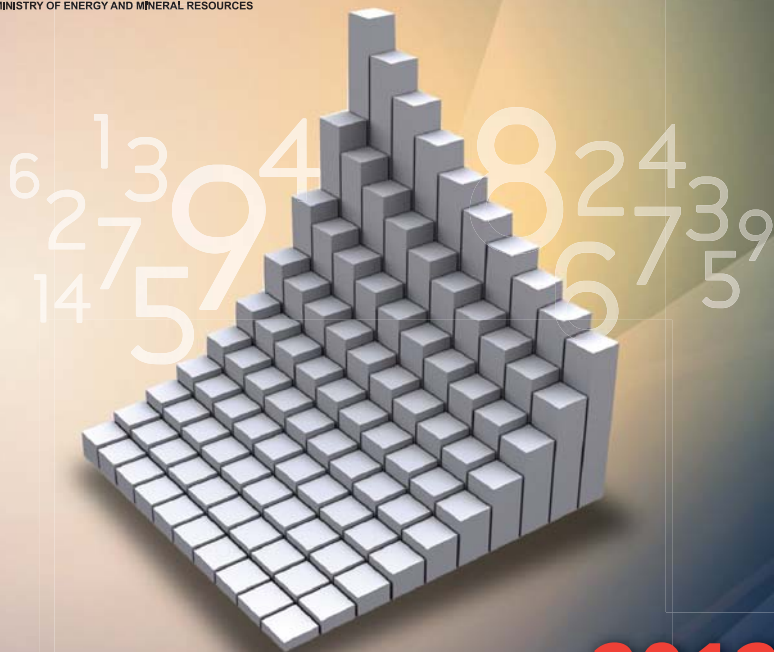




MINISTRY OF ENERGY AND MINERAL RESOURCES



**2012**

# HANDBOOK OF ENERGY & ECONOMIC STATISTICS OF INDONESIA

PUSDATIN ESDM

# **2012**

## **HANDBOOK of ENERGY & ECONOMIC STATISTICS of INDONESIA**



Center for Data and Information on Energy and Mineral Resources  
Ministry of Energy and Mineral Resources

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## PREFACE

The updating of the Handbook of Indonesia's Energy Economy Statistics, is a part of the Center for Data and Information Energy and Mineral Resources (CDI-EMR) effort to provide accurate and reliable energy economic data and information consolidated in one book. Data and information related to energy economy are dispersed in various sources and locations, and are generally available in different formats unready for energy analysis. In addition, they are generally not provided with sufficient explanation or clarification. The standardisation of energy economic data is still quite a critical problem. Currently, some researchers in various institutions, do not have common terminology on energy economy, in some cases may have a number of meanings. This subsequently leads to inaccurate energy analysis.

Currently, the problem related to energy data in Indonesia is the unavailability of demand-side data. To date, energy data are actually derived from supply-side data. In other words, consumption data are assumed to be identical with the sales data. Such assumption maybe quite accurate provided there is no disparity between domestic energy price and its international price. Disparity in energy price would promote misuse of energy. Thus, sales data on an energy commodity cannot be regarded as the same as that of its consumption. For that reason, in this statistics handbook, energy consumption data concept is presented after a computation based on a number energy parameters.

We hope the process to standardise Energy and Economy data and information in the future will be continued as part of the updating of the Handbook of Indonesia's Energy Economy Statistics. Therefore, in updating the Handbook, (CDI-EMR) will continued to coordinate with all related parties within the Ministry of Energy and Mineral Resources (MEMR) as well as with statistics units outside MEMR.

We would like to appreciate all parties, for their diligence and patience in preparing this book. May God Almighty always guides us in utilising our energy resources wisely for the maximum benefit of all the people of Indonesia.

Jakarta, December 2012

Head of Center for Energy and  
Mineral Resources Data and Information

## INTRODUCTION

This Handbook of Indonesia's Energy Economy Statistics, 9<sup>th</sup> edition, contains data on Indonesia's energy and economy from 2000 through 2010. This edition is an updated version of the 8<sup>th</sup> Edition, covering estimated energy demand for every sector. The structure of the table is arranged as follows:

### A. Tables

Shown in 6 Main Categories, as follows:

- Table 1 General Information and Energy Economic Indicators
- Table 2 Indonesia's Energy Balanced Table
- Table 3 Situation of Energy Supply and Demand
- Table 4 Energy Price
- Table 5 Situation of Energy Demand by Sectors
- Table 6 Situation of Energy Supply by Energy Sources

### B. Annexes

- Annex 1. Methodology and Clarification of Tables which explains the methodology applied to prepare the data for the tables
- Annex 2. Glossary, contains important terms which are used in the tables and their respective units.
- Annex 3. Conversion Factors, presenting list of multiplication factors used to convert various original units of energy into BOE (Barrel Oil Equivalent).

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## Concise Energy Profile Indonesia 2011

### A. SOCIO ECONOMY

|                 |              |                           |
|-----------------|--------------|---------------------------|
| Teritorial Area | 7,788,810.32 | km <sup>2</sup>           |
| Land Area       | 1,910,931.32 | km <sup>2</sup>           |
| Population :    | 241,133.70   | Thousand People           |
| Household :     | 60,283.43    | Thousand Household        |
| GDP Regional    |              |                           |
| Total Value :   | 7,427.09     | Trillion Rupiahs          |
| Per Capita :    | 30,800.70    | Thousand Rupiahs per Year |

### B. ENERGY PRODUCTION

|                           |               |                                     |
|---------------------------|---------------|-------------------------------------|
| Primary Energy Production |               |                                     |
| Crude Oil :               | 329,265.00    | Thousand Barel                      |
| Natural Gas :             | 2,890.92      | BSCF                                |
| Coal :                    | 353,270.94    | Thousand Tonnes                     |
| Hydro Power :             | 42,658,902.81 | GWh Output                          |
| Geothermal :              | 68,610.11     | Thousand Tonnes<br>Geothermal Steam |

|                                                                 |                 |                    |
|-----------------------------------------------------------------|-----------------|--------------------|
| <b>C. FINAL ENERGY CONSUMPTION</b>                              | <b>1,016.35</b> | <b>Million BOE</b> |
| <b>Energy Consumption by Type<br/>(excluded non energy use)</b> |                 |                    |
| Coal :                                                          | 144.57          | Million BOE        |
| Fuel :                                                          | 363.83          | Million BOE        |
| Gas :                                                           | 92.80           | Million BOE        |
| Electricity :                                                   | 98.00           | Million BOE        |
| Briquette :                                                     | 0.07            | Million BOE        |
| LPG :                                                           | 37.05           | Million BOE        |
| Biomass :                                                       | 280.05          | Million BOE        |
| <b>Energy Consumption by Sector</b>                             |                 |                    |
| Industry :                                                      | 359.69          | Million BOE        |
| Household :                                                     | 320.37          | Million BOE        |
| Commercial :                                                    | 34.08           | Million BOE        |
| Transportation :                                                | 277.40          | Million BOE        |
| Other Sector :                                                  | 24.82           | Million BOE        |
| Non Energy :                                                    | 98.41           | Million BOE        |
| <b>D. RATIO ELECTRIFICATION :</b>                               | <b>72.95</b>    | <b>%</b>           |



CHAPTER

1

**2012**  
**HANDBOOK OF**  
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**STATISTICS**  
**OF INDONESIA**

## 1.1 GDP and Energy Indicator

|                                        | Unit             | 2000    | 2001    | 2002    |
|----------------------------------------|------------------|---------|---------|---------|
| GDP at Constant Price 2000             | Trillion Rupiahs | 1,390   | 1,443   | 1,506   |
| GDP Nominal                            | Trillion Rupiahs | 1,390   | 1,684   | 1,863   |
| GDP Nominal per Capita                 | Thousand Rupiahs | 6,752   | 8,072   | 8,789   |
| Population                             | Thousand         | 205,843 | 208,647 | 212,003 |
| Number of Households                   | Thousand         | 52,005  | 54,314  | 55,041  |
| Primary Energy Supply *)               | Thousand BOE     | 726,687 | 772,282 | 799,806 |
| Primary Energy Supply per Capita *)    | BOE / capita     | 3.53    | 3.70    | 3.77    |
| Final Energy Consumption *)            | Thousand BOE     | 468,490 | 484,848 | 481,185 |
| Final Energy Consumption per Capita *) | BOE / capita     | 2.28    | 2.32    | 2.27    |

|                                     | 2000-2001 | 2001-2002 | 2002-2003 | 2003-2004 |
|-------------------------------------|-----------|-----------|-----------|-----------|
| GDP at Constant Price 2000          | 3.83      | 4.38      | 4.72      | 5.03      |
| GDP Nominal                         | 21.19     | 10.63     | 8.07      | 14.01     |
| GDP Nominal per Capita              | 19.56     | 8.88      | 6.43      | 12.66     |
| Population                          | 1.36      | 1.61      | 1.54      | 1.20      |
| Number of Households                | 4.44      | 1.34      | 2.87      | 2.88      |
| Primary Energy Supply               | 6.27      | 3.56      | 7.41      | 1.59      |
| Final Energy Consumption            | 3.49      | -0.76     | 7.95      | 4.17      |
| Final Energy Consumption per Capita | 2.10      | -2.33     | 6.31      | 2.94      |

Sources : BPS, Statistics Indonesia; Bank Indonesia

Note : \*) Primary Energy Supply and Final Energy Consumption which are calculated is commercial energy (excluded biomass)

| 2003    | 2004    | 2005    | 2006    | 2007    | 2008    | 2009      | 2010      | 2011      |
|---------|---------|---------|---------|---------|---------|-----------|-----------|-----------|
| 1,577   | 1,657   | 1,751   | 1,847   | 1,964   | 2,082   | 2,179     | 2,314     | 2,463     |
| 2,014   | 2,296   | 2,774   | 3,339   | 3,951   | 4,951   | 5,606     | 6,436     | 7,427     |
| 9,354   | 10,538  | 12,676  | 15,030  | 17,510  | 21,667  | 23,914    | 27,084    | 30,801    |
| 215,276 | 217,854 | 218,869 | 222,192 | 225,642 | 228,523 | 234,432   | 237,641   | 241,134   |
| 56,623  | 58,253  | 55,119  | 55,942  | 56,411  | 57,131  | 58,422    | 59,119    | 60,283    |
| 859,053 | 872,677 | 896,445 | 899,168 | 955,703 | 984,022 | 1,015,318 | 1,155,684 | 1,236,070 |
| 3.99    | 4.01    | 4.10    | 4.05    | 4.24    | 4.31    | 4.33      | 4.86      | 5.13      |
| 519,456 | 541,121 | 540,205 | 538,892 | 576,835 | 590,539 | 699,210   | 793,942   | 834,717   |
| 2.41    | 2.48    | 2.47    | 2.43    | 2.56    | 2.58    | 2.98      | 3.34      | 3.46      |

| Growth (%) |           |           |           |           |           |           |
|------------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2004-2005  | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 |
| 5.69       | 5.50      | 6.35      | 6.01      | 4.58      | 6.20      | 6.46      |
| 20.84      | 20.37     | 18.31     | 25.32     | 13.18     | 14.81     | 15.39     |
| 20.28      | 18.57     | 16.50     | 23.74     | 11.79     | 13.26     | 13.72     |
| 0.47       | 1.52      | 1.55      | 1.28      | 1.25      | 1.37      | 1.47      |
| -5.38      | 1.49      | 0.84      | 1.28      | 2.26      | 1.19      | 1.97      |
| 2.72       | 0.30      | 6.29      | 2.96      | 3.98      | 13.82     | 7.09      |
| -0.17      | -0.24     | 7.04      | 2.38      | 4.41      | 13.55     | 5.14      |
| -0.63      | -1.74     | 5.40      | 1.09      | 3.12      | 12.02     | 3.61      |

## 1.2 Macro Economic

| Year | GDP Constant 2000 Prices |                     |                        |                         |
|------|--------------------------|---------------------|------------------------|-------------------------|
|      | GDP                      | Private Consumption | Government Consumption | Fixed Capital Formation |
|      | Billion Rupiah           |                     |                        |                         |
| 2000 | 1,389,770.3              | 856,798.3           | 90,779.7               | 275,881.2               |
| 2001 | 1,442,984.6              | 886,736.0           | 97,646.0               | 293,792.7               |
| 2002 | 1,506,124.4              | 920,749.6           | 110,333.6              | 307,584.6               |
| 2003 | 1,577,171.3              | 956,593.4           | 121,404.1              | 309,431.1               |
| 2004 | 1,656,516.8              | 1,004,109.0         | 126,248.6              | 354,865.8               |
| 2005 | 1,750,815.2              | 1,043,805.1         | 134,625.6              | 393,500.5               |
| 2006 | 1,847,126.7              | 1,076,928.1         | 147,563.7              | 403,161.9               |
| 2007 | 1,964,327.3              | 1,130,847.1         | 153,309.6              | 441,361.5               |
| 2008 | 2,082,315.9              | 1,191,190.8         | 169,297.2              | 493,716.5               |
| 2009 | 2,178,850.4              | 1,249,070.1         | 195,835.0              | 510,085.9               |
| 2010 | 2,313,838.0              | 1,308,272.0         | 196,399.0              | 553,347.7               |
| 2011 | 2,463,242.0              | 1,369,881.0         | 202,612.0              | 602,146.7               |

Source : BPS, Statistics Indonesia

|  | GDP Constant 2000 Prices |                                 |                                 | GDP Nominal<br>(Current Prices) | Index GDP<br>Deflator |
|--|--------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------|
|  | Stock<br>Change          | Export of Goods<br>and Services | Import of Goods<br>and Services |                                 |                       |
|  | Billion Rupiahs          |                                 |                                 |                                 | (2000=100)            |
|  | 33,282.8                 | 569,490.3                       | 423,317.9                       | 1,389,769.9                     | 100.00                |
|  | 41,846.8                 | 573,163.4                       | 441,012.0                       | 1,684,280.5                     | 116.72                |
|  | 13,085.0                 | 566,188.4                       | 422,271.4                       | 1,863,274.7                     | 123.71                |
|  | 45,996.7                 | 599,516.4                       | 428,874.6                       | 2,013,674.6                     | 127.68                |
|  | 25,099.0                 | 680,620.9                       | 543,183.8                       | 2,295,826.2                     | 138.59                |
|  | 33,508.3                 | 793,612.9                       | 639,701.9                       | 2,774,281.1                     | 158.46                |
|  | 29,026.7                 | 868,256.4                       | 694,605.4                       | 3,339,479.6                     | 180.79                |
|  | -243.1                   | 942,431.4                       | 757,566.2                       | 3,950,893.2                     | 201.13                |
|  | 2,170.4                  | 1,032,277.8                     | 833,342.2                       | 4,951,356.7                     | 237.78                |
|  | -2,065.0                 | 932,249.0                       | 708,529.0                       | 5,606,203.4                     | 257.30                |
|  | 11,042.0                 | 1,074,569.0                     | 831,418.3                       | 6,436,270.8                     | 278.16                |
|  | 21,858.7                 | 1,220,428.0                     | 942,208.3                       | 7,427,086.0                     | 301.52                |

### 1.3 Finance and Banking

| Year | Money Supply (M1) |                 |         |
|------|-------------------|-----------------|---------|
|      | Currency Outside  | Demand Deposits | Total   |
|      | Billion Rupiah    |                 |         |
| 2000 | 72,371            | 89,815          | 162,186 |
| 2001 | 76,342            | 101,389         | 177,731 |
| 2002 | 80,686            | 111,253         | 191,939 |
| 2003 | 94,542            | 129,257         | 223,799 |
| 2004 | 109,265           | 144,553         | 253,818 |
| 2005 | 124,316           | 157,589         | 281,905 |
| 2006 | 151,009           | 210,064         | 361,073 |
| 2007 | 183,419           | 277,423         | 460,842 |
| 2008 | 209,378           | 257,001         | 466,379 |
| 2009 | 226,006           | 289,818         | 515,824 |
| 2010 | 260,227           | 345,184         | 605,411 |
| 2011 | 307,760           | 415,231         | 722,991 |

Source: Bank of Indonesia

## 1.4 Price Index

| Year | Wholesale Price Index <sup>*)</sup> |        |         | Consumer Price Index of 66 Cities <sup>*)</sup> | Coal Price Index | Electricity Price Index |
|------|-------------------------------------|--------|---------|-------------------------------------------------|------------------|-------------------------|
|      | Export                              | Import | General |                                                 |                  |                         |
|      | 2000=100                            |        |         | 2007=100                                        |                  |                         |
| 2000 | 100.00                              | 100.00 | 100.00  | 53.47                                           | 100.00           | 100.00                  |
| 2001 | 113.02                              | 112.66 | 114.16  | 59.62                                           | 129.79           | 122.34                  |
| 2002 | 108.00                              | 112.00 | 118.00  | 66.66                                           | 142.89           | 189.44                  |
| 2003 | 109.00                              | 114.00 | 122.00  | 71.17                                           | 150.09           | 251.99                  |
| 2004 | 121.00                              | 127.00 | 131.00  | 75.49                                           | 150.04           | 269.01                  |
| 2005 | 145.00                              | 149.00 | 151.00  | 83.38                                           | 163.57           | 271.56                  |
| 2006 | 154.00                              | 162.00 | 172.00  | 94.31                                           | 218.36           | 273.78                  |
| 2007 | 167.00                              | 186.00 | 195.00  | 100.00                                          | 220.27           | 275.76                  |
| 2008 | 209.00                              | 235.00 | 246.00  | 109.78                                          | 318.12           | 283.60                  |
| 2009 | 134.10                              | 156.61 | 162.71  | 115.06                                          | 476.18           | 284.23                  |
| 2010 | 137.80                              | 160.90 | 170.59  | 125.17                                          | 427.02           | 297.06                  |
| 2011 | 154.11                              | 177.37 | 183.31  | 129.91                                          | 454.27           | 298.04                  |

Notes: \*) 2009-2012 based on 2005=100; Processed from BPS, Statistics Indonesia; Bank of Indonesia

## 1.5 Population and Employment

| Year | Popula-<br>tion         | Labor<br>Force          | House-<br>hold                  | Unem-<br>p-<br>loy-<br>ment | Unemploy-<br>ment<br>Percentage<br>(toward<br>labor force) | Average Wage                  |       |        |
|------|-------------------------|-------------------------|---------------------------------|-----------------------------|------------------------------------------------------------|-------------------------------|-------|--------|
|      |                         |                         |                                 |                             |                                                            | Industry                      | Hotel | Mining |
|      | Thou-<br>sand<br>People | Thou-<br>sand<br>People | Thou-<br>sand<br>House-<br>hold | Thou-<br>sand<br>People     | %                                                          | Thousand Rupiahs Per<br>Month |       |        |
| 2000 | 205,843                 | 95,651                  | 52,005                          | 5,813                       | 6.1                                                        | 373                           | 396   | 1,234  |
| 2001 | 208,647                 | 98,812                  | 54,314                          | 8,005                       | 8.1                                                        | 541                           | 575   | 1,227  |
| 2002 | 212,003                 | 99,564                  | 55,041                          | 9,132                       | 9.2                                                        | 672                           | 651   | 1,406  |
| 2003 | 215,276                 | 100,316                 | 56,623                          | 9,531                       | 9.5                                                        | 713                           | 581   | 2,117  |
| 2004 | 217,854                 | 103,973                 | 58,253                          | 10,251                      | 9.9                                                        | 852                           | 801   | 1,368  |
| 2005 | 218,869                 | 105,802                 | 55,119                          | 10,854                      | 10.3                                                       | 870                           | 788   | 2,114  |
| 2006 | 222,192                 | 106,389                 | 55,942                          | 10,932                      | 10.3                                                       | 972                           | 918   | 2,733  |
| 2007 | 225,642                 | 109,941                 | 56,411                          | 10,011                      | 9.1                                                        | 1,050                         | 1,042 | 3,890  |
| 2008 | 228,523                 | 111,947                 | 57,131                          | 9,395                       | 8.4                                                        | 1,105                         | 1,069 | 4,064  |
| 2009 | 234,432                 | 113,830                 | 58,422                          | 8,963                       | 7.9                                                        | 1,137                         | 1,225 | 2,678  |
| 2010 | 237,641                 | 116,530                 | 59,119                          | 8,320                       | 7.1                                                        | 1,366                         | 1,171 | 2,843  |
| 2011 | 241,134                 | 117,371                 | 62,630                          | 7,700                       | 6.6                                                        | 1,378                         | 1,257 | 4,157  |

Source: BPS, Statistics Indonesia

Note : PP (People)

## 1.6 International Trade

| Year | Based on Major Portion |         | Trade Index 2000=100 |        | Balance Payment             |                             |        | Ex-<br>change<br>Rate<br>Rupiah<br>to US\$ | US \$<br>Defla-<br>tor <sup>*)</sup> |
|------|------------------------|---------|----------------------|--------|-----------------------------|-----------------------------|--------|--------------------------------------------|--------------------------------------|
|      | Export                 | Import  | Export               | Import | Current<br>Trans-<br>action | Capital<br>Trans-<br>action | Total  |                                            |                                      |
|      | Million US\$           |         |                      |        | Million US\$                |                             |        |                                            |                                      |
| 2000 | 62,124                 | 33,515  | 100                  | 100    | 7,992                       | -7,896                      | 96     | 9,595                                      | 1.0000                               |
| 2001 | 56,321                 | 30,962  | 91                   | 92     | 6,901                       | -7,617                      | -716   | 10,400                                     | 1.0240                               |
| 2002 | 57,159                 | 31,289  | 92                   | 93     | 7,824                       | -1,103                      | 6,720  | 8,940                                      | 1.0419                               |
| 2003 | 61,058                 | 32,551  | 98                   | 97     | 10,882                      | -949                        | 9,933  | 8,465                                      | 1.0640                               |
| 2004 | 71,585                 | 46,525  | 115                  | 139    | 1,564                       | 1,852                       | 3,415  | 9,290                                      | 1.0946                               |
| 2005 | 85,660                 | 57,701  | 138                  | 172    | 278                         | 345                         | 623    | 9,830                                      | 1.1303                               |
| 2006 | 100,799                | 61,066  | 162                  | 182    | 10,860                      | 3,025                       | 13,884 | 9,020                                      | 1.1668                               |
| 2007 | 114,101                | 74,473  | 184                  | 222    | 10,493                      | 3,591                       | 14,083 | 9,419                                      | 1.1982                               |
| 2008 | 137,020                | 129,197 | 221                  | 385    | -637                        | -5,915                      | -6,552 | 10,950                                     | 1.2242                               |
| 2009 | 119,646                | 88,714  | 193                  | 265    | 10,628                      | 4,852                       | 15,481 | 10,356                                     | 1.0962                               |
| 2010 | 158,074                | 127,447 | 254                  | 380    | 5,144                       | 26,620                      | 31,765 | 9,078                                      | 1.1066                               |
| 2011 | 201,473                | 166,125 | 324                  | 496    | 2,069                       | 14,018                      | 16,088 | 8,768                                      | 1.1187                               |

