

CHILE
ENERGY BALANCE TABLES

2002										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
TPED	2.8	11.1	3.8	2.0		4.4				24.1
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										
TFED	0.7	9.2	1.3			3.9	3.5			18.6
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

2010										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
TPED	4.5	15.6	6.6	2.3		5.2	0.2			34.5
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										
TFED	0.9	13.7	1.8			4.2	5.6			26.3
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

2020										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
TPED	8.2	22.4	11.2	3.1		5.8	0.2			51.0
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										
TFED	1.3	20.9	2.6			4.5	9.2			38.5
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

2030										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
TPED	11.9	33.2	18.8	3.8		6.7	0.2			74.7
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										
TFED	1.8	31.8	3.9			5.0	13.8			56.2
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
GDP (2000 PPP US\$ billion)	67	179	266	432	689	4.6	5.0	5.0	4.8	4.9
Population (million)	11.1	15.6	17.2	19.0	20.4	1.5	1.2	1.0	0.7	1.0
GDP per capita (2000 PPP US\$)	6 040	11 500	15 494	22 763	33 849	3.0	3.8	3.9	4.0	3.9
GDP in Services (2000 PPP US\$ billion)	47	95	146	256	436	3.2	5.6	5.8	5.5	5.6
GDP in Industry (2000 PPP US\$ billion)	30	65	95	156	257	3.6	4.8	5.1	5.1	5.0
Urbanisation level (%)	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
Production	5.8	8.9	9.5	10.6	11.9	2.0	0.8	1.1	1.2	1.0
Coal	0.8 (13%)	0.3 (3%)	0.3 (3%)	0.4 (4%)	0.5 (4%)	-4.3	2.0	2.0	2.0	2.0
Oil	1.8 (32%)	0.4 (4%)	0.3 (3%)	0.2 (2%)	0.1 (1%)	-6.6	-4.7	-5.0	-5.0	-4.9
Gas	0.7 (12%)	1.8 (20%)	1.4 (15%)	1.0 (10%)	0.8 (6%)	4.3	-3.0	-3.0	-3.0	-3.0
Hydro	0.7 (12%)	2.0 (22%)	2.3 (24%)	3.1 (30%)	3.8 (32%)	5.0	1.7	3.2	2.1	2.4
NRE	1.8 (31%)	4.4 (50%)	5.2 (55%)	5.8 (55%)	6.7 (56%)	4.2	1.9	1.2	1.3	1.4
Nuclear										
Net Imports	4.0	15.1	25.0	40.4	62.8	6.2	6.5	4.9	4.5	5.2
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					
Total Primary Energy Demand	9.7	24.1	34.5	51.0	74.7	4.3	4.5	4.0	3.9	4.1
Coal	1.2 (13%)	2.8 (12%)	4.5 (13%)	8.2 (16%)	11.9 (16%)	3.9	6.1	6.1	3.8	5.3
Oil	5.3 (54%)	11.1 (46%)	15.6 (45%)	22.4 (44%)	33.2 (44%)	3.5	4.3	3.7	4.0	4.0
