

**PHILIPPINES**  
**ENERGY BALANCE TABLES**

<b>2002</b>										Mtoe
	Coal	Oil	Gas	Hydro	Nuclear	NRE	Electricity	Heat	Total	
Production	1.0	0.3	1.4	0.5		18.2				21.5
Net Imports	6.0	16.2	0.4							22.5
<b>TPED</b>	<b>7.1</b>	<b>16.3</b>	<b>1.8</b>	<b>0.5</b>		<b>18.2</b>				<b>43.9</b>
Electricity and Heat Generation	- 6.0	- 0.6	- 1.8	- 0.5		- 11.0	3.5			- 16.4
Petroleum Refineries		- 2.1								- 2.1
Others	- 0.2									- 0.2
<b>TFED</b>	<b>0.8</b>	<b>13.8</b>				<b>7.2</b>	<b>3.4</b>			<b>25.2</b>
Industry	0.8	2.1				3.9	1.3			8.2
Transport		9.0								9.0
Residential		1.2				3.2	1.2			5.6
Commercial		1.6					0.8			2.4

  

<b>2010</b>										Mtoe
	Coal	Oil	Gas	Hydro	Nuclear	NRE	Electricity	Heat	Total	
Production	3.3	1.0	2.7	0.7		19.4				27.0
Net Imports	8.1	22.7	3.0							33.8
<b>TPED</b>	<b>11.4</b>	<b>23.7</b>	<b>5.7</b>	<b>0.7</b>		<b>19.4</b>				<b>60.8</b>
Electricity and Heat Generation	- 9.6	- 1.0	- 5.0	- 0.7		- 11.8	5.9			- 22.2
Petroleum Refineries		- 2.8								- 2.8
Others	- 0.7									- 0.7
<b>TFED</b>	<b>1.1</b>	<b>19.9</b>	<b>0.6</b>			<b>7.6</b>	<b>5.9</b>			<b>35.2</b>
Industry	1.1	2.5	0.6			4.3	2.0			10.5
Transport		14.0								14.0
Residential		1.4				3.3	2.4			7.2
Commercial		2.0					1.5			3.5

  

<b>2020</b>										Mtoe
	Coal	Oil	Gas	Hydro	Nuclear	NRE	Electricity	Heat	Total	
Production	5.1	1.1	4.7	0.9		20.4				32.2
Net Imports	14.8	32.6	3.2							50.6
<b>TPED</b>	<b>19.9</b>	<b>33.7</b>	<b>7.9</b>	<b>0.9</b>		<b>20.4</b>				<b>82.8</b>
Electricity and Heat Generation	- 17.5	- 1.2	- 6.9	- 0.9		- 12.0	10.1			- 28.3
Petroleum Refineries		- 4.1								- 4.1
Others	- 1.0									- 1.0
<b>TFED</b>	<b>1.5</b>	<b>28.3</b>	<b>1.0</b>			<b>8.4</b>	<b>10.1</b>			<b>49.4</b>
Industry	1.5	3.1	1.0			5.0	3.2			13.8
Transport		21.2								21.2
Residential		1.7				3.4	4.4			9.5
Commercial		2.3					2.6			4.9

  

<b>2030</b>										Mtoe
	Coal	Oil	Gas	Hydro	Nuclear	NRE	Electricity	Heat	Total	
Production	5.9	1.2	4.7	1.3		22.1				35.3
Net Imports	24.1	44.5	7.1							75.6
<b>TPED</b>	<b>30.0</b>	<b>45.7</b>	<b>11.8</b>	<b>1.3</b>		<b>22.1</b>				<b>110.9</b>
Electricity and Heat Generation	- 27.0	- 1.4	- 10.4	- 1.3		- 12.6	15.9			- 36.8
Petroleum Refineries		- 5.9								- 5.9
Others	- 1.1									- 1.1
<b>TFED</b>	<b>1.9</b>	<b>38.4</b>	<b>1.4</b>			<b>9.5</b>	<b>15.9</b>			<b>67.1</b>
Industry	1.9	3.9	1.4			6.0	4.9			18.1
Transport		29.8								29.8
Residential		2.1				3.5	7.0			12.5
Commercial		2.6					4.0			6.7