Source : BPS, Statistics Indonesia

Note: \*) Derived from World Economic Outlook Database, April 2011, IMF

## 1.7 Supply of Primary Energy

### 1.7.1 By Type

(%)

| Type of Energy | 2000  | 2001  | 2002  | 2003  | 2004  | 2005  | 2006  | 2007  | 2008  | 2009  | 2010  | 2011  |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Oil            | 43.52 | 42.42 | 42.32 | 40.37 | 43.52 | 42.32 | 39.25 | 38.51 | 38.11 | 37.40 | 38.18 | 41.45 |
| Coal           | 9.42  | 11.44 | 11.48 | 14.58 | 13.24 | 14.89 | 17.51 | 20.97 | 17.80 | 18.26 | 19.69 | 23.38 |
| Gas            | 16.54 | 16.53 | 17.65 | 18.05 | 16.39 | 16.39 | 16.72 | 14.92 | 18.70 | 19.39 | 18.89 | 18.31 |
| Hydropower     | 2.54  | 2.82  | 2.34  | 2.03  | 2.13  | 2.32  | 2.06  | 2.31  | 2.30  | 2.21  | 3.08  | 2.19  |
| Geothermal     | 0.96  | 0.96  | 0.96  | 0.92  | 0.97  | 0.94  | 0.95  | 0.93  | 1.06  | 1.16  | 1.03  | 1.15  |
| Biomass        | 27.02 | 25.83 | 25.25 | 24.05 | 23.75 | 23.15 | 23.51 | 22.36 | 22.03 | 21.57 | 19.14 | 13.52 |

### 1.7.2 By Type (Excluded Biomass)

(%)

| Type of Energy | 2000  | 2001  | 2002  | 2003  | 2004  | 2005  | 2006  | 2007  | 2008  | 2009  | 2010  | 2011  |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Oil            | 59.64 | 57.20 | 56.62 | 53.16 | 57.08 | 55.07 | 51.30 | 49.58 | 48.84 | 47.61 | 47.10 | 47.74 |
| Coal           | 12.91 | 15.43 | 15.36 | 19.20 | 17.37 | 19.37 | 22.89 | 27.01 | 22.82 | 23.29 | 24.35 | 27.03 |
| Gas            | 22.66 | 22.28 | 23.61 | 23.76 | 21.49 | 21.33 | 21.86 | 19.21 | 23.99 | 24.72 | 23.36 | 21.17 |
| Hydropower     | 3.47  | 3.80  | 3.13  | 2.67  | 2.79  | 3.02  | 2.70  | 2.98  | 2.95  | 2.82  | 3.80  | 2.53  |
| Geothermal     | 1.32  | 1.29  | 1.28  | 1.21  | 1.27  | 1.22  | 1.24  | 1.20  | 1.36  | 1.47  | 1.27  | 1.33  |
| Biofuel        | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.01  | 0.02  | 0.03  | 0.08  | 0.12  | 0.19  |

Note: Oil including crude oil, petroleum product and LPG

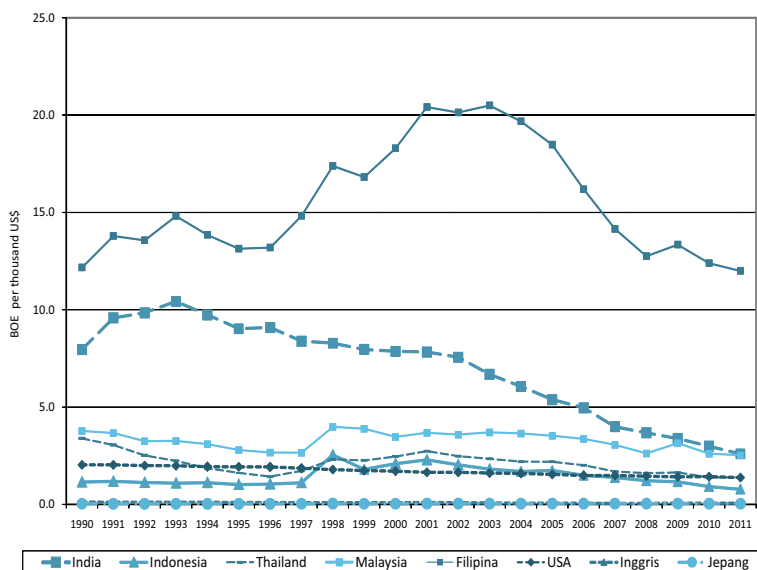
Coal including coal and briquette

Gas including natural gas and LNG

Biomass including firewood and charcoal

Biofuel: Pure bio energy (not blending product)

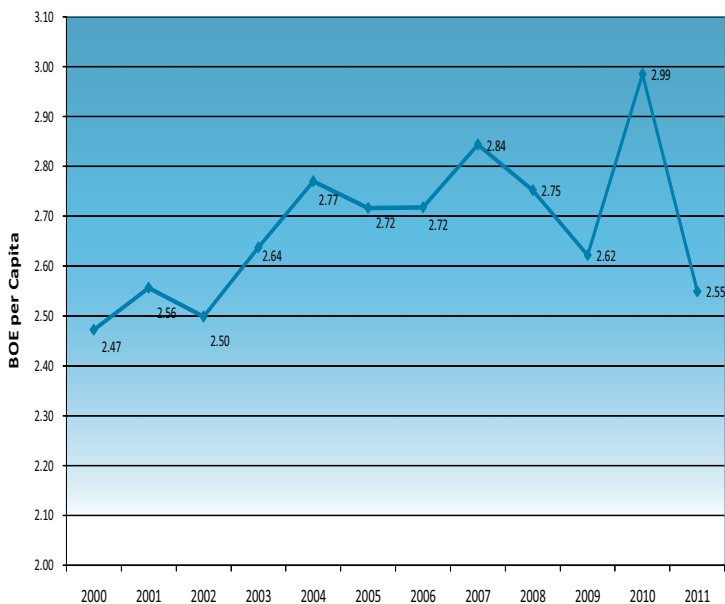
## 1.8 Comparison of Primary Energy Intensity in Some Country

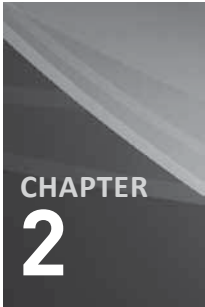


Note: GDP Primary Energy Consumption using US\$ fix rate in year 2000

Sources: BP Statistical Review of World Energy 2011 and World Economic Outlook Database April 2011, IMF

## 1.9 Intensity of Final Energy Consumption per Capita





CHAPTER

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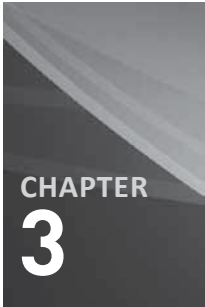
## Indonesia Energy Balance Table 2011

|          |                                        | Hydro Power    | Geothermal     | Biomass        | Coal            | Briquette |
|----------|----------------------------------------|----------------|----------------|----------------|-----------------|-----------|
| <b>1</b> | <b>Primary Energy Supply</b>           | <b>31,269</b>  | <b>16,494</b>  | <b>280,171</b> | <b>334,143</b>  | <b>0</b>  |
|          | a. Production                          | 31,269         | 16,494         | 280,171        | 1,483,738       | 0         |
|          | b. Import                              | 0              | 0              | 0              | 178             | 0         |
|          | c. Export                              | 0              | 0              | 0              | -1,145,220      | 0         |
|          | d. Stock Change                        | 0              | 0              | 0              | -4,554          | 0         |
| <b>2</b> | <b>Energy Transformation</b>           | <b>-31,269</b> | <b>-16,494</b> | <b>-121</b>    | <b>-189,576</b> | <b>66</b> |
|          | a. Refinery                            | 0              | 0              | 0              | 0               | 0         |
|          | b. Gas Processing                      | 0              | 0              | 0              | 0               | 0         |
|          | c. Coal Processing Plant               | 0              | 0              | 0              | -78             | 66        |
|          | d. Power Plant                         | -31,269        | -16,494        | -121           | -189,498        | 0         |
|          | - State Own Utility (PLN)              | -25,973        | -6,138         | 0              | -115,223        | 0         |
|          | - Independent Power Producer (Non-PLN) | -5,296         | -10,356        | -121           | -74,274         | 0         |
| <b>3</b> | <b>Own Use and Losses</b>              | <b>0</b>       | <b>0</b>       | <b>0</b>       | <b>0</b>        | <b>0</b>  |
|          | a. During Transformation               | 0              | 0              | 0              | 0               | 0         |
|          | b. Energy Use/ Own Use                 | 0              | 0              | 0              | 0               | 0         |
|          | c. Transmission & Distribution         | 0              | 0              | 0              | 0               | 0         |
| <b>4</b> | <b>Final Energy Supply</b>             | <b>0</b>       | <b>0</b>       | <b>280,050</b> | <b>144,567</b>  | <b>66</b> |
| <b>5</b> | <b>Statistic Discrepancy</b>           | <b>0</b>       | <b>0</b>       | <b>0</b>       | <b>0</b>        | <b>0</b>  |
| <b>6</b> | <b>Final Energy Consumption</b>        | <b>0</b>       | <b>0</b>       | <b>280,050</b> | <b>144,567</b>  | <b>66</b> |
|          | a. Industry                            | 0              | 0              | 43,733         | 144,567         | 66        |
|          | b. Transportation                      | 0              | 0              | 0              | 0               | 0         |
|          | c. Household                           | 0              | 0              | 234,943        | 0               | 0         |
|          | d. Commercial                          | 0              | 0              | 1,374          | 0               | 0         |
|          | e. Other Sector                        | 0              | 0              | 0              | 0               | 0         |
| <b>7</b> | <b>Non Energy Use</b>                  | <b>0</b>       | <b>0</b>       | <b>0</b>       | <b>0</b>        | <b>0</b>  |

(thousand BOE)

| Natural Gas | Crude Oil | Fuel    | Biofuel | LPG    | Other Petroleum Product | Electricity | LNG      | Total      |
|-------------|-----------|---------|---------|--------|-------------------------|-------------|----------|------------|
| 458,952     | 327,422   | 200,795 | 46,676  | 17,564 | -27,029                 | 1,558       | -197,244 | 1,490,771  |
| 519,210     | 329,265   | 0       | 46,676  | 0      | 0                       | 0           | 0        | 2,706,822  |
| 0           | 96,862    | 166,187 | 0       | 16,979 | 1,010                   | 1,558       | 0        | 282,775    |
| -60,258     | -135,572  | -2,750  | 0       | 0      | -28,040                 | 0           | -197,244 | -1,569,083 |
| 0           | 36,867    | 37,359  | 0       | 585    | 0                       | 0           | 0        | 70,256     |
| -297,779    | -321,002  | 117,041 | 0       | 19,482 | 97,008                  | 111,243     | 207,689  | -303,711   |
| -2,948      | -321,002  | 192,792 | 0       | 6,008  | 97,008                  | 0           | 0        | -28,141    |
| -234,816    | 0         | 0       | 0       | 13,474 | 0                       | 0           | 207,689  | -13,653    |
| 0           | 0         | 0       | 0       | 0      | 0                       | 0           | 0        | -12        |
| -60,015     | 0         | -75,751 | 0       | 0      | 0                       | 111,243     | 0        | -261,905   |
| -51,316     | 0         | -75,578 | 0       | 0      | 0                       | 87,499      | 0        | -186,729   |
| -8,700      | 0         | -173    | 0       | 0      | 0                       | 23,744      | 0        | -75,177    |
| -38,592     | -6,420    | -592    | -93     | 0      | 0                       | -14,361     | -10,445  | -70,503    |
| -2,948      | -6,420    | 0       | 0       | 0      | 0                       | -3,990      | 0        | -13,358    |
| -35,644     | 0         | 0       | 0       | 0      | 0                       | 0           | 0        | -35,644    |
| 0           | 0         | -592    | -93     | 0      | 0                       | -10,371     | -10,445  | -21,502    |
| 122,581     | 0         | 317,244 | 46,583  | 37,046 | 69,978                  | 98,440      | 0        | 1,116,556  |
| 1,347       | 0         | 0       | 0       | 0      | 0                       | 442         | 0        | 1,789      |
| 121,234     | 0         | 317,244 | 46,583  | 37,046 | 69,978                  | 97,998      | 0        | 1,114,767  |
| 91,214      | 0         | 45,951  | 0       | 608    | 0                       | 33,547      | 0        | 359,687    |
| 181         | 0         | 230,588 | 46,583  | 0      | 0                       | 54          | 0        | 277,405    |
| 114         | 0         | 10,072  | 0       | 35,326 | 0                       | 39,914      | 0        | 320,369    |
| 1,290       | 0         | 5,817   | 0       | 1,112  | 0                       | 24,485      | 0        | 34,077     |
| 0           | 0         | 24,816  | 0       | 0      | 0                       | 0           | 0        | 24,816     |
| 28,434      | 0         | 0       | 0       | 0      | 69,978                  | 0           | 0        | 98,413     |





CHAPTER

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### 3.1 Primary Energy Supply by Sources

| Year | Coal        | Crude Oil & Product | Natural Gas & Product |  |
|------|-------------|---------------------|-----------------------|--|
|      |             |                     |                       |  |
| 2000 | 93,831,548  | 433,360,999         | 164,649,922           |  |
| 2001 | 119,125,379 | 441,731,352         | 172,083,907           |  |
| 2002 | 122,879,411 | 452,817,870         | 188,822,314           |  |
| 2003 | 164,950,173 | 456,647,707         | 204,142,054           |  |
| 2004 | 151,543,284 | 498,117,696         | 187,553,776           |  |
| 2005 | 173,673,093 | 493,636,985         | 191,189,376           |  |
| 2006 | 205,779,290 | 461,349,420         | 196,599,386           |  |
| 2007 | 258,174,000 | 474,032,509         | 183,623,636           |  |
| 2008 | 224,587,657 | 480,900,640         | 236,049,566           |  |
| 2009 | 236,439,000 | 484,207,777         | 251,035,250           |  |
| 2010 | 281,400,000 | 545,708,063         | 269,942,185           |  |
| 2011 | 334,142,760 | 592,456,411         | 261,708,332           |  |

(BOE)

| Hydro Power | Geothermal | Biomass     | Total         |
|-------------|------------|-------------|---------------|
| <b>BOE</b>  |            |             |               |
| 25,248,631  | 9,596,400  | 269,054,110 | 995,741,609   |
| 29,380,607  | 9,960,940  | 268,970,034 | 1,041,252,219 |
| 25,038,179  | 10,248,040 | 270,230,078 | 1,070,035,892 |
| 22,937,538  | 10,375,200 | 272,005,374 | 1,131,058,046 |
| 24,385,647  | 11,077,000 | 271,806,233 | 1,144,483,636 |
| 27,034,841  | 10,910,460 | 270,042,895 | 1,166,487,651 |
| 24,256,796  | 11,182,742 | 276,335,944 | 1,175,503,577 |
| 28,450,964  | 11,421,759 | 275,199,938 | 1,230,902,805 |
| 29,060,413  | 13,423,610 | 277,981,421 | 1,262,003,306 |
| 28,662,883  | 14,973,198 | 279,313,257 | 1,294,631,364 |
| 43,952,237  | 14,681,920 | 273,643,874 | 1,429,328,278 |
| 31,268,976  | 16,493,771 | 280,171,358 | 1,516,241,607 |

## 3.2 Final Energy Consumption by Sector

### 3.2.1 Energy Consumption (included Biomass)

| Sector                   | 2000        | 2001        | 2002        | 2003        | 2004        |
|--------------------------|-------------|-------------|-------------|-------------|-------------|
| Industrial               | 251,895,942 | 252,158,714 | 245,108,900 | 275,308,517 | 263,294,377 |
| Households               | 296,573,110 | 301,347,223 | 303,032,794 | 309,046,165 | 314,114,684 |
| Commercial               | 20,670,389  | 21,449,843  | 21,752,300  | 22,397,122  | 25,412,327  |
| Transportation           | 139,178,658 | 148,259,584 | 151,498,823 | 156,232,909 | 178,374,391 |
| Other                    | 29,213,878  | 30,585,607  | 29,998,546  | 28,445,436  | 31,689,809  |
| Non Energy Utilization   | 40,393,109  | 48,524,092  | 48,534,290  | 48,317,775  | 62,375,806  |
| Final Energy Consumption | 777,925,086 | 802,325,064 | 799,925,653 | 839,747,924 | 875,261,394 |

### 3.2.2 Commercial Energy Consumption (Excluded Biomass)

| Sector                   | 2000        | 2001        | 2002        | 2003        | 2004        |
|--------------------------|-------------|-------------|-------------|-------------|-------------|
| Industrial               | 192,914,655 | 196,972,955 | 192,803,789 | 225,141,109 | 216,377,677 |
| Households               | 87,963,563  | 89,023,979  | 86,568,222  | 88,669,268  | 90,689,214  |
| Commercial               | 19,218,814  | 20,005,525  | 20,315,203  | 20,967,212  | 23,989,565  |
| Transportation           | 139,178,658 | 148,259,584 | 151,498,823 | 156,232,909 | 178,374,391 |
| Other                    | 29,213,878  | 30,585,607  | 29,998,546  | 28,445,436  | 31,689,809  |
| Non Energy Utilization   | 40,393,109  | 48,524,092  | 48,534,290  | 48,317,775  | 62,375,806  |
| Final Energy Consumption | 508,882,677 | 533,371,742 | 529,718,873 | 567,773,708 | 603,496,463 |

(BOE)

| 2005        | 2006        | 2007        | 2008        | 2009        | 2010          | 2011          |
|-------------|-------------|-------------|-------------|-------------|---------------|---------------|
| 262,686,505 | 280,187,757 | 300,675,120 | 299,539,752 | 297,271,113 | 355,426,352   | 359,686,797   |
| 313,772,025 | 312,715,871 | 319,333,000 | 316,802,419 | 314,093,670 | 310,521,222   | 320,369,268   |
| 26,234,764  | 26,194,683  | 27,896,499  | 29,273,897  | 30,848,294  | 33,122,376    | 34,077,140    |
| 178,452,407 | 170,127,492 | 179,144,177 | 196,941,689 | 224,883,086 | 255,568,629   | 277,404,656   |
| 29,102,166  | 25,936,873  | 24,912,051  | 25,855,949  | 27,186,782  | 28,743,347    | 24,861,386    |
| 54,352,999  | 64,990,106  | 64,759,190  | 38,432,103  | 84,096,759  | 84,146,777    | 98,412,712    |
| 864,600,867 | 880,152,782 | 916,720,038 | 906,845,811 | 978,379,703 | 1,067,528,702 | 1,114,766,960 |

(BOE)

| 2005        | 2006        | 2007        | 2008        | 2009        | 2010        | 2011        |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 218,766,032 | 233,511,599 | 258,567,087 | 255,304,315 | 252,750,040 | 312,108,771 | 315,953,359 |
| 89,065,250  | 84,529,554  | 87,716,652  | 84,558,014  | 80,832,849  | 81,632,635  | 85,426,358  |
| 24,819,117  | 24,786,114  | 26,494,973  | 27,879,379  | 29,460,747  | 31,741,767  | 32,703,435  |
| 178,452,407 | 170,127,492 | 179,144,177 | 196,941,689 | 224,883,086 | 255,568,629 | 277,404,656 |
| 29,102,166  | 25,936,873  | 24,912,051  | 25,855,949  | 27,186,782  | 28,743,347  | 24,861,386  |
| 54,352,999  | 64,990,106  | 64,759,190  | 38,432,103  | 84,096,759  | 84,146,777  | 98,412,712  |
| 594,557,972 | 603,881,738 | 641,594,130 | 628,971,449 | 699,210,263 | 793,941,926 | 834,716,906 |

### 3.3 Final Energy Consumption by Type

| Year | Biomass | Coal    | Natural Gas | Fuel    |
|------|---------|---------|-------------|---------|
| 2000 | 269,042 | 36,060  | 87,214      | 315,272 |
| 2001 | 268,953 | 37,021  | 82,235      | 328,203 |
| 2002 | 270,207 | 38,698  | 80,885      | 325,202 |
| 2003 | 271,974 | 68,264  | 90,277      | 321,384 |
| 2004 | 271,765 | 55,344  | 85,459      | 354,317 |
| 2005 | 270,043 | 65,744  | 86,634      | 338,375 |
| 2006 | 276,271 | 89,043  | 83,221      | 311,913 |
| 2007 | 275,126 | 121,904 | 80,178      | 314,248 |
| 2008 | 277,874 | 94,035  | 102,281     | 320,987 |
| 2009 | 279,169 | 82,587  | 118,587     | 335,271 |
| 2010 | 273,587 | 136,820 | 115,404     | 363,130 |
| 2011 | 280,050 | 144,567 | 121,234     | 363,827 |

