

UNITED STATES  
ENERGY BALANCE TABLES

| <b>2002</b>                     |              |                |              |             |              |             |              |            |       | Mtoe           |
|---------------------------------|--------------|----------------|--------------|-------------|--------------|-------------|--------------|------------|-------|----------------|
|                                 | Coal         | Oil            | Gas          | Hydro       | Nuclear      | NRE         | Electricity  | Heat       | Total |                |
| Production                      | 551.3        | 359.9          | 460.1        | 22.7        | 203.2        | 79.8        |              |            |       | 1 677.1        |
| Net Imports                     | - 11.5       | 655.6          | 86.9         |             |              |             |              |            |       | 731.0          |
| <b>TPED</b>                     | <b>541.2</b> | <b>1 012.1</b> | <b>534.9</b> | <b>22.7</b> | <b>203.2</b> | <b>79.8</b> |              |            |       | <b>2 394.0</b> |
| Electricity and Heat Generation | - 511.5      | - 24.2         | - 143.4      | - 22.7      | - 203.2      | - 30.7      | 310.1        | 5.4        |       | - 620.3        |
| Petroleum Refineries            |              | - 230.5        | - 20.5       |             |              | - 1.2       | - 4.3        | - 0.9      |       | - 257.4        |
| Others                          |              |                | - 41.8       |             |              | - 5.5       | - 3.7        |            |       | - 51.1         |
| <b>TFED</b>                     | <b>29.7</b>  | <b>766.8</b>   | <b>329.3</b> |             |              | <b>42.3</b> | <b>302.1</b> | <b>4.6</b> |       | <b>1 474.8</b> |
| Industry                        | 26.2         | 117.7          | 143.1        |             |              | 30.1        | 87.9         | 4.6        |       | 409.6          |
| Transport                       |              | 603.4          | 0.3          |             |              | 1.8         | 0.4          |            |       | 606.0          |
| Residential                     | 1.3          | 30.2           | 114.2        |             |              | 9.1         | 109.1        |            |       | 263.8          |
| Commercial                      | 2.2          | 15.4           | 71.7         |             |              | 1.2         | 104.8        |            |       | 195.5          |

  

| <b>2010</b>                     |              |                |              |             |              |              |              |            |       | Mtoe           |
|---------------------------------|--------------|----------------|--------------|-------------|--------------|--------------|--------------|------------|-------|----------------|
|                                 | Coal         | Oil            | Gas          | Hydro       | Nuclear      | NRE          | Electricity  | Heat       | Total |                |
| Production                      | 613.1        | 428.8          | 495.0        | 23.7        | 210.7        | 102.7        |              |            |       | 1 874.1        |
| Net Imports                     | - 20.0       | 703.0          | 100.1        |             |              |              | 1.9          |            |       | 785.0          |
| <b>TPED</b>                     | <b>593.1</b> | <b>1 131.7</b> | <b>595.2</b> | <b>23.7</b> | <b>210.7</b> | <b>102.7</b> | <b>1.9</b>   |            |       | <b>2 659.0</b> |
| Electricity and Heat Generation | - 559.7      | - 24.2         | - 164.5      | - 23.7      | - 210.7      | - 47.4       | 361.0        | 5.7        |       | - 663.5        |
| Petroleum Refineries            |              | - 240.3        | - 20.7       |             |              | - 1.3        | - 4.3        | - 0.9      |       | - 267.4        |
| Others                          |              |                | - 46.0       |             |              | - 7.9        | - 4.1        |            |       | - 58.0         |
| <b>TFED</b>                     | <b>33.4</b>  | <b>867.2</b>   | <b>364.0</b> |             |              | <b>46.2</b>  | <b>354.4</b> | <b>4.8</b> |       | <b>1 670.1</b> |
| Industry                        | 30.1         | 128.2          | 151.5        |             |              | 32.8         | 97.1         | 4.8        |       | 444.5          |
| Transport                       |              | 693.4          | 0.5          |             |              | 2.6          | 0.4          |            |       | 697.0          |
| Residential                     | 1.2          | 30.0           | 124.0        |             |              | 9.6          | 121.9        |            |       | 286.5          |
| Commercial                      | 2.2          | 15.6           | 88.0         |             |              | 1.2          | 135.1        |            |       | 242.2          |