**PHILIPPINES**  
**MACRO ASSUMPTIONS**

	1980	2002	2010	2020	2030	Growth Rate (% per annum)				
						80-02	02-10	10-20	20-30	02-30
<b>GDP</b> (2000 PPP US\$ billion)	139	235	338	506	732	2.4	4.7	4.1	3.8	4.1
<b>Population</b> (million)	48.0	79.9	92.3	105.6	116.5	2.3	1.8	1.4	1.0	1.4
<b>GDP per capita</b> (2000 PPP US\$)	2 884	2 935	3 660	4 792	6 282	0.1	2.8	2.7	2.7	2.8
<b>GDP in Services</b> (2000 PPP US\$ billion)	53	130	199	318	481	4.2	5.5	4.8	4.2	4.8
<b>GDP in Industry</b> (2000 PPP US\$ billion)	32	80	115	177	266	4.3	4.6	4.4	4.2	4.4
<b>Urbanisation level</b> (%)	38	60	66	72	76	2.2	1.2	0.8	0.6	0.8

**ENERGY PROJECTIONS**

	1980	2002	Mtoe			2030	Growth rate (% per annum)				
			2010	2020	2030		80-02	02-10	10-20	20-30	02-30
<b>Production</b>	<b>9.8</b>	<b>21.5</b>	<b>27.0</b>	<b>32.2</b>	<b>35.3</b>	<b>3.7</b>	<b>2.9</b>	<b>1.8</b>	<b>0.9</b>	<b>1.8</b>	
Coal		1.0	3.3	5.1	5.9	8.9	15.8	4.6	1.4	6.5	
		(5%)	(12%)	(16%)	(17%)						
Oil	0.5	0.3	1.0	1.1	1.2	-2.1	15.3	0.7	1.5	5.0	
	(5%)	(1%)	(4%)	(3%)	(4%)						
Gas		1.4	2.7	4.7	4.7		8.2	5.9		4.4	
		(7%)	(10%)	(15%)	(13%)						
Hydro		0.5	0.7	0.9	1.3	2.6	3.9	2.2	3.9	3.3	
		(2%)	(3%)	(3%)	(4%)						
NRE	8.8	18.2	19.4	20.4	22.1	3.4	0.8	0.5	0.8	0.7	
	(90%)	(85%)	(72%)	(63%)	(63%)						
Nuclear											
<b>Net Imports</b>	<b>11.6</b>	<b>22.5</b>	<b>33.8</b>	<b>50.6</b>	<b>75.6</b>	<b>3.1</b>	<b>5.2</b>	<b>4.1</b>	<b>4.1</b>	<b>4.4</b>	
Coal	0.2	6.0	8.1	14.8	24.1	16.3	3.8	6.2	5.0	5.1	
Oil	11.4	16.2	22.7	32.6	44.5	1.6	4.3	3.7	3.2	3.7	
Gas		0.4	3.0	3.2	7.1		30.8	0.6	8.3	11.3	
Electricity											
