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Ministry Of Energy and Mineral Resources
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2017

HANDBOOK OF ENERGY & ECONOMIC STATISTICS OF INDONESIA

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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 Technology Information Energy Mineral Resources (CDI-EMR) effort to provide accurate and reliable energy economic data and information consolidated in book. Data and information related to energy economy are dispersed in various sources and locations, and are generally in different formats unready for energy analysis. In addition, they are generally not provided with sufficient explanation or clarification. The standardization 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. His 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 word, 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 standardize Energy and Economy data and information in the future will be continued as part of the updating of 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 utilizing our energy resources wisely for the maximum benefit of all the people of Indonesia.

Jakarta, July 2017
Head of Center for Data and Information
Technology on Energy and Mineral Resources

Introduction

This Handbook of Indonesia's Energy Economy Statistics, 15th edition, contains data on Indonesia's energy and economy from 2007 through 2016. This edition is an update version of the 14th edition with the additions of new sub-chapter of biofuel, covering estimated energy demand for every sector. The structure of the table is arranged as follows:

A. Tables

Show 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 2016

A. SOCIO ECONOMY

Teritorial Area *) :	7,788,810.32	km^2
Land Area *) :	1,910,931.32	km^2
Population :	258,704.99	Thousand People
Household :	66,385.44	Thousand Household

GDP Regional

Total Value :	12,406.81	Trillion Rupiah
Per Capita :	47,957.37	Thousand Rupiah per Year

B. ENERGY PRODUCTION

Primary Energy Production

Crude Oil :	268,877.25	Thousand Barel
Natural Gas :	2,637.05	BSCF
Coal :	456,197.78	Thousand Tonnes
Hydro Power :	60,529,718.49	Million Kcal
Geothermal :	79,716.86	Thousand Tonnes Geothermal Steam

C.	**FINAL ENERGY CONSUMPTION**	**998.06**	**Million BOE**
	Energy Consumption by Type (excluded non energy use)		
	Coal :	63.50	Million BOE
	Fuel :	365.50	Million BOE
	Gas :	72.92	Million BOE
	Electricity :	132.41	Million BOE
	Briquette :	0.11	Million BOE
	LPG :	56.63	Million BOE
	Biomass :	306.99	Million BOE
	Energy Consumption by Sector	**998.06**	
	Industry :	255.81	Million BOE
	Household :	378.05	Million BOE
	Commercial :	41.45	Million BOE
	Transportation :	303.31	Million BOE
	Other Sector :	19.44	Million BOE
	Non Energy :	60.24	Million BOE
D.	**RATIO ELECTRIFICATION**	**91.16**	%

ENERGY ECONOMIC INDICATORS

1

Handbook of Energy & Economic Statistics of Indonesia 2017

1.1 GDP and Energy Indicator

	Unit	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
GDP at Constant Price 2000	Trillion Rupiahs	1,964	2,082	2,179	2,314	2,465	2,618	2,770	8,565	8,983	9,433
GDP Nominal	Trillion Rupiahs	3,951	4,951	6,209	6,447	7,423	8,242	8,078	10,570	11,532	12,407
GDP Nominal per Capita	Thousand Rupiahs	17,290	21,667	26,485	27,128	33,461	33,582	32,464	41,916	45,141	47,957
Population	Thousand	228,507	231,631	234,757	238,519	241,991	245,425	248,818	252,165	255,462	258,705
Number of Households	Thousand	58,571	59,509	60,446	61,384	62,246	63,097	63,938	64,767	65,582	66,385
Primary Energy Supply	Thousand BOE	1,011,367	979,961	1,009,276	1,075,175	1,204,636	1,242,479	1,221,019	1,241,900	1,243,912	1,248,942
Primary Energy Supply per Capita	BOE / capita	4.43	4.23	4.30	4.51	4.98	5.06	4.91	4.92	4.87	4.83
Final Energy Consumption	Thousand BOE	673,329	671,953	688,633	753,744	851,426	929,441	842,387	860,131	833,326	751,314
Final Energy Consumption per Capita	BOE / capita	2.95	2.90	2.93	3.16	3.52	3.79	3.39	3.41	3.26	2.90

	Growth (%)					Growth (%)				
	Unit	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
GDP at Constant Price 2000	Trillion Rupiahs	6.01	4.63	6.22	6.49	6.23	5.81	209.16	4.88	5.02
GDP Nominal	Trillion Rupiahs	25.25	13.29	14.99	15.14	11.03	-1.99	30.85	9.10	7.59
GDP Nominal per Capita	Thousand Rupiahs	23.57	23.97	2.05	23.80	0.36	-3.33	29.12	7.69	6.24
Population	Thousand	1.37	1.35	1.60	1.46	1.42	1.38	1.35	1.31	1.27
Number of Households	Thousand	1.60	1.58	1.55	1.40	1.37	1.33	1.30	1.26	1.22
Primary Energy Supply	Thousand BOE	-3.11	2.99	6.53	12.04	3.14	-1.73	1.71	0.16	0.40
Final Energy Consumption	BOE / capita	-0.20	2.48	9.46	12.96	9.16	-9.37	2.11	-3.12	-9.84
Final Energy Consumption per Capita	Thousand BOE	-1.55	1.12	7.73	11.34	7.64	-10.60	0.75	-4.37	-10.97

Sources : BPS, Statistics Indonesia; Bank Indonesia
Note : Primary Energy Supply and Final Energy Consumption which are calculated is commercial energy (excluded biomass)
Temporary Data for Year 2016

Handbook of Energy & Economic Statistics of Indonesia 2017

1.2 Macro Economic

Year	GDP Constant 2000 Prices *)					GDP Constant 2000 Prices *)			GDP Nominal (Current Prices)	Index GDP Deflator
	GDP	Private Consumption	Government Consumption	Fixed Capital Formation		Stock Change	Export of Goods and Services	Import of Goods and Services		
	Billion Rupiahs	Billion Rupiahs	Billion Rupiahs	Billion Rupiahs		Billion Rupiahs	Billion Rupiahs	Billion Rupiahs	Billion Rupiahs	(2000=100)
2007	1,964,327.3	1,130,847.1	153,309.6	441,361.5		-243.1	942,431.4	757,566.2	3,950,893.2	201.13
2008	2,082,315.9	1,191,190.8	169,297.2	493,716.5		2,170.4	1,032,277.8	833,342.2	4,951,356.7	237.78
2009	2,178,850.3	1,249,070.1	195,834.4	510,085.9		-2,065.2	932,248.6	708,528.8	5,606,203.4	257.30
2010	2,314,458.8	1,308,272.8	196,468.8	553,347.7		-604.4	1,074,568.7	831,418.3	6,446,851.9	278.55
2011	2,464,676.5	1,369,881.1	202,755.8	601,890.6		9,033.5	1,221,229.0	942,297.3	7,422,781.2	301.17
2012	2,618,139.2	1,442,193.2	205,289.7	660,942.3		53,228.4	1,245,781.0	1,004,957.5	8,241,864.3	314.80
2013	2,770,345.1	1,518,393.4	215,393.1	688,559.8		53,767.6	1,311,759.6	1,017,190.8	8,077,565.2	291.57
2014 *)	8,564,866.6	4,651,018.4	736,283.1	2,772,470.8		163,582.6	2,047,887.1	1,987,113.9	10,569,705.3	123.41
2015 *)	8,982,511.3	4,881,903.7	775,427.4	2,911,470.9		112,847.9	2,004,416.4	1,859,711.5	11,531,716.9	128.38
2016 *)	9,433,034.4	5,126,499.3	774,298.5	3,041,825.2		139,588.8	1,969,635.4	1,817,548.8	12,406,809.8	131.53

Source : BPS, Statistics Indonesia
Note : *) Based on GDP Constant 2010 Prices for year 2014 - 2016
Temporary Data for Year 2016

1.3 Finance and Banking

Year	Money Supply (M1)		
	Currency Outside	Demand Deposits	Total
	Billion Rupiah	Billion Rupiah	Billion Rupiah
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
2012	361,967	479,755	841,721
2013	399,609	487,475	887,084
2014	419,262	522,960	942,221
2015	469,534	585,906	1,055,440
2016	508,124	729,519	1,237,643

Source : Bank Indonesia
Note : Temporary Data for Year 2016

1.4 Price Index

Year	Wholesale Price Index *)			Consumer Price Index of 66 Cities *)	Coal Price Index **)	Electricity Price Index **)
	Export	Import	General			
	2000 = 100			2007=100		
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
2012	163.15	189.17	192.69	135.49	877.02	334.01
2013	145.16	134.43	128.76	146.84	932.99	335.11
2014	138.73	137.37	132.44	119.00	738.46	401.18
2015	130.47	134.19	138.26	122.99	1,105.39	402.08
2016	133.31	128.10	149.16	126.71	991.26	420.22

Notes : *) 2009-2012 based on 2005=100; Processed from BPS, Statistics Indonesia; Bank Indonesia
**) Revised data for 2014 and 2015 for Coal Price Index and Electricity Price Index
Temporary Data for Year 2016

1.5 Population and Employment

Year	Population	Labor Force	House-hold	Unem ploy ment	Unemployment Percentage (toward labor force)
	Thousand People	Thousand People	Thousand Household	Thousand People	(%)
2007	228,507	109,941	58,571	10,011	9.1
2008	231,631	111,947	59,509	9,395	8.4
2009	234,757	113,833	60,446	8,963	7.9
2010	238,519	116,528	61,384	8,320	7.1
2011	241,991	117,370	62,630	7,700	6.6
2012	245,425	118,053	63,097	7,245	6.1
2013	248,818	118,193	63,938	7,389	6.3
2014	252,165	121,873	64,767	7,245	5.9
2015	255,462	114,819	65,582	7,561	6.6
2016	258,705	118,412	66,385	7,032	5.9

Source : BPS, Statistics Indonesia
Note : Temporary Data for Year 2016

1.6 International Trade

Year	Based on Major Portion		Trade Index 2000=100		Balance Payment			Ex-change Rate Rupiah to US $	US $ Defla-tor *)
	Export	Import	Export	Import	Cur-rent Trans-action	Capital Trans-action	Total		
	Million US$				Million US$				
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	9,400	1.0962
2010	158,074	127,447	254	380	5,144	26,620	31,765	8,991	1.1066
2011	200,788	190,948	323	570	1,685	13,636	15,321	9,068	1.0331
2012	207,073	207,621	333	619	-24,418	-24,368	491	9,670	1.0517
2013	197,060	200,548	317	598	-29,115	22,010	-7,105	12,189	1.0673
2014	191,438	192,403	308	574	-27,510	44,943	17,433	12,440	1.0869
2015	163,633	142,585	263	425	-17,519	16,860	-659	13,795	1.0975
2016	155,065	142,428	250	425	-16,909	28,369	11,460	13,436	1.1144

Source : BPS, Statistics Indonesia
Note : *) Derived from World Economic Outlook Database,October 2016, IMF
**) Revised Data 2014 - 2015 for Balance Payment
Temporary Data for Year 2016

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1.7 Supply of Primary Energy

1.7.1 By Type

(%)

