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HANDBOOK OF ENERGY & ECONOMIC STATISTICS OF INDONESIA

2024

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HANDBOOK OF ENERGY & ECONOMIC STATISTICS OF INDONESIA 2024

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Preface

The updated Handbook of Energy & Economy Statistics of Indonesia represents the continued efforts of the Center for Data and Information Technology on Energy and Mineral Resources (CDI-EMR) to provide accurate and reliable data on Indonesia's energy and economic sectors in a unified publication.

Energy and economic data in Indonesia are often scattered across multiple sources, stored in various formats, and not readily accessible for comprehensive energy analysis. Furthermore, such data typically lack sufficient explanation and standardization, creating challenges for researchers and policymakers. A significant issue lies in the absence of unified terminology across institutions, which can lead to misunderstandings and inaccurate interpretations in energy economics.

A major current challenge is the lack of demand-side energy data. Presently, most energy data are derived from supply-side sources, assuming consumption to be equivalent to sales. This assumption holds only under the condition of price parity between domestic and international markets. In reality, price disparities can result in the misuse or misrepresentation of energy usage. Therefore, sales figures alone cannot accurately reflect actual consumption. To address this, the statistics presented in this handbook include energy consumption data estimated through calculations based on key energy parameters.

We are committed to continuing the process of standardizing energy and economic data through ongoing updates of this handbook. The CDI-EMR will maintain collaboration with all relevant units within the Ministry of Energy and Mineral Resources (MEMR), as well as with external statistical agencies.

We extend our sincere appreciation to all contributors for their dedication and perseverance in the preparation of this publication. May God Almighty guide us in the wise and sustainable management of our energy resources for the benefit of the Indonesian people.

Jakarta, May 2025
Head of Center for Data and Information
Technology on Energy and Mineral Resources

Introduction

This Handbook of Energy and Economic Statistics of Indonesia contains the data on Indonesia's energy and economy from 2014 through 2024. There are some revised data from the previous edition of the Handbook for 2014 to 2023. This handbook covering estimated energy demand of every sector. The tables and annexes are arranged as follow:

A. Tables

The tables are shown in 7 Main Categories, as follows:

- Table 1 Energy and Economic Indicators
- Table 2 Energy Balance Table
- Table 3 Energy Supply and Demand
- Table 4 Energy Prices
- Table 5 Energy Demand by Sector
- Table 6 Energy Supply by Energy Resource
- Table 7 Green House Gas Emission

B. Annexes

Annex 1. Methodology and Table Explanation, clarifying the methodologies adopted in preparing the tables data.

Annex 2. Glossary, containing important terms used in the tables and the respective units.

Annex 3. Conversion Factors, presenting the list of multiplication factors used to convert various original units of energy into BOE (Barrel Oil Equivalent).

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Indonesia's Concise Energy Profile 2024

A.	SOCIO ECONOMY[1)]		
	Teritorial Area :	8,300,000.00	km^2
	Land Area :	1,892,410.09	km^2
	Population :	281,603.80	Thousand People
	Household :	72,339.38	Thousand Households
	GDP Nominal		
	Total Amount :	22,138.96	Trillion Rupiah
	Per Capita :	78,617.42	Thousand Rupiah per Year
B.	ENERGY PRODUCTION		
	Primary Energy Production		
	Crude Oil :	212,332.10	Thousand Barrels
	Natural Gas (net) :	2,489.53	BSCF
	Coal :	836,120.00	Thousand Tonnes
	Hydro Power :	27,290.07	GWh
	Geothermal :	16,763.21	GWh
C.	FINAL ENERGY CONSUMPTION	1,292.34	Million BOE
	Energy Consumption by Type		
	Coal :	342.67	Million BOE
	Oil Fuel :	507.76	Million BOE
	Gas :	87.73	Million BOE
	Electricity :	205.81	Million BOE

[1)] Sources : Statistics Indonesia, BPS

	Briquette :	0.00	Thousand BOE
	LPG :	75.88	Million BOE
	Traditional Biomass :	16.32	Million BOE
	BioGas :	0.60	Million BOE
	Industrial Biomass :	53.15	Million BOE
	Solar Water Heater :	2.42	Million BOE
	Direct Use of Geothermal :	3.65	Million BOE
	Energy Consumption by Sector (Excluded non energy use)	1,292.34	
	Industry :	586.25	Million BOE
	Transportation :	460.78	Million BOE
	Household :	175.51	Million BOE
	Commercial :	58.36	Million BOE
	Other Sector :	11.44	Million BOE
	Non Energy :	31.76	Million BOE
D.	ELECTRIFICATION RATIO 2024	99.83	%

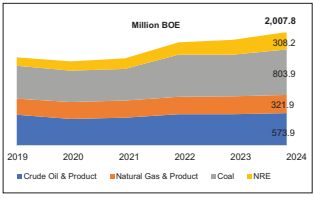
Executive Summary

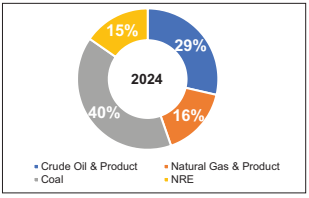
Key Highlight

1. Macroeconomics

In the midst of a global economic slowdown, in 2024 the Indonesian economy grew by 5.03% with per capita income reaching 78.61 million rupiahs per year, while the mid-exchange rate of the rupiah against the US dollar was recorded at Rp. 16,162 in 2024. Indonesia's population in 2024 reached 281 million people with 144 million people employed. The unemployment rate decreased from the previous year to 5.2% of the total population.

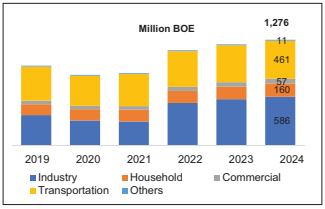
2. Primary Energy Supply

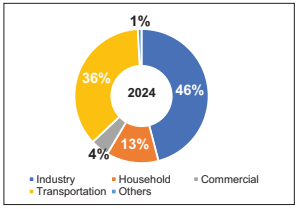




In line with the growth of the Indonesian economy, Indonesia's energy supply in 2024 will also increase by 7.3% from the previous year with a value of 2,007 million BOE or the highest in the last ten years. The supply of fossil energy such as crude oil and products and coal experienced increasing respectively 3.5% and 9.3% from the previous year, meanwhile natural gas and new and renewable energy (NRE) products experienced an increase of 1.5% and 17.2% respectively from the previous year. The primary energy mix is still dominated by coal at 40.37%, followed by petroleum at 28.82%, natural gas at 16.17%, and NRE at 14.65%. The NRE mix is targeted to reach 23%* by 2025.

3. Final Energy Consumption



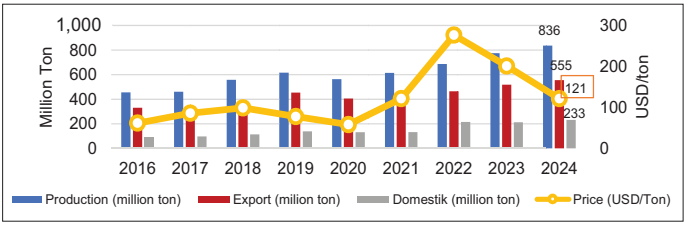


* National Energy Council is proposing a draft Presidential Decree on national energy policy where the NRE mix target is 20%.

On the energy demand side, there was an increase in energy consumption reaching 4.53% or 1,276 million BOE. Similarly to energy supply, consumption in 2024 was the highest in the last ten years. In 2024, the industrial sector had the highest share in energy demand per sector at 45.94%, followed by the transportation sector at 36.11%, households at 12.58%, commercial at 4.47%, and other sectors at 0.90%. The dominance of the industrial sector in energy demand in 2024 was driven by the absorption of coal and natural gas consumption in the industrial sector.

In 2024, the share of coal in energy consumption in the industrial sector was the highest at 58.45%, followed by gas at 14.65% and electricity at 12.42%.

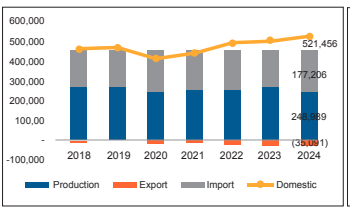
4. Coal



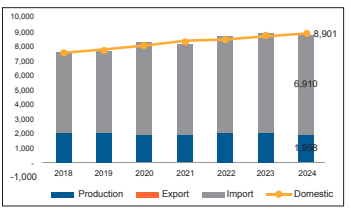
Coal production in 2024 amounted to 836 million tons, an increase of 8%, while exports were 555 million tons or an increase of 7%. The highest export destination country was China with a volume of 239 million tons. There was an increase in domestic coal sales, which amounted to 233 million tons, increase 9% compared to the previous year. However, there was also an increase in sales in the iron steel and metallurgy sector by 9.41 million tons compared to last year. The average benchmark coal price in 2024 reached 121.48 USD/ton.

5. Crude Oil and Products

Oil Fuel Supply Demand BBM (Thousand Barel)



LPG Supply Demand LPG (Thousand Mton)



Crude oil production has continued to decline year by year, with production recorded at 581 MBOPD or 212 million barrels in 2024. Meanwhile, crude oil exports amounted to 27.2 million barrels and imports 127.7 million barrels, up 27% and down 3,4% respectively from the previous year. The crude oil refinery input was 311.5 million barrels, including condensate, and fuel production at refineries was recorded at 248.9 million barrels. The average Indonesian Crude Price (ICP) in 2024 was 78.12 USD/barrel.

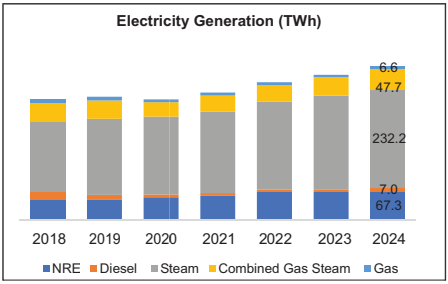
Domestic fuel sales in 2024 were the highest since 2013, with sales reaching 82.9 million KL. The highest sales for fuel products were Biogasoil at 37.5 million KL, followed by Gasoline RON 90 at 29.8 million KL. Exports of refined fuel products in 2024 reached 11.2 million barrels, and fuel imports were 28.1 million KL.

LPG production decreased by 0.8% in 2024, with a volume of 1.9 million tons, while exports were 157 tons and imports were 6.9 million tons. Domestic sales in 2024 were recorded at 8.9 million tons.

6. Natural Gas and Products

Unlike crude oil, natural gas production increased in 2024 with a production volume of 6,802 MMSCFD or 2.48 BSCF, while production in 2023 was 6,630 MMSCFD or 2.42 BSCF. Pipeline gas exports in 2024 amounted to 200 BSCF, an increase from last year's 181 BSCF. In 2024, LNG production reached 912 BBTU and LNG exports reached 496 BBTU, each increasing by 8% and 4.8% from the previous year.

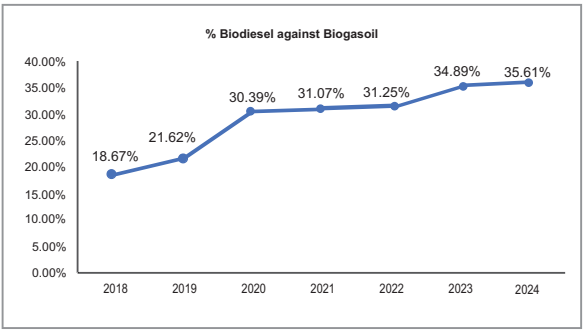
7. Electricity



Installed capacity of power plants in 2024 amounted to 100.6 GW with the highest peak electricity load in 2024 being 61.3 GW. The capacity of NRE-based power plants reached 14.3 GW or 14.21% of the total capacity. Electricity production in 2024 was 371.6 TWh with NRE-based power plants producing 67.23 TWh, accounting for 18.10% of the total national production. Electricity sales in 2024 amounted to 303.4 TWh, a 5.1% increase from the

previous year's 288.4 TWh. The highest electricity sales were to the household consumer group at 130.4 TWh followed by 92.2 TWh to the industrial sector. Transmission & Distribution Losses realization in 2024 was 7.46%.

8. New and Renewable Energy



Switching to the utilization of renewable energy, the production of biodiesel in 2024 reached 13.9 million KL, an increase of 6% compared to the previous year. Export realization amounted to 0.02 million KL, while domestic consumption reached 13.1 million KL. When compared to the domestic sales of Biogasoil products, the blending of biodiesel in Biogasoil reached 35%. In 2024, biomass utilization in the industrial sector was 20.73 million tons, and communal biogas utilization in the household sector reached 94 million m^3. Furthermore, in 2024, the utilization of solar water heaters amounted to 330 thousand TOE of hot water, along with direct use of geothermal heat in the industrial sector, which amounted to 6.2 Thermal GWh.