<b>Total Primary Energy Demand</b>	<b>20.4</b>	<b>43.9</b>	<b>60.8</b>	<b>82.8</b>	<b>110.9</b>	<b>3.5</b>	<b>4.2</b>	<b>3.1</b>	<b>3.0</b>	<b>3.4</b>	
Coal	0.4	7.1	11.4	19.9	30.0	14.5	6.1	5.8	4.2	5.3	
	(2%)	(16%)	(19%)	(24%)	(27%)						
Oil	10.9	16.3	23.7	33.7	45.7	1.8	4.8	3.6	3.1	3.8	
	(54%)	(37%)	(39%)	(41%)	(41%)						
Gas		1.8	5.7	7.9	11.8		15.6	3.4	4.1	7.0	
		(4%)	(9%)	(10%)	(11%)						
Hydro	0.3	0.5	0.7	0.9	1.3	2.6	3.9	2.2	3.9	3.3	
	(1%)	(1%)	(1%)	(1%)	(1%)						
NRE	8.8	18.2	19.4	20.4	22.1	3.4	0.8	0.5	0.8	0.7	
	(43%)	(42%)	(32%)	(25%)	(20%)						
Nuclear											
<b>Input for Electricity and Heat Generation</b>	<b>- 5.5</b>	<b>- 19.9</b>	<b>- 28.1</b>	<b>- 38.4</b>	<b>- 52.7</b>	<b>6.0</b>	<b>4.4</b>	<b>3.2</b>	<b>3.2</b>	<b>3.5</b>	
Coal	- 0.1	- 6.0	- 9.6	- 17.5	- 27.0	24.3	6.1	6.2	4.4	5.5	
	(1%)	(30%)	(34%)	(45%)	(51%)						
Oil	- 3.4	- 0.6	- 1.0	- 1.2	- 1.4	- 7.9	7.8	1.6	1.5	3.3	
	(61%)	(3%)	(4%)	(3%)	(3%)						
Gas		- 1.8	- 5.0	- 6.9	- 10.4		13.9	3.2	4.2	6.5	
		(9%)	(18%)	(18%)	(20%)						
Hydro	- 0.3	- 0.5	- 0.7	- 0.9	- 1.3	2.6	3.9	2.2	3.9	3.3	
	(5%)	(3%)	(3%)	(2%)	(3%)						
NRE	- 1.8	- 11.0	- 11.8	- 12.0	- 12.6	8.6	0.8	0.2	0.5	0.5	
	(32%)	(56%)	(42%)	(31%)	(24%)						
Nuclear											
<b>Other Transformation</b>	<b>- 1.3</b>	<b>- 2.3</b>	<b>- 3.5</b>	<b>- 5.1</b>	<b>- 7.0</b>	<b>2.8</b>	<b>5.1</b>	<b>4.0</b>	<b>3.2</b>	<b>4.0</b>	
Coal		- 0.2	- 0.7	- 1.0	- 1.1		15.4	4.2	1.0	6.1	
		(9%)	(19%)	(19%)	(16%)						
Oil	- 1.3	- 2.1	- 2.8	- 4.1	- 5.9	2.4	3.5	4.0	3.6	3.7	
	(100%)	(91%)	(81%)	(81%)	(84%)						
Gas											
NRE											
Electricity											
Heat											