  

| <b>2020</b>                     |              |                |              |             |              |              |              |            |       | Mtoe           |
|---------------------------------|--------------|----------------|--------------|-------------|--------------|--------------|--------------|------------|-------|----------------|
|                                 | Coal         | Oil            | Gas          | Hydro       | Nuclear      | NRE          | Electricity  | Heat       | Total |                |
| Production                      | 629.2        | 450.6          | 559.0        | 24.4        | 233.9        | 134.2        |              |            |       | 2 031.3        |
| Net Imports                     | 27.7         | 810.4          | 114.5        |             |              |              | 1.2          |            |       | 953.8          |
| <b>TPED</b>                     | <b>656.9</b> | <b>1 261.0</b> | <b>673.5</b> | <b>24.4</b> | <b>233.9</b> | <b>134.2</b> | <b>1.2</b>   |            |       | <b>2 985.1</b> |
| Electricity and Heat Generation | - 620.6      | - 24.5         | - 201.0      | - 24.4      | - 233.9      | - 68.9       | 431.4        | 5.7        |       | - 736.2        |
| Petroleum Refineries            |              | - 245.2        | - 20.3       |             |              | - 1.2        | - 4.2        | - 0.9      |       | - 271.9        |
| Others                          |              |                | - 47.3       |             |              | - 11.7       | - 4.1        |            |       | - 63.1         |
| <b>TFED</b>                     | <b>36.3</b>  | <b>991.3</b>   | <b>404.9</b> |             |              | <b>52.4</b>  | <b>424.3</b> | <b>4.8</b> |       | <b>1 914.0</b> |
| Industry                        | 33.0         | 138.7          | 167.9        |             |              | 36.8         | 109.7        | 4.8        |       | 491.0          |
| Transport                       |              | 807.2          | 0.9          |             |              | 3.9          | 0.4          |            |       | 812.3          |
| Residential                     | 1.0          | 29.7           | 130.5        |             |              | 10.4         | 142.9        |            |       | 314.5          |
| Commercial                      | 2.2          | 15.7           | 105.5        |             |              | 1.2          | 171.4        |            |       | 296.1          |

  

| <b>2030</b>                     |              |                |              |             |              |              |              |            |       | Mtoe           |
|---------------------------------|--------------|----------------|--------------|-------------|--------------|--------------|--------------|------------|-------|----------------|
|                                 | Coal         | Oil            | Gas          | Hydro       | Nuclear      | NRE          | Electricity  | Heat       | Total |                |
| Production                      | 744.1        | 430.3          | 559.7        | 23.0        | 235.8        | 173.8        |              |            |       | 2 166.7        |
| Net Imports                     | 63.9         | 965.1          | 121.0        |             |              |              | 1.2          |            |       | 1 151.1        |
| <b>TPED</b>                     | <b>807.9</b> | <b>1 395.4</b> | <b>680.7</b> | <b>23.0</b> | <b>235.8</b> | <b>173.8</b> | <b>1.2</b>   |            |       | <b>3 317.9</b> |
| Electricity and Heat Generation | - 770.2      | - 24.1         | - 171.6      | - 23.0      | - 235.8      | - 95.7       | 492.7        | 5.7        |       | - 821.9        |
| Petroleum Refineries            |              | - 259.6        | - 20.6       |             |              | - 1.3        | - 4.3        | - 0.9      |       | - 286.7        |
| Others                          |              |                | - 43.9       |             |              | - 16.5       | - 4.0        |            |       | - 64.3         |
| <b>TFED</b>                     | <b>37.7</b>  | <b>1 111.7</b> | <b>444.7</b> |             |              | <b>60.4</b>  | <b>485.7</b> | <b>4.8</b> |       | <b>2 144.9</b> |
| Industry                        | 34.6         | 148.1          | 185.3        |             |              | 42.0         | 121.2        | 4.8        |       | 536.1          |
| Transport                       |              | 918.3          | 1.5          |             |              | 5.5          | 0.4          |            |       | 925.6          |
| Residential                     | 0.9          | 29.4           | 133.4        |             |              | 11.7         | 163.9        |            |       | 339.3          |
| Commercial                      | 2.2          | 15.9           | 124.4        |             |              | 1.2          | 200.3        |            |       | 344.0          |