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01 ENERGY & ECONOMIC INDICATORS

1.1 GDP and Energy Indicator

	Unit	2014	2015	2016	2017
GDP at 2010 Constant Price [1)]	Trillion Rupiahs	8,565	8,983	9,435	9,913
GDP Nominal [1)]	Trillion Rupiahs	10,570	11,526	12,407	13,590
GDP Nominal per Capita [1)]	Thousand Rupiahs	41,916	45,120	47,957	51,891
Population [1)]	Thousand	252,165	255,462	258,705	261,891
Number of Households [1)]	Thousand	64,767	65,582	66,385	67,173
Primary Energy Supply	Thousand BOE	1,233,394	1,211,461	1,284,528	1,328,761
Primary Energy Supply per Capita	BOE / capita	4.89	4.74	4.97	5.07
Final Energy Consumption	Thousand BOE	760,490	760,401	754,023	791,145
Final Energy Consumption per Capita	BOE / capita	3.02	2.98	2.91	3.02

	Growth (%)			
	2014-2015	2015-2016	2016-2017	2017-2018
GDP at 2010 Constant Price [1)]	4.88	5.03	5.07	5.17
GDP Nominal [1)]	9.05	7.64	9.54	9.19
GDP Nominal per Capita [1)]	7.64	6.29	8.20	7.90
Population [1)]	1.31	1.27	1.23	1.19
Number of Households [1)]	1.26	1.22	1.19	1.15
Primary Energy Supply	-1.78	6.03	3.44	10.04
Final Energy Consumption	-0.01	-0.84	4.92	12.41
Final Energy Consumption per Capita	-1.30	-2.08	3.65	11.08

Source : 1) Statistics Indonesia, BPS
Note : Primary Energy Supply and Final Energy Consumption which are calculated is commercial energy (excluding traditional biomass)

	2018	2019	2020	2021	2022	2023	2024
	10,426	10,949	10,723	11,120	11,710	12,301	12,920
	14,839	15,833	15,438	16,977	19,588	20,892	22,139
	55,992	59,060	56,953	62,258	71,030	74,965	78,617
	265,015	268,075	271,066	272,683	275,774	278,696	281,604
	67,945	68,701	69,439	70,048	70,842	71,592	72,339
	1,462,199	1,554,746	1,487,567	1,536,951	1,825,003	1,853,281	1,991,470
	5.52	5.80	5.49	5.64	6.62	6.65	7.07
	889,295	963,059	851,151	871,441	1,148,486	1,220,778	1,276,021
	3.36	3.59	3.14	3.20	4.16	4.38	4.53

	Growth (%)					
	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024
	5.02	-2.06	3.70	5.31	5.05	5.03
	6.70	-2.49	9.97	15.38	6.66	5.97
	5.48	-3.57	9.32	14.09	5.54	4.87
	1.15	1.12	0.60	1.13	1.06	1.04
	1.11	1.07	0.88	1.13	1.06	1.04
	6.33	-4.32	3.32	18.74	1.55	7.46
	8.29	-11.62	2.38	31.79	6.29	4.53
	7.06	-12.60	1.78	30.31	5.18	3.45

1.2 Macro Economics

Year	GDP at 2010 Constant Prices				
	GDP	Private Consumption	Government Consumption	Fixed Capital Formation	
	Billion Rupiahs	Billion Rupiahs	Billion Rupiahs	Billion Rupiahs	
2014	8,564,867	4,651,018	736,283	2,772,471	
2015	8,982,517	4,881,631	775,427	2,911,356	
2016	9,434,632	5,126,028	774,298	3,041,587	
2017	9,912,928	5,379,629	790,756	3,228,763	
2018	10,425,852	5,651,456	828,877	3,444,310	
2019	10,949,038	5,936,399	855,931	3,597,664	
2020	10,723,055	5,780,223	872,774	3,419,182	
2021	11,120,060	5,896,662	911,320	3,549,219	
2022	11,710,248	6,187,944	870,558	3,686,574	
2023	12,301,394	6,486,254	896,196	3,848,716	
2024	12,920,282	6,806,403	956,623	4,001,693	

Source : Statistics Indonesia, BPS

GDP at 2010 Constant Prices				GDP Nominal (Current Prices)	Index GDP Deflator
	Stock Change	Export of Goods and Services	Import of Goods and Services		
	Billion Rupiahs	Billion Rupiahs	Billion Rupiahs	Billion Rupiahs	
	163,583	2,047,887	1,987,114	10,569,705	123
	112,848	2,004,467	1,862,939	11,526,333	128
	133,400	1,973,040	1,817,369	12,406,774	132
	126,884	2,146,565	1,964,819	13,589,826	137
	197,370	2,286,395	2,203,270	14,838,756	142
	129,954	2,266,679	2,040,354	15,832,535	145
	51,334	2,090,273	1,704,165	15,438,018	144
	62,709	2,458,849	2,105,117	16,976,751	153
	70,749	2,858,016	2,420,794	19,588,090	167
	127,672	2,895,835	2,380,949	20,892,377	170
	246,652	3,085,059	2,571,356	22,138,964	171

1.3 Price Index

Year	Wholesale Price Index[1)]			Consumer Price Index[2)]	Coal Price Index for Power Plant[3)]
	Export	Import	General		
2014	138.73	137.37	132.44	111.53	205.32
2015	130.47	134.19	138.26	122.99	135.41
2016	133.31	128.10	149.16	126.71	124.94
2017	144.69	135.00	156.09	131.28	159.97
2018	162.29	147.35	164.60	135.39	156.79
2019	159.72	150.00	166.22	139.07	156.70
2020	150.75	150.91	103.55	105.68	187.47
2021	174.14	169.58	106.20	107.66	168.26
2022	193.43	186.46	111.23	113.59	186.62
2023	184.66	176.66	115.91	116.56	207.67
2024	195.01	176.25	119.20	106.80	303.29

Source : Statistics Indonesia, BPS

Note : 1) Starting 2009 Wholesale Price Index using 2005 as base year (2005=100),
Starting November 2013 using 2010 as base year (2010=100)

2) Since June 2008, CPI has been based on a consumption pattern obtained from 2007 Cost of Living Survey in 66 cities (2007=100)
Since January 2014, CPI has been based on a consumption pattern obtained from 2012 Cost of Living Survey in 82 cities (2012=100)

3) The unit is (Rp/ton); unaudited data for 2023

1.4 Population and Employment

Year	Population	Labor Force	Household	Unemployment	Unemployment Percentage (toward labor force)
	Thousand People	Thousand People	Thousand Household	Thousand People	(%)
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
2017	261,891	121,022	67,173	7,040	5.8
2018	265,015	126,282	67,945	7,073	5.6
2019	268,075	128,755	68,701	7,104	5.5
2020	271,066	128,454	69,439	9,768	7.6
2021	272,683	131,051	70,048	9,102	6.9
2022	275,774	135,297	70,842	8,426	6.2
2023	278,696	139,852	71,592	7,855	5.6
2024	281,604	144,642	72,339	7,466	5.2

Source : Statistics Indonesia, BPS

1.5 International Trade

Year	Balance of Trade[1)]		Balance of Payment[2)]	
	Export	Import	Current Account	
	Million US$		Million US$	
2014	175,981	178,179	-4,159	
2015	150,366	142,695	-17,519	
2016	145,134	135,653	-16,952	
2017	168,828	156,986	-16,196	
2018	180,013	188,711	-30,633	
2019	167,683	171,276	-30,279	
2020	163,192	141,569	-4,433	
2021	231,610	196,190	3,511	
2022	291,904	237,447	13,215	
2023	258,774	221,886	-2,042	
2024	264,703	233,660	-8,856	

Sources : 1. Statistics Indonesia, BPS, revised data for Export in 2016, 2018, 2020 to 2023
2. Bank of Indonesia, revised data for Balance of Payments in 2022 and 2023
3. Derived from World Economic Outlook Database, IMF

Balance of Payment[2]			Exchange Rate Rupiah to US$[2]	US$ Deflator[3]
	Capital and Financial Account	Overall Balance		
	Million US$			
	5,087	928	12,440	1.09
	16,860	-659	13,795	1.10
	29,346	12,394	13,436	1.11
	28,732	12,536	13,548	1.08
	25,219	-5,414	14,038	1.10
	36,603	6,324	13,901	1.12
	7,921	3,488	14,105	1.14
	12,572	16,083	14,269	1.18
	-8,681	4,535	15,731	1.27
	9,874	7,832	15,416	1.31
	16,385	7,529	16,162	1.34

1.6 Share of Supply of Primary Energy

By Type (excluded Traditional Biomass)

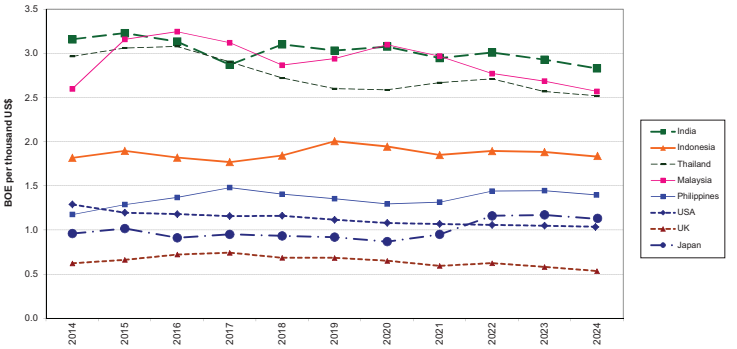
Type of Energy	2014	2015	2016	2017
Oil	46.84	42.06	41.43	41.63
Coal	25.94	30.10	29.61	30.67
Gas	22.00	22.93	22.28	20.99
New Renewable Energy	5.36	4.92	6.69	6.71
Hydropower	3.08	2.86	3.69	3.58
Geothermal	1.31	1.35	1.37	1.52
Solar	n.a	n.a	n.a	n.a
Wind	n.a	n.a	n.a	n.a
Other Renewables	n.a	n.a	n.a	n.a
Solar-powered street lighting and solar-powered energy saving lamp	n.a	n.a	n.a	n.a
Biofuel	0.97	0.69	1.61	1.58
Biogas	n.a	0.01	0.01	0.01
Industrial Biomass	n.a	0.01	0.01	0.01
Solar Water Heater	n.a	n.a	n.a	n.a
Direct Use of Geothermal	n.a	n.a	n.a	n.a

Note : Oil includes crude oil, petroleum product and LPG
Coal includes coal and briquette
Gas includes natural gas and LNG
Solar PP includes solar photovoltaic (PV), Solar-powered street lighting and solar-powered energy saving lamp
Other renewables is based on Bioenergy Based Power Plant
Biofuel : liquid biofuel (biodiesel)

(%)

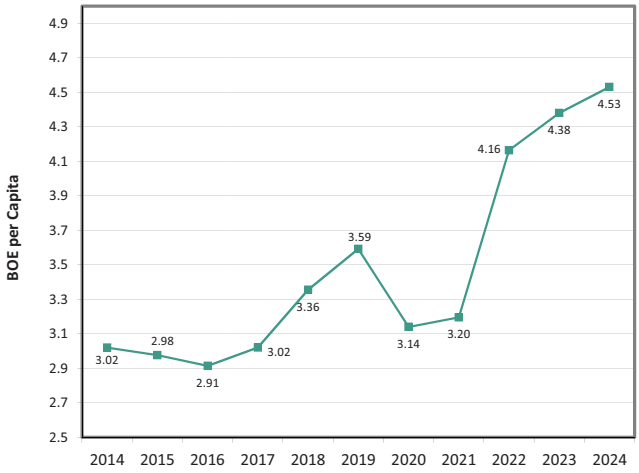
	2018	2019	2020	2021	2022	2023	2024
	38.79	35.05	31.66	32.10	30.39	29.91	28.82
	33.06	37.39	37.24	36.36	40.86	39.69	40.37
	19.51	18.31	20.16	19.71	16.89	17.11	16.17
	8.64	9.25	10.94	11.83	11.86	13.29	14.65
	2.75	2.53	3.04	2.99	2.78	2.46	2.55
	1.78	1.68	1.94	1.92	1.70	1.70	1.56
	0.02	0.03	0.05	0.05	0.09	0.16	0.30
	0.03	0.08	0.08	0.07	0.05	0.06	0.06
	2.09	1.92	2.04	2.43	2.85	3.12	2.83
	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1.94	2.95	3.73	4.27	4.08	4.54	4.53
	0.01	0.01	0.01	0.01	0.01	0.04	0.03
	0.02	0.04	0.04	0.09	0.25	1.10	2.67
	n.a	n.a	n.a	n.a	0.05	0.10	0.12
	n.a	n.a	n.a	n.a	0.00	0.00	0.00

1.7 Comparison of Primary Energy Intensity in Some Countries



Sources : 1. BP Statistical Review of World Energy 2023
2. World Economic Outlook Database, IMF
Note : GDP Primary Energy Consumption using US$ fix rate in year 2000; estimation data for 2023

1.8 Intensity of Final Energy Consumption per Capita



Ministry of Energy and Mineral Resources
Republic of Indonesia

02 ENERGY BALANCE TABLE

Indonesia Energy Balance Table 2024

		Hydro Power	Geo-thermal	Solar PP & Solar PV	Wind PP	Other Renew-ables	Public Street Light-ing & LTSHE	Indus-trial Bio-mass	Solar Water Heater	Direct Use of Geother-mal	
1	**Primary Energy Supply**	**50,784**	**31,139**	**5,989**	**1,146**	**56,318**	**50**	**53,147**	**2,421**	**4**	
	a. Production	50,784	31,139	5,989	1,146	56,318	50	53,147	2,421	4	
	b. Import	0	0	0	0	0	0	0	0	0	
	c. Export	0	0	0	0	0	0	0	0	0	
	d. Stock Change	0	0	0	0	0	0	0	0	0	
2	**Energy Transformation**	**-50,784**	**-31,139**	**-5,989**	**-1,146**	**-56,318**	**-50**	**0**	**0**	**0**	
	a. Refinery	0	0	0	0	0	0	0	0	0	
	b. Gas Processing	0	0	0	0	0	0	0	0	0	
	c. LNG Regas	0	0	0	0	0	0	0	0	0	
	d. Coal Processing Plant	0	0	0	0	0	0	0	0	0	
	e. Biofuel Blending	0	0	0	0	0	0	0	0	0	
	f. Power Plant	-50,784	-31,139	-5,989	-1,146	-56,318	-50	0	0	0	
	- State Own Utility (PLN)	-21,652	-7,859	-65	0	-4,101	0	0	0	0	
	- Independent Power Producer (Non-PLN)	-18,296	-23,280	-1,939	-1,141	-854	0	0	0	0	
	- Off Grid	-372	0	-3,985	-5	-51,362	-50	0	0	0	
	- IO	-10,464	0	0	0	0	0	0	0	0	
3	**Own Use and Losses**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
	a. During Transformation	0	0	0	0	0	0	0	0	0	
	b. Energy Use/ Own Use	0	0	0	0	0	0	0	0	0	
	c. Transmission & Distribution	0	0	0	0	0	0	0	0	0	
4	**Final Energy Supply**	**0**	**0**	**0**	**0**	**0**	**0**	**53,147**	**2,421**	**4**	
5	**Statistic Discrepancy**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
6	**Final Consumption**	**0**	**0**	**0**	**0**	**0**	**0**	**53,147**	**2,421**	**4**	
7	**Final Energy Consumption**	**0**	**0**	**0**	**0**	**0**	**0**	**53,147**	**2,421**	**4**	
	a. Industry	0	0	0	0	0	0	53,147	0	4	
	b. Transportation	0	0	0	0	0	0	0	0	0	
	c. Household	0	0	0	0	0	0	0	0	0	
	d. Commercial	0	0	0	0	0	0	0	2,421	0	
	e. Other Sector	0	0	0	0	0	0	0	0	0	
8	**Non Energy Use**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

Note: Biofuel consists of Biodiesel while Biosolar is included in the Fuel category
Other Renewable PP is including Biomass PP, Biogas PP, Waste PP & Hybrid PP

(Thousand BOE)

