                   | (62.8)  |
|               | Other Oil for Petrofeed | 0.226                             | 19.95                                   | 16.6  |
|               | Special Naphthas        | (0.011)                           | 19.86                                   | (0.8)   |
|               | Lubricants              | (0.021)                           | 20.24                                   | (1.6)   |
|               | Waxes                   | 0.000                             | 19.81                                   | 0.0   |
|               | Asphalt/Road Oil        | 0.036                             | 20.62                                   | 2.7   |
|               | Still Gas               | 0.000                             | 17.51                                   | 0.0   |
|               | Misc. Products          | 0.120                             | 20.18                                   | 8.9   |
| TOTAL         |                         |                                   |   | 4,956.2   |

### Data Sources:

Coal and Lignite - Revised 1996 IPCC Guidelines Reference Manual, Table 1-1

Unspecified Solid Fuels, Coke, Natural Gas and Liquid Fuels obtained from param01.xls

Note these fuels have carbon contents that vary annually: Coke, Unspecified, Crude Oil

Nat Gas Liquids and LRGs, Other Liquids, Motor Gasoline, Jet Fuel, and Misc. Products

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 5: 1991 Carbon Stored in Products

| Fuel Type                        | Consumption for<br>Non-Energy Use<br>(Trillion BTU) | Carbon Coefficients<br>(Tg Carbon/QBTU) | Carbon<br>Content (Tg<br>Carbon) | Fraction<br>Sequestered | Carbon<br>Stored (Tg<br>CO <sub>2</sub> Eq.) |
|----------------------------------|---|---|----------------------------------|-------------------------|--|
| Industrial Coking Coal           | 18.4  | 31.00                                   | 0.6                              | 0.75                    | 1.57   |
| Natural Gas                      | 234.6   | 14.47                                   | 3.4                              | 0.60                    | 7.51   |
| Asphalt & Road Oil               | 1,076.5   | 20.62                                   | 22.2                             | 1.00                    | 81.39  |
| LPG                              | 1,116.5   | 16.84                                   | 18.8                             | 0.60                    | 41.58  |
| Lubricants                       | 324.8   | 20.24                                   | 6.6                              | 0.09                    | 2.23   |
| Pentanes Plus                    | 36.9  | 18.24                                   | 0.7                              | 0.60                    | 1.49   |
| Petro. Feedstocks                | [1]   | [1]                                     | [1]                              | [1]                     | 41.06  |
| Petroleum Coke                   | 65.9  | 27.85                                   | 1.8                              | 0.50                    | 3.37   |
| Special Naphtha                  | 73.8  | 19.86                                   | 1.5                              | 0.60                    | 3.24   |
| Waxes/Misc.                      | [1]   | [1]                                     | [1]                              | [1]                     | 1.74   |
| Misc. U.S. Territories Petroleum | [1]   | [1]                                     | [1]                              | [1]                     | 0.83   |
| <b>TOTAL</b>                     |   |   |                                  |                         | <b>186.01</b>                                |

[1] Values for Misc. U.S. Territories Petroleum, Petrochemical Feedstocks and Waxes/Misc. are not shown because these categories are aggregates of numerous smaller components.

Conversion  
CO<sub>2</sub>/C  
3.7

# Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 6: Reference Approach CO<sub>2</sub> Emissions from Fossil Fuel Consumption (Tg CC<sub>2</sub> Eq. unless otherwise noted)

| Fuel Category | Potential<br>Carbon<br>Emissions | Carbon<br>Sequestered | Net Carbon<br>Emissions | Fraction<br>Oxidized<br>(percent) | CO <sub>2</sub><br>Emissions |
|---------------|----------------------------------|-----------------------|-------------------------|-----------------------------------|------------------------------|
| Coal          | 1,648.2                          | 1.6                   | 1,646.6                 | 99.0%                             | <b>1,630.2</b>               |
| Petroleum     | 2,258.1                          | 176.9                 | 2,081.2                 | 99.0%                             | <b>2,060.4</b>               |
| Natural Gas   | 1,049.8                          | 7.5                   | 1,042.3                 | 99.5%                             | <b>1,037.1</b>               |
| <b>TOTAL</b>  | <b>4,956.2</b>                   | <b>186.0</b>          | <b>4,770.2</b>          | <b>-</b>                          | <b>4,727.7</b>               |

Table 7: 1991 Fuel Consumption in the United States: Sectoral vs. Reference Approaches (Trillion BTU)

| Approach                          | Coal     | Natural Gas | Petroleum | TOTAL    |
|-----------------------------------|----------|-------------|-----------|----------|
| Sectoral <sup>a</sup>             | 18,015.6 | 19,766.0    | 31,601.5  | 69,383.1 |
| Reference (Apparent) <sup>a</sup> | 17,472.1 | 19,786.7    | 31,163.7  | 68,422.5 |
| Difference                        | -3.0%    | 0.1%        | -1.4%     | -1.4%    |

<sup>a</sup> Includes U.S. territories

Note: Totals may not sum due to independent rounding

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 8: 1991 CO<sub>2</sub> Emissions from Fossil Fuel Combustion by  
Estimating Approach (Tg CO<sub>2</sub>)

| Approach               | Coal    | Natural Gas | Petroleum | TOTAL   |
|------------------------|---------|-------------|-----------|---------|
| Sectoral <sup>a</sup>  | 1,678.5 | 1,036.0     | 2,074.5   | 4,789.0 |
| Reference <sup>a</sup> | 1,630.2 | 1,037.1     | 2,060.4   | 4,727.7 |
| Difference             | -2.9%   | 0.1%        | -0.7%     | -1.3%   |

<sup>a</sup> Includes U.S. territories

Note: Totals may not sum due to independent rounding

# Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

1992

Table 1: 1992 U.S. Energy Statistics (Physical Units)

| Fuel Category (Units)           | Fuel Type               | Production | Imports   | Exports | Stock Change | Adjustment | Bunkers | U.S. Territories | Apparent Consumption |
|---------------------------------|-------------------------|------------|-----------|---------|--------------|------------|---------|------------------|----------------------|
| Solid Fuels (1000 Short Tons)   | Anthracite Coal         | 3,483      | [1]       | [1]     | [1]          |            |         |                  | 3,483                |
|                                 | Bituminous Coal         | 651,842    | [1]       | [1]     | [1]          |            |         |                  | 651,842              |
|                                 | Sub-bituminous C        | 252,158    | [1]       | [1]     | [1]          |            |         |                  | 252,158              |
|                                 | Lignite                 | 90,062     | [1]       | [1]     | [1]          |            |         |                  | 90,062               |
|                                 | Coke                    |            | 2,098     | 702     | (224)        |            |         |                  | 1,620                |
|                                 | Unspecified Coal        |            | 3,803     | 102,516 | (2,997)      | 33,756     |         | 396              | (129,077)            |
| Gas Fuels (Million Cubic Feet)  | Natural Gas             | 18,133,980 | 2,137,504 | 216,282 | (172,882)    | 357,061    |         | 0                | 19,871,023           |
| Liquid Fuels (Thousand Barrels) | Crude Oil               | 2,624,632  | 2,226,341 | 32,473  | (238)        |            |         |                  | 4,818,738            |
|                                 | Nat Gas Liquids         | 621,178    | 57,046    | 18,203  | (1,804)      |            |         | 3,097            | 664,922              |
|                                 | Other Liquids           | 46,812     | 180,499   | 0       | 1,111        |            |         |                  | 226,200              |
|                                 | Motor Gasoline          | 0          | 107,672   | 34,963  | (4,143)      | 3,289      |         | 23,253           | 96,816               |
|                                 | Aviation                |            | 122       | 0       | (26)         |            |         |                  | 148                  |
|                                 | Kerosene                |            | 3,259     | 2,915   | (41)         |            |         | 574              | 959                  |
|                                 | Jet Fuel                |            | 30,107    | 15,556  | (5,740)      |            | 117,614 | 10,805           | (86,518)             |
|                                 | Distillate Fuel         |            | 79,076    | 80,035  | (2,908)      |            | 25,053  | 15,763           | (7,341)              |
|                                 | Residual Fuel           |            | 137,280   | 70,570  | (7,310)      | 9,313      | 106,544 | 24,584           | (17,253)             |
|                                 | Naphtha for Petrofeed   |            | 11,376    | 0       | 174          |            |         |                  | 11,202               |
|                                 | Petroleum Coke          |            | 797       | 79,018  | (138)        | 14,636     |         |                  | (92,719)             |
|                                 | Other Oil for Petrofeed |            |           |         |              |            |         |                  |                      |
|                                 | Petrofeed               |            | 34,609    | 0       | 197          | 14,730     |         |                  | 19,682               |
|                                 | Special Naphthas        |            | 3,499     | 5,296   | (59)         |            |         |                  | (1,738)              |
|                                 | Lubricants              |            | 3,866     | 5,987   | 1,023        |            |         | 243              | (2,901)              |
|                                 | Waxes                   |            | 0         | 0       | 0            |            |         |                  | 0                    |
|                                 | Asphalt/Road Oil        |            | 9,942     | 1,658   | (4,622)      |            |         |                  | 12,906               |
|                                 | Still Gas               |            | 0         | 0       | 0            |            |         |                  | 0                    |
|                                 | Misc. Products          |            | 826       | 102     | (239)        |            |         | 10,543           | 11,506               |

[1] Included in Unspecified Coal Totals

## Data Sources:

Solid and Gas Fuels - EIA Annual Energy Review 1999; Liquid Fuels - EIA Stephen Patterson in PSA 90-99 data.xls

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 2: Conversion Factors to Energy Units (Heat Equivalents)

| Fuel Category (Units)               | Fuel Type               | Production | Imports | Exports | Stock<br>Change | Adjustment | Bunkers | U.S.<br>Territories |
|-------------------------------------|-------------------------|------------|---------|---------|-----------------|------------|---------|---------------------|
| Solid Fuels (Million BTU/Short Ton) | Anthracite Coal         | 22.57      |         |         |                 |            |         |                     |
|                                     | Bituminous Coal         | 23.89      |         |         |                 |            |         |                     |
|                                     | Sub-bituminous Coal     | 17.14      |         |         |                 |            |         |                     |
|                                     | Lignite                 | 12.87      |         |         |                 |            |         |                     |
|                                     | Coke                    |            | 24.80   | 24.80   | 24.80           |            |         |                     |
|                                     | Unspecified             |            | 25.00   | 26.16   | 21.68           | 25.84      |         | 25.14               |
| Natural Gas (BTU/Cubic Foot)        |                         | 1,030      | 1,023   | 1,011   | 1,030           | 1,030      |         | 1,030.00            |
| Liquid Fuels (Million Btu/Barrel)   | Crude Oil               | 5.80       | 5.95    | 5.80    | 5.80            |            | 5.80    | 5.80                |
|                                     | Nat Gas Liquids and     | 3.77       | 3.77    | 3.77    | 3.77            |            | 3.77    | 3.77                |
|                                     | Other Liquids           | 5.83       | 5.83    | 5.83    | 5.83            |            | 5.83    | 5.83                |
|                                     | Motor Gasoline          | 5.25       | 5.25    | 5.25    | 5.25            | 5.25       | 5.25    | 5.25                |
|                                     | Aviation Gasoline       |            | 5.05    | 5.05    | 5.05            |            | 5.05    | 5.05                |
|                                     | Kerosene                |            | 5.67    | 5.67    | 5.67            |            | 5.67    | 5.67                |
|                                     | Jet Fuel                |            | 5.67    | 5.67    | 5.67            |            | 5.67    | 5.67                |
|                                     | Distillate Fuel         |            | 5.83    | 5.83    | 5.83            |            | 5.83    | 5.83                |
|                                     | Residual Oil            |            | 6.29    | 6.29    | 6.29            | 6.29       | 6.29    | 6.29                |
|                                     | Naphtha for Petrofeed   |            | 5.25    | 5.25    | 5.25            |            | 5.25    | 5.25                |
|                                     | Petroleum Coke          |            | 6.02    | 6.02    | 6.02            | 6.02       | 6.02    | 6.02                |
|                                     |                         |            |         |         |                 |            |         |                     |
|                                     | Other Oil for Petrofeed |            | 5.83    | 5.83    | 5.83            | 5.83       | 5.83    | 5.83                |
|                                     | Special Naphthas        |            | 5.25    | 5.25    | 5.25            |            | 5.25    | 5.25                |
|                                     | Lubricants              |            | 6.07    | 6.07    | 6.07            |            | 6.07    | 6.07                |
|                                     | Waxes                   |            | 6.07    | 6.07    | 6.07            |            | 6.07    | 6.07                |
|                                     | Asphalt/Road Oil        |            | 6.64    | 6.64    | 6.64            |            | 6.64    | 6.64                |
|                                     | Still Gas               |            | 6.00    | 6.00    | 6.00            |            | 6.00    | 6.00                |
|                                     | Misc. Products          |            | 5.86    | 5.72    | 5.86            |            | 5.86    | 5.86                |

### Data Sources:

Coal and lignite production - EIA State Energy Data Report 1992

Unspecified Solid Fuels, Coke, Natural Gas and Petroleum Products - EIA Annual Energy Review 2003; Tables A1, A2, A4, A5.



## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 3: 1992 Apparent Consumption of Fossil Fuels (Trillion Btu)

| Fuel Category | Fuel Type               | Production | Imports  | Exports | Stock<br>Change | Adjustment | Bunkers | U.S.<br>Territories | Apparent<br>Consumption |
|---------------|-------------------------|------------|----------|---------|-----------------|------------|---------|---------------------|-------------------------|
| Solid Fuels   | Anthracite Coal         | 78.6       |          |         |                 |            |         | 0.0                 | 78.6                    |
|               | Bituminous Coal         | 15,572.5   |          |         |                 |            |         | 0.0                 | 15,572.5                |
|               | Sub-bituminous Coal     | 4,322.0    |          |         |                 |            |         | 0.0                 | 4,322.0                 |
|               | Lignite                 | 1,158.7    |          |         |                 |            |         | 0.0                 | 1,158.7                 |
|               | Coke                    | 0.0        | 52.0     | 17.4    | (5.6)           |            |         | 0.0                 | 40.2                    |
| Gas Fuels     | Unspecified             | 0.0        | 95.1     | 2,681.9 | (65.0)          | 872.3      |         | 9.9                 | (3,384.2)               |
|               | Natural Gas             | 18,678.0   | 2,186.7  | 218.7   | (178.1)         | 367.8      |         | 0.0                 | 20,456.3                |
| Liquid Fuels  | Crude Oil               | 15,222.9   | 13,253.4 | 188.3   | (1.4)           |            | 0.0     | 0.0                 | 28,289.3                |
|               | Nat Gas Liquids and LR  | 2,341.2    | 215.0    | 68.6    | (6.8)           |            | 0.0     | 11.7                | 2,506.1                 |
|               | Other Liquids           | 272.7      | 1,051.4  | 0.0     | 6.5             |            | 0.0     | 0.0                 | 1,317.6                 |
|               | Motor Gasoline          | 0.0        | 565.6    | 183.7   | (21.8)          | 17.3       | 0.0     | 122.1               | 508.6                   |
|               | Aviation Gasoline       | 0.0        | 0.6      | 0.0     | (0.1)           |            | 0.0     | 0.0                 | 0.7                     |
|               | Kerosene                | 0.0        | 18.5     | 16.5    | (0.2)           |            | 0.0     | 3.3                 | 5.4                     |
|               | Jet Fuel                | 0.0        | 170.7    | 88.2    | (32.5)          |            | 666.9   | 61.3                | (490.6)                 |
|               | Distillate Fuel         | 0.0        | 460.6    | 466.2   | (16.9)          |            | 145.9   | 91.8                | (42.8)                  |
|               | Residual Oil            | 0.0        | 863.1    | 443.7   | (46.0)          | 58.6       | 669.8   | 154.6               | (108.5)                 |
|               | Naphtha for Petrofeed   | 0.0        | 59.7     | 0.0     | 0.9             |            | 0.0     | 0.0                 | 58.8                    |
|               | Petroleum Coke          | 0.0        | 4.8      | 476.0   | (0.8)           | 88.2       | 0.0     | 0.0                 | (558.5)                 |
|               | Other Oil for Petrofeed | 0.0        | 201.6    | 0.0     | 1.1             | 85.8       | 0.0     | 0.0                 | 114.6                   |
|               | Special Naphthas        | 0.0        | 18.4     | 27.8    | (0.3)           |            | 0.0     | 0.0                 | (9.1)                   |
|               | Lubricants              | 0.0        | 23.4     | 36.3    | 6.2             |            | 0.0     | 1.5                 | (17.6)                  |
|               | Waxes                   | 0.0        | 0.0      | 0.0     | 0.0             |            | 0.0     | 0.0                 | 0.0                     |
|               | Asphalt/Road Oil        | 0.0        | 66.0     | 11.0    | (30.7)          |            | 0.0     | 0.0                 | 85.6                    |
|               | Still Gas               | 0.0        | 0.0      | 0.0     | 0.0             |            | 0.0     | 0.0                 | 0.0                     |
|               | Misc. Products          | 0.0        | 4.8      | 0.6     | (1.4)           |            | 0.0     | 61.8                | 67.5                    |
| TOTAL         |                         | 57,646.6   | 19,311.4 | 4,924.9 | (392.8)         | 1,489.9    | 1,482.6 | 517.9               | 69,971.4                |

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 4: 1992 Potential Carbon Emissions

| Fuel Category | Fuel Type               | Apparent<br>Consumption<br>(QBTU) | Carbon Coefficients<br>(Tg Carbon/QBTU) | Potential Carbon<br>Emissions (Tg CO <sub>2</sub><br>Eq.) |
|---------------|-------------------------|-----------------------------------|---|---|
| Solid Fuels   | Anthracite Coal         | 0.079                             | 28.26                                   | 8.1   |
|               | Bituminous Coal         | 15.573                            | 25.44                                   | 1,452.6   |
|               | Sub-bituminous Coal     | 4.322                             | 26.49                                   | 419.8   |
|               | Lignite                 | 1.159                             | 26.22                                   | 111.4   |
|               | Coke                    | 0.040                             | 31.00                                   | 4.6   |
|               | Unspecified             | (3.384)                           | 25.68                                   | (318.7)   |
| Gas Fuels     | Natural Gas             | 20.456                            | 14.47                                   | 1,085.3   |
| Liquid Fuels  | Crude Oil               | 28.289                            | 20.22                                   | 2,097.3   |
|               | Nat Gas Liquids and LR  | 2.506                             | 16.99                                   | 156.1   |
|               | Other Liquids           | 1.318                             | 20.22                                   | 97.7  |
|               | Motor Gasoline          | 0.509                             | 19.42                                   | 36.2  |
|               | Aviation Gasoline       | 0.001                             | 18.87                                   | 0.1   |
|               | Kerosene                | 0.005                             | 19.72                                   | 0.4   |
|               | Jet Fuel                | (0.491)                           | 19.39                                   | (34.9)  |
|               | Distillate Fuel         | (0.043)                           | 19.95                                   | (3.1)   |
|               | Residual Oil            | (0.108)                           | 21.49                                   | (8.5)   |
|               | Naphtha for Petrofeed   | 0.059                             | 18.14                                   | 3.9   |
|               | Petroleum Coke          | (0.559)                           | 27.85                                   | (57.0)  |
|               | Other Oil for Petrofeed | 0.115                             | 19.95                                   | 8.4   |
|               | Special Naphthas        | (0.009)                           | 19.86                                   | (0.7)   |
|               | Lubricants              | (0.018)                           | 20.24                                   | (1.3)   |
|               | Waxes                   | 0.000                             | 19.81                                   | 0.0   |
|               | Asphalt/Road Oil        | 0.086                             | 20.62                                   | 6.5   |
|               | Still Gas               | 0.000                             | 17.51                                   | 0.0   |
|               | Misc. Products          | 0.067                             | 20.22                                   | 5.0   |
| TOTAL         |                         |                                   |   | 5,069.2   |

### Data Sources:

Coal and Lignite - Revised 1996 IPCC Guidelines Reference Manual, Table 1-1

Unspecified Solid Fuels, Coke, Natural Gas and Liquid Fuels obtained from param01.xls

Note these fuels have carbon contents that vary annually: Coke, Unspecified, Crude Oil,

Nat Gas Liquids and LRGs, Other Liquids, Motor Gasoline, Jet Fuel, and Misc. Products

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 5: 1992 Carbon Stored in Products

| Fuel Type                        | Consumption for<br>Non-Energy Use<br>(Trillion BTU) | Carbon Coefficients<br>(Tg Carbon/QBTU) | Carbon<br>Content (Tg<br>Carbon) | Fraction<br>Sequestered | Carbon<br>Stored (Tg<br>CO <sub>2</sub> Eq.) |
|----------------------------------|---|---|----------------------------------|-------------------------|--|
| Industrial Coking Coal           | 24.9  | 31.00                                   | 0.8                              | 0.75                    | 2.12   |
| Natural Gas                      | 212.4   | 14.47                                   | 3.1                              | 0.62                    | 6.99   |
| Asphalt & Road Oil               | 1,102.2   | 20.62                                   | 22.7                             | 1.00                    | 83.34  |
| LPG                              | 1,174.1   | 16.84                                   | 19.8                             | 0.62                    | 44.99  |
| Lubricants                       | 332.0   | 20.24                                   | 6.7                              | 0.09                    | 2.28   |
| Pentanes Plus                    | 52.7  | 18.24                                   | 1.0                              | 0.62                    | 2.19   |
| Petro. Feedstocks                | [1]   | [1]                                     | [1]                              | [1]                     | 42.57  |
| Petroleum Coke                   | 143.0   | 27.85                                   | 4.0                              | 0.50                    | 7.30   |
| Special Naphtha                  | 90.8  | 19.86                                   | 1.8                              | 0.62                    | 4.10   |
| Waxes/Misc.                      | [1]   | [1]                                     | [1]                              | [1]                     | 1.83   |
| Misc. U.S. Territories Petroleum | [1]   | [1]                                     | [1]                              | [1]                     | 0.45   |
| <b>TOTAL</b>                     |   |   |                                  |                         | <b>198.16</b>                                |

[1] Values for Misc. U.S. Territories Petroleum, Petrochemical Feedstocks and Waxes/Misc. are not shown because these categories are aggregates of numerous smaller components.

|                    |
|--------------------|
| Conversion         |
| CO <sub>2</sub> /C |
| 3.7                |

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 6: Reference Approach CO<sub>2</sub> Emissions from Fossil Fuel Consumption (Tg CO<sub>2</sub> Eq. unless otherwise noted)

| Fuel Category | Potential<br>Carbon<br>Emissions | Carbon<br>Sequestered | Net Carbon<br>Emissions | Fraction<br>Oxidized<br>(percent) | CO <sub>2</sub><br>Emissions |
|---------------|----------------------------------|-----------------------|-------------------------|-----------------------------------|------------------------------|
| Coal          | 1,677.8                          | 2.1                   | 1,675.7                 | 99.0%                             | <b>1,659.0</b>               |
| Petroleum     | 2,306.0                          | 189.0                 | 2,117.0                 | 99.0%                             | <b>2,095.8</b>               |
| Natural Gas   | 1,085.3                          | 7.0                   | 1,078.3                 | 99.5%                             | <b>1,073.0</b>               |
| <b>TOTAL</b>  | <b>5,069.2</b>                   | <b>198.2</b>          | <b>4,871.1</b>          | <b>-</b>                          | <b>4,827.7</b>               |

Table 7: 1992 Fuel Consumption in the United States: Sectoral vs. Reference Approaches (Trillion BTU)

| Approach                          | Coal     | Natural Gas | Petroleum | TOTAL    |
|-----------------------------------|----------|-------------|-----------|----------|
| Sectoral <sup>a</sup>             | 18,186.3 | 20,440.9    | 32,301.8  | 70,929.0 |
| Reference (Apparent) <sup>a</sup> | 17,787.8 | 20,456.3    | 31,727.3  | 69,971.4 |
| Difference                        | -2.2%    | 0.1%        | -1.8%     | -1.4%    |

<sup>a</sup> Includes U.S. territories

Note: Totals may not sum due to independent rounding.

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 8: 1992 CO<sub>2</sub> Emissions from Fossil Fuel Combustion by Estimating Approach (Tg CO<sub>2</sub>)

| Approach               | Coal    | Natural Gas | Petroleum | TOTAL   |
|------------------------|---------|-------------|-----------|---------|
| Sectoral <sup>a</sup>  | 1,694.1 | 1,072.2     | 2,114.8   | 4,881.1 |
| Reference <sup>a</sup> | 1,659.0 | 1,073.0     | 2,095.8   | 4,827.7 |
| Difference             | -2.1%   | 0.1%        | -0.9%     | -1.1%   |

<sup>a</sup> Includes U.S. territories

Note: Totals may not sum due to independent rounding.

# Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

1993

Table 1: 1993 U.S. Energy Statistics (Physical Units)

| Fuel Category (Units)           | Fuel Type               | Production | Imports   | Exports | Stock Change | Adjustment | Bunkers | U.S. Territories | Apparent Consumption |
|---------------------------------|-------------------------|------------|-----------|---------|--------------|------------|---------|------------------|----------------------|
| Solid Fuels (1000 Short Tons)   | Anthracite Coal         | 4,322      | [1]       | [1]     | [1]          |            |         |                  | 4,322                |
|                                 | Bituminous Coal         | 576,652    | [1]       | [1]     | [1]          |            |         |                  | 576,652              |
|                                 | Sub-bituminous Coal     | 274,901    | [1]       | [1]     | [1]          |            |         |                  | 274,901              |
|                                 | Lignite                 | 89,549     | [1]       | [1]     | [1]          |            |         |                  | 89,549               |
|                                 | Coke                    |            | 2,155     | 1,062   | (422)        |            |         |                  | 1,515                |
|                                 | Unspecified Coal        |            | 8,181     | 74,519  | (51,943)     | 32,189     |         | 430              | (46,154)             |
| Gas Fuels (Million Cubic Feet)  | Natural Gas             | 18,615,279 | 2,350,115 | 140,183 | 35,702       | 343,539    |         | 0                | 20,445,970           |
| Liquid Fuels (Thousand Barrels) | Crude Oil               | 2,499,033  | 2,477,230 | 35,834  | 29,601       |            |         |                  | 4,910,828            |
|                                 | Nat Gas Liquids and     | 633,518    | 70,069    | 16,203  | 19,239       |            |         | 1,283            | 669,428              |
|                                 | Other Liquids           | 72,141     | 196,841   | 2,617   | (364)        |            |         |                  | 266,729              |
|                                 | Motor Gasoline          | 20,307     | 90,242    | 38,193  | 9,486        | 27,441     |         | 24,415           | 59,844               |
|                                 | Aviation Gasoline       |            | 78        | 0       | 254          |            |         |                  | (176)                |
|                                 | Kerosene                |            | 307       | 1,289   | (1,658)      |            |         | 675              | 1,351                |
|                                 | Jet Fuel                |            | 36,483    | 21,700  | (2,675)      |            | 119,040 | 10,952           | (90,630)             |
|                                 | Distillate Fuel         |            | 67,184    | 99,957  | 260          |            | 25,173  | 18,006           | (40,200)             |
|                                 | Residual Fuel           |            | 136,151   | 45,064  | 1,605        | 8,654      | 84,926  | 24,792           | 20,694               |
|                                 | Naphtha for Petrofeed   |            | 13,286    | 0       | 170          |            |         |                  | 13,116               |
|                                 | Petroleum Coke          |            | 689       | 94,336  | (1,114)      | 13,823     |         |                  | (106,356)            |
|                                 | Other Oil for Petrofeed |            | 40,343    | 0       | (518)        | 19,618     |         |                  | 21,243               |
|                                 | Special Naphthas        |            | 1,790     | 1,309   | 380          |            |         |                  | 101                  |
|                                 | Lubricants              |            | 2,496     | 6,782   | (1,487)      |            |         | 540              | (2,259)              |
|                                 | Waxes                   |            | 646       | 712     | 33           |            |         |                  | (99)                 |
|                                 | Asphalt/Road Oil        |            | 11,771    | 1,860   | 1,476        |            |         |                  | 8,435                |
|                                 | Still Gas               |            | 0         | 0       | 0            |            |         |                  | 0                    |
|                                 | Misc. Products          |            | 848       | 118     | 557          |            |         | 12,238           | 12,411               |

[1] Included in Unspecified Coal Totals

## Data Sources:

Solid and Gas Fuels - EIA Annual Energy Review 1999; Liquid Fuels - EIA Stephen Patterson in PSA 90-99 data.xls

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 2: Conversion Factors to Energy Units (Heat Equivalents)

| Fuel Category (Units)               | Fuel Type               | Production | Imports | Exports | Stock Change | Adjustment | Bunkers | U.S. Territories |
|-------------------------------------|-------------------------|------------|---------|---------|--------------|------------|---------|------------------|
| Solid Fuels (Million BTU/Short Ton) | Anthracite Coal         | 22.57      |         |         |              |            |         |                  |
|                                     | Bituminous Coal         | 23.89      |         |         |              |            |         |                  |
|                                     | Sub-bituminous Coal     | 17.14      |         |         |              |            |         |                  |
|                                     | Lignite                 | 12.87      |         |         |              |            |         |                  |
|                                     | Coke                    |            | 24.80   | 24.80   | 24.80        |            |         |                  |
|                                     | Unspecified             |            | 25.00   | 26.34   | 21.42        | 25.81      |         | 25.14            |
| Natural Gas (BTU/Cubic Foot)        |                         | 1,027      | 1,023   | 1,011   | 1,027        | 1,027      |         | 1,027.00         |
| Liquid Fuels (Million Btu/Barrel)   | Crude Oil               | 5.80       | 5.95    | 5.80    | 5.80         |            | 5.80    | 5.80             |
|                                     | Nat Gas Liquids and     | 3.77       | 3.77    | 3.77    | 3.77         |            | 3.77    | 3.77             |
|                                     | Other Liquids           | 5.83       | 5.83    | 5.83    | 5.83         |            | 5.83    | 5.83             |
|                                     | Motor Gasoline          | 5.25       | 5.25    | 5.25    | 5.25         | 5.25       | 5.25    | 5.25             |
|                                     | Aviation Gasoline       |            | 5.05    | 5.05    | 5.05         |            | 5.05    | 5.05             |
|                                     | Kerosene                |            | 5.67    | 5.67    | 5.67         |            | 5.67    | 5.67             |
|                                     | Jet Fuel                |            | 5.67    | 5.67    | 5.67         |            | 5.67    | 5.67             |
|                                     | Distillate Fuel         |            | 5.83    | 5.83    | 5.83         |            | 5.83    | 5.83             |
|                                     | Residual Oil            |            | 6.29    | 6.29    | 6.29         | 6.29       | 6.29    | 6.29             |
|                                     | Naphtha for Petrofeed   |            | 5.25    | 5.25    | 5.25         |            | 5.25    | 5.25             |
|                                     | Petroleum Coke          |            | 6.02    | 6.02    | 6.02         | 6.02       | 6.02    | 6.02             |
|                                     | Other Oil for Petrofeed |            | 5.83    | 5.83    | 5.83         | 5.83       | 5.83    | 5.83             |
|                                     | Special Naphthas        |            | 5.25    | 5.25    | 5.25         |            | 5.25    | 5.25             |
|                                     | Lubricants              |            | 6.07    | 6.07    | 6.07         |            | 6.07    | 6.07             |
|                                     | Waxes                   |            | 6.07    | 6.07    | 6.07         |            | 6.07    | 6.07             |
|                                     | Asphalt/Road Oil        |            | 6.64    | 6.64    | 6.64         |            | 6.64    | 6.64             |
|                                     | Still Gas               |            | 6.00    | 6.00    | 6.00         |            | 6.00    | 6.00             |
|                                     | Misc. Products          |            | 5.86    | 5.72    | 5.86         |            | 5.86    | 5.86             |

### Data Sources:

Coal and lignite production - EIA State Energy Data Report 1992

Unspecified Solid Fuels, Coke, Natural Gas and Petroleum Products - EIA Annual Energy Review 2003; Tables A1, A2, A4, A5.