(Thousand BOE)

|  | Other Petroleum Product | Briquette | LPG    | Electricity | Total     |
|--|-------------------------|-----------|--------|-------------|-----------|
|  | 13,435                  | 85        | 8,261  | 48,555      | 777,925   |
|  | 25,712                  | 78        | 8,280  | 51,841      | 802,325   |
|  | 22,688                  | 83        | 8,744  | 53,418      | 799,926   |
|  | 23,533                  | 77        | 8,766  | 55,473      | 839,748   |
|  | 37,716                  | 80        | 9,187  | 61,393      | 875,261   |
|  | 29,614                  | 94        | 8,453  | 65,644      | 864,601   |
|  | 41,126                  | 94        | 9,414  | 69,071      | 880,153   |
|  | 39,873                  | 89        | 10,925 | 74,376      | 916,720   |
|  | 16,658                  | 155       | 15,718 | 79,138      | 906,846   |
|  | 55,663                  | 220       | 24,384 | 82,499      | 978,380   |
|  | 55,765                  | 49        | 32,067 | 90,707      | 1,067,529 |
|  | 69,978                  | 66        | 37,046 | 97,998      | 1,114,767 |

### 3.4 Share of Final Energy Consumption by Sector

(%)

| Year | Industry | Household | Commercial | Transportation | Other |
|------|----------|-----------|------------|----------------|-------|
| 2000 | 41.18    | 18.78     | 4.10       | 29.71          | 6.24  |
| 2001 | 40.63    | 18.36     | 4.13       | 30.58          | 6.31  |
| 2002 | 40.07    | 17.99     | 4.22       | 31.48          | 6.23  |
| 2003 | 43.34    | 17.07     | 4.04       | 30.08          | 5.48  |
| 2004 | 39.99    | 16.76     | 4.43       | 32.96          | 5.86  |
| 2005 | 40.50    | 16.49     | 4.59       | 33.03          | 5.39  |
| 2006 | 43.33    | 15.69     | 4.60       | 31.57          | 4.81  |
| 2007 | 44.83    | 15.21     | 4.59       | 31.06          | 4.32  |
| 2008 | 43.23    | 14.32     | 4.72       | 33.35          | 4.38  |
| 2009 | 41.09    | 13.14     | 4.79       | 36.56          | 4.42  |
| 2010 | 43.97    | 11.50     | 4.47       | 36.01          | 4.05  |
| 2011 | 42.91    | 11.60     | 4.44       | 37.68          | 3.37  |

Note: Commercial Energy (excluded biomass)

## 3.5 Share of Final Energy Consumption by Type

(%)

| Year | Coal | Natural Gas | Fuel | LPG | Electricity |
|------|------|-------------|------|-----|-------------|
| 2000 | 7.3  | 17.6        | 63.6 | 1.7 | 9.8         |
| 2001 | 7.3  | 16.2        | 64.7 | 1.6 | 10.2        |
| 2002 | 7.6  | 16.0        | 64.1 | 1.7 | 10.5        |
| 2003 | 12.6 | 16.6        | 59.1 | 1.6 | 10.2        |
| 2004 | 9.8  | 15.1        | 62.6 | 1.6 | 10.9        |
| 2005 | 11.7 | 15.3        | 59.9 | 1.5 | 11.6        |
| 2006 | 15.8 | 14.8        | 55.4 | 1.7 | 12.3        |
| 2007 | 20.3 | 13.3        | 52.2 | 1.8 | 12.4        |
| 2008 | 15.4 | 16.7        | 52.4 | 2.6 | 12.9        |
| 2009 | 12.9 | 18.4        | 52.1 | 3.8 | 12.8        |
| 2010 | 18.5 | 15.6        | 49.2 | 4.3 | 12.3        |
| 2011 | 18.9 | 15.9        | 47.6 | 4.8 | 12.8        |





CHAPTER

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## 4.1 Crude Oil Price

| Crude Oil Type     | 2000         | 2001         | 2002         | 2003         | 2004         | 2005         |
|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| SLC                | 28.53        | 23.99        | 25.11        | 29.04        | 36.30        | 53.92        |
| Arjuna             | 28.65        | 24.29        | 24.35        | 28.81        | 36.90        | 55.07        |
| Arun Condensate    | 28.92        | 24.40        | 24.65        | 29.16        | 37.40        | 54.62        |
| Attaka             | 29.09        | 24.75        | 24.89        | 29.41        | 37.60        | 57.51        |
| Cinta              | 27.83        | 23.15        | 24.08        | 28.09        | 35.00        | 51.81        |
| Duri               | 27.09        | 22.02        | 23.30        | 27.11        | 30.40        | 46.62        |
| Handil Mix         | n/a          | 24.42        | 24.48        | 28.96        | 37.10        | 55.23        |
| Lalang             | n/a          | 24.04        | 25.16        | 29.09        | 36.40        | 53.13        |
| Widuri             | 27.87        | 23.10        | 24.08        | 28.05        | 35.00        | 51.19        |
| Belida             | 29.07        | 24.74        | 24.74        | 29.19        | 37.30        | 56.54        |
| Senipah Condensate | 29.05        | 24.40        | 24.65        | 29.17        | 39.95        | 54.62        |
| <b>Average</b>     | <b>28.39</b> | <b>21.94</b> | <b>22.46</b> | <b>26.34</b> | <b>36.39</b> | <b>53.66</b> |

Source : Oil and Gas Statistics. Directorate General of Oil and Gas

(US\$ per Barrel)

|  | 2006         | 2007         | 2008         | 2009         |
|--|--------------|--------------|--------------|--------------|
|  | 64.24        | 72.94        | 99.90        | 64.14        |
|  | 65.52        | 72.38        | 97.61        | 61.18        |
|  | 64.85        | 72.94        | 94.27        | 60.33        |
|  | 67.59        | 75.69        | 101.03       | 62.74        |
|  | 61.77        | 70.33        | 94.58        | 59.74        |
|  | 54.93        | 59.89        | 84.57        | 55.12        |
|  | 65.67        | 72.53        | 97.77        | 61.33        |
|  | 64.29        | 72.99        | 99.95        | 64.19        |
|  | 61.94        | 70.41        | 94.98        | 59.72        |
|  | 67.56        | 75.71        | 101.05       | 62.30        |
|  | 65.57        | 73.03        | 94.27        | 60.33        |
|  | <b>64.27</b> | <b>72.31</b> | <b>96.13</b> | <b>61.58</b> |

| Crude Oil Type     | 2010         | 2011          |
|--------------------|--------------|---------------|
| SLC                | 81.44        | 113.63        |
| Arjuna             | 78.91        | 112.47        |
| Attaka             | 80.75        | 114.38        |
| Cinta              | 77.02        | 110.50        |
| Duri               | 75.07        | 107.57        |
| Widuri             | 77.12        | 110.55        |
| Belida             | 80.28        | 114.14        |
| Senipah Condensate | 78.76        | 109.02        |
| Anoa               | 81.15        | 114.78        |
| Arun Condensate    | 78.76        | 109.02        |
| Badak              | 80.75        | 114.38        |
| <b>Average</b>     | <b>79.40</b> | <b>111.55</b> |

## 4.2 International Gas Price

(US \$ /MMBTU)

| Year | LNG          | Natural Gas      |                      |                 |                  |
|------|--------------|------------------|----------------------|-----------------|------------------|
|      | CIF on Japan | CIF on Uni Eropa | UK (Heren NBP Index) | USA (Henry Hub) | Canada (Alberta) |
| 2000 | 4.72         | 2.89             | 2.71                 | 4.23            | 3.75             |
| 2001 | 4.64         | 3.66             | 3.17                 | 4.07            | 3.61             |
| 2002 | 4.27         | 3.23             | 2.37                 | 3.33            | 2.57             |
| 2003 | 4.77         | 4.06             | 3.33                 | 5.63            | 4.83             |
| 2004 | 5.18         | 4.32             | 4.46                 | 5.85            | 5.03             |
| 2005 | 6.05         | 5.88             | 7.38                 | 8.79            | 7.25             |
| 2006 | 7.14         | 7.85             | 7.87                 | 6.76            | 5.83             |
| 2007 | 7.73         | 8.03             | 6.01                 | 6.95            | 6.17             |
| 2008 | 12.55        | 11.56            | 10.79                | 8.85            | 7.99             |
| 2009 | 9.06         | 8.52             | 4.85                 | 3.89            | 3.38             |
| 2010 | 10.91        | 8.01             | 6.56                 | 4.39            | 3.69             |
| 2011 | 14.73        | 10.61            | 9.03                 | 4.01            | 3.47             |

Source : BP Statistical Review of World Energy, 2011

### 4.3 Average Price of LPG, LNG and Coal FOB Export

| Year | LPG                | LNG         | Coal     |
|------|--------------------|-------------|----------|
|      | US \$/Thousand Ton | US \$/MMBTU | US\$/Ton |
| 2000 | 252.97             | 4.31        | 29.60    |
| 2001 | 246.41             | 4.45        | 32.07    |
| 2002 | 278.42             | 4.84        | 29.98    |
| 2003 | 332.52             | 6.00        | 28.63    |
| 2004 | 443.02             | 7.19        | 43.00    |
| 2005 | 479.82             | 8.49        | 36.48    |
| 2006 | 624.40             | 9.04        | 40.99    |
| 2007 | 785.94             | 11.97       | 54.76    |
| 2008 | 785.94             | 11.97       | 54.76    |
| 2009 | 545.49             | 6.95        | 69.52    |
| 2010 | -                  | 7.81        | 87.31    |
| 2011 | -                  | 11.80       | 93.56    |

Source : Directorate General of Oil and Gas, Bank Indonesia and Ministry of Trade

## 4.4 Energy Price per Energy Unit

| Year | Gasoline (Premium) |          | Avtur     |          | Avgas     |          | Kerosene |          | ADO     |          |
|------|--------------------|----------|-----------|----------|-----------|----------|----------|----------|---------|----------|
|      | Rp/BOE             | US\$/BOE | Rp/BOE    | US\$/BOE | Rp/BOE    | US\$/BOE | Rp/BOE   | US\$/BOE | Rp/BOE  | US\$/BOE |
| 2000 | 178,035            | 18.55    | 179,945   | 18.75    | 306,141   | 31.91    | 50,191   | 5.23     | 86,711  | 9.04     |
| 2001 | 225,368            | 21.67    | 332,728   | 31.99    | 884,207   | 85.02    | 63,640   | 6.12     | 117,669 | 11.31    |
| 2002 | 248,820            | 27.83    | 354,797   | 39.69    | 766,613   | 85.75    | 67,483   | 7.55     | 138,737 | 15.52    |
| 2003 | 313,707            | 37.06    | 601,287   | 71.03    | 1,150,909 | 135.96   | 309,087  | 36.51    | 260,228 | 30.74    |
| 2004 | 310,596            | 33.43    | 580,746   | 62.51    | 1,118,885 | 120.44   | 303,674  | 32.69    | 254,351 | 27.38    |
| 2005 | 492,028            | 50.05    | 806,228   | 82.02    | 2,067,906 | 210.37   | 398,713  | 40.56    | 406,962 | 41.40    |
| 2006 | 772,201            | 85.61    | 974,757   | 108.07   | 2,423,480 | 268.68   | 337,416  | 37.41    | 662,854 | 73.49    |
| 2007 | 772,201            | 81.98    | 1,048,206 | 111.29   | 2,849,871 | 302.57   | 337,416  | 35.82    | 662,854 | 70.37    |
| 2008 | 911,626            | 83.25    | 1,561,727 | 142.62   | 4,246,083 | 387.77   | 386,623  | 35.31    | 766,264 | 69.98    |
| 2009 | 858,001            | 82.85    | 949,203   | 92.00    | 3,277,120 | 316.00   | 421,770  | 40.73    | 739,930 | 71.45    |
| 2010 | 772,201            | 85.06    | 1,057,542 | 116.49   | 3,650,079 | 402.08   | 421,770  | 46.46    | 693,684 | 76.41    |
| 2011 | 772,201            | 88.07    | 1,352,810 | 154.00   | 3,553,214 | 405.00   | 421,770  | 48.11    | 693,684 | 79.12    |

| IDO       |              | Fuel Oil   |              | LPG<br>(3 Kg) |              | LPG<br>(12 Kg) |              | LPG<br>(50 Kg) |              | Average of<br>Refinery Product |              |
|-----------|--------------|------------|--------------|---------------|--------------|----------------|--------------|----------------|--------------|--------------------------------|--------------|
| Rp/BOE    | US\$/<br>BOE | Rp/<br>BOE | US\$/<br>BOE | Rp/<br>BOE    | US\$/<br>BOE | Rp/<br>BOE     | US\$/<br>BOE | Rp/<br>BOE     | US\$/<br>BOE | Rp/BOE                         | US\$/<br>BOE |
| 77,560    | 8.08         | 52,074     | 5.43         | 0.0           | 0.00         | 246.3          | 0.03         | 246.3          | 0.03         | 116,363                        | 12.13        |
| 139,292   | 13.39        | 98,702     | 9.49         | 0.0           | 0.00         | 246.3          | 0.02         | 246.3          | 0.02         | 232,732                        | 22.38        |
| 194,215   | 21.72        | 150,357    | 16.82        | 0.0           | 0.00         | 281.5          | 0.03         | 281.5          | 0.03         | 240,163                        | 26.86        |
| 289,935   | 34.25        | 222,902    | 26.33        | 0.0           | 0.00         | 334.3          | 0.04         | 334.3          | 0.04         | 393,549                        | 46.49        |
| 310,239   | 33.39        | 227,810    | 24.52        | 0.0           | 0.00         | 351.9          | 0.04         | 351.9          | 0.04         | 388,332                        | 41.80        |
| 585,398   | 59.55        | 394,879    | 40.17        | 0.0           | 0.00         | 498.6          | 0.05         | 498.6          | 0.05         | 644,077                        | 65.52        |
| 829,863   | 92.00        | 513,974    | 56.98        | 0.0           | 0.00         | 498.6          | 0.06         | 498.6          | 0.06         | 814,380                        | 90.29        |
| 887,504   | 94.22        | 577,206    | 61.28        | 498.6         | 0.05         | 498.6          | 0.05         | 845.1          | 0.09         | 891,970                        | 94.70        |
| 1,311,550 | 119.78       | 853,622    | 77.96        | 498.6         | 0.05         | 662.9          | 0.06         | 859.7          | 0.08         | 1,254,770                      | 114.59       |
| n.a.      | n.a.         | n.a.       | n.a.         | 498.6         | 0.05         | 686.2          | 0.07         | 859.7          | 0.08         | 780,815                        | 75.40        |
| n.a.      | n.a.         | n.a.       | n.a.         | 498.6         | 0.05         | 686.2          | 0.08         | 859.7          | 0.09         | 824,472                        | 90.82        |
| n.a.      | n.a.         | n.a.       | n.a.         | 498.6         | 0.06         | 686.2          | 0.08         | 862.8          | 0.10         | 849,272                        | 96.87        |

## 4.4 Energy Price per Energy Unit (continued)

| Year | Coal    |          | Electricity (Average) |          |           |          |            |          |
|------|---------|----------|-----------------------|----------|-----------|----------|------------|----------|
|      |         |          | Household             |          | Industry  |          | Commercial |          |
|      | Rp/BOE  | US\$/BOE | Rp/BOE                | US\$/BOE | Rp/BOE    | US\$/BOE | Rp/BOE     | US\$/BOE |
| 2000 | 35,961  | 3.75     | 338,238               | 35.25    | 493,507   | 51.43    | 620,734    | 64.69    |
| 2001 | 46,673  | 4.49     | 413,785               | 39.79    | 590,000   | 56.73    | 737,210    | 70.89    |
| 2002 | 51,384  | 5.75     | 640,767               | 71.67    | 722,577   | 80.83    | 966,998    | 108.17   |
| 2003 | 53,973  | 6.38     | 852,333               | 100.69   | 865,122   | 102.20   | 1,078,972  | 127.46   |
| 2004 | 53,956  | 5.81     | 909,886               | 97.94    | 912,153   | 98.19    | 1,113,083  | 119.82   |
| 2005 | 58,820  | 5.98     | 918,515               | 93.44    | 929,641   | 94.57    | 1,133,295  | 115.29   |
| 2006 | 78,523  | 8.71     | 926,020               | 102.66   | 1,013,442 | 112.35   | 1,092,023  | 121.07   |
| 2007 | 79,212  | 8.41     | 932,724               | 99.03    | 1,013,573 | 107.61   | 1,260,212  | 133.79   |
| 2008 | 79,212  | 8.41     | 932,724               | 99.03    | 1,013,573 | 107.61   | 1,260,212  | 133.79   |
| 2009 | 114,397 | 10.45    | 959,231               | 87.60    | 1,014,741 | 92.67    | 1,387,403  | 126.70   |
| 2010 | 171,239 | 16.53    | 961,387               | 92.83    | 1,051,126 | 101.50   | 1,453,344  | 140.34   |
| 2011 | 153,559 | 16.92    | 1,004,763             | 110.68   | 1,078,287 | 118.78   | 1,524,176  | 167.90   |

Note: \*) Based on Current Price

## 4.5 Average Price of Coal Import

| Year | Import Total (CIF) | Import Volume | Import Price (CIF) |
|------|--------------------|---------------|--------------------|
|      | US\$               | Ton           | US \$/Ton          |
| 2000 | 5,837,447          | 140,116       | 41.66              |
| 2001 | 2,004,976          | 30,466        | 65.81              |
| 2002 | 1,627,954          | 20,026        | 81.29              |
| 2003 | 5,732,026          | 38,228        | 149.94             |
| 2004 | 15,204,824         | 97,183        | 156.46             |
| 2005 | 12,891,514         | 98,179        | 131.31             |
| 2006 | 13,455,025         | 110,683       | 121.56             |
| 2007 | 8,880,440          | 67,534        | 131.50             |
| 2008 | 23,549,197         | 106,931       | 220.23             |
| 2009 | 22,360,122         | 68,804        | 324.98             |
| 2010 | 12,555,941         | 55,230        | 227.34             |
| 2011 | 12,547,751         | 42,449        | 295.59             |

Source : Ministry of Trade





CHAPTER

**5**

**2012**  
**HANDBOOK OF**  
**ENERGY & ECONOMIC**  
**STATISTICS**  
**OF INDONESIA**

### 5.1.1 Energy Consumption in Industrial Sector (in Original Unit)

| Year | Biomass      | Coal   | Briquette | Gas     |          |           |
|------|--------------|--------|-----------|---------|----------|-----------|
|      | Thousand Ton |        |           | MMSCF   | Kerosene | ADO       |
| 2000 | 25,667       | 8,586  | 24        | 483,438 | 711,774  | 5,729,941 |
| 2001 | 24,016       | 8,815  | 22        | 455,798 | 701,791  | 6,082,584 |
| 2002 | 22,762       | 9,214  | 23        | 448,261 | 667,247  | 5,985,416 |
| 2003 | 21,832       | 16,253 | 22        | 500,622 | 671,513  | 5,764,971 |
| 2004 | 20,417       | 13,177 | 23        | 473,695 | 676,827  | 6,626,385 |
| 2005 | 19,113       | 15,653 | 26        | 480,382 | 649,626  | 6,155,112 |
| 2006 | 20,313       | 21,201 | 27        | 461,277 | 572,676  | 5,399,470 |
| 2007 | 18,325       | 29,025 | 25        | 443,889 | 565,550  | 5,208,388 |
| 2008 | 19,250       | 22,389 | 43        | 623,616 | 451,457  | 5,735,356 |
| 2009 | 19,375       | 19,664 | 62        | 654,428 | 273,095  | 6,349,977 |
| 2010 | 18,851       | 32,576 | 14        | 635,361 | 162,577  | 6,663,702 |
| 2011 | 19,032       | 34,421 | 19        | 666,195 | 113,409  | 5,627,864 |

| Fuel       |           |            | Other Petroleum Product | LPG          | Electricity |
|------------|-----------|------------|-------------------------|--------------|-------------|
| IDO        | Fuel Oil  | Total Fuel |                         |              |             |
| Kilo Liter |           |            |                         | Thousand Ton | GWh         |
| 1,211,930  | 3,674,761 | 11,328,406 | 2,094,316               | 126          | 34,013      |
| 1,170,511  | 3,832,704 | 11,787,590 | 4,008,106               | 114          | 35,593      |
| 1,106,467  | 3,676,959 | 11,436,088 | 3,536,732               | 128          | 36,831      |
| 962,232    | 2,981,697 | 10,380,414 | 3,668,380               | 95           | 36,497      |
| 887,061    | 3,140,129 | 11,330,403 | 5,879,216               | 129          | 40,324      |
| 732,888    | 2,243,407 | 9,781,033  | 4,616,280               | 133          | 42,448      |
| 397,599    | 2,320,623 | 8,690,367  | 6,410,874               | 170          | 43,615      |
| 215,233    | 1,990,450 | 7,979,620  | 6,215,568               | 146          | 45,803      |
| 128,424    | 1,430,903 | 7,746,140  | 8,117,302               | 132          | 47,969      |
| 111,242    | 1,204,418 | 7,938,732  | 8,676,804               | 69           | 46,204      |
| 134,607    | 1,798,635 | 8,759,521  | 8,692,820               | 77           | 50,985      |
| 99,193     | 1,165,728 | 7,006,194  | 10,908,408              | 71           | 54,725      |

### 5.1.2 Energy Consumption in Industrial Sector (in Energy Unit)

| Year | Biomass | Coal    | Briquette | Gas     |          |        |
|------|---------|---------|-----------|---------|----------|--------|
|      |         |         |           |         | Kerosene | ADO    |
| 2000 | 58,981  | 36,060  | 85        | 86,826  | 4,219    | 37,171 |
| 2001 | 55,186  | 37,021  | 78        | 81,861  | 4,160    | 39,458 |
| 2002 | 52,305  | 38,698  | 83        | 80,508  | 3,955    | 38,828 |
| 2003 | 50,167  | 68,264  | 77        | 89,912  | 3,980    | 37,398 |
| 2004 | 46,917  | 55,344  | 80        | 85,076  | 4,012    | 42,986 |
| 2005 | 43,920  | 65,744  | 94        | 86,277  | 3,851    | 39,929 |
| 2006 | 46,676  | 89,043  | 94        | 82,845  | 3,394    | 35,027 |
| 2007 | 42,108  | 121,904 | 89        | 79,723  | 3,352    | 33,787 |
| 2008 | 44,235  | 94,035  | 155       | 101,668 | 2,676    | 37,206 |
| 2009 | 44,521  | 82,587  | 220       | 117,535 | 1,619    | 41,193 |
| 2010 | 43,318  | 136,820 | 49        | 114,111 | 964      | 43,228 |
| 2011 | 43,733  | 144,567 | 66        | 119,649 | 672      | 36,509 |