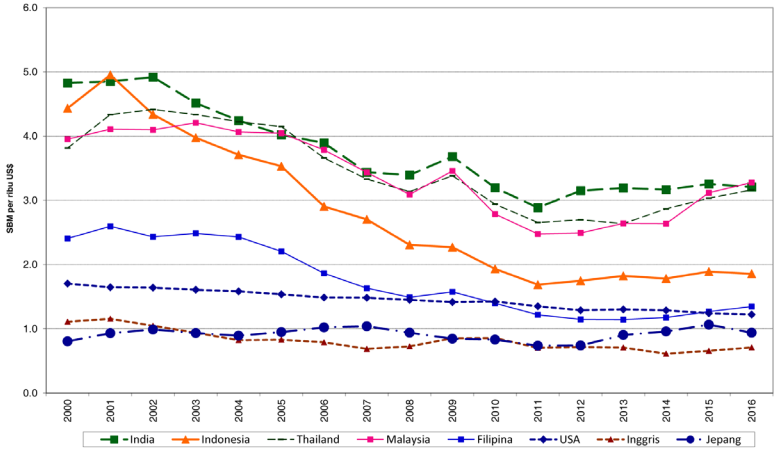
Type of Energy	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Oil	37.62	37.74	36.94	34.02	37.62	38.45	38.89	38.37	35.25	35.19
Coal	19.99	17.78	18.24	20.59	22.22	22.35	19.82	20.61	23.47	23.43
Gas	17.60	18.68	19.37	19.70	17.41	16.81	17.69	17.48	18.00	17.97
Hydropower	2.21	2.32	2.17	3.03	1.86	1.89	2.52	2.45	2.27	2.27
Geothermal	0.88	1.06	1.16	1.11	1.01	0.98	1.00	1.04	1.05	1.05
Biomass	21.68	22.42	22.12	21.55	19.88	19.49	20.04	19.96	19.93	20.06
Biofuel	0.00	0.00	0.00	0.01	0.01	0.02	0.04	0.08	0.04	0.04

1.7.2 By Type (excluded Biomass)

Type of Energy	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Oil	48.03	48.63	47.35	43.24	46.77	47.43	48.13	47.06	43.58	39.93
Coal	25.53	22.92	23.43	26.24	27.74	27.77	24.79	25.76	29.31	30.45
Gas	22.48	24.08	24.87	25.11	21.73	20.88	22.12	21.85	22.48	23.10
Hydropower	2.83	2.99	2.79	3.86	2.32	2.35	3.15	3.06	2.83	3.55
Geothermal	1.13	1.37	1.48	1.42	1.26	1.22	1.25	1.30	1.31	1.40
Biofuel	0.00	0.01	0.08	0.13	0.19	0.35	0.56	0.96	0.48	1.56

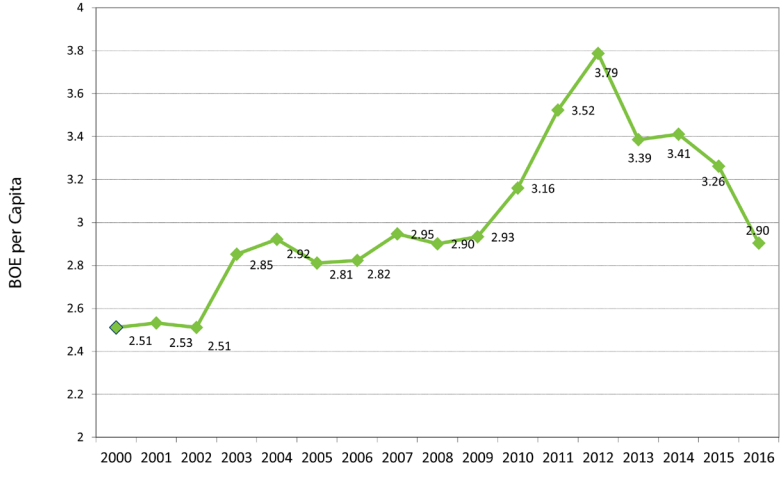
Note : Oil including crude oil, petroleum product and LPG
Coal including coal and briquette
Gas including natural gas and LNG
Biomass including firewood and charcoal
Biofuel : liquid biofuel (biodiesel)
Temporary Data for Year 2016

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 2017 and World Economic Outlook Database October 2016, IMF
Note : Temporary Data for Year 2016

1.9 Intensity of Final Energy Consumption per Capita



Note : Temporary Data for Year 2016

ENERGY BALANCED TABLE

2

Handbook of Energy & Economic Statistics of Indonesia 2017

Indonesia Energy Balance Table 2016

(Thousand BOE)

		Hydro Power	Geother-mal	Biomass	Coal	Bri-quette	Natural Gas	Crude Oil	Fuel	ADO	Biosolar	Biofuel	Biodiesel	LPG	Other Petroleum Product	Elec-tricity	LNG *)	Total
1	**Primary Energy Supply**	**44,368**	**17,538**	**307,347**	**380,310**	**0**	**422,833**	**330,388**	**130,758**	**55,825**	**0**	**19,516**	**19,516**	**37,517**	**-32,729**	**425**	**-134,286**	**1,523,985**
	a. Production	44,368	17,538	307,347	1,916,031	0	473,613	268,877	0	0	0	23,719	23,719	0	0	0	0	3,051,493
	b. Import	0	0		16,376	0	0	148,361	136,320	37,026	0	0	0	38,156	214	425	0	339,852
	c. Export	0	0		-1,390,739	0	-50,780	-125,516	-2,413	-1	0	-3,094	-3,094	-5	-32,943	0	-134,286	-1,739,777
	d. Stock Change	0	0		-161,357	0	0	38,665	-3,149	18,800	0	-1,109	-1,109	-633	0	0	0	-127,583
2	**Energy Transformation**	**-44,368**	**-17,538**	**-358**	**-316,806**	**107**	**-308,489**	**-323,910**	**235,416**	**37,170**	**75,494**	**-19,516**	**-19,516**	**19,108**	**64,504**	**151,974**	**191,215**	**-368,661**
	a. Refinery	0	0	0	0	0	-9,441	-323,910	257,063	127,712	0	0	0	7,087	64,504	0	0	-4,697
	b. Gas Processing	0	0	0	0	0	-195,663	0	0	0	0	0	0	12,021	0	0	191,215	7,573
	c. Coal Processing Plant	0	0	0	-126	107	0	0	0	0	0	0	0	0	0	0	0	-19
	d. Biofuel Blending								19,516	-66,397	85,914	-19,516	-19,516					0
	e. Power Plant	-44,368	-17,538	-358	-316,680	0	-103,384	0	-41,163	-24,145	-10,420	0	0	0	0	151,974	0	-371,518
	- State Own Utility (PLN)	-34,962	-928	0	-212,337	0	-90,720	0	-41,144	-24,126	-10,420	0	0	0	0	112,675	0	-267,417
	- Independent Power Producer (Non-PLN)	-9,406	-16,610	-358	-104,343	0	-12,664	0	-19	-19	0	0	0	0	0	39,299	0	-104,101
3	**Own Use and Losses**	**0**	**0**	**0**	**0**	**0**	**-45,823**	**-6,478**	**-676**	**-186**	**-151**	**0**	**0**	**0**	**0**	**-19,873**	**-56,928**	**-129,779**
	a. During Transformastion	0	0	0	0	0	-9,441	-6,478	0	0	0	0	0	0	0	-5,954	0	-21,874
	b. Energy Use/ Own Use	0	0	0	0	0	-36,382	0	0	0	0	0	0	0	0	0	0	-36,382
	c. Transmission & Distribution	0	0	0	0	0	0	0	-676	-186	-151	0	0	0	0	-13,919	-56,928	-71,523
4	**Final Energy Supply**	**0**	**0**	**306,989**	**63,504**	**107**	**68,521**	**0**	**365,499**	**92,809**	**75,343**	**0**	**0**	**56,626**	**31,775**	**132,525**	**0**	**1,025,545**
5	**Statistic Discrepancy**	**0**	**0**	**0**	**0**	**0**	**-32,872**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**114**	**0**	**-32,758**
6	**Final Energy Consumption**	**0**	**0**	**306,989**	**63,504**	**107**	**101,393**	**0**	**365,499**	**92,809**	**75,343**	**0**	**0**	**56,626**	**31,775**	**132,411**	**0**	**1,058,303**
	a. Industry	0	0	42,434	63,504	107	71,270	0	35,905	28,246	0	0	0	821	0	41,773	0	255,814
	b. Transportation	0	0	0	0	0	246	0	302,925	46,167	75,343	0	0	0	0	137	0	303,307
	c. Household	0	0	263,215	0	0	137	0	2,995	0	0	0	0	54,302	0	57,398	0	378,046
	d. Commercial	0	0	1,340	0	0	1,272	0	4,234	4,067	0	0	0	1,504	0	33,103	0	41,452
	e. Other Sector	0	0	0	0	0	0	0	19,440	14,330	0	0	0	0	0	0	0	19,440
7	**Non Energy Use**	**0**	**0**	**0**	**0**	**0**	**28,469**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**31,775**	**0**	**0**	**60,244**

Note : Biofuel consists of biodiesel while biosolar is assumed in the fuel category
Temporary Data for Year 2016

ENERGY SUPPLY AND DEMAND

3

Handbook of Energy & Economic Statistics of Indonesia 2017

3.1 Primary Energy Supply by Sources

(BOE)

Year	Coal	Crude Oil & Product	Natural Gas & Product	Hydro Power		Geothermal	Biomass	Biofuel	Total
2007	258,190,629	485,333,870	227,332,179	28,598,912		11,421,759	280,028,162	36,043	1,291,395,660
2008	224,587,657	476,183,140	236,001,544	29,292,012		13,423,610	283,122,524	60,407	1,263,083,110
2009	236,439,000	477,929,923	251,035,250	28,126,827		14,973,198	286,683,338	771,965	1,295,959,499
2010	282,156,213	464,852,996	269,942,185	41,510,591		15,266,074	295,327,081	1,446,623	1,370,501,763
2011	334,142,760	563,378,573	261,708,332	27,957,823		15,119,152	298,938,613	2,328,869	1,503,574,122
2012	345,000,022	589,342,626	259,456,414	29,211,020		15,129,340	300,838,657	4,339,870	1,543,317,948
2013	302,694,000	587,652,963	270,134,751	38,494,094		15,245,038	306,174,977	6,798,481	1,527,194,304
2014	319,956,003	584,459,891	271,375,371	37,950,252		16,191,566	310,161,848	11,966,513	1,552,061,445
2015	364,619,216	542,127,623	279,632,345	35,256,332		16,337,878	309,732,338	5,938,668	1,553,644,399
2016	380,310,000	498,663,509	288,546,633	44,368,284		17,537,710	307,346,838	19,516,272	1,556,289,245

Note : Changes in biofuel assumptions as biodiesel (pure)
Temporary Data for Year 2016

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3.2 Final Energy Cosumption by Sector

3.2.1 Energy Consumption (included Biomass)

(BOE)

Sector	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Industrial	338,665,258	320,302,447	304,791,448	349,040,463	373,947,840	368,119,080	282,175,204	289,801,993	309,184,958	255,814,009
Households	321,992,728	321,936,055	321,569,203	332,203,762	339,153,428	349,084,289	360,016,142	369,893,470	373,786,746	378,046,006
Commercial	27,235,095	28,218,800	29,558,720	30,935,244	34,131,850	37,135,487	39,236,140	40,249,580	42,446,465	41,452,239
Transportation	174,679,830	185,668,882	209,968,398	230,345,870	277,512,762	329,520,051	341,409,711	342,781,960	307,077,749	303,307,071
Other	25,287,155	25,068,604	25,293,606	22,340,493	27,220,338	33,709,215	31,105,254	28,694,657	32,836,385	19,440,220
Non Energy Utilization	65,474,891	73,847,398	84,096,759	84,146,777	98,284,711	112,565,953	94,531,056	98,745,743	77,443,048	60,243,573
Final Energy Consumption	953,334,957	955,042,187	975,278,134	1,049,012,609	1,150,250,929	1,230,134,074	1,148,473,507	1,170,167,403	1,142,775,350	1,058,303,118

3.2.2 Commercial Energy Consumption (Excluded Biomass)

(BOE)

