

BRUNEI DARUSSALAM
ENERGY BALANCE TABLES

| 2002 | | | | | | | | | | Mtoe |
|---------------------------------|------|------------|------------|-------|---------|-----|-------------|------|-------|------------|
| | Coal | Oil | Gas | Hydro | Nuclear | NRE | Electricity | Heat | Total | |
| Production | | 9.7 | 10.0 | | | | | | | 19.7 |
| Net Imports | | - 9.2 | - 8.0 | | | | | | | - 17.2 |
| TPED | | 0.5 | 2.0 | | | | | | | 2.6 |
| Electricity and Heat Generation | | | - 0.7 | | | | 0.2 | | | - 0.4 |
| Petroleum Refineries | | - 0.1 | | | | | | | | - 0.1 |
| Others | | | - 1.4 | | | | | | | - 1.4 |
| TFED | | 0.4 | | | | | 0.2 | | | 0.6 |
| Industry | | | | | | | | | | 0.1 |
| Transport | | 0.4 | | | | | | | | 0.4 |
| Residential | | | | | | | | | | 0.1 |
| Commercial | | | | | | | 0.1 | | | 0.1 |

| 2010 | | | | | | | | | | Mtoe |
|---------------------------------|------|------------|------------|-------|---------|-----|-------------|------|-------|------------|
| | Coal | Oil | Gas | Hydro | Nuclear | NRE | Electricity | Heat | Total | |
| Production | | 10.9 | 14.9 | | | | | | | 25.7 |
| Net Imports | | - 10.2 | - 12.5 | | | | | | | - 22.7 |
| TPED | | 0.7 | 2.4 | | | | | | | 3.1 |
| Electricity and Heat Generation | | | - 0.7 | | | | 0.2 | | | - 0.4 |
| Petroleum Refineries | | - 0.1 | | | | | | | | - 0.1 |
| Others | | | - 1.7 | | | | | | | - 1.7 |
| TFED | | 0.6 | | | | | 0.2 | | | 0.8 |
| Industry | | 0.1 | | | | | | | | 0.1 |
| Transport | | 0.5 | | | | | | | | 0.5 |
| Residential | | | | | | | | | | 0.1 |
| Commercial | | | | | | | 0.1 | | | 0.1 |

| 2020 | | | | | | | | | | Mtoe |
|---------------------------------|------|------------|------------|-------|---------|-----|-------------|------|-------|------------|
| | Coal | Oil | Gas | Hydro | Nuclear | NRE | Electricity | Heat | Total | |
| Production | | 11.0 | 14.8 | | | | | | | 25.8 |
| Net Imports | | - 10.1 | - 12.5 | | | | | | | - 22.6 |
| TPED | | 0.9 | 2.3 | | | | | | | 3.2 |
| Electricity and Heat Generation | | | - 0.7 | | | | 0.3 | | | - 0.4 |
| Petroleum Refineries | | - 0.1 | | | | | | | | - 0.1 |
| Others | | | - 1.6 | | | | | | | - 1.6 |
| TFED | | 0.7 | | | | | 0.2 | | | 1.0 |
| Industry | | 0.1 | | | | | | | | 0.1 |
| Transport | | 0.6 | | | | | | | | 0.6 |
| Residential | | | | | | | | | | 0.1 |
| Commercial | | | | | | | 0.1 | | | 0.1 |

| 2030 | | | | | | | | | | Mtoe |
|---------------------------------|------|------------|------------|-------|---------|-----|-------------|------|-------|------------|
| | Coal | Oil | Gas | Hydro | Nuclear | NRE | Electricity | Heat | Total | |
| Production | | 11.1 | 14.7 | | | | | | | 25.9 |
| Net Imports | | - 10.1 | - 12.5 | | | | | | | - 22.6 |
| TPED | | 1.1 | 2.2 | | | | | | | 3.3 |
| Electricity and Heat Generation | | | - 0.7 | | | | 0.3 | | | - 0.4 |
| Petroleum Refineries | | - 0.2 | | | | | | | | - 0.2 |
| Others | | | - 1.5 | | | | | | | - 1.5 |
| TFED | | 0.9 | | | | | 0.2 | | | 1.1 |
| Industry | | 0.1 | | | | | | | | 0.1 |
| Transport | | 0.8 | | | | | | | | 0.8 |
| Residential | | | | | | | | | | 0.1 |
| Commercial | | | | | | | 0.1 | | | 0.1 |