Tradi-tional Biomass	Coal	Briquette	Natural Gas	Crude Oil	Oil Fuel	Biofuel	Biogas	LPG	Electricity	LNG	Total
16,322	**803,864**	**0**	**411,107**	**317,777**	**196,895**	**90,181**	**600**	**59,186**	**0**	**-89,181**	**2,007,749**
16,322	2,889,129	0	447,120	212,332	0	90,359	600	0	0	0	3,856,860
0	72,171	0	0	127,792	165,333	0	0	58,906	0	0	424,202
0	-1,918,907	0	-36,013	-27,199	-12,389	-178	0	-1	0	-89,181	-2,083,868
0	-238,528	0	0	4,851	43,951	0	0	282	0	0	-189,444
0	**-461,192**	**0**	**-222,699**	**-311,546**	**311,828**	**-85,354**	**0**	**16,698**	**227,762**	**85,038**	**-584,891**
0	0	0	-7,884	-311,546	248,989	0	0	8,102	0	0	-62,339
0	0	0	-158,625	0	0	0	0	8,596	0	163,956	13,927
0	0	0	45,707	0	0	0	0	0	0	-45,707	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	85,354	-85,354	0	0	0	0	0
0	-461,192	0	-101,897	0	-22,515	0	0	0	227,762	-33,210	-536,479
0	-247,821	0	-82,728	0	-22,501	0	0	0	117,398	-33,210	-302,541
0	-213,371	0	-19,169	0	-14	0	0	0	93,408	0	-184,656
0	0	0	0	0	0	0	0	0	13,503	0	-42,272
0	0	0	0	0	0	0	0	0	3,453	0	-7,011
0	**0**	**0**	**-40,530**	**-6,231**	**-962**	**0**	**0**	**0**	**-25,200**	**4,143**	**-68,779**
0	0	0	-3,942	-6,231	0	0	0	0	-7,723	0	-17,896
0	0	0	-36,588	0	0	0	0	0	0	0	-36,588
0	0	0	0	0	-962	0	0	0	-17,478	4,143	-14,296
16,322	**342,672**	**0**	**147,878**	**0**	**507,761**	**4,827**	**600**	**75,884**	**202,561**	**0**	**1,354,078**
0	**0**	**0**	**28,391**	**0**	**0**	**4,827**	**0**	**0**	**-3,244**	**0**	**29,974**
16,322	**342,672**	**0**	**119,487**	**0**	**507,761**	**0**	**600**	**75,884**	**205,805**	**0**	**1,324,104**
16,322	**342,672**	**0**	**87,726**	**0**	**507,761**	**0**	**600**	**75,884**	**205,805**	**0**	**1,292,343**
0	342,672	0	85,913	0	30,593	0	0	1,100	72,825	0	586,254
0	0	0	259	0	460,280	0	0	0	237	0	460,776
15,035	0	0	1,018	0	2,622	0	600	72,769	83,464	0	175,508
1,287	0	0	536	0	2,821	0	0	2,015	49,279	0	58,360
0	0	0	0	0	11,445	0	0	0	0	0	11,445
0	**0**	**0**	**31,761**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**31,761**

Ministry of Energy and Mineral Resources
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03 ENERGY SUPPLY AND DEMAND

3.1 Primary Energy Supply by Sources

Year	Coal	Crude Oil & Product	Natural Gas & Product	Hydro Power	Geothermal	Solar PP & Solar PV	Wind	
	BOE							
2014	319,956,003	577,688,014	269,636,449	37,955,765	16,191,566	n.a	n.a	
2015	364,619,216	509,485,005	277,793,372	34,604,474	16,337,878	n.a	n.a	
2016	380,310,000	532,134,133	286,140,751	47,450,306	17,537,710	n.a	n.a	
2017	407,526,000	553,121,237	278,963,982	47,599,892	20,259,621	n.a	n.a	
2018	483,335,998	567,189,661	285,286,127	40,204,916	26,040,932	355,896	466,082	
2019	581,356,407	545,007,702	284,645,039	39,329,376	26,193,174	461,856	1,185,873	
2020	553,923,901	471,002,427	299,926,865	45,206,315	28,909,243	704,140	1,164,203	
2021	558,782,122	493,428,112	302,911,101	45,947,523	29,532,560	788,979	1,070,935	
2022	745,721,066	554,614,889	308,152,429	50,781,201	30,978,688	1,705,507	872,631	
2023	735,542,521	554,391,240	317,046,736	45,676,673	31,459,399	3,032,918	1,179,535	
2024	803,864,256	573,857,851	321,925,780	50,826,030	31,138,930	5,989,211	1,146,302	

Note: Changes in Biofuel Assumptions as Biodiesel (pure)
1) Other renewables is based on Bioenergy Based Power Plant
2) Estimation data

(BOE)

	Other renew-ables[1)]	Solar Powered Public Street Lighting & Energy Saving Lamp	Traditional Biomass[2)]	Biofuel	BioGas	Industrial Biomass	Solar Water Heater	Direct Use of Geo-thermal	Total
	BOE								
	n.a	n.a	47,686,087	11,966,513	n.a	n.a	n.a	n.a	1,281,080,397
	n.a	n.a	40,096,791	8,380,587	120,162	120,200	n.a	n.a	1,251,557,683
	n.a	n.a	36,085,192	20,625,241	144,549	185,041	n.a	n.a	1,320,612,924
	n.a	n.a	29,332,604	20,947,287	157,140	185,810	n.a	n.a	1,358,093,574
	30,493,437	8,795	27,997,958	28,312,237	162,745	341,891	n.a	n.a	1,490,196,675
	29,906,203	12,217	24,428,202	45,927,085	166,591	554,868	n.a	n.a	1,579,174,592
	30,386,506	13,284	21,992,044	55,515,900	176,604	637,393	n.a	n.a	1,509,558,826
	37,420,528	13,336	21,049,554	65,566,941	179,989	1,308,665	n.a	n.a	1,558,000,344
	52,086,071	50,462	18,652,939	74,370,840	206,181	4,523,519	935,639	3,645	1,843,655,706
	57,739,030	43,076	16,648,879	84,096,248	702,408	20,451,942	1,915,256	3,645	1,869,929,504
	56,317,737	49,959	16,322,137	90,181,247	599,918	53,147,484	2,421,304	3,645	2,007,791,792

3.2 Final Energy Consumption by Sector

3.2.1 Energy Consumption (included Traditional Biomass)

Sector	2014	2015	2016	2017	2018
Industrial	243,692,389	244,512,635	237,806,922	248,751,489	308,101,365
Households	152,589,661	149,138,103	149,435,602	148,201,551	151,964,889
Commercial	40,249,580	39,286,992	41,369,026	42,378,126	43,602,238
Transportation	342,824,309	345,573,159	341,273,971	364,147,055	400,041,524
Other	28,694,657	21,704,642	19,864,507	16,999,541	13,577,545
Final Energy Consumption	808,050,596	800,215,531	789,750,028	820,477,763	917,293,355
Non Energy Utilization	28,468,567	33,439,816	32,018,205	31,664,717	33,343,270

3.2.2 Energy Consumption (excluded Traditional Biomass)

Sector	2014	2015	2016	2017	2018
Industrial	243,692,389	244,512,635	237,806,922	248,751,489	308,101,365
Households	106,382,583	110,670,381	115,048,163	120,201,953	125,299,067
Commercial	38,896,378	37,940,555	40,029,321	41,045,120	42,275,897
Transportation	342,824,309	345,573,159	341,273,971	364,147,055	400,041,524
Other	28,694,657	21,704,642	19,864,507	16,999,541	13,577,545
Final Energy Consumption	760,490,316	760,401,372	754,022,884	791,145,159	889,295,397
Non Energy Utilization	28,468,567	33,439,816	32,018,205	31,664,717	33,343,270

Note: Final Energy Consumption excluding Non Energy Utilization

(BOE)

	2019	2020	2021	2022	2023	2024
	363,534,776	297,942,171	286,850,949	511,714,610	556,638,954	586,240,256
	153,780,287	158,357,450	162,295,494	162,512,750	167,609,508	175,494,394
	45,544,675	42,204,476	43,947,608	49,702,334	55,473,052	58,359,855
	413,515,119	364,394,195	388,608,604	432,588,457	448,534,653	460,775,565
	11,112,694	10,244,770	10,788,136	10,940,255	10,619,084	11,444,716
	987,487,552	873,143,062	892,490,790	1,167,138,473	1,237,426,624	1,292,342,839
	34,079,951	31,701,587	31,294,103	31,591,456	31,568,053	31,761,292

(BOE)

	2019	2020	2021	2022	2023	2024
	363,534,776	297,942,171	286,850,949	511,714,610	556,638,954	586,254,282
	130,671,794	137,678,517	142,552,485	144,839,890	150,805,514	160,473,328
	44,224,966	40,891,366	42,641,063	48,402,322	54,179,540	57,072,810
	413,515,119	364,394,195	388,608,604	432,588,457	448,534,653	460,775,565
	11,112,694	10,244,770	10,788,136	10,940,255	10,619,084	11,444,716
	963,059,350	851,151,018	871,441,236	1,148,485,534	1,220,777,745	1,276,020,702
	34,079,951	31,701,587	31,294,103	31,591,456	31,568,053	31,761,292

3.3 Final Energy Consumption by Type

Year	Tradi-tional Biomass	Industrial Biomass	Solar Water Heater	Direct Use of Geother-mal	Coal[1)]	Natural Gas	Oil Fuel
2014	47,560	n.a	n.a	n.a	55,064	95,103	363,713
2015	39,814	120	n.a	n.a	70,228	96,012	323,331
2016	35,727	185	n.a	n.a	63,504	93,192	329,094
2017	29,333	186	n.a	n.a	58,800	108,479	331,454
2018	27,998	342	n.a	n.a	100,506	118,720	320,730
2019	24,428	555	n.a	n.a	167,412	114,112	261,971
2020	21,992	637	n.a	n.a	113,416	106,970	222,339
2021	21,050	1,309	n.a	n.a	87,820	110,932	235,941
2022	18,653	4,524	936	3.65	299,191	107,321	262,987
2023	16,649	20,452	1,915	3.65	316,754	120,994	263,690
2024	16,322	53,147	2,421	3.65	342,672	87,726	262,052

Note: Final Energy Consumption excluding Non Energy Utilization

1) There is an increase of smelter commissioning in 2018 and optimum operation of smelter in 2019
2) BioGasoil consumption is blending product of biodiesel

(Thousand BOE)

	BioGasoil[2)]			BioGas	Bri-quette	LPG	Electricity	Total
	Gasoil	Biodiesel	Blending Product					
	60,901	11,967	72,868	n.a	58.39	51,942	121,743	808,051
	85,895	5,939	91,834	120	50.48	54,361	124,344	800,216
	59,244	19,516	78,760	145	106.91	56,626	132,411	789,750
	77,200	16,682	93,882	157	106.91	61,299	136,781	820,478
	105,949	24,327	130,276	163	35.64	64,471	154,052	917,293
	150,395	41,494	191,889	167	28.40	66,304	160,621	987,488
	124,806	54,494	179,300	177	188.26	68,400	159,725	873,143
	133,767	60,292	194,059	180	0.00	71,253	169,948	892,491
	149,134	67,784	216,918	206	0.00	72,988	183,412	1,167,138
	148,746	79,724	228,470	702	3.49	74,254	193,539	1,237,427
	154,355	85,354	239,709	600	0.00	75,884	205,805	1,292,343

3.4 Share of Final Energy Consumption by Sector

(%)

Year	Industry	Household	Commercial	Transportation	Other
2014	32.04	13.99	5.11	45.08	3.77
2015	32.16	14.55	4.99	45.45	2.85
2016	31.54	15.26	5.31	45.26	2.63
2017	31.44	15.19	5.19	46.03	2.15
2018	34.65	14.09	4.75	44.98	1.53
2019	37.75	13.57	4.59	42.94	1.15
2020	35.00	16.18	4.80	42.81	1.20
2021	32.92	16.36	4.89	44.59	1.24
2022	44.56	12.61	4.21	37.67	0.95
2023	45.60	12.35	4.44	36.74	0.87
2024	45.94	12.58	4.47	36.11	0.90

Note: Commercial Energy (excluding traditional biomass)

3.5 Share of Final Energy Consumption by Type

(%)

Year	Industrial Biomass	Solar Water Heater	Direct Use of Geother-mal	Coal[1)]	Natural Gas	Oil Fuel
2014	n.a	n.a	n.a	7.25	12.51	47.83
2015	0.02	n.a	n.a	9.24	12.63	42.52
2016	0.02	n.a	n.a	8.44	12.36	43.65
2017	0.02	n.a	n.a	7.45	13.71	41.90
2018	0.04	n.a	n.a	11.31	13.35	36.07
2019	0.06	n.a	n.a	17.39	11.85	27.20
2020	0.07	n.a	n.a	13.35	12.57	26.12
2021	0.15	n.a	n.a	10.08	12.73	27.07
2022	0.39	0.08	0.00	26.05	9.34	22.90
2023	1.68	0.16	0.00	25.95	9.91	21.60
2024	4.17	0.19	0.00	26.85	6.87	21.01

Note: Excluding Traditional Biomass
1) Coal is including Briquette
2) BioGasoil consumption is blending product of biodiesel; Gasoil is processed data; source of biodiesel is from Directorate General of New and Renewable Energy and Energy

3.5 Share of Final Energy Consumption by Type (continued)

(%)

Year	BioGasoil[2)]			BioGas	LPG	Electricity
	Gasoil	Biodiesel	Blending Product			
2014	9.42	0.16	9.58	n.a	6.83	16.01
2015	12.01	0.06	12.08	0.02	7.15	16.35
2016	10.20	0.25	10.45	0.02	7.51	17.56
2017	11.69	0.18	11.87	0.02	7.75	17.29
2018	14.46	0.19	14.65	0.02	7.25	17.32
2019	19.71	0.22	19.92	0.02	6.88	16.68
2020	20.76	0.30	21.07	0.02	8.04	18.77
2021	21.96	0.31	22.27	0.02	8.18	19.50
2022	18.57	0.31	18.89	0.02	6.36	15.97
2023	18.37	0.35	18.72	0.06	6.08	15.85
2024	18.43	0.36	18.79	0.05	5.95	16.13

Note: Exluding Traditional Biomass
1) Coal is including Briquette
2) BioGasoil consumption is blending product of biodiesel; Gasoil is processed data; source of biodiesel is from Directorate General of New and Renewable Energy and Energy