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 3: 1993 Apparent Consumption of Fossil Fuels (Trillion Btu)

| Fuel Category | Fuel Type               | Production | Imports  | Exports | Stock<br>Change | Adjustment | Bunkers | U.S.<br>Territories | Apparent<br>Consumption |
|---------------|-------------------------|------------|----------|---------|-----------------|------------|---------|---------------------|-------------------------|
| Solid Fuels   | Anthracite Coal         | 97.6       |          |         |                 |            |         | 0.0                 | 97.6                    |
|               | Bituminous Coal         | 13,776.2   |          |         |                 |            |         | 0.0                 | 13,776.2                |
|               | Sub-bituminous Coal     | 4,711.8    |          |         |                 |            |         | 0.0                 | 4,711.8                 |
|               | Lignite                 | 1,152.1    |          |         |                 |            |         | 0.0                 | 1,152.1                 |
|               | Coke                    | 0.0        | 53.4     | 26.3    | (10.5)          |            |         | 0.0                 | 37.6                    |
|               | Unspecified             | 0.0        | 204.5    | 1,962.5 | (1,112.5)       | 830.7      |         | 10.8                | (1,465.3)               |
| Gas Fuels     | Natural Gas             | 19,117.9   | 2,404.2  | 141.7   | 36.7            | 352.8      |         | 0.0                 | 20,990.9                |
| Liquid Fuels  | Crude Oil               | 14,494.4   | 14,749.4 | 207.8   | 171.7           |            | 0.0     | 0.0                 | 28,864.3                |
|               | Nat Gas Liquids and LR  | 2,387.7    | 264.1    | 61.1    | 72.5            |            | 0.0     | 4.8                 | 2,523.1                 |
|               | Other Liquids           | 420.2      | 1,146.6  | 15.2    | (2.1)           |            | 0.0     | 0.0                 | 1,553.7                 |
|               | Motor Gasoline          | 106.7      | 474.0    | 200.6   | 49.8            | 144.1      | 0.0     | 128.3               | 314.4                   |
|               | Aviation Gasoline       | 0.0        | 0.4      | 0.0     | 1.3             |            | 0.0     | 0.0                 | (0.9)                   |
|               | Kerosene                | 0.0        | 1.7      | 7.3     | (9.4)           |            | 0.0     | 3.8                 | 7.7                     |
|               | Jet Fuel                | 0.0        | 206.9    | 123.0   | (15.2)          |            | 675.0   | 62.1                | (513.9)                 |
|               | Distillate Fuel         | 0.0        | 391.3    | 582.2   | 1.5             |            | 146.6   | 104.9               | (234.2)                 |
|               | Residual Oil            | 0.0        | 856.0    | 283.3   | 10.1            | 54.4       | 533.9   | 155.9               | 130.1                   |
|               | Naphtha for Petrofeed   | 0.0        | 69.7     | 0.0     | 0.9             |            | 0.0     | 0.0                 | 68.8                    |
|               | Petroleum Coke          | 0.0        | 4.2      | 568.3   | (6.7)           | 83.3       | 0.0     | 0.0                 | (640.7)                 |
|               | Other Oil for Petrofeed | 0.0        | 235.0    | 0.0     | (3.0)           | 114.3      | 0.0     | 0.0                 | 123.7                   |
|               | Special Naphthas        | 0.0        | 9.4      | 6.9     | 2.0             |            | 0.0     | 0.0                 | 0.5                     |
|               | Lubricants              | 0.0        | 15.1     | 41.1    | (9.0)           |            | 0.0     | 3.3                 | (13.7)                  |
|               | Waxes                   | 0.0        | 3.9      | 4.3     | 0.2             |            | 0.0     | 0.0                 | (0.6)                   |
|               | Asphalt/Road Oil        | 0.0        | 78.1     | 12.3    | 9.8             |            | 0.0     | 0.0                 | 56.0                    |
|               | Still Gas               | 0.0        | 0.0      | 0.0     | 0.0             |            | 0.0     | 0.0                 | 0.0                     |
|               | Misc. Products          | 0.0        | 5.0      | 0.7     | 3.3             |            | 0.0     | 71.8                | 72.8                    |
| TOTAL         |                         | 56,264.6   | 21,173.0 | 4,244.8 | (808.7)         | 1,579.6    | 1,355.5 | 545.6               | 71,612.0                |



## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 4: 1993 Potential Carbon Emissions

| Fuel Category | Fuel Type               | Apparent Consumption (QBTU) | Carbon Coefficients (Tg Carbon/QBTU) | Potential Carbon Emissions (Tg CO <sub>2</sub> Eq.) |
|---------------|-------------------------|-----------------------------|--------------------------------------|---|
| Solid Fuels   | Anthracite Coal         | 0.098                       | 28.26                                | 10.1  |
|               | Bituminous Coal         | 13.776                      | 25.45                                | 1,285.6   |
|               | Sub-bituminous Coal     | 4.712                       | 26.48                                | 457.5   |
|               | Lignite                 | 1.152                       | 26.21                                | 110.7   |
|               | Coke                    | 0.038                       | 31.00                                | 4.3   |
|               | Unspecified             | (1.465)                     | 25.69                                | (138.0)   |
| Gas Fuels     | Natural Gas             | 20.991                      | 14.47                                | 1,113.7   |
| Liquid Fuels  | Crude Oil               | 28.864                      | 20.22                                | 2,140.5   |
|               | Nat Gas Liquids and LR  | 2.523                       | 16.97                                | 157.0   |
|               | Other Liquids           | 1.554                       | 20.22                                | 115.2   |
|               | Motor Gasoline          | 0.314                       | 19.43                                | 22.4  |
|               | Aviation Gasoline       | (0.001)                     | 18.87                                | (0.1)   |
|               | Kerosene                | 0.008                       | 19.72                                | 0.6   |
|               | Jet Fuel                | (0.514)                     | 19.37                                | (36.5)  |
|               | Distillate Fuel         | (0.234)                     | 19.95                                | (17.1)  |
|               | Residual Oil            | 0.130                       | 21.49                                | 10.3  |
|               | Naphtha for Petrofeed   | 0.069                       | 18.14                                | 4.6   |
|               | Petroleum Coke          | (0.641)                     | 27.85                                | (65.4)  |
|               | Other Oil for Petrofeed | 0.124                       | 19.95                                | 9.1   |
|               | Special Naphthas        | 0.001                       | 19.86                                | 0.0   |
|               | Lubricants              | (0.014)                     | 20.24                                | (1.0)   |
|               | Waxes                   | (0.001)                     | 19.81                                | (0.0)   |
|               | Asphalt/Road Oil        | 0.056                       | 20.62                                | 4.2   |
|               | Still Gas               | 0.000                       | 17.51                                | 0.0   |
|               | Misc. Products          | 0.073                       | 20.22                                | 5.4   |
| TOTAL         |                         |                             |                                      | 5,192.8   |

### Data Sources:

Coal and Lignite - Revised 1996 IPCC Guidelines Reference Manual, Table 1-1

Unspecified Solid Fuels, Coke, Natural Gas and Liquid Fuels obtained from param01.xls

Note these fuels have carbon contents that vary annually: Coke, Unspecified, Crude Oil,

Nat Gas Liquids and LRGs, Other Liquids, Motor Gasoline, Jet Fuel, and Misc. Products

Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 5: 1993 Carbon Stored in Products

| Fuel Type                        | Consumption for<br>Non-Energy Use<br>(Trillion BTU) | Carbon Coefficients<br>(Tg Carbon/QBTU) | Carbon<br>Content (Tg<br>Carbon) | Fraction<br>Sequestered | Carbon<br>Stored (Tg<br>CO <sub>2</sub> Eq.) |
|----------------------------------|---|---|----------------------------------|-------------------------|--|
| Industrial Coking Coal           | 29.0  | 31.00                                   | 0.9                              | 0.75                    | 2.47   |
| Natural Gas                      | 239.0   | 14.47                                   | 3.5                              | 0.61                    | 7.79   |
| Asphalt & Road Oil               | 1,149.0   | 20.62                                   | 23.7                             | 1.00                    | 86.87  |
| LPG                              | 1,139.9   | 16.80                                   | 19.2                             | 0.61                    | 43.13  |
| Lubricants                       | 339.8   | 20.24                                   | 6.9                              | 0.09                    | 2.33   |
| Pentanes Plus                    | 236.2   | 18.24                                   | 4.3                              | 0.61                    | 9.70   |
| Petro. Feedstocks                | [1]   | [1]                                     | [1]                              | [1]                     | 41.73  |
| Petroleum Coke                   | 40.4  | 27.85                                   | 1.1                              | 0.50                    | 2.06   |
| Special Naphtha                  | 90.7  | 19.86                                   | 1.8                              | 0.61                    | 4.06   |
| Waxes/Misc.                      | [1]   | [1]                                     | [1]                              | [1]                     | 1.94   |
| Misc. U.S. Territories Petroleum | [1]   | [1]                                     | [1]                              | [1]                     | 0.52   |
| TOTAL                            |   |   |                                  |                         | 202.60                                       |

[1] Values for Misc. U.S. Territories Petroleum, Petrochemical Feedstocks and Waxes/Misc. are not shown because these categories are aggregates of numerous smaller components.

|                    |
|--------------------|
| Conversion         |
| CO <sub>2</sub> /C |
| 3.7                |

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 6: Reference Approach CO<sub>2</sub> Emissions from Fossil Fuel Consumption (Tg CO<sub>2</sub> Eq. unless otherwise noted)

| Fuel Category | Potential Carbon Emissions | Carbon Sequestered | Net Carbon Emissions | Fraction Oxidized (percent) | CO <sub>2</sub> Emissions |
|---------------|----------------------------|--------------------|----------------------|-----------------------------|---------------------------|
| Coal          | 1,730.1                    | 2.5                | 1,727.6              | 99.0%                       | <b>1,710.3</b>            |
| Petroleum     | 2,349.0                    | 192.3              | 2,156.7              | 99.0%                       | <b>2,135.1</b>            |
| Natural Gas   | 1,113.7                    | 7.8                | 1,105.9              | 99.5%                       | <b>1,100.4</b>            |
| <b>TOTAL</b>  | <b>5,192.8</b>             | <b>202.6</b>       | <b>4,990.2</b>       | <b>-</b>                    | <b>4,945.8</b>            |

Table 7: 1993 Fuel Consumption in the United States: Sectoral vs. Reference Approaches (Trillion BTU)

| Approach                          | Coal     | Natural Gas | Petroleum | TOTAL    |
|-----------------------------------|----------|-------------|-----------|----------|
| Sectoral <sup>a</sup>             | 18,914.4 | 20,978.1    | 32,623.3  | 72,515.8 |
| Reference (Apparent) <sup>a</sup> | 18,310.0 | 20,990.9    | 32,311.1  | 71,612.0 |
| Difference                        | -3.2%    | 0.1%        | -1.0%     | -1.2%    |

<sup>a</sup> Includes U.S. territories

Note: Totals may not sum due to independent rounding.

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 8: 1993 CO<sub>2</sub> Emissions from Fossil Fuel Combustion by  
Estimating Approach (Tg CO<sub>2</sub>)

| Approach               | Coal    | Natural Gas | Petroleum | TOTAL   |
|------------------------|---------|-------------|-----------|---------|
| Sectoral <sup>a</sup>  | 1,762.5 | 1,099.7     | 2,135.2   | 4,997.4 |
| Reference <sup>a</sup> | 1,710.3 | 1,100.4     | 2,135.1   | 4,945.8 |
| Difference             | -3.0%   | 0.1%        | 0.0%      | -1.0%   |

<sup>a</sup> Includes U.S. territories

Note: Totals may not sum due to independent rounding.

# Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

1994

Table 1: 1994 U.S. Energy Statistics (Physical Units)

| Fuel Category (Units)           | Fuel Type               | Production | Imports   | Exports | Stock Change | Adjustment | Bunkers | U.S. Territories | Apparent Consumption |
|---------------------------------|-------------------------|------------|-----------|---------|--------------|------------|---------|------------------|----------------------|
| Solid Fuels (1000 Short Tons)   | Anthracite Coal         | 4,646      | [1]       | [1]     | [1]          |            |         |                  | 4,646                |
|                                 | Bituminous Coal         | 640,260    | [1]       | [1]     | [1]          |            |         |                  | 640,260              |
|                                 | Sub-bituminous Coa      | 300,517    | [1]       | [1]     | [1]          |            |         |                  | 300,517              |
|                                 | Lignite                 | 88,081     | [1]       | [1]     | [1]          |            |         |                  | 88,081               |
|                                 | Coke                    |            | 3,338     | 986     | (525)        |            |         |                  | 2,877                |
|                                 | Unspecified Coal        |            | 8,870     | 71,359  | 23,617       | 32,625     |         | 449              | (118,282)            |
| Gas Fuels (Million Cubic Feet)  | Natural Gas             | 19,070,533 | 2,623,839 | 161,738 | 285,917      | 356,658    |         | 0                | 20,890,059           |
| Liquid Fuels (Thousand Barrels) | Crude Oil               | 2,431,476  | 2,578,072 | 36,020  | 6,450        |            |         |                  | 4,967,078            |
|                                 | Nat Gas Liquids         | 630,200    | 81,247    | 14,367  | (9,039)      |            |         | 1,894            | 708,013              |
|                                 | Other Liquids           | 45,986     | 172,545   | 5,753   | 7,223        |            |         |                  | 205,555              |
|                                 | Motor Gasoline          | 47,731     | 129,873   | 35,302  | (11,192)     | 30,765     |         | 28,177           | 150,906              |
|                                 | Aviation Gasoline       |            | 140       | 0       | 477          |            |         |                  | (337)                |
|                                 | Kerosene                |            | 978       | 314     | 3,937        |            |         | 530              | (2,743)              |
|                                 | Jet Fuel                |            | 42,721    | 7,379   | 6,416        |            | 120,496 | 11,601           | (79,969)             |
|                                 | Distillate Fuel         |            | 74,193    | 85,311  | 4,353        |            | 20,805  | 20,394           | (15,881)             |
|                                 | Residual Fuel           |            | 114,440   | 45,632  | (2,343)      | 8,042      | 83,422  | 26,098           | 5,785                |
|                                 | Petrofeed               |            | 16,703    | 0       | 389          |            |         |                  | 16,314               |
|                                 | Petroleum Coke          |            | 682       | 95,403  | 696          | 13,313     |         |                  | (108,730)            |
|                                 | Other Oil for Petrofeed |            |           |         |              |            |         |                  |                      |
|                                 | Petrofeed               |            | 51,045    | 0       | 34           | 23,321     |         |                  | 27,690               |
|                                 | Special Naphthas        |            | 3,003     | 7,273   | (355)        |            |         |                  | (3,915)              |
|                                 | Lubricants              |            | 3,633     | 8,045   | (317)        |            |         | 311              | (3,784)              |
|                                 | Waxes                   |            | 575       | 808     | 74           |            |         |                  | (307)                |
|                                 | Asphalt/Road Oil        |            | 13,532    | 2,181   | (611)        |            |         |                  | 11,962               |
|                                 | Still Gas               |            | 0         | 0       | 0            |            |         |                  | 0                    |
|                                 | Misc. Products          |            | 239       | 107     | (626)        |            |         | 9,137            | 9,895                |

[1] Included in Unspecified Coal Totals

## Data Sources:

Solid and Gas Fuels - EIA Annual Energy Review 1999; Liquid Fuels - EIA Stephen Patterson in PSA 90-99 data.xls

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 2: Conversion Factors to Energy Units (Heat Equivalents)

| Fuel Category (Units)               | Fuel Type               | Production | Imports | Exports | Stock Change | Adjustment | Bunkers | U.S. Territories |
|-------------------------------------|-------------------------|------------|---------|---------|--------------|------------|---------|------------------|
| Solid Fuels (Million BTU/Short Ton) | Anthracite Coal         | 22.57      |         |         |              |            |         |                  |
|                                     | Bituminous Coal         | 23.89      |         |         |              |            |         |                  |
|                                     | Sub-bituminous Coal     | 17.14      |         |         |              |            |         |                  |
|                                     | Lignite                 | 12.87      |         |         |              |            |         |                  |
|                                     | Coke                    |            | 24.80   | 24.80   | 24.80        |            |         |                  |
|                                     | Unspecified             |            | 25.00   | 26.33   | 21.39        | 25.83      |         | 25.14            |
| Natural Gas (BTU/Cubic Foot)        |                         | 1,028      | 1,023   | 1,011   | 1,028        | 1,028      |         | 1,028.00         |
| Liquid Fuels (Million Btu/Barrel)   | Crude Oil               | 5.80       | 5.95    | 5.80    | 5.80         |            | 5.80    | 5.80             |
|                                     | Nat Gas Liquids and     | 3.77       | 3.77    | 3.77    | 3.77         |            | 3.77    | 3.77             |
|                                     | Other Liquids           | 5.83       | 5.83    | 5.83    | 5.83         |            | 5.83    | 5.83             |
|                                     | Motor Gasoline          | 5.23       | 5.23    | 5.23    | 5.23         | 5.23       | 5.23    | 5.23             |
|                                     | Aviation Gasoline       |            | 5.05    | 5.05    | 5.05         |            | 5.05    | 5.05             |
|                                     | Kerosene                |            | 5.67    | 5.67    | 5.67         |            | 5.67    | 5.67             |
|                                     | Jet Fuel                |            | 5.67    | 5.67    | 5.67         |            | 5.67    | 5.67             |
|                                     | Distillate Fuel         |            | 5.83    | 5.83    | 5.83         |            | 5.83    | 5.83             |
|                                     | Residual Oil            |            | 6.29    | 6.29    | 6.29         | 6.29       | 6.29    | 6.29             |
|                                     | Naphtha for Petrofeed   |            | 5.25    | 5.25    | 5.25         |            | 5.25    | 5.25             |
|                                     | Petroleum Coke          |            | 6.02    | 6.02    | 6.02         | 6.02       | 6.02    | 6.02             |
|                                     | Other Oil for Petrofeed |            | 5.83    | 5.83    | 5.83         | 5.83       | 5.83    | 5.83             |
|                                     | Special Naphthas        |            | 5.25    | 5.25    | 5.25         |            | 5.25    | 5.25             |
|                                     | Lubricants              |            | 6.07    | 6.07    | 6.07         |            | 6.07    | 6.07             |
|                                     | Waxes                   |            | 6.07    | 6.07    | 6.07         |            | 6.07    | 6.07             |
|                                     | Asphalt/Road Oil        |            | 6.64    | 6.64    | 6.64         |            | 6.64    | 6.64             |
|                                     | Still Gas               |            | 6.00    | 6.00    | 6.00         |            | 6.00    | 6.00             |
|                                     | Misc. Products          |            | 5.86    | 5.72    | 5.86         |            | 5.86    | 5.86             |

### Data Sources:

Coal and lignite production - EIA State Energy Data Report 1992

Unspecified Solid Fuels, Coke, Natural Gas and Petroleum Products - EIA Annual Energy Review 2003; Tables A1, A2, A4, A5.

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 3: 1994 Apparent Consumption of Fossil Fuels (Trillion Btu)

| Fuel Category | Fuel Type               | Production | Imports  | Exports | Stock<br>Change | Adjustment | Bunkers | U.S.<br>Territories | Apparent<br>Consumption |
|---------------|-------------------------|------------|----------|---------|-----------------|------------|---------|---------------------|-------------------------|
| Solid Fuels   | Anthracite Coal         | 104.9      |          |         |                 |            |         | 0.0                 | 104.9                   |
|               | Bituminous Coal         | 15,295.8   |          |         |                 |            |         | 0.0                 | 15,295.8                |
|               | Sub-bituminous Coal     | 5,150.9    |          |         |                 |            |         | 0.0                 | 5,150.9                 |
|               | Lignite                 | 1,133.3    |          |         |                 |            |         | 0.0                 | 1,133.3                 |
|               | Coke                    | 0.0        | 82.8     | 24.5    | (13.0)          |            |         | 0.0                 | 71.3                    |
|               | Unspecified             | 0.0        | 221.7    | 1,878.8 | 505.3           | 842.8      |         | 11.3                | (2,993.8)               |
| Gas Fuels     | Natural Gas             | 19,604.5   | 2,684.2  | 163.5   | 293.9           | 366.6      |         | 0.0                 | 21,464.6                |
| Liquid Fuels  | Crude Oil               | 14,102.6   | 15,339.5 | 208.9   | 37.4            |            | 0.0     | 0.0                 | 29,195.8                |
|               | Nat Gas Liquids and LF  | 2,375.2    | 306.2    | 54.1    | (34.1)          |            | 0.0     | 7.1                 | 2,668.5                 |
|               | Other Liquids           | 267.9      | 1,005.1  | 33.5    | 42.1            |            | 0.0     | 0.0                 | 1,197.4                 |
|               | Motor Gasoline          | 249.6      | 679.2    | 184.6   | (58.5)          | 160.9      | 0.0     | 147.4               | 789.2                   |
|               | Aviation Gasoline       | 0.0        | 0.7      | 0.0     | 2.4             |            | 0.0     | 0.0                 | (1.7)                   |
|               | Kerosene                | 0.0        | 5.5      | 1.8     | 22.3            |            | 0.0     | 3.0                 | (15.6)                  |
|               | Jet Fuel                | 0.0        | 242.2    | 41.8    | 36.4            |            | 683.2   | 65.8                | (453.4)                 |
|               | Distillate Fuel         | 0.0        | 432.2    | 496.9   | 25.4            |            | 121.2   | 118.8               | (92.5)                  |
|               | Residual Oil            | 0.0        | 719.5    | 286.9   | (14.7)          | 50.6       | 524.5   | 164.1               | 36.4                    |
|               | Naphtha for Petrofeed   | 0.0        | 87.7     | 0.0     | 2.0             |            | 0.0     | 0.0                 | 85.6                    |
|               | Petroleum Coke          | 0.0        | 4.1      | 574.7   | 4.2             | 80.2       | 0.0     | 0.0                 | (655.0)                 |
|               | Other Oil for Petrofeed | 0.0        | 297.3    | 0.0     | 0.2             | 135.8      | 0.0     | 0.0                 | 161.3                   |
|               | Special Naphthas        | 0.0        | 15.8     | 38.2    | (1.9)           |            | 0.0     | 0.0                 | (20.5)                  |
|               | Lubricants              | 0.0        | 22.0     | 48.8    | (1.9)           |            | 0.0     | 1.9                 | (22.9)                  |
|               | Waxes                   | 0.0        | 3.5      | 4.9     | 0.4             |            | 0.0     | 0.0                 | (1.9)                   |
|               | Asphalt/Road Oil        | 0.0        | 89.8     | 14.5    | (4.1)           |            | 0.0     | 0.0                 | 79.4                    |
|               | Still Gas               | 0.0        | 0.0      | 0.0     | 0.0             |            | 0.0     | 0.0                 | 0.0                     |
|               | Misc. Products          | 0.0        | 1.4      | 0.6     | (3.7)           |            | 0.0     | 53.6                | 58.0                    |
| TOTAL         |                         | 58,284.6   | 22,240.5 | 4,057.1 | 840.1           | 1,636.9    | 1,328.9 | 572.9               | 73,235.0                |

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 4: 1994 Potential Carbon Emissions

| Fuel Category | Fuel Type               | Apparent<br>Consumption<br>(QBTU) | Carbon Coefficients<br>(Tg Carbon/QBTU) | Potential Carbon<br>Emissions (Tg CO <sub>2</sub><br>Eq.) |
|---------------|-------------------------|-----------------------------------|---|---|
| Solid Fuels   | Anthracite Coal         | 0.105                             | 28.26                                   | <b>10.9</b>   |
|               | Bituminous Coal         | 15.296                            | 25.46                                   | <b>1,427.9</b>  |
|               | Sub-bituminous Coal     | 5.151                             | 26.49                                   | <b>500.3</b>  |
|               | Lignite                 | 1.133                             | 26.24                                   | <b>109.0</b>  |
|               | Coke                    | 0.071                             | 31.00                                   | <b>8.1</b>  |
|               | Unspecified             | (2.994)                           | 25.71                                   | <b>(282.2)</b>  |
| Gas Fuels     | Natural Gas             | 21.465                            | 14.47                                   | <b>1,138.8</b>  |
| Liquid Fuels  | Crude Oil               | 29.196                            | 20.21                                   | <b>2,163.9</b>  |
|               | Nat Gas Liquids and LF  | 2.669                             | 17.01                                   | <b>166.5</b>  |
|               | Other Liquids           | 1.197                             | 20.21                                   | <b>88.7</b>   |
|               | Motor Gasoline          | 0.789                             | 19.45                                   | <b>56.3</b>   |
|               | Aviation Gasoline       | (0.002)                           | 18.87                                   | <b>(0.1)</b>  |
|               | Kerosene                | (0.016)                           | 19.72                                   | <b>(1.1)</b>  |
|               | Jet Fuel                | (0.453)                           | 19.35                                   | <b>(32.2)</b>   |
|               | Distillate Fuel         | (0.093)                           | 19.95                                   | <b>(6.8)</b>  |
|               | Residual Oil            | 0.036                             | 21.49                                   | <b>2.9</b>  |
|               | Naphtha for Petrofeed   | 0.086                             | 18.14                                   | <b>5.7</b>  |
|               | Petroleum Coke          | (0.655)                           | 27.85                                   | <b>(66.9)</b>   |
|               | Other Oil for Petrofeed | 0.161                             | 19.95                                   | <b>11.8</b>   |
|               | Special Naphthas        | (0.021)                           | 19.86                                   | <b>(1.5)</b>  |
|               | Lubricants              | (0.023)                           | 20.24                                   | <b>(1.7)</b>  |
|               | Waxes                   | (0.002)                           | 19.81                                   | <b>(0.1)</b>  |
|               | Asphalt/Road Oil        | 0.079                             | 20.62                                   | <b>6.0</b>  |
|               | Still Gas               | 0.000                             | 17.51                                   | <b>0.0</b>  |
|               | Misc. Products          | 0.058                             | 20.21                                   | <b>4.3</b>  |
| <b>TOTAL</b>  |                         |                                   |   | <b>5,308.5</b>  |

### Data Sources:

Coal and Lignite - Revised 1996 IPCC Guidelines Reference Manual, Table 1-1

Unspecified Solid Fuels, Coke, Natural Gas and Liquid Fuels obtained from param01.xls

Note these fuels have carbon contents that vary annually: Coke, Unspecified, Crude Oil, Nat Gas Liquids and LRGs, Other Liquids, Motor Gasoline, Jet Fuel, and Misc. Products



## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 5: 1994 Carbon Stored in Products

| Fuel Type                        | Consumption for<br>Non-Energy Use<br>(Trillion BTU) | Carbon Coefficients<br>(Tg Carbon/QBTU) | Carbon<br>Content (Tg<br>Carbon) | Fraction<br>Sequestered | Carbon<br>Stored (Tg<br>CO <sub>2</sub> Eq.) |
|----------------------------------|---|---|----------------------------------|-------------------------|--|
| Industrial Coking Coal           | 28.3  | 31.00                                   | 0.9                              | 0.75                    | 2.42   |
| Natural Gas                      | 302.4   | 14.47                                   | 4.4                              | 0.59                    | 9.54   |
| Asphalt & Road Oil               | 1,172.9   | 20.62                                   | 24.2                             | 1.00                    | 88.68  |
| LPG                              | 1,352.6   | 16.88                                   | 22.8                             | 0.59                    | 49.81  |
| Lubricants                       | 353.6   | 20.24                                   | 7.2                              | 0.09                    | 2.42   |
| Pentanes Plus                    | 228.1   | 18.24                                   | 4.2                              | 0.59                    | 9.07   |
| Petro. Feedstocks                | [1]   | [1]                                     | [1]                              | [1]                     | 42.10  |
| Petroleum Coke                   | 56.3  | 27.85                                   | 1.6                              | 0.50                    | 2.88   |
| Special Naphtha                  | 72.4  | 19.86                                   | 1.4                              | 0.59                    | 3.14   |
| Waxes/Misc.                      | [1]   | [1]                                     | [1]                              | [1]                     | 1.96   |
| Misc. U.S. Territories Petroleum | [1]   | [1]                                     | [1]                              | [1]                     | 0.39   |
| <b>TOTAL</b>                     |   |   |                                  |                         | <b>212.40</b>                                |

[1] Values for Misc. U.S. Territories Petroleum, Petrochemical Feedstocks and Waxes/Misc. are not shown because these categories are aggregates of numerous smaller components.

|                    |
|--------------------|
| Conversion         |
| CO <sub>2</sub> /C |
| 3.7                |

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 6: Reference Approach CO<sub>2</sub> Emissions from Fossil Fuel Consumption (Tg CO<sub>2</sub> Eq. unless otherwise noted)

| Fuel Category | Potential Carbon Emissions | Carbon Sequestered | Net Carbon Emissions | Fraction Oxidized (percent) | CO <sub>2</sub> Emissions |
|---------------|----------------------------|--------------------|----------------------|-----------------------------|---------------------------|
| Coal          | 1,774.0                    | 2.4                | 1,771.6              | 99.0%                       | <b>1,753.9</b>            |
| Petroleum     | 2,395.7                    | 200.4              | 2,195.2              | 99.0%                       | <b>2,173.3</b>            |
| Natural Gas   | 1,138.8                    | 9.5                | 1,129.3              | 99.5%                       | <b>1,123.7</b>            |
| <b>TOTAL</b>  | <b>5,308.5</b>             | <b>212.4</b>       | <b>5,096.1</b>       | <b>-</b>                    | <b>5,050.8</b>            |

Table 7: 1994 Fuel Consumption in the United States: Sectoral vs. Reference Approaches (Trillion BTU)

| Approach                          | Coal     | Natural Gas | Petroleum | TOTAL    |
|-----------------------------------|----------|-------------|-----------|----------|
| Sectoral <sup>a</sup>             | 19,000.4 | 21,452.7    | 33,472.4  | 73,925.5 |
| Reference (Apparent) <sup>a</sup> | 18,762.3 | 21,464.6    | 33,008.0  | 73,235.0 |
| Difference                        | -1.3%    | 0.1%        | -1.4%     | -0.9%    |

<sup>a</sup> Includes U.S. territories

Note: Totals may not sum due to independent rounding.