BRUNEI DARUSSALAM

MACRO ASSUMPTIONS

| | 1980 | 2002 | 2010 | 2020 | 2030 | Growth Rate (% per annum) | | | | |
|---|--------|--------|--------|--------|--------|---------------------------|-------|-------|-------|-------|
| | | | | | | 80-02 | 02-10 | 10-20 | 20-30 | 02-30 |
| GDP (2000 PPP US\$ billion) | 5.7 | 5.8 | 6.6 | 7.9 | 9.3 | 0.1 | 1.6 | 1.7 | 1.7 | 1.7 |
| Population (million) | 0.19 | 0.35 | 0.40 | 0.43 | 0.46 | 2.8 | 1.5 | 0.9 | 0.6 | 1.0 |
| GDP per capita (2000 PPP US\$) | 29 407 | 16 683 | 16 807 | 18 210 | 20 308 | -2.5 | 0.1 | 0.8 | 1.1 | 0.7 |
| GDP in Services (2000 PPP US\$ billion) | 1.4 | 3.0 | 3.4 | 4.0 | 4.8 | 3.4 | 1.7 | 1.8 | 1.7 | 1.7 |
| GDP in Industry (2000 PPP US\$ billion) | 3.9 | 2.7 | 3.0 | 3.6 | 4.2 | -1.6 | 1.5 | 1.6 | 1.5 | 1.5 |
| Urbanisation level (%) | 60 | 75 | 81 | 85 | 87 | 1.0 | 0.8 | 0.5 | 0.3 | 0.5 |

ENERGY PROJECTIONS

| | 1980 | 2002 | 2010 | 2020 | 2030 | Growth rate (% per annum) | | | | |
|--|------------------|-----------------|-----------------|-----------------|-----------------|---------------------------|------------|--------------|--------------|------------|
| | | | | | | 80-02 | 02-10 | 10-20 | 20-30 | 02-30 |
| Production | 21.1 | 19.7 | 25.7 | 25.8 | 25.9 | - 0.3 | 3.4 | | | 1.0 |
| Coal | | | | | | | | | | |
| Oil | 12.2 (58%) | 9.7 (49%) | 10.9 (42%) | 11.0 (43%) | 11.1 (43%) | - 1.0 | 1.4 | 0.1 | 0.2 | 0.5 |
| Gas | 8.9 (42%) | 10.0 (51%) | 14.9 (58%) | 14.8 (57%) | 14.7 (57%) | 0.5 | 5.1 | - 0.04 | - 0.04 | 1.4 |
| Hydro | | | | | | | | | | |
| NRE | | | | | | | | | | |
| Nuclear | | | | | | | | | | |
| Net Imports | - 18.2 | - 17.2 | - 22.7 | - 22.6 | - 22.6 | - 0.3 | 3.5 | | | 1.0 |
| Coal | | | | | | | | | | |
| Oil | - 11.8 | - 9.2 | - 10.2 | - 10.1 | - 10.1 | - 1.1 | 1.3 | - 0.1 | | 0.3 |
| Gas | - 6.5 | - 8.0 | - 12.5 | - 12.5 | - 12.5 | 1.0 | 5.8 | | | 1.6 |
| Electricity | | | | | | | | | | |
| Total Primary Energy Demand | 2.68 | 2.57 | 3.07 | 3.18 | 3.28 | - 0.2 | 2.3 | 0.3 | 0.3 | 0.9 |
| Coal | | | | | | | | | | |
| Oil | 0.20 (8%) | 0.55 (21%) | 0.72 (23%) | 0.88 (28%) | 1.05 (32%) | 4.6 | 3.4 | 2.1 | 1.8 | 2.3 |
| Gas | 2.46 (92%) | 2.02 (79%) | 2.35 (77%) | 2.29 (72%) | 2.23 (68%) | - 0.9 | 1.9 | - 0.3 | - 0.3 | 0.3 |
| Hydro | | | | | | | | | | |
| NRE | | | | | | | | | | |
| Nuclear | | | | | | | | | | |
| Input for Electricity and Heat Generation | - 0.14 | - 0.66 | - 0.67 | - 0.69 | - 0.69 | 7.5 | 0.2 | 0.2 | 0.1 | 0.2 |
| Coal | | | | | | | | | | |
| Oil | -0.001 (1%) | | | | | | | | | |
| Gas | -0.13 (99%) | -0.66 (99%) | -0.67 (99%) | -0.68 (99%) | -0.69 (99%) | 7.5 | 0.2 | 0.2 | 0.1 | 0.2 |
| Hydro | | | | | | | | | | |
| NRE | | | | | | | | | | |
| Nuclear | | | | | | | | | | |
| Other Transformation | - 0.78 | - 1.46 | - 1.81 | - 1.74 | - 1.69 | 2.9 | 2.7 | - 0.4 | - 0.3 | 0.5 |
| Coal | | | | | | | | | | |
| Oil | | -0.10 (7%) | -0.12 (7%) | -0.13 (8%) | -0.15 (9%) | | 2.5 | 1.3 | 1.3 | 1.6 |
| Gas | -0.78 (100%) | -1.36 (93%) | -1.69 (93%) | -1.61 (92%) | -1.54 (91%) | 2.6 | 2.7 | - 0.5 | - 0.4 | 0.4 |
| NRE | | | | | | | | | | |
| Electricity | | | | | | | | | | |
| Heat | | | | | | | | | | |