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04 ENERGY PRICES

4.1 Crude Oil Price

Crude Oil Type	2014	2015	2016	2017	2018
SLC	98.63	49.39	40.98	51.98	68.20
Arjuna	94.82	48.54	39.35	51.20	67.65
Attaka	97.96	51.20	41.82	52.86	69.78
Cinta	96.83	48.22	40.00	50.59	66.65
Duri	94.67	47.60	37.63	49.47	65.76
Widuri	97.03	48.44	40.13	50.76	66.82
Belida	99.63	52.62	43.15	53.33	70.25
Senipah Condensate	98.25	52.92	43.44	53.31	69.57
Average [1)]	96.51	49.21	40.13	51.19	67.47

Source : Oil and Gas Statistics - Directorate General of Oil and Gas
Note : 1) Arithmetic Average Indonesian Crude Oil Price from 57 type of crude

(US$ per Barrel)

	2019	2020	2021	2022	2023	2024
	63.10	41.98	68.94	99.18	81.16	79.81
	63.42	39.24	68.15	98.38	79.05	81.55
	65.14	40.07	69.45	99.27	80.05	78.90
	61.79	40.27	66.81	97.47	79.45	79.33
	64.75	48.69	73.84	107.15	86.47	84.23
	61.99	40.82	67.75	98.02	80.00	83.88
	64.87	39.89	69.64	99.42	80.09	78.96
	59.89	39.35	69.90	91.70	71.44	71.18
	62.37	40.39	68.47	97.03	78.43	78.12

4.2 International Gas Price

(US$/MMBTU)

Year	LNG	Natural Gas			
	CIF on Japan[1)]	Average German Import Price[2)]	UK (Heren NBP Index)[3)]	USA (Henry Hub)[4)]	Canada (Alberta)[5)]
2014	15.73	9.11	8.22	4.34	3.87
2015	9.96	6.61	6.52	2.61	2.01
2016	6.73	4.93	4.65	2.81	1.55
2017	7.87	5.62	5.78	2.96	1.60
2018	9.78	6.62	7.97	3.12	1.12
2019	9.70	5.25	4.46	2.51	1.27
2020	7.65	4.06	3.17	1.99	1.58
2021	9.93	15.91	15.45	3.84	3.50
2022	16.98	37.52	24.55	6.38	5.81
2023	13.22	12.88	12.30	2.53	3.02
2024	12.84	10.89	11.31	2.19	1.60

Source : Statistical Review of World Energy 2023, Energy Institute
Note : 1) in 2024, based on https://ycharts.com/indicators/japan_liquefied_natural_gas_import_price
2) 2021 to 2024, based on https://ycharts.com/indicators/germany_natural_gas_border_price
3) in 2024, based on https://tradingeconomics.com/commodity/uk-natural-gas
4) in 2024, based on https://www.eia.gov/dnav/ng/ng_pri_fut_s1_a.htm
5) 2021 to 2024, based on https://energyrates.ca/why-are-natural-gas-rates-so-high-in-alberta/

4.3 Average Price of LNG and Coal FOB Export

Year	LNG[1)]	Coal[2)]
	US$/MMBTU	US$/Ton
2014	12.34	72.62
2015	7.26	60.13
2016	5.91	61.84
2017	4.32	85.92
2018	8.23	98.96
2019	7.89	77.89
2020	5.31	58.17
2021	7.76	121.47
2022	11.17	276.58
2023	10.48	201.15
2024	10.37	121.48

Sources : 1. Bank Indonesia
2. Directorate General of Mineral and Coal, using Arithmetic average of Indonesian Coal Price Reference

4.4 Energy Price per Energy Unit[1)]

Year	Gasoline[2)] (Ron 90)		Avtur		Kerosene		Gasoil CN 48	
	Thousand Rp/BOE	US$/ BOE	Thousand Rp/BOE	US$/ BOE	Thousand Rp/BOE	US$/ BOE	Thousand Rp/BOE	US$/ BOE
2014	1,157	93	1,524	123	422	34	885	71
2015	1,238	90	1,562	113	422	31	1,052	76
2016	1,129	84	1,227	91	422	31	815	61
2017	1,110	82	1,418	105	422	31	794	59
2018	1,110	79	1,713	122	422	30	794	57
2019	1,110	80	1,664	120	422	30	794	57
2020	1,110	79	1,553	110	422	30	794	56
2021	1,110	78	2,136	150	422	30	794	56
2022	1,716	109	3,212	204	422	27	879	56
2023	1,716	111	2,856	185	422	27	1,048	68
2024	1,716	106	2,619	162	422	26	1,048	65

Note : 1) At the official selling point
2) Gasoline RON 88 price before 2022

	LPG (3 Kg)		LPG (12 Kg)		LPG (50 Kg)	
	Thou-sand Rp/ BOE	US$/ BOE	Thou-sand Rp/ BOE	US$/ BOE	Thou-sand Rp/ BOE	US$/ BOE
	499	40	1,211	97	1,548	124
	499	36	0	0	0	0
	499	37	0	0	0	0
	499	37	1,410	104	1,461	108
	499	36	1,457	104	1,612	115
	499	36	1,457	105	1,330	96
	499	35	1,457	103	1,333	95
	499	35	1,867	131	2,238	157
	499	32	2,361	150	2,289	145
	499	32	2,361	153	2,261	147
	499	31	2,258	140	2,261	140

4.4 Energy Price per Energy Unit[1)] (continued)

Year	Coal		Electricity (Average)	
			Household	
	Thousand Rp/ BOE	US$/BOE	Thousand Rp/ BOE	US$/BOE
2014	235	19	1,237	99
2015	155	11	1,365	99
2016	143	11	1,376	102
2017	183	14	1,723	127
2018	179	13	1,798	128
2019	179	13	1,793	129
2020	214	15	1,618	115
2021	179	13	1,670	117
2022	202	13	1,841	117
2023	240	16	1,886	122
2024	489	30	1,899	118

Note : 1) At the official selling point

Electricity (Average)				
	Industry		Commercial	
	Thousand Rp/ BOE	US$/BOE	Thousand Rp/ BOE	US$/BOE
	1,595	128	2,065	166
	1,864	135	2,095	152
	1,716	128	1,959	146
	1,776	131	2,032	150
	1,770	126	2,029	145
	1,796	129	2,053	148
	1,780	126	2,022	143
	1,772	124	2,014	141
	1,763	112	2,048	130
	1,762	114	2,057	133
	1,736	107	2,020	125

Ministry of Energy and Mineral Resources
Republic of Indonesia

05 ENERGY DEMAND BY SECTOR

5.1.1 Energy Consumption in Industrial Sector
(in Original Unit)

Year	Industrial Biomass	Direct Use of Geother-mal	Coal	Bri-quette	Gas	Oil Fuel
						Kerosene
	Thousand Ton	Thermal GWh	Thousand Ton		MMSCF	Kilo Liter
2014	n.a	n.a	13,110	16	519,533	55,503
2015	47	n.a	16,721	14	524,100	43,950
2016	72	n.a	15,120	30	509,570	34,211
2017	73	n.a	14,000	30	593,359	35,067
2018	133	n.a	23,930	10	649,539	34,265
2019	217	n.a	39,860	8	623,465	32,328
2020	249	n.a	27,004	53	587,375	30,032
2021	511	n.a	20,910	0	609,251	29,911
2022	1,765	6	86,587	0	587,393	28,798
2023	7,980	6	91,669	1	663,654	28,747
2024	20,737	6	99,170	0	478,358	29,526

Note: 1) Based on Regulation of the Minister of Energy and Mineral Resources No. 12 year 2015 regarding to mandatory of minimum biodiesel utilization as blending product of gasoil by 30% in 2020

Oil Fuel					LPG	Electricity
Gasoil CN 48	Bio-Gasoil[1)]	MDF	Fuel Oil	Total Oil Fuel		
Kilo Liter					Thousand Ton	GWh
6,525,236	0	50,953	1,596,283	8,227,975	88	65,909
4,570,091	0	44,423	1,395,820	6,054,284	92	64,079
4,262,333	0	35,294	1,696,881	6,028,718	96	68,145
3,839,186	0	82,275	1,761,804	5,718,331	104	72,238
2,854,407	0	59,633	1,892,499	4,840,804	110	93,537
169,475	2,053,730	47,464	1,419,742	3,722,739	113	94,281
315,726	1,918,990	35,415	1,101,693	3,401,856	116	89,133
571,220	2,076,953	45,559	1,166,224	3,889,866	121	100,313
229,938	2,321,611	53,407	2,119,067	4,752,821	124	113,565
204,932	2,445,246	41,149	1,554,190	4,274,265	126	115,341
297,691	2,565,540	39,056	1,664,392	4,596,205	129	118,778

5.1.2 Energy Consumption in Industrial Sector
(in Energy Unit)

Year	Industrial Biomass	Direct Use of Geother-mal	Coal	Briquette	Gas	Oil Fuel	
						Kerosene	Gasoil CN 48
2014	n.a	n.a	55,064	58	93,308	329	42,330
2015	120	n.a	70,228	50	94,128	261	29,647
2016	185	n.a	63,504	107	91,519	203	27,650
2017	186	n.a	58,800	107	106,567	208	24,905
2018	342	n.a	100,506	36	116,657	203	18,517
2019	555	n.a	167,412	28	111,974	192	1,099
2020	637	n.a	113,416	188	105,492	178	2,048
2021	1,309	n.a	87,820	0	109,421	177	3,706
2022	4,524	4	299,191	0	105,496	171	1,492
2023	20,452	4	316,754	3	119,192	170	1,329
2024	53,147	4	342,672	0	85,913	175	1,931

Note: 1) Based on Regulation of the Minister of Energy and Mineral Resources No. 12 year 2015 regarding to mandatory of minimum biodiesel utilization as blending product of gasoil by 30% in 2020

(Thousand BOE)

	Oil Fuel				LPG	Electricity	Total
	BioGasoil[1)]	MDF	Fuel Oil	Total Oil Fuel			
	0	337	11,112	54,108	753	40,402	243,692
	0	294	9,717	39,917	788	39,281	244,513
	0	233	11,812	39,899	821	41,773	237,807
	0	544	12,264	37,921	888	44,282	248,751
	0	394	13,174	32,288	934	57,338	308,101
	13,323	314	9,883	24,811	961	57,794	363,535
	12,449	234	7,669	22,578	991	54,638	297,942
	13,473	301	8,118	25,776	1,033	61,492	286,851
	15,061	353	14,751	31,827	1,058	69,616	511,715
	15,863	272	10,819	28,453	1,076	70,704	556,639
	16,643	258	11,586	30,593	1,100	72,811	586,240

5.1.3 Share of Energy Consumption in Industrial Sector

Year	Industrial Biomass	Direct Use of Geother-mal	Coal	Briquette	Gas	Oil Fuel	
						Kerosene	
2014	0.00	0.00	22.60	0.02	38.29	0.14	
2015	0.05	0.00	28.72	0.02	38.50	0.11	
2016	0.08	0.00	26.70	0.04	38.48	0.09	
2017	0.07	0.00	23.64	0.04	42.84	0.08	
2018	0.11	0.00	32.62	0.01	37.86	0.07	
2019	0.15	0.00	46.05	0.01	30.80	0.05	
2020	0.21	0.00	38.07	0.06	35.41	0.06	
2021	0.46	0.00	30.62	0.00	38.15	0.06	
2022	0.88	0.00	58.47	0.00	20.62	0.03	
2023	3.67	0.00	56.90	0.00	21.41	0.03	
2024	9.07	0.00	58.45	0.00	14.65	0.03	

Note: Excluded Traditional Biomass
1) Based on Regulation of the Minister of Energy and Mineral Resources No. 12 year 2015 regarding to mandatory of minimum biodiesel utilization as blending product of gasoil by 30% in 2020

(%)

Oil Fuel					LPG	Elec-tricity
Gasoil CN 48	Bio-Gasoil[1)]	MDF	Fuel Oil	Total Fuel		
17.37	0.00	0.14	4.56	22.20	0.31	16.58
12.12	0.00	0.12	3.97	16.33	0.32	16.06
11.63	0.00	0.10	4.97	16.78	0.35	17.57
10.01	0.00	0.22	4.93	15.24	0.36	17.80
6.01	0.00	0.13	4.28	10.48	0.30	18.61
0.30	3.66	0.09	2.72	6.82	0.26	15.90
0.69	4.18	0.08	2.57	7.58	0.33	18.34
1.29	4.70	0.10	2.83	8.99	0.36	21.44
0.29	2.94	0.07	2.88	6.22	0.21	13.60
0.24	2.85	0.05	1.94	5.11	0.19	12.70
0.33	2.84	0.04	1.98	5.22	0.19	12.42

5.2.1 Energy Consumption in Household Sector
(in Original Unit)

Year	Traditional Biomass[1)]	Gas	Kerosene	LPG	BioGas	Electricity
	Thousand Ton	MMSCF	Kilo Liter	Thousand Ton	Thousand m^3	GWh
2014	20,108	549	831,641	5,843	n.a	84,086
2015	16,740	861	658,537	6,048	18,953	88,682
2016	14,965	923	512,604	6,370	22,800	93,635
2017	12,185	1,363	525,429	6,905	24,786	94,457
2018	11,607	1,333	513,411	7,252	25,670	97,927
2019	10,056	2,238	484,392	7,459	26,277	103,833
2020	8,999	2,464	449,994	7,691	27,856	116,997
2021	8,592	3,073	448,180	8,015	28,390	120,195
2022	7,623	4,059	431,506	8,211	57,050	120,954
2023	7,313	5,862	430,745	8,353	110,793	127,259
2024	6,543	5,666	442,413	8,536	94,626	136,157

Note: 1) Estimation data

5.2.2 Energy Consumption in Household Sector
(in Energy Unit)

(Thousand BOE)

Year	Tra-ditional Biomass[1)]	Gas	Kerosene	LPG	BioGas	Electricity	Total
2014	46,207	99	4,929	49,810	n.a	51,545	152,590
2015	38,468	155	3,903	51,558	120	54,362	149,138
2016	34,387	166	3,038	54,302	145	57,398	149,436
2017	28,000	245	3,114	58,865	157	57,902	148,202
2018	26,672	239	3,043	61,819	163	60,029	151,965
2019	23,108	402	2,871	63,583	167	63,649	153,780
2020	20,679	442	2,667	65,565	177	68,800	158,357
2021	19,743	552	2,657	68,328	180	70,836	162,295
2022	17,517	729	2,558	69,992	362	71,355	162,513
2023	16,804	1,053	2,553	71,206	702	75,291	167,610
2024	15,035	1,018	2,622	72,769	600	83,450	175,494