(Thousand BOE)

| Fuel  |          |            | Other Petroleum Product | LPG   | Electricity | Total   |
|-------|----------|------------|-------------------------|-------|-------------|---------|
| IDO   | Fuel Oil | Total Fuel |                         |       |             |         |
| 8,008 | 25,581   | 74,979     | 13,435                  | 1,073 | 20,850      | 292,289 |
| 7,735 | 26,680   | 78,033     | 25,712                  | 972   | 21,819      | 300,683 |
| 7,311 | 25,596   | 75,690     | 22,688                  | 1,093 | 22,578      | 293,643 |
| 6,358 | 20,756   | 68,493     | 23,533                  | 808   | 22,373      | 323,626 |
| 5,862 | 21,859   | 74,718     | 37,716                  | 1,101 | 24,719      | 325,670 |
| 4,843 | 15,617   | 64,239     | 29,614                  | 1,131 | 26,021      | 317,040 |
| 2,627 | 16,154   | 57,203     | 41,126                  | 1,453 | 26,736      | 345,178 |
| 1,422 | 13,856   | 52,418     | 39,873                  | 1,242 | 28,077      | 365,434 |
| 849   | 9,961    | 50,691     | 16,658                  | 1,124 | 29,405      | 337,972 |
| 735   | 8,384    | 51,931     | 55,663                  | 588   | 28,323      | 381,368 |
| 889   | 12,521   | 57,602     | 55,765                  | 655   | 31,254      | 439,573 |
| 655   | 8,115    | 45,951     | 69,978                  | 608   | 33,547      | 458,100 |

## 5.1.3 Share of Energy Consumption in Industrial Sector

| Year | Coal  | Briquette | Gas   |          |
|------|-------|-----------|-------|----------|
|      |       |           |       | Kerosene |
| 2000 | 15.46 | 0.04      | 37.22 | 1.81     |
| 2001 | 15.08 | 0.03      | 33.35 | 1.69     |
| 2002 | 16.03 | 0.03      | 33.36 | 1.64     |
| 2003 | 24.96 | 0.03      | 32.88 | 1.46     |
| 2004 | 19.85 | 0.03      | 30.52 | 1.44     |
| 2005 | 24.07 | 0.03      | 31.59 | 1.41     |
| 2006 | 29.83 | 0.03      | 27.75 | 1.14     |
| 2007 | 37.70 | 0.03      | 24.66 | 1.04     |
| 2008 | 32.01 | 0.05      | 34.61 | 0.91     |
| 2009 | 24.52 | 0.07      | 34.89 | 0.48     |
| 2010 | 34.53 | 0.01      | 28.80 | 0.24     |
| 2011 | 34.89 | 0.02      | 28.88 | 0.16     |

(%)

| Fuel  |      |          | Other Petroleum Product | LPG  | Electricity |
|-------|------|----------|-------------------------|------|-------------|
| ADO   | IDO  | Fuel Oil |                         |      |             |
| 15.93 | 3.43 | 10.96    | 5.76                    | 0.46 | 8.94        |
| 16.07 | 3.15 | 10.87    | 10.47                   | 0.40 | 8.89        |
| 16.09 | 3.03 | 10.61    | 9.40                    | 0.45 | 9.36        |
| 13.68 | 2.33 | 7.59     | 8.61                    | 0.30 | 8.18        |
| 15.42 | 2.10 | 7.84     | 13.53                   | 0.39 | 8.87        |
| 14.62 | 1.77 | 5.72     | 10.84                   | 0.41 | 9.53        |
| 11.73 | 0.88 | 5.41     | 13.78                   | 0.49 | 8.96        |
| 10.45 | 0.44 | 4.29     | 12.33                   | 0.38 | 8.68        |
| 12.67 | 0.29 | 3.39     | 5.67                    | 0.38 | 10.01       |
| 12.23 | 0.22 | 2.49     | 16.52                   | 0.17 | 8.41        |
| 10.91 | 0.22 | 3.16     | 14.07                   | 0.17 | 7.89        |
| 8.81  | 0.16 | 1.96     | 16.89                   | 0.15 | 8.10        |

### 5.2.1 Energy Consumption in Household Sector (in Original Unit)

| Year | Biomass      | Gas   | Kerosene   | LPG          | Electricity |
|------|--------------|-------|------------|--------------|-------------|
|      | Thousand Ton | MMSCF | Kilo Liter | Thousand Ton | GWh         |
| 2000 | 90,783       | 449   | 10,665,049 | 696          | 30,563      |
| 2001 | 92,399       | 487   | 10,515,453 | 724          | 33,340      |
| 2002 | 94,201       | 535   | 9,997,862  | 748          | 33,994      |
| 2003 | 95,904       | 553   | 10,061,787 | 823          | 35,753      |
| 2004 | 97,230       | 691   | 10,141,412 | 798          | 38,588      |
| 2005 | 97,788       | 693   | 9,733,831  | 704          | 41,184      |
| 2006 | 99,302       | 711   | 8,580,829  | 788          | 43,753      |
| 2007 | 100,795      | 737   | 8,474,054  | 979          | 47,325      |
| 2008 | 101,068      | 729   | 6,764,523  | 1,592        | 50,184      |
| 2009 | 101,510      | 722   | 4,091,982  | 2,671        | 54,945      |
| 2010 | 99,608       | 751   | 2,436,009  | 3,564        | 59,825      |
| 2011 | 102,242      | 635   | 1,699,298  | 4,144        | 65,112      |

## 5.2.2 Energy Consumption in Household Sector (in Energy Unit)

(Thousand BOE)

| Year | Biomass | Gas | Kerosene | LPG    | Electricity | Total   |
|------|---------|-----|----------|--------|-------------|---------|
| 2000 | 208,610 | 81  | 63,216   | 5,932  | 18,735      | 296,573 |
| 2001 | 212,323 | 87  | 62,329   | 6,170  | 20,437      | 301,347 |
| 2002 | 216,465 | 96  | 59,261   | 6,373  | 20,838      | 303,033 |
| 2003 | 220,377 | 99  | 59,640   | 7,013  | 21,917      | 309,046 |
| 2004 | 223,425 | 124 | 60,112   | 6,798  | 23,655      | 314,115 |
| 2005 | 224,707 | 124 | 57,696   | 5,998  | 25,246      | 313,772 |
| 2006 | 228,186 | 128 | 50,862   | 6,719  | 26,821      | 312,716 |
| 2007 | 231,616 | 132 | 50,229   | 8,345  | 29,010      | 319,333 |
| 2008 | 232,244 | 131 | 40,096   | 13,568 | 30,763      | 316,802 |
| 2009 | 233,261 | 130 | 24,255   | 22,767 | 33,682      | 314,094 |
| 2010 | 228,889 | 135 | 14,439   | 30,386 | 36,673      | 310,521 |
| 2011 | 234,943 | 114 | 10,072   | 35,326 | 39,914      | 320,369 |

## 5.2.3 Share of Energy Consumption in Household Sector

(%)

| Year | Gas  | Kerosene | LPG   | Electricity |
|------|------|----------|-------|-------------|
| 2000 | 0.09 | 71.87    | 6.74  | 21.30       |
| 2001 | 0.10 | 70.01    | 6.93  | 22.96       |
| 2002 | 0.11 | 68.46    | 7.36  | 24.07       |
| 2003 | 0.11 | 67.26    | 7.91  | 24.72       |
| 2004 | 0.14 | 66.28    | 7.50  | 26.08       |
| 2005 | 0.14 | 64.78    | 6.73  | 28.35       |
| 2006 | 0.15 | 60.17    | 7.95  | 31.73       |
| 2007 | 0.15 | 57.26    | 9.51  | 33.07       |
| 2008 | 0.15 | 47.42    | 16.05 | 36.38       |
| 2009 | 0.16 | 30.01    | 28.17 | 41.67       |
| 2010 | 0.17 | 17.69    | 37.22 | 44.92       |
| 2011 | 0.13 | 11.79    | 41.35 | 46.72       |

### 5.3.1 Energy Consumption in Commercial Sector (in Original Unit)

| Year | Biomass              | Gas   | Fuel          |         |       |           | LPG                  | Electricity |
|------|----------------------|-------|---------------|---------|-------|-----------|----------------------|-------------|
|      | Thou-<br>sand<br>Ton | MMSCF | Kero-<br>sene | ADO     | IDO   | Total     | Thou-<br>sand<br>Ton | GWh         |
|      |                      |       | Kilo Liter    |         |       |           |                      |             |
| 2000 | 632                  | 745   | 588,919       | 825,064 | 6,503 | 1,420,486 | 147                  | 14,588      |
| 2001 | 629                  | 821   | 580,658       | 875,842 | 6,281 | 1,462,781 | 134                  | 15,587      |
| 2002 | 625                  | 913   | 552,077       | 861,851 | 5,937 | 1,419,865 | 150                  | 16,264      |
| 2003 | 622                  | 882   | 555,607       | 830,108 | 5,163 | 1,390,878 | 111                  | 18,191      |
| 2004 | 619                  | 972   | 560,004       | 954,145 | 4,760 | 1,518,909 | 151                  | 21,185      |
| 2005 | 616                  | 1,057 | 537,497       | 886,286 | 3,933 | 1,427,715 | 155                  | 23,400      |
| 2006 | 613                  | 1,145 | 473,829       | 777,479 | 2,134 | 1,253,442 | 146                  | 25,241      |
| 2007 | 610                  | 1,526 | 467,933       | 749,965 | 1,155 | 1,219,053 | 157                  | 28,119      |
| 2008 | 607                  | 1,989 | 373,533       | 825,844 | 689   | 1,200,067 | 120                  | 30,866      |
| 2009 | 604                  | 4,067 | 225,957       | 914,345 | 597   | 1,140,899 | 121                  | 33,322      |
| 2010 | 601                  | 5,364 | 134,515       | 959,518 | 722   | 1,094,756 | 120                  | 36,399      |
| 2011 | 598                  | 7,185 | 93,834        | 810,366 | 532   | 904,733   | 130                  | 38,068      |

### 5.3.2 Energy Consumption in Commercial Sector (in Energy Unit)

(Thousand BOE)

| Year | Biomass | Gas   | Fuel      |       |     |            | LPG   | Electricity | Total  |
|------|---------|-------|-----------|-------|-----|------------|-------|-------------|--------|
|      |         |       | Kero-sene | ADO   | IDO | Total Fuel |       |             |        |
| 2000 | 1,452   | 134   | 3,491     | 5,352 | 43  | 8,886      | 1,257 | 8,943       | 20,670 |
| 2001 | 1,444   | 147   | 3,442     | 5,682 | 42  | 9,165      | 1,138 | 9,555       | 21,450 |
| 2002 | 1,437   | 164   | 3,272     | 5,591 | 39  | 8,903      | 1,279 | 9,970       | 21,752 |
| 2003 | 1,430   | 158   | 3,293     | 5,385 | 34  | 8,712      | 946   | 11,151      | 22,397 |
| 2004 | 1,423   | 174   | 3,319     | 6,190 | 31  | 9,540      | 1,288 | 12,986      | 25,412 |
| 2005 | 1,416   | 190   | 3,186     | 5,749 | 26  | 8,961      | 1,324 | 14,344      | 26,235 |
| 2006 | 1,409   | 206   | 2,809     | 5,044 | 14  | 7,866      | 1,241 | 15,473      | 26,195 |
| 2007 | 1,402   | 274   | 2,774     | 4,865 | 8   | 7,646      | 1,337 | 17,237      | 27,896 |
| 2008 | 1,395   | 357   | 2,214     | 5,357 | 5   | 7,576      | 1,025 | 18,921      | 29,274 |
| 2009 | 1,388   | 730   | 1,339     | 5,931 | 4   | 7,275      | 1,029 | 20,426      | 30,848 |
| 2010 | 1,381   | 963   | 797       | 6,224 | 5   | 7,027      | 1,026 | 22,312      | 32,709 |
| 2011 | 1,374   | 1,290 | 556       | 5,257 | 4   | 5,817      | 1,112 | 23,336      | 32,928 |

## 5.3.3 Share of Energy Consumption in Commercial Sector

(%)

| Year | Gas  | Fuel     |       |      | LPG  | Electricity |
|------|------|----------|-------|------|------|-------------|
|      |      | Kerosene | ADO   | IDO  |      |             |
| 2000 | 0.70 | 18.16    | 27.85 | 0.22 | 6.54 | 46.53       |
| 2001 | 0.74 | 17.20    | 28.40 | 0.21 | 5.69 | 47.76       |
| 2002 | 0.81 | 16.11    | 27.52 | 0.19 | 6.30 | 49.08       |
| 2003 | 0.76 | 15.71    | 25.68 | 0.16 | 4.51 | 53.18       |
| 2004 | 0.73 | 13.84    | 25.80 | 0.13 | 5.37 | 54.13       |
| 2005 | 0.77 | 12.84    | 23.17 | 0.10 | 5.33 | 57.79       |
| 2006 | 0.83 | 11.33    | 20.35 | 0.06 | 5.01 | 62.43       |
| 2007 | 1.03 | 10.47    | 18.36 | 0.03 | 5.05 | 65.06       |
| 2008 | 1.28 | 7.94     | 19.22 | 0.02 | 3.68 | 67.87       |
| 2009 | 2.48 | 4.55     | 20.13 | 0.01 | 3.49 | 69.33       |
| 2010 | 3.08 | 2.55     | 19.87 | 0.02 | 3.28 | 71.22       |
| 2011 | 4.09 | 1.76     | 16.66 | 0.01 | 3.52 | 73.95       |

### 5.4.1 Energy Consumption in Transportation Sector (in Original Unit)

| Year | Gas   |            |           |            |             |          |              |
|------|-------|------------|-----------|------------|-------------|----------|--------------|
|      |       | Avgas      | Avtur     | Premium    | Bio Premium | Pertamax | Bio Pertamax |
|      | MMSCF | Kilo Liter |           |            |             |          |              |
| 2000 | 968   | 3,550      | 1,202,717 | 12,059,026 | 0           | 0        | 0            |
| 2001 | 773   | 3,430      | 1,473,503 | 12,705,861 | 0           | 0        | 0            |
| 2002 | 654   | 3,488      | 1,597,291 | 13,323,304 | 0           | 0        | 0            |
| 2003 | 599   | 3,556      | 1,929,351 | 13,746,726 | 0           | 371,238  | 0            |
| 2004 | 471   | 3,416      | 2,437,923 | 15,337,655 | 0           | 487,562  | 0            |
| 2005 | 238   | 3,070      | 2,322,634 | 16,621,765 | 0           | 248,875  | 0            |
| 2006 | 233   | 3,390      | 2,428,078 | 15,941,837 | 1,624       | 505,730  | 16           |
| 2007 | 273   | 2,163      | 2,520,040 | 16,962,198 | 55,970      | 472,284  | 9,956        |
| 2008 | 691   | 2,003      | 2,635,670 | 19,112,241 | 44,016      | 297,982  | 16,234       |
| 2009 | 1,066 | 1,687      | 2,760,678 | 20,802,405 | 105,816     | 460,148  | 20,232       |
| 2010 | 1,088 | 2,231      | 3,527,382 | 22,391,362 | 0           | 670,364  | 0            |
| 2011 | 1,006 | 2,316      | 3,562,126 | 24,766,975 | 0           | 625,162  | 0            |

| Fuel             |           |          |            |        |          |            | Elec-<br>tricity |
|------------------|-----------|----------|------------|--------|----------|------------|------------------|
| Pertamax<br>Plus | Bio Solar | Kerosene | ADO        | IDO    | Fuel Oil | Total Fuel |                  |
| Kilo Liter       |           |          |            |        |          |            | GWh              |
| 0                | 0         | 4,708    | 9,365,388  | 48,356 | 71,474   | 22,755,220 | 44               |
| 0                | 0         | 4,642    | 9,941,771  | 46,704 | 74,546   | 24,250,457 | 49               |
| 0                | 0         | 4,414    | 9,782,952  | 44,148 | 71,517   | 24,827,114 | 53               |
| 107,441          | 0         | 4,442    | 9,422,642  | 38,393 | 57,994   | 25,681,783 | 53               |
| 121,866          | 0         | 4,477    | 10,830,594 | 35,394 | 61,075   | 29,319,962 | 55               |
| 99,326           | 0         | 4,297    | 10,060,316 | 29,242 | 43,634   | 29,433,160 | 55               |
| 128,289          | 217,048   | 3,788    | 8,826,588  | 15,864 | 45,136   | 28,117,389 | 67               |
| 158,070          | 877,457   | 3,741    | 8,514,215  | 8,588  | 38,714   | 29,623,396 | 85               |
| 114,789          | 931,179   | 2,986    | 9,374,239  | 5,124  | 27,831   | 32,564,294 | 81               |
| 104,388          | 2,398,234 | 1,807    | 10,378,815 | 4,439  | 23,426   | 37,064,029 | 111              |
| 113,812          | 4,393,861 | 1,075    | 10,891,587 | 5,371  | 34,983   | 42,036,462 | 89               |
| 294,639          | 7,180,806 | 750      | 9,198,546  | 3,958  | 22,673   | 45,664,345 | 88               |

## 5.4.2 Energy Consumption in Transportation Sector (in Energy Unit)

| Year | Gas | Fuel  |        |         |                 |          |                 |                  |
|------|-----|-------|--------|---------|-----------------|----------|-----------------|------------------|
|      |     | Avgas | Avtur  | Premium | Bio<br>Premieum | Pertamax | Bio<br>Pertamax | Pertamax<br>Plus |
| 2000 | 174 | 20    | 7,085  | 70,274  | 0               | 0        | 0               | 0                |
| 2001 | 139 | 19    | 8,680  | 74,043  | 0               | 0        | 0               | 0                |
| 2002 | 118 | 19    | 9,409  | 77,642  | 0               | 0        | 0               | 0                |
| 2003 | 108 | 20    | 11,365 | 80,109  | 0               | 2,163    | 0               | 626              |
| 2004 | 85  | 19    | 14,361 | 89,380  | 0               | 2,841    | 0               | 710              |
| 2005 | 43  | 17    | 13,682 | 96,863  | 0               | 1,450    | 0               | 579              |
| 2006 | 42  | 19    | 14,303 | 92,901  | 9               | 2,947    | 0               | 748              |
| 2007 | 49  | 12    | 14,845 | 98,847  | 326             | 2,752    | 58              | 921              |
| 2008 | 124 | 11    | 15,526 | 111,377 | 257             | 1,736    | 95              | 669              |
| 2009 | 191 | 9     | 16,262 | 121,226 | 617             | 2,682    | 118             | 608              |
| 2010 | 195 | 12    | 20,779 | 130,486 | 0               | 3,907    | 0               | 663              |
| 2011 | 181 | 13    | 20,983 | 144,330 | 0               | 3,643    | 0               | 1,717            |

(Thousand BOE)

|           |          |        |     |          |            | Electricity | Total   |
|-----------|----------|--------|-----|----------|------------|-------------|---------|
| Bio Solar | Kerosene | ADO    | IDO | Fuel Oil | Total Fuel |             |         |
| 0         | 28       | 60,754 | 320 | 498      | 138,978    | 27          | 139,179 |
| 0         | 28       | 64,493 | 309 | 519      | 148,091    | 30          | 148,260 |
| 0         | 26       | 63,463 | 292 | 498      | 151,349    | 33          | 151,499 |
| 0         | 26       | 61,126 | 254 | 404      | 156,093    | 33          | 156,233 |
| 0         | 27       | 70,259 | 234 | 425      | 178,256    | 34          | 178,374 |
| 0         | 25       | 65,262 | 193 | 304      | 178,376    | 34          | 178,452 |
| 1,408     | 22       | 57,268 | 105 | 314      | 170,044    | 41          | 170,127 |
| 5,692     | 22       | 55,241 | 57  | 269      | 179,043    | 52          | 179,144 |
| 6,041     | 18       | 60,812 | 34  | 194      | 196,768    | 50          | 196,942 |
| 15,558    | 11       | 67,328 | 29  | 163      | 224,624    | 68          | 224,883 |
| 28,503    | 6        | 70,655 | 35  | 244      | 255,319    | 54          | 255,569 |
| 46,583    | 4        | 59,672 | 26  | 158      | 277,170    | 54          | 277,405 |

## 5.4.3 Share of Energy Consumption in Transportation Sector

| Year | Gas   | Fuel  |       |         |             |          |              |
|------|-------|-------|-------|---------|-------------|----------|--------------|
|      |       | Avgas | Avtur | Premium | Bio Premium | Pertamax | Bio Pertamax |
| 2000 | 0.125 | 0.014 | 5.09  | 50.49   | 0.000       | 0.000    | 0.000        |
| 2001 | 0.094 | 0.013 | 5.85  | 49.94   | 0.000       | 0.000    | 0.000        |
| 2002 | 0.078 | 0.013 | 6.21  | 51.25   | 0.000       | 0.000    | 0.000        |
| 2003 | 0.069 | 0.013 | 7.27  | 51.28   | 0.000       | 1.385    | 0.000        |
| 2004 | 0.047 | 0.011 | 8.05  | 50.11   | 0.000       | 1.593    | 0.000        |
| 2005 | 0.024 | 0.010 | 7.67  | 54.28   | 0.000       | 0.813    | 0.000        |
| 2006 | 0.025 | 0.011 | 8.41  | 54.61   | 0.006       | 1.732    | 0.000        |
| 2007 | 0.027 | 0.007 | 8.29  | 55.18   | 0.182       | 1.536    | 0.032        |
| 2008 | 0.063 | 0.006 | 7.88  | 56.55   | 0.130       | 0.882    | 0.048        |
| 2009 | 0.085 | 0.004 | 7.23  | 53.91   | 0.274       | 1.192    | 0.052        |
| 2010 | 0.076 | 0.005 | 8.13  | 51.06   | 0.000       | 1.529    | 0.000        |
| 2011 | 0.065 | 0.005 | 7.56  | 52.03   | 0.000       | 1.313    | 0.000        |