## PHILIPPINES

	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>10.8</b>	<b>25.2</b>	<b>35.2</b>	<b>49.4</b>	<b>67.1</b>	<b>3.9</b>	<b>4.3</b>	<b>3.5</b>	<b>3.1</b>	<b>3.6</b>
Coal	0.2 (2%)	0.8 (3%)	1.1 (3%)	1.5 (3%)	1.9 (3%)	6.5	4.0	2.9	2.6	3.1
Oil	6.0 (55%)	13.8 (55%)	19.9 (56%)	28.3 (57%)	38.4 (57%)	3.9	4.6	3.6	3.1	3.7
Gas			0.6 (2%)	1.0 (2%)	1.4 (2%)			4.6	3.3	
NRE	3.5 (32%)	7.2 (29%)	7.6 (22%)	8.4 (17%)	9.5 (14%)	3.4	0.7	1.0	1.2	1.0
Electricity	1.2 (11%)	3.4 (13%)	5.9 (17%)	10.1 (21%)	15.9 (24%)	4.8	7.3	5.5	4.6	5.7
Heat										
<b>Industry</b>	<b>4.8</b>	<b>8.2</b>	<b>10.5</b>	<b>13.8</b>	<b>18.1</b>	<b>2.5</b>	<b>3.2</b>	<b>2.7</b>	<b>2.8</b>	<b>2.9</b>
Coal	0.2 (4%)	0.8 (10%)	1.1 (11%)	1.5 (11%)	1.9 (11%)	6.5	4.0	2.9	2.6	3.1
Oil	3.0 (63%)	2.1 (25%)	2.5 (24%)	3.1 (22%)	3.9 (22%)	-1.7	2.5	2.1	2.4	2.3
Gas			0.6 (6%)	1.0 (7%)	1.4 (8%)			4.6	3.3	
NRE	0.9 (18%)	3.9 (48%)	4.3 (41%)	5.0 (36%)	6.0 (33%)	7.2	1.0	1.5	1.9	1.5
Electricity	0.7 (15%)	1.3 (16%)	2.0 (19%)	3.2 (23%)	4.9 (27%)	3.0	4.9	4.9	4.4	4.7
Heat										
<b>Transport</b>	<b>1.9</b>	<b>9.0</b>	<b>14.0</b>	<b>21.2</b>	<b>29.8</b>	<b>7.2</b>	<b>5.7</b>	<b>4.2</b>	<b>3.5</b>	<b>4.4</b>
Coal										
Oil	1.9 (100%)	9.0 (100%)	14.0 (100%)	21.2 (100%)	29.8 (100%)	7.2	5.7	4.2	3.5	4.4
Gas										
NRE										
Electricity		0.007 (0%)	0.010 (0%)	0.010 (0%)	0.010 (0%)		4.6			1.3
Heat										
<b>Residential</b>	<b>3.7</b>	<b>5.6</b>	<b>7.2</b>	<b>9.5</b>	<b>12.5</b>	<b>1.9</b>	<b>3.1</b>	<b>2.9</b>	<b>2.8</b>	<b>2.9</b>
Coal										
Oil	0.8 (22%)	1.2 (21%)	1.4 (19%)	1.7 (18%)	2.1 (17%)	1.6	2.2	2.1	2.1	2.1
Gas										
NRE	2.6 (71%)	3.2 (58%)	3.3 (46%)	3.4 (36%)	3.5 (28%)	1.0	0.3	0.2	0.2	0.2
Electricity	0.3 (7%)	1.2 (21%)	2.4 (34%)	4.4 (46%)	7.0 (56%)	7.2	9.5	6.0	4.7	6.5
Heat										
<b>Commercial</b>	<b>0.4</b>	<b>2.4</b>	<b>3.5</b>	<b>4.9</b>	<b>6.7</b>	<b>8.4</b>	<b>4.6</b>	<b>3.5</b>	<b>3.1</b>	<b>3.7</b>
Coal										
Oil	0.2 (39%)	1.6 (65%)	2.0 (56%)	2.3 (48%)	2.6 (40%)	11.0	2.8	1.8	1.3	1.9
Gas										
NRE										
Electricity <sup>1</sup>	0.3 (61%)	0.8 (35%)	1.5 (44%)	2.6 (52%)	4.0 (60%)	5.6	7.5	5.5	4.6	5.7
Heat										

Note: 1 Historical data prior to 2002 are from national sources.

## ENERGY SECURITY

	1980	2002	2010	2020	2030
Diversity of Primary Energy Demand (Rated between 1 and 100)	55	74	81	82	82
Net Energy Import Ratio (%)	54	51	56	61	68
Net Oil Import Dependency (%)	100	100	96	97	97