Note: 1) Estimation data

5.2.3 Share of Energy Consumption in Household Sector

(%)

Year	Gas	Kerosene	LPG	BioGas	Electricity
2014	0.09	4.63	46.82	0.00	48.45
2015	0.14	3.55	46.83	0.11	49.38
2016	0.14	2.64	47.20	0.13	49.89
2017	0.20	2.59	48.94	0.13	48.14
2018	0.19	2.43	49.34	0.13	47.91
2019	0.31	2.20	48.66	0.13	48.71
2020	0.31	1.90	46.64	0.13	51.02
2021	0.38	1.83	46.99	0.12	50.67
2022	0.49	1.73	47.36	0.24	50.17
2023	0.69	1.66	46.38	0.46	50.81
2024	0.63	1.63	45.35	0.37	52.01

5.3.1 Energy Consumption in Commercial Sector

(in Original Unit)

Year	Traditional Biomass [1]	Solar Water Heater	Gas	Oil Fuel					LPG	Electricity
				Kerosene	Gasoil CN 48	Bio-Gasoil [2]	MDF	Total		
	Thousand Ton	Thousand TOE	MMSCF	Kilo Liter					Thousand Ton	GWh
2014	589	n.a	8,057	45,923	939,580	0	273	985,777	162	48,452
2015	586	62	7,990	36,364	658,056	0	238	694,658	169	49,879
2016	583	71	7,084	28,306	613,741	0	189	642,236	176	54,002
2017	580	82	6,705	29,014	552,811	0	441	582,267	191	56,202
2018	577	93	6,745	28,350	411,011	0	320	439,681	201	59,570
2019	574	104	6,871	26,748	24,403	295,720	255	347,126	207	63,611
2020	571	112	4,076	24,848	45,462	276,319	190	346,819	213	58,902
2021	569	122	3,906	24,748	82,251	299,064	244	406,308	222	61,053
2022	566	128	4,297	23,828	33,109	334,293	287	391,516	227	68,891
2023	563	261	2,035	23,786	29,509	352,095	221	405,610	231	77,176
2024	560	330	2,986	24,430	42,865	369,417	210	436,921	236	80,391

Note: 1) Estimation Data

2) Based on Regulation of the Minister of Energy and Mineral Resources No. 12 year 2015 regarding to mandatory of minimum biodiesel utilization as blending product of gasoil by 30% in 2020

5.3.2 Energy Consumption in Commercial Sector
(in Energy Unit)

(Thousand BOE)

Year	Tra-ditional Bio-mass[1)]	Solar Water Heater	Gas	Oil Fuel					LPG	Elec-tricity	Total
				Kero-sene	Gasoil CN 48	Bio-Gas-oil[2)]	MDF	Total Oil Fuel			
2014	1,353	n.a	1,447	272	6,095	0	2	6,369	1,379	29,701	40,250
2015	1,346	457	1,435	216	4,269	0	2	4,486	1,444	30,576	39,287
2016	1,340	521	1,272	168	3,981	0	1	4,150	1,504	33,103	41,369
2017	1,333	603	1,204	172	3,586	0	3	3,761	1,628	34,452	42,378
2018	1,326	682	1,211	168	2,666	0	2	2,836	1,712	36,516	43,602
2019	1,320	759	1,234	159	158	1,918	2	2,237	1,761	38,993	45,545
2020	1,313	824	732	147	295	1,793	1	2,236	1,816	36,107	42,204
2021	1,307	893	701	147	534	1,940	2	2,622	1,892	37,426	43,948
2022	1,300	936	772	141	215	2,169	2	2,527	1,938	42,230	49,702
2023	1,294	1,915	365	141	191	2,284	1	2,618	1,972	47,309	55,473
2024	1,287	2,421	536	145	278	2,396	1	2,821	2,015	49,279	58,360

Note: 1) Estimation Data
2) Based on Regulation of the Minister of Energy and Mineral Resources No. 12 year 2015 regarding to mandatory of minimum biodiesel utilization as blending product of gasoil by 30% in 2020

5.3.3 Share of Energy Consumption in Commercial Sector

(%)

Year	Solar Water Heater	Gas	Oil Fuel				LPG	Electricity
			Kero-sene	Gasoil CN 48	Bio-Gasoil[1)]	MDF		
2014	0.00	3.72	0.70	15.67	0.00	0.00	3.55	76.36
2015	1.21	3.78	0.57	11.25	0.00	0.00	3.80	80.59
2016	1.30	3.18	0.42	9.95	0.00	0.00	3.76	82.70
2017	1.47	2.93	0.42	8.74	0.00	0.01	3.97	83.94
2018	1.61	2.87	0.40	6.31	0.00	0.01	4.05	86.38
2019	1.72	2.79	0.36	0.36	4.34	0.00	3.98	88.17
2020	2.01	1.79	0.36	0.72	4.38	0.00	4.44	88.30
2021	2.09	1.64	0.34	1.25	4.55	0.00	4.44	87.77
2022	1.93	1.59	0.29	0.44	4.48	0.00	4.00	87.25
2023	3.66	0.70	0.27	0.37	4.37	0.00	3.77	90.52
2024	4.24	0.94	0.25	0.49	4.20	0.00	3.53	86.34

Note: 1) Based on Regulation of the Minister of Energy and Mineral Resources No. 12 year 2015 regarding to mandatory of minimum biodiesel utilization as blending product of gasoil by 30% in 2020

5.4.1 Energy Consumption in Transportation Sector
(in Original Unit)

Year	Gas	Oil Fuel						
		AvGas	Avtur	Gasoline RON 88	Gasoline RON 92	Gasoline RON 95+98+100	Gasoline RON 90	Gasoil CN 51
	MMSCF	Kilo Liter						
2014	1,388	1,499	4,229,094	28,822,039	1,062,920	154,888	0	33,305
2015	1,635	3,070	4,336,624	27,269,723	2,761,956	278,758	379,959	38,552
2016	1,310	3,172	4,875,486	21,033,867	4,780,929	366,168	5,805,228	105,889
2017	2,576	2,964	5,371,183	12,120,403	6,188,300	379,998	14,487,098	391,895
2018	3,410	3,808	5,717,729	10,434,089	5,643,055	385,977	17,706,790	666,191
2019	2,792	2,366	5,030,485	11,337,192	4,254,343	326,569	19,410,819	547,193
2020	1,686	1,453	2,774,198	8,383,244	4,056,945	353,168	18,143,189	507,151
2021	1,431	1,047	2,031,726	3,358,307	5,713,190	481,184	23,297,401	701,009
2022	1,807	1,409	3,320,023	6,115	5,776,110	320,353	29,697,521	1,024,064
2023	2,135	1,670	4,331,309	0	5,438,351	361,338	30,223,847	827,325
2024	1,442	1,212	4,576,158	0	6,390,432	397,062	29,857,094	216,347

Note: 1) Based on Regulation of the Minister of Energy and Mineral Resources No. 12 year 2015 regarding to mandatory of minimum biodiesel utilization as blending product of gasoil by 30% in 2020

Oil Fuel									Elec-tricity
Gasoil CN 53	Kero-sene	Gasoil CN 48	MDF	Fuel Oil	Bio RON 88	Bio RON 92	Bio-Gasoil [1)]	Total Oil Fuel	
Kilo Liter									GWh
0	367	10,665,269	2,033	31,048	0	0	11,232,729	56,235,192	155
0	291	7,469,653	1,772	27,149	0	0	14,156,373	56,723,880	205
136,311	226	6,966,634	1,408	33,004	0	0	12,141,027	56,249,349	223
178,695	232	6,275,015	3,283	34,267	0	0	14,472,082	59,905,415	236
199,901	227	4,665,428	2,379	36,809	0	0	20,082,381	65,544,765	274
287,043	214	277,001	1,894	27,614	0	0	26,188,701	67,691,434	301
268,111	199	516,042	1,413	21,428	0	0	24,470,536	59,497,078	292
333,628	198	933,639	1,818	22,683	20,908,221	480,380	26,484,837	63,360,667	317
374,782	190	375,826	2,131	41,216	0	0	29,604,664	70,544,404	344
374,152	190	334,955	1,642	30,229	0	0	31,181,237	73,106,243	384
423,420	195	486,565	1,558	32,372	0	0	32,715,192	75,097,608	386

5.4.2 Energy Consumption in Transportation Sector
(in Energy Unit)

Year	Gas	Oil Fuel							
		AvGas	Avtur	Gasoline RON 88	Gasoline RON 92	Gasoline RON 95+98+100	Gasoline RON 90	Gasoil CN 51	
2014	249	8	24,912	167,960	6,194	903	0	216	
2015	294	17	25,546	158,914	16,095	1,624	2,214	250	
2016	235	18	28,720	122,575	27,861	2,134	33,830	687	
2017	463	16	31,640	70,632	36,062	2,214	84,424	2,542	
2018	612	21	33,681	60,805	32,885	2,249	103,186	4,322	
2019	501	13	29,633	66,067	24,792	1,903	113,117	3,550	
2020	303	8	16,342	48,853	23,642	2,058	105,729	3,290	
2021	257	6	11,968	19,571	33,294	2,804	135,766	4,548	
2022	324	8	19,557	36	33,660	1,867	173,062	6,643	
2023	383	9	25,514	0	31,692	2,106	176,129	5,367	
2024	259	7	26,957	0	37,240	2,314	173,992	1,403	

Note: 1) Based on Regulation of the Minister of Energy and Mineral Resources No. 12 year 2015 regarding to mandatory of minimum biodiesel utilization as blending product of gasoil by 30% in 2020

(Thousand BOE)

Oil Fuel							Elec-tricity	Total
Gasoil CN 53	Kerosene	Gasoil CN 48	MDF	Fuel Oil	Bio-Gasoil[1)]	Total Oil Fuel		
0	2	69,187	13	216	72,868	342,480	95	342,824
0	2	48,456	12	189	91,834	345,154	126	345,573
884	1	45,193	9	230	78,760	340,902	137	341,274
1,159	1	40,707	22	239	93,882	363,540	144	364,147
1,297	1	30,265	16	256	130,276	399,261	168	400,042
1,862	1	1,797	13	192	169,889	412,829	185	413,515
1,739	1	3,348	9	149	158,743	363,912	179	364,394
2,164	1	6,057	12	158	171,810	388,157	194	388,609
2,431	1	2,438	14	287	192,048	432,053	211	432,588
2,427	1	2,173	11	210	202,276	447,916	235	448,535
2,747	1	3,156	10	225	212,227	460,280	237	460,776

5.4.3 Share of Energy Consumption in Transportation Sector

Year	Gas	Oil Fuel							
		Avgas	Avtur	Gasoline RON 88	Gasoline RON 92	Gasoline RON 95+98+100	Gasoil RON 90	Gasoil CN 51	
2014	0.07	0.00	7.27	48.99	1.81	0.26	0.00	0.06	
2015	0.08	0.00	7.39	45.99	4.66	0.47	0.64	0.07	
2016	0.07	0.01	8.42	35.92	8.16	0.63	9.91	0.20	
2017	0.13	0.00	8.69	19.40	9.90	0.61	23.18	0.70	
2018	0.15	0.01	8.42	15.20	8.22	0.56	25.79	1.08	
2019	0.12	0.00	7.17	15.98	6.00	0.46	27.35	0.86	
2020	0.08	0.00	4.48	13.41	6.49	0.56	29.02	0.90	
2021	0.07	0.00	3.08	5.04	8.57	0.72	34.94	1.17	
2022	0.08	0.00	4.52	0.01	7.78	0.43	40.01	1.54	
2023	0.09	0.00	5.69	0.00	7.07	0.47	39.27	1.20	
2024	0.06	0.00	5.85	0.00	8.08	0.50	37.76	0.30	

Note: 1) Based on Regulation of the Minister of Energy and Mineral Resources No. 12 year 2015 regarding to mandatory of minimum biodiesel utilization as blending product of gasoil by 30% in 2020

(%)

	Oil Fuel							Elec-tricity	Total
	Gasoil CN 53	Kerosene	Gasoil CN 48	MDF	Fuel Oil	Bio-Gasoil 1)	Total Oil fuel		
	0.00	0.00	20.18	0.00	0.06	21.26	99.90	0.03	100.00
	0.00	0.00	14.02	0.00	0.05	26.57	99.88	0.04	100.00
	0.26	0.00	13.24	0.00	0.07	23.08	99.89	0.04	100.00
	0.32	0.00	11.18	0.01	0.07	25.78	99.83	0.04	100.00
	0.32	0.00	7.57	0.00	0.06	32.57	99.80	0.04	100.00
	0.45	0.00	0.43	0.00	0.05	41.08	99.83	0.04	100.00
	0.48	0.00	0.92	0.00	0.04	43.56	99.87	0.05	100.00
	0.56	0.00	1.56	0.00	0.04	44.21	99.88	0.05	100.00
	0.56	0.00	0.56	0.00	0.07	44.40	99.88	0.05	100.00
	0.54	0.00	0.48	0.00	0.05	45.10	99.86	0.05	100.00
	0.60	0.00	0.69	0.00	0.05	46.06	99.89	0.05	100.00

5.5.1 Energy Consumption in Other Sectors

(in Original Unit)

(Kilo Liter)

Year	Mogas	Kero-sene	Gasoil CN 48	Bio-Gasoil[1)]	MDF	Fuel Oil	Total Oil Fuel
	Kilo Liter						
2014	884,962	38,001	3,310,415	0	7,611	256,710	4,497,699
2015	837,299	30,091	2,318,521	0	6,635	224,472	3,417,019
2016	645,831	23,423	2,162,388	0	5,272	272,888	3,109,802
2017	372,149	24,009	1,947,715	0	12,289	283,329	2,639,491
2018	320,372	23,460	1,448,112	0	8,907	304,347	2,105,198
2019	348,101	22,134	85,979	1,041,908	7,089	228,319	1,733,531
2020	257,402	20,562	160,175	973,552	5,290	177,171	1,594,152
2021	103,115	20,479	289,794	1,053,690	6,805	187,549	1,661,432
2022	188	19,717	116,653	1,177,811	7,977	340,783	1,663,129
2023	0	19,682	103,967	1,240,535	6,146	249,941	1,620,271
2024	0	20,215	151,026	1,301,563	5,833	267,663	1,746,301

Note: 1) Based on Regulation of the Minister of Energy and Mineral Resources No. 12 year 2015 regarding to mandatory of minimum biodiesel utilization as blending product of gasoil by 30% in 2020