Sector	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Industrial	294,618,281	276,067,010	260,270,375	305,723,179	330,224,113	325,387,327	237,776,412	244,614,357	264,356,519	213,379,781
Households	87,435,279	84,477,281	80,832,849	81,632,635	85,426,266	92,489,973	99,687,947	106,398,267	110,511,916	114,831,150
Commercial	25,833,569	26,824,281	28,171,174	29,554,636	32,758,145	35,768,650	37,876,138	38,896,378	41,100,028	40,112,534
Transportation	174,679,830	185,668,882	209,968,398	230,345,870	277,512,762	329,520,051	341,409,711	342,781,960	307,077,749	303,307,071
Other	25,287,155	25,068,604	25,293,606	22,340,493	27,220,338	33,709,215	31,105,254	28,694,657	32,836,385	19,440,220
Non Energy Utilization	65,474,891	73,847,398	84,096,759	84,146,777	98,284,711	112,565,953	94,531,056	98,745,743	77,443,048	60,243,573
Final Energy Consumption	673,329,005	671,953,458	688,633,161	753,743,589	851,426,336	929,441,169	842,386,518	860,131,361	833,325,645	751,314,329

Note : Temporary Data for Year 2016

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3.3 Final Energy Consumption by Type

(Thousand BOE)

Year	Biomass	Coal	Natural Gas	Fuel		Other Petroleum Product	Briquette	LPG	Electricity	Total
2007	280,006	121,904	105,774	315,840		40,589	105	10,803	74,324	953,335
2008	283,089	94,035	112,614	311,938		52,073	155	15,658	79,089	955,042
2009	286,645	82,587	118,587	309,000		55,663	220	24,384	82,499	975,278
2010	295,269	137,489	115,404	294,249		55,765	123	32,067	90,707	1,049,013
2011	298,825	144,502	121,234	334,727		69,978	121	37,060	99,147	1,151,400
2012	300,693	123,022	125,074	389,030		83,418	130	42,883	106,656	1,230,134
2013	306,087	42,729	125,529	378,049		66,161	130	47,801	114,962	1,148,474
2014	310,036	55,064	124,467	363,713		70,277	58	51,942	121,743	1,170,167
2015	309,450	70,228	123,876	393,214		47,514	50	54,361	124,344	1,142,775
2016	306,989	63,504	101,393	290,155		31,775	107	56,626	132,411	1,002,697

Note : Temporary Data for Year 2016

3.4 Share of Final Energy Consumption by sector

(%)

Year	Industry	Household	Commercial	Transportation	Other
2007	48.47	14.38	4.25	28.74	4.16
2008	46.16	14.12	4.48	31.04	4.19
2009	43.05	13.37	4.66	34.73	4.18
2010	45.66	12.19	4.41	34.40	3.34
2011	43.78	11.33	4.50	36.79	3.61
2012	39.83	11.32	4.38	40.34	4.13
2013	31.79	13.33	5.06	45.65	4.16
2014	32.13	13.97	5.11	45.02	3.77
2015	34.97	14.62	5.44	40.63	4.34
2016	30.88	16.62	5.80	43.89	2.81

Note : Commercial Energy (excluded biomass)
Temporary Data for Year 2016

3.5 Share of Final Energy Consumption by Type

(%)

Year	Coal	Natural Gas	Fuel	Biofuel	LPG	Electricity
2007	19.3	16.7	49.9	0.63	1.7	11.7
2008	15.2	18.2	50.3	1.03	2.5	12.8
2009	13.1	18.7	48.8	2.48	3.9	13.0
2010	19.7	16.5	42.2	4.00	4.6	13.0
2011	18.5	15.5	42.8	5.85	4.7	12.7
2012	14.6	14.8	46.0	7.00	5.1	12.6
2013	5.5	16.2	48.7	8.63	6.2	14.8
2014	7.0	15.8	46.0	9.23	6.6	15.4
2015	8.9	15.8	50.0	2.51	6.9	15.8
2016	9.6	15.3	43.7	2.97	8.5	19.9

Note : Temporary Data for Year 2016

ENERGY PRICES

4

4.1 Crude Oil Price

(US$ per Barel)

Sector	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
SLC	28.53	23.99	25.11	29.04	36.30	53.92	64.24	72.94	99.90	64.14
Arjuna	28.65	24.29	24.35	28.81	36.90	55.07	65.52	72.38	97.61	61.18
Arun Condensate	28.92	24.40	24.65	29.16	37.40	54.62	64.85	72.94	94.27	60.33
Attaka	29.09	24.75	24.89	29.41	37.60	57.51	67.59	75.69	101.03	62.74
Cinta	27.83	23.15	24.08	28.09	35.00	51.81	61.77	70.33	94.58	59.74
Duri	27.09	22.02	23.30	27.11	30.40	46.62	54.93	59.89	84.57	55.12
Handil Mix	n/a	24.42	24.48	28.96	37.10	55.23	65.67	72.53	97.77	61.33
Lalang	n/a	24.04	25.16	29.09	36.40	53.13	64.29	72.99	99.95	64.19
Widuri	27.87	23.10	24.08	28.05	35.00	51.19	61.94	70.41	94.98	59.72
Belida	29.07	24.74	24.74	29.19	37.30	56.54	67.56	75.71	101.05	62.30
Senipah Condensate	29.05	24.40	24.65	29.17	39.95	54.62	65.57	73.03	94.27	60.33
Average	28.39	21.94	22.46	26.34	36.39	53.66	64.27	72.31	96.13	61.58

4.1 Crude Oil Price (continued)

(US$ per Barel)

Sector	2010	2011	2012	2013	2014	2015	2016
SLC	81.44	113.63	115.59	108.15	98.63	49.39	40.98
Arjuna	78.91	112.47	111.75	104.23	94.82	48.54	39.35
Arun Condensate	80.75	114.38	114.47	107.57	97.96	51.20	41.82
Attaka	77.02	110.50	114.07	106.51	96.83	48.22	40.00
Cinta	75.07	107.57	112.31	104.44	94.67	47.60	37.63
Duri	77.12	110.55	114.16	106.05	97.03	48.44	40.13
Handil Mix	80.28	114.14	115.19	109.69	99.63	52.62	43.15
Lalang	78.76	109.02	108.97	106.48	98.25	52.92	43.44
Widuri	81.15	114.78	114.87	107.97	98.36	51.60	42.22
Belida	78.76	109.02	108.97	106.48	98.25	52.92	43.44
Senipah Condensate	80.75	114.38	114.47	107.57	97.96	51.20	41.82
Average	79.40	111.55	112.73	105.85	96.51	49.21	40.13

Source : Oil and Gas Statistics, Directorate General of Oil and Gas
Note : Temporary Data for Year 2016

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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)
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
2012	16.75	11.03	9.46	2.76	2.27
2013	16.17	10.72	10.63	3.71	2.93
2014	16.33	9.11	8.22	4.35	3.87
2015	10.31	6.61	6.53	2.60	2.01
2016	6.94	4.93	4.69	2.46	1.55

Source : BP Statistical Review of World Energy, 2017
Note : Temporary Data for Year 2016

4.3 Average Price of LPG, LNG and Coal FOB Export

Year	LPG	LNG	Coal *)
	US $ / Thousand Tons	US $ / MMBTU	US$ / Ton
2007	785.94	11.97	40,99
2008	785.94	11.97	54.76
2009	545.49	6.95	63.85
2010	0.00	7.79	72.35
2011	0.00	11.80	95.91
2012	0.00	9.86	88.36
2013	0.00	10.07	75.42
2014	0.00	7.41	54.55
2015	0.00	0.00	43.58
2016	0.00	4.34	57.14

Source : Directorate General of Oil and Gas, Bank Indonesia and Ministry of Trade
Note : *) Revised Data for 2013-2016
Temporary Data for Year 2016

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4.4 Energy Price per Energy Unit *)

Year	Gasoline (Premium)		Avtur		Avgas		Kerosene			ADO		IDO		Fuel Oil		LPG (3 Kg)	
	Rp/ BOE	US$/ BOE	Rp/ BOE	US$/ BOE	Rp/ BOE	US$/ BOE	Rp/ BOE	US$/ BOE		Rp/ BOE	US$/ BOE	Rp/ BOE	US$/ BOE	Rp/ BOE	US$/ BOE	Rp/ BOE	US$/ BOE
2007	772,201	81.98	1,048,206	111.29	2,849,871	302.57	337,416	35.82		662,854	70.37	887,504	94.22	577,206	61.28	498.6	0.053
2008	911,626	83.25	1,561,727	142.62	4,246,083	387.77	386,623	35.31		766,264	69.98	1,311,550	119.78	853,622	77.96	498.6	0.046
2009	858,001	82.85	949,203	91.66	3,277,120	316.44	421,770	40.73		739,930	71.45	n.a.	n.a.	n.a.	n.a.	498.6	0.048
2010	772,201	85.06	1,123,989	123.81	4,092,892	450.86	421,770	46.46		693,684	76.41	n.a.	n.a.	n.a.	n.a.	498.6	0.055
2011	772,201	85.16	1,455,486	160.51	3,540,632	390.45	421,770	46.51		693,684	76.50	n.a.	n.a.	n.a.	n.a.	498.6	0.055
2012	772,201	63.35	1,591,196	130.54	4,003,697	328.47	421,770	34.60		693,684	56.91	n.a.	n.a.	n.a.	n.a.	498.6	0.041
2013	943,801	77.43	1,693,547	138.94	4,339,184	355.99	421,770	34.60		770,760	63.23	n.a.	n.a.	n.a.	n.a.	498.6	0.041
2014	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.		n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2015	1,248,391	90.50	1,561,784	113.21	n.a.	n.a.	n.a.	n.a.		1,338,503	97.03	n.a.	n.a.	n.a.	n.a.	0.00	n.a.
2016	1,106,821	82.38	1,575,365	117.25	n.a.	n.a.	n.a.	n.a.		1,256,340	93.51	n.a.	n.a.	n.a.	n.a.	498.6	0.037

Note : *) Based on Current Price
**) Average of refinery product for 2009 extremely decrease because of IDO and fuel oil's non-subsidized price data not longer available
Temporary Data for Year 2016

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4.4 Energy Price per Energy Unit (continued)

Year	LPG (12 Kg)		LPG (50 Kg)		Average of Refinery Product **		Coal		Electricity (Average)					
									Household		Industry		Commercial	
	Rp/ BOE	US$/ BOE	Rp/ BOE	US$/ BOE	Rp/ BOE	US$/ BOE	Rp/ BOE	US$/ BOE	Rp/ BOE	US$/ BOE	Rp/ BOE	US$/ BOE	Rp/ BOE	US$/ BOE
2007	498.6	0.053	845.1	0.090	891,970	94.70	79,212	8.41	932,724	99.03	1,013,573	107.61	1,260,212	133.79
2008	662.9	0.061	859.7	0.079	1,254,770	114.59	53,956	5.81	909,886	97.94	912,153	98.19	1,113,083	119.82
2009	686.2	0.066	859.7	0.083	780,815	75.40	114,397	10.45	959,231	87.60	1,014,741	92.67	1,387,403	126.70
2010	686.2	0.076	1,315.8	0.145	888,129	97.83	153,559	17.08	1,004,763	111.75	1,078,287	119.93	1,524,176	169.52
2011	686.2	0.076	862.8	0.095	860,534	94.90	163,359	18.01	1,008,075	111.17	1,134,519	125.11	1,551,468	171.09
2012	686.2	0.056	1,315.8	0.108	935,381	76.74	174,489	18.04	1,030,440	106.56	1,158,091	119.76	1,574,551	162.83
2013	747.2	0.061	1,568.8	0.129	1,021,195	83.78	219,464	18.01	1,128,972	92.62	1,299,103	106.58	1,821,501	162.83
2014	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	234,883	18.88	1,236,803	99.42	1,595,057	128.22	2,065,041	166.00
2015	n.a.	n.a.	n.a.	n.a.	518,585	37.59	154,903	11.23	1,365,432	98.98	1,864,144	135.13	2,094,894	151.86
2016	1,261.1	0.094	n.a.	n.a.	545,099	40.57	142,924	10.64	1,376,378	102.44	1,715,856	127.71	1,959,478	145.84

Note : *) Based on Current Price
**) Average of refinery product for 2009 extremely decrease because of IDO and fuel oil's non-subsidized price data not longer available
Temporary Data for Year 2016