BRUNEI DARUSSALAM

| | 1980 | 2002 | Mtoe | | | Growth rate (% per annum) | | | | |
|----------------------------------|----------------|----------------|----------------|----------------|----------------|---------------------------|------------|------------|------------|------------|
| | | | 2010 | 2020 | 2030 | 80-02 | 02-10 | 10-20 | 20-30 | 02-30 |
| Total Final Energy Demand | 0.22 | 0.64 | 0.81 | 0.97 | 1.13 | 5.0 | 2.9 | 1.8 | 1.5 | 2.0 |
| Coal | | | | | | | | | | |
| Oil | 0.19 (88%) | 0.45 (69%) | 0.60 (74%) | 0.74 (77%) | 0.89 (79%) | 3.9 | 3.7 | 2.2 | 1.8 | 2.5 |
| Gas | | | | | | | | | | |
| NRE | | | | | | | | | | |
| Electricity | 0.03 (12%) | 0.20 (31%) | 0.21 (26%) | 0.22 (23%) | 0.24 (21%) | 9.7 | 0.7 | 0.7 | 0.5 | 0.6 |
| Heat | | | | | | | | | | |
| Industry | 0.06 | 0.07 | 0.09 | 0.10 | 0.12 | 1.3 | 2.5 | 1.5 | 1.1 | 1.6 |
| Coal | | | | | | | | | | |
| Oil | 0.05 (89%) | 0.05 (64%) | 0.06 (63%) | 0.06 (62%) | 0.07 (62%) | -0.2 | 2.2 | 1.3 | 1.0 | 1.5 |
| Gas | | | | | | | | | | |
| NRE | | | | | | | | | | |
| Electricity | 0.01 (11%) | 0.03 (36%) | 0.03 (35%) | 0.04 (36%) | 0.04 (37%) | 6.9 | 2.2 | 1.8 | 1.5 | 1.8 |
| Heat | | | | | | | | | | |
| Transport | 0.14 | 0.38 | 0.51 | 0.65 | 0.79 | 4.8 | 4.0 | 2.4 | 2.0 | 2.7 |
| Coal | | | | | | | | | | |
| Oil | 0.14 (100%) | 0.38 (100%) | 0.51 (100%) | 0.65 (100%) | 0.79 (100%) | 4.8 | 4.0 | 2.4 | 2.0 | 2.7 |
| Gas | | | | | | | | | | |
| NRE | | | | | | | | | | |
| Electricity | | | | | | | | | | |
| Residential | 0.02 | 0.06 | 0.06 | 0.07 | 0.08 | 5.2 | 1.7 | 1.6 | 0.8 | 1.3 |
| Coal | | | | | | | | | | |
| Oil | 0.01 (56%) | 0.02 (40%) | 0.03 (41%) | 0.03 (42%) | 0.03 (43%) | 3.6 | 2.1 | 1.8 | 0.9 | 1.6 |
| Gas | | | | | | | | | | |
| NRE | | | | | | | | | | |
| Electricity | 0.01 (44%) | 0.03 (60%) | 0.04 (59%) | 0.04 (58%) | 0.05 (58%) | 6.7 | 1.4 | 1.5 | 0.7 | 1.2 |
| Heat | | | | | | | | | | |
| Commercial | 0.01 | 0.14 | 0.14 | 0.14 | 0.15 | 12.2 | 0.2 | 0.1 | 0.2 | 0.2 |
| Coal | | | | | | | | | | |
| Oil | | | | | | | | | | |
| Gas | | | | | | | | | | |
| NRE | | | | | | | | | | |
| Electricity | 0.01 (100%) | 0.14 (100%) | 0.14 (100%) | 0.14 (100%) | 0.15 (100%) | 12.2 | 0.2 | 0.1 | 0.2 | 0.2 |
| Heat | | | | | | | | | | |