5.5.2 Energy Consumption in Other Sectors
(in Energy Unit)

(Thousand BOE)

Year	Mogas	Kero-sene	Gasoil CN 48	Bio-Gasoil[1)]	MDF	Fuel Oil	Total Oil Fuel
2014	5,157	225	21,475	0	50	1,787	28,695
2015	4,879	178	15,040	0	44	1,563	21,705
2016	3,764	139	14,028	0	35	1,900	19,865
2017	2,169	142	12,635	0	81	1,972	17,000
2018	1,867	139	9,394	0	59	2,119	13,578
2019	2,029	131	558	6,759	47	1,589	11,113
2020	1,500	122	1,039	6,316	35	1,233	10,245
2021	601	121	1,880	6,835	45	1,306	10,788
2022	1	117	757	7,641	53	2,372	10,940
2023	0	117	674	8,047	41	1,740	10,619
2024	0	120	980	8,443	39	1,863	11,445

Note: 1) Based on Regulation of the Minister of Energy and Mineral Resources No. 12 year 2015 regarding to mandatory of minimum biodiesel utilization as blending product of gasoil by 30% in 2020

5.5.3 Share of Energy Consumption in Other Sectors

(%)

Year	Mogas	Kerosene	Gasoil CN 48	Bio-Gasoil[1)]	MDF	Fuel Oil
2014	17.97	0.78	74.84	0	0.18	6.23
2015	22.48	0.82	69.30	0	0.20	7.20
2016	18.95	0.70	70.62	0	0.18	9.56
2017	12.76	0.84	74.33	0	0.48	11.60
2018	13.75	1.02	69.19	0	0.43	15.60
2019	18.25	1.18	5.02	60.82	0.42	14.30
2020	14.64	1.19	10.14	61.65	0.34	12.04
2021	5.57	1.13	17.43	63.36	0.42	12.10
2022	0.01	1.07	6.92	69.84	0.48	21.68
2023	0.00	1.10	6.35	75.78	0.38	16.38
2024	0.00	1.05	8.56	73.78	0.34	16.28

Note: 1) Based on Regulation of the Minister of Energy and Mineral Resources No. 12 year 2015 regarding to mandatory of minimum biodiesel utilization as blending product of gasoil by 30% in 2020

Ministry of Energy and Mineral Resources
Republic of Indonesia

06 ENERGY SUPPLY BY ENERGY RESOURCE

6.1.1 Coal Resources and Reserves

as of December 2024

(Million Ton)

Province Code[3]	Province	Exploration Target[1]	Total Inventory[1]	Resources[1]				Verified Resources[2]	Reserves[1]	Verified Reserves[2]
				Inferred	Indicated	Measured	Total			
11	Aceh	1.16	20.92	314.58	401.94	326.23	1,042.75	791.28	507.05	409.40
12	North Sumatera	0.00	14.62	10.24	8.48	7.55	26.26	0.00	7.12	0.00
13	West Sumatera	1.19	362.99	26.30	19.54	33.09	78.94	28.51	29.20	12.37
14	Riau	36.92	525.88	271.52	282.00	303.27	856.79	854.76	359.27	358.75
15	Jambi	142.37	1,309.05	1,042.78	1,140.65	1,995.48	4,178.90	3,455.55	1,700.30	1,574.20
16	South Sumatera	4,885.39	10,732.23	7,541.71	9,795.50	8,325.82	25,663.02	22,257.11	8,935.07	8,556.31
17	Bengkulu	42.75	211.92	137.74	106.06	171.33	415.12	367.59	110.06	93.76
18	Lampung	0.00	106.95	10.25	24.28	60.32	94.85	0.00	60.32	0.00
33	Central Java	0.00	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	East Java	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36	Banten	5.47	52.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00
61	West Kalimantan	2.26	463.44	19.28	13.15	38.55	70.98	0.00	11.22	0.00
62	Central Kalimantan	35.39	2,936.23	3,853.66	3,138.08	3,050.54	10,042.28	8,793.99	2,949.97	2,473.34
63	South Kalimantan	7.83	1,846.31	3,481.90	3,414.04	6,635.73	13,531.67	12,376.75	4,066.94	3,644.19
64	East Kalimantan	890.55	14,115.76	8,377.75	13,055.48	17,892.13	39,325.36	36,268.91	12,257.02	11,177.66
65	North Kalimantan	25.79	379.80	857.89	826.56	927.34	2,611.79	2,554.54	957.87	941.01
72	Central Sulawesi	0.52	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73	South Sulawesi	13.79	31.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
74	Southeast Sulawesi	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
76	West Sulawesi	11.47	26.26	1.30	1.00	0.85	3.15	3.15	0.00	0.00
82	North Maluku	8.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
91	Papua	7.20	31.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00
92	West Papua	93.66	32.82	6.00	5.70	7.20	18.90	18.90	4.09	4.09
	TOTAL	6,212.57	33,202.95	25,952.90	32,232.44	39,775.43	97,960.76	87,771.04	31,955.50	29,245.08

Source : Geological Agency
Note : 1) Classification based on Indonesian National Standard 2015-2019
2) Verified by Competent Person Indonesia
3) Province code refers to the Ministry of Home Affairs

6.1.2 Coal Supply

(Ton)

Year	Production[1)]	Export	Import
	Steam Coal		
2014	458,096,707	381,972,830	2,442,319
2015 [2)]	461,566,080	365,849,610	3,038,701
2016 [2)]	456,197,775	331,128,438	4,118,833
2017 [2)]	461,248,184	286,936,795	4,733,352
2018 [2)]	557,772,940	356,394,687	5,919,784
2019	616,159,594	454,500,164	7,391,172
2020 [2)]	563,728,255	405,052,868	8,949,453
2021 [2)]	613,990,256	435,217,208	14,524,132
2022 [2)]	687,432,384	465,335,605	12,396,727
2023	775,181,855	518,045,831	14,457,536
2024	836,120,000	555,335,800	20,886,425

Sources : 1. Directorate General of Mineral and Coal
2. BPS for Import Data
Note : 1) The type of coal produced in Indonesia is only steam coal
2) Revised data for import

6.1.3 Indonesia Coal Export by Destination

Year	China	India	Japan	South Korea	Taiwan	Hongkong
2014	67,807	60,284	31,232	20,170	15,689	13,697
2015	41,898	79,111	23,252	14,111	10,643	7,263
2016	53,887	56,277	29,798	13,574	12,784	6,475
2017	51,201	46,241	22,177	17,284	10,230	5,715
2018	63,429	49,967	23,081	18,732	7,615	3,423
2019	144,415	116,949	27,679	29,743	21,140	7,502
2020	127,789	97,507	26,970	24,778	17,009	3,864
2021	196,243	72,124	22,740	21,260	16,199	5,301
2022	173,323	109,843	26,474	26,297	18,038	5,108
2023	218,207	107,976	25,603	25,955	14,968	4,931
2024	239,309	107,805	28,635	27,546	15,392	4,578

Source : Directorate General of Mineral and Coal
Note : Since 2019 based on surveyor report

(Thousand Ton)

	Malaysia	Philippines	Thailand	Spain	Others	Total
	10,772	10,274	8,497	5,675	137,876	381,973
	7,719	11,816	9,380	3,846	156,810	365,850
	11,265	13,434	8,720	3,532	121,381	331,128
	13,651	10,443	5,379	2,437	102,178	286,937
	12,701	12,212	6,611	3,227	155,397	356,395
	24,188	26,846	17,286	1,175	37,577	454,500
	26,192	27,483	16,884	0	36,578	405,053
	25,588	30,160	15,294	77	30,230	435,217
	25,314	30,780	15,533	408	34,217	465,336
	28,109	36,083	11,736	0	44,479	518,046
	27,163	38,551	13,548	0	52,808	555,336

6.1.4 Domestic Coal Sales

(Ton)

Year	Total	Iron, Steel & Metal-lurgy[1)]	Power Plant	Cement, Textile, Fertilizer	Pulp & Paper	Bri-quette	Others[2)]
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
2017	97,030,000	300,000	83,000,000	9,802,000	3,898,000	30,000	0
2018	115,080,000	1,750,000	91,140,000	19,030,000	3,150,000	10,000	0
2019	138,418,192	10,064,750	98,550,260	22,515,239	3,304,980	7,969	3,974,994
2020	131,886,643	13,210,585	104,829,892	6,511,942	2,000,387	52,826	5,281,012
2021	133,043,362	11,393,020	112,133,733	4,681,560	1,116,329	0	3,718,720
2022	215,813,239	49,375,407	129,226,621	13,112,483	6,300,036	0	17,798,692
2023	212,867,547	60,111,682	121,197,161	9,808,254	5,376,405	980	16,373,065
2024	232,640,000	69,520,000	133,470,000	10,290,000	5,860,000	0	13,500,000

Source : Directorate General of Mineral and Coal
Note : 1) In 2018 - 2019, there is acceleration for downstream mineral industry
2) In 2013 - 2015, others sales include trader
Since 2016, others sales not include trader
In 2019 companies report the data through online reporting which consist the plantation, forestry and uncategorized sales. There is estimation of uncategorized sales data into cement, textile & fertilizer also pulp & paper.

6.2.1 Oil Reserves

as of 1 January 2024

(MMSTB)

Region [4]	Reserves [1]			Total
	Proven (P1)	Probable (P2)	Possible (P3)	
Aceh	14.07	3.66	1.33	19.06
North Sumatera	8.59	0.05	16.76	25.40
Central Sumatera	719.20	221.01	288.08	1,228.28
Southern Sumatera	344.41	65.05	173.97	583.43
Natuna	88.75	65.91	96.83	251.49
Western Java	221.53	105.89	164.62	492.03
Eastern Java	411.96	386.67	74.66	873.29
Kalimantan	134.96	79.04	86.87	300.87
Sulawesi	42.69	3.65	14.50	60.84
Maluku	212.00	68.93	92.31	373.23
Papua	89.68	5.72	8.10	103.50
Total				**4,311.44**

(Million Barrel)

Year	Contingent Resources [1]	
	C1 [2]	C2+C3 [3]
2024	2,087.32	2,955.90

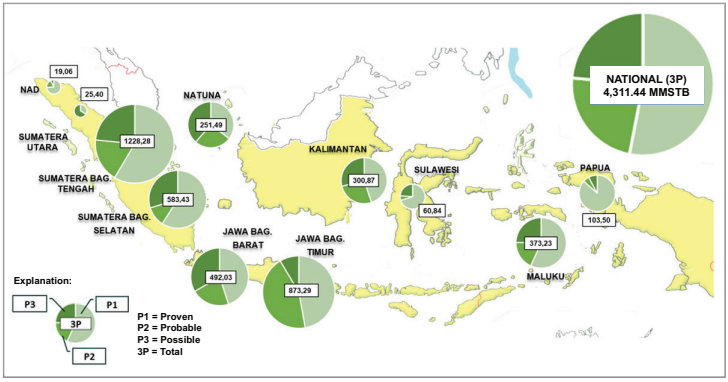
Source : Directorate General of Oil and Gas

Note : 1) Based on new parameter of Petroleum Resources Management System 2018 (it was considered as an oil reserves, however part of oil reserves has not been developed, it has been categorized as contingent resources since 2019)

2) Contingent resources = low estimate (C1)

3) Contingent resources = medium estimate (C2) + high estimate (C3)

4) Region is not based on administrative boundaries



Picture: Oil Reserves per Region

6.2.2 Refinery Capacity in 2024

(MBSD)

Province Code [1)]	Province	Refinery	Refinery Capacity
14	Riau	Dumai	170.00
16	South Sumatera	Plaju	126.30
32	West Java	Balongan	150.00
33	Central Java	Cilacap	348.00
33	Central Java	Cepu	3.80
35	East Java	Tri Wahana Universal (TWU)	18.00
35	East Java	Tuban (TPPI)	100.00
64	East Kalimantan	Balikpapan	260.00
96	Southwest Papua	Kasim	10.00
Total			1,186.10

Source : Directorate General of Oil and Gas
Note : 1) Province code refers to the Ministry of Home Affairs

6.2.3 Crude Oil Supply and Demand

Year	Production	Export	Import	Oil Refinery Input	
	Thousand bbl	Thousand bbl	Thousand bbl	Crude (Thousand bbl)	Crude (Thousand bpd)
2014	287,902	93,080	121,993	309,445	848
2015	286,814	115,063	136,666	271,372	743
2016	304,167	125,541	148,361	323,910	887
2017	292,374	102,737	141,616	323,142	885
2018	281,780	74,472	126,082	334,281	916
2019	272,025	25,971	89,315	334,963	918
2020	259,247	31,448	79,685	302,344	826
2021	240,367	43,769	104,403	300,371	823
2022	223,532	14,813	114,527	322,541	884
2023	221,089	21,396	132,386	331,038	907
2024	212,332	27,199	127,792	311,546	854

Source : Directorate General of Oil and Gas

6.2.4 Domestic Oil Fuels Sales

Fuel Types	2014	2015	2016	2017	2018
AvGas	1,499	3,070	3,172	2,964	3,808
Avtur	4,229,094	4,336,624	4,875,486	5,371,183	5,717,729
RON 88	29,707,002	28,107,022	21,679,698	12,492,553	10,754,461
Kerosene	971,434	769,233	598,769	613,750	599,712
Gasoil CN48 [1)]	21,440,501	15,016,321	14,005,096	12,614,727	9,378,959
MDF	60,870	53,069	42,163	98,288	71,239
Fuel Oil	1,884,040	1,647,441	2,002,773	2,079,400	2,233,655
Gasoline RON 95 [2)]	154,888	278,758	366,168	379,998	385,977
Gasoline RON 92	1,062,920	2,761,956	4,780,929	6,188,300	5,643,055
Gasoline RON 90	n.a	379,959	5,805,228	14,487,098	17,706,790
Gasoil CN53	n.a	n.a	136,311	178,695	199,901
Gasoil CN51	33,305	38,552	105,889	391,895	666,191
BioGasoil	11,232,729	14,156,373	13,747,237	16,078,292	20,717,619
Total Oil Fuel	70,778,283	67,548,378	68,148,919	70,977,143	74,079,096

Sources : 1. Directorate General of Oil and Gas
2. Regulatory Body for Oil and Gas Downstream Activity

Note : 1) Since 2019, there is only relaxation of sales of pure Gasoil CN48 to the Military Equipment, PT PLN (Persero) and PT Freeport Indonesia
2) Addition of domestic sales of RON 98 since 2016

(Kilo Liter)