(%)

| Pertamax Plus | Bio Solar | Kerosene | Fuel  |      |          |            | Electricity |
|---------------|-----------|----------|-------|------|----------|------------|-------------|
|               |           |          | ADO   | IDO  | Fuel Oil | Total Fuel |             |
| 0.000         | 0.000     | 0.020    | 43.65 | 0.23 | 0.36     | 99.86      | 0.02        |
| 0.000         | 0.000     | 0.019    | 43.50 | 0.21 | 0.35     | 99.89      | 0.02        |
| 0.000         | 0.000     | 0.017    | 41.89 | 0.19 | 0.33     | 99.90      | 0.02        |
| 0.401         | 0.000     | 0.017    | 39.12 | 0.16 | 0.26     | 99.91      | 0.02        |
| 0.398         | 0.000     | 0.015    | 39.39 | 0.13 | 0.24     | 99.93      | 0.02        |
| 0.324         | 0.000     | 0.014    | 36.57 | 0.11 | 0.17     | 99.96      | 0.02        |
| 0.439         | 0.828     | 0.013    | 33.66 | 0.06 | 0.18     | 99.95      | 0.02        |
| 0.514         | 3.177     | 0.012    | 30.84 | 0.03 | 0.15     | 99.94      | 0.03        |
| 0.340         | 3.067     | 0.009    | 30.88 | 0.02 | 0.10     | 99.91      | 0.03        |
| 0.271         | 6.918     | 0.005    | 29.94 | 0.01 | 0.07     | 99.88      | 0.03        |
| 0.260         | 11.153    | 0.002    | 27.65 | 0.01 | 0.10     | 99.90      | 0.02        |
| 0.619         | 16.792    | 0.002    | 21.51 | 0.01 | 0.06     | 99.92      | 0.02        |

### 5.5.1 Energy Consumption in Others Sector (in Original Unit)

| Year | Mogas      | Kerosene | ADO       | IDO     | Fuel Oil | Total Fuel |
|------|------------|----------|-----------|---------|----------|------------|
|      | Kilo Liter |          |           |         |          |            |
| 2000 | 370,265    | 487,325  | 2,906,942 | 181,019 | 590,966  | 4,536,516  |
| 2001 | 390,125    | 480,490  | 3,085,847 | 174,832 | 616,365  | 4,747,660  |
| 2002 | 409,084    | 456,839  | 3,036,551 | 165,266 | 591,319  | 4,659,059  |
| 2003 | 422,084    | 459,760  | 2,924,714 | 143,723 | 479,509  | 4,429,790  |
| 2004 | 470,933    | 463,398  | 3,361,731 | 132,495 | 504,987  | 4,933,544  |
| 2005 | 510,361    | 444,774  | 3,122,642 | 109,467 | 360,779  | 4,548,023  |
| 2006 | 489,484    | 392,089  | 2,739,286 | 59,387  | 373,197  | 4,053,443  |
| 2007 | 520,813    | 387,211  | 2,642,345 | 32,148  | 320,099  | 3,902,616  |
| 2008 | 586,829    | 309,096  | 2,909,690 | 19,182  | 230,114  | 4,054,911  |
| 2009 | 638,725    | 186,978  | 3,221,502 | 16,616  | 193,691  | 4,257,511  |
| 2010 | 687,512    | 111,310  | 3,380,662 | 20,105  | 289,252  | 4,488,842  |
| 2011 | 760,454    | 77,647   | 2,855,156 | 14,816  | 187,469  | 3,895,542  |

### 5.5.2 Energy Consumption in Others Sector (in Energy Unit)

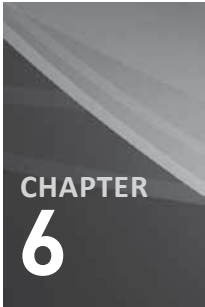
(Thousand BOE)

| Year | Mogas | Kerosene | ADO    | IDO   | Fuel Oil | Total Fuel |
|------|-------|----------|--------|-------|----------|------------|
| 2000 | 2,158 | 2,889    | 18,858 | 1,196 | 4,114    | 29,214     |
| 2001 | 2,273 | 2,848    | 20,018 | 1,155 | 4,291    | 30,586     |
| 2002 | 2,384 | 2,708    | 19,698 | 1,092 | 4,116    | 29,999     |
| 2003 | 2,460 | 2,725    | 18,973 | 950   | 3,338    | 28,445     |
| 2004 | 2,744 | 2,747    | 21,808 | 875   | 3,515    | 31,690     |
| 2005 | 2,974 | 2,636    | 20,257 | 723   | 2,511    | 29,102     |
| 2006 | 2,852 | 2,324    | 17,770 | 392   | 2,598    | 25,937     |
| 2007 | 3,035 | 2,295    | 17,141 | 212   | 2,228    | 24,912     |
| 2008 | 3,420 | 1,832    | 18,875 | 127   | 1,602    | 25,856     |
| 2009 | 3,722 | 1,108    | 20,898 | 110   | 1,348    | 27,187     |
| 2010 | 4,006 | 660      | 21,931 | 133   | 2,014    | 28,743     |
| 2011 | 4,432 | 460      | 18,522 | 98    | 1,305    | 24,816     |

## 5.5.3 Share of Energy Consumption in Others Sector

(%)

| Year | Mogas | Kerosene | ADO   | IDO  | Fuel Oil |
|------|-------|----------|-------|------|----------|
| 2000 | 7.39  | 9.89     | 64.55 | 4.09 | 14.08    |
| 2001 | 7.43  | 9.31     | 65.45 | 3.78 | 14.03    |
| 2002 | 7.95  | 9.03     | 65.66 | 3.64 | 13.72    |
| 2003 | 8.65  | 9.58     | 66.70 | 3.34 | 11.73    |
| 2004 | 8.66  | 8.67     | 68.82 | 2.76 | 11.09    |
| 2005 | 10.22 | 9.06     | 69.61 | 2.49 | 8.63     |
| 2006 | 11.00 | 8.96     | 68.51 | 1.51 | 10.02    |
| 2007 | 12.18 | 9.21     | 68.81 | 0.85 | 8.94     |
| 2008 | 13.23 | 7.09     | 73.00 | 0.49 | 6.20     |
| 2009 | 13.69 | 4.08     | 76.87 | 0.40 | 4.96     |
| 2010 | 13.94 | 2.30     | 76.30 | 0.46 | 7.01     |
| 2011 | 17.86 | 1.85     | 74.63 | 0.39 | 5.26     |



CHAPTER

6

**2012**  
**HANDBOOK OF**  
**ENERGY & ECONOMIC**  
**STATISTICS**  
**OF INDONESIA**

## 6.1.1 Coal Reserves (status per 1 January 2011)

(Million Ton)

| Province                 | Resources        |                  |                  |                  |                   | Reserves         |
|--------------------------|------------------|------------------|------------------|------------------|-------------------|------------------|
|                          | Hypo-thetic      | Inferred         | Indicated        | Mea-sured        | Total             |                  |
| Banten                   | 5.47             | 5.75             | 4.86             | 2.72             | 18.80             | 0.00             |
| West Java                | 0.00             | 0.00             | 0.00             | 0.00             | 0.00              | 0.00             |
| Central Java             | 0.00             | 0.82             | 0.00             | 0.00             | 0.82              | 0.00             |
| East Java                | 0.00             | 0.08             | 0.00             | 0.00             | 0.08              | 0.00             |
| Nanggroe Aceh Darussalam | 0.00             | 346.35           | 13.40            | 90.40            | 450.15            | 0.00             |
| North Sumatra            | 0.00             | 7.00             | 0.00             | 19.97            | 26.97             | 0.00             |
| Riau                     | 12.79            | 168.05           | 626.38           | 948.05           | 1,755.27          | 645.67           |
| West Sumatra             | 24.95            | 294.50           | 231.16           | 249.45           | 800.06            | 158.43           |
| Bengkulu                 | 15.15            | 17.86            | 104.08           | 71.21            | 208.30            | 19.02            |
| Jambi                    | 190.84           | 656.90           | 699.08           | 443.50           | 1,990.32          | 351.65           |
| South Sumatra            | 19,909.99        | 14,508.95        | 14,808.82        | 10,026.59        | 59,254.35         | 13,625.22        |
| Lampung                  | 0.00             | 106.95           | 0.00             | 0.00             | 106.95            | 0.00             |
| West Kalimantan          | 0.00             | 477.69           | 6.85             | 4.70             | 489.24            | 0.00             |
| Central Kalimantan       | 197.58           | 1,838.50         | 808.28           | 704.89           | 3,549.25          | 577.42           |
| South Kalimantan         | 0.00             | 3,833.53         | 3,344.05         | 3,481.66         | 10,659.24         | 3,778.04         |
| East Kalimantan          | 13,101.53        | 13,276.66        | 6,282.62         | 8,004.19         | 40,665.00         | 8,861.90         |
| South Sulawesi           | 0.00             | 48.81            | 129.22           | 53.09            | 231.12            | 0.12             |
| Central Sulawesi         | 0.00             | 1.98             | 0.00             | 0.00             | 1.98              | 0.00             |
| North Maluku             | 2.13             | 0.00             | 0.00             | 0.00             | 2.13              | 0.00             |
| West Irian Jaya          | 93.59            | 32.82            | 0.00             | 0.00             | 126.41            | 0.00             |
| Papua                    | 0.00             | 2.16             | 0.00             | 0.00             | 2.16              | 0.00             |
| <b>TOTAL</b>             | <b>33,554.03</b> | <b>35,625.36</b> | <b>27,058.79</b> | <b>24,100.42</b> | <b>120,338.60</b> | <b>28,017.46</b> |

Source : Geological Agency

## 6.1.2 Coal Supply

(Ton)

| Year | Production <sup>1)</sup> |           |             | Export <sup>1)</sup> | Import <sup>2)</sup> |
|------|--------------------------|-----------|-------------|----------------------|----------------------|
|      | Steam Coal               | Antracite | Total       |                      |                      |
| 2000 | 77,014,956               | 25,229    | 77,040,185  | 58,460,492           | 140,116.33           |
| 2001 | 92,499,653               | 40,807    | 92,540,460  | 65,281,086           | 30,465.88            |
| 2002 | 103,286,403              | 42,690    | 103,329,093 | 74,177,926           | 20,025.90            |
| 2003 | 114,274,048              | 3,952     | 114,278,000 | 85,680,621           | 38,228.31            |
| 2004 | 132,352,025              | 0         | 132,352,025 | 93,758,806           | 97,182.68            |
| 2005 | 152,722,438              | 0         | 152,722,438 | 110,789,700          | 98,178.91            |
| 2006 | 193,761,311              | 0         | 193,761,311 | 143,632,865          | 110,682.84           |
| 2007 | 216,946,699              | 0         | 216,946,699 | 163,000,000          | 67,533.92            |
| 2008 | 240,249,968              | 0         | 240,249,968 | 191,430,218          | 106,930.88           |
| 2009 | 256,181,000              | 0         | 256,181,000 | 198,366,000          | 68,804.45            |
| 2010 | 275,164,196              | 0         | 275,164,196 | 208,000,000          | 55,229.53            |
| 2011 | 353,270,937              | 0         | 353,270,937 | 272,671,351          | 42,449.21            |

Sources :

1) Directorate General of Mineral and Coal

2) Ministry of Trade

### 6.1.3 Indonesia Coal Export by Destination

| Year | Japan     | Taiwan    | Other Asia |
|------|-----------|-----------|------------|
| 2000 | 13,177.44 | 13,519.59 | 19,819.47  |
| 2001 | 15,216.26 | 11,506.81 | 20,440.57  |
| 2002 | 16,529.76 | 13,099.99 | 30,605.89  |
| 2003 | 17,992.18 | 14,144.14 | 34,021.52  |
| 2004 | 19,013.41 | 16,677.88 | 34,686.66  |
| 2005 | 24,237.43 | 14,524.21 | 41,393.85  |
| 2006 | 23,128.07 | 17,070.46 | 49,589.54  |
| 2007 | 24,323.13 | 18,112.19 | 63,358.47  |
| 2008 | 26,947.65 | 14,887.12 | 70,605.72  |
| 2009 | 25,261.61 | 17,237.74 | 97,538.71  |
| 2010 | 25,776.34 | 14,590.12 | 119,339.68 |
| 2011 | 26,073.35 | 16,517.09 | 138,223.89 |

Source : Directorate General of Mineral and Coal

(Thousand Ton)

| Europe    | Pacific  | Others    | Total      |
|-----------|----------|-----------|------------|
| 8,861.56  | 1,876.11 | 1,206.32  | 58,460.49  |
| 10,226.65 | 2,160.83 | 5,729.97  | 65,281.09  |
| 9,294.60  | 2,555.17 | 2,092.52  | 74,177.93  |
| 12,786.77 | 3,118.10 | 3,617.91  | 85,680.62  |
| 11,987.43 | 3,583.98 | 7,809.44  | 93,758.81  |
| 14,824.32 | 3,927.70 | 11,882.19 | 110,789.70 |
| 21,004.55 | 5,263.14 | 27,577.11 | 143,632.86 |
| 15,838.97 | 4,597.91 | 36,769.34 | 163,000.00 |
| 18,670.93 | 3,861.78 | 56,457.03 | 191,430.22 |
| 13,262.62 | 3,309.61 | 41,755.71 | 198,366.00 |
| 10,478.39 | 2,670.64 | 35,144.84 | 208,000.00 |
| 10,566.33 | 883.68   | 80,407.01 | 272,671.35 |

## 6.1.4 Coal Sales

| Year | Total      | Iron & Steel | Power Plant |
|------|------------|--------------|-------------|
| 2000 | 22,340,845 | 30,893       | 13,718,285  |
| 2001 | 27,387,916 | 220,666      | 19,517,366  |
| 2002 | 29,257,003 | 236,802      | 20,018,456  |
| 2003 | 39,273,851 | 201,907      | 22,995,614  |
| 2004 | 36,081,734 | 119,181      | 22,882,190  |
| 2005 | 41,350,736 | 221,309      | 25,669,226  |
| 2006 | 48,995,069 | 299,990      | 27,758,317  |
| 2007 | 61,470,000 | 282,730      | 32,420,000  |
| 2008 | 53,473,252 | 245,949      | 31,041,000  |
| 2009 | 56,295,000 | 256,605      | 36,570,000  |
| 2010 | 67,000,000 | 335,000      | 34,410,000  |
| 2011 | 79,557,800 | 166,034      | 45,118,519  |

Source : Directorate General of Mineral and Coal

(Ton)

| Ceramic & Cement | Pulp & Paper | Briquette | Others     |
|------------------|--------------|-----------|------------|
| 2,228,583        | 780,676      | 36,799    | 5,545,609  |
| 5,142,737        | 822,818      | 31,265    | 2,628,333  |
| 4,684,970        | 499,585      | 24,708    | 3,792,481  |
| 4,773,621        | 1,704,498    | 24,976    | 9,573,234  |
| 5,549,309        | 1,160,909    | 22,436    | 6,347,709  |
| 5,152,162        | 1,188,323    | 28,216    | 9,091,501  |
| 5,300,552        | 1,216,384    | 36,018    | 14,383,808 |
| 6,443,864        | 1,526,095    | 25,120    | 20,772,192 |
| 6,842,403        | 1,251,000    | 43,000    | 14,049,899 |
| 6,900,000        | 1,170,000    | 61,463    | 11,336,932 |
| 6,308,000        | 1,742,000    | 13,843    | 24,191,157 |
| 5,873,144        | n.a.         | 18,506    | 28,381,597 |

### 6.2.1 Oil Reserves (status per 1 January 2011)

(Billion Barrel)

| Year | Proven | Potential | Total |
|------|--------|-----------|-------|
| 2000 | 5.12   | 4.49      | 9.61  |
| 2001 | 5.10   | 4.65      | 9.75  |
| 2002 | 4.72   | 5.03      | 9.75  |
| 2003 | 4.73   | 4.40      | 9.13  |
| 2004 | 4.30   | 4.31      | 8.61  |
| 2005 | 4.19   | 4.44      | 8.63  |
| 2006 | 4.37   | 4.56      | 8.93  |
| 2007 | 3.99   | 4.41      | 8.40  |
| 2008 | 3.75   | 4.47      | 8.22  |
| 2009 | 4.30   | 3.70      | 8.00  |
| 2010 | 4.23   | 3.53      | 7.76  |
| 2011 | 4.04   | 3.69      | 7.73  |

Source : Directorate General of Oil and Gas

## 6.2.2 Refinery Capacity (status 2011)

(MBSD)

| Refinery                   | Refinery Capacity |
|----------------------------|-------------------|
| Tri Wahana Universal (TWU) | 6.00              |
| Dumai                      | 127.00            |
| Sungai Pakning             | 50.00             |
| Musi                       | 127.30            |
| Cilacap                    | 348.00            |
| Balikpapan                 | 260.00            |
| Balongan                   | 125.00            |
| Cepu                       | 3.80              |
| Kasim                      | 10.00             |
| Tuban (TPPI)               | 100.00            |
| <b>Total</b>               | <b>1,157.10</b>   |

Source : Directorate General of Oil and Gas

## 6.2.3 Domestic Oil Fuels Sales

|                   | 2000              | 2001              | 2002              | 2003              | 2004              |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Avgas             | 3,550             | 3,430             | 3,488             | 3,556             | 3,416             |
| Avtur             | 1,202,717         | 1,473,503         | 1,597,291         | 1,929,351         | 2,437,923         |
| RON 88            | 11,877,659        | 12,538,350        | 13,263,285        | 14,150,246        | 15,808,588        |
| Kerosene          | 12,457,776        | 12,283,033        | 11,678,439        | 11,753,109        | 11,846,119        |
| ADO               | 22,072,256        | 23,359,617        | 24,212,847        | 24,064,458        | 26,487,751        |
| IDO               | 1,472,168         | 1,426,877         | 1,360,379         | 1,183,478         | 1,093,414         |
| Fuel Oil          | 6,076,212         | 6,162,485         | 6,260,273         | 6,215,566         | 5,754,507         |
| Premix (94)       | 389,334           | 396,631           | 364,006           | 14,972            | 0                 |
| Super TT          | 55,418            | 86,217            | 102,882           | 3,592             | 0                 |
| BB2L              | 106,880           | 74,788            | 2,215             | 0                 | 0                 |
| RON 95            | 0                 | 0                 | 0                 | 107,441           | 121,866           |
| RON 92            | 0                 | 0                 | 0                 | 371,238           | 487,562           |
| Solar 51          | 0                 | 0                 | 0                 | 0                 | 0                 |
| Bio Premium       | 0                 | 0                 | 0                 | 0                 | 0                 |
| Bio Pertamina     | 0                 | 0                 | 0                 | 0                 | 0                 |
| Bio Solar         | 0                 | 0                 | 0                 | 0                 | 0                 |
| <b>Total Fuel</b> | <b>55,713,970</b> | <b>57,804,931</b> | <b>58,845,105</b> | <b>59,797,007</b> | <b>64,041,146</b> |

Sources : Directorate General of Oil and Gas

(Kilo Liter)

| 2005              | 2006              | 2007              | 2008              | 2009              | 2010              | 2011              |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 3,070             | 3,390             | 2,163             | 2,003             | 1,687             | 2,231             | 2,316             |
| 2,322,634         | 2,428,078         | 2,520,040         | 2,635,670         | 2,760,678         | 3,527,382         | 3,562,126         |
| 17,132,126        | 16,431,321        | 17,483,011        | 19,699,070        | 21,441,130        | 23,078,874        | 25,527,429        |
| 11,370,026        | 10,023,211        | 9,898,488         | 7,901,596         | 4,779,818         | 2,845,486         | 1,984,939         |
| 27,056,409        | 25,164,947        | 24,780,885        | 26,999,434        | 26,691,227        | 27,653,973        | 26,391,275        |
| 891,785           | 497,819           | 269,466           | 180,997           | 145,192           | 167,733           | 133,589           |
| 4,802,535         | 4,820,184         | 5,136,408         | 4,969,526         | 4,480,563         | 4,316,705         | 3,904,580         |
| 0                 | 0                 | 0                 | 0                 | 0                 | 0                 | 0                 |
| 0                 | 0                 | 0                 | 0                 | 0                 | 0                 | 0                 |
| 0                 | 0                 | 0                 | 0                 | 0                 | 0                 | 0                 |
| 99,326            | 128,289           | 158,070           | 114,789           | 104,388           | 113,812           | 294,639           |
| 248,875           | 505,730           | 472,284           | 297,982           | 460,148           | 670,364           | 625,162           |
| 0                 | 1,344             | 1,288             | 0                 | 1,955             | 4,434             | 6,392             |
| 0                 | 1,624             | 55,970            | 44,016            | 105,816           | 0                 | 0                 |
| 0                 | 16                | 9,956             | 16,234            | 20,232            | 0                 | 0                 |
| 0                 | 217,048           | 877,457           | 931,179           | 2,398,234         | 4,393,861         | 7,180,806         |
| <b>63,926,786</b> | <b>60,221,657</b> | <b>61,664,198</b> | <b>63,792,494</b> | <b>63,391,066</b> | <b>66,774,855</b> | <b>69,613,254</b> |

