

CHILE  
ENERGY BALANCE TABLES

| <b>2002</b>                     |            |             |            |            |         |            |             |      |       | Mtoe        |
|---------------------------------|------------|-------------|------------|------------|---------|------------|-------------|------|-------|-------------|
|                                 | Coal       | Oil         | Gas        | Hydro      | Nuclear | NRE        | Electricity | Heat | Total |             |
| Production                      | 0.3        | 0.4         | 1.8        | 2.0        |         | 4.4        |             |      |       | 8.9         |
| Net Imports                     | 2.7        | 10.4        | 2.0        |            |         |            |             |      |       | 15.1        |
| <b>TPED</b>                     | <b>2.8</b> | <b>11.1</b> | <b>3.8</b> | <b>2.0</b> |         | <b>4.4</b> |             |      |       | <b>24.1</b> |
| Electricity and Heat Generation | -2.1       | -0.1        | -2.4       | -2.0       |         | -0.6       | 3.6         |      |       | -3.5        |
| Petroleum Refineries            |            | -1.8        | -0.1       |            |         |            |             |      |       | -2.0        |
| Others                          |            |             |            |            |         |            |             |      |       |             |
| <b>TFED</b>                     | <b>0.7</b> | <b>9.2</b>  | <b>1.3</b> |            |         | <b>3.9</b> | <b>3.5</b>  |      |       | <b>18.6</b> |
| Industry                        | 0.7        | 2.1         | 0.8        |            |         | 1.0        | 2.4         |      |       | 7.1         |
| Transport                       |            | 5.9         |            |            |         |            |             |      |       | 6.0         |
| Residential                     |            | 1.0         | 0.3        |            |         | 2.9        | 0.6         |      |       | 4.8         |
| Commercial                      |            | 0.2         | 0.1        |            |         |            | 0.5         |      |       | 0.7         |

  

| <b>2010</b>                     |            |             |            |            |         |            |             |      |       | Mtoe        |
|---------------------------------|------------|-------------|------------|------------|---------|------------|-------------|------|-------|-------------|
|                                 | Coal       | Oil         | Gas        | Hydro      | Nuclear | NRE        | Electricity | Heat | Total |             |
| Production                      | 0.3        | 0.3         | 1.4        | 2.3        |         | 5.2        |             |      |       | 9.5         |
| Net Imports                     | 4.2        | 15.3        | 5.2        |            |         |            | 0.2         |      |       | 25.0        |
| <b>TPED</b>                     | <b>4.5</b> | <b>15.6</b> | <b>6.6</b> | <b>2.3</b> |         | <b>5.2</b> | <b>0.2</b>  |      |       | <b>34.5</b> |
| Electricity and Heat Generation | -3.6       | -0.1        | -4.7       | -2.3       |         | -0.9       | 5.4         |      |       | -6.2        |
| Petroleum Refineries            |            | -1.8        | -0.2       |            |         |            |             |      |       | -2.0        |
| Others                          |            |             |            |            |         |            |             |      |       |             |
| <b>TFED</b>                     | <b>0.9</b> | <b>13.7</b> | <b>1.8</b> |            |         | <b>4.2</b> | <b>5.6</b>  |      |       | <b>26.3</b> |
| Industry                        | 0.9        | 3.1         | 1.2        |            |         | 1.3        | 3.9         |      |       | 10.4        |
| Transport                       |            | 9.0         |            |            |         |            |             |      |       | 9.1         |
| Residential                     |            | 1.4         | 0.4        |            |         | 3.0        | 1.0         |      |       | 5.8         |
| Commercial                      |            | 0.2         | 0.1        |            |         |            | 0.7         |      |       | 1.0         |