**UNITED STATES**  
**MACRO ASSUMPTIONS**

|   | 1980   | 2002   | 2010   | 2020   | 2030   | Growth Rate (% per annum) |       |       |       |       |
|---|--------|--------|--------|--------|--------|---------------------------|-------|-------|-------|-------|
|   |        |        |        |        |        | 80-02                     | 02-10 | 10-20 | 20-30 | 02-30 |
| <b>GDP</b><br>(2000 PPP US\$ billion)             | 5 162  | 10 075 | 13 108 | 17 722 | 22 855 | 3.1                       | 3.3   | 3.1   | 2.6   | 3.0   |
| <b>Population</b> (million)                       | 228    | 289    | 310    | 337    | 361    | 1.1                       | 0.9   | 0.8   | 0.7   | 0.8   |
| <b>GDP per capita</b><br>(2000 PPP US\$)          | 22 640 | 34 908 | 42 270 | 52 588 | 63 230 | 2.0                       | 2.4   | 2.2   | 1.9   | 2.1   |
| <b>GDP in Services</b><br>(2000 PPP US\$ billion) | 4 040  | 7 942  | 10 550 | 14 475 | 18 793 | 3.1                       | 3.6   | 3.2   | 2.6   | 3.1   |
| <b>GDP in Industry</b><br>(2000 PPP US\$ billion) | 1 151  | 2 249  | 2 791  | 3 566  | 4 376  | 3.1                       | 2.7   | 2.5   | 2.1   | 2.4   |
| <b>Urbanisation level</b> (%)                     | 73     | 78     | 80     | 84     | 89     | 0.2                       | 0.4   | 0.5   | 0.6   | 0.5   |