	2019	2020	2021	2022	2023	2024
	2,366	1,453	1,047	1,409	1,670	1,212
	5,030,485	2,774,198	2,031,726	3,320,023	4,331,309	4,576,158
	11,685,293	8,640,647	3,461,421	6,303	0	0
	565,815	525,635	523,516	504,040	503,151	516,779
	556,859	1,037,405	1,876,903	755,527	673,363	978,147
	56,702	42,308	54,426	63,801	49,158	46,657
	1,675,675	1,300,292	1,376,456	2,501,065	1,834,360	1,964,427
	326,569	353,168	481,184	320,353	361,338	397,062
	4,254,343	4,056,945	5,713,190	5,776,110	5,438,351	6,390,432
	19,410,819	18,143,189	23,297,401	29,697,521	30,223,847	29,857,094
	287,043	268,111	333,628	374,782	374,152	423,420
	547,193	507,151	701,009	1,024,064	827,325	216,347
	30,045,699	28,074,488	30,385,449	33,964,755	35,773,521	37,533,393
	74,444,861	65,724,990	70,237,358	78,309,753	80,391,543	82,901,129

6.2.5 Refinery Production by Type

Year	Gasoline RON 88 + RON 90	Avtur + JP5	Avgas	Kerosene	Gasoil CN48	
2014	70,829	19,938	0	7,332	129,502	
2015	71,733	20,240	0	4,977	129,306	
2016	68,878	22,794	0	6,459	123,818	
2017	53,712	22,917	0	6,041	133,920	
2018	56,313	26,255	0	5,958	139,783	
2019	51,378	29,716	0	6,961	135,062	
2020	41,830	19,394	0	4,751	121,197	
2021	62,216	15,259	0	2,394	130,584	
2022	78,229	18,904	0	2,552	129,708	
2023	83,104	26,316	0	2,405	126,703	
2024	82,324	19,397	0	1,057	114,672	

Source : Directorate General of Oil and Gas

(Thousand Barrel)

	MDF	Fuel Oil	Gasoline RON 95, RON 98, & RON 100	Gasoline RON 92	Gasoil CN51 & CN53	Total Oil Fuel
	1,107	12,243	545	3,629	382	245,507
	972	11,979	672	8,725	242	248,846
	969	18,309	592	24,432	503	266,753
	876	9,827	604	39,085	577	267,559
	714	12,034	779	36,877	1,870	280,584
	503	11,177	1,051	42,424	1,932	280,204
	820	10,893	1,625	48,294	2,671	251,475
	191	12,083	2,469	28,572	2,274	256,041
	146	20,646	1,303	7,495	2,677	261,659
	91	25,420	606	5,870	2,620	273,134
	3	21,765	847	6,838	2,086	248,989

6.2.5 Refinery Production by Type (Continued)

Year	Secondary Fuel				Non Fuel
	Naphtha	LOMC	LSWR	Total	
2014	21,985	243	26,946	49,174	30,460
2015	13,089	3,131	24,713	40,933	27,175
2016	13,641	107	24,798	38,546	15,770
2017	18,165	1,223	26,565	45,953	22,470
2018	19,334	349	22,815	42,498	22,656
2019	18,782	0	26,162	44,944	23,093
2020	16,006	0	21,497	37,504	27,032
2021	231	0	4,905	5,137	23,666
2022	1,406	0	14,806	16,213	24,262
2023	568	0	14,487	15,055	21,843
2024	80	0	21,675	21,755	23,662

Source : Directorate General of Oil and Gas

(Thousand Barrel)

	Lubricant	LPG	HOMC	Total Production
	2,529	6,362	8,544	342,577
	0	8,084	4,498	329,536
	2,019	10,297	6,904	340,289
	2,457	10,062	8,254	356,755
	2,787	10,289	6,763	365,576
	2,332	9,936	6,269	366,779
	2,339	10,183	6,311	334,844
	2,160	10,145	79	297,228
	2,073	10,073	112	314,391
	1,695	10,762	128	322,617
	2,181	10,675	123	307,384

6.2.6 Import of Refined Products

Year	Avtur	AvGas	Gasoline RON 88 & RON 90[1)]	Gasoline RON 95	Gasoline RON 92
2014	981	0	18,829	64	619
2015	1,153	3	17,211	57	1,303
2016	1,119	2	12,879	140	3,783
2017	1,786	3	10,423	180	7,012
2018	1,518	4	9,229	277	9,295
2019	280	2	11,084	150	7,954
2020	0	1	9,732	106	6,157
2021	0	1	8,145	101	9,840
2022	448	2	15,106	115	6,391
2023	278	1	16,122	267	4,666
2024	1,786	2	16,445	243	5,142

Source : Directorate General of Oil and Gas
Note : 1) Since 2018, include Gasoline RON 90

(Thousand KL)

	Naphta	HOMC	Gasoil	Fuel Oil	MDF	Total Oil Fuel
	0	1,093	11,475	174	7	33,242
	0	1,031	7,040	487	8	28,293
	66	33	4,861	585	31	23,500
	0	759	6,882	392	59	27,496
	15	447	6,499	893	47	28,225
	46	948	3,873	358	32	24,729
	278	218	3,182	216	39	19,929
	38	576	3,190	175	21	22,087
	0	369	5,270	154	6	27,861
	0	215	5,145	197	7	26,897
	53	249	4,245	0	7	28,172

6.2.7 Export of Refined Products

Year	Avtur	Kerosene	Gasoil CN 48	Fuel Oil	Gasoline RON 92
2014	13	401	148	3,215	159
2015	15	589	0	1,377	15
2016	15	0	1	2,167	9
2017	15	0	8	2,981	4
2018	16	0	4	2,011	0
2019	795	0	0	0	0
2020	2,886	0	697	346	0
2021	1,052	0	0	0	0
2022	11	0	0	10,589	0
2023	10	0	1	14,189	1
2024	80	0	0	11,126	0

Source : Directorate General of Oil and Gas
Note : Exclude Petrochemical and Lubricant Refinery

(Thousand Barrel)

	Gasoline RON 95	Total Oil Fuel	Naphtha	Other Product	Total
	0	3,936	5,339	23,342	32,616
	0	1,997	2,550	19,208	23,755
	0	2,192	0	10,666	12,858
	0	3,008	0	11,814	14,822
	0	2,031	0	12,047	14,078
	0	795	0	15,060	15,855
	0	3,928	0	16,519	20,447
	0	1,052	0	11,851	12,903
	0	10,600	0	18,253	28,852
	0	14,201	0	18,858	33,059
	0	11,206	0	23,885	35,091

6.2.8 Indonesia Crude Oil Export by Destination

(Thousand Barrel)

Year	Japan	USA	South Korea	Taiwan	Singapore	Others	Total
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	45,489	115,063
2016	18,404	9,943	6,619	6,525	13,581	70,470	125,541
2017	11,901	11,986	7,466	7,543	12,371	51,455	102,723
2018	9,943	10,235	7,122	6,172	7,222	33,777	74,472
2019	160	0	1,765	675	895	22,476	25,971
2020	0	0	635	0	4,573	26,240	31,448
2021	1,094	0	300	575	5,617	36,183	43,769
2022	220	0	225	0	1,154	13,895	15,494
2023	1,693	0	806	0	1,332	17,565	21,396
2024	1,098	0	0	0	1,660	19,324	27,199

Source : Directorate General of Oil and Gas

6.2.9 LPG Supply and Demand

(Ton)

Year	Production			Export	Import	Sales [1]
	Gas Refinery	Oil Refinery	Total			
2014	1,831,683	547,445	2,379,128	483	3,604,009	6,093,138
2015	1,631,599	675,808	2,307,407	408	4,237,499	6,376,990
2016	1,394,804	831,398	2,226,202	494	4,475,929	6,642,633
2017	1,141,552	865,366	2,006,918	372	5,461,934	7,190,871
2018	1,119,049	883,305	2,002,354	434	5,566,572	7,562,893
2019	1,113,475	821,697	1,935,172	457	5,714,693	7,777,990
2020	1,063,499	858,153	1,921,652	334	6,396,962	8,023,805
2021	1,038,750	863,807	1,902,557	351	6,336,354	8,358,499
2022	1,084,956	901,338	1,986,294	174	6,739,131	8,562,019
2023	1,017,036	958,155	1,975,191	209	6,950,651	8,710,547
2024	1,008,425	950,396	1,958,821	157	6,910,066	8,901,790

Source : Directorate General of Oil and Gas
Note : 1) LPG sales including refrigerant

6.3.1 Natural Gas Reserves

as of 1 January 2024

(BSCF)

Region [4]	Reserves [1]			Total
	Proven (P1)	Probable (P2)	Possible (P3)	
Aceh	181.46	17.64	53.03	252.10
North Sumatera	123.40	99.95	168.40	391.70
Central Sumatera	368.99	319.30	121.10	809.40
Southern Sumatera	3,983.20	962.53	1,919.16	6,864.90
Natuna	927.75	369.74	430.89	1,728.40
Western Java	796.62	155.90	293.21	1,245.70
Eastern Java	2,954.30	317.58	628.60	3,900.50
Kalimantan	2,386.00	1,515.17	1,293.85	5,195.00
Sulawesi	3,292.18	411.35	1,384.49	5,088.00
Maluku	10,134.66	4,460.40	1,188.60	15,783.70
Papua	8,689.89	1,011.23	1,021.20	10,722.32
Total				**51,981.80**

(BSCF)

Year	Contingent Resources [1]	
	C1 [2]	C2 + C3 [3]
2024	21,395.89	46,862.04

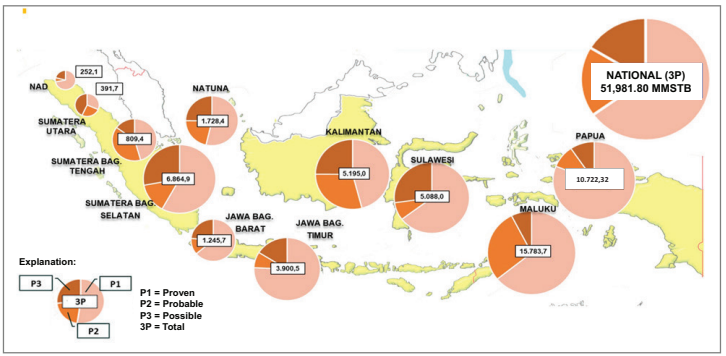
Source : Directorate General of Oil and Gas

Note : 1) Based on new parameter of Petroleum Resources Management System 2018 (it was considered as an oil reserves, however part of oil reserves has not been developed, it has been categorized as contingent resources since 2019)

2) Contingent resources = low estimate (C1)

3) Contingent resources = medium estimate (C2) + high estimate (C3)

4) Region is not based on administrative boundaries



Picture: Natural Gas Reserves per Region

6.3.2 Gas Stream

Year	Gross Natural Gas Production (MMSCF)	Gas Lift & Reinjection (MMSCF)	Own Use (MMSCF)	Flare (MMSCF)	Net Natural Gas Production (MMSCF)	LNG Plant (feed) (MMSCF)	LPG Plant (feed) (MMSCF)	LNG Production (Thousand MMBTU)
2014	3,175,791	176,267	219,652	311,614	2,687,910	866,954	29,757	957,179
2015	3,116,142	168,045	214,306	273,402	2,674,695	1,025,789	24,801	1,003,747
2016	3,070,239	170,421	202,571	262,773	2,637,045	1,064,632	24,805	1,064,671
2017	2,963,184	182,030	212,108	229,128	2,552,026	988,771	22,418	1,011,608
2018	2,996,802	163,226	222,365	270,762	2,562,814	1,116,888	29,842	1,003,194
2019	2,809,668	168,954	213,721	269,132	2,371,582	834,243	20,167	865,034
2020	2,670,727	175,468	205,300	55,781	2,439,479	683,474	11,161	812,385
2021	2,670,787	185,281	203,369	51,829	2,433,677	664,796	11,509	774,329
2022	2,617,825	191,738	201,349	56,429	2,369,657	660,367	11,172	789,113
2023	2,736,365	252,083	212,129	64,222	2,420,060	717,313	9,534	847,890
2024	2,798,410	247,938	225,280	60,940	2,489,532	776,490	9,861	912,894

Sources : 1. Directorate General of Oil and Gas
2. Special Task Force for Upstream Oil and Gas Business Activities

6.3.3 Gas Utilization

Year	Utilization					
	Gas Fuel	City Gas	Lifting	Fertilizer	Electricity	
	(Thousand MMBTU)	(Thousand MMBTU)	(Thousand MMBTU)	(Thousand MMBTU)	(Thousand MMBTU)	
2014	1,388	549	115,355	251,582	368,640	
2015	1,635	861	99,762	265,986	363,409	
2016	1,310	923	71,201	254,679	368,999	
2017	2,576	1,363	65,660	251,867	338,767	
2018	3,410	1,333	68,907	265,218	302,824	
2019	2,792	2,238	66,280	271,078	306,144	
2020	1,686	2,464	63,214	252,160	249,193	
2021	1,431	3,073	61,240	248,919	248,164	
2022	1,807	4,059	68,547	251,284	226,490	
2023	2,135	5,862	77,902	251,098	253,193	
2024	1,446	5,666	80,344	252,635	258,755	

Sources : 1. Directorate General of Oil and Gas
2. Special Task Force for Upstream Oil and Gas Business Activities
Note : 1) Revised data for 2019 to 2023

Utilization					
Refinery [1]	Industry [1]	LNG Domestic	LPG Domestic	Export Pipeline Gas	Export LNG
(Thousand MMBTU)	(Thousand MMBTU)	(Thousand MMBTU)	(Thousand MMBTU)	(Thousand MMBTU)	(Thousand MMBTU)
41,992	444,058	93,385	86,750	352,350	834,244
47,384	444,304	113,968	79,501	316,918	811,043
105,138	433,167	157,473	65,957	294,663	749,171
50,033	517,799	136,014	52,267	290,435	708,340
42,322	569,973	147,880	56,325	278,021	696,340
168,110	414,949	185,511	37,559	269,494	517,205
175,646	382,163	139,211	47,165	261,986	507,522
185,311	390,762	174,934	32,138	274,736	472,354
141,609	442,840	178,678	28,959	219,113	434,773
137,819	522,510	207,419	29,310	181,044	473,723
136,445	402,567	254,494	28,230	200,517	496,556

6.3.4 City Gas Sales and Utilization

Year	Number of Customer	
	Household	Commercial Industry[1)]
2014	92,858	1,405
2015	107,690	1,529
2016	127,246	1,652
2017	192,489	1,490
2018	198,075	1,719
2019	233,204	1,750
2020	279,856	1,760
2021	352,928	1,776
2022	460,864	1,819
2023	574,350	2,563
2024	557,784	2,636