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 8: 1994 CO<sub>2</sub> Emissions from Fossil Fuel Combustion by  
Estimating Approach (Tg CO<sub>2</sub>)

| Approach               | Coal    | Natural Gas | Petroleum | TOTAL   |
|------------------------|---------|-------------|-----------|---------|
| Sectoral <sup>a</sup>  | 1,771.7 | 1,123.1     | 2,185.8   | 5,080.6 |
| Reference <sup>a</sup> | 1,753.9 | 1,123.7     | 2,173.3   | 5,050.8 |
| Difference             | -1.0%   | 0.1%        | -0.6%     | -0.6%   |

<sup>a</sup> Includes U.S. territories

Note: Totals may not sum due to independent rounding.

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

1995

Table 1: 1995 U.S. Energy Statistics (Physical Units)

| Fuel Category (Units)           | Fuel Type               | Production | Imports   | Exports | Stock Change | Adjustment | Bunkers | U.S. Territories | Apparent Consumption |
|---------------------------------|-------------------------|------------|-----------|---------|--------------|------------|---------|------------------|----------------------|
| Solid Fuels (1000 Short Tons)   | Anthracite Coal         | 4,711      | [1]       | [1]     | [1]          |            |         |                  | 4,711                |
|                                 | Bituminous Coal         | 613,765    | [1]       | [1]     | [1]          |            |         |                  | 613,765              |
|                                 | Sub-bituminous Coal     | 327,998    | [1]       | [1]     | [1]          |            |         |                  | 327,998              |
|                                 | Lignite                 | 86,500     | [1]       | [1]     | [1]          |            |         |                  | 86,500               |
|                                 | Coke                    |            | 3,820     | 1,358   | 366          |            |         |                  | 2,096                |
|                                 | Unspecified Coal        |            | 7,201     | 88,547  | (275)        | 33,399     |         | 457              | (114,012)            |
| Gas Fuels (Million Cubic Feet)  | Natural Gas             | 19,104,719 | 2,841,048 | 154,119 | (414,769)    | 348,034    |         | 0                | 21,858,383           |
| Liquid Fuels (Thousand Barrels) | Crude Oil               | 2,394,268  | 2,638,810 | 34,509  | (33,947)     |            |         |                  | 5,032,516            |
|                                 | Nat Gas Liquids and     | 643,199    | 70,169    | 21,532  | (7,827)      |            |         | 1,363            | 701,026              |
|                                 | Other Liquids           | 63,586     | 161,670   | 4,866   | (8,552)      |            |         |                  | 228,942              |
|                                 | Motor Gasoline          | 47,288     | 96,712    | 38,130  | (14,582)     | 33,019     |         | 28,253           | 115,686              |
|                                 | Aviation Gasoline       |            | 61        | -       | 56           |            |         |                  | 5                    |
|                                 | Kerosene                |            | 422       | 686     | (807)        |            |         | 611              | 1,154                |
|                                 | Jet Fuel                |            | 38,579    | 9,371   | (6,797)      |            | 127,300 | 12,645           | (78,650)             |
|                                 | Distillate Fuel         |            | 70,601    | 66,923  | (15,006)     |            | 21,585  | 19,323           | 16,421               |
|                                 | Residual Fuel           |            | 68,133    | 49,486  | (4,663)      | 8,282      | 83,221  | 24,654           | (43,538)             |
|                                 | Naphtha for Petrofeed   |            | 8,858     | -       | 560          |            |         |                  | 8,298                |
|                                 | Petroleum Coke          |            | 1,475     | 101,099 | (2,799)      | 13,513     |         |                  | (110,338)            |
|                                 | Other Oil for Petrofeed |            | 48,879    | -       | 26           | 24,834     |         |                  | 24,019               |
|                                 | Special Naphthas        |            | 2,858     | 7,708   | (132)        |            |         |                  | (4,718)              |
|                                 | Lubricants              |            | 3,784     | 9,056   | 1,420        |            |         | 325              | (6,367)              |
|                                 | Waxes                   |            | 472       | 925     | (71)         |            |         |                  | (382)                |
|                                 | Asphalt/Road Oil        |            | 13,149    | 2,101   | 3,899        |            |         |                  | 7,149                |
|                                 | Still Gas               |            | -         | -       | -            |            |         |                  | 0                    |
|                                 | Misc. Products          |            | 121       | 85      | (711)        |            |         | 9,790            | 10,537               |

[1] Included in Unspecified Coal Totals

### Data Sources:

Solid and Gas Fuels - EIA Annual Energy Review 1999; Liquid Fuels - EIA Petroleum Supply Annual 1995, Table 2.

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 2: Conversion Factors to Energy Units (Heat Equivalents)

| Fuel Category (Units)               | Fuel Type               | Production | Imports | Exports | Stock<br>Change | Adjustment | Bunkers | U.S.<br>Territories |
|-------------------------------------|-------------------------|------------|---------|---------|-----------------|------------|---------|---------------------|
| Solid Fuels (Million BTU/Short Ton) | Anthracite Coal         | 22.57      |         |         |                 |            |         |                     |
|                                     | Bituminous Coal         | 23.89      |         |         |                 |            |         |                     |
|                                     | Sub-bituminous Coal     | 17.14      |         |         |                 |            |         |                     |
|                                     | Lignite                 | 12.87      |         |         |                 |            |         |                     |
|                                     | Coke                    |            | 24.80   | 24.80   | 24.80           |            |         |                     |
|                                     | Unspecified             |            | 25.00   | 26.18   | 21.33           | 25.85      |         | 25.14               |
| Natural Gas (BTU/Cubic Foot)        |                         | 1,026      | 1,022   | 1,011   | 1,026           | 1,026      |         | 1,026.00            |
| Liquid Fuels (Million Btu/Barrel)   | Crude Oil               | 5.80       | 5.94    | 5.80    | 5.80            |            | 5.80    | 5.80                |
|                                     | Nat Gas Liquids and     | 3.78       | 3.78    | 3.78    | 3.78            |            | 3.78    | 3.78                |
|                                     | Other Liquids           | 5.83       | 5.83    | 5.83    | 5.83            |            | 5.83    | 5.83                |
|                                     | Motor Gasoline          | 5.22       | 5.22    | 5.22    | 5.22            | 5.22       | 5.22    | 5.22                |
|                                     | Aviation Gasoline       |            | 5.05    | 5.05    | 5.05            |            | 5.05    | 5.05                |
|                                     | Kerosene                |            | 5.67    | 5.67    | 5.67            |            | 5.67    | 5.67                |
|                                     | Jet Fuel                |            | 5.67    | 5.67    | 5.67            |            | 5.67    | 5.67                |
|                                     | Distillate Fuel         |            | 5.83    | 5.83    | 5.83            |            | 5.83    | 5.83                |
|                                     | Residual Oil            |            | 6.29    | 6.29    | 6.29            | 6.29       | 6.29    | 6.29                |
|                                     | Naphtha for Petrofeed   |            | 5.25    | 5.25    | 5.25            |            | 5.25    | 5.25                |
|                                     | Petroleum Coke          |            | 6.02    | 6.02    | 6.02            | 6.02       | 6.02    | 6.02                |
|                                     | Other Oil for Petrofeed |            | 5.83    | 5.83    | 5.83            | 5.83       | 5.83    | 5.83                |
|                                     | Special Naphthas        |            | 5.25    | 5.25    | 5.25            |            | 5.25    | 5.25                |
|                                     | Lubricants              |            | 6.07    | 6.07    | 6.07            |            | 6.07    | 6.07                |
|                                     | Waxes                   |            | 5.54    | 5.54    | 5.54            |            | 5.54    | 5.54                |
|                                     | Asphalt/Road Oil        |            | 6.64    | 6.64    | 6.64            |            | 6.64    | 6.64                |
|                                     | Still Gas               |            | 6.00    | 6.00    | 6.00            |            | 6.00    | 6.00                |
|                                     | Misc. Products          |            | 5.80    | 5.80    | 5.80            |            | 5.80    | 5.80                |

### Data Sources:

Coal and lignite production - EIA State Energy Data Report 1992

Unspecified Solid Fuels, Coke, Natural Gas and Petroleum Products - EIA Annual Energy Review 2003; Tables A1, A2, A4, A5

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 3: 1995 Apparent Consumption of Fossil Fuels (Trillion Btu

| Fuel Category | Fuel Type               | Production | Imports  | Exports | Stock Change | Adjustment | Bunkers | U.S. Territories | Apparent Consumption |
|---------------|-------------------------|------------|----------|---------|--------------|------------|---------|------------------|----------------------|
| Solid Fuels   | Anthracite Coal         | 106.3      |          |         |              |            |         | -                | 106.3                |
|               | Bituminous Coal         | 14,662.8   |          |         |              |            |         | -                | 14,662.8             |
|               | Sub-bituminous Coal     | 5,621.9    |          |         |              |            |         | -                | 5,621.9              |
|               | Lignite                 | 1,112.9    |          |         |              |            |         | -                | 1,112.9              |
|               | Coke                    | -          | 94.7     | 33.7    | 9.1          |            |         | -                | 52.0                 |
|               | Unspecified             | -          | 180.0    | 2,318.2 | (5.9)        | 863.4      |         | 11.5             | (2,984.1)            |
| Gas Fuels     | Natural Gas             | 19,601.4   | 2,903.6  | 155.8   | (425.6)      | 357.1      |         | -                | 22,417.6             |
| Liquid Fuels  | Crude Oil               | 13,886.8   | 15,669.3 | 200.2   | (196.9)      |            | -       | -                | 29,552.7             |
|               | Nat Gas Liquids and LF  | 2,429.4    | 265.0    | 81.3    | (29.6)       |            | -       | 5.1              | 2,647.8              |
|               | Other Liquids           | 370.4      | 941.7    | 28.3    | (49.8)       |            | -       | -                | 1,333.6              |
|               | Motor Gasoline          | 246.6      | 504.4    | 198.8   | (76.0)       | 172.2      | -       | 147.3            | 603.3                |
|               | Aviation Gasoline       | -          | 0.3      | -       | 0.3          |            | -       | -                | 0.0                  |
|               | Kerosene                | -          | 2.4      | 3.9     | (4.6)        |            | -       | 3.5              | 6.5                  |
|               | Jet Fuel                | -          | 218.7    | 53.1    | (38.5)       |            | 721.8   | 71.7             | (445.9)              |
|               | Distillate Fuel         | -          | 411.3    | 389.8   | (87.4)       |            | 125.7   | 112.6            | 95.7                 |
|               | Residual Oil            | -          | 428.4    | 311.1   | (29.3)       | 52.1       | 523.2   | 155.0            | (273.7)              |
|               | Naphtha for Petrofeed   | -          | 46.5     | -       | 2.9          |            | -       | -                | 43.5                 |
|               | Petroleum Coke          | -          | 8.9      | 609.0   | (16.9)       | 81.4       | -       | -                | (664.7)              |
|               | Other Oil for Petrofeed | -          | 284.7    | -       | 0.2          | 144.7      | -       | -                | 139.9                |
|               | Special Naphthas        | -          | 15.0     | 40.5    | (0.7)        |            | -       | -                | (24.8)               |
|               | Lubricants              | -          | 22.9     | 54.9    | 8.6          |            | -       | 2.0              | (38.6)               |
|               | Waxes                   | -          | 2.6      | 5.1     | (0.4)        |            | -       | -                | (2.1)                |
|               | Asphalt/Road Oil        | -          | 87.3     | 13.9    | 25.9         |            | -       | -                | 47.4                 |
|               | Still Gas               | -          | -        | -       | -            |            | -       | -                | -                    |
|               | Misc. Products          | -          | 0.7      | 0.5     | (4.1)        |            | -       | 56.7             | 61.1                 |
| TOTAL         |                         | 58,038.5   | 22,088.3 | 4,498.3 | (918.7)      | 1,670.8    | 1,370.7 | 565.4            | 74,071.2             |

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 4: 1995 Potential Carbon Emissions

| Fuel Category | Fuel Type               | Apparent Consumption (QBTU) | Carbon Coefficients (Tg Carbon/QBTU) | Potential Carbon Emissions (Tg CO <sub>2</sub> Eq.) |
|---------------|-------------------------|-----------------------------|--------------------------------------|---|
| Solid Fuels   | Anthracite Coal         | 0.11                        | 28.26                                | 11.0  |
|               | Bituminous Coal         | 14.66                       | 25.47                                | 1,369.4   |
|               | Sub-bituminous Coal     | 5.62                        | 26.49                                | 546.1   |
|               | Lignite                 | 1.11                        | 26.22                                | 107.0   |
|               | Coke                    | 0.05                        | 31.00                                | 5.9   |
|               | Unspecified             | (2.98)                      | 25.72                                | (281.4)   |
| Gas Fuels     | Natural Gas             | 22.42                       | 14.47                                | 1,189.4   |
| Liquid Fuels  | Crude Oil               | 29.55                       | 20.23                                | 2,191.9   |
|               | Nat Gas Liquids and LF  | 2.65                        | 17.00                                | 165.0   |
|               | Other Liquids           | 1.33                        | 20.23                                | 98.9  |
|               | Motor Gasoline          | 0.60                        | 19.38                                | 42.9  |
|               | Aviation Gasoline       | 0.00                        | 18.87                                | 0.0   |
|               | Kerosene                | 0.01                        | 19.72                                | 0.5   |
|               | Jet Fuel                | (0.45)                      | 19.34                                | (31.6)  |
|               | Distillate Fuel         | 0.10                        | 19.95                                | 7.0   |
|               | Residual Oil            | (0.27)                      | 21.49                                | (21.6)  |
|               | Naphtha for Petrofeed   | 0.04                        | 18.14                                | 2.9   |
|               | Petroleum Coke          | (0.66)                      | 27.85                                | (67.9)  |
|               | Other Oil for Petrofeed | 0.14                        | 19.95                                | 10.2  |
|               | Special Naphthas        | (0.02)                      | 19.86                                | (1.8)   |
|               | Lubricants              | (0.04)                      | 20.24                                | (2.9)   |
|               | Waxes                   | (0.00)                      | 19.81                                | (0.2)   |
|               | Asphalt/Road Oil        | 0.05                        | 20.62                                | 3.6   |
|               | Still Gas               | 0.00                        | 17.51                                | 0.0   |
|               | Misc. Products          | 0.06                        | 20.23                                | 4.5   |
| TOTAL         |                         |                             |                                      | 5348.9  |

### Data Sources:

Coal and Lignite - Revised 1996 IPCC Guidelines Reference Manual, Table 1-1

Unspecified Solid Fuels, Coke, Natural Gas and Liquid Fuels obtained from param01.xls

Note these fuels have carbon contents that vary annually: Coke, Unspecified, Crude Oil

Nat Gas Liquids and LRGs, Other Liquids, Motor Gasoline, Jet Fuel, and Misc. Product:

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 5: 1995 Carbon Stored in Products

| Fuel Type                        | Consumption for<br>Non-Energy Use<br>(Trillion BTU) | Carbon Coefficients<br>(Tg Carbon/QBTU) | Carbon<br>Content (Tg<br>Carbon) | Fraction<br>Sequestered | Carbon<br>Stored (Tg<br>CO <sub>2</sub> Eq.) |
|----------------------------------|---|---|----------------------------------|-------------------------|--|
| Industrial Coking Coal           | 29.7  | 31.00                                   | 0.9                              | 0.75                    | 2.53   |
| Natural Gas                      | 305.3   | 14.47                                   | 4.4                              | 0.60                    | 9.78   |
| Asphalt & Road Oil               | 1,178.2   | 20.62                                   | 24.3                             | 1.00                    | 89.08  |
| LPG                              | 1,389.2   | 16.87                                   | 23.4                             | 0.60                    | 51.87  |
| Lubricants                       | 347.7   | 20.24                                   | 7.0                              | 0.09                    | 2.38   |
| Pentanes Plus                    | 268.4   | 18.24                                   | 4.9                              | 0.60                    | 10.84  |
| Petro. Feedstocks                | [1]   | [1]                                     | [1]                              | [1]                     | 40.65  |
| Petroleum Coke                   | 51.3  | 27.85                                   | 1.4                              | 0.50                    | 2.62   |
| Special Naphtha                  | 63.3  | 19.86                                   | 1.3                              | 0.60                    | 2.78   |
| Waxes/Misc.                      | [1]   | [1]                                     | [1]                              | [1]                     | 2.00   |
| Misc. U.S. Territories Petroleum | [1]   | [1]                                     | [1]                              | [1]                     | 0.42   |
| <b>TOTAL</b>                     |   |   |                                  |                         | <b>214.94</b>                                |

[1] Values for Misc. U.S. Territories Petroleum, Petrochemical Feedstocks and Waxes/Misc. are not shown because these categories are aggregates of numerous smaller components.

Conversion  
CO<sub>2</sub>/C  
3.7



## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 6: Reference Approach CO<sub>2</sub> Emissions from Fossil Fuel Consumption (Tg CC<sub>2</sub> Eq. unless otherwise noted)

| Fuel Category | Potential Carbon Emissions | Carbon Sequestered | Net Carbon Emissions | Fraction Oxidized (percent) | CO <sub>2</sub> Emissions |
|---------------|----------------------------|--------------------|----------------------|-----------------------------|---------------------------|
| Coal          | 1,757.9                    | 2.5                | 1755.4               | 99.0%                       | <b>1737.8</b>             |
| Petroleum     | 2,401.5                    | 202.6              | 2198.9               | 99.0%                       | <b>2176.9</b>             |
| Natural Gas   | 1,189.4                    | 9.8                | 1179.6               | 99.5%                       | <b>1173.7</b>             |
| <b>TOTAL</b>  | <b>5,348.9</b>             | <b>214.9</b>       | <b>5133.9</b>        | <b>-</b>                    | <b>5088.5</b>             |

Table 7: 1995 Fuel Consumption in the United States: Sectoral vs. Reference Approaches (Trillion BTU)

| Approach                          | Coal     | Natural Gas | Petroleum | TOTAL    |
|-----------------------------------|----------|-------------|-----------|----------|
| Sectoral <sup>a</sup>             | 19,156.1 | 22,401.1    | 33,280.6  | 74,837.8 |
| Reference (Apparent) <sup>a</sup> | 18,571.8 | 22,417.6    | 33,081.8  | 74,071.2 |
| Difference                        | -3.0%    | 0.1%        | -0.6%     | -1.0%    |

<sup>a</sup> Includes U.S. territories

Note: Totals may not sum due to independent rounding

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 8: 1995 CO<sub>2</sub> Emissions from Fossil Fuel Combustion by  
Estimating Approach (Tg CO<sub>2</sub>)

| Approach               | Coal    | Natural Gas | Petroleum | TOTAL   |
|------------------------|---------|-------------|-----------|---------|
| Sectoral <sup>a</sup>  | 1,787.9 | 1,172.9     | 2,163.5   | 5,124.3 |
| Reference <sup>a</sup> | 1,737.8 | 1,173.7     | 2,176.9   | 5,088.5 |
| Difference             | -2.8%   | 0.1%        | 0.6%      | -0.7%   |

<sup>a</sup> Includes U.S. territories

Note: Totals may not sum due to independent rounding

# Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

1996

Table 1: 1996 U.S. Energy Statistics (Physical Units)

| Fuel Category (Units)           | Fuel Type               | Production | Imports   | Exports | Stock Change | Adjustment | Bunkers | U.S. Territories | Apparent Consumption |
|---------------------------------|-------------------------|------------|-----------|---------|--------------|------------|---------|------------------|----------------------|
| Solid Fuels (1000 Short Tons)   | Anthracite Coal         | 4,768      | [1]       | [1]     | [1]          |            |         |                  | 4,768                |
|                                 | Bituminous Coal         | 630,741    | [1]       | [1]     | [1]          |            |         |                  | 630,741              |
|                                 | Sub-bituminous Coal     | 340,291    | [1]       | [1]     | [1]          |            |         |                  | 340,291              |
|                                 | Lignite                 | 88,056     | [1]       | [1]     | [1]          |            |         |                  | 88,056               |
|                                 | Coke                    |            | 2,542     | 1,622   | 21           |            |         |                  | 899                  |
|                                 | Unspecified Coal        |            | 7,126     | 90,473  | (17,456)     | 31,692     |         | 463              | (97,120)             |
| Gas Fuels (Million Cubic Feet)  | Natural Gas             | 19,823,096 | 2,937,413 | 153,393 | (1,965)      | 358,433    |         | 0                | 22,250,648           |
| Liquid Fuels (Thousand Barrels) | Crude Oil               | 2,366,017  | 2,747,839 | 40,211  | (45,299)     |            |         |                  | 5,118,944            |
|                                 | Nat Gas Liquids and     | 669,820    | 77,286    | 19,459  | (7,620)      |            |         | 1,495            | 736,762              |
|                                 | Other Liquids           | 84,349     | 213,934   | 7,869   | (7)          |            |         |                  | 290,421              |
|                                 | Motor Gasoline          | 30,075     | 123,099   | 38,127  | (4,287)      | 23,733     |         | 29,540           | 125,140              |
|                                 | Aviation Gasoline       |            | 49        | -       | (72)         |            |         |                  | 121                  |
|                                 | Kerosene                |            | 452       | 793     | (178)        |            |         | 526              | 363                  |
|                                 | Jet Fuel                |            | 40,561    | 17,673  | (146)        |            | 130,945 | 12,874           | (95,036)             |
|                                 | Distillate Fuel         |            | 84,234    | 69,603  | (3,485)      |            | 19,594  | 16,328           | 14,850               |
|                                 | Residual Fuel           |            | 90,854    | 37,165  | 8,732        | 8,521      | 85,318  | 23,629           | (25,253)             |
|                                 | Naphtha for Petrofeed   |            | 20,231    | -       | (1,041)      |            |         |                  | 21,272               |
|                                 | Petroleum Coke          |            | 510       | 104,359 | 272          | 14,091     |         |                  | (118,212)            |
|                                 | Other Oil for Petrofeed |            | 52,030    | -       | (8)          | 25,983     |         |                  | 26,055               |
|                                 | Special Naphthas        |            | 3,457     | 7,598   | (139)        |            |         |                  | (4,002)              |
|                                 | Lubricants              |            | 4,185     | 12,506  | (291)        |            |         | 133              | (7,897)              |
|                                 | Waxes                   |            | 468       | 1,002   | 57           |            |         |                  | (591)                |
|                                 | Asphalt/Road Oil        |            | 9,833     | 2,448   | (1,997)      |            |         |                  | 9,382                |
|                                 | Still Gas               |            | -         | -       | -            |            |         |                  | 0                    |
|                                 | Misc. Products          |            | 106       | 84      | 73           |            |         | 13,535           | 13,484               |

[1] Included in Unspecified Coal Totals

## Data Sources:

Solid and Gas Fuels - EIA Annual Energy Review 1999; Liquid Fuels - EIA Petroleum Supply Annual 1996, Table 2.