**ENERGY PROJECTIONS**

|  | Mtoe            |                  |                  |                  |                  | Growth rate (% per annum) |            |            |            |            |
|--|-----------------|------------------|------------------|------------------|------------------|---------------------------|------------|------------|------------|------------|
|  | 1980            | 2002             | 2010             | 2020             | 2030             | 80-02                     | 02-10      | 10-20      | 20-30      | 02-30      |
| <b>Production</b>                                | <b>1 553.3</b>  | <b>1 677.1</b>   | <b>1 874.1</b>   | <b>2 031.3</b>   | <b>2 166.7</b>   | <b>0.3</b>                | <b>1.4</b> | <b>0.8</b> | <b>0.6</b> | <b>0.9</b> |
| Coal   | 447.9<br>(29%)  | 551.3<br>(33%)   | 613.1<br>(33%)   | 629.2<br>(31%)   | 744.1<br>(34%)   | 0.9                       | 1.3        | 0.3        | 1.7        | 1.1        |
| Oil  | 498.3<br>(32%)  | 359.9<br>(21%)   | 428.8<br>(23%)   | 450.6<br>(22%)   | 430.3<br>(20%)   | -1.5                      | 2.2        | 0.5        | -0.5       | 0.6        |
| Gas  | 454.6<br>(29%)  | 460.1<br>(27%)   | 495.0<br>(26%)   | 559.0<br>(28%)   | 559.7<br>(26%)   | 0.1                       | 0.9        | 1.2        |            | 0.7        |
| Hydro  | 24.0<br>(2%)    | 22.7<br>(1%)     | 23.7<br>(1%)     | 24.4<br>(1%)     | 23.0<br>(1%)     | -0.2                      | 0.5        | 0.3        | -0.6       |            |
| NRE  | 59.1<br>(4%)    | 79.8<br>(5%)     | 102.7<br>(5%)    | 134.2<br>(7%)    | 173.8<br>(8%)    | 1.4                       | 3.2        | 2.7        | 2.6        | 2.8        |
| Nuclear  | 69.4<br>(4%)    | 203.2<br>(12%)   | 210.7<br>(11%)   | 233.9<br>(12%)   | 235.8<br>(11%)   | 5.0                       | 0.5        | 1.0        | 0.1        | 0.5        |
| <b>Net Imports</b>                               | <b>307.3</b>    | <b>731.0</b>     | <b>785.0</b>     | <b>953.8</b>     | <b>1 151.1</b>   | <b>4.0</b>                | <b>0.9</b> | <b>2.0</b> | <b>1.9</b> | <b>1.6</b> |
| Coal   | -57.0           | -11.5            | -20.0            | 27.7             | 63.9             | -7.0                      | 7.2        |            | 8.7        |            |
| Oil  | 340.3           | 655.6            | 703.0            | 810.4            | 965.1            | 3.0                       | 0.9        | 1.4        | 1.8        | 1.4        |
| Gas  | 21.7            | 86.9             | 100.1            | 114.5            | 121.0            | 6.5                       | 1.8        | 1.3        | 0.6        | 1.2        |
| Electricity                                      | 2.3             |                  | 1.9              | 1.2              | 1.2              |                           |            | -4.0       | -0.3       |            |
| <b>Total Primary Energy Demand</b>               | <b>1 811.6</b>  | <b>2 394.0</b>   | <b>2 659.0</b>   | <b>2 985.1</b>   | <b>3 317.9</b>   | <b>1.3</b>                | <b>1.3</b> | <b>1.2</b> | <b>1.1</b> | <b>1.2</b> |
| Coal   | 376.2<br>(21%)  | 541.2<br>(23%)   | 593.1<br>(22%)   | 656.9<br>(22%)   | 807.9<br>(24%)   | 1.7                       | 1.2        | 1.0        | 2.1        | 1.4        |
| Oil  | 803.9<br>(44%)  | 1 012.1<br>(42%) | 1 131.7<br>(43%) | 1 261.0<br>(42%) | 1 395.4<br>(42%) | 1.1                       | 1.4        | 1.1        | 1.0        | 1.2        |