Gas	0.7 (7%)	3.8 (16%)	6.6 (19%)	11.2 (22%)	18.8 (25%)	7.8	7.3	5.3	5.3	5.9
Hydro	0.7 (7%)	2.0 (8%)	2.3 (7%)	3.1 (6%)	3.8 (5%)	5.0	1.7	3.2	2.1	2.4
NRE	1.8 (19%)	4.4 (18%)	5.2 (15%)	5.8 (11%)	6.7 (9%)	4.2	1.9	1.2	1.3	1.4
Nuclear										
Input for Electricity and Heat Generation	-1.8	-7.2	-11.6	-19.8	-30.5	6.4	6.2	5.5	4.4	5.3
Coal	-0.5 (26%)	-2.1 (29%)	-3.6 (31%)	-6.9 (35%)	-10.1 (33%)	7.1	7.0	6.7	3.9	5.8
Oil	-0.6 (33%)	-0.1 (2%)	-0.1 (1%)	-0.1 (1%)	-0.1 (0%)	-6.9	-0.1	-2.0	-2.8	-1.7
Gas	-0.04 (2%)	-2.4 (33%)	-4.7 (40%)	-8.4 (42%)	-14.8 (48%)	20.4	8.8	6.1	5.8	6.8
Hydro	-0.7 (37%)	-2.0 (28%)	-2.3 (20%)	-3.1 (16%)	-3.8 (13%)	5.0	1.7	3.2	2.1	2.4
NRE	-0.04 (2%)	-0.6 (8%)	-0.9 (8%)	-1.3 (7%)	-1.7 (5%)	13.4	6.4	3.3	2.5	3.9
Nuclear										
Other Transformation	-0.9	-2.0	-2.0	-1.6	-1.5	3.5	0.1	-2.2	-0.3	-0.9
Coal										
Oil	-0.4 (44%)	-1.8 (91%)	-1.8 (90%)	-1.4 (88%)	-1.4 (88%)	7.0	-0.1	-2.4	-0.3	-1.0
Gas	-0.5 (50%)	-0.1 (7%)	-0.2 (9%)	-0.2 (10%)	-0.2 (10%)	-5.1	2.2	-0.8	-0.5	0.2
NRE										
Electricity	-0.02 (2%)	-0.02 (1%)	-0.03 (1%)	-0.03 (2%)	-0.03 (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
Total Final Energy Demand	7.4	18.6	26.3	38.5	56.2	4.3	4.4	3.9	3.9	4.0
Coal	0.5 (7%)	0.7 (4%)	0.9 (4%)	1.3 (3%)	1.8 (3%)	1.8	3.2	3.4	3.1	3.2
Oil	4.1 (56%)	9.2 (50%)	13.7 (52%)	20.9 (54%)	31.8 (56%)	3.7	5.1	4.3	4.3	4.5
Gas	0.2 (2%)	1.3 (7%)	1.8 (7%)	2.6 (7%)	3.9 (7%)	9.9	4.7	3.7	4.0	4.1
NRE	1.8 (24%)	3.9 (21%)	4.2 (16%)	4.5 (12%)	5.0 (9%)	3.7	1.1	0.7	1.0	0.9
Electricity	0.8 (11%)	3.5 (19%)	5.6 (21%)	9.2 (24%)	13.8 (25%)	6.7	6.0	5.1	4.2	5.0
Heat										
Industry	2.8	7.1	10.4	15.7	22.7	4.4	4.8	4.2	3.8	4.2
Coal	0.4 (16%)	0.7 (10%)	0.9 (9%)	1.3 (8%)	1.8 (8%)	2.3	3.2	3.4	3.1	3.2
Oil	1.2 (45%)	2.1 (30%)	3.1 (30%)	4.5 (29%)	6.5 (29%)	2.4	4.8	3.9	3.6	4.1
Gas		0.8 (12%)	1.2 (12%)	1.7 (11%)	2.7 (12%)	23.5	4.9	3.6	4.3	4.2
NRE	0.5 (19%)	1.0 (14%)	1.3 (12%)	1.7 (11%)	2.3 (10%)	3.0	2.8	3.0	3.1	3.0
Electricity	0.6 (20%)	2.4 (34%)	3.9 (37%)	6.4 (41%)	9.5 (42%)	6.9	6.1	5.1	4.1	5.0
Heat										
Transport	2.3	6.0	9.1	14.4	22.5	4.5	5.4	4.7	4.6	4.9
Coal	0.1 (2%)									
Oil	2.2 (97%)	5.9 (99%)	9.0 (99%)	14.3 (99%)	22.4 (99%)	4.6	5.4	4.7	4.6	4.9
Gas		0.02 (0%)	0.05 (0%)	0.1 (1%)	0.1 (1%)		8.8	6.4	4.5	6.4
NRE										
Electricity	0.02 (1%)	0.02 (0%)	0.02 (0%)	0.02 (0%)	0.02 (0%)	0.3	1.3			0.4