4.5 Average Price of Coal Import

Year	Import Value (CIF)	Import Volume	Import Price (CIF)
	US $	Ton	US $/Ton
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
2012	22,937,715	77,786	294,88
2013	82,501,170	609,875	135.28
2014	358,888,547	2,442,319	146.95
2015	325,116,779	3,007,934	108.09
2016	405,984,765	3,898,932	104.13

Source : Ministry of Trade
Note : Temporary Data for Year 2016

ENERGY DEMAND BY SECTORS

5

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5.1.1 Energy Consumption in Industrial Sector

(in Original Unit)

Year	Biomass	Coal	Briquette	Gas	Fuel			Fuel			Other Petro-leum Product	LPG	Electricity
					Kerosene	ADO		IDO	Fuel Oil	Total Fuel			
	Thousand Ton			MMSCF	Kilo Liter			Kilo Liter				Thousand Ton	GWh
2007	19,168	29,025	30	586,409	565,550	4,587,719		201,027	4,054,719	9,409,015	6,327,133	168	45,803
2008	19,250	22,389	43	623,616	451,457	4,639,187		130,909	3,947,933	9,169,487	8,117,302	132	47,969
2009	19,375	19,664	62	654,428	273,095	4,969,575		106,861	3,575,286	8,924,817	8,676,804	69	46,204
2010	18,851	32,736	35	635,361	162,577	4,323,835		92,656	2,994,912	7,573,980	8,692,820	77	50,985
2011	19,028	34,405	34	666,195	113,409	5,686,105		107,511	3,134,555	9,041,580	10,908,408	73	54,725
2012	18,596	29,291	36	685,751	78,987	7,632,801		76,676	2,905,168	10,693,632	13,003,448	73	60,176
2013	19,321	10,174	36	689,312	72,018	7,217,679		66,244	1,672,420	9,028,360	10,313,407	81	64,381
2014	19,665	13,110	16	683,177	55,503	6,525,236		50,953	1,596,283	8,227,975	10,954,972	88	65,909
2015	19,508	16,721	14	679,728	43,950	7,952,501		44,423	1,395,820	9,436,694	7,406,630	92	64,079
2016	18,467	15,120	30	555,338	33,720	4,354,132		31,575	1,041,610	5,461,038	10,954,972	96	68,145

Notes : Temporary Data for Year 2016

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5.1.2 Energy Consumption in Industrial Sector

(in Energy Unit)

(Thousand BOE)

Year	Biomass	Coal	Briquette	Gas	Fuel					Other Petroleum Product	LPG	Electricity	Total
					Kerosene	ADO		IDO	Fuel Oil	Total Fuel				
2007	44,047	121,904	105	105,319	3,352	29,761		1,328	28,226	62,667	40,589	1,431	28,077	404,140
2008	44,235	94,035	155	112,001	2,676	30,095		865	27,482	61,118	52,073	1,127	29,405	394,150
2009	44,521	82,587	220	117,535	1,619	32,238		706	24,888	59,451	55,663	588	28,323	388,888
2010	43,317	137,489	123	114,111	964	28,049		612	20,848	50,473	55,765	655	31,254	433,187
2011	43,724	144,502	121	119,649	672	36,886		710	21,820	60,089	69,978	623	33,547	472,233
2012	42,732	123,022	130	123,161	468	49,515		507	20,223	70,713	83,418	621	36,888	480,685
2013	44,399	42,729	130	123,800	427	46,822		438	11,642	59,328	66,161	693	39,466	376,706
2014	45,188	55,064	58	122,699	329	42,330		337	11,112	54,108	70,277	753	40,402	388,548
2015	44,828	70,228	50	122,079	261	51,589		294	9,717	61,859	47,514	788	39,281	386,628
2016	42,434	63,504	107	99,739	200	28,246		209	7,251	35,905	70,277	821	41,773	354,560

Notes : Temporary Data for Year 2016

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5.1.3 Share of Energy Consumption in Industrial Sector

(%)

Year	Coal	Briquette	Gas	Fuel			Fuel		Other Petroleum Product	LPG	Electricity
				Kerosene	ADO		IDO	Fuel Oil			
2007	33.85	0.03	29.25	0.93	8.26		0.37	7.84	11.27	0.40	7.80
2008	26.87	0.04	32.01	0.76	8.60		0.25	7.85	14.88	0.32	8.40
2009	23.98	0.06	34.13	0.47	9.36		0.21	7.23	16.16	0.17	8.22
2010	35.27	0.03	29.27	0.25	7.19		0.16	5.35	14.30	0.17	8.02
2011	33.72	0.03	27.92	0.16	8.61		0.17	5.09	16.33	0.15	7.83
2012	28.09	0.03	28.12	0.11	11.31		0.12	4.62	19.05	0.14	8.42
2013	12.86	0.04	37.25	0.13	14.09		0.13	3.50	19.91	0.21	11.88
2014	16.04	0.02	35.73	0.10	12.33		0.10	3.24	20.47	0.22	11.77
2015	20.55	0.01	35.72	0.08	15.09		0.09	2.84	13.90	0.23	11.49
2016	20.35	0.03	31.95	0.06	9.05		0.07	2.32	22.52	0.26	13.38

Note : Temporary Data for Year 2016

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
2007	102,075	737	8,474,054	946	47,325
2008	103,337	729	6,764,523	1,582	50,184
2009	104,764	722	4,091,982	2,671	54,945
2010	109,044	751	2,436,009	3,564	59,825
2011	110,417	635	1,699,298	4,144	65,112
2012	111,665	748	1,183,526	4,824	72,133
2013	113,290	681	1,079,100	5,377	77,211
2014	114,668	636	831,641	5,843	84,086
2015	114,572	648	658,537	6,115	88,682
2016	114,546	761	505,259	6,370	93,635

Note : Temporary Data for Year 2016

5.2.2 Energy Consumption in Household Sector

(in Energy Unit)

(Thousand BOE)

Year	Biomass	Gas	Kerosene	LPG	Electricity	Total
2007	234,557	132	50,229	8,064	29,010	321,993
2008	237,459	131	40,096	13,487	30,763	321,936
2009	240,736	130	24,255	22,767	33,682	321,569
2010	250,571	135	14,439	30,386	36,673	332,204
2011	253,727	114	10,072	35,326	39,914	339,153
2012	256,594	134	7,015	41,123	44,217	349,084
2013	260,328	122	6,396	45,839	47,330	360,016
2014	263,495	114	4,929	49,810	51,545	369,893
2015	263,275	116	3,903	52,130	54,362	373,787
2016	263,215	137	2,995	54,302	57,398	378,046

Note : Temporary Data for Year 2016

5.2.3 Share of Energy Consumption in Household Sector

(%)

Year	Gas	Kerosene	LPG	Electricity
2007	0.15	57.45	9.22	33.18
2008	0.15	47.46	15.97	36.42
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
2012	0.15	7.58	44.46	47.81
2013	0.12	6.42	45.98	47.48
2014	0.11	4.63	46.81	48.45
2015	0.11	3.53	47.17	49.19
2016	0.12	2.61	47.29	49.98

Note : Temporary Data for Year 2016

5.3.1 Energy Consumption in Commercial Sector

(in Original Unit)

Year	Biomass	Gas	Fuel				LPG	Electricity
			Kerosene	ADO	IDO	Total		
	Thousand Ton	MMSCF	Kilo Liter				Thousand Ton	GWh
2007	610	1,526	467,933	660,594	1,079	1,129,606	153	28,034
2008	607	1,989	373,533	668,005	702	1,042,241	122	30,785
2009	604	4,067	225,957	715,578	573	942,109	121	33,322
2010	601	5,364	134,515	622,597	497	757,609	120	37,073
2011	598	7,185	93,834	818,752	577	913,164	130	41,816
2012	595	9,050	65,354	1,099,061	411	1,164,826	134	41,574
2013	592	7,915	59,587	1,039,286	355	1,099,229	149	45,820
2014	589	8,057	45,923	939,580	273	985,777	162	48,452
2015	586	7,990	36,364	1,145,095	238	1,181,697	169	49,879
2016	583	7,084	27,900	626,959	169	655,029	176	54,002

Note : Temporary Data for Year 2016

5.3.2 Energy Consumption in commercial Sector

(in Energy Unit)

(Thousand BOE)

Year	Bio-mass	Gas	Fuel				LPG	Electri-city	Total
			Kero-sene	ADO	IDO	Total Fuel			
2007	1,402	274	2,774	4,285	7	7,066	1,308	17,185	27,235
2008	1,395	357	2,214	4,333	5	6,552	1,044	18,871	28,219
2009	1,388	730	1,339	4,642	4	5,985	1,029	20,426	29,559
2010	1,381	963	797	4,039	3	4,839	1,026	22,726	30,935
2011	1,374	1,290	556	5,311	4	5,871	1,112	25,633	35,281
2012	1,367	1,625	387	7,130	3	7,520	1,139	25,485	37,135
2013	1,360	1,422	353	6,742	2	7,098	1,269	28,088	39,236
2014	1,353	1,447	272	6,095	2	6,369	1,379	29,701	40,250
2015	1,346	1,435	216	7,428	2	7,645	1,444	30,576	42,446
2016	1,340	1,272	165	4,067	1	4,234	1,504	33,103	41,452

Note : Temporary Data for Year 2016

5.3.3 Share of Energy Consumption in Commercial Sector

(%)

Year	Gas	Fuel			LPG	Electricity
		Kerosene	ADO	IDO		
2007	1.06	10.74	16.59	0.03	5.06	66.52
2008	1.33	8.25	16.15	0.02	3.89	70.35
2009	2.59	4.75	16.48	0.01	3.65	72.51
2010	3.26	2.70	13.67	0.01	3.47	76.89
2011	3.81	1.64	15.66	0.01	3.28	75.60
2012	4.54	1.08	19.93	0.01	3.18	71.25
2013	3.75	0.93	17.80	0.01	3.35	74.16
2014	3.72	0.70	15.67	0.00	3.55	76.36
2015	3.49	0.52	18.07	0.00	3.51	74.39
2016	3.17	0.41	10.14	0.00	3.75	82.53

Note : Temporary Data for Year 2016

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5.4.1 Energy Consumption in Transportation Sector

(in Original Unit)

Year	Gas	Fuel																		Electricity
		Avgas	Avtur	RON 88	RON 92	RON 95	RON 90	Dex		Solar 53	Kero-sene	ADO	IDO	Fuel Oil	Bio Premi-um	Bio Perta-max	Bio Perta-max Plus	Bio Solar	Total Fuel	
	MMSCF	Kilo Liter								Kilo Liter										GWh
2007	273	2,221	2,520,040	17,637,736	472,284	158,070	0	1,288		0	3,741	7,498,467	8,021	78,864	55,970	9,956	0.000	555,609	29,002,268	85
2008	691	2,003	2,635,670	19,112,241	297,982	114,789	0	1,289		0	2,986	7,582,589	5,223	76,787	44,016	16,234	0.000	931,179	30,822,987	81
2009	1,066	1,687	2,760,678	20,802,405	460,148	104,388	0	1,955		0	1,807	8,122,597	4,264	69,539	105,816	20,232	0.000	2,306,017	34,761,532	111
2010	1,088	2,231	3,527,382	22,391,362	670,364	113,812	0	4,434		0	1,075	7,067,157	3,697	58,251	0	0	0.000	4,306,887	38,146,652	89
2011	1,006	2,316	3,562,126	24,766,975	625,162	294,639	0	6,392		0	750	9,293,739	4,290	60,967	0	0	0.000	7,060,848	45,678,205	88
2012	856	2,606	3,898,832	27,612,171	666,461	149,424	0	12,297		0	522	12,475,546	3,059	56,505	0	0	0.000	9,130,039	54,007,463	108
2013	1,031	2,868	4,159,010	28,622,924	850,408	158,714	0	23,053		0	476	11,797,043	2,643	32,528	0	0	0.000	10,332,005	55,981,673	129
2014	1,152	1,499	4,229,094	28,822,039	1,062,920	154,888	0	33,305		0	367	10,665,269	2,033	31,048	0	0	0.000	11,232,729	56,235,192	155
2015	1,368	3,070	4,336,624	27,269,723	2,761,956	278,758	379,959	38,552		0	291	12,998,085	1,772	27,149	0	0	0.000	3,042,511	51,138,449	205
2016	1,368	2,967	4,665,191	21,105,505	4,789,597	290,954	5,805,578	105,889		74,034	223	7,116,676	1,260	20,259	0	0	0.000	11,614,329	55,592,462	223