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 2: Conversion Factors to Energy Units (Heat Equivalents)

| Fuel Category (Units)               | Fuel Type               | Production | Imports | Exports | Stock<br>Change | Adjustment | Bunkers | U.S.<br>Territories |
|-------------------------------------|-------------------------|------------|---------|---------|-----------------|------------|---------|---------------------|
| Solid Fuels (Million BTU/Short Ton) | Anthracite Coal         | 22.57      |         |         |                 |            |         |                     |
|                                     | Bituminous Coal         | 23.89      |         |         |                 |            |         |                     |
|                                     | Sub-bituminous Coal     | 17.14      |         |         |                 |            |         |                     |
|                                     | Lignite                 | 12.87      |         |         |                 |            |         |                     |
|                                     | Coke                    |            | 24.80   | 24.80   | 24.80           |            |         |                     |
|                                     | Unspecified             |            | 25.00   | 26.17   | 21.32           | 25.83      |         | 25.14               |
| Natural Gas (BTU/Cubic Foot)        |                         | 1,026      | 1,022   | 1,011   | 1,026           | 1,026      |         | 1,026.00            |
| Liquid Fuels (Million Btu/Barrel)   | Crude Oil               | 5.80       | 5.95    | 5.80    | 5.80            |            | 5.80    | 5.80                |
|                                     | Nat Gas Liquids and     | 3.78       | 3.78    | 3.78    | 3.78            |            | 3.78    | 3.78                |
|                                     | Other Liquids           | 5.83       | 5.83    | 5.83    | 5.83            |            | 5.83    | 5.83                |
|                                     | Motor Gasoline          | 5.22       | 5.22    | 5.22    | 5.22            | 5.22       | 5.22    | 5.22                |
|                                     | Aviation Gasoline       |            | 5.05    | 5.05    | 5.05            |            | 5.05    | 5.05                |
|                                     | Kerosene                |            | 5.67    | 5.67    | 5.67            |            | 5.67    | 5.67                |
|                                     | Jet Fuel                |            | 5.67    | 5.67    | 5.67            |            | 5.67    | 5.67                |
|                                     | Distillate Fuel         |            | 5.83    | 5.83    | 5.83            |            | 5.83    | 5.83                |
|                                     | Residual Oil            |            | 6.29    | 6.29    | 6.29            | 6.29       | 6.29    | 6.29                |
|                                     | Naphtha for Petrofeed   |            | 5.25    | 5.25    | 5.25            |            | 5.25    | 5.25                |
|                                     | Petroleum Coke          |            | 6.02    | 6.02    | 6.02            | 6.02       | 6.02    | 6.02                |
|                                     | Other Oil for Petrofeed |            | 5.83    | 5.83    | 5.83            | 5.83       | 5.83    | 5.83                |
|                                     | Special Naphthas        |            | 5.25    | 5.25    | 5.25            |            | 5.25    | 5.25                |
|                                     | Lubricants              |            | 6.07    | 6.07    | 6.07            |            | 6.07    | 6.07                |
|                                     | Waxes                   |            | 5.54    | 5.54    | 5.54            |            | 5.54    | 5.54                |
|                                     | Asphalt/Road Oil        |            | 6.64    | 6.64    | 6.64            |            | 6.64    | 6.64                |
|                                     | Still Gas               |            | 6.00    | 6.00    | 6.00            |            | 6.00    | 6.00                |
|                                     | Misc. Products          |            | 5.80    | 5.80    | 5.80            |            | 5.80    | 5.80                |

### Data Sources:

Coal and lignite production - EIA State Energy Data Report 1992

Unspecified Solid Fuels, Coke, Natural Gas and Petroleum Products - EIA Annual Energy Review 2003; Tables A1, A2, A4, A5

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 3: 1996 Apparent Consumption of Fossil Fuels (Trillion Btu)

| Fuel Category | Fuel Type               | Production | Imports  | Exports | Stock<br>Change | Adjustment | Bunkers | U.S.<br>Territories | Apparent<br>Consumption |
|---------------|-------------------------|------------|----------|---------|-----------------|------------|---------|---------------------|-------------------------|
| Solid Fuels   | Anthracite Coal         | 107.6      |          |         |                 |            |         | -                   | 107.6                   |
|               | Bituminous Coal         | 15,068.4   |          |         |                 |            |         | -                   | 15,068.4                |
|               | Sub-bituminous Coal     | 5,832.6    |          |         |                 |            |         | -                   | 5,832.6                 |
|               | Lignite                 | 1,132.9    |          |         |                 |            |         | -                   | 1,132.9                 |
|               | Coke                    | -          | 63.0     | 40.2    | 0.5             |            |         | -                   | 22.3                    |
| Gas Fuels     | Unspecified             | -          | 178.1    | 2,368.0 | (372.2)         | 818.5      |         | 11.6                | (2,624.5)               |
|               | Natural Gas             | 20,338.5   | 3,002.0  | 155.1   | (2.0)           | 367.8      |         | -                   | 22,819.7                |
| Liquid Fuels  | Crude Oil               | 13,722.9   | 16,341.4 | 233.2   | (262.7)         |            | -       | -                   | 30,093.8                |
|               | Nat Gas Liquids and LR  | 2,529.9    | 291.9    | 73.5    | (28.8)          |            | -       | 5.6                 | 2,782.7                 |
|               | Other Liquids           | 491.3      | 1,246.2  | 45.8    | (0.0)           |            | -       | -                   | 1,691.7                 |
|               | Motor Gasoline          | 156.9      | 642.1    | 198.9   | (22.4)          | 123.8      | -       | 154.1               | 652.7                   |
|               | Aviation Gasoline       | -          | 0.2      | -       | (0.4)           |            | -       | -                   | 0.6                     |
|               | Kerosene                | -          | 2.6      | 4.5     | (1.0)           |            | -       | 3.0                 | 2.1                     |
|               | Jet Fuel                | -          | 230.0    | 100.2   | (0.8)           |            | 742.5   | 73.0                | (538.9)                 |
|               | Distillate Fuel         | -          | 490.7    | 405.4   | (20.3)          |            | 114.1   | 95.1                | 86.5                    |
|               | Residual Oil            | -          | 571.2    | 233.7   | 54.9            | 53.6       | 536.4   | 148.6               | (158.8)                 |
|               | Naphtha for Petrofeed   | -          | 106.2    | -       | (5.5)           |            | -       | -                   | 111.6                   |
|               | Petroleum Coke          | -          | 3.1      | 628.7   | 1.6             | 84.9       | -       | -                   | (712.1)                 |
|               | Other Oil for Petrofeed | -          | 303.1    | -       | (0.0)           | 151.4      | -       | -                   | 151.8                   |
|               | Special Naphthas        | -          | 18.1     | 39.9    | (0.7)           |            | -       | -                   | (21.0)                  |
|               | Lubricants              | -          | 25.4     | 75.8    | (1.8)           |            | -       | 0.8                 | (47.9)                  |
|               | Waxes                   | -          | 2.6      | 5.5     | 0.3             |            | -       | -                   | (3.3)                   |
|               | Asphalt/Road Oil        | -          | 65.3     | 16.2    | (13.3)          |            | -       | -                   | 62.3                    |
|               | Still Gas               | -          | -        | -       | -               |            | -       | -                   | -                       |
|               | Misc. Products          | -          | 0.6      | 0.5     | 0.4             |            | -       | 78.4                | 78.2                    |
| TOTAL         |                         | 59,381.0   | 23,583.7 | 4,625.2 | (674.1)         | 1,599.8    | 1,393.0 | 570.3               | 76,591.1                |

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 4: 1996 Potential Carbon Emissions

| Fuel Category | Fuel Type               | Apparent Consumption (QBTU) | Carbon Coefficients (Tg Carbon/QBTU) | Potential Carbon Emissions (Tg CO <sub>2</sub> Eq.) |
|---------------|-------------------------|-----------------------------|--------------------------------------|---|
| Solid Fuels   | Anthracite Coal         | 0.11                        | 28.26                                | 11.2  |
|               | Bituminous Coal         | 15.07                       | 25.47                                | 1,407.2   |
|               | Sub-bituminous Coal     | 5.83                        | 26.49                                | 566.5   |
|               | Lignite                 | 1.13                        | 26.17                                | 108.7   |
|               | Coke                    | 0.02                        | 31.00                                | 2.5   |
|               | Unspecified             | (2.62)                      | 25.73                                | (247.6)   |
| Gas Fuels     | Natural Gas             | 22.82                       | 14.47                                | 1,210.7   |
| Liquid Fuels  | Crude Oil               | 30.09                       | 20.25                                | 2,234.2   |
|               | Nat Gas Liquids and LR  | 2.78                        | 16.99                                | 173.3   |
|               | Other Liquids           | 1.69                        | 20.25                                | 125.6   |
|               | Motor Gasoline          | 0.65                        | 19.36                                | 46.3  |
|               | Aviation Gasoline       | 0.00                        | 18.87                                | 0.0   |
|               | Kerosene                | 0.00                        | 19.72                                | 0.1   |
|               | Jet Fuel                | (0.54)                      | 19.33                                | (38.2)  |
|               | Distillate Fuel         | 0.09                        | 19.95                                | 6.3   |
|               | Residual Oil            | (0.16)                      | 21.49                                | (12.5)  |
|               | Naphtha for Petrofeed   | 0.11                        | 18.14                                | 7.4   |
|               | Petroleum Coke          | (0.71)                      | 27.85                                | (72.7)  |
|               | Other Oil for Petrofeed | 0.15                        | 19.95                                | 11.1  |
|               | Special Naphthas        | (0.02)                      | 19.86                                | (1.5)   |
|               | Lubricants              | (0.05)                      | 20.24                                | (3.6)   |
|               | Waxes                   | (0.00)                      | 19.81                                | (0.2)   |
|               | Asphalt/Road Oil        | 0.06                        | 20.62                                | 4.7   |
|               | Still Gas               | 0.00                        | 17.51                                | 0.0   |
|               | Misc. Products          | 0.08                        | 20.25                                | 5.8   |
| TOTAL         |                         |                             |                                      | 5545.6  |

### Data Sources:

Coal and Lignite - Revised 1996 IPCC Guidelines Reference Manual, Table 1-1

Unspecified Solid Fuels, Coke, Natural Gas and Liquid Fuels obtained from param01.xls

Note these fuels have carbon contents that vary annually: Coke, Unspecified, Crude Oil

Nat Gas Liquids and LRGs, Other Liquids, Motor Gasoline, Jet Fuel, and Misc. Product

Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 5: 1996 Carbon Stored in Products

| Fuel Type                        | Consumption for<br>Non-Energy Use<br>(Trillion BTU) | Carbon Coefficients<br>(Tg Carbon/QBTU) | Carbon<br>Content (Tg<br>Carbon) | Fraction<br>Sequestered | Carbon<br>Stored (Tg<br>CO <sub>2</sub> Eq.) |
|----------------------------------|---|---|----------------------------------|-------------------------|--|
| Industrial Coking Coal           | 28.8  | 31.00                                   | 0.9                              | 0.75                    | 2.46   |
| Natural Gas                      | 310.1   | 14.47                                   | 4.5                              | 0.62                    | 10.28  |
| Asphalt & Road Oil               | 1,175.9   | 20.62                                   | 24.2                             | 1.00                    | 88.91  |
| LPG                              | 1,455.9   | 16.86                                   | 24.5                             | 0.62                    | 56.23  |
| Lubricants                       | 336.3   | 20.24                                   | 6.8                              | 0.09                    | 2.31   |
| Pentanes Plus                    | 281.7   | 18.24                                   | 5.1                              | 0.62                    | 11.78  |
| Petro. Feedstocks                | [1]   | [1]                                     | [1]                              | [1]                     | 41.44  |
| Petroleum Coke                   | 63.4  | 27.85                                   | 1.8                              | 0.50                    | 3.24   |
| Special Naphtha                  | 67.0  | 19.86                                   | 1.3                              | 0.62                    | 3.05   |
| Waxes/Misc.                      | [1]   | [1]                                     | [1]                              | [1]                     | 2.39   |
| Misc. U.S. Territories Petroleum | [1]   | [1]                                     | [1]                              | [1]                     | 0.58   |
| TOTAL                            |   |   |                                  |                         | 222.65                                       |

[1] Values for Misc. U.S. Territories Petroleum, Petrochemical Feedstocks and Waxes/Misc. are not shown because these categories are aggregates of numerous smaller components.

|                    |
|--------------------|
| Conversion         |
| CO <sub>2</sub> /C |
| 3.7                |

Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 6: Reference Approach CO<sub>2</sub> Emissions from Fossil Fuel Consumption (Tg CO<sub>2</sub> Eq. unless otherwise noted)

| Fuel Category | Potential Carbon Emissions | Carbon Sequestered | Net Carbon Emissions | Fraction Oxidized (percent) | CO <sub>2</sub> Emissions |
|---------------|----------------------------|--------------------|----------------------|-----------------------------|---------------------------|
| Coal          | 1,848.5                    | 2.5                | 1846.1               | 99.0%                       | 1827.6                    |
| Petroleum     | 2,486.3                    | 209.9              | 2276.4               | 99.0%                       | 2253.6                    |
| Natural Gas   | 1,210.7                    | 10.3               | 1200.5               | 99.5%                       | 1194.5                    |
| TOTAL         | 5,545.6                    | 222.6              | 5322.9               | -                           | 5275.7                    |

Table 7: 1996 Fuel Consumption in the United States: Sectoral vs. Reference Approaches (Trillion BTU)

| Approach                          | Coal     | Natural Gas | Petroleum | TOTAL    |
|-----------------------------------|----------|-------------|-----------|----------|
| Sectoral <sup>a</sup>             | 20,077.3 | 22,802.8    | 34,503.0  | 77,383.1 |
| Reference (Apparent) <sup>a</sup> | 19,539.3 | 22,819.7    | 34,232.1  | 76,591.1 |
| Difference                        | -2.7%    | 0.1%        | -0.8%     | -1.0%    |

<sup>a</sup> Includes U.S. territories

Note: Totals may not sum due to independent rounding



## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 8: 1996 CO<sub>2</sub> Emissions from Fossil Fuel Combustion by  
Estimating Approach (Tg CO<sub>2</sub>)

| Approach              | Coal    | Natural Gas | Petroleum | TOTAL   |
|-----------------------|---------|-------------|-----------|---------|
| Sectoral <sup>a</sup> | 1,873.9 | 1,193.6     | 2,241.1   | 5,308.6 |
| Reference             | 1,827.6 | 1,194.5     | 2,253.6   | 5,275.7 |
| Difference            | -2.5%   | 0.1%        | 0.6%      | -0.6%   |

<sup>a</sup> Includes U.S. territories

Note: Totals may not sum due to independent rounding

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

1997

Table 1: 1997 U.S. Energy Statistics (Physical Units)

| Fuel Category (Units)           | Fuel Type               | Production | Imports   | Exports | Stock Change | Adjustment | Bunkers | U.S. Territories | Apparent Consumption |
|---------------------------------|-------------------------|------------|-----------|---------|--------------|------------|---------|------------------|----------------------|
| Solid Fuels (1000 Short Tons)   | Anthracite Coal         | 4,692      | [1]       | [1]     | [1]          |            |         |                  | 4,692                |
|                                 | Bituminous Coal         | 653,828    | [1]       | [1]     | [1]          |            |         |                  | 653,828              |
|                                 | Sub-bituminous Coal     | 345,071    | [1]       | [1]     | [1]          |            |         |                  | 345,071              |
|                                 | Lignite                 | 86,341     | [1]       | [1]     | [1]          |            |         |                  | 86,341               |
|                                 | Coke                    |            | 3,139     | 1,266   | (29)         |            |         |                  | 1,902                |
|                                 | Unspecified Coal        |            | 7,487     | 83,545  | (11,253)     | 30,582     |         | 468              | (94,919)             |
| Gas Fuels (Million Cubic Feet)  | Natural Gas             | 19,876,574 | 2,994,173 | 157,006 | (23,603)     | 357,793    |         | 0                | 22,379,551           |
| Liquid Fuels (Thousand Barrels) | Crude Oil               | 2,354,831  | 3,002,299 | 39,308  | 18,450       |            |         |                  | 5,299,372            |
|                                 | Nat Gas Liquids and     | 663,266    | 74,831    | 20,882  | 2,617        |            |         | 1,419            | 716,017              |
|                                 | Other Liquids           | 78,471     | 224,060   | 9,265   | 5,576        |            |         |                  | 287,690              |
|                                 | Motor Gasoline          | 46,505     | 112,837   | 49,878  | 9,367        | 30,284     |         | 31,184           | 100,997              |
|                                 | Aviation Gasoline       |            | 41        | 0       | (575)        |            |         |                  | 616                  |
|                                 | Kerosene                |            | 570       | 138     | 273          |            |         | 697              | 856                  |
|                                 | Jet Fuel                |            | 33,109    | 12,763  | 4,178        |            | 140,297 | 13,497           | (110,632)            |
|                                 | Distillate Fuel         |            | 83,102    | 55,507  | 11,698       |            | 21,546  | 15,945           | 10,296               |
|                                 | Residual Fuel           |            | 70,829    | 43,782  | (5,458)      | 8,761      | 91,491  | 22,896           | (44,850)             |
|                                 | Naphtha for Petrofeed   |            | 18,681    | 0       | 35           |            |         |                  | 18,646               |
|                                 | Petroleum Coke          |            | 386       | 111,615 | 2,757        | 14,590     |         |                  | (128,576)            |
|                                 | Other Oil for Petrofeed |            | 69,086    | 0       | 772          | 26,157     |         |                  | 42,157               |
|                                 | Special Naphthas        |            | 2,709     | 7,849   | 281          |            |         |                  | (5,421)              |
|                                 | Lubricants              |            | 4,026     | 11,275  | 215          |            |         | 407              | (7,057)              |
|                                 | Waxes                   |            | 441       | 993     | (80)         |            |         |                  | (472)                |
|                                 | Asphalt/Road Oil        |            | 11,862    | 2,879   | 1,619        |            |         |                  | 7,364                |
|                                 | Still Gas               |            | 0         | 0       | 0            |            |         |                  | 0                    |
|                                 | Misc. Products          |            | 101       | 125     | 618          |            |         | 15,523           | 14,881               |

[1] Included in Unspecified Coal Totals

### Data Sources:

Solid and Gas Fuels - EIA Annual Energy Review 1999; Liquid Fuels - EIA Petroleum Supply Annual 1997, Table 2.

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 2: Conversion Factors to Energy Units (Heat Equivalents)

| Fuel Category (Units)               | Fuel Type               | Production | Imports | Exports | Stock<br>Change | Adjustment | Bunkers | U.S.<br>Territories |
|-------------------------------------|-------------------------|------------|---------|---------|-----------------|------------|---------|---------------------|
| Solid Fuels (Million BTU/Short Ton) | Anthracite Coal         | 22.57      |         |         |                 |            |         |                     |
|                                     | Bituminous Coal         | 23.89      |         |         |                 |            |         |                     |
|                                     | Sub-bituminous Coal     | 17.14      |         |         |                 |            |         |                     |
|                                     | Lignite                 | 12.87      |         |         |                 |            |         |                     |
|                                     | Coke                    |            | 24.80   | 24.80   | 24.80           |            |         |                     |
|                                     | Unspecified             |            | 25.00   | 26.25   | 21.30           | 25.84      |         | 25.14               |
| Natural Gas (BTU/Cubic Foot)        |                         | 1,026      | 1,023   | 1,011   | 1,026           | 1,026      |         | 1,026.00            |
| Liquid Fuels (Million Btu/Barrel)   | Crude Oil               | 5.80       | 5.95    | 5.80    | 5.80            |            | 5.80    | 5.80                |
|                                     | Nat Gas Liquids and     | 3.76       | 3.76    | 3.76    | 3.76            |            | 3.76    | 3.76                |
|                                     | Other Liquids           | 5.83       | 5.83    | 5.83    | 5.83            |            | 5.83    | 5.83                |
|                                     | Motor Gasoline          | 5.21       | 5.21    | 5.21    | 5.21            | 5.21       | 5.21    | 5.21                |
|                                     | Aviation Gasoline       |            | 5.05    | 5.05    | 5.05            |            | 5.05    | 5.05                |
|                                     | Kerosene                |            | 5.67    | 5.67    | 5.67            |            | 5.67    | 5.67                |
|                                     | Jet Fuel                |            | 5.67    | 5.67    | 5.67            |            | 5.67    | 5.67                |
|                                     | Distillate Fuel         |            | 5.83    | 5.83    | 5.83            |            | 5.83    | 5.83                |
|                                     | Residual Oil            |            | 6.29    | 6.29    | 6.29            | 6.29       | 6.29    | 6.29                |
|                                     | Naphtha for Petrofeed   |            | 5.25    | 5.25    | 5.25            |            | 5.25    | 5.25                |
|                                     | Petroleum Coke          |            | 6.02    | 6.02    | 6.02            | 6.02       | 6.02    | 6.02                |
|                                     | Other Oil for Petrofeed |            | 5.83    | 5.83    | 5.83            | 5.83       | 5.83    | 5.83                |
|                                     | Special Naphthas        |            | 5.25    | 5.25    | 5.25            |            | 5.25    | 5.25                |
|                                     | Lubricants              |            | 6.07    | 6.07    | 6.07            |            | 6.07    | 6.07                |
|                                     | Waxes                   |            | 5.54    | 5.54    | 5.54            |            | 5.54    | 5.54                |
|                                     | Asphalt/Road Oil        |            | 6.64    | 6.64    | 6.64            |            | 6.64    | 6.64                |
|                                     | Still Gas               |            | 6.00    | 6.00    | 6.00            |            | 6.00    | 6.00                |
|                                     | Misc. Products          |            | 5.80    | 5.80    | 5.80            |            | 5.80    | 5.80                |

### Data Sources:

Coal and lignite production - EIA State Energy Data Report 1992

Unspecified Solid Fuels, Coke, Natural Gas and Petroleum Products - EIA Annual Energy Review 2003; Tables A1, A2, A4, A5.

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 3: 1997 Apparent Consumption of Fossil Fuels (Trillion Btu)

| Fuel Category | Fuel Type               | Production      | Imports         | Exports        | Stock<br>Change | Adjustment     | Bunkers        | U.S.<br>Territories | Apparent<br>Consumption |
|---------------|-------------------------|-----------------|-----------------|----------------|-----------------|----------------|----------------|---------------------|-------------------------|
| Solid Fuels   | Anthracite Coal         | 105.9           |                 |                |                 |                |                | 0.0                 | <b>105.9</b>            |
|               | Bituminous Coal         | 15,619.9        |                 |                |                 |                |                | 0.0                 | <b>15,619.9</b>         |
|               | Sub-bituminous Coal     | 5,914.5         |                 |                |                 |                |                | 0.0                 | <b>5,914.5</b>          |
|               | Lignite                 | 1,110.9         |                 |                |                 |                |                | 0.0                 | <b>1,110.9</b>          |
|               | Coke                    | 0.0             | 77.8            | 31.4           | (0.7)           |                |                | 0.0                 | <b>47.2</b>             |
|               | Unspecified             | 0.0             | 187.2           | 2,193.1        | (239.6)         | 790.2          |                | 11.8                | <b>(2,544.8)</b>        |
| Gas Fuels     | Natural Gas             | 20,393.4        | 3,063.0         | 158.7          | (24.2)          | 367.1          |                | 0.0                 | <b>22,954.8</b>         |
| Liquid Fuels  | Crude Oil               | 13,658.0        | 17,875.7        | 228.0          | 107.0           |                | 0.0            | 0.0                 | <b>31,198.7</b>         |
|               | Nat Gas Liquids and LR  | 2,495.2         | 281.5           | 78.6           | 9.8             |                | 0.0            | 5.3                 | <b>2,693.7</b>          |
|               | Other Liquids           | 457.1           | 1,305.1         | 54.0           | 32.5            |                | 0.0            | 0.0                 | <b>1,675.8</b>          |
|               | Motor Gasoline          | 242.4           | 588.2           | 260.0          | 48.8            | 157.9          | 0.0            | 162.6               | <b>526.5</b>            |
|               | Aviation Gasoline       | 0.0             | 0.2             | 0.0            | (2.9)           |                | 0.0            | 0.0                 | <b>3.1</b>              |
|               | Kerosene                | 0.0             | 3.2             | 0.8            | 1.5             |                | 0.0            | 3.9                 | <b>4.9</b>              |
|               | Jet Fuel                | 0.0             | 187.7           | 72.4           | 23.7            |                | 795.5          | 76.5                | <b>(627.3)</b>          |
|               | Distillate Fuel         | 0.0             | 484.1           | 323.3          | 68.1            |                | 125.5          | 92.9                | <b>60.0</b>             |
|               | Residual Oil            | 0.0             | 445.3           | 275.3          | (34.3)          | 55.1           | 575.2          | 143.9               | <b>(282.0)</b>          |
|               | Naphtha for Petrofeed   | 0.0             | 98.0            | 0.0            | 0.2             |                | 0.0            | 0.0                 | <b>97.9</b>             |
|               | Petroleum Coke          | 0.0             | 2.3             | 672.4          | 16.6            | 87.9           | 0.0            | 0.0                 | <b>(774.5)</b>          |
|               | Other Oil for Petrofeed | 0.0             | 402.4           | 0.0            | 4.5             | 152.4          | 0.0            | 0.0                 | <b>245.6</b>            |
|               | Special Naphthas        | 0.0             | 14.2            | 41.2           | 1.5             |                | 0.0            | 0.0                 | <b>(28.4)</b>           |
|               | Lubricants              | 0.0             | 24.4            | 68.4           | 1.3             |                | 0.0            | 2.5                 | <b>(42.8)</b>           |
|               | Waxes                   | 0.0             | 2.4             | 5.5            | (0.4)           |                | 0.0            | 0.0                 | <b>(2.6)</b>            |
|               | Asphalt/Road Oil        | 0.0             | 78.7            | 19.1           | 10.7            |                | 0.0            | 0.0                 | <b>48.9</b>             |
|               | Still Gas               | 0.0             | 0.0             | 0.0            | 0.0             |                | 0.0            | 0.0                 | <b>0.0</b>              |
|               | Misc. Products          | 0.0             | 0.6             | 0.7            | 3.6             |                | 0.0            | 90.0                | <b>86.3</b>             |
| <b>TOTAL</b>  |                         | <b>59,997.4</b> | <b>25,122.3</b> | <b>4,482.8</b> | <b>27.7</b>     | <b>1,610.5</b> | <b>1,496.2</b> | <b>589.4</b>        | <b>78,091.9</b>         |

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 4: 1997 Potential Carbon Emissions

| Fuel Category | Fuel Type               | Apparent Consumption (QBTU) | Carbon Coefficients (Tg Carbon/QBTU) | Potential Carbon Emissions (Tg CO <sub>2</sub> Eq.) |
|---------------|-------------------------|-----------------------------|--------------------------------------|---|
| Solid Fuels   | Anthracite Coal         | 0.106                       | 28.26                                | 11.0  |
|               | Bituminous Coal         | 15.620                      | 25.48                                | 1,459.3   |
|               | Sub-bituminous Coal     | 5.915                       | 26.49                                | 574.5   |
|               | Lignite                 | 1.111                       | 26.20                                | 106.7   |
|               | Coke                    | 0.047                       | 31.00                                | 5.4   |
|               | Unspecified             | (2.545)                     | 25.73                                | (240.1)   |
| Gas Fuels     | Natural Gas             | 22.955                      | 14.47                                | 1,217.9   |
| Liquid Fuels  | Crude Oil               | 31.199                      | 20.24                                | 2,315.1   |
|               | Nat Gas Liquids and LR  | 2.694                       | 16.99                                | 167.8   |
|               | Other Liquids           | 1.676                       | 20.24                                | 124.4   |
|               | Motor Gasoline          | 0.526                       | 19.35                                | 37.4  |
|               | Aviation Gasoline       | 0.003                       | 18.87                                | 0.2   |
|               | Kerosene                | 0.005                       | 19.72                                | 0.4   |
|               | Jet Fuel                | (0.627)                     | 19.33                                | (44.5)  |
|               | Distillate Fuel         | 0.060                       | 19.95                                | 4.4   |
|               | Residual Oil            | (0.282)                     | 21.49                                | (22.2)  |
|               | Naphtha for Petrofeed   | 0.098                       | 18.14                                | 6.5   |
|               | Petroleum Coke          | (0.775)                     | 27.85                                | (79.1)  |
|               | Other Oil for Petrofeed | 0.246                       | 19.95                                | 18.0  |
|               | Special Naphthas        | (0.028)                     | 19.86                                | (2.1)   |
|               | Lubricants              | (0.043)                     | 20.24                                | (3.2)   |
|               | Waxes                   | (0.003)                     | 19.81                                | (0.2)   |
|               | Asphalt/Road Oil        | 0.049                       | 20.62                                | 3.7   |
|               | Still Gas               | 0.000                       | 17.51                                | 0.0   |
|               | Misc. Products          | 0.086                       | 20.24                                | 6.4   |
| TOTAL         |                         |                             |                                      | 5,667.6   |

### Data Sources:

Coal and Lignite - Revised 1996 IPCC Guidelines Reference Manual, Table 1-1

Unspecified Solid Fuels, Coke, Natural Gas and Liquid Fuels obtained from param01.xls

Note these fuels have carbon contents that vary annually: Coke, Unspecified, Crude Oil, Nat Gas Liquids and LRGs, Other Liquids, Motor Gasoline, Jet Fuel, and Misc. Products

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 5: 1997 Carbon Stored in Products

| Fuel Type                        | Consumption for<br>Non-Energy Use<br>(Trillion BTU) | Carbon Coefficients<br>(Tg Carbon/QBTU) | Carbon<br>Content (Tg<br>Carbon) | Fraction<br>Sequestered | Carbon<br>Stored (Tg<br>CO <sub>2</sub> Eq.) |
|----------------------------------|---|---|----------------------------------|-------------------------|--|
| Industrial Coking Coal           | 27.6  | 31.00                                   | 0.9                              | 0.75                    | 2.35   |
| Natural Gas                      | 323.7   | 14.47                                   | 4.7                              | 0.61                    | 10.56  |
| Asphalt & Road Oil               | 1,223.6   | 20.62                                   | 25.2                             | 1.00                    | 92.51  |
| LPG                              | 1,440.9   | 16.88                                   | 24.3                             | 0.61                    | 54.83  |
| Lubricants                       | 356.9   | 20.24                                   | 7.2                              | 0.09                    | 2.45   |
| Pentanes Plus                    | 260.9   | 18.24                                   | 4.8                              | 0.61                    | 10.73  |
| Petro. Feedstocks                | [1]   | [1]                                     | [1]                              | [1]                     | 47.25  |
| Petroleum Coke                   | 29.9  | 27.85                                   | 0.8                              | 0.50                    | 1.53   |
| Special Naphtha                  | 63.8  | 19.86                                   | 1.3                              | 0.61                    | 2.86   |
| Waxes/Misc.                      | [1]   | [1]                                     | [1]                              | [1]                     | 2.23   |
| Misc. U.S. Territories Petroleum | [1]   | [1]                                     | [1]                              | [1]                     | 0.66   |
| <b>TOTAL</b>                     |   |   |                                  |                         | <b>227.96</b>                                |

[1] Values for Misc. U.S. Territories Petroleum, Petrochemical Feedstocks and Waxes/Misc. are not shown because these categories are aggregates of numerous smaller components.

|                    |
|--------------------|
| Conversion         |
| CO <sub>2</sub> /C |
| 3.7                |

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 6: Reference Approach CO<sub>2</sub> Emissions from Fossil Fuel Consumption (Tg CO<sub>2</sub> Eq. unless otherwise noted)

| Fuel Category | Potential<br>Carbon<br>Emissions | Carbon<br>Sequestered | Net Carbon<br>Emissions | Fraction<br>Oxidized<br>(percent) | CO <sub>2</sub><br>Emissions |
|---------------|----------------------------------|-----------------------|-------------------------|-----------------------------------|------------------------------|
| Coal          | 1,916.8                          | 2.4                   | 1,914.4                 | 99.0%                             | <b>1,895.3</b>               |
| Petroleum     | 2,533.0                          | 215.0                 | 2,317.9                 | 99.0%                             | <b>2,294.7</b>               |
| Natural Gas   | 1,217.9                          | 10.6                  | 1,207.3                 | 99.5%                             | <b>1,201.3</b>               |
| <b>TOTAL</b>  | <b>5,667.6</b>                   | <b>228.0</b>          | <b>5,439.7</b>          | <b>-</b>                          | <b>5,391.3</b>               |

Table 7: 1997 Fuel Consumption in the United States: Sectoral vs. Reference Approaches (Trillion BTU)

| Approach                          | Coal     | Natural Gas | Petroleum | TOTAL    |
|-----------------------------------|----------|-------------|-----------|----------|
| Sectoral <sup>a</sup>             | 20,574.8 | 22,934.5    | 34,888.1  | 78,397.5 |
| Reference (Apparent) <sup>a</sup> | 20,253.6 | 22,954.8    | 34,883.5  | 78,091.9 |
| Difference                        | -1.6%    | 0.1%        | 0.0%      | -0.4%    |

<sup>a</sup> Includes U.S. territories

Note: Totals may not sum due to independent rounding.