Residential	2.2	4.8	5.8	7.1	9.1	3.6	2.3	2.0	2.6	2.3
Coal										
Oil	0.7 (31%)	1.0 (21%)	1.4 (24%)	1.9 (27%)	2.7 (29%)	1.7	4.0	3.3	3.6	3.6
Gas	0.1 (5%)	0.3 (7%)	0.4 (7%)	0.5 (8%)	0.6 (7%)	4.7	3.1	2.6	2.0	2.5
NRE	1.2 (56%)	2.9 (60%)	3.0 (52%)	2.8 (40%)	2.7 (30%)	3.9	0.5	-0.5	-0.5	-0.2
Electricity	0.2 (7%)	0.6 (13%)	1.0 (18%)	1.8 (26%)	3.1 (34%)	6.5	6.5	5.9	5.5	5.9
Heat										
Commercial	0.1	0.7	1.0	1.5	1.9	7.2	4.9	3.7	3.0	3.8
Coal										
Oil		0.2 (22%)	0.2 (18%)	0.2 (15%)	0.3 (13%)		2.2	1.8	1.7	1.9
Gas	0.03 (20%)	0.1 (11%)	0.1 (14%)	0.2 (17%)	0.4 (22%)	4.0	7.3	6.0	5.7	6.3
NRE										
Electricity	0.1 (78%)	0.5 (66%)	0.7 (68%)	1.0 (68%)	1.2 (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
Total Electricity Generation (TWh)	12	46	68	113	172	6.4	5.1	5.2	4.3	4.8
Coal	2 (16%)	9 (19%)	15 (22%)	30 (26%)	45 (26%)	7.2	7.3	7.0	4.2	6.1
Oil	2 (15%)	0.5 (1%)	0.5 (1%)	0.4 (1%)	0.3 (0%)	-5.6	0.2	-1.6	-2.4	-1.4
Gas		12 (26%)	24 (35%)	44 (39%)	79 (46%)	21.9	9.1	6.3	6.1	7.0
Hydro	8 (67%)	23 (51%)	27 (39%)	36 (32%)	45 (26%)	5.0	1.7	3.2	2.1	2.4
NRE		2 (1%)	2 (4%)	3 (3%)	3 (2%)	13.4	3.1	1.9	1.6	2.1
Nuclear										
Total Installed Generation Capacity (GW)	3	11	13	21	31	6.2	1.8	5.3	3.9	3.8
Thermal	1 (50%)	7 (61%)	8 (62%)	15 (68%)	23 (73%)	7.1	2.2	6.2	4.6	4.5
Coal		2 (20%)	3 (21%)	5 (25%)	8 (25%)		2.1	7.2	3.8	4.5
Oil		1 (9%)	1 (4%)	1 (3%)	1 (2%)		-7.2	0.9		-1.8
Gas		3 (31%)	5 (37%)	9 (40%)	14 (46%)		4.1	6.1	5.4	5.3
Hydro	1 (50%)	4 (38%)	5 (35%)	7 (30%)	8 (26%)	4.8	1.1	3.7	2.1	2.4
NRE		0.21 (2%)	0.31 (2%)	0.41 (2%)	0.51 (2%)		4.9	2.8	2.2	3.2
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)	144	135	129	118	108	-0.3	-0.5	-0.9	-0.9	-0.8
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
Energy Intensity (kgoe per capita)	867	1 547	2 006	2 685	3 665	2.7	3.3	3.0	3.2	3.1
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
CO₂ Emissions (million tonnes)	19.8	48.1	75.0	121.5	186.3	4.1	5.7	4.9	4.4	5.0
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
CO₂ Emissions Intensity										
CO ₂ emissions per GDP (tonnes per US\$ million)	293.7	268.0	281.8	281.0	270.2	-0.4	0.6		-0.4	
CO ₂ 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
Total (2000 US\$ billion)	11.4 - 14.8	34.2 - 44.0	64.0 - 83.2
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