Note : Temporary Data for Year 2016

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5.4.2 Energy Consumption in Transportation Sector

(in Energy Unit)

(Thousand BOE)

Year	Gas	Fuel																	Elec-tricity	Total
		Avgas	Avtur	RON 88	RON 92	RON 95	RON 90	Solar 51	Solar 53		Kero-sene	ADO	IDO	Fuel Oil	Bio RON 88	Bio RON 92	Bio Solar	Total Biofuel		
2007	49	12	14,845	102,784	2,752	921	0	8	0		22	48,643	53	549	326	58	3,604	174,579	52	174,680
2008	124	11	15,526	111,377	1,736	669	0	8	0		18	49,189	35	535	257	95	6,041	185,495	50	185,669
2009	191	9	16,262	121,226	2,682	608	0	13	0		11	52,692	28	484	617	118	14,959	209,709	68	209,968
2010	195	12	20,779	130,486	3,907	663	0	29	0		6	45,845	24	405	0	0	27,939	230,096	54	230,346
2011	181	13	20,983	144,330	3,643	1,717	0	41	0		4	60,289	28	424	0	0	45,804	277,278	54	277,513
2012	154	14	22,967	160,910	3,884	871	0	80	0		3	80,930	20	393	0	0	59,227	329,300	66	329,520
2013	185	16	24,499	166,800	4,956	925	0	150	0		3	76,529	17	226	0	0	67,025	341,146	79	341,410
2014	207	8	24,912	167,960	6,194	903	0	216	0		2	69,187	13	216	0	0	72,868	342,480	95	342,782
2015	246	17	25,546	158,914	16,095	1,624	2,214	250	0		2	84,320	12	189	0	0	19,737	308,921	126	309,292
2016	246	16	27,481	122,992	27,911	1,696	33,832	687	480		1	46,167	8	141	0	0	75,343	336,757	137	337,139

Note : Temporary Data for Year 2016

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5.4.3 Share of Energy Consumption in Transportation Sector

(%)

Year	Gas	Fuel																	Electricity
		Avgas	Avtur	RON 88	RON 92	RON 95	RON 90	Dex	Solar 53	Kero-sene	ADO	IDO	Fuel Oil	Bio RON 88	Bio RON 92	Bio RON 95	Bio Solar	Total fuel	
2007	0.028	0.007	8.50	58.88	1.577	0.528	0.000	0.005	0.000	0.013	27.86	0.03	0.31	0.187	0.033	0.000	2.065	99.94	0.03
2008	0.067	0.006	8.37	60.04	0.936	0.361	0.000	0.005	0.000	0.010	26.52	0.02	0.29	0.138	0.051	0.000	3.257	99.91	0.03
2009	0.091	0.004	7.75	57.81	1.279	0.290	0.000	0.006	0.000	0.005	25.13	0.01	0.23	0.294	0.056	0.000	7.133	99.88	0.03
2010	0.085	0.005	9.03	56.71	1.698	0.288	0.000	0.013	0.000	0.003	19.92	0.01	0.18	0.000	0.000	0.000	12.142	99.89	0.02
2011	0.065	0.005	7.57	52.05	1.314	0.619	0.000	0.015	0.000	0.002	21.74	0.01	0.15	0.000	0.000	0.000	16.519	99.92	0.02
2012	0.047	0.004	6.97	48.86	1.179	0.264	0.000	0.024	0.000	0.001	24.58	0.01	0.12	0.000	0.000	0.000	17.986	99.93	0.02
2013	0.054	0.005	7.18	48.89	1.453	0.271	0.000	0.044	0.000	0.001	22.43	0.01	0.07	0.000	0.000	0.000	19.647	99.92	0.02
2014	0.060	0.002	7.27	49.04	1.809	0.264	0.000	0.063	0.000	0.001	20.20	0.00	0.06	0.000	0.000	0.000	21.277	99.91	0.03
2015	0.079	0.006	8.27	51.44	5.210	0.526	0.717	0.081	0.000	0.001	27.30	0.00	0.06	0.000	0.000	0.000	6.389	99.88	0.04
2016	0.073	0.005	8.16	36.52	8.288	0.503	10.046	0.204	0.143	0.000	13.71	0.00	0.04	0.000	0.000	0.000	22.373	99.89	0.04

Note : Temporary Data for Year 2016

5.5.1 Energy Consumption in Others Sector

(in Original Unit)

Year	Mogas	Kerosene	ADO	IDO	Fuel Oil	Total Fuel
	Kilo Liter					
2007	541,555	387,211	2,327,465	30,026	652,069	3,938,326
2008	586,829	309,096	2,353,575	19,553	634,896	3,903,950
2009	638,725	186,978	2,521,190	15,961	574,968	3,937,821
2010	687,512	111,310	2,193,590	13,839	481,634	3,487,886
2011	760,454	77,647	2,884,703	16,058	504,091	4,242,954
2012	847,814	54,080	3,872,311	11,453	467,202	5,252,859
2013	878,849	49,308	3,661,709	9,894	268,954	4,868,714
2014	884,962	38,001	3,310,415	7,611	256,710	4,497,699
2015	837,299	30,091	4,034,503	6,635	224,472	5,133,000
2016	648,031	23,087	2,208,960	4,716	167,509	3,052,303

Note : Temporary Data for Year 2016

5.5.2 Energy Consumption in Others Sector

(in Energy Unit)

(Thousand BOE)

Year	Mogas	Kerosene	ADO	IDO	Fuel Oil	Total Fuel
2007	3,156	2,295	15,098	198	4,539	25,287
2008	3,420	1,832	15,268	129	4,420	25,069
2009	3,722	1,108	16,355	105	4,002	25,294
2010	4,006	660	14,230	91	3,353	22,340
2011	4,432	460	18,713	106	3,509	27,220
2012	4,941	321	25,120	76	3,252	33,709
2013	5,121	292	23,754	65	1,872	31,105
2014	5,157	225	21,475	50	1,787	28,695
2015	4,879	178	26,172	44	1,563	32,836
2016	3,776	137	14,330	31	1,166	19,440

Note : Temporary Data for Year 2016

5.5.3 Share of Energy Consumption in Others Sector

(%)

Year	Mogas	Kerosene	ADO	IDO	Fuel Oil
2007	12.48	9.08	59.71	0.78	17.95
2008	13.64	7.31	60.90	0.52	17.63
2009	14.72	4.38	64.66	0.42	15.82
2010	17.93	2.95	63.70	0.41	15.01
2011	16.28	1.69	68.75	0.39	12.89
2012	14.66	0.95	74.52	0.22	9.65
2013	16.47	0.94	76.37	0.21	6.02
2014	17.97	0.78	74.84	0.18	6.23
2015	14.86	0.54	79.70	0.13	4.76
2016	19.43	0.70	73.71	0.16	6.00

Note : Temporary Data for Year 2016

ENERGY SUPPLY BY ENERGY RESOURCES

6

6.1.1 Coal Resources and Reserves

per December 2016

(Million Ton)

Province	Resources					Reserves
	Hypothetic	Inferred	Indicated	Measured	Total	
Banten	5.47	38.98	28.45	25.10	98.00	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
Aceh	0.00	423.65	163.69	662.93	1,250.27	416.68
North Sumatera	0.00	7.00	1.84	25.75	34.59	0.00
Riau	3.86	209.85	587.82	689.28	1,490.81	608.88
West Sumatera	19.90	304.25	278.78	347.38	950.30	197.84
Bengkulu	0.00	117.33	171.74	126.48	415.54	79.12
Jambi	129.16	1,216.54	896.04	1,038.02	3,279.77	665.71
South Sumatera	3,290.98	10,859.38	14,826.24	12,020.27	40,996.88	11,066.98
Lampung	0.00	122.95	8.21	4.47	135.63	11.74
West Kalimantan	2.26	477.69	6.85	4.70	491.50	0.00
Central Kalimantan	22.54	11,299.92	3,805.64	2,849.22	17,977.32	2,001.33
South Kalimantan	0.00	4,739.10	4,402.79	5,893.65	15,035.53	5,270.25
East Kalimantan	909.95	13,680.45	13,049.18	15,401.10	43,040.68	7,194.94
North Kalimantan	25.79	795.83	595.37	1,041.20	2,458.19	943.70
West Sulawesi	8.13	15.13	0.78	0.16	24.20	0.00
South Sulawesi	5.16	48.81	128.90	53.09	235.96	0.12
Central Sulawesi	0.52	1.98	0.00	0.00	2.50	0.00
North Maluku	8.22	0.00	0.00	0.00	8.22	0.00
West Papua	93.66	32.82	0.00	0.00	126.48	0.00
Papua	7.20	2.16	0.00	0.00	9.36	0.00
TOTAL	**4,532.79**	**44,394.72**	**38,952.31**	**40,182.81**	**128,062.64**	**28,457.29**

Source : Geological Agency
Note : Temporary Data for Year 2016

6.1.2 Coal Supply

(Ton)

Year	Production			Export	Import
	Steam Coal	Antracite	Total		
2007	216,946,699	0	216,946,699	163,000,000	67,534
2008	240,249,968	0	240,249,968	191,430,218	106,931
2009	256,181,000	0	256,181,000	198,366,000	68,804
2010	275,164,196	0	275,164,196	208,000,000	55,230
2011	353,270,937	0	353,270,937	272,671,351	42,449
2012 *)	386,077,357	0	386,077,357	304,051,216	77,786
2013	474,371,369	0	474,371,369	356,357,973	609,875
2014	458,096,707	0	458,096,707	381,972,830	2,442,319
2015	461,566,080	0	461,566,080	365,849,610	3,007,934
2016	456,197,775	0	456,197,775	331,128,438	3,898,932

Sources : 1. Directorate General of Mineral and Coal
2. Ministry of Trade and Statistics Central Agency (Import Data)
Note : *) Revised data for coal production
Temporary Data for Year 2016

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6.1.3 Indonesia Coal Export by Destination

(Thousand Ton)

Year	China	India	Japan	Korea	Taiwan	Hongkong		Malaysia	Philip-pines	Thailand	Spain	Others	Total
2007	8,570	13,795	24,323	13,688	18,112	11,061		6,000	3,172	5,725	3,322	55,231	163,000.00
2008	8,394	14,683	26,948	15,035	14,887	10,936		7,107	4,385	8,429	3,882	76,742	191,430.22
2009	27,266	20,784	25,262	18,362	17,238	9,664		8,499	4,439	7,468	4,500	54,886	198,366.00
2010	44,056	18,640	25,776	20,643	14,590	9,415		11,307	7,248	7,175	2,128	47,021	208,000.00
2011	50,347	30,976	26,073	18,900	16,517	10,660		12,407	6,828	7,391	4,077	88,495	272,671.35
2012	68,821	31,648	25,738	16,542	16,391	10,669		13,459	7,130	5,721	6,208	101,725	304,051.22
2013	49,859	41,834	21,709	13,635	14,399	4,990		9,066	7,609	5,253	796	187,207	356,357.97
2014	67,807	60,284	31,232	20,170	15,689	13,697		10,772	10,274	8,497	5,675	137,876	381,972.83
2015	41,898	79,111	23,252	14,111	10,643	7,263		7,719	11,816	9,380	3,846	156,810	365,849.61
2016	53,177	55,968	29,400	8,162	12,199	6,475		11,265	10,909	8,720	3,532	131,322	331,128.44

Source : Directorate General of Mineral and Coal
Note : Temporary Data for Year 2016

6.1.4 Coal Sales

(Ton)