  

| <b>2020</b>                     |            |             |             |            |         |            |             |      |       | Mtoe        |
|---------------------------------|------------|-------------|-------------|------------|---------|------------|-------------|------|-------|-------------|
|                                 | Coal       | Oil         | Gas         | Hydro      | Nuclear | NRE        | Electricity | Heat | Total |             |
| Production                      | 0.4        | 0.2         | 1.0         | 3.1        |         | 5.8        |             |      |       | 10.6        |
| Net Imports                     | 7.8        | 22.3        | 10.1        |            |         |            | 0.2         |      |       | 40.4        |
| <b>TPED</b>                     | <b>8.2</b> | <b>22.4</b> | <b>11.2</b> | <b>3.1</b> |         | <b>5.8</b> | <b>0.2</b>  |      |       | <b>51.0</b> |
| Electricity and Heat Generation | -6.9       | -0.1        | -8.4        | -3.1       |         | -1.3       | 9.0         |      |       | -10.9       |
| Petroleum Refineries            |            | -1.4        | -0.2        |            |         |            |             |      |       | -1.6        |
| Others                          |            |             |             |            |         |            |             |      |       |             |
| <b>TFED</b>                     | <b>1.3</b> | <b>20.9</b> | <b>2.6</b>  |            |         | <b>4.5</b> | <b>9.2</b>  |      |       | <b>38.5</b> |
| Industry                        | 1.3        | 4.5         | 1.7         |            |         | 1.7        | 6.4         |      |       | 15.7        |
| Transport                       |            | 14.3        | 0.1         |            |         |            |             |      |       | 14.4        |
| Residential                     |            | 1.9         | 0.5         |            |         | 2.8        | 1.8         |      |       | 7.1         |
| Commercial                      |            | 0.2         | 0.2         |            |         |            | 1.0         |      |       | 1.4         |

  

| <b>2030</b>                     |             |             |             |            |         |            |             |      |       | Mtoe        |
|---------------------------------|-------------|-------------|-------------|------------|---------|------------|-------------|------|-------|-------------|
|                                 | Coal        | Oil         | Gas         | Hydro      | Nuclear | NRE        | Electricity | Heat | Total |             |
| Production                      | 0.5         | 0.1         | 0.8         | 3.8        |         | 6.7        |             |      |       | 11.9        |
| Net Imports                     | 11.4        | 33.1        | 18.0        |            |         |            | 0.2         |      |       | 62.8        |
| <b>TPED</b>                     | <b>11.9</b> | <b>33.2</b> | <b>18.8</b> | <b>3.8</b> |         | <b>6.7</b> | <b>0.2</b>  |      |       | <b>74.7</b> |
| Electricity and Heat Generation | -10.1       | -0.1        | -14.8       | -3.8       |         | -1.7       | 13.6        |      |       | -16.9       |
| Petroleum Refineries            |             | -1.4        | -0.2        |            |         |            |             |      |       | -1.5        |
| Others                          |             |             |             |            |         |            |             |      |       |             |
| <b>TFED</b>                     | <b>1.8</b>  | <b>31.8</b> | <b>3.9</b>  |            |         | <b>5.0</b> | <b>13.8</b> |      |       | <b>56.2</b> |
| Industry                        | 1.8         | 6.5         | 2.7         |            |         | 2.3        | 9.5         |      |       | 22.7        |
| Transport                       |             | 22.4        | 0.1         |            |         |            |             |      |       | 22.5        |
| Residential                     |             | 2.7         | 0.6         |            |         | 2.7        | 3.1         |      |       | 9.1         |
| Commercial                      |             | 0.3         | 0.4         |            |         |            | 1.2         |      |       | 1.9         |