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 8: 1997 CO<sub>2</sub> Emissions from Fossil Fuel Combustion by  
Estimating Approach (Tg CO<sub>2</sub>)

| <b>Approach</b>       | <b>Coal</b> | <b>Natural Gas</b> | <b>Petroleum</b> | <b>TOTAL</b> |
|-----------------------|-------------|--------------------|------------------|--------------|
| Sectoral <sup>a</sup> | 1,921.4     | 1,200.3            | 2,261.4          | 5,383.1      |
| Reference             | 1,895.3     | 1,201.3            | 2,294.7          | 5,391.3      |
| Difference            | -1.4%       | 0.1%               | 1.5%             | 0.2%         |

<sup>a</sup> Includes U.S. territories

Note: Totals may not sum due to independent rounding.



## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

1998

Table 1: 1998 U.S. Energy Statistics (Physical Units)

| Fuel Category (Units)           | Fuel Type               | Production | Imports   | Exports | Stock Change | Adjustment | Bunkers | U.S. Territories | Apparent Consumption |
|---------------------------------|-------------------------|------------|-----------|---------|--------------|------------|---------|------------------|----------------------|
| Solid Fuels (1000 Short Tons)   | Anthracite Coal         | 5,252      | [1]       | [1]     | [1]          |            |         |                  | 5,252                |
|                                 | Bituminous Coal         | 640,586    | [1]       | [1]     | [1]          |            |         |                  | 640,586              |
|                                 | Sub-bituminous Coal     | 385,930    | [1]       | [1]     | [1]          |            |         |                  | 385,930              |
|                                 | Lignite                 | 85,767     | [1]       | [1]     | [1]          |            |         |                  | 85,767               |
|                                 | Coke                    |            | 3,834     | 1,129   | (362)        |            |         |                  | 3,067                |
|                                 | Unspecified Coal        |            | 8,724     | 78,048  | 24,228       | 28,768     |         | 473              | (121,848)            |
| Gas Fuels (Million Cubic Feet)  | Natural Gas             | 19,782,668 | 3,152,058 | 159,007 | 529,763      | 367,680    |         | 0                | 21,878,276           |
| Liquid Fuels (Thousand Barrels) | Crude Oil               | 2,281,919  | 3,177,584 | 40,102  | 26,829       |            |         |                  | 5,392,572            |
|                                 | Nat Gas Liquids and     | 642,202    | 82,081    | 18,563  | 28,564       |            |         | 1,538            | 678,694              |
|                                 | Other Liquids           | 69,477     | 211,266   | 18,324  | 4,265        |            |         |                  | 258,154              |
|                                 | Motor Gasoline          | 69,427     | 113,606   | 45,618  | 5,439        | 33,151     |         | 31,818           | 130,643              |
|                                 | Aviation Gasoline       |            | 43        | 0       | 129          |            |         |                  | (86)                 |
|                                 | Kerosene                |            | 466       | 175     | (351)        |            |         | 1,056            | 1,698                |
|                                 | Jet Fuel                |            | 45,143    | 9,320   | 651          |            | 142,205 | 13,405           | (93,628)             |
|                                 | Distillate Fuel         |            | 76,618    | 45,424  | 17,648       |            | 27,262  | 15,452           | 1,736                |
|                                 | Residual Fuel           |            | 100,537   | 50,248  | 4,447        | 9,000      | 94,609  | 22,431           | (35,335)             |
|                                 | Naphtha for Petrofeed   |            | 22,388    | 0       | 285          |            |         |                  | 22,103               |
|                                 | Petroleum Coke          |            | 263       | 97,519  | (237)        | 14,792     |         |                  | (111,811)            |
|                                 | Other Oil for Petrofeed |            | 61,554    | 0       | (132)        | 26,588     |         |                  | 35,098               |
|                                 | Special Naphthas        |            | 2,671     | 6,457   | 36           |            |         |                  | (3,822)              |
|                                 | Lubricants              |            | 3,327     | 9,128   | 289          |            |         | 211              | (5,879)              |
|                                 | Waxes                   |            | 613       | 1,157   | 159          |            |         |                  | (703)                |
|                                 | Asphalt/Road Oil        |            | 10,183    | 2,586   | (751)        |            |         |                  | 8,348                |
|                                 | Still Gas               |            | 0         | 0       | 0            |            |         |                  | 0                    |
|                                 | Misc. Products          |            | 103       | 134     | (54)         |            |         | 16,118           | 16,141               |

[1] Included in Unspecified Coal Totals

### Data Sources:

Solid and Gas Fuels - EIA Annual Energy Review 1999; Liquid Fuels - EIA Petroleum Supply Annual 1998, Table 2.

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 2: Conversion Factors to Energy Units (Heat Equivalents)

| Fuel Category (Units)               | Fuel Type               | Production | Imports | Exports | Stock<br>Change | Adjustment | Bunkers | U.S.<br>Territories |
|-------------------------------------|-------------------------|------------|---------|---------|-----------------|------------|---------|---------------------|
| Solid Fuels (Million BTU/Short Ton) | Anthracite Coal         | 22.57      |         |         |                 |            |         |                     |
|                                     | Bituminous Coal         | 23.89      |         |         |                 |            |         |                     |
|                                     | Sub-bituminous Coal     | 17.14      |         |         |                 |            |         |                     |
|                                     | Lignite                 | 12.87      |         |         |                 |            |         |                     |
|                                     | Coke                    |            | 24.80   | 24.80   | 24.80           |            |         |                     |
| Natural Gas (BTU/Cubic Foot)        | Unspecified             |            | 25.00   | 26.80   | 21.42           | 26.33      |         | 25.14               |
|                                     |                         | 1,031      | 1,023   | 1,011   | 1,031           | 1,031      |         | 1,031.00            |
| Liquid Fuels (Million Btu/Barrel)   | Crude Oil               | 5.80       | 5.95    | 5.80    | 5.80            |            | 5.80    | 5.80                |
|                                     | Nat Gas Liquids and     | 3.77       | 3.77    | 3.77    | 3.77            |            | 3.77    | 3.77                |
|                                     | Other Liquids           | 5.83       | 5.83    | 5.83    | 5.83            |            | 5.83    | 5.83                |
|                                     | Motor Gasoline          | 5.21       | 5.21    | 5.21    | 5.21            | 5.21       | 5.21    | 5.21                |
|                                     | Aviation Gasoline       |            | 5.05    | 5.05    | 5.05            |            | 5.05    | 5.05                |
|                                     | Kerosene                |            | 5.67    | 5.67    | 5.67            |            | 5.67    | 5.67                |
|                                     | Jet Fuel                |            | 5.67    | 5.67    | 5.67            |            | 5.67    | 5.67                |
|                                     | Distillate Fuel         |            | 5.83    | 5.83    | 5.83            |            | 5.83    | 5.83                |
|                                     | Residual Oil            |            | 6.29    | 6.29    | 6.29            | 6.29       | 6.29    | 6.29                |
|                                     | Naphtha for Petrofeed   |            | 5.25    | 5.25    | 5.25            |            | 5.25    | 5.25                |
|                                     | Petroleum Coke          |            | 6.02    | 6.02    | 6.02            | 6.02       | 6.02    | 6.02                |
|                                     | Other Oil for Petrofeed |            | 5.83    | 5.83    | 5.83            | 5.83       | 5.83    | 5.83                |
|                                     | Special Naphthas        |            | 5.25    | 5.25    | 5.25            |            | 5.25    | 5.25                |
|                                     | Lubricants              |            | 6.07    | 6.07    | 6.07            |            | 6.07    | 6.07                |
|                                     | Waxes                   |            | 6.07    | 6.07    | 6.07            |            | 6.07    | 6.07                |
|                                     | Asphalt/Road Oil        |            | 6.64    | 6.64    | 6.64            |            | 6.64    | 6.64                |
|                                     | Still Gas               |            | 6.00    | 6.00    | 6.00            |            | 6.00    | 6.00                |
|                                     | Misc. Products          |            | 5.86    | 5.72    | 5.86            |            | 5.86    | 5.86                |

### Data Sources:

Coal and lignite production - EIA State Energy Data Report 1992

Unspecified Solid Fuels, Coke, Natural Gas and Petroleum Products - EIA Annual Energy Review 2003; Tables A1, A2, A4, A5.

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 3: 1998 Apparent Consumption of Fossil Fuels (Trillion Btu)

| Fuel Category | Fuel Type               | Production | Imports  | Exports | Stock<br>Change | Adjustment | Bunkers | U.S.<br>Territories | Apparent<br>Consumption |
|---------------|-------------------------|------------|----------|---------|-----------------|------------|---------|---------------------|-------------------------|
| Solid Fuels   | Anthracite Coal         | 118.5      |          |         |                 |            |         | 0.0                 | 118.5                   |
|               | Bituminous Coal         | 15,303.6   |          |         |                 |            |         | 0.0                 | 15,303.6                |
|               | Sub-bituminous Coal     | 6,614.8    |          |         |                 |            |         | 0.0                 | 6,614.8                 |
|               | Lignite                 | 1,103.5    |          |         |                 |            |         | 0.0                 | 1,103.5                 |
|               | Coke                    | 0.0        | 95.1     | 28.0    | (9.0)           |            |         | 0.0                 | 76.1                    |
| Gas Fuels     | Unspecified             | 0.0        | 218.1    | 2,091.7 | 518.9           | 757.4      |         | 11.9                | (3,138.1)               |
|               | Natural Gas             | 20,395.9   | 3,224.6  | 160.8   | 546.2           | 379.1      |         | 0.0                 | 22,534.5                |
| Liquid Fuels  | Crude Oil               | 13,235.1   | 18,916.2 | 232.6   | 155.6           |            | 0.0     | 0.0                 | 31,763.1                |
|               | Nat Gas Liquids and LI  | 2,420.5    | 309.4    | 70.0    | 107.7           |            | 0.0     | 5.8                 | 2,558.0                 |
|               | Other Liquids           | 404.7      | 1,230.6  | 106.7   | 24.8            |            | 0.0     | 0.0                 | 1,503.7                 |
|               | Motor Gasoline          | 361.9      | 592.1    | 237.8   | 28.3            | 172.8      | 0.0     | 165.8               | 680.9                   |
|               | Aviation Gasoline       | 0.0        | 0.2      | 0.0     | 0.7             |            | 0.0     | 0.0                 | (0.4)                   |
|               | Kerosene                | 0.0        | 2.6      | 1.0     | (2.0)           |            | 0.0     | 6.0                 | 9.6                     |
|               | Jet Fuel                | 0.0        | 256.0    | 52.8    | 3.7             |            | 806.3   | 76.0                | (530.9)                 |
|               | Distillate Fuel         | 0.0        | 446.3    | 264.6   | 102.8           |            | 158.8   | 90.0                | 10.1                    |
|               | Residual Oil            | 0.0        | 632.1    | 315.9   | 28.0            | 56.6       | 594.8   | 141.0               | (222.2)                 |
|               | Naphtha for Petrofeed   | 0.0        | 117.5    | 0.0     | 1.5             |            | 0.0     | 0.0                 | 116.0                   |
|               | Petroleum Coke          | 0.0        | 1.6      | 587.5   | (1.4)           | 89.1       | 0.0     | 0.0                 | (673.5)                 |
|               | Other Oil for Petrofeed | 0.0        | 358.6    | 0.0     | (0.8)           | 154.9      | 0.0     | 0.0                 | 204.4                   |
|               | Special Naphthas        | 0.0        | 14.0     | 33.9    | 0.2             |            | 0.0     | 0.0                 | (20.1)                  |
|               | Lubricants              | 0.0        | 20.2     | 55.4    | 1.8             |            | 0.0     | 1.3                 | (35.7)                  |
|               | Waxes                   | 0.0        | 3.7      | 7.0     | 1.0             |            | 0.0     | 0.0                 | (4.3)                   |
|               | Asphalt/Road Oil        | 0.0        | 67.6     | 17.2    | (5.0)           |            | 0.0     | 0.0                 | 55.4                    |
|               | Still Gas               | 0.0        | 0.0      | 0.0     | 0.0             |            | 0.0     | 0.0                 | 0.0                     |
|               | Misc. Products          | 0.0        | 0.6      | 0.8     | (0.3)           |            | 0.0     | 94.5                | 94.7                    |
| TOTAL         |                         | 59,958.6   | 26,506.9 | 4,263.5 | 1,502.6         | 1,609.9    | 1,559.9 | 592.3               | 78,121.9                |

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 4: 1998 Potential Carbon Emissions

| Fuel Category | Fuel Type               | Apparent Consumption (QBTU) | Carbon Coefficients (Tg Carbon/QBTU) | Potential Carbon Emissions (Tg CO <sub>2</sub> Eq.) |
|---------------|-------------------------|-----------------------------|--------------------------------------|---|
| Solid Fuels   | Anthracite Coal         | 0.119                       | 28.26                                | 12.3  |
|               | Bituminous Coal         | 15.304                      | 25.47                                | 1,429.2   |
|               | Sub-bituminous Coal     | 6.615                       | 26.49                                | 642.5   |
|               | Lignite                 | 1.103                       | 26.23                                | 106.1   |
|               | Coke                    | 0.076                       | 31.00                                | 8.6   |
|               | Unspecified             | (3.138)                     | 25.59                                | (294.5)   |
| Gas Fuels     | Natural Gas             | 22.534                      | 14.47                                | 1,195.6   |
| Liquid Fuels  | Crude Oil               | 31.763                      | 20.24                                | 2,357.2   |
|               | Nat Gas Liquids and LF  | 2.558                       | 16.99                                | 159.4   |
|               | Other Liquids           | 1.504                       | 20.24                                | 111.6   |
|               | Motor Gasoline          | 0.681                       | 19.33                                | 48.3  |
|               | Aviation Gasoline       | (0.000)                     | 18.87                                | (0.0)   |
|               | Kerosene                | 0.010                       | 19.72                                | 0.7   |
|               | Jet Fuel                | (0.531)                     | 19.33                                | (37.6)  |
|               | Distillate Fuel         | 0.010                       | 19.95                                | 0.7   |
|               | Residual Oil            | (0.222)                     | 21.49                                | (17.5)  |
|               | Naphtha for Petrofeed   | 0.116                       | 18.14                                | 7.7   |
|               | Petroleum Coke          | (0.674)                     | 27.85                                | (68.8)  |
|               | Other Oil for Petrofeed | 0.204                       | 19.95                                | 15.0  |
|               | Special Naphthas        | (0.020)                     | 19.86                                | (1.5)   |
|               | Lubricants              | (0.036)                     | 20.24                                | (2.6)   |
|               | Waxes                   | (0.004)                     | 19.81                                | (0.3)   |
|               | Asphalt/Road Oil        | 0.055                       | 20.62                                | 4.2   |
|               | Still Gas               | 0.000                       | 17.51                                | 0.0   |
|               | Misc. Products          | 0.095                       | 20.24                                | 7.0   |
| TOTAL         |                         |                             |                                      | 5,683.2   |

### Data Sources:

Coal and Lignite - Revised 1996 IPCC Guidelines Reference Manual, Table 1-1

Unspecified Solid Fuels, Coke, Natural Gas and Liquid Fuels obtained from param01.xls

Note these fuels have carbon contents that vary annually: Coke, Unspecified, Crude Oil

Nat Gas Liquids and LRGs, Other Liquids, Motor Gasoline, Jet Fuel, and Misc. Product:

Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 5: 1998 Carbon Stored in Products

| Fuel Type                        | Consumption for<br>Non-Energy Use<br>(Trillion BTU) | Carbon Coefficients<br>(Tg Carbon/QBTU) | Carbon<br>Content (Tg<br>Carbon) | Fraction<br>Sequestered | Carbon<br>Stored (Tg<br>CO <sub>2</sub> Eq.) |
|----------------------------------|---|---|----------------------------------|-------------------------|--|
| Industrial Coking Coal           | 15.4  | 31.00                                   | 0.5                              | 0.75                    | 1.31   |
| Natural Gas                      | 376.3   | 14.47                                   | 5.4                              | 0.60                    | 11.95  |
| Asphalt & Road Oil               | 1,262.6   | 20.62                                   | 26.0                             | 1.00                    | 95.46  |
| LPG                              | 1,568.1   | 16.88                                   | 26.5                             | 0.60                    | 58.09  |
| Lubricants                       | 372.3   | 20.24                                   | 7.5                              | 0.09                    | 2.55   |
| Pentanes Plus                    | 185.2   | 18.24                                   | 3.4                              | 0.60                    | 7.42   |
| Petro. Feedstocks                | [1]   | [1]                                     | [1]                              | [1]                     | 47.66  |
| Petroleum Coke                   | 124.7   | 27.85                                   | 3.5                              | 0.50                    | 6.37   |
| Special Naphtha                  | 98.1  | 19.86                                   | 1.9                              | 0.60                    | 4.27   |
| Waxes/Misc.                      | [1]   | [1]                                     | [1]                              | [1]                     | 2.21   |
| Misc. U.S. Territories Petroleum | [1]   | [1]                                     | [1]                              | [1]                     | 0.69   |
| TOTAL                            |   |   |                                  |                         | 237.97                                       |

[1] Values for Misc. U.S. Territories Petroleum, Petrochemical Feedstocks and Waxes/Misc. are not shown because these categories are aggregates of numerous smaller components.

|                    |
|--------------------|
| Conversion         |
| CO <sub>2</sub> /C |
| 3.7                |

Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 6: Reference Approach CO<sub>2</sub> Emissions from Fossil Fuel Consumption (Tg CO<sub>2</sub> Eq. unless otherwise noted)

| Fuel Category | Potential<br>Carbon<br>Emissions | Carbon<br>Sequestered | Net Carbon<br>Emissions | Fraction<br>Oxidized<br>(percent) | CO <sub>2</sub><br>Emissions |
|---------------|----------------------------------|-----------------------|-------------------------|-----------------------------------|------------------------------|
| Coal          | 1,904.3                          | 1.3                   | 1,903.0                 | 99.0%                             | 1,883.9                      |
| Petroleum     | 2,583.4                          | 224.7                 | 2,358.6                 | 99.0%                             | 2,335.1                      |
| Natural Gas   | 1,195.6                          | 12.0                  | 1,183.7                 | 99.5%                             | 1,177.7                      |
| TOTAL         | 5,683.2                          | 238.0                 | 5,445.2                 | -                                 | 5,396.7                      |

Table 7: 1998 Fuel Consumption in the United States: Sectoral vs. Reference Approaches (Trillion BTU)

| Approach                          | Coal     | Natural Gas | Petroleum | TOTAL    |
|-----------------------------------|----------|-------------|-----------|----------|
| Sectoral <sup>a</sup>             | 20,737.5 | 22,536.6    | 35,474.1  | 78,748.2 |
| Reference (Apparent) <sup>a</sup> | 20,078.5 | 22,534.5    | 35,509.0  | 78,121.9 |
| Difference                        | -3.2%    | 0.0%        | 0.1%      | -0.8%    |

<sup>a</sup> Includes U.S. territories

Note: Totals may not sum due to independent rounding

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 8: 1998 CO<sub>2</sub> Emissions from Fossil Fuel Combustion by  
Estimating Approach (Tg CO<sub>2</sub>)

| Approach               | Coal    | Natural Gas | Petroleum | TOTAL   |
|------------------------|---------|-------------|-----------|---------|
| Sectoral <sup>a</sup>  | 1,937.3 | 1,177.9     | 2,298.5   | 5,413.7 |
| Reference <sup>a</sup> | 1,883.9 | 1,177.7     | 2,335.1   | 5,396.7 |
| Difference             | -2.8%   | 0.0%        | 1.6%      | -0.3%   |

<sup>a</sup> Includes U.S. territories

Note: Totals may not sum due to independent rounding

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

1999

Table 1: 1999 U.S. Energy Statistics (Physical Units)

| Fuel Category (Units)           | Fuel Type               | Production | Imports   | Exports | Stock Change | Adjustment | Bunkers | U.S. Territories | Apparent Consumption |
|---------------------------------|-------------------------|------------|-----------|---------|--------------|------------|---------|------------------|----------------------|
| Solid Fuels (1000 Short Tons)   | Anthracite Coal         | 4,768      | [1]       | [1]     | [1]          |            |         |                  | 4,768                |
|                                 | Bituminous Coal         | 601,732    | [1]       | [1]     | [1]          |            |         |                  | 601,732              |
|                                 | Sub-bituminous Coal     | 406,714    | [1]       | [1]     | [1]          |            |         |                  | 406,714              |
|                                 | Lignite                 | 87,218     | [1]       | [1]     | [1]          |            |         |                  | 87,218               |
|                                 | Coke                    |            | 3,224     | 898     | (80)         |            |         |                  | 2,406                |
|                                 | Unspecified Coal        |            | 9,089     | 58,476  | 18,921       | 28,961     |         | 457              | (96,811)             |
| Gas Fuels (Million Cubic Feet)  | Natural Gas             | 18,811,188 | 3,585,505 | 163,415 | (171,872)    | 346,376    |         | 0                | 22,058,774           |
| Liquid Fuels (Thousand Barrels) | Crude Oil               | 2,146,732  | 3,186,663 | 43,031  | (43,225)     |            |         |                  | 5,333,589            |
|                                 | Nat Gas Liquids and     | 675,120    | 81,388    | 19,191  | (29,039)     |            |         | 2,192            | 768,548              |
|                                 | Other Liquids           | 72,660     | 222,454   | 14,563  | (9,734)      |            |         |                  | 290,285              |
|                                 | Motor Gasoline          | 64,593     | 139,298   | 40,342  | (17,703)     | 34,450     |         | 33,981           | 180,782              |
|                                 | Aviation Gasoline       |            | 76        | 0       | (232)        |            |         |                  | 308                  |
|                                 | Kerosene                |            | 476       | 279     | (2,072)      |            |         | 655              | 2,924                |
|                                 | Jet Fuel                |            | 46,736    | 11,699  | (4,193)      |            | 147,761 | 13,416           | (95,115)             |
|                                 | Distillate Fuel         |            | 91,428    | 59,044  | (30,612)     |            | 19,500  | 13,873           | 57,369               |
|                                 | Residual Fuel           |            | 86,343    | 47,263  | (9,079)      | 9,000      | 77,896  | 21,846           | (16,891)             |
|                                 | Naphtha for Petrofeed   |            | 26,123    | 0       | 171          |            |         |                  | 25,952               |
|                                 | Petroleum Coke          |            | 347       | 88,505  | (2,076)      | 14,946     |         |                  | (101,028)            |
|                                 | Other Oil for Petrofeed |            | 60,053    | 0       | (380)        | 21,948     |         |                  | 38,485               |
|                                 | Special Naphthas        |            | 2,140     | 5,687   | 144          |            |         |                  | (3,691)              |
|                                 | Lubricants              |            | 3,973     | 10,304  | (1,360)      |            |         | 227              | (4,744)              |
|                                 | Waxes                   |            | 971       | 1,301   | (16)         |            |         |                  | (314)                |
|                                 | Asphalt/Road Oil        |            | 12,542    | 1,735   | (4,493)      |            |         |                  | 15,300               |
|                                 | Still Gas               |            | 0         | 0       | 0            |            |         |                  | 0                    |
|                                 | Misc. Products          |            | 63        | 73      | (145)        |            |         | 19,496           | 19,631               |

[1] Included in Unspecified Coal Totals

### Data Sources:

Solid and Gas Fuels - EIA Annual Energy Review 1999; Liquid Fuels - EIA Petroleum Supply Annual 1999, Table 2.



## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 2: Conversion Factors to Energy Units (Heat Equivalents)

| Fuel Category (Units)               | Fuel Type               | Production | Imports | Exports | Stock<br>Change | Adjustment | Bunkers | U.S.<br>Territories |
|-------------------------------------|-------------------------|------------|---------|---------|-----------------|------------|---------|---------------------|
| Solid Fuels (Million BTU/Short Ton) | Anthracite Coal         | 22.57      |         |         |                 |            |         |                     |
|                                     | Bituminous Coal         | 23.89      |         |         |                 |            |         |                     |
|                                     | Sub-bituminous Coal     | 17.14      |         |         |                 |            |         |                     |
|                                     | Lignite                 | 12.87      |         |         |                 |            |         |                     |
|                                     | Coke                    |            | 24.80   | 24.80   | 24.80           |            |         |                     |
|                                     | Unspecified             |            | 25.00   | 26.08   | 21.07           | 26.37      |         | 25.14               |
| Natural Gas (BTU/Cubic Foot)        |                         | 1,027      | 1,022   | 1,006   | 1,027           | 1,027      |         | 1,027               |
| Liquid Fuels (Million Btu/Barrel)   | Crude Oil               | 5.80       | 5.94    | 5.80    | 5.80            |            | 5.80    | 5.80                |
|                                     | Nat Gas Liquids and     | 3.74       | 3.74    | 3.74    | 3.74            |            | 3.74    | 3.74                |
|                                     | Other Liquids           | 5.83       | 5.83    | 5.83    | 5.83            |            | 5.83    | 5.83                |
|                                     | Motor Gasoline          | 5.21       | 5.21    | 5.21    | 5.21            | 5.21       | 5.21    | 5.21                |
|                                     | Aviation Gasoline       |            | 5.05    | 5.05    | 5.05            |            | 5.05    | 5.05                |
|                                     | Kerosene                |            | 5.67    | 5.67    | 5.67            |            | 5.67    | 5.67                |
|                                     | Jet Fuel                |            | 5.67    | 5.67    | 5.67            |            | 5.67    | 5.67                |
|                                     | Distillate Fuel         |            | 5.83    | 5.83    | 5.83            |            | 5.83    | 5.83                |
|                                     | Residual Oil            |            | 6.29    | 6.29    | 6.29            | 6.29       | 6.29    | 6.29                |
|                                     | Naphtha for Petrofeed   |            | 5.25    | 5.25    | 5.25            |            | 5.25    | 5.25                |
|                                     | Petroleum Coke          |            | 6.02    | 6.02    | 6.02            | 6.02       | 6.02    | 6.02                |
|                                     | Other Oil for Petrofeed |            | 5.83    | 5.83    | 5.83            | 5.83       | 5.83    | 5.83                |
|                                     | Special Naphthas        |            | 5.25    | 5.25    | 5.25            |            | 5.25    | 5.25                |
|                                     | Lubricants              |            | 6.07    | 6.07    | 6.07            |            | 6.07    | 6.07                |
|                                     | Waxes                   |            | 5.54    | 5.54    | 5.54            |            | 5.54    | 5.54                |
|                                     | Asphalt/Road Oil        |            | 6.64    | 6.64    | 6.64            |            | 6.64    | 6.64                |
|                                     | Still Gas               |            | 6.00    | 6.00    | 6.00            |            | 6.00    | 6.00                |
|                                     | Misc. Products          |            | 5.80    | 5.80    | 5.80            |            | 5.80    | 5.80                |

### Data Sources:

Coal and lignite production - EIA State Energy Data Report 1992

Unspecified Solid Fuels, Coke, Natural Gas and Petroleum Products - EIA Annual Energy Review 2003; Tables A1, A2, A4, A5.