| Gas  | 476.8<br>(26%)  | 534.9<br>(22%)   | 595.2<br>(22%)   | 673.5<br>(23%)   | 680.7<br>(21%)   | 0.5                       | 1.3        | 1.2        | 0.1        | 0.9        |
| Hydro  | 24.0<br>(1%)    | 22.7<br>(1%)     | 23.7<br>(1%)     | 24.4<br>(1%)     | 23.0<br>(1%)     | -0.2                      | 0.5        | 0.3        | -0.6       | 0.04       |
| NRE  | 59.1<br>(3%)    | 79.8<br>(3%)     | 102.7<br>(4%)    | 134.2<br>(4%)    | 173.8<br>(5%)    | 1.4                       | 3.2        | 2.7        | 2.6        | 2.8        |
| Nuclear  | 69.4<br>(4%)    | 203.2<br>(8%)    | 210.7<br>(8%)    | 233.9<br>(8%)    | 235.8<br>(7%)    | 5.0                       | 0.5        | 1.0        | 0.1        | 0.5        |
| <b>Input for Electricity and Heat Generation</b> | <b>- 536.2</b>  | <b>- 935.8</b>   | <b>-1 030.1</b>  | <b>-1 173.3</b>  | <b>-1 320.4</b>  | <b>2.6</b>                | <b>1.2</b> | <b>1.3</b> | <b>1.2</b> | <b>1.2</b> |
| Coal   | -292.0<br>(54%) | -511.5<br>(55%)  | -559.7<br>(54%)  | -620.6<br>(53%)  | -770.2<br>(58%)  | 2.6                       | 1.1        | 1.0        | 2.2        | 1.5        |
| Oil  | -60.6<br>(11%)  | -24.2<br>(3%)    | -24.2<br>(2%)    | -24.5<br>(2%)    | -24.1<br>(2%)    | -4.1                      |            | 0.1        | -0.2       |            |
| Gas  | -85.6<br>(16%)  | -143.4<br>(15%)  | -164.5<br>(16%)  | -201.0<br>(17%)  | -171.6<br>(13%)  | 2.4                       | 1.7        | 2.0        | -1.6       | 0.6        |
| Hydro  | -24.0<br>(4%)   | -22.7<br>(2%)    | -23.7<br>(2%)    | -24.4<br>(2%)    | -23.0<br>(2%)    | -0.2                      | 0.5        | 0.3        | -0.6       |            |
| NRE  | -4.7<br>(1%)    | -30.7<br>(3%)    | -47.4<br>(5%)    | -68.9<br>(6%)    | -95.7<br>(7%)    | 8.9                       | 5.6        | 3.8        | 3.3        | 4.1        |
| Nuclear  | -69.4<br>(13%)  | -203.2<br>(22%)  | -210.7<br>(20%)  | -233.9<br>(20%)  | -235.8<br>(18%)  | 5.0                       | 0.5        | 1.0        | 0.1        | 0.5        |
| <b>Other Transformation</b>                      | <b>- 97.6</b>   | <b>- 308.5</b>   | <b>- 325.4</b>   | <b>- 335.0</b>   | <b>- 351.0</b>   | <b>5.4</b>                | <b>0.7</b> | <b>0.3</b> | <b>0.5</b> | <b>0.5</b> |
| Coal   | -2.5<br>(3%)    |                  |                  |                  |                  |                           |            |            |            |            |
| Oil  | -49.7<br>(51%)  | -230.5<br>(75%)  | -240.3<br>(74%)  | -245.2<br>(73%)  | -259.6<br>(74%)  | 7.2                       | 0.5        | 0.2        | 0.6        | 0.4        |
| Gas  | -39.0<br>(40%)  | -62.3<br>(20%)   | -66.7<br>(20%)   | -67.6<br>(20%)   | -64.5<br>(18%)   | 2.2                       | 0.8        | 0.1        | -0.5       | 0.1        |
| NRE  |                 | -6.8<br>(2%)     | -9.1<br>(3%)     | -12.9<br>(4%)    | -17.7<br>(5%)    |                           | 3.8        | 3.5        | 3.2        | 3.5        |
| Electricity                                      | -6.4<br>(7%)    | -8.0<br>(3%)     | -8.5<br>(3%)     | -8.3<br>(2%)     | -8.3<br>(2%)     | 1.0                       | 0.7        | -0.1       | -0.1       | 0.1        |
| Heat   |                 | -0.9<br>(0%)     | -0.9<br>(0%)     | -0.9<br>(0%)     | -0.9<br>(0%)     |                           | 0.1        | -0.2       | 0.2        |            |