## CHILE

## 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)             | 67    | 179    | 266    | 432    | 689    | 4.6                       | 5.0   | 5.0   | 4.8   | 4.9   |
| <b>Population</b> (million)                       | 11.1  | 15.6   | 17.2   | 19.0   | 20.4   | 1.5                       | 1.2   | 1.0   | 0.7   | 1.0   |
| <b>GDP per capita</b><br>(2000 PPP US\$)          | 6 040 | 11 500 | 15 494 | 22 763 | 33 849 | 3.0                       | 3.8   | 3.9   | 4.0   | 3.9   |
| <b>GDP in Services</b><br>(2000 PPP US\$ billion) | 47    | 95     | 146    | 256    | 436    | 3.2                       | 5.6   | 5.8   | 5.5   | 5.6   |
| <b>GDP in Industry</b><br>(2000 PPP US\$ billion) | 30    | 65     | 95     | 156    | 257    | 3.6                       | 4.8   | 5.1   | 5.1   | 5.0   |
| <b>Urbanisation level</b> (%)                     | 81    | 87     | 89     | 91     | 92     | 0.3                       | 0.4   | 0.2   | 0.1   | 0.2   |

## 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>5.8</b>    | <b>8.9</b>    | <b>9.5</b>    | <b>10.6</b>   | <b>11.9</b>    | <b>2.0</b>                | <b>0.8</b> | <b>1.1</b>  | <b>1.2</b>  | <b>1.0</b>  |
| Coal   | 0.8<br>(13%)  | 0.3<br>(3%)   | 0.3<br>(3%)   | 0.4<br>(4%)   | 0.5<br>(4%)    | -4.3                      | 2.0        | 2.0         | 2.0         | 2.0         |
| Oil  | 1.8<br>(32%)  | 0.4<br>(4%)   | 0.3<br>(3%)   | 0.2<br>(2%)   | 0.1<br>(1%)    | -6.6                      | -4.7       | -5.0        | -5.0        | -4.9        |
| Gas  | 0.7<br>(12%)  | 1.8<br>(20%)  | 1.4<br>(15%)  | 1.0<br>(10%)  | 0.8<br>(6%)    | 4.3                       | -3.0       | -3.0        | -3.0        | -3.0        |
| Hydro  | 0.7<br>(12%)  | 2.0<br>(22%)  | 2.3<br>(24%)  | 3.1<br>(30%)  | 3.8<br>(32%)   | 5.0                       | 1.7        | 3.2         | 2.1         | 2.4         |
| NRE  | 1.8<br>(31%)  | 4.4<br>(50%)  | 5.2<br>(55%)  | 5.8<br>(55%)  | 6.7<br>(56%)   | 4.2                       | 1.9        | 1.2         | 1.3         | 1.4         |
| Nuclear  |               |               |               |               |                |                           |            |             |             |             |
| <b>Net Imports</b>                               | <b>4.0</b>    | <b>15.1</b>   | <b>25.0</b>   | <b>40.4</b>   | <b>62.8</b>    | <b>6.2</b>                | <b>6.5</b> | <b>4.9</b>  | <b>4.5</b>  | <b>5.2</b>  |
| Coal   | 0.6           | 2.7           | 4.2           | 7.8           | 11.4           | 6.9                       | 5.6        | 6.4         | 3.9         | 5.2         |
| Oil  | 3.4           | 10.4          | 15.3          | 22.3          | 33.1           | 5.2                       | 5.0        | 3.8         | 4.1         | 4.2         |
| Gas  |               | 2.0           | 5.2           | 10.1          | 18.0           |                           | 13.0       | 6.8         | 5.9         | 8.2         |
| Electricity                                      |               |               | 0.2           | 0.2           | 0.2            |                           |            |             |             |             |
| <b>Total Primary Energy Demand</b>               | <b>9.7</b>    | <b>24.1</b>   | <b>34.5</b>   | <b>51.0</b>   | <b>74.7</b>    | <b>4.3</b>                | <b>4.5</b> | <b>4.0</b>  | <b>3.9</b>  | <b>4.1</b>  |
| Coal   | 1.2<br>(13%)  | 2.8<br>(12%)  | 4.5<br>(13%)  | 8.2<br>(16%)  | 11.9<br>(16%)  | 3.9                       | 6.1        | 6.1         | 3.8         | 5.3         |