## 6.2.4 Crude Oil Supply and Demand

| Year | Production      | Export  | Import  | Oil Refinery Input |              |
|------|-----------------|---------|---------|--------------------|--------------|
|      | Thousand Barrel |         |         |                    | Thousand bpd |
| 2000 | 517,489         | 223,500 | 78,615  | 360,232            | 986.9        |
| 2001 | 489,306         | 241,612 | 117,168 | 361,396            | 990.1        |
| 2002 | 456,026         | 218,115 | 124,148 | 357,971            | 980.7        |
| 2003 | 419,255         | 189,095 | 137,127 | 358,519            | 982.2        |
| 2004 | 400,554         | 178,869 | 148,490 | 366,033            | 1,002.8      |
| 2005 | 386,483         | 159,703 | 164,007 | 357,656            | 979.9        |
| 2006 | 367,049         | 134,960 | 116,232 | 333,136            | 912.7        |
| 2007 | 348,348         | 135,267 | 115,812 | 330,027            | 904.2        |
| 2008 | 357,501         | 134,872 | 95,100  | 331,949            | 909.5        |
| 2009 | 346,313         | 132,223 | 120,119 | 328,589            | 900.2        |
| 2010 | 344,888         | 134,473 | 101,093 | 340,475            | 853.4        |
| 2011 | 329,265         | 135,572 | 96,862  | 365,819            | 879.5        |

Source : Directorate General of Oil and Gas

Note : Oil Refinery Input Consist of Crude Oil, Condensate and Others

## 6.2.5 Crude Oil Refinery Production

(Thousand Barrel)

| Year | RON 88 | Avtur + JP5 | Avgas | Kero-sene | ADO     | IDO    | Fuel Oil | RON 95 | RON 91 | Total Fuel |
|------|--------|-------------|-------|-----------|---------|--------|----------|--------|--------|------------|
| 2000 | 73,852 | 8,442       | 0.00  | 57,899    | 95,907  | 8,141  | 32,483   | 0      | 0      | 276,723    |
| 2001 | 76,601 | 8,620       | 51.82 | 57,992    | 95,929  | 9,109  | 35,087   | 0      | 0      | 283,389    |
| 2002 | 73,287 | 9,319       | 32.81 | 56,301    | 93,985  | 8,431  | 37,302   | 0      | 0      | 278,658    |
| 2003 | 72,695 | 10,701      | 32.08 | 58,553    | 94,560  | 7,792  | 33,874   | 0      | 0      | 278,208    |
| 2004 | 71,937 | 11,215      | 32.25 | 56,820    | 98,645  | 10,202 | 30,962   | 303    | 3,037  | 283,153    |
| 2005 | 71,013 | 10,686      | 33.81 | 53,721    | 94,633  | 8,559  | 27,752   | 432    | 1,700  | 268,529    |
| 2006 | 70,200 | 10,653      | 21.00 | 55,679    | 90,813  | 3,473  | 24,157   | 663    | 2,162  | 257,821    |
| 2007 | 71,337 | 8,190       | 29.58 | 51,934    | 82,120  | 2,267  | 24,795   | 951    | 2,754  | 244,396    |
| 2008 | 72,404 | 11,229      | 23.95 | 48,031    | 92,812  | 2,036  | 23,084   | 387    | 1,523  | 251,533    |
| 2009 | 74,751 | 16,672      | 0.21  | 29,476    | 110,698 | 1,213  | 18,843   | 774    | 2,832  | 255,289    |
| 2010 | 66,820 | 15,710      | 6.67  | 18,985    | 107,351 | 1,377  | 21,515   | 668    | 3,301  | 235,748    |
| 2011 | 64,460 | 17,061      | 6.56  | 14,378    | 116,391 | 1,352  | 20,276   | 736    | 2,446  | 237,135    |

(Thousand Barrel)

| Year | Secondary Fuel |       |        |        | Non Fuel | Lubricant | LPG   | HOMC   | Total Production |
|------|----------------|-------|--------|--------|----------|-----------|-------|--------|------------------|
|      | Naphtha        | LOMC  | LSWR   | Total  |          |           |       |        |                  |
| 2000 | 16,647         | 1,666 | 38,618 | 56,931 | 8,172    | 2,676     | 8,378 | 0      | 352,880          |
| 2001 | 20,180         | 0     | 34,211 | 54,392 | 4,227    | 2,712     | 8,160 | 0      | 352,880          |
| 2002 | 16,230         | 0     | 28,363 | 44,593 | 23,015   | 2,252     | 8,199 | 0      | 356,717          |
| 2003 | 18,306         | 0     | 32,050 | 50,357 | 11,402   | 2,867     | 8,702 | 0      | 351,536          |
| 2004 | 18,737         | 0     | 29,189 | 47,926 | 13,199   | 2,823     | 9,380 | 0      | 356,481          |
| 2005 | 21,216         | 0     | 28,965 | 50,181 | 9,634    | 2,404     | 8,457 | 0      | 339,205          |
| 2006 | 25,405         | 0     | 31,070 | 56,475 | 11,460   | 2,734     | 8,971 | 0      | 337,461          |
| 2007 | 25,155         | 0     | 29,472 | 54,627 | 12,202   | 2,814     | 8,905 | 10,597 | 333,540          |
| 2008 | 28,270         | 0     | 30,033 | 58,303 | 14,130   | 3,067     | 8,054 | 10,871 | 345,959          |
| 2009 | 23,820         | 63    | 31,691 | 55,510 | 15,642   | 2,772     | 8,119 | 7,498  | 344,831          |
| 2010 | 22,321         | 187   | 29,522 | 52,030 | 19,189   | 2,027     | 7,602 | 4,982  | 321,578          |
| 2011 | 28,613         | 0     | 24,021 | 52,634 | 27,499   | 3,065     | 9,143 | 11,908 | 341,384          |

Source : Directorate General of Oil and Gas

Note : 2000 - 2003 Included Premix (94), Super TT and BB2L (unleaded gasoline)

## 6.2.6 Import of Refined Products

(Thousand KL)

| Year | Avtur | RON 88 | RON 95 | RON 92 | DPK   | HOMC  | ADO    | Fuel Oil | IDO | Total Fuel |
|------|-------|--------|--------|--------|-------|-------|--------|----------|-----|------------|
| 2000 | 0     | 0      | 0      | 0      | 2,966 | 1,984 | 7,194  | 2,326    | 0   | 14,470     |
| 2001 | 0     | 0      | 0      | 0      | 2,718 | 2,410 | 7,879  | 1,166    | 0   | 14,174     |
| 2002 | 0     | 0      | 0      | 0      | 2,916 | 3,154 | 9,637  | 1,232    | 0   | 16,940     |
| 2003 | 0     | 0      | 0      | 0      | 2,516 | 3,076 | 9,955  | 1,512    | 0   | 17,058     |
| 2004 | 679   | 772    | 0      | 0      | 2,907 | 5,804 | 12,339 | 1,896    | 0   | 24,398     |
| 2005 | 654   | 6,202  | 0      | 3      | 2,604 | 1,076 | 14,470 | 1,493    | 0   | 26,502     |
| 2006 | 796   | 5,841  | 0      | 69     | 861   | 1,088 | 10,846 | 1,682    | 0   | 21,184     |
| 2007 | 1,176 | 7,069  | 27     | 35     | 1,080 | 108   | 12,367 | 2,163    | 8   | 24,032     |
| 2008 | 769   | 8,572  | 17     | 40     | 333   | 0     | 12,284 | 2,573    | 28  | 24,615     |
| 2009 | 172   | 10,263 | 32     | 120    | 0     | 1,301 | 8,505  | 1,909    | 8   | 22,311     |
| 2010 | 577   | 12,283 | 48     | 381    | 0     | 1,535 | 10,637 | 549      | 7   | 26,017     |
| 2011 | 816   | 15,248 | 36     | 319    | 0     | 157   | 9,790  | 998      | 0   | 27,366     |

Source : Directorate General of Oil and Gas

## 6.2.7 Export of Refined Products

(Thousand Barrel)

| Year | RON 88 | Avtur | Kero-sene | ADO     | Fuel Oil | Total Fuel | Nap-tha  | Lu-bri-cant | Other Product | Total  |
|------|--------|-------|-----------|---------|----------|------------|----------|-------------|---------------|--------|
| 2000 | 0.0    | 0.0   | 0.0       | 0.0     | 0.0      | 0.0        | 11,390.1 | 0.0         | 55,694.4      | 67,085 |
| 2001 | 0.0    | 0.0   | 0.0       | 0.0     | 0.0      | 0.0        | 13,448.4 | 147.5       | 41,522.3      | 55,118 |
| 2002 | 0.0    | 0.0   | 0.0       | 0.0     | 3,253.2  | 3,253.2    | 10,993.3 | 417.3       | 40,825.9      | 55,490 |
| 2003 | 0.0    | 0.0   | 0.0       | 0.0     | 2,813.2  | 2,813.2    | 18,715.0 | 674.0       | 41,509.8      | 63,712 |
| 2004 | 0.0    | 0.0   | 0.0       | 0.0     | 4,940.0  | 4,940.0    | 11,763.0 | 513.0       | 47,285.0      | 64,501 |
| 2005 | 51.2   | 0.0   | 0.5       | 114.9   | 3,233.5  | 3,400.1    | 6,531.1  | 64.2        | 33,357.8      | 43,353 |
| 2006 | 37.0   | 0.0   | 0.8       | 78.4    | 203.6    | 319.8      | 946.6    | 87.3        | 36,159.2      | 37,513 |
| 2007 | 47.4   | 0.0   | 0.7       | 988.1   | 851.3    | 1,887.6    | 6,163.3  | 8.0         | 35,657.9      | 43,717 |
| 2008 | 38.4   | 3.4   | 0.0       | 1,860.7 | 64.1     | 1,966.6    | 5,371.7  | 0.0         | 30,308.3      | 37,647 |
| 2009 | 130.3  | 423.7 | 427.0     | 759.5   | 303.5    | 2,044.0    | 3,182.5  | 0.0         | 31,848.9      | 37,075 |
| 2010 | 23.9   | 2.6   | 1,436.0   | 1,518.7 | 600.2    | 3,581.8    | 3,955.0  | 0.0         | 29,257.4      | 36,794 |
| 2011 | 79.6   | 9.2   | 2,700.9   | 112.7   | 0.0      | 2,909.2    | 1,316.4  | 65.4        | 26,108.0      | 30,399 |

Source : Directorate General of Oil and Gas

## 6.2.8 Indonesia Crude Oil Export by Destination

(Thousand Barrel)

| Year | Japan  | USA    | Korea  | Taiwan | Singapore | Others | Total   |
|------|--------|--------|--------|--------|-----------|--------|---------|
| 2000 | 74,807 | 14,153 | 37,408 | 9,157  | 15,656    | 72,320 | 223,500 |
| 2001 | 77,866 | 15,349 | 51,965 | 8,167  | 20,517    | 67,748 | 241,612 |
| 2002 | 61,752 | 15,864 | 43,977 | 7,023  | 14,648    | 74,852 | 218,115 |
| 2003 | 61,285 | 12,051 | 40,822 | 5,528  | 11,410    | 57,999 | 189,095 |
| 2004 | 52,040 | 11,930 | 42,111 | 6,029  | 8,761     | 57,998 | 178,869 |
| 2005 | 43,628 | 6,256  | 40,108 | 2,639  | 7,612     | 59,459 | 159,703 |
| 2006 | 42,203 | 8,950  | 23,723 | 7,249  | 5,480     | 47,355 | 134,960 |
| 2007 | 45,892 | 4,464  | 18,051 | 3,779  | 7,796     | 55,286 | 135,267 |
| 2008 | 37,724 | 4,740  | 12,289 | 1,981  | 15,083    | 63,053 | 134,872 |
| 2009 | 25,783 | 5,264  | 19,394 | 2,160  | 11,649    | 67,974 | 132,223 |
| 2010 | 23,407 | 4,779  | 17,607 | 1,961  | 10,576    | 76,143 | 134,473 |
| 2011 | 36,823 | 5,553  | 11,366 | 1,489  | 10,012    | 70,328 | 135,572 |

Source : Directorate General of Oil and Gas

## 6.2.9 LPG Supply

(Ton)

| Year | Production   |              |           | Export    | Import    | Total Supply |
|------|--------------|--------------|-----------|-----------|-----------|--------------|
|      | Gas Refinery | Oil Refinery | Total     |           |           |              |
| 2000 | 1,321,037    | 766,632      | 2,087,669 | 1,253,197 | 0         | 834,472      |
| 2001 | 1,415,534    | 772,143      | 2,187,677 | 1,423,928 | 0         | 763,749      |
| 2002 | 1,296,505    | 814,177      | 2,110,682 | 1,217,410 | 0         | 893,272      |
| 2003 | 1,148,379    | 778,939      | 1,927,318 | 1,033,672 | 111,178   | 1,004,824    |
| 2004 | 1,130,540    | 896,395      | 2,026,935 | 981,780   | 32,994    | 1,078,150    |
| 2005 | 995,097      | 832,717      | 1,827,814 | 1,015,366 | 22,166    | 834,614      |
| 2006 | 573,093      | 855,397      | 1,428,490 | 289,698   | 68,997    | 1,207,790    |
| 2007 | 546,734      | 862,696      | 1,409,430 | 268,511   | 137,760   | 1,278,679    |
| 2008 | 910,663      | 780,103      | 1,690,766 | 100,500   | 418,139   | 2,008,406    |
| 2009 | 1,430,671    | 694,547      | 2,125,218 | 88,463    | 917,171   | 2,953,926    |
| 2010 | 1,828,743    | 649,628      | 2,478,371 | 0         | 1,621,959 | 4,100,330    |
| 2011 | 1,580,598    | 704,842      | 2,285,439 | 0         | 1,991,774 | 4,277,213    |

Source : Directorate General of Oil and Gas

## 6.3.1 Natural Gas Reserves (Per 1 January 2011)

(TSCF)

| Year | Proven | Potential | Total  |
|------|--------|-----------|--------|
| 2000 | 94.75  | 75.56     | 170.31 |
| 2001 | 92.10  | 76.05     | 168.15 |
| 2002 | 90.30  | 86.29     | 176.59 |
| 2003 | 91.17  | 86.96     | 178.13 |
| 2004 | 97.81  | 90.53     | 188.34 |
| 2005 | 97.26  | 88.54     | 185.80 |
| 2006 | 94.00  | 93.10     | 187.10 |
| 2007 | 106.00 | 59.00     | 165.00 |
| 2008 | 112.50 | 57.60     | 170.10 |
| 2009 | 107.34 | 52.29     | 159.63 |
| 2010 | 108.40 | 48.74     | 157.14 |
| 2011 | 104.71 | 48.18     | 152.89 |

Source : Directorate General of Oil and Gas

## 6.3.2 Natural Gas Production

(MMSCF)

| Year | Assosiated | Non Assosiated | Total     |
|------|------------|----------------|-----------|
| 2000 | 705,979    | 2,195,323      | 2,901,302 |
| 2001 | 716,930    | 2,089,154      | 2,806,084 |
| 2002 | 720,125    | 2,316,230      | 3,036,355 |
| 2003 | 789,202    | 2,366,041      | 3,155,243 |
| 2004 | 772,812    | 2,231,133      | 3,003,945 |
| 2005 | 795,224    | 2,190,117      | 2,985,341 |
| 2006 | 708,715    | 2,245,281      | 2,953,997 |
| 2007 | 433,630    | 2,371,910      | 2,805,540 |
| 2008 | 472,897    | 2,412,431      | 2,885,328 |
| 2009 | 467,570    | 2,593,326      | 3,060,897 |
| 2010 | 471,507    | 2,936,086      | 3,407,592 |
| 2011 | 472,552    | 2,783,827      | 3,256,379 |

Source : Directorate General of Oil and Gas

## 6.3.3 Natural Gas and LNG Supply and Demand

| Year | Natural Gas Production | Gas Lift & Reinjection | Own Use | Flare   |           |           |
|------|------------------------|------------------------|---------|---------|-----------|-----------|
|      |                        |                        |         |         | LNG Plant | LPG Plant |
|      | (MMSCF)                |                        |         |         |           |           |
| 2000 | 2,901,302              | 237,280                | 157,238 | 172,883 | 1,584,365 | 31,832    |
| 2001 | 2,806,084              | 219,191                | 152,677 | 186,380 | 1,489,935 | 12,807    |
| 2002 | 3,036,355              | 202,875                | 170,089 | 176,585 | 1,656,472 | 26,901    |
| 2003 | 3,155,243              | 228,019                | 168,120 | 148,709 | 1,719,127 | 24,429    |
| 2004 | 3,003,945              | 206,659                | 151,041 | 134,997 | 1,607,970 | 28,661    |
| 2005 | 2,985,341              | 199,890                | 139,245 | 107,236 | 1,511,335 | 24,578    |
| 2006 | 2,953,997              | 185,307                | 142,384 | 112,537 | 1,436,093 | 32,879    |
| 2007 | 2,805,540              | 147,303                | 136,952 | 97,912  | 1,300,348 | 35,096    |
| 2008 | 2,885,328              | 154,890                | 143,252 | 113,701 | 1,270,854 | 13,196    |
| 2009 | 3,060,897              | 154,800                | 175,024 | 172,922 | 1,221,502 | 17,806    |
| 2010 | 3,407,592              | 174,844                | 205,378 | 184,893 | 1,427,917 | 20,866    |
| 2011 | 3,256,379              | 185,997                | 198,463 | 179,460 | 1,293,151 | 14,289    |

Source : Directorate General of Oil and Gas

| Utilization |          |          |             |                 | Export LNG |
|-------------|----------|----------|-------------|-----------------|------------|
| Refinery    | City Gas | Industry | Electricity | Export Gas Pipa |            |
| (MMSCF)     |          |          |             |                 | (Ton)      |
| 32,277      | 68,642   | 483,438  | 223,564     | 0               | 27,321,020 |
| 29,437      | 76,173   | 455,798  | 254,238     | 31,967          | 24,343,678 |
| 30,879      | 87,016   | 448,261  | 196,300     | 82,619          | 26,184,740 |
| 22,776      | 95,546   | 500,622  | 187,187     | 126,450         | 26,077,500 |
| 20,795      | 104,807  | 473,695  | 169,457     | 163,045         | 25,237,867 |
| 16,155      | 112,304  | 480,382  | 175,222     | 251,303         | 23,676,765 |
| 15,159      | 117,798  | 461,277  | 169,269     | 257,224         | 22,400,121 |
| 24,972      | 154,219  | 443,889  | 183,329     | 319,397         | 20,851,609 |
| 29,727      | 176,707  | 566,082  | 221,236     | 234,964         | 20,579,632 |
| 35,566      | 175,988  | 654,428  | 231,521     | 294,109         | 19,932,902 |
| 34,038      | 172,283  | 635,361  | 269,003     | 333,993         | 24,184,380 |
| 32,825      | 177,055  | 666,195  | 248,871     | 335,510         | 21,971,547 |

## 6.3.4 City Gas Sales and Utilization

| Year | Sales<br>(Million M <sup>3</sup> ) |                       |                |       |           |
|------|------------------------------------|-----------------------|----------------|-------|-----------|
|      | Household                          | Industry & Commercial | Transportation | Total | Household |
| 2000 | 12.74                              | 1,907.88              | 27.44          | 1,948 | 42,991    |
| 2001 | 13.79                              | 2,117.35              | 21.91          | 2,153 | 48,401    |
| 2002 | 15.13                              | 2,418.03              | 19.72          | 2,453 | 51,943    |
| 2003 | 15.94                              | 2,668.29              | 17.14          | 2,701 | 64,889    |
| 2004 | 19.37                              | 2,917.09              | 13.26          | 2,950 | 75,244    |
| 2005 | 19.32                              | 3,108.91              | 6.68           | 3,135 | 77,833    |
| 2006 | 19.82                              | 3,277.98              | 6.55           | 3,304 | 79,736    |
| 2007 | 20.39                              | 4,267.06              | 7.36           | 4,295 | 81,294    |
| 2008 | 19.61                              | 5,693.28              | 12.49          | 5,725 | 82,123    |
| 2009 | 19.43                              | 8,034.44              | 11.08          | 8,065 | 83,519    |
| 2010 | 20.39                              | 8,430.72              | 13.67          | 8,465 | 85,326    |
| 2011 | 18.01                              | 4,997.35              | 35.48          | 5,051 | 86,167    |

| Number of Customer |            |        | Specific Consumption<br>(Thousand M <sup>3</sup> ) |                          |                 |
|--------------------|------------|--------|----------------------------------------------------|--------------------------|-----------------|
| Industry           | Commercial | Total  | Household                                          | Industry &<br>Commercial | Average<br>Uses |
| 594                | 1,053      | 44,638 | 0.2964                                             | 1,158                    | 43.03           |
| 626                | 1,160      | 50,187 | 0.2849                                             | 1,186                    | 42.46           |
| 646                | 1,330      | 53,919 | 0.2912                                             | 1,224                    | 45.13           |
| 675                | 1,305      | 66,869 | 0.2456                                             | 1,348                    | 40.14           |
| 677                | 1,158      | 77,079 | 0.2574                                             | 1,590                    | 38.10           |
| 723                | 1,412      | 79,968 | 0.2482                                             | 1,456                    | 39.12           |
| 769                | 1,463      | 81,968 | 0.2485                                             | 1,469                    | 40.23           |
| 873                | 1,468      | 83,635 | 0.2508                                             | 1,823                    | 51.26           |
| 1,099              | 1,498      | 84,720 | 0.2387                                             | 2,192                    | 67.43           |
| 1,180              | 1,593      | 86,292 | 0.2326                                             | 2,897                    | 93.33           |
| 1,216              | 1,592      | 88,134 | 0.2389                                             | 3,002                    | 95.89           |
| 1,246              | 1,641      | 89,054 | 0.2090                                             | 1,731                    | 56.32           |