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 3: 1999 Apparent Consumption of Fossil Fuels (Trillion Btu)

| Fuel Category | Fuel Type               | Production | Imports  | Exports | Stock<br>Change | Adjustment | Bunkers | U.S.<br>Territories | Apparent<br>Consumption |
|---------------|-------------------------|------------|----------|---------|-----------------|------------|---------|---------------------|-------------------------|
| Solid Fuels   | Anthracite Coal         | 107.6      |          |         |                 |            |         | 0.0                 | 107.6                   |
|               | Bituminous Coal         | 14,375.4   |          |         |                 |            |         | 0.0                 | 14,375.4                |
|               | Sub-bituminous Coal     | 6,971.1    |          |         |                 |            |         | 0.0                 | 6,971.1                 |
|               | Lignite                 | 1,122.1    |          |         |                 |            |         | 0.0                 | 1,122.1                 |
|               | Coke                    | 0.0        | 80.0     | 22.3    | (2.0)           |            |         | 0.0                 | 59.7                    |
| Gas Fuels     | Unspecified             | 0.0        | 227.2    | 1,525.1 | 398.7           | 763.6      |         | 11.5                | (2,448.6)               |
|               | Natural Gas             | 19,319.1   | 3,664.4  | 164.4   | (176.5)         | 355.7      |         | 0.0                 | 22,639.9                |
| Liquid Fuels  | Crude Oil               | 12,451.0   | 18,935.2 | 249.6   | (250.7)         |            | 0.0     | 0.0                 | 31,387.3                |
|               | Nat Gas Liquids and LR  | 2,527.6    | 304.7    | 71.9    | (108.7)         |            | 0.0     | 8.2                 | 2,877.4                 |
|               | Other Liquids           | 423.2      | 1,295.8  | 84.8    | (56.7)          |            | 0.0     | 0.0                 | 1,690.9                 |
|               | Motor Gasoline          | 336.6      | 725.9    | 210.2   | (92.3)          | 179.5      | 0.0     | 177.1               | 942.1                   |
|               | Aviation Gasoline       | 0.0        | 0.4      | 0.0     | (1.2)           |            | 0.0     | 0.0                 | 1.6                     |
|               | Kerosene                | 0.0        | 2.7      | 1.6     | (11.7)          |            | 0.0     | 3.7                 | 16.6                    |
|               | Jet Fuel                | 0.0        | 265.0    | 66.3    | (23.8)          |            | 837.8   | 76.1                | (539.3)                 |
|               | Distillate Fuel         | 0.0        | 532.6    | 343.9   | (178.3)         |            | 113.6   | 80.8                | 334.2                   |
|               | Residual Oil            | 0.0        | 542.8    | 297.1   | (57.1)          | 56.6       | 489.7   | 137.3               | (106.2)                 |
|               | Naphtha for Petrofeed   | 0.0        | 137.1    | 0.0     | 0.9             |            | 0.0     | 0.0                 | 136.2                   |
|               | Petroleum Coke          | 0.0        | 2.1      | 533.2   | (12.5)          | 90.0       | 0.0     | 0.0                 | (608.6)                 |
|               | Other Oil for Petrofeed | 0.0        | 349.8    | 0.0     | (2.2)           | 127.8      | 0.0     | 0.0                 | 224.2                   |
|               | Special Naphthas        | 0.0        | 11.2     | 29.8    | 0.8             |            | 0.0     | 0.0                 | (19.4)                  |
|               | Lubricants              | 0.0        | 24.1     | 62.5    | (8.2)           |            | 0.0     | 1.4                 | (28.8)                  |
|               | Waxes                   | 0.0        | 5.4      | 7.2     | (0.1)           |            | 0.0     | 0.0                 | (1.7)                   |
|               | Asphalt/Road Oil        | 0.0        | 83.2     | 11.5    | (29.8)          |            | 0.0     | 0.0                 | 101.5                   |
|               | Still Gas               | 0.0        | 0.0      | 0.0     | 0.0             |            | 0.0     | 0.0                 | 0.0                     |
|               | Misc. Products          | 0.0        | 0.4      | 0.4     | (0.8)           |            | 0.0     | 113.0               | 113.8                   |
| TOTAL         |                         | 57,633.8   | 27,189.9 | 3,681.9 | (612.4)         | 1,573.3    | 1,441.1 | 609.1               | 79,348.9                |

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 4: 1999 Potential Carbon Emissions

| Fuel Category | Fuel Type               | Apparent<br>Consumption<br>(QBTU) | Carbon Coefficients<br>(Tg Carbon/QBTU) | Potential Carbon<br>Emissions (Tg CO <sub>2</sub><br>Eq.) |
|---------------|-------------------------|-----------------------------------|---|---|
| Solid Fuels   | Anthracite Coal         | 0.108                             | 28.26                                   | 11.2  |
|               | Bituminous Coal         | 14.375                            | 25.48                                   | 1,343.0   |
|               | Sub-bituminous Coal     | 6.971                             | 26.49                                   | 677.1   |
|               | Lignite                 | 1.122                             | 26.26                                   | 108.0   |
|               | Coke                    | 0.060                             | 31.00                                   | 6.8   |
| Gas Fuels     | Unspecified             | (2.449)                           | 25.34                                   | (227.5)   |
|               | Natural Gas             | 22.640                            | 14.47                                   | 1,201.2   |
| Liquid Fuels  | Crude Oil               | 31.387                            | 20.19                                   | 2,323.6   |
|               | Nat Gas Liquids and LR  | 2.877                             | 16.99                                   | 179.3   |
|               | Other Liquids           | 1.691                             | 20.19                                   | 125.2   |
|               | Motor Gasoline          | 0.942                             | 19.33                                   | 66.8  |
|               | Aviation Gasoline       | 0.002                             | 18.87                                   | 0.1   |
|               | Kerosene                | 0.017                             | 19.72                                   | 1.2   |
|               | Jet Fuel                | (0.539)                           | 19.33                                   | (38.2)  |
|               | Distillate Fuel         | 0.334                             | 19.95                                   | 24.4  |
|               | Residual Oil            | (0.106)                           | 21.49                                   | (8.4)   |
|               | Naphtha for Petrofeed   | 0.136                             | 18.14                                   | 9.1   |
|               | Petroleum Coke          | (0.609)                           | 27.85                                   | (62.1)  |
|               | Other Oil for Petrofeed | 0.224                             | 19.95                                   | 16.4  |
|               | Special Naphthas        | (0.019)                           | 19.86                                   | (1.4)   |
|               | Lubricants              | (0.029)                           | 20.24                                   | (2.1)   |
|               | Waxes                   | (0.002)                           | 19.81                                   | (0.1)   |
|               | Asphalt/Road Oil        | 0.102                             | 20.62                                   | 7.7   |
|               | Still Gas               | 0.000                             | 17.51                                   | 0.0   |
|               | Misc. Products          | 0.114                             | 20.19                                   | 8.4   |
| TOTAL         |                         |                                   |   | 5,769.6   |

### Data Sources:

Coal and Lignite - Revised 1996 IPCC Guidelines Reference Manual, Table 1-1

Unspecified Solid Fuels, Coke, Natural Gas and Liquid Fuels obtained from param01.xls

Note these fuels have carbon contents that vary annually: Coke, Unspecified, Crude Oil, Nat Gas Liquids and LRGs, Other Liquids, Motor Gasoline, Jet Fuel, and Misc. Products

Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 5: 1999 Carbon Stored in Products

| Fuel Type                        | Consumption for<br>Non-Energy Use<br>(Trillion BTU) | Carbon Coefficients<br>(Tg Carbon/QBTU) | Carbon<br>Content (Tg<br>Carbon) | Fraction<br>Sequestered | Carbon<br>Stored (Tg<br>CO <sub>2</sub> Eq.) |
|----------------------------------|---|---|----------------------------------|-------------------------|--|
| Industrial Coking Coal           | 6.3   | 31.00                                   | 0.2                              | 0.75                    | 0.54   |
| Natural Gas                      | 390.3   | 14.47                                   | 5.6                              | 0.61                    | 12.58  |
| Asphalt & Road Oil               | 1,324.4   | 20.62                                   | 27.3                             | 1.00                    | 100.13                                       |
| LPG                              | 1,651.2   | 16.84                                   | 27.8                             | 0.61                    | 61.91  |
| Lubricants                       | 376.3   | 20.24                                   | 7.6                              | 0.09                    | 2.58   |
| Pentanes Plus                    | 239.0   | 18.24                                   | 4.4                              | 0.61                    | 9.71   |
| Petro. Feedstocks                | [1]   | [1]                                     | [1]                              | [1]                     | 47.31  |
| Petroleum Coke                   | 193.9   | 27.85                                   | 5.4                              | 0.50                    | 9.90   |
| Special Naphtha                  | 133.9   | 19.86                                   | 2.7                              | 0.61                    | 5.92   |
| Waxes/Misc.                      | [1]   | [1]                                     | [1]                              | [1]                     | 2.00   |
| Misc. U.S. Territories Petroleum | [1]   | [1]                                     | [1]                              | [1]                     | 0.83   |
| TOTAL                            |   |   |                                  |                         | 253.41                                       |

[1] Values for Misc. U.S. Territories Petroleum, Petrochemical Feedstocks and Waxes/Misc. are not shown because these categories are aggregates of numerous smaller components.

|                    |
|--------------------|
| Conversion         |
| CO <sub>2</sub> /C |
| 3.7                |

Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 6: Reference Approach CO<sub>2</sub> Emissions from Fossil Fuel Consumption (Tg CO<sub>2</sub> Eq. unless otherwise noted)

| Fuel Category | Potential<br>Carbon<br>Emissions | Carbon<br>Sequestered | Net Carbon<br>Emissions | Fraction<br>Oxidized<br>(percent) | CO <sub>2</sub><br>Emissions |
|---------------|----------------------------------|-----------------------|-------------------------|-----------------------------------|------------------------------|
| Coal          | 1,918.7                          | 0.5                   | 1,918.1                 | 99.0%                             | <b>1,898.9</b>               |
| Petroleum     | 2,649.8                          | 240.3                 | 2,409.5                 | 99.0%                             | <b>2,385.4</b>               |
| Natural Gas   | 1,201.2                          | 12.6                  | 1,188.6                 | 99.5%                             | <b>1,182.7</b>               |
| <b>TOTAL</b>  | <b>5,769.6</b>                   | <b>253.4</b>          | <b>5,516.2</b>          | <b>-</b>                          | <b>5,467.0</b>               |

Table 7: 1999 Fuel Consumption in the United States: Sectoral vs. Reference Approaches (Trillion BTU)

| Approach                          | Coal     | Natural Gas | Petroleum | TOTAL    |
|-----------------------------------|----------|-------------|-----------|----------|
| Sectoral <sup>a</sup>             | 20,747.8 | 22,621.4    | 36,657.1  | 80,026.3 |
| Reference (Apparent) <sup>a</sup> | 20,187.3 | 22,639.9    | 36,521.8  | 79,348.9 |
| Difference                        | -2.7%    | 0.1%        | -0.4%     | -0.8%    |

<sup>a</sup> Includes U.S. territories

Note: Totals may not sum due to independent rounding.

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 8: 1999 CO<sub>2</sub> Emissions from Fossil Fuel Combustion by Estimating Approach (Tg CO<sub>2</sub>)

| Approach               | Coal    | Natural Gas | Petroleum | TOTAL   |
|------------------------|---------|-------------|-----------|---------|
| Sectoral <sup>a</sup>  | 1,938.8 | 1,181.7     | 2,366.6   | 5,487.1 |
| Reference <sup>a</sup> | 1,898.9 | 1,182.7     | 2,385.4   | 5,467.0 |
| Difference             | -2.1%   | 0.1%        | 0.8%      | -0.4%   |

<sup>a</sup> Includes U.S. territories

Note: Totals may not sum due to independent rounding.

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

2000

Table 1: 2000 U.S. Energy Statistics (Physical Units)

| Fuel Category (Units)           | Fuel Type               | Production | Imports   | Exports | Stock Change | Adjustment | Bunkers | U.S. Territories | Apparent Consumption |
|---------------------------------|-------------------------|------------|-----------|---------|--------------|------------|---------|------------------|----------------------|
| Solid Fuels (1000 Short Tons)   | Anthracite Coal         | 4,572      | [1]       | [1]     | [1]          |            |         |                  | 4,572                |
|                                 | Bituminous Coal         | 574,276    | [1]       | [1]     | [1]          |            |         |                  | 574,276              |
|                                 | Sub-bituminous Coal     | 409,203    | [1]       | [1]     | [1]          |            |         |                  | 409,203              |
|                                 | Lignite                 | 85,561     | [1]       | [1]     | [1]          |            |         |                  | 85,561               |
|                                 | Coke                    |            | 3,781     | 1,146   | 201          |            |         |                  | 2,434                |
|                                 | Unspecified Coal        |            | 12,513    | 58,489  | (43,502)     | 29,661     |         | 457              | (31,677)             |
| Gas Fuels (Million Cubic Feet)  | Natural Gas             | 18,966,671 | 3,781,603 | 243,716 | (828,704)    | 316,196    |         | 12,360           | 23,029,426           |
| Liquid Fuels (Thousand Barrels) | Crude Oil               | 2,130,707  | 3,319,816 | 18,352  | (25,538)     |            |         |                  | 5,457,709            |
|                                 | Nat Gas Liquids and     | 699,415    | 93,755    | 28,470  | (6,999)      |            |         | 2,088            | 773,787              |
|                                 | Other Liquids           | 52,196     | 211,023   | 17,935  | 2,699        |            |         |                  | 242,585              |
|                                 | Motor Gasoline          | 85,938     | 156,230   | 52,539  | (1,089)      | 39,737     |         | 35,519           | 186,500              |
|                                 | Aviation Gasoline       |            | 336       | 0       | (309)        |            |         |                  | 645                  |
|                                 | Kerosene                |            | 822       | 779     | (764)        |            |         | 421              | 1,228                |
|                                 | Jet Fuel                |            | 59,125    | 11,628  | 4,017        |            | 151,991 | 13,061           | (95,450)             |
|                                 | Distillate Fuel         |            | 107,919   | 63,198  | (7,436)      |            | 14,740  | 12,237           | 49,654               |
|                                 | Residual Fuel           |            | 128,912   | 50,858  | 370          | 9,000      | 70,634  | 20,820           | 18,870               |
|                                 | Naphtha for Petrofeed   |            | 43,357    | 0       | 488          |            |         |                  | 42,869               |
|                                 | Petroleum Coke          |            | 394       | 116,589 | 1,360        | 14,413     |         |                  | (131,968)            |
|                                 | Other Oil for Petrofeed |            | 52,338    | 0       | 125          | 24,995     |         |                  | 27,218               |
|                                 | Special Naphthas        |            | 3,873     | 7,425   | (239)        |            |         |                  | (3,313)              |
|                                 | Lubricants              |            | 4,950     | 9,472   | 279          |            |         | 2,703            | (2,098)              |
|                                 | Waxes                   |            | 860       | 1,293   | 70           |            |         |                  | (503)                |
|                                 | Asphalt/Road Oil        |            | 10,300    | 2,104   | 8,183        |            |         |                  | 13                   |
|                                 | Still Gas               |            | 0         | 0       | 0            |            |         |                  | 0                    |
|                                 | Misc. Products          |            | 76        | 67      | (601)        |            |         | 25,702           | 26,312               |

[1] Included in Unspecified Coal Totals

### Data Sources:

Solid and Gas Fuels - EIA Annual Energy Review 2000; Liquid Fuels - EIA Petroleum Supply Annual 2000, Table 2.

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 2: Conversion Factors to Energy Units (Heat Equivalents)

| Fuel Category (Units)               | Fuel Type               | Production | Imports | Exports | Stock Change | Adjustment | Bunkers | U.S. Territories |
|-------------------------------------|-------------------------|------------|---------|---------|--------------|------------|---------|------------------|
| Solid Fuels (Million BTU/Short Ton) | Anthracite Coal         | 22.57      |         |         |              |            |         |                  |
|                                     | Bituminous Coal         | 23.89      |         |         |              |            |         |                  |
|                                     | Sub-bituminous Coal     | 17.14      |         |         |              |            |         |                  |
|                                     | Lignite                 | 12.87      |         |         |              |            |         |                  |
|                                     | Coke                    |            | 24.80   | 24.80   | 24.80        |            |         |                  |
|                                     | Unspecified             |            | 25.00   | 26.12   | 21.07        | 26.29      |         | 25.14            |
| Natural Gas (BTU/Cubic Foot)        |                         | 1,025      | 1,022   | 1,006   | 1,025        | 1,025      |         | 1,025            |
| Liquid Fuels (Million Btu/Barrel)   | Crude Oil               | 5.80       | 5.96    | 5.80    | 5.80         |            | 5.80    | 5.80             |
|                                     | Nat Gas Liquids and     | 3.73       | 3.73    | 3.73    | 3.73         |            | 3.73    | 3.73             |
|                                     | Other Liquids           | 5.83       | 5.83    | 5.83    | 5.83         |            | 5.83    | 5.83             |
|                                     | Motor Gasoline          | 5.21       | 5.21    | 5.21    | 5.21         | 5.21       | 5.21    | 5.21             |
|                                     | Aviation Gasoline       |            | 5.05    | 5.05    | 5.05         |            | 5.05    | 5.05             |
|                                     | Kerosene                |            | 5.67    | 5.67    | 5.67         |            | 5.67    | 5.67             |
|                                     | Jet Fuel                |            | 5.67    | 5.67    | 5.67         |            | 5.67    | 5.67             |
|                                     | Distillate Fuel         |            | 5.83    | 5.83    | 5.83         |            | 5.83    | 5.83             |
|                                     | Residual Oil            |            | 6.29    | 6.29    | 6.29         | 6.29       | 6.29    | 6.29             |
|                                     | Naphtha for Petrofeed   |            | 5.25    | 5.25    | 5.25         |            | 5.25    | 5.25             |
|                                     | Petroleum Coke          |            | 6.02    | 6.02    | 6.02         | 6.02       | 6.02    | 6.02             |
|                                     | Other Oil for Petrofeed |            | 5.83    | 5.83    | 5.83         | 5.83       | 5.83    | 5.83             |
|                                     | Special Naphthas        |            | 5.25    | 5.25    | 5.25         |            | 5.25    | 5.25             |
|                                     | Lubricants              |            | 6.07    | 6.07    | 6.07         |            | 6.07    | 6.07             |
|                                     | Waxes                   |            | 5.54    | 5.54    | 5.54         |            | 5.54    | 5.54             |
|                                     | Asphalt/Road Oil        |            | 6.64    | 6.64    | 6.64         |            | 6.64    | 6.64             |
|                                     | Still Gas               |            | 6.00    | 6.00    | 6.00         |            | 6.00    | 6.00             |
|                                     | Misc. Products          |            | 5.80    | 5.80    | 5.80         |            | 5.80    | 5.80             |

### Data Sources:

Coal and lignite production - EIA State Energy Data Report 1992

Unspecified Solid Fuels, Coke, Natural Gas and Petroleum Products - EIA Annual Energy Review 2003; Tables A1, A2, A4, A5.



## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 3: 2000 Apparent Consumption of Fossil Fuels (Trillion Btu)

| Fuel Category | Fuel Type               | Production | Imports  | Exports | Stock<br>Change | Adjustment | Bunkers | U.S.<br>Territories | Apparent<br>Consumption |
|---------------|-------------------------|------------|----------|---------|-----------------|------------|---------|---------------------|-------------------------|
| Solid Fuels   | Anthracite Coal         | 103.2      |          |         |                 |            |         | 0.0                 | 103.2                   |
|               | Bituminous Coal         | 13,719.4   |          |         |                 |            |         | 0.0                 | 13,719.4                |
|               | Sub-bituminous Coal     | 7,013.7    |          |         |                 |            |         | 0.0                 | 7,013.7                 |
|               | Lignite                 | 1,100.8    |          |         |                 |            |         | 0.0                 | 1,100.8                 |
|               | Coke                    | 0.0        | 93.8     | 28.4    | 5.0             |            |         | 0.0                 | 60.4                    |
|               | Unspecified             | 0.0        | 312.8    | 1,527.6 | (916.7)         | 779.8      |         | 11.5                | (1,066.3)               |
| Gas Fuels     | Natural Gas             | 19,440.8   | 3,864.8  | 245.2   | (849.4)         | 324.1      |         | 12.7                | 23,598.4                |
| Liquid Fuels  | Crude Oil               | 12,358.1   | 19,782.8 | 106.4   | (148.1)         |            | 0.0     | 0.0                 | 32,182.6                |
|               | Nat Gas Liquids and LR  | 2,610.9    | 350.0    | 106.3   | (26.1)          |            | 0.0     | 7.8                 | 2,888.5                 |
|               | Other Liquids           | 304.0      | 1,229.2  | 104.5   | 15.7            |            | 0.0     | 0.0                 | 1,413.1                 |
|               | Motor Gasoline          | 447.7      | 814.0    | 273.7   | (5.7)           | 207.0      | 0.0     | 185.1               | 971.7                   |
|               | Aviation Gasoline       | 0.0        | 1.7      | 0.0     | (1.6)           |            | 0.0     | 0.0                 | 3.3                     |
|               | Kerosene                | 0.0        | 4.7      | 4.4     | (4.3)           |            | 0.0     | 2.4                 | 7.0                     |
|               | Jet Fuel                | 0.0        | 335.2    | 65.9    | 22.8            |            | 861.8   | 74.1                | (541.2)                 |
|               | Distillate Fuel         | 0.0        | 628.6    | 368.1   | (43.3)          |            | 85.9    | 71.3                | 289.2                   |
|               | Residual Oil            | 0.0        | 810.5    | 319.7   | 2.3             | 56.6       | 444.1   | 130.9               | 118.6                   |
|               | Naphtha for Petrofeed   | 0.0        | 227.5    | 0.0     | 2.6             |            | 0.0     | 0.0                 | 225.0                   |
|               | Petroleum Coke          | 0.0        | 2.4      | 702.3   | 8.2             | 86.8       | 0.0     | 0.0                 | (795.0)                 |
|               | Other Oil for Petrofeed | 0.0        | 304.9    | 0.0     | 0.7             | 145.6      | 0.0     | 0.0                 | 158.5                   |
|               | Special Naphthas        | 0.0        | 20.3     | 39.0    | (1.3)           |            | 0.0     | 0.0                 | (17.4)                  |
|               | Lubricants              | 0.0        | 30.0     | 57.4    | 1.7             |            | 0.0     | 16.4                | (12.7)                  |
|               | Waxes                   | 0.0        | 4.8      | 7.2     | 0.4             |            | 0.0     | 0.0                 | (2.8)                   |
|               | Asphalt/Road Oil        | 0.0        | 68.4     | 14.0    | 54.3            |            | 0.0     | 0.0                 | 0.1                     |
|               | Still Gas               | 0.0        | 0.0      | 0.0     | 0.0             |            | 0.0     | 0.0                 | 0.0                     |
|               | Misc. Products          | 0.0        | 0.4      | 0.4     | (3.5)           |            | 0.0     | 149.0               | 152.5                   |
| TOTAL         |                         | 57,098.9   | 28,886.7 | 3,970.5 | (1,886.3)       | 1,599.9    | 1,391.7 | 661.0               | 81,570.7                |

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 4: 2000 Potential Carbon Emissions

| Fuel Category | Fuel Type               | Apparent<br>Consumption<br>(QBTU) | Carbon Coefficients<br>(Tg Carbon/QBTU) | Potential Carbon<br>Emissions (Tg CO <sub>2</sub><br>Eq.) |
|---------------|-------------------------|-----------------------------------|---|---|
| Solid Fuels   | Anthracite Coal         | 0.103                             | 28.26                                   | <b>10.7</b>   |
|               | Bituminous Coal         | 13.719                            | 25.49                                   | <b>1,282.3</b>  |
|               | Sub-bituminous Coal     | 7.014                             | 26.48                                   | <b>681.0</b>  |
|               | Lignite                 | 1.101                             | 26.30                                   | <b>106.2</b>  |
|               | Coke                    | 0.060                             | 31.00                                   | <b>6.9</b>  |
|               | Unspecified             | (1.066)                           | 25.34                                   | <b>(99.1)</b>   |
| Gas Fuels     | Natural Gas             | 23.598                            | 14.47                                   | <b>1,252.1</b>  |
| Liquid Fuels  | Crude Oil               | 32.183                            | 20.23                                   | <b>2,387.5</b>  |
|               | Nat Gas Liquids and LR  | 2.889                             | 16.98                                   | <b>179.9</b>  |
|               | Other Liquids           | 1.413                             | 20.23                                   | <b>104.8</b>  |
|               | Motor Gasoline          | 0.972                             | 19.34                                   | <b>68.9</b>   |
|               | Aviation Gasoline       | 0.003                             | 18.87                                   | <b>0.2</b>  |
|               | Kerosene                | 0.007                             | 19.72                                   | <b>0.5</b>  |
|               | Jet Fuel                | (0.541)                           | 19.33                                   | <b>(38.4)</b>   |
|               | Distillate Fuel         | 0.289                             | 19.95                                   | <b>21.2</b>   |
|               | Residual Oil            | 0.119                             | 21.49                                   | <b>9.3</b>  |
|               | Naphtha for Petrofeed   | 0.225                             | 18.14                                   | <b>15.0</b>   |
|               | Petroleum Coke          | (0.795)                           | 27.85                                   | <b>(81.2)</b>   |
|               | Other Oil for Petrofeed | 0.159                             | 19.95                                   | <b>11.6</b>   |
|               | Special Naphthas        | (0.017)                           | 19.86                                   | <b>(1.3)</b>  |
|               | Lubricants              | (0.013)                           | 20.24                                   | <b>(0.9)</b>  |
|               | Waxes                   | (0.003)                           | 19.81                                   | <b>(0.2)</b>  |
|               | Asphalt/Road Oil        | 0.000                             | 20.62                                   | <b>0.0</b>  |
|               | Still Gas               | 0.000                             | 17.51                                   | <b>0.0</b>  |
|               | Misc. Products          | 0.153                             | 20.23                                   | <b>11.3</b>   |
| <b>TOTAL</b>  |                         |                                   |   | <b>5,928.2</b>  |

### Data Sources:

Coal and Lignite - Revised 1996 IPCC Guidelines Reference Manual, Table 1-1

Unspecified Solid Fuels, Coke, Natural Gas and Liquid Fuels obtained from param01.xls

Note these fuels have carbon contents that vary annually: Coke, Unspecified, Crude Oil, Nat Gas Liquids and LRGs, Other Liquids, Motor Gasoline, Jet Fuel, and Misc. Products

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 5: 2000 Carbon Stored in Products

| Fuel Type                        | Consumption for<br>Non-Energy Use<br>(Trillion BTU) | Carbon Coefficients<br>(Tg Carbon/QBTU) | Carbon<br>Content (Tg<br>Carbon) | Fraction<br>Sequestered | Carbon<br>Stored (Tg<br>CO <sub>2</sub> Eq.) |
|----------------------------------|---|---|----------------------------------|-------------------------|--|
| Industrial Coking Coal           | 14.8  | 31.00                                   | 0.5                              | 0.75                    | 1.26   |
| Natural Gas                      | 388.9   | 14.47                                   | 5.6                              | 0.64                    | 13.24  |
| Asphalt & Road Oil               | 1,275.7   | 20.62                                   | 26.3                             | 1.00                    | 96.45  |
| LPG                              | 1,497.2   | 16.81                                   | 25.2                             | 0.64                    | 59.22  |
| Lubricants                       | 385.7   | 20.24                                   | 7.8                              | 0.09                    | 2.64   |
| Pentanes Plus                    | 214.7   | 18.24                                   | 3.9                              | 0.64                    | 9.21   |
| Petro. Feedstocks                | [1]   | [1]                                     | [1]                              | [1]                     | 49.20  |
| Petroleum Coke                   | 53.9  | 27.85                                   | 1.5                              | 0.50                    | 2.75   |
| Special Naphtha                  | 89.1  | 19.86                                   | 1.8                              | 0.64                    | 4.16   |
| Waxes/Misc.                      | [1]   | [1]                                     | [1]                              | [1]                     | 1.82   |
| Misc. U.S. Territories Petroleum | [1]   | [1]                                     | [1]                              | [1]                     | 1.09   |
| <b>TOTAL</b>                     |   |   |                                  |                         | <b>241.05</b>                                |

[1] Values for Misc. U.S. Territories Petroleum, Petrochemical Feedstocks and Waxes/Misc. are not shown because these categories are aggregates of numerous smaller components.

|                    |
|--------------------|
| Conversion         |
| CO <sub>2</sub> /C |
| 3.7                |

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 6: Reference Approach CO<sub>2</sub> Emissions from Fossil Fuel Consumption (Tg CO<sub>2</sub> Eq. unless otherwise noted)

| Fuel Category | Potential<br>Carbon<br>Emissions | Carbon<br>Sequestered | Net Carbon<br>Emissions | Fraction<br>Oxidized<br>(percent) | CO <sub>2</sub><br>Emissions |
|---------------|----------------------------------|-----------------------|-------------------------|-----------------------------------|------------------------------|
| Coal          | 1,987.9                          | 1.3                   | 1,986.6                 | 99.0%                             | <b>1,966.8</b>               |
| Petroleum     | 2,688.3                          | 226.6                 | 2,461.7                 | 99.0%                             | <b>2,437.1</b>               |
| Natural Gas   | 1,252.1                          | 13.2                  | 1,238.8                 | 99.5%                             | <b>1,232.6</b>               |
| <b>TOTAL</b>  | <b>5,928.2</b>                   | <b>241.1</b>          | <b>5,687.2</b>          | <b>-</b>                          | <b>5,636.5</b>               |

Table 7: 2000 Fuel Consumption in the United States: Sectoral vs. Reference Approaches (Trillion BTU)

| Approach                          | Coal     | Natural Gas | Petroleum | TOTAL    |
|-----------------------------------|----------|-------------|-----------|----------|
| Sectoral <sup>a</sup>             | 21,692.3 | 23,577.3    | 37,149.0  | 82,418.5 |
| Reference (Apparent) <sup>a</sup> | 20,931.3 | 23,598.4    | 37,041.0  | 81,570.7 |
| Difference                        | -3.5%    | 0.1%        | -0.3%     | -1.0%    |

<sup>a</sup> Includes U.S. territories

Note: Totals may not sum due to independent rounding.