| Oil  | 5.3<br>(54%)  | 11.1<br>(46%) | 15.6<br>(45%) | 22.4<br>(44%) | 33.2<br>(44%)  | 3.5                       | 4.3        | 3.7         | 4.0         | 4.0         |
| Gas  | 0.7<br>(7%)   | 3.8<br>(16%)  | 6.6<br>(19%)  | 11.2<br>(22%) | 18.8<br>(25%)  | 7.8                       | 7.3        | 5.3         | 5.3         | 5.9         |
| Hydro  | 0.7<br>(7%)   | 2.0<br>(8%)   | 2.3<br>(7%)   | 3.1<br>(6%)   | 3.8<br>(5%)    | 5.0                       | 1.7        | 3.2         | 2.1         | 2.4         |
| NRE  | 1.8<br>(19%)  | 4.4<br>(18%)  | 5.2<br>(15%)  | 5.8<br>(11%)  | 6.7<br>(9%)    | 4.2                       | 1.9        | 1.2         | 1.3         | 1.4         |
| Nuclear  |               |               |               |               |                |                           |            |             |             |             |
| <b>Input for Electricity and Heat Generation</b> | <b>-1.8</b>   | <b>-7.2</b>   | <b>-11.6</b>  | <b>-19.8</b>  | <b>-30.5</b>   | <b>6.4</b>                | <b>6.2</b> | <b>5.5</b>  | <b>4.4</b>  | <b>5.3</b>  |
| Coal   | -0.5<br>(26%) | -2.1<br>(29%) | -3.6<br>(31%) | -6.9<br>(35%) | -10.1<br>(33%) | 7.1                       | 7.0        | 6.7         | 3.9         | 5.8         |
| Oil  | -0.6<br>(33%) | -0.1<br>(2%)  | -0.1<br>(1%)  | -0.1<br>(1%)  | -0.1<br>(0%)   | -6.9                      | -0.1       | -2.0        | -2.8        | -1.7        |
| Gas  | -0.04<br>(2%) | -2.4<br>(33%) | -4.7<br>(40%) | -8.4<br>(42%) | -14.8<br>(48%) | 20.4                      | 8.8        | 6.1         | 5.8         | 6.8         |
| Hydro  | -0.7<br>(37%) | -2.0<br>(28%) | -2.3<br>(20%) | -3.1<br>(16%) | -3.8<br>(13%)  | 5.0                       | 1.7        | 3.2         | 2.1         | 2.4         |
| NRE  | -0.04<br>(2%) | -0.6<br>(8%)  | -0.9<br>(8%)  | -1.3<br>(7%)  | -1.7<br>(5%)   | 13.4                      | 6.4        | 3.3         | 2.5         | 3.9         |
| Nuclear  |               |               |               |               |                |                           |            |             |             |             |
| <b>Other Transformation</b>                      | <b>-0.9</b>   | <b>-2.0</b>   | <b>-2.0</b>   | <b>-1.6</b>   | <b>-1.5</b>    | <b>3.5</b>                | <b>0.1</b> | <b>-2.2</b> | <b>-0.3</b> | <b>-0.9</b> |
| Coal   |               |               |               |               |                |                           |            |             |             |             |
| Oil  | -0.4<br>(44%) | -1.8<br>(91%) | -1.8<br>(90%) | -1.4<br>(88%) | -1.4<br>(88%)  | 7.0                       | -0.1       | -2.4        | -0.3        | -1.0        |
| Gas  | -0.5<br>(50%) | -0.1<br>(7%)  | -0.2<br>(9%)  | -0.2<br>(10%) | -0.2<br>(10%)  | -5.1                      | 2.2        | -0.8        | -0.5        | 0.2         |
| NRE  |               |               |               |               |                |                           |            |             |             |             |
| Electricity                                      | -0.02<br>(2%) | -0.02<br>(1%) | -0.03<br>(1%) | -0.03<br>(2%) | -0.03<br>(2%)  | 0.2                       | 2.4        | -0.4        | -0.7        | 0.3         |
| Heat   |               |               |               |               |                |                           |            |             |             |             |