## 6.4.1 Power Plant Installed Capacity

| Year | Hydro PP | Steam PP  | Gas PP   | Combined Cycle PP | Geothermal PP | Diesel PP |
|------|----------|-----------|----------|-------------------|---------------|-----------|
| 2000 | 4,199.28 | 10,671.56 | 3,804.80 | 6,863.22          | 525.00        | 11,223.33 |
| 2001 | 3,112.61 | 7,798.73  | 1,966.77 | 6,998.22          | 785.00        | 3,016.05  |
| 2002 | 3,155.17 | 6,900.00  | 1,224.72 | 6,863.22          | 785.00        | 2,589.12  |
| 2003 | 3,167.92 | 9,750.00  | 1,687.72 | 6,998.22          | 805.00        | 2,730.60  |
| 2004 | 3,199.71 | 9,750.00  | 2,802.57 | 6,846.27          | 820.00        | 2,993.60  |
| 2005 | 3,224.32 | 9,750.00  | 3,186.63 | 6,565.97          | 820.00        | 3,042.12  |
| 2006 | 3,532.47 | 11,670.00 | 3,396.22 | 7,305.97          | 820.00        | 3,001.49  |
| 2007 | 3,512.90 | 12,014.00 | 3,452.63 | 7,306.27          | 932.50        | 3,069.77  |
| 2008 | 3,691.28 | 12,203.00 | 2,681.69 | 8,129.97          | 1,052.00      | 3,382.58  |
| 2009 | 3,694.95 | 12,594.00 | 3,135.88 | 8,009.97          | 1,189.00      | 3,256.36  |
| 2010 | 3,719.69 | 12,981.50 | 3,821.57 | 7,590.32          | 1,192.75      | 4,569.89  |
| 2011 | 3,880.83 | 16,318.00 | 4,236.02 | 8,480.97          | 1,209.00      | 5,471.93  |

Source : PLN Statistics and Electricity Statistic, Directorate General of Electricity

(MW)

|  | Gas<br>Engine<br>PP | Wind<br>PP | Mycro<br>Hydro PP | Mini<br>Hydro PP | Solar<br>PP | Coal<br>Gasifica-<br>tion PP | Waste<br>PP | Total  |
|--|---------------------|------------|-------------------|------------------|-------------|------------------------------|-------------|--------|
|  | 0.00                | 0.00       | 0.00              | 0.00             | 0.00        | 0.00                         | 0.00        | 37,287 |
|  | 0.00                | 0.00       | 0.00              | 0.00             | 0.00        | 0.00                         | 0.00        | 23,677 |
|  | 0.00                | 0.00       | 0.00              | 0.00             | 0.00        | 0.00                         | 0.00        | 21,517 |
|  | 0.00                | 0.00       | 0.00              | 0.00             | 0.00        | 0.00                         | 0.00        | 25,139 |
|  | 12.00               | 0.00       | 0.00              | 0.00             | 0.00        | 0.00                         | 0.00        | 26,424 |
|  | 12.42               | 0.00       | 0.00              | 0.00             | 0.00        | 0.00                         | 0.00        | 26,601 |
|  | 12.42               | 0.00       | 0.00              | 0.00             | 0.00        | 0.00                         | 0.00        | 29,739 |
|  | 12.00               | 0.10       | 0.00              | 0.00             | 0.00        | 0.00                         | 0.00        | 30,300 |
|  | 21.84               | 0.26       | 6.65              | 0.00             | 0.00        | 0.00                         | 0.00        | 31,169 |
|  | 71.00               | 1.06       | 0.69              | 6.03             | 0.00        | 0.00                         | 0.00        | 31,959 |
|  | 92.84               | 0.34       | 0.69              | 13.53            | 0.19        | 0.00                         | 0.00        | 33,983 |
|  | 169.54              | 0.93       | 5.93              | 57.66            | 1.16        | 41.00                        | 26.00       | 39,899 |

## 6.4.2 Power Plant Production

| Year | Hydro PP | Geothermal PP | Steam PP |        |       |        |
|------|----------|---------------|----------|--------|-------|--------|
|      |          |               | Coal     | Oil    | Gas   | Total  |
| 2000 | 9,110    | 2,649         | 28,776   | 6,055  | 3,598 | 38,429 |
| 2001 | 10,651   | 2,982         | 29,330   | 6,557  | 3,489 | 39,376 |
| 2002 | 8,834    | 3,187         | 29,313   | 8,884  | 835   | 39,032 |
| 2003 | 8,472    | 2,959         | 31,737   | 9,108  | 1,334 | 42,178 |
| 2004 | 8,943    | 3,147         | 30,806   | 9,636  | 1,204 | 41,646 |
| 2005 | 9,831    | 3,006         | 33,253   | 8,180  | 835   | 42,268 |
| 2006 | 8,759    | 3,141         | 38,362   | 8,575  | 828   | 47,764 |
| 2007 | 10,627   | 3,188         | 41,880   | 9,179  | 1,151 | 52,209 |
| 2008 | 10,740   | 3,391         | 41,311   | 10,186 | 856   | 52,353 |
| 2009 | 10,307   | 3,504         | 43,138   | 9,031  | 795   | 52,964 |
| 2010 | 15,827   | 3,398         | 46,685   | 6,712  | 1,009 | 54,407 |
| 2011 | 10,316   | 3,487         | 54,950   | 6,383  | 1,003 | 62,335 |

(GWh)

| PLN    |                       |           |          |         |               |           |
|--------|-----------------------|-----------|----------|---------|---------------|-----------|
| Gas PP | Combined Gas-Steam PP | Diesel PP | Solar PP | Wind PP | Gas Engine PP | Sub-Total |
| 1,252  | 26,397                | 6,355     | 0        | 0       | 0             | 84,190    |
| 1,459  | 27,366                | 6,520     | 0        | 0       | 0             | 88,355    |
| 2,229  | 28,803                | 7,209     | 0        | 0       | 0             | 89,293    |
| 2,486  | 28,409                | 7,977     | 0        | 0       | 0             | 92,481    |
| 3,179  | 30,700                | 8,577     | 0        | 0       | 0             | 96,192    |
| 6,039  | 31,272                | 8,866     | 0        | 0       | 0             | 101,282   |
| 5,031  | 30,918                | 8,855     | 0        | 0       | 0             | 104,469   |
| 5,148  | 31,374                | 8,694     | 0        | 0.02    | 121           | 111,363   |
| 5,621  | 35,731                | 10,212    | 0.10     | 0       | 0             | 118,047   |
| 8,674  | 34,747                | 10,432    | 0.1      | 0       | 0             | 120,628   |
| 9,266  | 36,812                | 11,926    | 0.50     | 0.026   | 74            | 131,710   |
| 10,018 | 40,410                | 16,125    | 0.72     | 0       | 48            | 142,739   |

## 6.4.2 Power Plant Production (continued)

| Year | PLN Electricity |               |          |       |         |        |        |
|------|-----------------|---------------|----------|-------|---------|--------|--------|
|      | Hydro PP        | Geothermal PP | Steam PP |       |         |        | Gas PP |
|      |                 |               | Coal     | Gas   | Biomass | Total  |        |
| 2000 | 906             | 2,220         | 5,226    | 0     | 6       | 5,232  | 0      |
| 2001 | 1,004           | 3,049         | 8,383    | 0     | 8       | 8,391  | 0      |
| 2002 | 1,099           | 3,051         | 13,616   | 0     | 11      | 13,627 | 0      |
| 2003 | 627             | 3,335         | 14,722   | 1,492 | 15      | 20,192 | 0      |
| 2004 | 731             | 3,509         | 17,405   | 12    | 20      | 17,437 | 0      |
| 2005 | 894             | 3,598         | 18,540   | 3     | 22      | 18,564 | 373    |
| 2006 | 864             | 3,517         | 20,268   | 2     | 32      | 20,302 | 732    |
| 2007 | 659             | 3,833         | 21,937   | 2     | 36      | 21,975 | 1,240  |
| 2008 | 788             | 4,918         | 20,081   | 90    | 47      | 20,217 | 986    |
| 2009 | 1,077           | 5,791         | 22,752   | 2     | 63      | 22,817 | 1,159  |
| 2010 | 1,629           | 5,959         | 21,760   | 99    | 93      | 21,952 | 1,127  |
| 2011 | 2,103           | 5,884         | 26,050   | 154   | 198     | 26,402 | 1,028  |

Source : PLN Statistics and Electricity Statistics, Directorate General of Electricity

(GWh)

## Purchase from Captive Power &amp; IPP

| Combined Gas-Steam PP | Diesel PP | Solar PP | Wind PP | Sub-Total | Grand-Total |
|-----------------------|-----------|----------|---------|-----------|-------------|
| 682                   | 94        | 0.00     | 0.00    | 9,135     | 93,325      |
| 773                   | 88        | 0.00     | 0.00    | 13,304    | 101,659     |
| 925                   | 221       | 0.00     | 0.00    | 18,923    | 108,217     |
| 1,511                 | 283       | 0.00     | 0.00    | 25,948    | 118,429     |
| 1,947                 | 347       | 0.00     | 0.00    | 23,970    | 120,162     |
| 2,566                 | 93        | 0.00     | 0.00    | 26,088    | 127,370     |
| 3,603                 | 354       | 0.00     | 0.00    | 28,640    | 133,108     |
| 4,260                 | 472       | 0.00     | 0.00    | 31,200    | 142,563     |
| 4,932                 | 534       | 0.00     | 0.27    | 31,390    | 149,437     |
| 4,904                 | 417       | 0.00     | 3.67    | 36,169    | 156,797     |
| 7,003                 | 402       | 0.02     | 3.61    | 38,076    | 169,786     |
| 4,798                 | 459       | 0.05     | 4.69    | 40,679    | 183,419     |

## 6.4.3 Import of Electricity

(GWh)

| Year | Country by Origin | Microhydro PP. |
|------|-------------------|----------------|
| 2000 | -                 | -              |
| 2001 | -                 | -              |
| 2002 | -                 | -              |
| 2003 | -                 | -              |
| 2004 | -                 | -              |
| 2005 | -                 | -              |
| 2006 | -                 | -              |
| 2007 | -                 | -              |
| 2008 | -                 | -              |
| 2009 | Malaysia          | 1,261.82       |
| 2010 | Malaysia          | 2,224.24       |
| 2011 | Malaysia          | 2,541.95       |

Source : PLN Statistics

## 6.4.4 Electricity Sales

(GWh)

| Year | Electricity Sales Per Tariff Segment |            |          |                 |        |            |         |
|------|--------------------------------------|------------|----------|-----------------|--------|------------|---------|
|      | Household                            | Commercial | Industry | Street Lighting | Social | Government | Total   |
| 2000 | 30,563                               | 10,576     | 34,013   | 1,071           | 1,644  | 1,298      | 79,165  |
| 2001 | 33,340                               | 11,395     | 35,593   | 1,129           | 1,782  | 1,282      | 84,520  |
| 2002 | 33,994                               | 11,845     | 36,831   | 1,294           | 1,843  | 1,281      | 87,089  |
| 2003 | 35,753                               | 13,224     | 36,497   | 1,512           | 2,022  | 1,433      | 90,441  |
| 2004 | 38,588                               | 15,258     | 40,324   | 2,045           | 2,238  | 1,645      | 100,097 |
| 2005 | 41,184                               | 17,023     | 42,448   | 2,221           | 2,430  | 1,726      | 107,032 |
| 2006 | 43,753                               | 18,416     | 43,615   | 2,414           | 2,604  | 1,808      | 112,610 |
| 2007 | 47,325                               | 20,608     | 45,803   | 2,586           | 2,909  | 2,016      | 121,247 |
| 2008 | 50,184                               | 22,926     | 47,969   | 2,761           | 3,082  | 2,096      | 129,019 |
| 2009 | 54,945                               | 24,825     | 46,204   | 2,888           | 3,384  | 2,335      | 134,582 |
| 2010 | 59,825                               | 27,157     | 50,985   | 3,000           | 3,700  | 2,630      | 147,297 |
| 2011 | 65,112                               | 28,307     | 54,725   | 3,068           | 3,994  | 2,787      | 157,993 |

## 6.4.5 Fuel Consumption of PLN Power Plant

| Year | Coal       | HSD          | IDO    | FO        | Natural Gas |
|------|------------|--------------|--------|-----------|-------------|
|      | (Ton)      | (Kilo Liter) |        |           | (MMSCF)     |
| 2000 | 13,135,584 | 3,141,917    | 23,146 | 1,858,568 | 228,838     |
| 2001 | 14,027,713 | 3,575,348    | 30,457 | 1,793,283 | 222,421     |
| 2002 | 14,054,377 | 4,625,521    | 40,682 | 2,300,603 | 192,927     |
| 2003 | 15,260,305 | 5,024,362    | 31,573 | 2,557,546 | 184,304     |
| 2004 | 15,412,738 | 6,299,706    | 36,935 | 2,502,598 | 176,436     |
| 2005 | 16,900,972 | 7,626,201    | 27,581 | 2,258,776 | 143,050     |
| 2006 | 19,084,438 | 7,586,916    | 23,977 | 2,387,622 | 157,894     |
| 2007 | 21,466,348 | 7,874,290    | 13,558 | 2,801,128 | 171,209     |
| 2008 | 20,999,521 | 8,127,546    | 28,989 | 3,163,954 | 181,661     |
| 2009 | 21,604,464 | 6,365,116    | 11,132 | 3,032,657 | 266,539     |
| 2010 | 23,958,699 | 6,887,455    | 6,895  | 2,430,584 | 283,274     |
| 2011 | 27,434,163 | 8,943,880    | 13,923 | 2,509,047 | 285,722     |

Source : PLN Statistic

## 6.4.6 Share of Fuel Consumption of PLN Power Plant

(%)

| Year | Type of Fuel |       |      |       |             |
|------|--------------|-------|------|-------|-------------|
|      | Coal         | HSD   | IDO  | FO    | Natural Gas |
| 2000 | 44.09        | 13.62 | 0.12 | 10.10 | 32.08       |
| 2001 | 45.42        | 14.95 | 0.15 | 9.40  | 30.08       |
| 2002 | 44.10        | 18.74 | 0.20 | 11.69 | 25.28       |
| 2003 | 45.37        | 19.29 | 0.14 | 12.31 | 22.89       |
| 2004 | 44.00        | 23.23 | 0.16 | 11.57 | 21.04       |
| 2005 | 46.40        | 27.04 | 0.12 | 10.04 | 16.40       |
| 2006 | 48.46        | 24.88 | 0.09 | 9.82  | 16.75       |
| 2007 | 49.53        | 23.46 | 0.05 | 10.46 | 16.50       |
| 2008 | 47.46        | 23.72 | 0.10 | 11.58 | 17.15       |
| 2009 | 47.09        | 17.91 | 0.04 | 10.70 | 24.26       |
| 2010 | 49.27        | 18.29 | 0.02 | 8.09  | 24.33       |
| 2011 | 49.88        | 21.00 | 0.04 | 7.39  | 21.70       |

Source : PLN Statistic

## 6.4.7 PLN Electricity System Performance

| Year | Average Thermal Efficiency | Capacity Factor | Load Factor | Peak Load | Transmission & Distribution Losses |
|------|----------------------------|-----------------|-------------|-----------|------------------------------------|
|      | (%)                        | (%)             |             | (MW)      | (%)                                |
| 2000 | 34.66                      | 46.29           | 69.54       | 15,320    | 11.65                              |
| 2001 | 34.49                      | 47.90           | 71.13       | 16,314    | 13.52                              |
| 2002 | 34.56                      | 48.28           | 72.10       | 17,160    | 16.45                              |
| 2003 | 34.35                      | 49.78           | 71.88       | 17,949    | 16.88                              |
| 2004 | 34.23                      | 51.14           | 72.64       | 18,896    | 11.29                              |
| 2005 | 34.62                      | 52.15           | 75.48       | 19,263    | 11.54                              |
| 2006 | 33.51                      | 48.00           | 64.15       | 20,354    | 11.45                              |
| 2007 | 32.04                      | 64.47           | 59.60       | 21,306    | 11.08                              |
| 2008 | 31.96                      | 52.62           | 80.77       | 21,120    | 10.46                              |
| 2009 | 29.95                      | 53.71           | 76.37       | 23,438    | 9.93                               |
| 2010 | 29.46                      | 55.90           | 77.78       | 24,917    | 9.70                               |
| 2011 | 39.70                      | 55.67           | 78.53       | 26,665    | 9.41                               |

Source : PLN Statistic

## 6.5.1 Geothermal Resources and Reserves

(Status Year 2011)

(MW)

| No    | Location           | Resources   |            | Reserves |          |        | Total  |
|-------|--------------------|-------------|------------|----------|----------|--------|--------|
|       |                    | Speculative | Hipotethic | Probable | Possible | Proven |        |
| 1     | Sumatra            | 4,059       | 2,543      | 6,524    | 15       | 380    | 13,521 |
| 2     | Java               | 1,710       | 1,826      | 3,708    | 658      | 1,815  | 9,717  |
| 3     | Bali-Nusa Tenggara | 410         | 359        | 983      | 0        | 15     | 1,767  |
| 4     | Sulawesi           | 145         | 0          | 0        | 0        | 0      | 145    |
| 5     | Maluku             | 1,287       | 139        | 1,285    | 150      | 78     | 2,939  |
| 6     | Kalimantan         | 545         | 97         | 409      | 0        | 0      | 1,051  |
| 7     | Papua              | 75          | 0          | 0        | 0        | 0      | 75     |
| Total |                    | 8,231       | 4,964      | 12,909   | 823      | 2,288  | 29,215 |

Source : Geological Agency

## 6.5.2 Geothermal Power Plant Capacity

(Status Year 2011)

(MW)

| No | Working Area                    | Location       | Turbine Capacity                        | Operator          | Total Capacity |
|----|---------------------------------|----------------|-----------------------------------------|-------------------|----------------|
| 1  | PLTP Kamojang (Pertamina)       | West Java      | 1 x 30 MWe<br>2 x 55 MWe<br>1 x 60 MWe  | PLN               | 200            |
| 2  | PLTP Lahendong (Pertamina)      | North Sulawesi | 2 x 20 MWe<br>1 x 20 MWe                | PLN               | 60             |
| 3  | PLTP Sibayak (Pertamina)        | North Sumatra  | 1 x 12 MWe                              | Pertamina         | 12             |
| 4  | PLTP Salak (Chevron GS)         | West Java      | 3 x 60 MWe<br>3 x 65 MWe                | PLN<br>CGS        | 375            |
| 5  | PLTP Darajat (Chevron GI)       | West Java      | 1 x 55 MWe<br>1 x 90 MWe<br>1 x 110 MWe | PLN<br>CGI<br>CGI | 255            |
| 6  | PLTP Wayang Windu (Star Energi) | West Java      | 1 x 110 MWe<br>1 x 117 MWe              | SE                | 227            |
| 7  | PLTP Dieng (Geo Dipa Energi)    | Central Java   | 1 x 60 MWe                              | GDE               | 60             |
|    |                                 |                |                                         | <b>Total</b>      | <b>1,189</b>   |

Source : Directorate General of New and Renewable Energy and Energy Conservation

## 6.5.3 Geothermal Steam Production

(Thousand Tonnes Geothermal Steam)

| Year | Pertamina Field |          |            |           | KOB Field |          |               |                 |           | Total  |
|------|-----------------|----------|------------|-----------|-----------|----------|---------------|-----------------|-----------|--------|
|      | Kamo-jang       | Siba-yak | Lahen-dong | Sub Total | Salak     | Dara-jat | Wa-yang Windu | Geodipa (6o MW) | Sub Total |        |
| 2000 | 8,238           | 66       | -          | 8,304     | 19,494    | 4,876    | 3,717         | -               | 28,087    | 36,391 |
| 2001 | 8,623           | 242      | 457        | 9,322     | 22,044    | 7,242    | 6,669         | -               | 35,955    | 45,277 |
| 2002 | 9,292           | 212      | 954        | 10,458    | 21,742    | 7,453    | 6,929         | -               | 36,124    | 46,582 |
| 2003 | 9,274           | 42       | 1,132      | 10,448    | 21,325    | 7,435    | 6,431         | 1,521           | 36,712    | 47,160 |
| 2004 | 9,277           | 126      | 1,173      | 10,576    | 22,595    | 8,011    | 6,863         | 2,305           | 39,774    | 50,350 |
| 2005 | 7,462           | 74       | 1,012      | 8,548     | 24,167    | 7,551    | 6,809         | 2,518           | 41,045    | 49,593 |
| 2006 | 8,096           | 165      | 1,240      | 9,501     | 24,527    | 7,633    | 6,625         | 2,544           | 41,330    | 50,831 |
| 2007 | 8,121           | 84       | 1,311      | 9,517     | 24,346    | 10,322   | 6,524         | 1,209           | 42,400    | 51,917 |
| 2008 | 12,100          | 289      | 2,349      | 14,738    | 24,482    | 13,487   | 6,665         | 1,644           | 46,279    | 61,016 |
| 2009 | 12,612          | 498      | 2,665      | 15,775    | 24,538    | 13,977   | 12,989        | 780             | 52,285    | 68,060 |
| 2010 | 12,337          | 525      | 3,020      | 15,882    | 23,331    | 14,137   | 13,386        | 0               | 50,854    | 66,736 |
| 2011 | 12,472          | 312      | 2,441      | 15,226    | 24,673    | 14,131   | 13,349        | 1,231           | 53,384    | 68,610 |

Source : Directorate General of New and Renewable Energy and Energy Conservation





ANNEX

1

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## METHODOLOGY AND TABLE EXPLANATION

### GENERAL METHODS

Data shown in the tables of Indonesia's energy economic statistics are a consolidated from various statistics of regular publication with harmonization of format and definition also covering an estimate of energy demand using macro-economic approach. Data sources used are the statistic of published by: Statistic Indonesia, technical unit within Ministry of Energy and Mineral Resources, energy companies, energy associations and some International Agencies.