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 8: 2000 CO<sub>2</sub> Emissions from Fossil Fuel Combustion by  
Estimating Approach (Tg CO<sub>2</sub>)

| Approach               | Coal    | Natural Gas | Petroleum | TOTAL   |
|------------------------|---------|-------------|-----------|---------|
| Sectoral <sup>a</sup>  | 2,026.5 | 1,231.5     | 2,411.4   | 5,669.4 |
| Reference <sup>a</sup> | 1,966.8 | 1,232.6     | 2,437.1   | 5,636.5 |
| Difference             | -2.9%   | 0.1%        | 1.1%      | -0.6%   |

<sup>a</sup> Includes U.S. territories

Note: Totals may not sum due to independent rounding.

# Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

2001

Table 1: 2001 U.S. Energy Statistics (Physical Units)

| Fuel Category (Units)           | Fuel Type               | Production | Imports   | Exports | Stock Change | Adjustment | Bunkers | U.S. Territories | Apparent Consumption |
|---------------------------------|-------------------------|------------|-----------|---------|--------------|------------|---------|------------------|----------------------|
| Solid Fuels (1000 Short Tons)   | Anthracite Coal         | 1,940      | [1]       | [1]     | [1]          |            |         |                  | 1,940                |
|                                 | Bituminous Coal         | 611,291    | [1]       | [1]     | [1]          |            |         |                  | 611,291              |
|                                 | Sub-bituminous Coal     | 434,414    | [1]       | [1]     | [1]          |            |         |                  | 434,414              |
|                                 | Lignite                 | 80,043     | [1]       | [1]     | [1]          |            |         |                  | 80,043               |
|                                 | Coke                    |            | 2,340     | 1,346   | (91)         |            |         |                  | 1,085                |
|                                 | Unspecified Coal        |            | 19,787    | 48,666  | 30,676       | 27,678     |         | 457              | (86,775)             |
| Gas Fuels (Million Cubic Feet)  | Natural Gas             | 19,801,255 | 3,976,939 | 373,278 | 1,166,292    | 239,226    |         | 22,248           | 22,021,646           |
| Liquid Fuels (Thousand Barrels) | Crude Oil               | 2,117,511  | 3,404,894 | 7,386   | 36,036       |            |         |                  | 5,478,983            |
|                                 | Nat Gas Liquids and     | 681,964    | 91,374    | 16,492  | 40,550       |            |         | 1,827            | 718,123              |
|                                 | Other Liquids           | 34,498     | 275,838   | 13,523  | 7,337        |            |         |                  | 289,476              |
|                                 | Motor Gasoline          | 105,673    | 165,878   | 48,485  | 8,455        | 40,939     |         | 36,013           | 209,685              |
|                                 | Aviation Gasoline       |            | 598       | 0       | 199          |            |         |                  | 399                  |
|                                 | Kerosene                |            | 1,773     | 768     | 1,281        |            |         | 156              | (120)                |
|                                 | Jet Fuel                |            | 54,065    | 10,728  | (2,565)      |            | 149,066 | 17,438           | (85,727)             |
|                                 | Distillate Fuel         |            | 125,586   | 43,543  | 26,486       |            | 12,429  | 18,785           | 61,913               |
|                                 | Residual Fuel           |            | 107,688   | 69,779  | 4,847        | 9,000      | 67,765  | 36,331           | (7,372)              |
|                                 | Naphtha for Petrofeed   |            | 32,989    | 0       | (359)        |            |         |                  | 33,348               |
|                                 | Petroleum Coke          |            | 2,016     | 122,746 | (179)        | 12,412     |         |                  | (132,963)            |
|                                 | Other Oil for Petrofeed |            | 51,749    | 0       | (300)        | 22,544     |         |                  | 29,505               |
|                                 | Special Naphthas        |            | 4,926     | 8,410   | (106)        |            |         |                  | (3,378)              |
|                                 | Lubricants              |            | 2,841     | 9,331   | 1,686        |            |         | 7                | (8,169)              |
|                                 | Waxes                   |            | 918       | 1,313   | (435)        |            |         |                  | 40                   |
|                                 | Asphalt/Road Oil        |            | 9,638     | 1,829   | (4,403)      |            |         |                  | 12,212               |
|                                 | Still Gas               |            | 0         | 0       | 0            |            |         |                  | 0                    |
|                                 | Misc. Products          |            | 267       | 88      | 272          |            |         | 13,837           | 13,744               |

[1] Included in Unspecified Coal Totals

## Data Sources:

Solid and Gas Fuels - EIA Annual Energy Review 2001 (<http://www.eia.doe.gov/emeu/aer/contents.html>), Tables 7.1: Coal Overview, 7.2: Coal Production, 7.7: Coke Overview; Liquid Fuels - EIA Petroleum Supply Annual 2001, Table 2.

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 2: Conversion Factors to Energy Units (Heat Equivalents)

| Fuel Category (Units)               | Fuel Type               | Production | Imports | Exports | Stock<br>Change | Adjustment | Bunkers | U.S.<br>Territories |
|-------------------------------------|-------------------------|------------|---------|---------|-----------------|------------|---------|---------------------|
| Solid Fuels (Million BTU/Short Ton) | Anthracite Coal         | 22.57      |         |         |                 |            |         |                     |
|                                     | Bituminous Coal         | 23.89      |         |         |                 |            |         |                     |
|                                     | Sub-bituminous Coal     | 17.14      |         |         |                 |            |         |                     |
|                                     | Lignite                 | 12.87      |         |         |                 |            |         |                     |
|                                     | Coke                    |            | 24.80   | 24.80   | 24.80           |            |         |                     |
|                                     | Unspecified             |            | 25.00   | 26.00   | 20.87           | 25.61      |         | 25.14               |
| Natural Gas (BTU/Cubic Foot)        |                         | 1,030      | 1,023   | 1,010   | 1,030           | 1,030      |         | 1,030               |
| Liquid Fuels (Million Btu/Barrel)   | Crude Oil               | 5.80       | 5.98    | 5.80    | 5.80            |            | 5.80    | 5.80                |
|                                     | Nat Gas Liquids and     | 3.74       | 3.74    | 3.74    | 3.74            |            | 3.74    | 3.74                |
|                                     | Other Liquids           | 5.83       | 5.83    | 5.83    | 5.83            |            | 5.83    | 5.83                |
|                                     | Motor Gasoline          | 5.21       | 5.21    | 5.21    | 5.21            | 5.21       | 5.21    | 5.21                |
|                                     | Aviation Gasoline       |            | 5.05    | 5.05    | 5.05            |            | 5.05    | 5.05                |
|                                     | Kerosene                |            | 5.67    | 5.67    | 5.67            |            | 5.67    | 5.67                |
|                                     | Jet Fuel                |            | 5.67    | 5.67    | 5.67            |            | 5.67    | 5.67                |
|                                     | Distillate Fuel         |            | 5.83    | 5.83    | 5.83            |            | 5.83    | 5.83                |
|                                     | Residual Oil            |            | 6.29    | 6.29    | 6.29            | 6.29       | 6.29    | 6.29                |
|                                     | Naphtha for Petrofeed   |            | 5.25    | 5.25    | 5.25            |            | 5.25    | 5.25                |
|                                     | Petroleum Coke          |            | 6.02    | 6.02    | 6.02            | 6.02       | 6.02    | 6.02                |
|                                     | Other Oil for Petrofeed |            | 5.83    | 5.83    | 5.83            | 5.83       | 5.83    | 5.83                |
|                                     | Special Naphthas        |            | 5.25    | 5.25    | 5.25            |            | 5.25    | 5.25                |
|                                     | Lubricants              |            | 6.07    | 6.07    | 6.07            |            | 6.07    | 6.07                |
|                                     | Waxes                   |            | 5.54    | 5.54    | 5.54            |            | 5.54    | 5.54                |
|                                     | Asphalt/Road Oil        |            | 6.64    | 6.64    | 6.64            |            | 6.64    | 6.64                |
|                                     | Still Gas               |            | 6.00    | 6.00    | 6.00            |            | 6.00    | 6.00                |
|                                     | Misc. Products          |            | 5.80    | 5.80    | 5.80            |            | 5.80    | 5.80                |

### Data Sources:

Coal and lignite production - EIA State Energy Data Report 1992

Unspecified Solid Fuels, Coke, Natural Gas and Petroleum Products - EIA Annual Energy Review 2003; Tables A1, A2, A4, A5.

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 3: 2001 Apparent Consumption of Fossil Fuels (Trillion Btu)

| Fuel Category | Fuel Type               | Production | Imports  | Exports | Stock<br>Change | Adjustment | Bunkers | U.S.<br>Territories | Apparent<br>Consumption |
|---------------|-------------------------|------------|----------|---------|-----------------|------------|---------|---------------------|-------------------------|
| Solid Fuels   | Anthracite Coal         | 43.8       |          |         |                 |            |         | 0.0                 | 43.8                    |
|               | Bituminous Coal         | 14,603.7   |          |         |                 |            |         | 0.0                 | 14,603.7                |
|               | Sub-bituminous Coal     | 7,445.9    |          |         |                 |            |         | 0.0                 | 7,445.9                 |
|               | Lignite                 | 1,029.8    |          |         |                 |            |         | 0.0                 | 1,029.8                 |
|               | Coke                    | 0.0        | 58.0     | 33.4    | (2.3)           |            |         | 0.0                 | 26.9                    |
| Gas Fuels     | Unspecified             | 0.0        | 494.7    | 1,265.2 | 640.0           | 708.8      |         | 11.5                | (2,107.9)               |
|               | Natural Gas             | 20,395.3   | 4,068.4  | 377.0   | 1,201.3         | 246.4      |         | 22.9                | 22,661.9                |
| Liquid Fuels  | Crude Oil               | 12,281.6   | 20,347.6 | 42.8    | 209.0           |            | 0.0     | 0.0                 | 32,377.4                |
|               | Nat Gas Liquids and LI  | 2,547.1    | 341.3    | 61.6    | 151.5           |            | 0.0     | 6.8                 | 2,682.2                 |
|               | Other Liquids           | 201.0      | 1,606.8  | 78.8    | 42.7            |            | 0.0     | 0.0                 | 1,686.2                 |
|               | Motor Gasoline          | 550.6      | 864.2    | 252.6   | 44.1            | 213.3      | 0.0     | 187.6               | 1,092.5                 |
|               | Aviation Gasoline       | 0.0        | 3.0      | 0.0     | 1.0             |            | 0.0     | 0.0                 | 2.0                     |
|               | Kerosene                | 0.0        | 10.1     | 4.4     | 7.3             |            | 0.0     | 0.9                 | (0.7)                   |
|               | Jet Fuel                | 0.0        | 306.5    | 60.8    | (14.5)          |            | 845.2   | 98.9                | (486.1)                 |
|               | Distillate Fuel         | 0.0        | 731.5    | 253.6   | 154.3           |            | 72.4    | 109.4               | 360.6                   |
|               | Residual Oil            | 0.0        | 677.0    | 438.7   | 30.5            | 56.6       | 426.0   | 228.4               | (46.3)                  |
|               | Naphtha for Petrofeed   | 0.0        | 173.1    | 0.0     | (1.9)           |            | 0.0     | 0.0                 | 175.0                   |
|               | Petroleum Coke          | 0.0        | 12.1     | 739.4   | (1.1)           | 74.8       | 0.0     | 0.0                 | (801.0)                 |
|               | Other Oil for Petrofeed | 0.0        | 301.4    | 0.0     | (1.7)           | 131.3      | 0.0     | 0.0                 | 171.9                   |
|               | Special Naphthas        | 0.0        | 25.9     | 44.1    | (0.6)           |            | 0.0     | 0.0                 | (17.7)                  |
|               | Lubricants              | 0.0        | 17.2     | 56.6    | 10.2            |            | 0.0     | 0.0                 | (49.5)                  |
|               | Waxes                   | 0.0        | 5.1      | 7.3     | (2.4)           |            | 0.0     | 0.0                 | 0.2                     |
|               | Asphalt/Road Oil        | 0.0        | 64.0     | 12.1    | (29.2)          |            | 0.0     | 0.0                 | 81.0                    |
|               | Still Gas               | 0.0        | 0.0      | 0.0     | 0.0             |            | 0.0     | 0.0                 | 0.0                     |
|               | Misc. Products          | 0.0        | 1.5      | 0.5     | 1.6             |            | 0.0     | 80.2                | 79.7                    |
| TOTAL         |                         | 59,098.7   | 30,109.6 | 3,729.0 | 2,439.7         | 1,431.2    | 1,343.6 | 746.7               | 81,011.5                |



## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 4: 2001 Potential Carbon Emissions

| Fuel Category | Fuel Type               | Apparent              | Carbon Coefficients | Potential Carbon                      |
|---------------|-------------------------|-----------------------|---------------------|---------------------------------------|
|               |                         | Consumption<br>(QBTU) | (Tg Carbon/QBTU)    | Emissions (Tg CO <sub>2</sub><br>Eq.) |
| Solid Fuels   | Anthracite Coal         | 0.044                 | 28.26               | 4.5                                   |
|               | Bituminous Coal         | 14.604                | 25.49               | 1,364.9                               |
|               | Sub-bituminous Coal     | 7.446                 | 26.48               | 722.9                                 |
|               | Lignite                 | 1.030                 | 26.30               | 99.3                                  |
|               | Coke                    | 0.027                 | 31.00               | 3.1                                   |
|               | Unspecified             | (2.108)               | 25.34               | (195.8)                               |
| Gas Fuels     | Natural Gas             | 22.662                | 14.47               | 1,202.4                               |
| Liquid Fuels  | Crude Oil               | 32.377                | 20.29               | 2,408.4                               |
|               | Nat Gas Liquids and LI  | 2.682                 | 16.99               | 167.1                                 |
|               | Other Liquids           | 1.686                 | 20.29               | 125.4                                 |
|               | Motor Gasoline          | 1.092                 | 19.34               | 77.5                                  |
|               | Aviation Gasoline       | 0.002                 | 18.87               | 0.1                                   |
|               | Kerosene                | (0.001)               | 19.72               | (0.0)                                 |
|               | Jet Fuel                | (0.486)               | 19.33               | (34.5)                                |
|               | Distillate Fuel         | 0.361                 | 19.95               | 26.4                                  |
|               | Residual Oil            | (0.046)               | 21.49               | (3.7)                                 |
|               | Naphtha for Petrofeed   | 0.175                 | 18.14               | 11.6                                  |
|               | Petroleum Coke          | (0.801)               | 27.85               | (81.8)                                |
|               | Other Oil for Petrofeed | 0.172                 | 19.95               | 12.6                                  |
|               | Special Naphthas        | (0.018)               | 19.86               | (1.3)                                 |
|               | Lubricants              | (0.050)               | 20.24               | (3.7)                                 |
|               | Waxes                   | 0.000                 | 19.81               | 0.0                                   |
|               | Asphalt/Road Oil        | 0.081                 | 20.62               | 6.1                                   |
|               | Still Gas               | 0.000                 | 17.51               | 0.0                                   |
|               | Misc. Products          | 0.080                 | 20.29               | 5.9                                   |
| TOTAL         |                         |                       |                     | 5,917.6                               |

### Data Sources:

Coal and Lignite - Revised 1996 IPCC Guidelines Reference Manual, Table 1-1

Unspecified Solid Fuels, Coke, Natural Gas and Liquid Fuels obtained from param01.xls

Note these fuels have carbon contents that vary annually: Coke, Unspecified, Crude Oil, Nat Gas Liquids and LRGs, Other Liquids, Motor Gasoline, Jet Fuel, and Misc. Products

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 5: 2001 Carbon Stored in Products

| Fuel Type                        | Consumption for<br>Non-Energy Use<br>(Trillion BTU) | Carbon Coefficients<br>(Tg Carbon/QBTU) | Carbon<br>Content (Tg<br>Carbon) | Fraction<br>Sequestered | Carbon<br>Stored (Tg<br>CO <sub>2</sub> Eq.) |
|----------------------------------|---|---|----------------------------------|-------------------------|--|
| Industrial Coking Coal           | 23.7  | 31.00                                   | 0.7                              | 0.75                    | 2.02   |
| Natural Gas                      | 394.0   | 14.47                                   | 5.7                              | 0.64                    | 13.30  |
| Asphalt & Road Oil               | 1,256.9   | 20.62                                   | 25.9                             | 1.00                    | 95.03  |
| LPG                              | 1,483.9   | 16.83                                   | 25.0                             | 0.64                    | 58.26  |
| Lubricants                       | 338.4   | 20.24                                   | 6.8                              | 0.09                    | 2.32   |
| Pentanes Plus                    | 193.2   | 18.24                                   | 3.5                              | 0.64                    | 8.22   |
| Petro. Feedstocks                | [1]   | [1]                                     | [1]                              | [1]                     | 45.72  |
| Petroleum Coke                   | 132.8   | 27.85                                   | 3.7                              | 0.50                    | 6.78   |
| Special Naphtha                  | 75.5  | 19.86                                   | 1.5                              | 0.64                    | 3.50   |
| Waxes/Misc.                      | [1]   | [1]                                     | [1]                              | [1]                     | 1.96   |
| Misc. U.S. Territories Petroleum | [1]   | [1]                                     | [1]                              | [1]                     | 0.59   |
| <b>TOTAL</b>                     |   |   |                                  |                         | <b>237.7</b>                                 |

[1] Values for Misc. U.S. Territories Petroleum, Petrochemical Feedstocks and Waxes/Misc. are not shown because these categories are aggregates of numerous smaller components.

|                    |
|--------------------|
| Conversion         |
| CO <sub>2</sub> /C |
| 3.7                |

Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 6: Reference Approach CO<sub>2</sub> Emissions from Fossil Fuel Consumption (Tg CO<sub>2</sub> Eq. unless otherwise noted)

| Fuel Category | Potential        | Carbon Sequestered | Net Carbon Emissions | Fraction           | CO <sub>2</sub> Emissions |
|---------------|------------------|--------------------|----------------------|--------------------|---------------------------|
|               | Carbon Emissions |                    |                      | Oxidized (percent) |                           |
| Coal          | 1,999.0          | 2.0                | 1,996.9              | 99.0%              | <b>1,977.0</b>            |
| Petroleum     | 2,716.3          | 222.4              | 2,493.9              | 99.0%              | <b>2,469.0</b>            |
| Natural Gas   | 1,202.4          | 13.3               | 1,189.1              | 99.5%              | <b>1,183.1</b>            |
| TOTAL         | 5,917.6          | 237.7              | 5,679.9              | -                  | <b>5,629.1</b>            |

Table 7: 2001 Fuel Consumption in the United States: Sectoral vs. Reference Approaches (Trillion BTU)

| Approach                          | Coal     | Natural Gas | Petroleum | TOTAL    |
|-----------------------------------|----------|-------------|-----------|----------|
| Sectoral <sup>a</sup>             | 20,992.2 | 22,640.3    | 37,213.9  | 80,846.3 |
| Reference (Apparent) <sup>a</sup> | 21,042.3 | 22,661.9    | 37,307.3  | 81,011.5 |
| Difference                        | 0.2%     | 0.1%        | 0.3%      | 0.2%     |

<sup>a</sup> Includes U.S. territories. Does not include bunker fuels.  
Note: Totals may not sum due to independent rounding.

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 8: 2001 CO<sub>2</sub> Emissions from Fossil Fuel Combustion by  
Estimating Approach (Tg CO<sub>2</sub>)

| <b>Approach</b>        | <b>Coal</b> | <b>Natural Gas</b> | <b>Petroleum</b> | <b>TOTAL</b> |
|------------------------|-------------|--------------------|------------------|--------------|
| Sectoral <sup>a</sup>  | 1,960.3     | 1,182.0            | 2,425.4          | 5,567.7      |
| Reference <sup>a</sup> | 1,977.0     | 1,183.1            | 2,469.0          | 5,629.1      |
| Difference             | 0.9%        | 0.1%               | 1.8%             | 1.1%         |

<sup>a</sup> Includes U.S. territories

Note: Totals may not sum due to independent rounding.

# Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

2002

Table 1: 2002 U.S. Energy Statistics (Physical Units)

| Fuel Category (Units)           | Fuel Type               | Production | Imports   | Exports | Stock Change | Adjustment | Bunkers | U.S. Territories | Apparent Consumption |
|---------------------------------|-------------------------|------------|-----------|---------|--------------|------------|---------|------------------|----------------------|
| Solid Fuels (1000 Short Tons)   | Anthracite Coal         | 1,367      | [1]       | [1]     | [1]          |            |         |                  | 1,367                |
|                                 | Bituminous Coal         | 572,103    | [1]       | [1]     | [1]          |            |         |                  | 572,103              |
|                                 | Sub-bituminous Coal     | 438,353    | [1]       | [1]     | [1]          |            |         |                  | 438,353              |
|                                 | Lignite                 | 82,459     | [1]       | [1]     | [1]          |            |         |                  | 82,459               |
|                                 | Coke                    |            | 3,242     | 792     | (375)        |            |         |                  | 2,825                |
|                                 | Unspecified Coal        |            | 16,875    | 39,601  | 10,215       | 26,081     |         | 567              | (58,454)             |
| Gas Fuels (Million Cubic Feet)  | Natural Gas             | 19,050,075 | 4,015,463 | 516,233 | (468,679)    | 270,847    |         | 22,248           | 22,769,385           |
| Liquid Fuels (Thousand Barrels) | Crude Oil               | 2,097,124  | 3,336,175 | 3,296   | 14,484       |            |         |                  | 5,415,519            |
|                                 | Nat Gas Liquids and     | 686,288    | 72,487    | 24,444  | (14,987)     |            |         | 1,822            | 751,140              |
|                                 | Other Liquids           | 45,832     | 285,726   | 23,964  | (14,119)     |            |         |                  | 321,713              |
|                                 | Motor Gasoline          | 106,576    | 181,894   | 45,315  | 443          | 49,459     |         | 35,789           | 229,043              |
|                                 | Aviation Gasoline       |            | 231       | 0       | (98)         |            |         |                  | 329                  |
|                                 | Kerosene                |            | 1,883     | 6,763   | 75           |            |         | 156              | (4,799)              |
|                                 | Jet Fuel                |            | 39,225    | 5,600   | (2,774)      |            | 155,114 | 16,543           | (102,172)            |
|                                 | Distillate Fuel         |            | 97,603    | 40,976  | (10,428)     |            | 12,057  | 18,279           | 73,277               |
|                                 | Residual Fuel           |            | 90,896    | 64,698  | (9,714)      | 9,000      | 46,112  | 36,174           | 16,974               |
|                                 | Naphtha for Petrofeed   |            | 22,998    | 0       | (4)          |            |         |                  | 23,002               |
|                                 | Petroleum Coke          |            | 6,847     | 123,126 | 38           | 13,041     |         |                  | (129,358)            |
|                                 | Other Oil for Petrofeed |            | 53,416    | 0       | (179)        | 25,475     |         |                  | 28,120               |
|                                 | Special Naphthas        |            | 6,045     | 5,314   | 32           |            |         |                  | 699                  |
|                                 | Lubricants              |            | 2,165     | 12,134  | (1,742)      |            |         | 7                | (8,220)              |
|                                 | Waxes                   |            | 1,017     | 1,245   | 284          |            |         |                  | (512)                |
|                                 | Asphalt/Road Oil        |            | 9,891     | 2,115   | 639          |            |         |                  | 7,137                |
|                                 | Still Gas               |            | 0         | 0       | 0            |            |         |                  | 0                    |
|                                 | Misc. Products          |            | 39        | 85      | (389)        |            |         | 13,888           | 14,231               |

[1] Included in Unspecified Coal Totals

## Data Sources:

Solid and Gas Fuels - EIA Annual Energy Review 2002 (<http://www.eia.doe.gov/emeu/aer/contents.html>), Tables 7.1: Coal Overview, 7.2: Coal Production, 7.7: Coke Overview; Liquid Fuels - EIA Petroleum Supply Annual 2002, Volume 1, Table 2.

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 2: Conversion Factors to Energy Units (Heat Equivalents)

| Fuel Category (Units)               | Fuel Type               | Production | Imports | Exports | Stock<br>Change | Adjustment | Bunkers | U.S.<br>Territories |
|-------------------------------------|-------------------------|------------|---------|---------|-----------------|------------|---------|---------------------|
| Solid Fuels (Million BTU/Short Ton) | Anthracite Coal         | 22.57      |         |         |                 |            |         |                     |
|                                     | Bituminous Coal         | 23.89      |         |         |                 |            |         |                     |
|                                     | Sub-bituminous Coal     | 17.14      |         |         |                 |            |         |                     |
|                                     | Lignite                 | 12.87      |         |         |                 |            |         |                     |
|                                     | Coke                    |            | 24.80   | 24.80   | 24.80           |            |         |                     |
|                                     | Unspecified             |            | 25.00   | 26.06   | 20.74           | 25.45      |         | 25.14               |
| Natural Gas (BTU/Cubic Foot)        |                         | 1,028      | 1,022   | 1,008   | 1,028           | 1,028      |         | 1,028               |
| Liquid Fuels (Million Btu/Barrel)   | Crude Oil               | 5.80       | 5.97    | 5.80    | 5.80            |            | 5.80    | 5.80                |
|                                     | Nat Gas Liquids and     | 5.86       | 5.86    | 5.86    | 5.86            |            | 5.86    | 5.86                |
|                                     | Other Liquids           | 5.83       | 5.83    | 5.83    | 5.83            |            | 5.83    | 5.83                |
|                                     | Motor Gasoline          | 5.21       | 5.21    | 5.21    | 5.21            | 5.21       | 5.21    | 5.21                |
|                                     | Aviation Gasoline       |            | 5.05    | 5.05    | 5.05            |            | 5.05    | 5.05                |
|                                     | Kerosene                |            | 5.67    | 5.67    | 5.67            |            | 5.67    | 5.67                |
|                                     | Jet Fuel                |            | 5.67    | 5.67    | 5.67            |            | 5.67    | 5.67                |
|                                     | Distillate Fuel         |            | 5.83    | 5.83    | 5.83            |            | 5.83    | 5.83                |
|                                     | Residual Oil            |            | 6.29    | 6.29    | 6.29            | 6.29       | 6.29    | 6.29                |
|                                     | Naphtha for Petrofeed   |            | 5.25    | 5.25    | 5.25            |            | 5.25    | 5.25                |
|                                     | Petroleum Coke          |            | 6.02    | 6.02    | 6.02            | 6.02       | 6.02    | 6.02                |
|                                     | Other Oil for Petrofeed |            | 5.83    | 5.83    | 5.83            | 5.83       | 5.83    | 5.83                |
|                                     | Special Naphthas        |            | 5.25    | 5.25    | 5.25            |            | 5.25    | 5.25                |
|                                     | Lubricants              |            | 6.07    | 6.07    | 6.07            |            | 6.07    | 6.07                |
|                                     | Waxes                   |            | 5.54    | 5.54    | 5.54            |            | 5.54    | 5.54                |
|                                     | Asphalt/Road Oil        |            | 6.64    | 6.64    | 6.64            |            | 6.64    | 6.64                |
|                                     | Still Gas               |            | 6.00    | 6.00    | 6.00            |            | 6.00    | 6.00                |
|                                     | Misc. Products          |            | 5.80    | 5.80    | 5.80            |            | 5.80    | 5.80                |

### Data Sources:

Coal and lignite production - EIA State Energy Data Report 1992

Unspecified Solid Fuels, Coke, Natural Gas and Petroleum Products - EIA Annual Energy Review 2003; Tables A1, A2, A4, A5.