**PHILIPPINES**  
**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>18</b>	<b>51</b>	<b>89</b>	<b>136</b>	<b>208</b>	<b>4.9</b>	<b>7.0</b>	<b>4.4</b>	<b>4.3</b>	<b>5.1</b>
Coal		21	35	69	113	24.1	6.8	6.9	5.1	6.2
	( 1%)	( 41%)	( 40%)	( 51%)	( 54%)					
Oil	12	2	4	5	6	-7.4	8.1	1.8	1.8	3.6
	( 68%)	( 4%)	( 5%)	( 4%)	( 3%)					
Gas		9	27	37	57		14.1	3.4	4.4	6.7
		( 18%)	( 30%)	( 27%)	( 28%)					
Hydro	4	6	8	10	15	2.6	3.9	2.2	3.9	3.3
	( 20%)	( 12%)	( 9%)	( 8%)	( 7%)					
NRE	2	13	14	15	16	8.6	1.1	0.4	1.0	0.8
	( 12%)	( 25%)	( 16%)	( 11%)	( 8%)					
Nuclear										
<b>Total Installed Generation Capacity (GW)</b>	<b>4</b>	<b>15</b>	<b>18</b>	<b>26</b>	<b>36</b>	<b>5.6</b>	<b>2.8</b>	<b>3.4</b>	<b>3.5</b>	<b>3.3</b>
Thermal	3	10	13	20	29	5.6	2.9	4.4	3.9	3.8
	( 70%)	( 70%)	( 70%)	( 77%)	( 80%)					
Coal		4	6	11	17		4.5	6.6	4.8	5.3
		( 27%)	( 31%)	( 41%)	( 47%)					
Oil		4	3	3	3		-2.6	0.8		-0.5
		( 24%)	( 15%)	( 12%)	( 9%)					
Gas		3	4	6	9		5.9	3.3	4.0	4.3
		( 19%)	( 24%)	( 23%)	( 25%)					
Hydro	1	3	3	4	5	4.8	3.1	0.9	2.5	2.1
	( 20%)	( 17%)	( 17%)	( 14%)	( 12%)					
NRE		2	2	2	3	7.4	2.4	0.6	1.1	1.3
	( 9%)	( 13%)	( 13%)	( 10%)	( 8%)					
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>147</b>	<b>187</b>	<b>180</b>	<b>164</b>	<b>152</b>	<b>1.1</b>	<b>-0.5</b>	<b>-1.0</b>	<b>-0.8</b>	<b>-0.7</b>
Industry (toe per US\$ million GDP in Industry)	149	102	91	78	68	-1.7	-1.3	-1.6	-1.3	-1.4
Commercial (toe per US\$ million GDP in Services)	8	18	17	15	14	4.1	-0.8	-1.2	-1.1	-1.0
<b>Energy Intensity (kgoe per capita)</b>	<b>425</b>	<b>549</b>	<b>659</b>	<b>784</b>	<b>952</b>	<b>1.2</b>	<b>2.3</b>	<b>1.7</b>	<b>2.0</b>	<b>2.0</b>
Industry	100	102	114	130	156	0.1	1.4	1.3	1.8	1.5
Transport	40	113	152	201	256	4.8	3.8	2.8	2.4	3.0
Residential	77	70	78	90	107	-0.4	1.3	1.5	1.8	1.5
Commercial	9	30	37	46	57	5.9	2.8	2.1	2.1	2.3
<b>CO<sub>2</sub> Emissions (million tonnes)</b>	<b>30.6</b>	<b>75.1</b>	<b>119.4</b>	<b>183.6</b>	<b>262.0</b>	<b>4.2</b>	<b>6.0</b>	<b>4.4</b>	<b>3.6</b>	<b>4.6</b>
Electricity Generation	8.8	29.1	52.0	87.4	133.0	5.6	7.5	5.3	4.3	5.6
Transformation other than Electricity Generation	2.4	1.4	3.4	5.1	5.7	-2.6	12.1	4.3	1.2	5.3
Industry	10.8	9.4	11.9	15.1	19.3	-0.6	3.0	2.4	2.5	2.6
Transport	5.7	27.0	42.0	63.7	89.5	7.4	5.7	4.3	3.5	4.4
Residential	2.4	3.6	4.2	5.2	6.4	1.8	2.2	2.1	2.1	2.1
Commercial	0.5	4.8	5.9	7.1	8.0	10.7	2.8	1.8	1.3	1.9
<b>CO<sub>2</sub> Emissions Intensity</b>										
CO <sub>2</sub> emissions per GDP (tonnes per US\$ million)	220.8	320.3	353.7	362.8	357.9	1.7	1.2	0.3	-0.1	0.4
CO <sub>2</sub> emissions per capita (tonnes per capita)	0.6	0.9	1.3	1.7	2.2	1.8	4.1	3.0	2.6	3.2

**ENERGY INVESTMENT REQUIREMENTS**

(Cumulative from 2003 - )	2010	2020	2030
<b>Total (2000 US\$ billion)</b>	<b>15.6 - 21.0</b>	<b>37.5 - 48.9</b>	<b>67.5 - 87.4</b>
Coal Production & Transportation	0.27 - 0.34	0.52 - 0.68	0.66 - 0.88
Oil & Gas Production & Processing	5.14 - 7.54	8.57 - 12.57	13.48 - 19.71
Oil & Gas International Trade	0.02 - 0.04	0.56 - 0.76	1.10 - 1.47
Oil & Gas Domestic Pipeline	1.13 - 1.62	1.86 - 2.65	3.04 - 4.34
Electricity Generation & Transmission	9.05 - 11.41	25.94 - 32.25	49.26 - 60.98