## UNITED STATES

|                                  | Mtoe            |                 |                |                |                  | Growth rate (% per annum) |            |            |            |            |
|----------------------------------|-----------------|-----------------|----------------|----------------|------------------|---------------------------|------------|------------|------------|------------|
|                                  | 1980            | 2002            | 2010           | 2020           | 2030             | 80-02                     | 02-10      | 10-20      | 20-30      | 02-30      |
| <b>Total Final Energy Demand</b> | <b>1 224.2</b>  | <b>1 474.8</b>  | <b>1 670.1</b> | <b>1 914.0</b> | <b>2 144.9</b>   | <b>0.9</b>                | <b>1.6</b> | <b>1.4</b> | <b>1.1</b> | <b>1.3</b> |
| Coal                             | 51.6<br>(4%)    | 29.7<br>(2%)    | 33.4<br>(2%)   | 36.3<br>(2%)   | 37.7<br>(2%)     | -2.5                      | 1.5        | 0.8        | 0.4        | 0.9        |
| Oil                              | 641.7<br>(52%)  | 766.8<br>(52%)  | 867.2<br>(52%) | 991.3<br>(52%) | 1 111.7<br>(52%) | 0.8                       | 1.6        | 1.3        | 1.2        | 1.3        |
| Gas                              | 322.7<br>(26%)  | 329.3<br>(22%)  | 364.0<br>(22%) | 404.9<br>(21%) | 444.7<br>(21%)   | 0.1                       | 1.3        | 1.1        | 0.9        | 1.1        |
| NRE                              | 33.9<br>(3%)    | 42.3<br>(3%)    | 46.2<br>(3%)   | 52.4<br>(3%)   | 60.4<br>(3%)     | 1.0                       | 1.1        | 1.3        | 1.4        | 1.3        |
| Electricity                      | 174.2<br>(14%)  | 302.1<br>(20%)  | 354.4<br>(21%) | 424.3<br>(22%) | 485.7<br>(23%)   | 2.5                       | 2.0        | 1.8        | 1.4        | 1.7        |
| Heat                             |                 | 4.6<br>(0%)     | 4.8<br>(0%)    | 4.8<br>(0%)    | 4.8<br>(0%)      |                           | 0.7        |            |            | 0.2        |
| <b>Industry</b>                  | <b>447.0</b>    | <b>409.6</b>    | <b>444.5</b>   | <b>491.0</b>   | <b>536.1</b>     | <b>-0.4</b>               | <b>1.0</b> | <b>1.0</b> | <b>0.9</b> | <b>1.0</b> |
| Coal                             | 48.2<br>(11%)   | 26.2<br>(6%)    | 30.1<br>(7%)   | 33.0<br>(7%)   | 34.6<br>(6%)     | -2.7                      | 1.7        | 0.9        | 0.5        | 1.0        |
| Oil                              | 149.2<br>(33%)  | 117.7<br>(29%)  | 128.2<br>(29%) | 138.7<br>(28%) | 148.1<br>(28%)   | -1.1                      | 1.1        | 0.8        | 0.7        | 0.8        |
| Gas                              | 151.5<br>(34%)  | 143.1<br>(35%)  | 151.5<br>(34%) | 167.9<br>(34%) | 185.3<br>(35%)   | -0.3                      | 0.7        | 1.0        | 1.0        | 0.9        |
| NRE                              | 33.9<br>(8%)    | 30.1<br>(7%)    | 32.8<br>(7%)   | 36.8<br>(8%)   | 42.0<br>(8%)     | -0.5                      | 1.1        | 1.2        | 1.3        | 1.2        |
| Electricity                      | 64.2<br>(14%)   | 87.9<br>(21%)   | 97.1<br>(22%)  | 109.7<br>(22%) | 121.2<br>(23%)   | 1.4                       | 1.3        | 1.2        | 1.0        | 1.2        |
| Heat                             |                 | 4.6<br>(1%)     | 4.8<br>(1%)    | 4.8<br>(1%)    | 4.8<br>(1%)      |                           | 0.7        |            |            | 0.2        |
| <b>Transport</b>                 | <b>418.2</b>    | <b>606.0</b>    | <b>697.0</b>   | <b>812.3</b>   | <b>925.6</b>     | <b>1.7</b>                | <b>1.8</b> | <b>1.5</b> | <b>1.3</b> | <b>1.5</b> |
| Coal                             |                 |                 |                |                |                  |                           |            |            |            |            |
| Oil                              | 418.0<br>(100%) | 603.4<br>(100%) | 693.4<br>(99%) | 807.2<br>(99%) | 918.3<br>(99%)   | 1.7                       | 1.8        | 1.5        | 1.3        | 1.5        |
| Gas                              |                 | 0.3<br>(0%)     | 0.5<br>(0%)    | 0.9<br>(0%)    | 1.5<br>(0%)      |                           | 5.7        | 5.5        | 4.7        | 5.3        |
| NRE                              |                 | 1.8<br>(0%)     | 2.6<br>(0%)    | 3.9<br>(0%)    | 5.5<br>(1%)      |                           | 4.5        | 4.0        | 3.5        | 4.0        |
| Electricity                      | 0.3<br>(0%)     | 0.4<br>(0%)     | 0.4<br>(0%)    | 0.4<br>(0%)    | 0.4<br>(0%)      | 1.4                       | -0.5       |            |            | -0.1       |
| <b>Residential</b>               | <b>216.1</b>    | <b>263.8</b>    | <b>286.5</b>   | <b>314.5</b>   | <b>339.3</b>     | <b>0.9</b>                | <b>1.0</b> | <b>0.9</b> | <b>0.8</b> | <b>0.9</b> |
| Coal                             | 1.6<br>(1%)     | 1.3<br>(0%)     | 1.2<br>(0%)    | 1.0<br>(0%)    | 0.9<br>(0%)      | -1.0                      | -1.0       | -1.0       | -1.0       | -1.0       |
| Oil                              | 42.4<br>(20%)   | 30.2<br>(11%)   | 30.0<br>(10%)  | 29.7<br>(9%)   | 29.4<br>(9%)     | -1.5                      | -0.1       | -0.1       | -0.1       | -0.1       |
| Gas                              | 110.4<br>(51%)  | 114.2<br>(43%)  | 124.0<br>(43%) | 130.5<br>(41%) | 133.4<br>(39%)   | 0.2                       | 1.0        | 0.5        | 0.2        | 0.6        |
| NRE                              |                 | 9.1<br>(3%)     | 9.6<br>(3%)    | 10.4<br>(3%)   | 11.7<br>(3%)     |                           | 0.6        | 0.9        | 1.2        | 0.9        |
| Electricity                      | 61.7<br>(29%)   | 109.1<br>(41%)  | 121.9<br>(43%) | 142.9<br>(45%) | 163.9<br>(48%)   | 2.6                       | 1.4        | 1.6        | 1.4        | 1.5        |
| Heat                             |                 |                 |                |                |                  |                           |            |            |            |            |
| <b>Commercial</b>                | <b>142.8</b>    | <b>195.5</b>    | <b>242.2</b>   | <b>296.1</b>   | <b>344.0</b>     | <b>1.4</b>                | <b>2.7</b> | <b>2.0</b> | <b>1.5</b> | <b>2.0</b> |
| Coal                             | 1.8<br>(1%)     | 2.2<br>(1%)     | 2.2<br>(1%)    | 2.2<br>(1%)    | 2.2<br>(1%)      | 0.9                       | -0.1       | -0.1       | -0.1       | -0.1       |
| Oil                              | 32.2<br>(23%)   | 15.4<br>(8%)    | 15.6<br>(6%)   | 15.7<br>(5%)   | 15.9<br>(5%)     | -3.3                      | 0.1        | 0.1        | 0.1        | 0.1        |
| Gas                              | 60.7<br>(43%)   | 71.7<br>(37%)   | 88.0<br>(36%)  | 105.5<br>(36%) | 124.4<br>(36%)   | 0.8                       | 2.6        | 1.8        | 1.7        | 2.0        |
| NRE                              |                 | 1.2<br>(1%)     | 1.2<br>(1%)    | 1.2<br>(0%)    | 1.2<br>(0%)      |                           |            |            |            |            |
| Electricity                      | 48.1<br>(34%)   | 104.8<br>(54%)  | 135.1<br>(56%) | 171.4<br>(58%) | 200.3<br>(58%)   | 3.6                       | 3.2        | 2.4        | 1.6        | 2.3        |
| Heat                             |                 |                 |                |                |                  |                           |            |            |            |            |