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 3: 2002 Apparent Consumption of Fossil Fuels (Trillion Btu)

| Fuel Category | Fuel Type               | Production | Imports  | Exports | Stock<br>Change | Adjustment | Bunkers | U.S.<br>Territories | Apparent<br>Consumption |
|---------------|-------------------------|------------|----------|---------|-----------------|------------|---------|---------------------|-------------------------|
| Solid Fuels   | Anthracite Coal         | 30.9       |          |         |                 |            |         | 0.0                 | 30.9                    |
|               | Bituminous Coal         | 13,667.5   |          |         |                 |            |         | 0.0                 | 13,667.5                |
|               | Sub-bituminous Coal     | 7,513.4    |          |         |                 |            |         | 0.0                 | 7,513.4                 |
|               | Lignite                 | 1,060.9    |          |         |                 |            |         | 0.0                 | 1,060.9                 |
|               | Coke                    | 0.0        | 80.4     | 19.6    | (9.3)           |            |         | 0.0                 | 70.1                    |
|               | Unspecified             | 0.0        | 421.9    | 1,032.1 | 211.9           | 663.7      |         | 14.3                | (1,471.5)               |
| Gas Fuels     | Natural Gas             | 19,583.5   | 4,103.8  | 520.4   | (481.8)         | 278.4      |         | 22.9                | 23,393.2                |
| Liquid Fuels  | Crude Oil               | 12,163.3   | 19,920.3 | 19.1    | 84.0            |            | 0.0     | 0.0                 | 31,980.5                |
|               | Nat Gas Liquids and LF  | 4,023.7    | 425.0    | 143.3   | (87.9)          |            | 0.0     | 10.7                | 4,403.9                 |
|               | Other Liquids           | 267.0      | 1,664.4  | 139.6   | (82.2)          |            | 0.0     | 0.0                 | 1,874.0                 |
|               | Motor Gasoline          | 555.0      | 947.3    | 236.0   | 2.3             | 257.6      | 0.0     | 186.4               | 1,192.9                 |
|               | Aviation Gasoline       | 0.0        | 1.2      | 0.0     | (0.5)           |            | 0.0     | 0.0                 | 1.7                     |
|               | Kerosene                | 0.0        | 10.7     | 38.3    | 0.4             |            | 0.0     | 0.9                 | (27.2)                  |
|               | Jet Fuel                | 0.0        | 222.4    | 31.8    | (15.7)          |            | 879.5   | 93.8                | (579.3)                 |
|               | Distillate Fuel         | 0.0        | 568.5    | 238.7   | (60.7)          |            | 70.2    | 106.5               | 426.8                   |
|               | Residual Oil            | 0.0        | 571.5    | 406.8   | (61.1)          | 56.6       | 289.9   | 227.4               | 106.7                   |
|               | Naphtha for Petrofeed   | 0.0        | 120.7    | 0.0     | (0.0)           |            | 0.0     | 0.0                 | 120.7                   |
|               | Petroleum Coke          | 0.0        | 41.2     | 741.7   | 0.2             | 78.6       | 0.0     | 0.0                 | (779.3)                 |
|               | Other Oil for Petrofeed | 0.0        | 311.1    | 0.0     | (1.0)           | 148.4      | 0.0     | 0.0                 | 163.8                   |
|               | Special Naphthas        | 0.0        | 31.7     | 27.9    | 0.2             |            | 0.0     | 0.0                 | 3.7                     |
|               | Lubricants              | 0.0        | 13.1     | 73.6    | (10.6)          |            | 0.0     | 0.0                 | (49.9)                  |
|               | Waxes                   | 0.0        | 5.6      | 6.9     | 1.6             |            | 0.0     | 0.0                 | (2.8)                   |
|               | Asphalt/Road Oil        | 0.0        | 65.6     | 14.0    | 4.2             |            | 0.0     | 0.0                 | 47.4                    |
|               | Still Gas               | 0.0        | 0.0      | 0.0     | 0.0             |            | 0.0     | 0.0                 | 0.0                     |
|               | Misc. Products          | 0.0        | 0.2      | 0.5     | (2.3)           |            | 0.0     | 80.5                | 82.5                    |
| TOTAL         |                         | 58,865.2   | 29,526.7 | 3,690.3 | (508.3)         | 1,483.3    | 1,239.6 | 743.3               | 83,230.4                |

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 4: 2002 Potential Carbon Emissions

| Fuel Category | Fuel Type               | Apparent<br>Consumption<br>(QBTU) | Carbon Coefficients<br>(Tg Carbon/QBTU) | Potential Carbon<br>Emissions (Tg CO <sub>2</sub><br>Eq.) |
|---------------|-------------------------|-----------------------------------|---|---|
| Solid Fuels   | Anthracite Coal         | 0.031                             | 28.26                                   | 3.2   |
|               | Bituminous Coal         | 13.668                            | 25.49                                   | 1,277.4   |
|               | Sub-bituminous Coal     | 7.513                             | 26.48                                   | 729.5   |
|               | Lignite                 | 1.061                             | 26.30                                   | 102.3   |
|               | Coke                    | 0.070                             | 31.00                                   | 8.0   |
|               | Unspecified             | (1.472)                           | 25.34                                   | (136.7)   |
| Gas Fuels     | Natural Gas             | 23.393                            | 14.47                                   | 1,241.2   |
| Liquid Fuels  | Crude Oil               | 31.980                            | 20.23                                   | 2,372.2   |
|               | Nat Gas Liquids and LF  | 4.404                             | 16.99                                   | 274.3   |
|               | Other Liquids           | 1.874                             | 20.23                                   | 139.0   |
|               | Motor Gasoline          | 1.193                             | 19.34                                   | 84.6  |
|               | Aviation Gasoline       | 0.002                             | 18.87                                   | 0.1   |
|               | Kerosene                | (0.027)                           | 19.72                                   | (2.0)   |
|               | Jet Fuel                | (0.579)                           | 19.33                                   | (41.1)  |
|               | Distillate Fuel         | 0.427                             | 19.95                                   | 31.2  |
|               | Residual Oil            | 0.107                             | 21.49                                   | 8.4   |
|               | Naphtha for Petrofeed   | 0.121                             | 18.14                                   | 8.0   |
|               | Petroleum Coke          | (0.779)                           | 27.85                                   | (79.6)  |
|               | Other Oil for Petrofeed | 0.164                             | 19.95                                   | 12.0  |
|               | Special Naphthas        | 0.004                             | 19.86                                   | 0.3   |
|               | Lubricants              | (0.050)                           | 20.24                                   | (3.7)   |
|               | Waxes                   | (0.003)                           | 19.81                                   | (0.2)   |
|               | Asphalt/Road Oil        | 0.047                             | 20.62                                   | 3.6   |
|               | Still Gas               | 0.000                             | 17.51                                   | 0.0   |
|               | Misc. Products          | 0.082                             | 20.23                                   | 6.1   |
| TOTAL         |                         |                                   |   | 6,038.1   |

### Data Sources:

Coal and Lignite - Revised 1996 IPCC Guidelines Reference Manual, Table 1-1

Unspecified Solid Fuels, Coke, Natural Gas and Liquid Fuels obtained from param01.xls

Note these fuels have carbon contents that vary annually: Coke, Unspecified, Crude Oil,

Nat Gas Liquids and LRGs, Other Liquids, Motor Gasoline, Jet Fuel, and Misc. Products



## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 5: 2002 Carbon Stored in Products

| Fuel Type                        | Consumption for<br>Non-Energy Use<br>(Trillion BTU) | Carbon Coefficients<br>(Tg Carbon/QBTU) | Carbon<br>Content (Tg<br>Carbon) | Fraction<br>Sequestered | Carbon<br>Stored (Tg<br>CO <sub>2</sub> Eq.) |
|----------------------------------|---|---|----------------------------------|-------------------------|--|
| Industrial Coking Coal           | 7.0   | 31.00                                   | 0.2                              | 0.75                    | 0.59   |
| Natural Gas                      | 402.0   | 14.47                                   | 5.8                              | 0.65                    | 13.88  |
| Asphalt & Road Oil               | 1,240.0   | 20.62                                   | 25.6                             | 1.00                    | 93.75  |
| LPG                              | 1,550.4   | 16.82                                   | 26.1                             | 0.65                    | 62.24  |
| Lubricants                       | 334.4   | 20.24                                   | 6.8                              | 0.09                    | 2.29   |
| Pentanes Plus                    | 164.6   | 18.24                                   | 3.0                              | 0.65                    | 7.17   |
| Petro. Feedstocks                | [1]   | [1]                                     | [1]                              | [1]                     | 49.33  |
| Petroleum Coke                   | 113.6   | 27.85                                   | 3.2                              | 0.50                    | 5.80   |
| Special Naphtha                  | 98.7  | 19.86                                   | 2.0                              | 0.65                    | 4.68   |
| Waxes/Misc.                      | [1]   | [1]                                     | [1]                              | [1]                     | 1.78   |
| Misc. U.S. Territories Petroleum | [1]   | [1]                                     | [1]                              | [1]                     | 0.59   |
| <b>TOTAL</b>                     |   |   |                                  |                         | <b>242.1</b>                                 |

[1] Values for Misc. U.S. Territories Petroleum, Petrochemical Feedstocks and Waxes/Misc. are not shown because these categories are aggregates of numerous smaller components.

Conversion  
CO<sub>2</sub>/C  
3.7

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 6: Reference Approach CO<sub>2</sub> Emissions from Fossil Fuel Consumption (Tg CO<sub>2</sub> Eq. unless otherwise noted)

| Fuel Category | Potential<br>Carbon<br>Emissions | Carbon<br>Sequestered | Net Carbon<br>Emissions | Fraction<br>Oxidized<br>(percent) | CO <sub>2</sub><br>Emissions |
|---------------|----------------------------------|-----------------------|-------------------------|-----------------------------------|------------------------------|
| Coal          | 1,983.7                          | 0.6                   | 1,983.1                 | 99.0%                             | <b>1,963.3</b>               |
| Petroleum     | 2,813.3                          | 227.6                 | 2,585.7                 | 99.0%                             | <b>2,559.8</b>               |
| Natural Gas   | 1,241.2                          | 13.9                  | 1,227.3                 | 99.5%                             | <b>1,221.1</b>               |
| <b>TOTAL</b>  | <b>6,038.1</b>                   | <b>242.1</b>          | <b>5,796.0</b>          | <b>-</b>                          | <b>5,744.2</b>               |

Table 7: 2002 Fuel Consumption in the United States: Sectoral vs. Reference Approaches (Trillion BTU)

| Approach                          | Coal     | Natural Gas | Petroleum | TOTAL    |
|-----------------------------------|----------|-------------|-----------|----------|
| Sectoral <sup>a</sup>             | 21,123.1 | 23,397.5    | 37,304.4  | 81,825.0 |
| Reference (Apparent) <sup>a</sup> | 20,871.2 | 23,393.2    | 38,966.0  | 83,230.4 |
| Difference                        | -1.2%    | 0.0%        | 4.5%      | 1.7%     |

<sup>a</sup> Includes U.S. territories

Note: Totals may not sum due to independent rounding.

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 8: 2002 CO<sub>2</sub> Emissions from Fossil Fuel Combustion by  
Estimating Approach (Tg CO<sub>2</sub>)

| Approach               | Coal    | Natural Gas | Petroleum | TOTAL   |
|------------------------|---------|-------------|-----------|---------|
| Sectoral <sup>a</sup>  | 1,973.7 | 1,221.4     | 2,424.8   | 5,619.9 |
| Reference <sup>a</sup> | 1,963.3 | 1,221.1     | 2,559.8   | 5,744.2 |
| Difference             | -0.5%   | 0.0%        | 5.6%      | 2.2%    |

<sup>a</sup> Includes U.S. territories

Note: Totals may not sum due to independent rounding.

# Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

2003

Table 1: 2003 U.S. Energy Statistics (Physical Units)

| Fuel Category (Units)           | Fuel Type               | Production | Imports   | Exports | Stock Change | Adjustment | Bunkers | U.S. Territories | Apparent Consumption |
|---------------------------------|-------------------------|------------|-----------|---------|--------------|------------|---------|------------------|----------------------|
| Solid Fuels (1000 Short Tons)   | Anthracite Coal         | 1,289      | [1]       | [1]     | [1]          |            |         |                  | 1,289                |
|                                 | Bituminous Coal         | 559,169    | [1]       | [1]     | [1]          |            |         |                  | 559,169              |
|                                 | Sub-bituminous Coal     | 428,443    | [1]       | [1]     | [1]          |            |         |                  | 428,443              |
|                                 | Lignite                 | 80,595     | [1]       | [1]     | [1]          |            |         |                  | 80,595               |
|                                 | Coke                    |            | 2,759     | 722     | (227)        |            |         |                  | 2,264                |
|                                 | Unspecified Coal        |            | 25,044    | 43,014  | (28,352)     | 26,770     |         | 1,775            | (14,613)             |
| Gas Fuels (Million Cubic Feet)  | Natural Gas             | 18,850,382 | 3,927,686 | 691,880 | 192,521      | 223,102    |         | 26,133           | 21,696,698           |
| Liquid Fuels (Thousand Barrels) | Crude Oil               | 2,073,453  | 3,527,696 | 4,538   | 30,558       |            |         |                  | 5,566,053            |
|                                 | Nat Gas Liquids and     | 627,510    | 99,015    | 21,390  | (12,396)     |            |         | 1,991            | 719,522              |
|                                 | Other Liquids           | 42,492     | 272,412   | 21,375  | 12,087       |            |         |                  | 281,442              |
|                                 | Motor Gasoline          | 112,012    | 189,028   | 45,770  | (15,018)     | 66,685     |         | 39,956           | 243,559              |
|                                 | Aviation Gasoline       |            | 48        | 0       | (182)        |            |         |                  | 230                  |
|                                 | Kerosene                |            | 2,285     | 2,645   | 121          |            |         | 171              | (310)                |
|                                 | Jet Fuel                |            | 39,809    | 7,434   | (395)        |            | 149,515 | 18,676           | (98,069)             |
|                                 | Distillate Fuel         |            | 121,672   | 38,980  | 2,457        |            | 14,197  | 20,581           | 86,619               |
|                                 | Residual Fuel           |            | 119,496   | 72,072  | 6,467        | 9,000      | 38,019  | 40,311           | 34,249               |
|                                 | Naphtha for Petrofeed   |            | 31,906    | 0       | (497)        |            |         |                  | 32,403               |
|                                 | Petroleum Coke          |            | 8,105     | 131,751 | 1,779        | 13,654     |         |                  | (139,079)            |
|                                 | Other Oil for Petrofeed |            | 53,425    | 0       | (265)        | 24,704     |         |                  | 28,986               |
|                                 | Special Naphthas        |            | 4,092     | 7,959   | 28           |            |         |                  | (3,895)              |
|                                 | Lubricants              |            | 1,624     | 13,545  | (2,154)      |            |         | 7                | (9,760)              |
|                                 | Waxes                   |            | 1,157     | 1,459   | (169)        |            |         |                  | (133)                |
|                                 | Asphalt/Road Oil        |            | 4,274     | 3,649   | (2,031)      |            |         |                  | 2,656                |
|                                 | Still Gas               |            | 0         | 0       | 0            |            |         |                  | 0                    |
|                                 | Misc. Products          |            | 457       | 2,142   | 3            |            |         | 15,285           | 13,597               |

[1] Included in Unspecified Coal Totals

## Data Sources:

Solid and Gas Fuels - EIA Annual Energy Review 2003 (<http://www.eia.doe.gov/emeu/aer/contents.html>), Tables 7.1: Coal Overview, 7.2: Coal Production, 7.7: Coke Overview; Liquid Fuels - EIA Petroleum Supply Annual 2003, Volume 1, Table 2.

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 2: Conversion Factors to Energy Units (Heat Equivalents)

| Fuel Category (Units)               | Fuel Type               | Production | Imports | Exports | Stock Change | Adjustment | Bunkers | U.S. Territories |
|-------------------------------------|-------------------------|------------|---------|---------|--------------|------------|---------|------------------|
| Solid Fuels (Million BTU/Short Ton) | Anthracite Coal         | 22.57      |         |         |              |            |         |                  |
|                                     | Bituminous Coal         | 23.89      |         |         |              |            |         |                  |
|                                     | Sub-bituminous Coal     | 17.14      |         |         |              |            |         |                  |
|                                     | Lignite                 | 12.87      |         |         |              |            |         |                  |
|                                     | Coke                    |            | 24.80   | 24.80   | 24.80        |            |         |                  |
|                                     | Unspecified             |            | 25.00   | 25.97   | 20.86        | 25.53      |         | 25.14            |
| Natural Gas (BTU/Cubic Foot)        |                         | 1,028      | 1,023   | 1,008   | 1,028        | 1,028      |         | 1,028            |
| Liquid Fuels (Million Btu/Barrel)   | Crude Oil               | 5.80       | 5.97    | 5.80    | 5.80         |            | 5.80    | 5.80             |
|                                     | Nat Gas Liquids and     | 5.86       | 5.86    | 5.86    | 5.86         |            | 5.86    | 5.86             |
|                                     | Other Liquids           | 5.83       | 5.83    | 5.83    | 5.83         |            | 5.83    | 5.83             |
|                                     | Motor Gasoline          | 5.21       | 5.21    | 5.21    | 5.21         | 5.21       | 5.21    | 5.21             |
|                                     | Aviation Gasoline       |            | 5.05    | 5.05    | 5.05         |            | 5.05    | 5.05             |
|                                     | Kerosene                |            | 5.67    | 5.67    | 5.67         |            | 5.67    | 5.67             |
|                                     | Jet Fuel                |            | 5.67    | 5.67    | 5.67         |            | 5.67    | 5.67             |
|                                     | Distillate Fuel         |            | 5.83    | 5.83    | 5.83         |            | 5.83    | 5.83             |
|                                     | Residual Oil            |            | 6.29    | 6.29    | 6.29         | 6.29       | 6.29    | 6.29             |
|                                     | Naphtha for Petrofeed   |            | 5.25    | 5.25    | 5.25         |            | 5.25    | 5.25             |
|                                     | Petroleum Coke          |            | 6.02    | 6.02    | 6.02         | 6.02       | 6.02    | 6.02             |
|                                     | Other Oil for Petrofeed |            | 5.83    | 5.83    | 5.83         | 5.83       | 5.83    | 5.83             |
|                                     | Special Naphthas        |            | 5.25    | 5.25    | 5.25         |            | 5.25    | 5.25             |
|                                     | Lubricants              |            | 6.07    | 6.07    | 6.07         |            | 6.07    | 6.07             |
|                                     | Waxes                   |            | 5.54    | 5.54    | 5.54         |            | 5.54    | 5.54             |
|                                     | Asphalt/Road Oil        |            | 6.64    | 6.64    | 6.64         |            | 6.64    | 6.64             |
|                                     | Still Gas               |            | 6.00    | 6.00    | 6.00         |            | 6.00    | 6.00             |
|                                     | Misc. Products          |            | 5.80    | 5.80    | 5.80         |            | 5.80    | 5.80             |

### Data Sources:

Coal and lignite production - EIA State Energy Data Report 1992

Unspecified Solid Fuels, Coke, Natural Gas and Petroleum Products - EIA Annual Energy Review 2003; Tables A1, A2, A4, A5.

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 3: 2002 Apparent Consumption of Fossil Fuels (Trillion Btu)

| Fuel Category | Fuel Type               | Production | Imports  | Exports | Stock<br>Change | Adjustment | Bunkers | U.S.<br>Territories | Apparent<br>Consumption |
|---------------|-------------------------|------------|----------|---------|-----------------|------------|---------|---------------------|-------------------------|
| Solid Fuels   | Anthracite Coal         | 29.1       |          |         |                 |            |         | 0.0                 | 29.1                    |
|               | Bituminous Coal         | 13,358.6   |          |         |                 |            |         | 0.0                 | 13,358.6                |
|               | Sub-bituminous Coal     | 7,343.5    |          |         |                 |            |         | 0.0                 | 7,343.5                 |
|               | Lignite                 | 1,036.9    |          |         |                 |            |         | 0.0                 | 1,036.9                 |
|               | Coke                    | 0.0        | 68.4     | 17.9    | (5.6)           |            |         | 0.0                 | 56.1                    |
|               | Unspecified             | 0.0        | 626.1    | 1,117.1 | (591.5)         | 683.3      |         | 44.6                | (538.3)                 |
| Gas Fuels     | Natural Gas             | 19,378.2   | 4,018.0  | 697.4   | 197.9           | 229.3      |         | 26.9                | 22,298.4                |
| Liquid Fuels  | Crude Oil               | 12,026.0   | 21,063.9 | 26.3    | 177.2           |            | 0.0     | 0.0                 | 32,886.3                |
|               | Nat Gas Liquids and LR  | 3,676.6    | 580.1    | 125.3   | (72.6)          |            | 0.0     | 11.7                | 4,215.7                 |
|               | Other Liquids           | 247.5      | 1,586.8  | 124.5   | 70.4            |            | 0.0     | 0.0                 | 1,639.4                 |
|               | Motor Gasoline          | 583.1      | 984.1    | 238.3   | (78.2)          | 347.2      | 0.0     | 208.0               | 1,268.0                 |
|               | Aviation Gasoline       | 0.0        | 0.2      | 0.0     | (0.9)           |            | 0.0     | 0.0                 | 1.2                     |
|               | Kerosene                | 0.0        | 13.0     | 15.0    | 0.7             |            | 0.0     | 1.0                 | (1.8)                   |
|               | Jet Fuel                | 0.0        | 225.7    | 42.2    | (2.2)           |            | 847.7   | 105.9               | (556.0)                 |
|               | Distillate Fuel         | 0.0        | 708.7    | 227.1   | 14.3            |            | 82.7    | 119.9               | 504.6                   |
|               | Residual Oil            | 0.0        | 751.3    | 453.1   | 40.7            | 56.6       | 239.0   | 253.4               | 215.3                   |
|               | Naphtha for Petrofeed   | 0.0        | 167.4    | 0.0     | (2.6)           |            | 0.0     | 0.0                 | 170.1                   |
|               | Petroleum Coke          | 0.0        | 48.8     | 793.7   | 10.7            | 82.2       | 0.0     | 0.0                 | (837.8)                 |
|               | Other Oil for Petrofeed | 0.0        | 311.2    | 0.0     | (1.5)           | 143.9      | 0.0     | 0.0                 | 168.8                   |
|               | Special Naphthas        | 0.0        | 21.5     | 41.8    | 0.1             |            | 0.0     | 0.0                 | (20.4)                  |
|               | Lubricants              | 0.0        | 9.8      | 82.2    | (13.1)          |            | 0.0     | 0.0                 | (59.2)                  |
|               | Waxes                   | 0.0        | 6.4      | 8.1     | (0.9)           |            | 0.0     | 0.0                 | (0.7)                   |
|               | Asphalt/Road Oil        | 0.0        | 28.4     | 24.2    | (13.5)          |            | 0.0     | 0.0                 | 17.6                    |
|               | Still Gas               | 0.0        | 0.0      | 0.0     | 0.0             |            | 0.0     | 0.0                 | 0.0                     |
|               | Misc. Products          | 0.0        | 2.6      | 12.4    | 0.0             |            | 0.0     | 88.6                | 78.8                    |
| TOTAL         |                         | 57,679.6   | 31,222.6 | 4,046.5 | (270.6)         | 1,542.6    | 1,169.5 | 860.0               | 83,274.1                |

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 4: 2003 Potential Carbon Emissions

| Fuel Category | Fuel Type               | Apparent Consumption (QBTU) | Carbon Coefficients (Tg Carbon/QBTU) | Potential Carbon Emissions (Tg CO <sub>2</sub> Eq.) |
|---------------|-------------------------|-----------------------------|--------------------------------------|---|
| Solid Fuels   | Anthracite Coal         | 0.029                       | 28.26                                | 3.0   |
|               | Bituminous Coal         | 13.359                      | 25.49                                | 1,248.5   |
|               | Sub-bituminous Coal     | 7.344                       | 26.48                                | 713.0   |
|               | Lignite                 | 1.037                       | 26.30                                | 100.0   |
|               | Coke                    | 0.056                       | 31.00                                | 6.4   |
|               | Unspecified             | (0.538)                     | 25.34                                | (50.0)  |
| Gas Fuels     | Natural Gas             | 22.298                      | 14.47                                | 1,183.1   |
| Liquid Fuels  | Crude Oil               | 32.886                      | 20.23                                | 2,439.4   |
|               | Nat Gas Liquids and LR  | 4.216                       | 16.99                                | 262.6   |
|               | Other Liquids           | 1.639                       | 20.23                                | 121.6   |
|               | Motor Gasoline          | 1.268                       | 19.34                                | 89.9  |
|               | Aviation Gasoline       | 0.001                       | 18.87                                | 0.1   |
|               | Kerosene                | (0.002)                     | 19.72                                | (0.1)   |
|               | Jet Fuel                | (0.556)                     | 19.33                                | (39.4)  |
|               | Distillate Fuel         | 0.505                       | 19.95                                | 36.9  |
|               | Residual Oil            | 0.215                       | 21.49                                | 17.0  |
|               | Naphtha for Petrofeed   | 0.170                       | 18.14                                | 11.3  |
|               | Petroleum Coke          | (0.838)                     | 27.85                                | (85.6)  |
|               | Other Oil for Petrofeed | 0.169                       | 19.95                                | 12.4  |
|               | Special Naphthas        | (0.020)                     | 19.86                                | (1.5)   |
|               | Lubricants              | (0.059)                     | 20.24                                | (4.4)   |
|               | Waxes                   | (0.001)                     | 19.81                                | (0.1)   |
|               | Asphalt/Road Oil        | 0.018                       | 20.62                                | 1.3   |
|               | Still Gas               | 0.000                       | 17.51                                | 0.0   |
|               | Misc. Products          | 0.079                       | 20.23                                | 5.8   |
| TOTAL         |                         |                             |                                      | 6,071.3   |

### Data Sources:

Coal and Lignite - Revised 1996 IPCC Guidelines Reference Manual, Table 1-1

Unspecified Solid Fuels, Coke, Natural Gas and Liquid Fuels obtained from param01.xls

Note these fuels have carbon contents that vary annually: Coke, Unspecified, Crude Oil,

Nat Gas Liquids and LRGs, Other Liquids, Motor Gasoline, Jet Fuel, and Misc. Products

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 5: 2003 Carbon Stored in Products

| Fuel Type                        | Consumption for<br>Non-Energy Use<br>(Trillion BTU) | Carbon Coefficients<br>(Tg Carbon/QBTU) | Carbon<br>Content<br>(Tg<br>Carbon) | Fraction<br>Sequestered | Carbon<br>Stored (Tg<br>CO <sub>2</sub> Eq.) |
|----------------------------------|---|---|-------------------------------------|-------------------------|--|
| Industrial Coking Coal           | 3.0   | 31.00                                   | 0.1                                 | 0.75                    | 0.26   |
| Natural Gas                      | 401.0   | 14.47                                   | 5.8                                 | 0.65                    | 13.85  |
| Asphalt & Road Oil               | 1,217.4   | 20.62                                   | 25.1                                | 1.00                    | 92.04  |
| LPG                              | 1,478.4   | 16.84                                   | 24.9                                | 0.65                    | 59.42  |
| Lubricants                       | 312.6   | 20.24                                   | 6.3                                 | 0.09                    | 2.14   |
| Pentanes Plus                    | 162.4   | 18.24                                   | 3.0                                 | 0.65                    | 7.07   |
| Petro. Feedstocks                | [1]   | [1]                                     | [1]                                 | [1]                     | 56.99  |
| Petroleum Coke                   | 90.9  | 27.85                                   | 2.5                                 | 0.50                    | 4.64   |
| Special Naphtha                  | 77.5  | 19.86                                   | 1.5                                 | 0.65                    | 3.67   |
| Waxes/Misc.                      | [1]   | [1]                                     | [1]                                 | [1]                     | 1.73   |
| Misc. U.S. Territories Petroleum | [1]   | [1]                                     | [1]                                 | [1]                     | 0.65   |
| <b>TOTAL</b>                     |   |   |                                     |                         | <b>242.5</b>                                 |

[1] Values for Misc. U.S. Territories Petroleum, Petrochemical Feedstocks and Waxes/Misc. are not shown because these categories are aggregates of numerous smaller components.

|                    |
|--------------------|
| Conversion         |
| CO <sub>2</sub> /C |
| 3.7                |



## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 6: Reference Approach CO<sub>2</sub> Emissions from Fossil Fuel Consumption (Tg CO<sub>2</sub> Eq. unless otherwise noted)

| Fuel Category | Potential<br>Carbon<br>Emissions | Carbon<br>Sequestered | Net Carbon<br>Emissions | Fraction<br>Oxidized<br>(percent) | CO <sub>2</sub><br>Emissions |
|---------------|----------------------------------|-----------------------|-------------------------|-----------------------------------|------------------------------|
| Coal          | 2,020.9                          | 0.3                   | 2,020.7                 | 99.0%                             | <b>2,000.5</b>               |
| Petroleum     | 2,867.2                          | 228.4                 | 2,638.9                 | 99.0%                             | <b>2,612.5</b>               |
| Natural Gas   | 1,183.1                          | 13.8                  | 1,169.2                 | 99.5%                             | <b>1,163.4</b>               |
| <b>TOTAL</b>  | <b>6,071.3</b>                   | <b>242.5</b>          | <b>5,828.8</b>          | <b>-</b>                          | <b>5,776.3</b>               |

Table 7: 2003 Fuel Consumption in the United States: Sectoral vs. Reference Approaches (Trillion BTU)

| Approach                          | Coal     | Natural Gas | Petroleum | TOTAL    |
|-----------------------------------|----------|-------------|-----------|----------|
| Sectoral <sup>a</sup>             | 21,554.9 | 22,569.3    | 38,024.2  | 82,148.4 |
| Reference (Apparent) <sup>a</sup> | 21,285.9 | 22,298.4    | 39,689.8  | 83,274.1 |
| Difference                        | -1.2%    | -1.2%       | 4.4%      | 1.4%     |

<sup>a</sup> Includes U.S. territories

Note: Totals may not sum due to independent rounding.

## Base Year 2003 U.S. CO<sub>2</sub> Emissions from Fossil Fuel Combustion (IPCC Reference Approach)

Table 8: 2003 CO<sub>2</sub> Emissions from Fossil Fuel Combustion by  
Estimating Approach (Tg CO<sub>2</sub>)

| Approach               | Coal    | Natural Gas | Petroleum | TOTAL   |
|------------------------|---------|-------------|-----------|---------|
| Sectoral <sup>a</sup>  | 2,014.3 | 1,177.7     | 2,477.2   | 5,669.2 |
| Reference <sup>a</sup> | 2,000.5 | 1,163.4     | 2,612.5   | 5,776.3 |
| Difference             | -0.7%   | -1.2%       | 5.5%      | 1.9%    |

<sup>a</sup> Includes U.S. territories

Note: Totals may not sum due to independent rounding.