## CHILE

|                                  | 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>7.4</b>    | <b>18.6</b>  | <b>26.3</b>   | <b>38.5</b>   | <b>56.2</b>   | <b>4.3</b>                | <b>4.4</b> | <b>3.9</b> | <b>3.9</b> | <b>4.0</b> |
| Coal                             | 0.5<br>(7%)   | 0.7<br>(4%)  | 0.9<br>(4%)   | 1.3<br>(3%)   | 1.8<br>(3%)   | 1.8                       | 3.2        | 3.4        | 3.1        | 3.2        |
| Oil                              | 4.1<br>(56%)  | 9.2<br>(50%) | 13.7<br>(52%) | 20.9<br>(54%) | 31.8<br>(56%) | 3.7                       | 5.1        | 4.3        | 4.3        | 4.5        |
| Gas                              | 0.2<br>(2%)   | 1.3<br>(7%)  | 1.8<br>(7%)   | 2.6<br>(7%)   | 3.9<br>(7%)   | 9.9                       | 4.7        | 3.7        | 4.0        | 4.1        |
| NRE                              | 1.8<br>(24%)  | 3.9<br>(21%) | 4.2<br>(16%)  | 4.5<br>(12%)  | 5.0<br>(9%)   | 3.7                       | 1.1        | 0.7        | 1.0        | 0.9        |
| Electricity                      | 0.8<br>(11%)  | 3.5<br>(19%) | 5.6<br>(21%)  | 9.2<br>(24%)  | 13.8<br>(25%) | 6.7                       | 6.0        | 5.1        | 4.2        | 5.0        |
| Heat                             |               |              |               |               |               |                           |            |            |            |            |
| <b>Industry</b>                  | <b>2.8</b>    | <b>7.1</b>   | <b>10.4</b>   | <b>15.7</b>   | <b>22.7</b>   | <b>4.4</b>                | <b>4.8</b> | <b>4.2</b> | <b>3.8</b> | <b>4.2</b> |
| Coal                             | 0.4<br>(16%)  | 0.7<br>(10%) | 0.9<br>(9%)   | 1.3<br>(8%)   | 1.8<br>(8%)   | 2.3                       | 3.2        | 3.4        | 3.1        | 3.2        |
| Oil                              | 1.2<br>(45%)  | 2.1<br>(30%) | 3.1<br>(30%)  | 4.5<br>(29%)  | 6.5<br>(29%)  | 2.4                       | 4.8        | 3.9        | 3.6        | 4.1        |
| Gas                              |               | 0.8<br>(12%) | 1.2<br>(12%)  | 1.7<br>(11%)  | 2.7<br>(12%)  | 23.5                      | 4.9        | 3.6        | 4.3        | 4.2        |
| NRE                              | 0.5<br>(19%)  | 1.0<br>(14%) | 1.3<br>(12%)  | 1.7<br>(11%)  | 2.3<br>(10%)  | 3.0                       | 2.8        | 3.0        | 3.1        | 3.0        |
| Electricity                      | 0.6<br>(20%)  | 2.4<br>(34%) | 3.9<br>(37%)  | 6.4<br>(41%)  | 9.5<br>(42%)  | 6.9                       | 6.1        | 5.1        | 4.1        | 5.0        |
| Heat                             |               |              |               |               |               |                           |            |            |            |            |
| <b>Transport</b>                 | <b>2.3</b>    | <b>6.0</b>   | <b>9.1</b>    | <b>14.4</b>   | <b>22.5</b>   | <b>4.5</b>                | <b>5.4</b> | <b>4.7</b> | <b>4.6</b> | <b>4.9</b> |
| Coal                             | 0.1<br>(2%)   |              |               |               |               |                           |            |            |            |            |
| Oil                              | 2.2<br>(97%)  | 5.9<br>(99%) | 9.0<br>(99%)  | 14.3<br>(99%) | 22.4<br>(99%) | 4.6                       | 5.4        | 4.7        | 4.6        | 4.9        |