## ENERGY SECURITY

|  | 1980 | 2002 | 2010 | 2020 | 2030 |
|--|------|------|------|------|------|
| Diversity of Primary Energy Demand (Rated between 1 and 100) | 80   | 84   | 84   | 84   | 84   |
| Net Energy Import Ratio (%)                                  | 17   | 30   | 30   | 32   | 35   |
| Net Oil Import Dependency (%)                                | 42   | 65   | 62   | 64   | 69   |

**UNITED STATES**  
**ELECTRICITY GENERATION**

|   | 1980           | 2002           | 2010           | 2020           | 2030           | Growth rate (% per annum) |            |            |            |            |
|---|----------------|----------------|----------------|----------------|----------------|---------------------------|------------|------------|------------|------------|
|   |                |                |                |                |                | 80-02                     | 02-10      | 10-20      | 20-30      | 02-30      |
| <b>Total Electricity Generation (TWh)</b>       | <b>2 427</b>   | <b>3 835</b>   | <b>4 404</b>   | <b>5 129</b>   | <b>5 851</b>   | <b>2.1</b>                | <b>1.7</b> | <b>1.5</b> | <b>1.3</b> | <b>1.5</b> |
| Coal  | 1 243<br>(51%) | 1 928<br>(50%) | 2 219<br>(50%) | 2 590<br>(51%) | 3 390<br>(58%) | 2.0                       | 1.8        | 1.6        | 2.7        | 2.0        |
| Oil   | 263<br>(11%)   | 95<br>(2%)     | 97<br>(2%)     | 101<br>(2%)    | 101<br>(2%)    | -4.5                      | 0.3        | 0.3        | 0.1        | 0.2        |
| Gas   | 370<br>(15%)   | 682<br>(18%)   | 791<br>(18%)   | 973<br>(19%)   | 829<br>(14%)   | 2.8                       | 1.9        | 2.1        | -1.6       | 0.7        |
| Hydro   | 279<br>(11%)   | 264<br>(7%)    | 277<br>(6%)    | 284<br>(6%)    | 268<br>(5%)    | -0.2                      | 0.6        | 0.2        | -0.6       | 0.04       |
| NRE   | 6              | 86<br>(2%)     | 211<br>(5%)    | 284<br>(6%)    | 358<br>(6%)    | 13.1                      | 11.8       | 3.0        | 2.3        | 5.2        |
| Nuclear   | 266<br>(11%)   | 780<br>(20%)   | 809<br>(18%)   | 897<br>(18%)   | 905<br>(15%)   | 5.0                       | 0.5        | 1.0        | 0.1        | 0.5        |
| <b>Total Installed Generation Capacity (GW)</b> | <b>579</b>     | <b>880</b>     | <b>1 034</b>   | <b>1 074</b>   | <b>1 248</b>   | <b>1.9</b>                | <b>2.0</b> | <b>0.4</b> | <b>1.5</b> | <b>1.3</b> |
| Thermal   | 444<br>(77%)   | 686<br>(78%)   | 817<br>(79%)   | 839<br>(78%)   | 1 000<br>(80%) | 2.0                       | 2.2        | 0.3        | 1.8        | 1.4        |
| Coal  |                | 315<br>(36%)   | 323<br>(31%)   | 355<br>(33%)   | 481<br>(39%)   |                           | 0.3        | 1.0        | 3.1        | 1.5        |
| Oil   |                | 257<br>(29%)   | 293<br>(28%)   | 261<br>(24%)   | 281<br>(22%)   |                           | 1.6        | -1.2       | 0.7        | 0.3        |
| Gas   |                | 114<br>(13%)   | 201<br>(19%)   | 222<br>(21%)   | 238<br>(19%)   |                           | 7.4        | 1.0        | 0.7        | 2.7        |
| Hydro   | 82<br>(14%)    | 79<br>(9%)     | 79<br>(8%)     | 79<br>(7%)     | 79<br>(6%)     | -0.2                      |            |            |            |            |
| NRE   | 1              | 17<br>(2%)     | 36<br>(4%)     | 48<br>(4%)     | 61<br>(5%)     | 13.7                      | 10.2       | 2.8        | 2.5        | 4.7        |
| Nuclear   | 52<br>(9%)     | 99<br>(11%)    | 101<br>(10%)   | 109<br>(10%)   | 109<br>(9%)    | 3.0                       | 0.3        | 0.7        |            | 0.4        |