Statistics book used as the source of energy economic data consolidation, are as follows:

- a. Crude Oil and Oil Products (BBM)
  - Indonesia Oil and Gas Statistics, Directorate General Oil and Gas 2000-2006
- b. Natural Gas (Production, utilization and flaring)
  - Indonesia Oil and Gas Statistics, Directorate General Oil and Gas 2000-2006
  - PT PGN Annual Report, 2000-2011
- c. Coal
  - Indonesia Coal Statistics, Directorate General of Geology and Mineral Resources 2000 and 2001
  - Indonesia Mineral and Coal Statistics Directorate of Mineral Coal and Geothermal 2000-2011
- d. Biomass
  - National Survey on Social & Economic (SUSENAS) Statistic Indonesia (BPS), 1999, 2002, 2005
- e. LPG
  - Indonesia Oil and Gas Statistics, Directorate General Oil and Gas 2000-2006
- f. Electricity
  - PLN Statistics, 2000-2011
  - Statistics of Electricity, Directorate General of Electricity and Energy Utilization, 2000-2011
- g. General
  - Indonesia Statistics, Statistic c Agency (BPS) 2000-2011

- Finance and Economic Statistic , Central Bank of Indonesia ([www.bi.go.id](http://www.bi.go.id))
- Trade Statistics, Ministry of Trade, 2000-2011

## TABLE 2.1 up to 2.13

Energy balance is an energy input-output system table, where the rows indicate activities of an energy commodity which consist of four main elements, namely: primary energy activity, transformation, own use & losses, and energy consumption. The columns, on the other hand, indicate the types of energy. Energy balance is presented to fully depict energy activities in a region.

## ENERGY BALANCE DEFINITIONS

### BY COLUMN

Each column of energy balance represents one type of energy. It begins from the left with renewable energy, then followed by, solid energy, gaseous, liquid, and electricity.

### RENEWABLE ENERGY

Hydropower is the potential energy of flowing water. The energy is computed as input power to generate electricity and consists of dam, river stream, mini hydro and micro hydro. The amount of hydro energy required is equivalent to fossil energy required to generate electricity.

Geothermal is a kind energy that produced from the magma inside earth in the volcanic areas. The hot and high pressure steam emitted from the production well head can be utilized to pressed the steam turbine in the Geothermal Power Generation or utilized directly for drying agriculture products.

Biomass is a kind of renewable organic material based fuel. Among the kinds of biomass are firewood (wood and wood waste), agriculture waste (rice hulks, rice straws, palm fronds, coconut shells, etc.), urban solid waste, and industrial waste.

### SOLID ENERGY

Coal consists of hard coal and lignite. Data information on the volume of coal is only available in aggregate number. In the energy balanced table the conversion factor using average of Indonesia coal calorific factor (4.276 BOE per Ton Coal).

Detail category and specification of coal available in Indonesia are as follows:

- Hard coal is a type of coal that has a calorific value of more than 5700 kcal/kg (23.26 MJ/kg). Hard coal consists of steam coal, coking coal, bituminous coal, and anthracite.
- Steam coal is a type of coal that is used in boiler, steam generator and furnace. Included in this category are anthracite and bituminous coal. It has a gross calorific value of more than 23,865.0 kJ/kg (5,700 kcal/kg), lower than coking coal.
- Coking coal is a type of coal that is used to produce coke for use as reducing material in blast furnace. Its gross calorific value is higher than 23,865 kJ/kg (5,700 kcal/kg), ash free. Sub-bituminous coal is a type of coal that has a gross calorific value between 17,435.0 kJ/kg (4,165 kcal/kg) and 23,865.0 kJ/kg (5,700 kcal/kg). Anthracite is a type of coal that has similar characteristics as steam coal.
- Lignite is a type of coal that has a gross calorific value of less than 4,165 kcal/kg (17.44 MJ/kg) and volatile matter of more than 31%, dry basis. Lignite is often called low rank coal; also called brown coal.
- Coke is the product of high temperature carbonization of steam coal. The product is used as reducing agent in steel plant.
- Briquettes is the fuel produced by briquetting sub-bituminous coal, lignite, or peat through the process of carbonization or powdering. Briquette is more convenient to use and has better quality than its raw material.

## GASEOUS

Energy in Gaseous form includes natural gas and town gas. Natural gas generally consists of methane which is mined from underground accumulation, and associated gas from oil production, as well as coal bed methane. Town gas covers all kinds of gas, including gas produced from carbonization process, gasification of petroleum oils, and gas produced from chemical conversion of hydrocarbon fossil fuels.

## LIQUID

Crude oil is the mineral oil which consists of a mixture of hydrocarbons, blackish green color, and has a range of density and viscosity. It is the raw material for producing oil fuels (BBM) and petrochemical products.

Condensate is a kind of liquid hydrocarbons among which is natural gas liquid (NGL). NGL consists of ethane, propane, butane, pentane, and natural gasoline.

OIL FUELS/Petroleum Products, (BBM), Category BBM in the energy balance table is petroleum products used for energy. It is comprise of Avgas, Avtur, Mogas (Motor gasoline), Automotive Diesel Oil (HSD/ADO), Marine Diesel Fuel (MDF/IDO), Fuel Oil and Kerosene. Detail description of each fuels are as follows:

Avgas (aviation gasoline) is aircraft fuel that consists of light hydrocarbons distilling between 100°C and 250°C. The distillation product has at least 20% volume at 143°C.

Avtur is the fuel for jet aircraft which consists of hydrocarbon middle distillate having similar distillation and flash point characteristics as kerosene, with maximum aromatic content of 20% volume. It has a freezing point less than -47°C and octane number of 80-145 RON.

Mogas (motor gasoline) is light hydrocarbons used in motor vehicle internal combustion engine (not including aircraft). Mogas is distilled between 35°C and 215°C and is processed in Reformer, Catalytic Cracking, or Blending with aromatic fraction to achieve high octane number. In Indonesian market, three types of gasoline are available, namely Premium, Premix/Pertamax, and Super TT/Pertamax Plus.

- Premium has an octane number of about 89 RON
- Premix has octane number of about 94 RON
- Super TT has octane number of about 98 RON, and is lead free.

Diesel Oil is a refinery product that contains heavy gasoil. This type of BBM is obtained from the lowest fraction of crude oil atmospheric distillation, while the heavy gas oil is obtained from vacuum distillation of atmospheric distillation residue. In the market, diesel oil is distinguished into Automotive Diesel Oil (ADO/Minyak Solar) and Industrial Diesel Oil (IDO/Minyak Diesel). Fuel Oil (FO) is oil made of distillation residue. This type of BBM includes all kinds of residues including residue from blending. It has a viscosity of about 10 cSt at SOT. Its flash point is higher than SOT and density more than 0.9.

Kerosene is the BBM produced from crude oil distillation which has volatility between that of gasoline and gasoil. It has distillation range between 150°C and 300°C, where a minimum of 65% volume is distilled at 250°C. It has a specific gravity of 0.8 and flash point of over 38°C.

LPG is light hydrocarbon fraction of crude oil, produced in oil refinery, and consists of either propane ( $C_3H_8$ ) and butane ( $C_4H_{10}$ ) or mixture of both. In addition to oil refinery, LPG is also produced from natural gas purification.

Non BBM is Other Oil Products (OOP), include naphtha, lubricating oil, bitumen, paraffin, etc. ( sulphur, grease).

Electricity, electric power produced from various kinds of power plant such as Hydro Power Plant (PLTA), Geothermal Power Plant (PLTP), Gas Power Plant (PLTG), Gas Steam Power Plant (PLTGU), Coal Steam Power Plant (Coal PLTU), and Diesel Power Plant (PLTD), etc.

LNG (liquefied natural gas) is the liquid produced by liquefying natural gas at a temperature of  $-160^{\circ}C$  to facilitate its transportation over very long distances.

Total is the total of all columns at certain row. At transformation row the total of all columns indicates efficiency of transformation process.

## BY ROW of Energy Balance Table

Total Primary Energy Supply is domestic production plus import minus export minus bunker and minus or plus stock change. The bunker and stock change data, is not available.

Production, total gross primary energy produced (extracted) from underground.

Import is energy obtained from other countries, not including energy in transit.

Export is energy sold to other country.

## ENERGY TRANSFORMATION

Transformation, is the transformation process from primary energy type into final energy type. This includes processes in LPG plant, and carbonizing plant. Input bears a negative sign while production bears positive sign.

Oil Refining is the processing of crude oil and condensate to produce oil fuels such as: naphtha, avgas, avtur, ADO, IDO, mogas, kerosene, fuel oil, LPG, etc. Energy consumption such as natural gas, naphtha, are also included.

Gas Processing (LNG plant and LPG plant) the process of liquefaction or purification of natural gas to produce LNG or LPG.

Power Generation is transformation of energy into electric power. This row records the quantity of fuel consumed: (coal, BBM, natural gas, hydropower, geothermal, biomass, wind, photovoltaic (solar energy) etc and the electricity generated.

## OWN USE AND LOSSES

Own Use and Losses include losses and own uses in primary energy production fields and in transformation processes.

- Losses and Own Use in Production Field are losses that occur due to transportation, distribution, and transfer by pipe. Own use includes all energy consumed in the field (off-road transportation, genset, boiler, etc., all energy consumed in transportation is computed in Transportation Sector).
- Losses and Own Use in Oil Refining are losses that occur due to transportation, distribution, and transfer by pipe. Own use is all energy consumed in oil refining processes.
- Losses and Own Use in Gas Processing are losses that occur due to transportation, distribution, and transfer by pipe. Own use is all energy consumed in gas processing.
- Losses in Electricity System, is losses incurred in transformer, transmission and distribution network.
- Own use in Electricity Generation is all energy consumed in power plant area.

Statistical Difference the different between net supply (production + import – export – transformation input + transformation production – own use and losses) and total final consumption (household, commercial, industry, and transportation).

## FINAL ENERGY CONSUMPTION

Total Final Energy Consumption is the quantity of energy consumed in household, commercial, industry and transportation sectors and non-energy consumption.

Household, all energy consumption for household, not including consumption for private car.

Commercial, energy consumption of commercial sector such as: commerce, hotels, restaurants, financial institutions, government agencies, schools, hospitals, etc.

Industry, energy consumption of industry in the following sub-sectors (not including transportation): iron and steel, chemical, non-iron metal, non-metal production, machine and equipment, non-energy mining and quarrying, food, paper, wood, petrochemical, textile, etc.

Transportation, energy consumption for transportation covers all transportation activities in all sectors of economy. Transportation sub-sectors are: air transportation, land transportation (motor cycles, cars, buses, and trucks), ferries and railway transportation. A side for these sector energy is also consumed by one other sector which consist of the fishery, construction and mining subsectors.

Non-energy, energy consumption for non-energy uses, covering lubricating oils, petrochemical industry, raw materials (naphtha, natural gas, and cokes), and gas used as raw material for petrochemical products (methanol and ammonia/urea).



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## GLOSSARY

### **Automotive Diesel Oil (ADO)**

A type of diesel oil used as fuel for high speed diesel engine.

### **Avgas**

Aviation gasoline; special high octane gasoline for aircraft reciprocating engine, has high stability, low freezing point, and rather flat distillation curve.

### **Avtur**

Aviation turbine fuel; special fuel for turbine/jet aircraft, a special kerosene with distillation range of 150°C - 250°C.

### **Biomass**

Collective name for firewood, agriculture waste (rice husks, rice stems, palm fronds, coconut shells), black liquor, wood chips, wood barks.

### **BOE (Barrel Oil Equivalent)**

Calorific equivalent of a barrel of crude oil.

### **Captive Power Plant**

Power plant owned by industry to produce electricity for their own use.

### **Coal**

Sedimentary rock originated from piles of wood since millions of years ago.

### **Coal Transformation**

Processing of coal (coking coal, steam coal, sub-bituminous coal, and lignite) to produce coke, blast furnace gas, and briquet.

### **Commercial**

Group of energy consumers which use energy for lighting, air conditioning, mechanical equipment, cooking appliance, and water heating but not including consumption for vehicles/ transportation. Energy consumers included in this group are commercial and general business such as: commerce, hotel, restaurant, financial institution, government agency, school, hospital, etc.

### **Condensate**

Liquid extracted from natural gas; can be in the form liquid petroleum gas or natural gasoline.

## Conversion Factor

Factor used to convert physical unit such as: liter, barrel, ton, and cubic meter to energy unit such as: Joule, BTU, ton coal equivalent (TCE), or barrel or ton oil equivalent (BOE or TCE).

## Crude Oil

Mixture of hydrocarbons occurring in liquid phase in subsurface reservoir and remains liquid under atmospheric pressure.

## Diesel Oil

A refinery product which contains heavy gasoil, and available as automotive diesel oil (ADO) or industrial diesel oil (IDO).

## DPPU

Depo Pengisian Bahan Bakar Pesawat Udara (Aircraft Refueling Depot), serving AVGAS and AVTUR for aircraft consumption.

## Electricity

Electric power produced in electric power plant such as Hydro Power Plant (PLTA), Geothermal Power Plant (PLTP), Gas Power Plant (PLTG), Gas Steam Power Plant (PLTGU), Coal Steam Power Plant (Coal PLTU), Diesel Power Plant (PLTD), etc.

## Energy Balance Table

Energy system input-output table, the rows indicate activities of an energy commodity which consists of four main elements, namely primary energy, transformation, own use & losses, and energy consumption. The columns indicate the type of energy commodity.

## Final Energy

Energy which can be directly consumed by user.

## Final Energy Consumption

Energy consumption of four sectors of energy consumers, namely: household sector, commercial sector, industry sector, and transportation sector as well as consumption of energy as raw material and reduction agent. In compiling REP Riau, household sector is combined with commercial sector due to the limited data obtained.

## Final Stock

Total stock at the end of the year.

**Fuel Oil**

Lowest order refinery product; heavy distillate, residue and their mixture which is used as fuel in industrial furnace and electric power plant.

**Gasoline**

(see mogas)

**Gas Process**

LNG plant or LPG plant, liquefaction or purification process to produce LNG and LPG.

**GDP at Constant Price**

Added value of goods and services computed on the basis of prices in a certain year.

**GDP, Nominal (based on current price)**

Added value of goods and services computed on the basis of the price occurring in each year.

**Goods and Services Export**

All transfer and sale of goods and services from resident of a country to resident of another country, including those conducted in the same country or in another country. Value of good export is based on FOB.

**Government Consumption**

Expenditures for employees expenses, depreciation and purchase of goods and services (including travel expenses, maintenance and other routine expenditures), expended by central government or regional governments but not including receipt from result of production of goods and services.

**Household**

Group of energy consumers which use energy for cooking, lighting, and household appliances but not including energy consumption for private car.

**Hydropower**

Potential energy of flowing water, computed as input energy to generate electric power, consists of dam, river stream, microhydro.

**Import**

Purchase from other country, not including the one in transit.

**Industrial Diesel Oil (IDO)**

A type of diesel oil used as fuel in low or medium speed industrial diesel engine (and marine engine).

**Industry**

Group of energy consumers which use energy for industrial process such as steam boiler, direct heating, lighting, and mechanical equipment, but does not include energy used for electricity generation for such industries: iron and steel, chemical, non-iron metal, non-metal production, food, paper, wood, construction, textile etc.

**Initial Stock**

Total stock at the beginning of the year.

**International Bunker**

Energy consumption for international shipping, supplied to international ships for all ships bearing any flag.

**Kerosene**

A type of oil fuel produced from distillation process which volatility lies between that of mogas and diesel oil, used as fuel for lighting, kitchen stove, and outboard engine.

**Losses in Electricity Generation**

Losses that occur in transformer, transmission and distribution network.

**LPG**

Liquefied Petroleum Gas, light hydrocarbons of crude oil, produced from oil refinery process or purification process of natural gas, consisting of propane ( $C_3H_8$ ) and butane ( $C_4H_{10}$ ) or their mixture.

**LSWR**

Low Sulphur Waxy Residue, a by product of oil refining.

**Mogas**

Motor gasoline, light hydrocarbon oil used in internal combustion engine, except aircraft engine, available in the market as Premium, Premix, Super TT, and BB2L.

**Money Supply (M2)**

Money supply consisting of currency (*kartal*) and demand deposits (*giral*).

## Natural Gas

All kinds of hydrocarbon gas produced from wells; mixture of hydrocarbon gas and vapour occurring naturally, which main components are methane, ethane, propane, butane, pentane, and hexane; mined from underground accumulation either directly or as associated gas in oil mining.

## Natural Gas Liquid

(see Condensate)

## Non-energy Consumption

Consumption of energy for non-energy consumption which includes lubricating oil, petrochemical industry raw material (naphtha, natural gas, and coke), and gas consumed chemical raw material (methanol and ammonia/urea).

## Non-renewable Energy

Energy which reserve cannot be brought back into original condition, generally consists of fossil energy.

## Oil Refinery

Crude oil or condensate processing unit to produce oil fuels such as naphtha, avgas, avtur, ADO, IDO, mogas, kerosene, fuel oil, LPG, etc.

## Other Oil Products (OOP)

Other refinery products such as naphtha, lubricating oil, bitumen, paraffin, etc. (sulphur, grease).

## Own Use and Losses

Category that include energy losses and energy used in primary energy production field and in each transformation.

## Own Use in Electricity Generation

Own use is all energy consumed in power plant and the transmission and distribution sub-station.

## Own Use and Losses in Gas Processing

Losses that occur due to transport, distribution, and transfer by pipe. Own use is all energy consumed in gas processing.

## Own Use and Losses in Oil Refinery

Losses that occur due to transportation, distribution, and transfer by pipe. Own use is all energy consumes in oil refinery processes.

**Own Use and Losses in Production Field**

Losses that occur due to transport, distribution, and transfer by pipe. Own use is all energy consumed in production field.

**PLN Power Plant**

Electric power plant owned by PT PLN (Persero) to produce electricity for sale to the public.

**Primary Energy**

Energy in its original form which is extracted by means of mining, dam, or renewable energy utilization.

**Private Sector Power Plant**

Power plant owned by private sector to produce electricity for sale to the public. Known as Independent Power Producer (IPP).

**Production**

Total gross primary energy extracted/produced.

**Quasy Money**

Time deposit and saving, in Rupiah and foreign exchange, including foreign exchange deposit by residents.

**Renewable Energy**

Energy which reserve can be brought back into original condition.

**SBM**

(see BOE)

**Secondary Energy**

Energy which has undergone transformation process into other form of energy.

**SPBU**

Stasiun Pengisian BBM Umum, public oil fuel refueling station, which sells gasoline (Premium, Premix, and Super TT) and diesel oil (ADO).

**Statistical Difference**

Difference between net supply (production + import – export – international bunker – stock change – consumption for transformation + production from transformation – own use – losses) and total final consumption.

## Stock Change

Difference between the stock in the beginning and the end of the year. Stock decrease in energy balance is shown by positive sign which means there is increase in supply, while stock increase is shown by negative sign which means there is decrease in supply.

## Sub-bituminous coal

A type of coal which has calorific value of 5000–6000 kcal/kg.

## Total Energy Balance

Total of all columns in a certain row. In transformation row, the total of columns indicates efficiency of the transformation process.

## Total Final Energy Consumption

Sum of energy consumption in the following sectors: household, commercial, industry, transportation, and non-energy consumption.

## Total Primary Energy Supply

Local production plus import less export less bunker and less or plus stock change.

## Transportation

Group of energy consumers which use energy for transport vehicles.



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## CONVERSION FACTOR

| Energy              | Original Unit | Multiplier Factor to BOE<br>(Barrel Oil Equivalent) |
|---------------------|---------------|-----------------------------------------------------|
| <b>Coal</b>         |               |                                                     |
| Anthracite          | Ton           | 4.9893                                              |
| Imported Coal       | Ton           | 4.2766                                              |
| Kalimantan Coal     | Ton           | 4.2766                                              |
| Ombilin Coal        | Ton           | 4.8452                                              |
| Tanjung Enim Coal   | Ton           | 3.7778                                              |
| Lignite             | Ton           | 3.0649                                              |
| Riau Peat           | Ton           | 2.5452                                              |
| Briquette           | Ton           | 3.5638                                              |
| <b>Biomass</b>      |               |                                                     |
| Charcoal            | Ton           | 4.9713                                              |
| Firewood            | Ton           | 2.2979                                              |
| <b>Natural Gas</b>  | MSCF          | 0.1796                                              |
| <b>Gas Products</b> |               |                                                     |
| City Gas            | Thousand KKal | 0.0007                                              |
| CNG                 | Thousand KKal | 0.0007                                              |
| LNG                 | Ton           | 8.0532                                              |
| LNG                 | MMBTU         | 0.1796                                              |
| LPG                 | Ton           | 8.5246                                              |
| <b>Oil</b>          |               |                                                     |
| Condensate          | Barrel        | 0.9545                                              |
| Crude Oil           | Barrel        | 1.0000                                              |

## CONVERSION FACTOR (continued)

| Energy                      | Original Unit | Multiplier Factor to BOE<br>(Barrel Oil Equivalent) |
|-----------------------------|---------------|-----------------------------------------------------|
| <b>Oil Fuel</b>             |               |                                                     |
| Aviation Gasoil (Avgas)     | Kilo Liter    | 5.5530                                              |
| Aviation Turbin Gas (Avtur) | Kilo Liter    | 5.8907                                              |
| Super TT                    | Kilo Liter    | 5.8275                                              |
| Premix                      | Kilo Liter    | 5.8275                                              |
| Premium                     | Kilo Liter    | 5.8275                                              |
| Kerosene                    | Kilo Liter    | 5.9274                                              |
| ADO                         | Kilo Liter    | 6.4871                                              |
| IDO                         | Kilo Liter    | 6.6078                                              |
| FO                          | Kilo Liter    | 6.9612                                              |
| <b>Oil Products</b>         |               |                                                     |
| Other Oil Products          | Barrel        | 1.0200                                              |
| <b>Refinery Fuel</b>        |               |                                                     |
| Refinery Fuel Gas (RFG)     | Barrel        | 1.6728                                              |
| Refinery Fuel Oil (RFO)     | Barrel        | 1.1236                                              |
| Feed Stock                  | Barrel        | 1.0423                                              |
| <b>Geothermal</b>           | MWh           | 1.5937                                              |
| <b>Hydro</b>                | MWh           | 2.5208                                              |
| <b>Electric Power</b>       | MWh           | 0.6130                                              |

Source: Neraca Energi 1990-1994, Departemen Pertambangan dan Energi





[www.esdm.go.id](http://www.esdm.go.id)