| Gas                              |               | 0.02<br>(0%) | 0.05<br>(0%)  | 0.1<br>(1%)   | 0.1<br>(1%)   |                           | 8.8        | 6.4        | 4.5        | 6.4        |
| NRE                              |               |              |               |               |               |                           |            |            |            |            |
| Electricity                      | 0.02<br>(1%)  | 0.02<br>(0%) | 0.02<br>(0%)  | 0.02<br>(0%)  | 0.02<br>(0%)  | 0.3                       | 1.3        |            |            | 0.4        |
| <b>Residential</b>               | <b>2.2</b>    | <b>4.8</b>   | <b>5.8</b>    | <b>7.1</b>    | <b>9.1</b>    | <b>3.6</b>                | <b>2.3</b> | <b>2.0</b> | <b>2.6</b> | <b>2.3</b> |
| Coal                             |               |              |               |               |               |                           |            |            |            |            |
| Oil                              | 0.7<br>(31%)  | 1.0<br>(21%) | 1.4<br>(24%)  | 1.9<br>(27%)  | 2.7<br>(29%)  | 1.7                       | 4.0        | 3.3        | 3.6        | 3.6        |
| Gas                              | 0.1<br>(5%)   | 0.3<br>(7%)  | 0.4<br>(7%)   | 0.5<br>(8%)   | 0.6<br>(7%)   | 4.7                       | 3.1        | 2.6        | 2.0        | 2.5        |
| NRE                              | 1.2<br>(56%)  | 2.9<br>(60%) | 3.0<br>(52%)  | 2.8<br>(40%)  | 2.7<br>(30%)  | 3.9                       | 0.5        | -0.5       | -0.5       | -0.2       |
| Electricity                      | 0.2<br>(7%)   | 0.6<br>(13%) | 1.0<br>(18%)  | 1.8<br>(26%)  | 3.1<br>(34%)  | 6.5                       | 6.5        | 5.9        | 5.5        | 5.9        |
| Heat                             |               |              |               |               |               |                           |            |            |            |            |
| <b>Commercial</b>                | <b>0.1</b>    | <b>0.7</b>   | <b>1.0</b>    | <b>1.5</b>    | <b>1.9</b>    | <b>7.2</b>                | <b>4.9</b> | <b>3.7</b> | <b>3.0</b> | <b>3.8</b> |
| Coal                             |               |              |               |               |               |                           |            |            |            |            |
| Oil                              |               | 0.2<br>(22%) | 0.2<br>(18%)  | 0.2<br>(15%)  | 0.3<br>(13%)  |                           | 2.2        | 1.8        | 1.7        | 1.9        |
| Gas                              | 0.03<br>(20%) | 0.1<br>(11%) | 0.1<br>(14%)  | 0.2<br>(17%)  | 0.4<br>(22%)  | 4.0                       | 7.3        | 6.0        | 5.7        | 6.3        |
| NRE                              |               |              |               |               |               |                           |            |            |            |            |
| Electricity                      | 0.1<br>(78%)  | 0.5<br>(66%) | 0.7<br>(68%)  | 1.0<br>(68%)  | 1.2<br>(64%)  | 6.4                       | 5.2        | 3.7        | 2.4        | 3.7        |
| Heat                             |               |              |               |               |               |                           |            |            |            |            |