**ENERGY INTENSITY & CO<sub>2</sub> EMISSIONS**

|   | 1980         | 2002         | 2010         | 2020         | 2030         | Growth Rates (% per annum) |             |             |             |             |
|---|--------------|--------------|--------------|--------------|--------------|----------------------------|-------------|-------------|-------------|-------------|
|   |              |              |              |              |              | 80-02                      | 02-10       | 10-20       | 20-30       | 02-30       |
| <b>Energy Intensity (toe per US\$ million GDP)</b>          | <b>351</b>   | <b>238</b>   | <b>203</b>   | <b>168</b>   | <b>145</b>   | <b>-1.8</b>                | <b>-2.0</b> | <b>-1.8</b> | <b>-1.5</b> | <b>-1.7</b> |
| Industry (toe per US\$ million GDP in Industry)             | 389          | 182          | 159          | 138          | 123          | -3.4                       | -1.7        | -1.4        | -1.2        | -1.4        |
| Commercial (toe per US\$ million GDP in Services)           | 35           | 25           | 23           | 20           | 18           | -1.6                       | -0.9        | -1.1        | -1.1        | -1.1        |
| <b>Energy Intensity (kgoe per capita)</b>                   | <b>7 947</b> | <b>8 296</b> | <b>8 576</b> | <b>8 859</b> | <b>9 180</b> | <b>0.2</b>                 | <b>0.4</b>  | <b>0.3</b>  | <b>0.4</b>  | <b>0.4</b>  |
| Industry  | 1 961        | 1 419        | 1 433        | 1 457        | 1 483        | -1.5                       | 0.1         | 0.2         | 0.2         | 0.2         |
| Transport   | 1 835        | 2 100        | 2 247        | 2 411        | 2 561        | 0.6                        | 0.9         | 0.7         | 0.6         | 0.7         |
| Residential   | 948          | 914          | 924          | 933          | 939          | -0.2                       | 0.1         | 0.1         | 0.1         | 0.1         |
| Commercial  | 626          | 677          | 781          | 879          | 952          | 0.4                        | 1.8         | 1.2         | 0.8         | 1.2         |
| <b>CO<sub>2</sub> Emissions (million tonnes)</b>            | <b>4 574</b> | <b>5 895</b> | <b>6 546</b> | <b>7 343</b> | <b>8 326</b> | <b>1.2</b>                 | <b>1.3</b>  | <b>1.2</b>  | <b>1.3</b>  | <b>1.2</b>  |
| Electricity Generation                                      | 1 535        | 2 393        | 2 629        | 2 951        | 3 461        | 2.0                        | 1.2         | 1.2         | 1.6         | 1.3         |
| Transformation other than Electricity Generation            | 245          | 400          | 424          | 427          | 446          | 2.2                        | 0.7         | 0.1         | 0.4         | 0.4         |
| Industry  | 932          | 740          | 801          | 876          | 947          | -1.0                       | 1.0         | 0.9         | 0.8         | 0.9         |
| Transport   | 1 223        | 1 777        | 2 046        | 2 387        | 2 721        | 1.7                        | 1.8         | 1.6         | 1.3         | 1.5         |
| Residential   | 390          | 363          | 385          | 399          | 405          | -0.3                       | 0.7         | 0.4         | 0.1         | 0.4         |
| Commercial  | 248          | 223          | 261          | 303          | 347          | -0.5                       | 2.0         | 1.5         | 1.4         | 1.6         |
| <b>CO<sub>2</sub> Emissions Intensity</b>                   |              |              |              |              |              |                            |             |             |             |             |
| CO <sub>2</sub> emissions per GDP (tonnes per US\$ million) | 886          | 585          | 499          | 414          | 364          | -1.9                       | -2.0        | -1.8        | -1.3        | -1.7        |
| CO <sub>2</sub> emissions per capita (tonnes per capita)    | 20.1         | 20.4         | 21.1         | 21.8         | 23.0         | 0.1                        | 0.4         | 0.3         | 0.6         | 0.4         |

**ENERGY INVESTMENT REQUIREMENTS**

| (Cumulative from 2003 - )             | 2010             | 2020               | 2030                 |
|---------------------------------------|------------------|--------------------|----------------------|
| <b>Total (2000 US\$ billion)</b>      | <b>431 - 565</b> | <b>868 - 1 150</b> | <b>1 354 - 1 751</b> |
| Coal Production & Transportation      | 19 - 20          | 37 - 40            | 67 - 73              |
| Oil & Gas Production & Processing     | 89 - 132         | 164 - 241          | 204 - 297            |
| Oil & Gas International Trade         | 14 - 19          | 31 - 45            | 52 - 78              |
| Oil & Gas Domestic Pipeline           | 81 - 115         | 178 - 254          | 224 - 320            |
| Electricity Generation & Transmission | 229 - 278        | 459 - 570          | 808 - 982            |