Year	Total	Iron & Steel	Power Plant	Cera-mic & Cement	Pulp & Paper	Bri-quette	Others
2007	61,470,000	282,730	32,420,000	6,443,864	1,526,095	25,120	20,772,192
2008	53,473,252	245,949	31,041,000	6,842,403	1,251,000	43,000	14,049,899
2009	56,295,000	256,605	36,570,000	6,900,000	1,170,000	61,463	11,336,932
2010	67,180,051	335,000	34,410,000	6,308,000	1,742,000	34,543	24,350,508
2011	79,557,800	166,034	45,118,519	5,873,144	n.a.	33,939	28,366,165
2012	82,142,862	289,371	52,815,519	6,640,000	2,670,701	36,383	19,690,889
2013	72,070,000	300,000	61,860,000	7,190,000	1,460,000	36,383	1,223,617
2014	76,180,001	298,000	63,054,000	7,187,400	1,458,170	15,623	4,166,808
2015	86,814,099	399,000	70,080,000	7,180,000	4,310,000	13,174	4,831,925
2016	90,550,000	390,000	75,400,000	10,540,000	4,190,000	30,000	0

Note : Temporary Data for Year 2016

6.2.1 Oil Reserves

per January

(Billion Barel)

Year	Proven	Potential	Total
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
2012	3.74	3.67	7.41
2013	3.69	3.86	7.55
2014	3.62	3.75	7.37
2015	3.60	3.70	7.31
2016	3.31	3.94	7.25

Source : Directorate General of Oil and Gas
Note : Temporary Data for Year 2016

6.2.2 Refinery Capacity in 2016

(MBSD)

Refinery	Refinery Capacity
Tri Wahana Universal (TWU)	18.00
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
Total	1,169.10

Source : Directorate General of Oil and Gas
Note : Temporary Data for Year 2016

6.2.3 Crude Oil Supply and Demand

Year	Production	Export	Import	Oil Refinery Input	
	Thousand bbl	Thousand bbl	Thousand bbl	Thousand bbl	Thousand bpd
2007	348,348	135,267	115,812	330,027	904.2
2008	357,501	134,872	97.006	323,174	885.4
2009	346,313	132,223	120,119	330,366	905.1
2010	344,888	134,473	101,093	340,475	819.5
2011	329,265	113.352	96,862	365,820	879.5
2012	314,666	106,485	95,968	347,853	819.9
2013	300,830	104,791	118,334	352,438	822.3
2014	287,902	93,080	121,993	369,792	847.8
2015	286,814	115,017	136,666	350,110	836.4
2016	268,877	125,516	148,361	362,371	887.4

Source : Directorate General of Oil and Gas
Note : Oil Refinery Input consist of crude oil, condensate and others
Temporary Data for Year 2016

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6.2.4 Domestic Oil Fuels Sales

(Kilo Liter)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Avgas	2,163	2,003	1,687	2,231	2,316	2,606	2,868	1,499	3,070	2,967
Avtur	2,520,040	2,635,670	2,760,678	3,527,382	3,562,126	3,898,832	4,159,010	4,229,094	4,336,624	4,665,191
RON 88	17,483,011	19,699,070	21,441,130	23,078,874	25,527,429	28,459,985	29,501,773	29,707,002	28,107,022	21,753,536
Kerosene	9,898,488	7,901,596	4,779,818	2,845,486	1,984,939	1,382,469	1,260,490	971,434	769,233	590,190
ADO	26.537.087	26,999,434	26,691,227	27,653,973	26,391,275	25,079,718	23,715,716	21,440,501	26,130,183	14,306,728
IDO	269,466	180,997	145,192	167,733	133,589	91,600	79,137	60,870	53,069	37,720
Fuel Oil	5,136,408	4,969,526	4,480,563	4,316,705	3,904,580	3,428,875	1,973,903	1,884,040	1,647,441	1,229,379
RON 95	158,070	114,789	104,388	113,812	294,639	149,424	158,714	154,888	278,758	290,954
RON 92	472,284	297,982	460,148	670,364	625,162	666,461	850,408	1,062,920	2,761,956	4,789,597
RON 90	0	0	0	0	0	0	0	0	379,959	5,805,578
Solar 53	0	0	0	0	0	0	0	0	0	74,034
Solar 51	1,288	1,289	1,955	4,434	6,392	12,297	23,053	33,305	38,552	105,889
Bio Premium	55,970	44,016	105,816	0	0	0	0	0	0	0
Bio Pertamax Plus	0	0	0	0	0	0	0	0	0	0
Bio Pertamax	9,956	16,234	20,232	0	0	0	0	0	0	0
Bio Solar	555,609	931,179	2,306,017	4,306,887	7,060,848	9,130,039	10,332,005	11,232,729	3,042,511	13,220,539
Total Fuel	**63,796,179**	**63,793,783**	**63,298,849**	**66,687,881**	**69,493,296**	**72,302,305**	**72,057,077**	**70,778,283**	**67,548,378**	**66,872,301**

Sources : Directorate General of Oil and Gas
Note : Temporary Data for Year 2016

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6.2.5 Crude Oil Refinery Production

(Thousand Barrel)

Year	RON 88	Avtur + JP5	Avgas	Kerosene	ADO		IDO	Fuel Oil	RON 95	RON 92	RON 51	Total Fuel
2007	71,337	8,190	29.58	51,934	82,120		2,267	24,795	951	2,754	18.11	244,396
2008	72,404	11,229	23.95	48,031	92,812		2,036	23,084	387	1,523	2.67	251,533
2009	74,751	16,672	0.21	29,476	110,698		1,213	18,843	774	2,832	30.65	255,289
2010	66,820	15,710	6.67	18,985	107,351		1,377	21,515	668	3,301	15.13	235,748
2011	64,460	17,061	6.56	14,378	116,391		1,352	20,276	736	2,446	28.16	237,135
2012	67,684	19,050	0.00	10,808	123,483		1,135	15,047	514	2,487	122.34	240,330
2013	68,174	18,623	0.00	9,827	123,726		927	13,879	566	2,651	516.91	238,892
2014	70,829	19,938	0.00	7,332	129,502		1,107	12,243	545	3,629	381.64	245,507
2015	71,733	20,240	0.00	4,977	129,306		972	11,979	627	8,770	242.47	248,846
2016	68,877	22,794	0.00	6,459	123,818		969	12,325	300	24,432	502.70	260,477

Source : Directorate General of Oil and Gas
Notes : 2000 - 2003 RON 88 included Premix (94), Super TT and BB2L (unleaded gasoline)
Temporary Data for Year 2016

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(Thousand Barrel)

Year	Secondary Fuel				Non Fuel		Lubricant	LPG	HOMC	Total Production
	Naphtha	LOMC	LSWR	Total						
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
2012	23,293	59	26,451	49,803	41,448		2,988	7,288	10,405	352,263
2013	23,793	0	24,487	48,281	21,726		2,697	6,635	6,564	324,795
2014	21,985	243	26,946	49,174	30,460		2,529	6,362	8,544	342,577
2015	13,500	0	24,713	38,213	29,895		0	8,084	4,498	329,536
2016	15,914	0	24,798	40,712	13,604		2,019	10,297	6,904	334,013

Source : Directorate General of Oil and Gas
Notes : 2000 - 2003 RON 88 included Premix (94), Super TT and BB2L (unleaded gasoline)
Temporary Data for Year 2016

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6.2.6 Import of Refined Products

(Thousand KL)

Year	Avtur	Avgas	RON 88	RON 95	RON 92		DPK	HOMC	ADO	Fuel Oil	IDO	Total Fuel
2007	1,176	0.0	7,069	27	35		1,080	108	12,367	2,163	7.6	24.143
2008	769	0.0	8,572	17	40		333	57	12,284	2,573	28.0	24,673
2009	172	0.9	10,263	32	120		0	1,301	8,505	1,909	8.4	22,311
2010	577	0.0	12,283	48	381		0	1,535	10,637	549	6.8	26,017
2011	816	1.9	15,248	36	319		0	157	13,573	998	0.0	31,149
2012	710	2.5	17,621	36	213		0	525	12,455	420	0.0	31,982
2013	950	2.2	18,340	60	268		0	1,015	11,947	107	6.3	32,695
2014	981	0.0	18,829	64	619		0	1,093	11,475	174	6.7	33,242
2015	1,202	0.3	16,274	171	1,781		0	998	7,318	148	6.4	27,898
2016	994	2.4	11,645	216	3,829		0	33	5,708	282	43.4	22,753

Source : Directorate General of Oil and Gas
Note : Temporary Data for Year 2016

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6.2.7 Export of Refined Products

(Thousand Barel)

Year	Ron 88	Avtur	Kerosene	ADO	Fuel Oil	RON 92		RON 95	Total Fuel	Naphtha	Lubricant	Other Product	Total
2007	47.4	0.0	0.7	988.1	851.3	0.0		0.0	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	0.0		0.0	1,966.6	5,371.7	0.0	30,308.3	37,647
2009	130.3	423.7	427.0	759.5	303.5	0.0		0.0	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	0.0		0.3	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	0.0		6.8	2,909.2	1,316.4	65.4	26,108.0	30,399
2012	68.6	13.3	1,917.4	92.3	0.0	60.2		0.0	2,151.7	0.0	301.5	25,862.3	28,315
2013	0.0	8.6	1,631.8	0.0	4,319.5	84.0		13.4	6,057.3	1,092.0	0.0	19,693.3	26,843
2014	0.0	12.9	400.7	147.9	3,215.2	159.0		0.0	3,935.6	5,338.7	0.0	23,342.0	32,616
2015	0.0	15.4	589.3	0.0	1,377.3	14.7		0.0	1,996.7	2,550.5	0.0	29,746.2	34,293
2016	0.0	14.9	0.0	0.6	2,167.2	9.0		0.0	2,191.7	0.0	0.0	32,296.7	34,488

Source : Directorate General of Oil and Gas
Note : Temporary Data for Year 2016

6.2.8 Indonesia Crude Oil Export by Destination

(Thousand Barel)

Year	Japan	USA	Korea	Taiwan	Singa-pore	Others	Total
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	39,913	5,729	19,546	1,889	12,661	33,613	113,352
2012	49,376	2,149	15,601	300	10,034	29,025	106,485
2013	43,042	5,872	10,096	3,257	11,108	31,415	104,791
2014	32,625	6,811	7,586	5,272	13,680	27,106	93,080
2015	26,634	13,648	8,481	5,244	15,567	45,444	115,017
2016	18,404	9,943	6,619	6,525	13,581	70,445	125,516

Source : Directorate General of Oil and Gas
Note : Temporary Data for Year 2016

6.2.9 LPG Supply

(Ton)

Year	Production		Total	Export	Import	Sales
	Gas Refinery	Oil Refinery				
2007	546,734	862,696	1,409,430	268,000	137,800	1,281,000
2008	910,663	780,103	1,690,766	100,531	415,000	1,843,817
2009	1,430,671	694,547	2,125,218	88,463	917,171	2,922,080
2010	1,828,743	649,628	2,478,371	279	1,621,959	3,761,086
2011	1,580,598	704,842	2,285,439	76,566	1,991,774	4,347,465
2012	1,824,297	377,242	2,201,539	205	2,573,670	5,030,547
2013	1,447,055	563,935	2,010,990	286	3,299,808	5,607,430
2014	1,833,417	547,445	2,380,862	483	3,604,009	6,093,138
2015	1,631,599	644,311	2,275,910	392	4,025,600	6,376,990
2016	1,410,169	831,398	2,241,567	580	4,475,929	6,642,633

Source : Directorate General of Oil and Gas
Note : Temporary Data for Year 2016

6.3.1 Natural Gas Reserves

per January

(TSCF)

Year	Proven	Potential	Total
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
2012	103.35	47.35	150.70
2013	101.54	48.85	150.39
2014	100.26	49.04	149.30
2015	97.99	53.34	151.33
2016	101.22	42.84	144.06