## ENERGY SECURITY

|  | 1980 | 2002 | 2010 | 2020 | 2030 |
|--|------|------|------|------|------|
| Diversity of Primary Energy Demand (Rated between 1 and 100) | 69   | 78   | 81   | 82   | 81   |
| Net Energy Import Ratio (%)                                  | 41   | 63   | 72   | 79   | 84   |
| Net Oil Import Dependency (%)                                | 65   | 93   | 98   | 99   | 100  |

**CHILE**  
**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>12</b>  | <b>46</b>    | <b>68</b>    | <b>113</b>   | <b>172</b>   | <b>6.4</b>                | <b>5.1</b> | <b>5.2</b> | <b>4.3</b> | <b>4.8</b> |
| Coal  | 2<br>(16%) | 9<br>(19%)   | 15<br>(22%)  | 30<br>(26%)  | 45<br>(26%)  | 7.2                       | 7.3        | 7.0        | 4.2        | 6.1        |
| Oil   | 2<br>(15%) | 0.5<br>(1%)  | 0.5<br>(1%)  | 0.4<br>(1%)  | 0.3<br>(0%)  | -5.6                      | 0.2        | -1.6       | -2.4       | -1.4       |
| Gas   |            | 12<br>(26%)  | 24<br>(35%)  | 44<br>(39%)  | 79<br>(46%)  | 21.9                      | 9.1        | 6.3        | 6.1        | 7.0        |
| Hydro   | 8<br>(67%) | 23<br>(51%)  | 27<br>(39%)  | 36<br>(32%)  | 45<br>(26%)  | 5.0                       | 1.7        | 3.2        | 2.1        | 2.4        |
| NRE   |            | 2<br>(1%)    | 2<br>(4%)    | 3<br>(3%)    | 3<br>(2%)    | 13.4                      | 3.1        | 1.9        | 1.6        | 2.1        |
| Nuclear   |            |              |              |              |              |                           |            |            |            |            |
| <b>Total Installed Generation Capacity (GW)</b> | <b>3</b>   | <b>11</b>    | <b>13</b>    | <b>21</b>    | <b>31</b>    | <b>6.2</b>                | <b>1.8</b> | <b>5.3</b> | <b>3.9</b> | <b>3.8</b> |
| Thermal   | 1<br>(50%) | 7<br>(61%)   | 8<br>(62%)   | 15<br>(68%)  | 23<br>(73%)  | 7.1                       | 2.2        | 6.2        | 4.6        | 4.5        |
| Coal  |            | 2<br>(20%)   | 3<br>(21%)   | 5<br>(25%)   | 8<br>(25%)   |                           | 2.1        | 7.2        | 3.8        | 4.5        |
| Oil   |            | 1<br>(9%)    | 1<br>(4%)    | 1<br>(3%)    | 1<br>(2%)    |                           | -7.2       | 0.9        |            | -1.8       |
| Gas   |            | 3<br>(31%)   | 5<br>(37%)   | 9<br>(40%)   | 14<br>(46%)  |                           | 4.1        | 6.1        | 5.4        | 5.3        |
| Hydro   | 1<br>(50%) | 4<br>(38%)   | 5<br>(35%)   | 7<br>(30%)   | 8<br>(26%)   | 4.8                       | 1.1        | 3.7        | 2.1        | 2.4        |
| NRE   |            | 0.21<br>(2%) | 0.31<br>(2%) | 0.41<br>(2%) | 0.51<br>(2%) |                           | 4.9        | 2.8        | 2.2        | 3.2        |
| Nuclear   |            |              |              |              |              |                           |            |            |            |            |