ENERGY SECURITY

| | 1980 | 2002 | 2010 | 2020 | 2030 |
|--|--------|--------|--------|--------|------|
| Diversity of Primary Energy Demand (Rated between 1 and 100) | 14 | 33 | 36 | 41 | 45 |
| Net Energy Import Ratio (%) | -630 | -668 | -737 | -711 | -688 |
| Net Oil Import Dependency (%) | -5 835 | -1 669 | -1 410 | -1 142 | -959 |

BRUNEI DARUSSALAM
ELECTRICITY GENERATION

| | 1980 | 2002 | 2010 | 2020 | 2030 | Growth rate (% per annum) | | | | |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|---------------------------|------------|------------|------------|------------|
| | | | | | | 80-02 | 02-10 | 10-20 | 20-30 | 02-30 |
| Total Electricity Generation (TWh) | 0.34 | 2.70 | 2.83 | 3.01 | 3.14 | 9.8 | 0.6 | 0.6 | 0.4 | 0.5 |
| Coal | | | | | | | | | | |
| Oil | 0.004 (1%) | 0.025 (1%) | 0.026 (1%) | 0.026 (1%) | 0.026 (1%) | 8.7 | 0.3 | | | 0.1 |
| Gas | 0.3 (99%) | 2.68 (99%) | 2.80 (99%) | 2.98 (99%) | 3.12 (99%) | 9.8 | 0.6 | 0.6 | 0.4 | 0.5 |
| Hydro | | | | | | | | | | |
| NRE | | | | | | | | | | |
| Nuclear | | | | | | | | | | |
| Total Installed Generation Capacity (GW) | 0.08 | 0.64 | 0.86 | 1.04 | 1.04 | 10.2 | 3.7 | 1.9 | | 1.8 |
| Thermal | 0.08 (100%) | 0.64 (100%) | 0.86 (100%) | 1.04 (100%) | 1.04 (100%) | 10.2 | 3.7 | 1.9 | | 1.8 |
| Coal | | | | | | | | | | |
| Oil | | 0.004 (1%) | | | | | | | | |
| Gas | 0.08 (100%) | 0.63 (99%) | 0.85 (100%) | 1.03 (100%) | 1.03 (100%) | 10.2 | 3.8 | 1.9 | | 1.8 |
| Hydro | | | | | | | | | | |
| NRE | | | | | | | | | | |
| Nuclear | | | | | | | | | | |