Source : Directorate General of Oil and Gas
Note : Temporary Data for Year 2016

6.3.2 Natural Gas Production

(MMSCF)

	Assosiated	Non Assosiated	Total
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
2012	405,465	2,769,175	3,174,639
2013	352,561	2,768,277	3,120,838
2014	304,693	2,871,098	3,175,791
2015	376,669	2,739,473	3,116,142
2016	467,813	2,602,426	3,070,239

Source : Directorate General of Oil and Gas
Note : Temporary Data for Year 2016

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6.3.3 Natural Gas and LNG Supply and Demand

Year	Natural Gas Production	Gas Lift & Reinjec-tion	Own Use	Flare	Utilization								Export LNG
					LNG Plant	LPG Plant		Refinery	City Gas *)	Industry	Electricity	Export Gas Pipa	
	(MMSCF)	(MMSCF)	(MMSCF)	(MMSCF)	(MMSCF)	(MMSCF)		(MMSCF)	(MMSCF)	(MMSCF)	(MMSCF)	MMSCF	(ton)
2007	2,805,540	147,303	136,952	97,912	1,300,348	35,096		24,972	2,263	443,889	183,329	319,397	20,851,609
2008	2,885,328	154,890	143,252	113,701	1,270,854	13,196		29,727	2,718	623,616	221,236	234,964	20,579,632
2009	3,060,897	154,800	175,024	172,922	1,221,502	17,806		35,566	4,790	654,428	231,521	294,109	19,932,902
2010	3,407,592	174,844	205,378	184,893	1,427,917	20,866		34,038	6,115	635,361	269,003	333,993	24,184,380
2011	3,256,379	185,997	198,463	179,460	1,293,151	14,289		37,476	7,896	666,195	248,871	335,510	21,971,547
2012	3,174,639	191,886	189,384	230,353	1,019,569	28,141		39,782	9,896	685,751	289,424	358,325	18,212,204
2013	3,120,838	156,154	217,416	237,295	1,040,992	26,647		38,866	8,669	689,312	302,958	335,164	19,250,004
2014	3,175,791	176,267	219,652	311,614	978,978	29,757		41,992	8,974	683,177	319,491	342,669	18,186,393
2015	3,116,142	168,045	214,306	273,402	1,025,789	24,801		47,384	8,847	679,728	305,484	306,679	19,071,196
2016	3,070,239	170,421	202,571	262,773	1,064,632	24,805		105,138	8,701	555,338	337,055	282,741	20,228,742

Source : Directorate General of Oil and Gas
Note : *) City gas sales not including industry, only household and commercial sector
Temporary Data for Year 2016

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6.3.4 City Gas Sales and Utilization

Year	Sales (Million M³)				Number of Customer			Number of Customer			Specific Consumption (Thousand M³)		
	Household	Industry & Commercial	Transporta-tion	Total	Household			Industry	Commercial	Total	Household	Industry & Commercial	Average Uses
2007	20.39	4,267.06	7.36	4,295	81,294			873	1,468	83,635	0.2508	1,823	51.26
2008	19.61	5,693.28	18,33	5.731	82,123			1,099	1,498	84,720	0.2387	2,192	67.43
2009	19.43	8,034.44	28,60	8.082	83,519			1,180	1,593	86,292	0.2326	2,897	93.33
2010	20.39	8,430.72	29.47	8,481	85,326			1,216	1,592	88,134	0.2389	3,002	95.89
2011	18.01	4,997.35	27.24	5,043	86,167			1,246	1,641	89,054	0.2090	1,731	56.32
2012	21.19	5,212.12	23.19	5,256	87,437			1,253	1,674	90,364	0.2424	1,781	57.91
2013	19.30	5,158.65	27.93	5,206	88,613			1,260	1,717	91,590	0.2178	1,733	56.53
2014	18.03	5,302.25	31.20	5,351	92,858			1,439	1,752	96,049	0.1941	1,662	55.39
2015	18.37	4,764.52	37.07	4,820	107,690			1,529	1,857	111,076	0.1706	1,407	43.06
2016	21.58	4,637.95	30.81	4,690	127,246			1,652	1,929	130,827	0.1696	1,295	35.62

Source : PT Perusahaan Gas Negara (Persero)
Note : Temporary Data for Year 2016

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6.4.1 Power Plant Installed Capacity

(MW)

Year	Hydro PP	Steam PP	Gas PP	Combined Cycle PP	Geother-mal PP	Diesel PP	Gas Engine PP		Wind PP	Mycro Hydro PP	Mini Hydro PP	Solar PP	Coal Gasifi-cation PP	Waste PP	Bio Mass PP	Total
2007	3,688.04	12,014.00	3,220.18	7,699.97	980.00	3,211.91	33.00		0.10	0.55	6.03	0.00	0.00	0.00	0.00	30,853.78
2008	3,690.80	12,294.00	3,068.97	8,009.97	1,052.00	3,272.98	66.84		0.26	0.69	6.03	0.00	0.00	0.00	0.00	31,462.54
2009	3,694.95	12,594.00	3,135.88	8,009.97	1,189.00	3,256.36	71.00		1.06	0.69	6.03	0.00	0.00	0.00	0.00	31,958.94
2010	3,719.69	12,981.50	3,821.57	7,590.32	1,189.00	4,569.89	92.84		0.34	0.69	13.53	0.19	0.00	0.00	0.00	33,979.56
2011	3,880.83	16,318.00	4,236.02	8,480.97	1,226.00	5,471.93	169.54		0.93	5.93	57.66	1.16	41.00	26.00	0.00	39,915.97
2012	4,078.24	19,714.00	4,343.82	9,461.11	1,336.00	5,973.58	198.74		0.93	6.71	61.46	4.09	41.00	26.00	0.00	45,245.67
2013	5,058.87	23,812.53	4,389.08	9,852.21	1,343.50	5,935.00	448.12		0.63	29.69	77.05	9.02	6.00	26.00	0.00	50,987.69
2014	5,059.06	25,104.23	4,310.50	10,146.11	1,403.50	6,206.99	610.74		1.12	30.46	139.87	9.02	6.00	36.00	0.00	53,063.60
2015	5,079.06	27,229.73	4,310.50	10,146.11	1,438.50	6,274.79	818.74		1.12	30.46	151.17	9.02	6.00	36.00	0.00	55,531.20
2016	5,124.06	29,880.23	4,420.50	10,146.11	1,643.50	6,274.79	1,852.74		1.12	65.76	192.57	16.02	6.00	36.00	0.00	59,659.40

Source : PLN Statistics and Electricity Statistics, Directorate General of Electricity, Directorat General of New and Renewable Energy and Energy Conservation
Note : *) Diesel PP including captive power
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6.4.2 Power Plant Production

(GWh)

Year	PLN													PLN
	Hydro PP	Geo-thermal PP	Solar PP	Diesel PP	Steam PP					Combined Gas-Steam PP	Gas PP	Gas Engine PP	Wind PP	Sub-Total
					Coal	Oil	Gas	Total						
2007 *)	10,627	3,188	0	8,573	41,880	9,179	1,151	52,209		31,374	5,148	121.3	0.02	111,241
2008	10,740	3,391	0.10	10,212	41,311	10,186	856	52,353		35,731	5,621	0.0	0.00	118,047
2009	10,307	3,504	0.1	10,432	43,138	9,031	795	52,964		34,747	8,674	0.0	0.00	120,628
2010	15,827	3,398	0.50	11,926	46,685	6,712	1,009	54,407		36,812	9,266	73.6	0.03	131,710
2011	10,316	3,487	0.72	16,125	54,950	6,383	1,003	62,335		40,410	10,018	48.0	0.00	142,739
2012	10,525	3,558	2.85	18,913	66,633	2,391	4,799	73,823		34,569	8,310	55.1	0.00	149,755
2013	13,014	4,345	5.48	18,919	75,193	1,055	5,602	81,850		36,493	8,958	381.8	0.00	163,966
2014	11,164	4,285	6.81	21,862	83,397	759	5,856	90,012		38,800	9,117	51.1	0.00	175,297
2015	10,005	4,392	5.28	18,859	85,191	11,419	146	96,756		39,316	5,907	1,232.8	0.00	176,472
2016	13,886	3,958	8.78	19,122	92,682	1,092	4,488	98,262		42,377	3,745	2,450.9	0.00	183,809

Source : PLN Statistics and Electricity Statistics, Directorate General of Electricity
Note : *) Revised data
Temporary Data for Year 2016

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6.4.2 Power Plant Production (continued)

(GWh)

Year	PLN Purchase from IPP & PPU									PLN Purchase from IPP & PPU					Grand Total
	Hydro PP	Geo-thermal PP	Solar PP	Diesel PP	Steam PP					Combined Gas-Steam PP	Gas PP	Wind PP	Waste PP	Sub-Total	
					Coal	Gas	Biomass	Total							
2007	659	3,833	0.00	388	22,022	1.7	36	22,060		2,746	1,514	0.0	0.0	31,200	142,442
2008	788	4,918	0.00	428	20,182	89.7	55	20,327		3,591	1,336	0.3	0.0	31,390	149,437
2009	1,077	5,791	0.00	393	22,776	2.3	63	22,841		4,395	1,669	3.7	0.0	36,169	156,797
2010	1,629	5,959	0.02	369	21,792	98.9	95	21,985		6,512	1,618	3.6	0.0	38,076	169,786
2011	2,103	5,884	0.05	331	26,140	153.8	186	26,480		4,179	1,666	4.7	30.9	40,679	183,419
2012	2,274	5,859	0.16	279	35.533	133.6	238	35.904		4,519	1,691	4.6	30.9	50.563	200.318
2013	3,909	5,069	0.02	388	36,059	146.7	144	36,349		4,939	1,529	0.1	40.8	52,223	216,189
2014	3,998	5,753	0.00	418	36,135	137.0	205	36,477		4,981	1,595	0.0	35.5	53,258	228,555
2015	3,736	5,656	0.00	633	39,466	115.4	461	40,043		5,330	2,090	3.7	19.4	57,510	233,982
2016	5,484	6,698	12.31	586	42,699	128.7	584	43,411		5,832	2,767	5.7	5.9	64,802	248,611

Source : PLN Statistics and Electricity Statistics, Directorate General of Electricity
Note : *) Revised data
Temporary Data for Year 2016

6.4.3 Import of Electricity

(GWh)

Year	Country of Origin	MicroHydro PP
2007	-	-
2008	-	-
2009	Malaysia	1.26
2010	Malaysia	2.22
2011	Malaysia	2.54
2012	Malaysia	2.99
2013	Malaysia	3.03
2014	Malaysia	8.99
2015	Malaysia	12.75
2016	Malaysia	692.70

Source : PLN Statistics
Note : Temporary Data for Year 2016

6.4.4 Electricity Sales

(GWh)

Year	Electricity Sales / Tariff Segment							
	House-hold	Com-mercial	Industry	Street Lighting	Social	Govern-ment	Trans-portasi	Total
2007	47,325	20,524	45,803	2,586	2,909	2,016	85	121,247
2008	50,184	22,845	47,969	2,761	3,082	2,096	81	129,019
2009	54,945	24,715	46,204	2,888	3,384	2,335	111	134,582
2010	59,825	27,069	50,985	3,000	3,700	2,630	89	147,297
2011	65,112	30,093	54,725	3,068	3,994	2,787	88	159,867
2012	72,133	30,880	60,176	3,141	4,496	3,057	108	173,991
2013	77,211	34,369	64,381	3,251	4,939	3,261	129	187,541
2014	84,086	36,128	65,909	3,394	5,446	3,484	155	198,602
2015	88,682	36,773	64,079	3,448	5,941	3,717	205	202,846
2016	93,635	39,852	68,145	3,498	6,631	4,022	223	216,004