**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>144</b>  | <b>135</b>   | <b>129</b>   | <b>118</b>   | <b>108</b>   | <b>-0.3</b>                | <b>-0.5</b> | <b>-0.9</b> | <b>-0.9</b> | <b>-0.8</b> |
| Industry (toe per US\$ million GDP in Industry)             | 93          | 109          | 109          | 100          | 88           | 0.7                        | 0.1         | -0.9        | -1.3        | -0.7        |
| Commercial (toe per US\$ million GDP in Services)           | 3           | 7            | 7            | 6            | 4            | 3.9                        | -0.7        | -2.0        | -2.4        | -1.8        |
| <b>Energy Intensity (kgoe per capita)</b>                   | <b>867</b>  | <b>1 547</b> | <b>2 006</b> | <b>2 685</b> | <b>3 665</b> | <b>2.7</b>                 | <b>3.3</b>  | <b>3.0</b>  | <b>3.2</b>  | <b>3.1</b>  |
| Industry  | 250         | 456          | 604          | 824          | 1 113        | 2.8                        | 3.6         | 3.1         | 3.1         | 3.2         |
| Transport   | 204         | 381          | 530          | 757          | 1 106        | 2.9                        | 4.2         | 3.6         | 3.9         | 3.9         |
| Residential   | 196         | 307          | 336          | 371          | 447          | 2.1                        | 1.1         | 1.0         | 1.9         | 1.3         |
| Commercial  | 13          | 44           | 59           | 76           | 95           | 5.6                        | 3.6         | 2.7         | 2.2         | 2.8         |
| <b>CO<sub>2</sub> Emissions (million tonnes)</b>            | <b>19.8</b> | <b>48.1</b>  | <b>75.0</b>  | <b>121.5</b> | <b>186.3</b> | <b>4.1</b>                 | <b>5.7</b>  | <b>4.9</b>  | <b>4.4</b>  | <b>5.0</b>  |
| Electricity Generation                                      | 2.1         | 14.0         | 25.2         | 46.7         | 74.0         | 9.1                        | 7.6         | 6.4         | 4.7         | 6.1         |
| Transformation other than Electricity Generation            | 2.6         | 0.7          | 0.8          | 0.7          | 0.7          | -5.8                       | 1.7         | -1.3        |             |             |
| Industry  | 6.2         | 11.2         | 15.9         | 23.0         | 32.8         | 2.8                        | 4.5         | 3.8         | 3.6         | 3.9         |
| Transport   | 6.7         | 17.7         | 27.1         | 42.9         | 67.3         | 4.5                        | 5.5         | 4.7         | 4.6         | 4.9         |
| Residential   | 2.1         | 3.8          | 5.1          | 7.0          | 9.7          | 2.6                        | 3.7         | 3.2         | 3.3         | 3.4         |
| Commercial  | 0.1         | 0.7          | 0.9          | 1.2          | 1.8          | 10.4                       | 3.2         | 2.9         | 4.1         | 3.4         |
| <b>CO<sub>2</sub> Emissions Intensity</b>                   |             |              |              |              |              |                            |             |             |             |             |
| CO <sub>2</sub> emissions per GDP (tonnes per US\$ million) | 293.7       | 268.0        | 281.8        | 281.0        | 270.2        | -0.4                       | 0.6         |             | -0.4        |             |
| CO <sub>2</sub> emissions per capita (tonnes per capita)    | 1.8         | 3.1          | 4.4          | 6.4          | 9.1          | 2.5                        | 4.5         | 3.9         | 3.6         | 4.0         |

**ENERGY INVESTMENT REQUIREMENTS**

| (Cumulative from 2003 - )             | 2010               | 2020               | 2030               |
|---------------------------------------|--------------------|--------------------|--------------------|
| <b>Total (2000 US\$ billion)</b>      | <b>11.4 - 14.8</b> | <b>34.2 - 44.0</b> | <b>64.0 - 83.2</b> |
| Coal Production & Transportation      | 0.01 - 0.01        | 0.02 - 0.03        | 0.03 - 0.04        |
| Oil & Gas Production & Processing     | 2.59 - 3.27        | 4.98 - 6.73        | 8.91 - 12.40       |
| Oil & Gas International Trade         | 2.12 - 2.74        | 4.29 - 5.80        | 7.39 - 10.30       |
| Oil & Gas Domestic Pipeline           | 0.87 - 1.24        | 3.44 - 4.91        | 8.39 - 11.99       |
| Electricity Generation & Transmission | 5.84 - 7.53        | 21.47 - 26.49      | 39.29 - 48.46      |