ENERGY INTENSITY & CO₂ EMISSIONS

| | 1980 | 2002 | 2010 | 2020 | 2030 | Growth Rates (% per annum) | | | | |
|---|---------------|--------------|--------------|--------------|--------------|----------------------------|------------|--------------|--------------|--------------|
| | | | | | | 80-02 | 02-10 | 10-20 | 20-30 | 02-30 |
| Energy Intensity (toe per US\$ million GDP) | 473 | 439 | 463 | 403 | 353 | - 0.3 | 0.7 | - 1.4 | - 1.3 | - 0.8 |
| Industry (toe per US\$ million GDP in Industry) | 14 | 27 | 29 | 29 | 28 | 3.0 | 1.0 | - 0.1 | - 0.4 | 0.1 |
| Commercial (toe per US\$ million GDP in Services) | 8 | 47 | 42 | 35 | 30 | 8.6 | - 1.5 | - 1.6 | - 1.5 | - 1.5 |
| Energy Intensity (kgoe per capita) | 13 907 | 7 330 | 7 781 | 7 347 | 7 178 | - 2.9 | 0.7 | - 0.6 | - 0.2 | - 0.1 |
| Industry | 285 | 208 | 225 | 238 | 252 | - 1.4 | 1.0 | 0.6 | 0.5 | 0.7 |
| Transport | 699 | 1 075 | 1 301 | 1 501 | 1 724 | 2.0 | 2.4 | 1.4 | 1.4 | 1.7 |
| Residential | 93 | 157 | 159 | 171 | 175 | 2.4 | 0.2 | 0.7 | 0.2 | 0.4 |
| Commercial | 57 | 396 | 357 | 331 | 319 | 9.2 | - 1.3 | - 0.8 | - 0.3 | - 0.8 |
| CO₂ Emissions (million tonnes) | 2.7 | 7.5 | 9.1 | 9.7 | 10.1 | 4.7 | 2.5 | 0.6 | 0.5 | 1.1 |
| Electricity Generation | 0.3 | 1.6 | 1.6 | 1.6 | 1.6 | 7.4 | 0.2 | 0.2 | 0.1 | 0.2 |
| Transformation other than Electricity Generation | 1.8 | 4.6 | 5.8 | 5.8 | 5.9 | 4.3 | 2.8 | 0.1 | 0.04 | 0.8 |
| Industry | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.4 | 2.2 | 1.3 | 1.1 | 1.5 |
| Transport | 0.4 | 1.1 | 1.5 | 1.9 | 2.3 | 4.8 | 4.0 | 2.4 | 2.0 | 2.7 |
| Residential | | 0.1 | 0.1 | 0.1 | 0.1 | 3.7 | 1.9 | 2.0 | 0.9 | 1.6 |
| Commercial | | | | | | | | | | |
| CO₂ Emissions Intensity | | | | | | | | | | |
| CO ₂ emissions per GDP (tonnes per US\$ million) | 477.5 | 1 284.7 | 1 375.1 | 1 226.6 | 1 092.8 | 4.6 | 0.9 | - 1.1 | - 1.1 | - 0.6 |
| CO ₂ emissions per capita (tonnes per capita) | 14.0 | 21.4 | 23.1 | 22.3 | 22.2 | 1.9 | 0.9 | - 0.3 | - 0.1 | 0.1 |

ENERGY INVESTMENT REQUIREMENTS

| (Cumulative from 2003 -) | 2010 | 2020 | 2030 |
|---------------------------------------|--------------------|--------------------|--------------------|
| Total (2000 US\$ billion) | 2.86 - 3.73 | 3.14 - 4.09 | 3.35 - 4.41 |
| Coal Production & Transportation | | | |
| Oil & Gas Production & Processing | 1.30 - 1.96 | 1.36 - 2.06 | 1.46 - 2.22 |
| Oil & Gas International Trade | 1.25 - 1.38 | 1.25 - 1.38 | 1.25 - 1.38 |
| Oil & Gas Domestic Pipeline | 0.15 - 0.21 | 0.24 - 0.35 | 0.34 - 0.49 |
| Electricity Generation & Transmission | 0.16 - 0.18 | 0.28 - 0.31 | 0.29 - 0.32 |