Source : PLN Statistics
Note : Temporary Data for Year 2016

6.4.5 Fuel consumption of PLN Power Plant

Year	Coal	HSD	IDO	FO	Natural Gas
	(ton)	(KL)	(KL)	(KL)	(MMSCF)
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
2012	35,514,791	6,625,335	4,065	1,585,395	365,927
2013	39,601,034	6,291,667	3,221	1,179,604	409,890
2014	44,604,981	6,330,517	3,849	1,096,638	450,190
2015	48,995,169	4,377,068	2,244	904,266	456,494
2016	50,556,446	3,719,090	915	947,027	505,125

Source : PLN Statistics
Note : Temporary Data for Year 2016

6.4.6 Share of Fuel Consumption of PLN Power Plant

(%)

Year	Type of Fuel				
	Coal	HSD	IDO	FO	Natural Gas
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
2012	57.35	13.82	0.01	4.14	24.68
2013	59.32	12.17	0.01	2.86	25.64
2014	60.80	11.14	0.01	2.42	25.63
2015	65.17	7.52	0.00	1.95	25.36
2016	64.82	6.16	0.00	1.97	27.05

Source : PLN Statistics
Note : Temporary Data for Year 2016

6.4.7 PLN Electricity System Performance

Year	Average Thermal Efficiency	Capacity Factor	Load Factor	Peak Load	Transmission & Distribussion Losses
	(%)	(%)	(%)	(MW)	(%)
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	29.23	55.67	78.53	26,665	9.41
2012	26.87	51.96	79.18	28,882	9.21
2013	27.18	54.72	80.04	30,834	9.91
2014	26,80	50.94	78.26	33,321	9.71
2015	26.92	50.53	80.02	33,381	9.77
2016	30.33	51.92	62.62	32,204	9.48

Source : PLN Statistic, Directorate General of Electricity
Note : Temporary Data for Year 2016

6.5.1 Geothermal Resources and Reserves

Per December 2016

(MWe)

No	Location	Resources		Reserves			Total
		Specu-lative	Hipote-thical	Possi-ble	Pro-bable	Proven	
1	Sumatera	2,883	1,935	5,097	930	917	11,762
2	Jawa	1,410	1,689	3,949	1,373	1,865	10,286
3	Bali	70	22	122	110	30	354
4	Nusa Tenggara	225	409	848	0	15	1,497
5	Kalimantan	152	17	13	0	0	182
6	Sulawesi	1,221	314	1,242	80	140	2,997
7	Maluku	560	91	775	0	0	1,426
8	Papua	75	0	0	0	0	75
Total		**6,596**	**4,477**	**12,046**	**2,493**	**2,967**	**28,579**

Source : Geological Agency

Handbook of Energy & Economic Statistics of Indonesia 2017

6.5.2 Geothermal Power Plant Capacity 2016

(MWe)

No	Working Area	Location	IPB Owner	Turbine Capacity	Operator Steam Area	Operator PLTP	Total Capacity
1	PLTP Kamojang	West Java	PT. Pertamina Geothermal Energy (PGE)	1 x 30 MWe	PGE	PLN	235
				2 x 55 MWe			
				1 x 60 MWe		PGE	
				1 x 35 MWe		PGE	
2	PLTP Lahendong	North Sulawesi	PT. Pertamina Geothermal Energy (PGE)	6 x 20 MWe	PGE	PLN	120
3	PLTP Sibayak	North Sumatera	PT. Pertamina Geothermal Energy (PGE)	1 x 12 MWe	PGE	PT. Dizamatra Powerindo	12
4	PLTP Salak	West Java	PT. Pertamina Geothermal Energy (PGE)	3 x 60 MWe	CGS	PLN	377
				3 x 65,6 MWe		CGS	
5	PLTP Darajat	West Java	PT. Pertamina Geothermal Energy (PGE)	1 x 55 MWe	CGI	PLN	270
				1 x 94 MWe		CGI	
				1 x 121 MWe		CGI	
6	PLTP Wayang Windu	West Java	PT. Pertamina Geothermal Energy (PGE)	1 x 110 MWe	SE	SE	227
				1 x 117 MWe			
7	PLTP Dieng	Central Java	PT. Geo Dipa Energy (GDE)	1 x 60 MWe	GDE	GDE	60
8	PLTP Ulubelu	Lampung	PT. Pertamina Geothermal Energy (PGE)	2 x 55 MWe	PGE	PLN	165
				1 x 55 MWe			
9	PLTP Ulumbu	NTT	PT. PLN (Persero)	4 x 2,5 MWe	PLN	PLN	10
10	PLTP Mataloko	NTT	PT. PLN (Persero)	1 x 2,5 MWe	PLN	PLN	2.5
11	PLTP Patuha	West Java	PT. Geo Dipa Energy (GDE)	1 x 55 MWe	GDE	GDE	55
12	PLTP Sarulla	North Sumatera	PT. Pertamina Geothermal Energy (PGE) dan Joint Operation Contract (JOC) Sarulla Operation Limited (SOL)	1x 110 MWe	SOL	SOL	110
						Total	**1,643.5**

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

Handbook of Energy & Economic Statistics of Indonesia 2017

6.5.3 Geothermal Steam Production

(Thousand Tonnes Geothermal Steam)

Year	Pertamina Field					KOB Field				KOB Field		PT. PLN (Persero) Field			PT. Geo Dipa Energy Field			Total
	Kamojang	Sibayak	Lahendong	Ulubelu	Sub Total	Salak	Darajat	Wayang Windu		Sarulla	Sub Total	Ulumbu	Mataloko	Sub Total	Dieng	Patuha	Sub Total	
2007	8,121	84.31	1,311	-	9,517	24,346	10,322	6,524		-	41,191	-	-	-	1,209	-	1,209	51,917
2008	12,100	288.76	2,349	-	14,738	24,482	13,487	6,665		-	44,634	-	-	-	1,644	-	1,644	61,016
2009	12,612	497.92	2,665	-	15,775	24,538	13,977	12,989		-	51,505	-	-	-	780	-	780	68,060
2010	12,446	548.41	2,964	-	15,959	24,272	14,264	13,675		-	52,211	-	-	-	1,221	-	1,221	69,391
2011	12,470	310.00	2,510	-	15,290	24,673	14,131	13,523		-	52,327	-	-	-	1,106	-	1,106	68,723
2012	10,878	160.36	3,262	1,393	15,694	24,513	14,283	13,233		-	52,029	0	-	-	1,047	-	1,047	68,770
2013	11,256	238.67	3,841	5,575	20,910	23,728	10,678	13,378		-	47,785	253	0	253	348	-	348	69,296
2014	10,489	183.98	4,138	6,174	20,985	24,307	13,856	13,143		-	51,306	261	0	261	205	840	1,045	73,598
2015	11,974	0.37	4,693	6,044	22,711	24,755	13,916	7,850		-	46,521	382	41	423	1,770	2,837	4,607	74,263
2016	12,679	0.00	3,295	6,718	22,692	24,575	13,952	13,613		0	52,140	339	0	339	1,393	3,153	4,546	79,717

Source : Directorate General of New and Renewable Energy and Energy Conservation
Note : Temporary Data for Year 2016

6.6.1 Biofuel Industry Capacity in 2016

(Thousand KL)

Province	Biodiesel	Bioethanol
DKI Jakarta	0	0.00
Banten	80,966	0
West Java	402,299	0.00
East Java	2,228,736	40,000
Bali	360	0.00
Riau	4,528,736	0.00
Batam	896,552	0.00
North Sumatera	912,011	0.00
West Kalimantan	65,000	0.00
North Sulawesi	475,862	0.00
South Kalimantan	440,520	0.00
South Sumatera	885,057	0.00
TOTAL	**10,916,098**	**40,000**

Source : Directorate General of New and Renewable Energy and Energy Conservation
Note : Temporary Data for Year 2016

6.6.2 Biodiesel Supply

(Thousand KL)

Tahun	Production	Export	Domestic
2007	6	0	6
2008	9	0	9
2009	190	70	119
2010	243	20	223
2011	1,812	1,453	359
2012	2,221	1,552	669
2013	2,805	1,757	1,048
2014	3,961	1,629	1,845
2015	1,653	329	915
2016	3,656	477	3,008

Source : Directorate General of New and Renewable Energy and Energy Conservation
Note : Temporary Data for Year 2016

6.6.3 Biodiesel Export by Destination

(Thousand KL)

Tahun	Malaysia	Singapore	USA	Spanyol	China	Other	TOTAL
2007	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-
2009	n.a.	n.a.	n.a.	n.a.	n.a.	70	70
2010	n.a.	n.a.	n.a.	n.a.	n.a.	20	20
2011	n.a.	n.a.	n.a.	n.a.	n.a.	1,453	1,453
2012	n.a.	n.a.	n.a.	n.a.	n.a.	1,552	1,552
2013	446	314	220	165	176	437	1,757
2014	148	81	229	120	978	74	1,629
2015	n.a.	n.a.	254	32	n.a.	43	329
2016	n.a.	n.a.	428	26	n.a.	23	477

Source : Directorate General of New and Renewable Energy and Energy Conservation
Note : Temporary Data for Year 2016

ANNEX

1

METHODOLOGY AND TABLE EXPLANATION

GENERAL METHODS

Data shown in the tables of Indonesia's energy economic statistics are 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 statistics 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 sources of the energy economic data consolidation, are as follows:

a. Crude Oil and Oil Products (BBM)
   - Indonesia Oil and Gas Statistics, Directorate General Oil and Gas

b. Natural Gas (Production, utilization and flaring)
   - Indonesia Oil and Gas Statistics, Directorate General Oil and Gas
   - PT PGN Annual Report

c. Coal
   - Indonesia Coal Statistics, Directorate General of Coal and Mineral Resources
   - Indonesia Mineral and Coal Statistics Directorate of Mineral and Coal Enterprises

d. Biomass
   - National Survey on Social & Economic (SUSENAS) Statistic Indonesia (BPS), 1993, 1996, 1999, 2002

e. LPG
   - Indonesia Oil and Gas Statistics, Directorate General Oil and Gas

f. Electricity
   - PLN Statistics,
   - Statistics of Electricity, Directorate General Electricity

g. General
   - Indonesia Statistics, Statistic Indonesia (BPS)
   - Finance and Economic Statistic, Central Bank of Indonesia (www.bi.go.id)
   - Trade Statistics, Ministry of Trade

h. Renewable Energy
   - Renewable Energy Statistics, Directorate General of New Renewable Energy and Energy Conservation

TABLE 2: ENERGY BALANCE TABLE

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 5,700 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 that its raw material.

GASEOUS

Energy in Gaseous form is includes of 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, Mo-gas (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 Ron 88, Ron 92, and Ron 95.

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 -160T 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, naphta, 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.

Biofuel Blending is quantity reports of liquid biofuels which are not delivered to the final consumption but are used by other petroleum products reported in the oil questionnaire.

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).

ANNEX

2

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.

Biofuel
Biofuel cover biodiesel. Liquid biofuels are mainly biodiesel used as transport fuels. They can be made from new or used vegetable oils and may be blended with or replace petroleum-based fuels.

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 5,000–6,000 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.

ANNEX

3

CONVERSION FACTOR

Energy	Original Unit	Multiplier Factor to BOE (Barrel Oil Equivalent)
Coal		
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
Biomass		
Charcoal	Ton	4.9713
Firewood	Ton	2.2979
Natural Gas	MSCF	0.1796
Gas Products		
City Gas	Thousand KKal	0.0007
CNG	Thousand KKal	0.0007
LNG	Ton	8.0532
LNG	MMBTU	0.1796
LPG	Ton	8.5246

CONVERSION FACTOR (continued)

Energy	Original Unit	Multiplier Factor to BOE (Barrel Oil Equivalent)
Oil		
Condensate	Barrel	0.9545
Crude Oil	Barrel	1.0000
Oil Fuel		
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
Oil Products		
Other Oil Products	Barrel	1.0200
Refinery Fuel		
Refinery Fuel Gas (RFG)	Barrel	1.6728
Refinery Fuel Oil (RFO)	Barrel	1.1236
Feed Stock	Barrel	1.0423
Electric Power	MWh	0.6130

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

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