Source : PT PGN (Persero)
Note : 1) Changing names of Industry to Commercial Industry Since 2013
2) Changing category of customer from Commercial to Small Customer since 2013

	Number of Customer	
	Small Customer[2)]	Total
	1,786	96,049
	1,857	111,076
	1,929	130,827
	2,242	196,221
	1,973	201,767
	2,114	237,068
	2,286	283,902
	2,413	357,117
	2,452	465,135
	1,976	578,889
	2,094	562,514

6.4.1 Power Plant Installed Capacity

Year	On Grid [1]								
	Hydro PP	Steam PP	Gas PP	Combined Cycle PP	Geother-mal PP	Diesel PP [3]	Gas Engine PP	Wind PP	
2014	5,059.06	25,104.23	4,310.50	10,146.11	1,403.50	6,206.99	610.74	1.12	
2015	5,068.59	26,447.58	4,495.56	10,293.47	1,438.30	3,824.07	1,101.23	1.46	
2016	5,343.59	28,351.97	4,969.24	10,293.47	1,533.30	3,979.40	1,806.99	1.46	
2017	5,343.59	30,768.07	4,976.24	10,418.47	1,808.30	4,396.35	2,264.85	1.46	
2018	4,461.59	31,587.17	5,348.44	11,220.10	1,948.30	4,630.90	2,357.66	143.03	
2019	4,620.52	34,737.17	5,348.44	11,669.54	2,130.70	4,779.68	2,842.03	153.83	
2020	4,700.67	36,667.86	5,348.44	12,235.71	2,130.70	4,863.53	3,177.93	153.83	
2021	5,050.67	37,036.36	5,348.44	12,411.51	2,286.05	4,986.58	3,218.87	153.83	
2022	5,050.67	46,014.26	4,456.74	13,397.82	2,360.33	4,352.09	2,976.47	153.83	
2023	4,642.07	49,756.37	4,453.27	16,065.76	2,597.51	4,638.31	2,689.32	151.82	
2024	4,929.16	54,338.84	4,477.66	18,798.41	2,638.76	5,819.28	2,889.82	151.82	

Year	Off Grid [2]							
	Hydro PP	Micro Hydro PP	Solar PP + PV	Wind PP	Biomass PP	Biogas PP	Coal Gasifi-cation PP	
2014	n.a	n.a	n.a	n.a	n.a	n.a	n.a	
2015	n.a	n.a	n.a	n.a	n.a	n.a	n.a	
2016	n.a	n.a	n.a	n.a	n.a	n.a	n.a	
2017	n.a	n.a	n.a	n.a	n.a	n.a	n.a	
2018	938.00	6.38	28.19	0.48	1,616.52	68.26	n.a	
2019	938.00	6.88	29.88	0.48	1,616.52	70.26	n.a	
2020	938.00	6.88	29.02	0.48	1,616.52	99.22	n.a	
2021	938.00	26.30	34.86	0.48	1,969.64	112.69	n.a	
2022	938.00	25.41	82.16	0.48	2,767.63	125.30	n.a	
2023	968.00	0.00	265.59	0.48	3,033.15	119.42	n.a	
2024	1,118.00	28.86	482.40	0.48	2,852.36	136.67	220.00	

Sources : 1. PLN Statistics
2. Electricity Statistics, Directorate General of Electricity
3. Directorate General of New and Renewable Energy and Energy Conservation

Notes : 1) On Grid is Including Private Power Utility and Own Use Electricity Supply Business License (IUPTLS)
2) Off Grid means power plant for NRE based outside PLN's electricity interconnection grid
3) Diesel PP including captive power
4) Solar-Powered Public Street Lighting not included in the total power plant capacity
5) Solar-powered energy saving lamp included in solar PP

(MW)

On Grid [1]							Other PP	Total On Grid
Micro Hydro PP	Mini Hydro PP	Solar PP	Coal Gasifi-cation PP	Waste PP	BioGas PP	Biomass PP		
30.46	139.87	9.02	6.00	36.00	0.00	0.00	n.a	53,063.60
90.15	148.71	36.94	0.00	15.65	54.72	1,671.29	n.a	54,687.72
95.87	211.40	46.70	0.00	15.65	64.16	1,703.29	n.a	58,416.48
103.76	240.55	54.48	0.00	15.65	100.62	1,740.54	n.a	62,232.93
98.39	267.79	24.42	0.00	15.65	40.35	142.02	n.a	62,285.81
99.49	311.14	105.03	0.00	15.65	42.15	147.02	n.a	67,002.40
99.49	375.84	107.37	0.00	15.65	18.60	150.52	n.a	70,046.14
100.13	486.65	155.29	0.00	28.45	22.10	151.52	n.a	71,436.45
102.27	572.67	190.06	30.00	24.45	24.11	157.42	n.a	79,863.19
51.07	908.50	323.46	250.00	36.47	36.51	167.86	n.a	86,768.29
22.22	954.23	416.14	230.00	36.47	20.58	54.00	18.00	95,795.39

(MW)

Off Grid [2]				Grand Total On Grid + Off Grid
Hybrid PP	Solar-Powered Public Street Lighting [4]	Solar-Powered Energy Saving Lamp [5]	Total Off Grid	
n.a	n.a	n.a	0.00	53,063.60
n.a	n.a	n.a	0.00	54,687.72
n.a	n.a	n.a	0.00	58,416.48
n.a	n.a	n.a	0.00	62,232.93
3.58	5.28	7.58	2,668.99	64,954.80
3.58	9.23	10.90	2,676.50	69,678.90
3.58	16.04	10.90	2,704.59	72,750.73
3.58	23.95	10.94	3,096.49	74,532.94
0.00	29.74	10.92	3,949.90	83,813.09
0.00	37.18	10.92	4,397.56	91,165.85
0.00	38.40	10.89	4,853.38	100,648.77

6.4.2 Power Plant Production

Year	PLN											
	Hydro PP	Geo-thermal PP	Solar PP	Diesel PP	Steam PP				Total	Com-bined Gas-Steam PP	Gas PP	
					Coal	Oil	Gas	Cofir-ing				
2014	11,164	4,285	6.81	21,862	83,397	759	5,856	-	90,012	38,800	9,117	
2015	10,005	4,392	5.28	18,859	85,191	11,419	146	-	96,756	39,316	5,907	
2016	13,886	3,958	8.78	19,122	92,682	1,092	4,488	-	98,262	42,377	3,745	
2017	12,425	4,096	5.84	16,453	101,333	285	4,159	-	105,778	38,468	4,117	
2018	10,729	4,013	4.56	15,019	110,035	517	3,846	4	114,402	39,017	5,357	
2019	9,877	4,110	5.00	9,053	119,520	126	3,730	0	123,376	37,758	3,213	
2020	11,949	4,186	5.65	5,601	113,335	34	1,413	11	114,793	30,098	2,414	
2021	11,869	4,217	5.66	6,034	113,488	225	950	274	114,937	33,612	2,797	
2022	13,175	4,138	9.09	5,993	114,728	9	288	599	115,624	33,322	2,147	
2023	10,655	4,311	12.84	6,482	112,035	76	1,852	1,042	115,006	36,726	1,652	
2024	11,656	4,231	13.76	7,037	114,158	59	2,084	1,673	117,974	38,192	2,839	

Year	PLN Purchase from IPP & PPU									Off Grid [1]	
	Com-bined Gas-Steam PP	Gas PP	Gas En-gine PP	Wind PP	Bio-mass PP	Bio-gas PP	Waste PP	Sub-Total	Total On Grid	Hydro PP	
2014	4,981	1,595	0	0	205	0	36	53,258	228,555	n.a	
2015	5,330	2,090	0	4	461	0	19	57,510	233,982	n.a	
2016	5,832	2,767	0	6	584	0	6	64,109	247,918	n.a	
2017	5,704	3,002	35	0	534	52	5	73,235	254,660	n.a	
2018	4,946	3,841	41	188	526	95	1	78,387	267,085	4,785	
2019	5,396	5,577	266	482	219	126	21	85,399	278,942	4,579	
2020	4,045	4,028	613	473	195	102	17	97,159	274,851	4,834	
2021	4,363	4,190	850	435	222	150	11	106,497	289,471	4,814	
2022	5,153	4,410	1,395	354	159	166	44	124,276	308,095	4,806	
2023	6,888	3,593	1,158	479	176	175	61	139,340	323,321	4,658	
2024	9,507	3,752	1,178	465	192	156	60	152,379	343,892	5,633	

Sources : 1. PLN Statistics
2. Electricity Statistics, Directorate General of Electricity

Note : 1) Off grid consist of captive power from PPU, Power Plant financed by State Budget and Power Plant financed by Non-Governmental

(GWh)

PLN				PLN Purchase from IPP & PPU							
Gas Engine PP	Wind PP	Biomass PP	Sub-Total	Hydro PP	Geothermal PP	Solar PP	Diesel PP	Steam PP			
								Coal	Gas	Biomass	Total
51	0	0	175,297	3,998	5,753	0.00	418	36,135	137	0	36,477
1,233	0	0	176,472	3,736	5,656	0.00	633	39,466	115	0	40,043
2,451	0	0	183,809	4,791	6,698	12.31	586	42,699	129	0	43,411
82	0	0	181,425	6,207	8,668	23.21	2,110	46,631	263	0	46,894
157	0	0	188,698	6,099	10,006	14.71	2,410	49,978	242	0	50,220
6,151	0	0	193,543	6,669	9,990	49.28	1,403	54,973	228	0	55,201
8,646	0	0	177,692	7,506	11,377	120.32	1,129	67,534	19	0	67,553
9,503	0	0	182,974	7,895	11,682	113.96	389	76,196	0	0	76,196
9,411	0	0	183,819	9,180	12,539	208.64	87	90,580	0	0	90,580
9,137	0	0	183,981	9,277	12,625	165.03	0	104,742	0	0	104,742
9,570	0	0.01	191,513	9,849	12,532	411.22	0	114,276	0	0	114,276

(GWh)

Off Grid [1)]										
Micro Hydro PP	Solar PP + Solar PV	Wind PP	Biomass PP	Biogas PP	Waste PP	Hybrid PP	Solar-Powered Public Street Lighting	Solar-Powered Energy Saving Lamp	Total Off Grid	Grand Total
n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	0	228,555
n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	0	233,982
n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	0	247,918
n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	0	254,660
24	56	2	11,325	478	0	5	5	10	16,690	283,776
36	44	2	11,329	492	0	5	6	14	16,507	295,449
36	23	2	11,360	697	0	5	8	14	16,980	291,831
119	48	2	13,803	790	0	5	11	14	19,605	309,076
134	144	2	19,396	878	0	0	52	30	25,442	333,537
0	465	2	21,256	837	0	0	51	19	27,288	350,609
152	845	2	19,989	958	0	0	67	14	27,661	371,553

6.4.3 Import of Electricity

(GWh)

Year	Country of Origin	Hydro PP
2014	Malaysia	8.99
2015	Malaysia	12.75
2016	Malaysia	692.70
2017	Malaysia	1,119.47
2018	Malaysia	1,495.89
2019	Malaysia	1,683.12
2020	Malaysia	1,553.00
2021	Malaysia	972.73
2022	Malaysia	797.38
2023	Malaysia	892.91
2024	Malaysia	957.51

Source : Directorate General of Electricity
Note : Including Serawak Energy Bhd

6.4.4 Electricity Sales

(GWh)

Year	Electricity Sales / Tariff Segment							
	House-hold	Commer-cial	Industry	Street Lighting	Social	Govern-ment	Trans-portasi	Total
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
2017	94,457	41,459	72,238	3,527	7,095	4,121	236	223,134
2018	97,832	43,753	76,947	3,627	7,781	4,403	274	234,618
2019	103,733	46,600	77,879	3,633	8,622	4,750	301	245,518
2020	112,156	42,527	72,240	3,635	8,098	4,635	292	243,583
2021	115,370	44,124	80,904	3,545	8,666	4,708	317	257,634
2022	116,095	50,188	88,483	3,582	10,073	4,995	344	273,761
2023	122,340	56,728	88,588	3,615	11,496	5,285	384	288,436
2024	130,433	58,771	92,196	3,528	12,679	5,412	386	303,405

Source : Directorate General of Electricity and PLN Statistic

6.4.5 Fuel Consumption of PLN Power Plant

Year	Coal	HSD	IDO	FO	Natural Gas	Biofame
	(ton)	(KL)	(KL)	(KL)	(MMSCF)	(KL)
2014	44,604,981	6,330,517	3,849	1,096,638	450,190	0
2015	48,995,169	4,377,068	2,244	904,266	456,494	0
2016	50,556,446	3,719,090	915	947,027	505,125	0
2017	54,711,847	2,879,181	580	718,462	447,072	0
2018	60,481,245	2,780,973	28	946,516	465,419	0
2019	67,008,829	2,011,022	329	639,785	479,776	467,626
2020	66,158,000	1,568,160	26	164,495	334,596	607,569
2021	67,860,420	2,005,335	329	207,762	397,765	643,740
2022	69,876,930	2,072,688	104	190,170	356,832	718,060
2023	69,222,936	2,155,595	799	221,071	417,039	847,487
2024	71,719,964	2,682,044	227	190,671	460,624	990,980

Source : PLN Statistic

6.4.6 Electricity System Perfomance

Year	Average Thermal Efficiency	Capacity Factor	Load Factor	Peak Load	Transmission & Distribution Losses
	(%)	(%)	(%)	(MW)	(%)
2014	26.80	50.94	78.26	33,321	8.98
2015	26.92	50.53	80.02	33,381	8.87
2016	30.33	51.92	62.62	32,204	8.70
2017	27.02	51.98	74.93	38,797	9.75
2018	26.62	52.73	75.76	37,944	9.55
2019	25.84	50.68	76.41	41,671	9.35
2020	25.48	49.54	78.32	41,761	9.12
2021	24.69	51.19	77.23	42,785	8.61
2022	24.54	50.93	84.11	42,814	8.76
2023	24.35	50.58	63.33	58,282	8.63
2024 [1)]	23.93	51.70	64.05	61,288	7.46

Source : Directorate General of Electricity and PLN Statistic
Note : 1) Unaudited data

6.4.7 Power Plant Installed Capacity by Province 2024

Province Code[1)]	Province	Hydro PP	Wind PP	Biogas PP	Biomass PP	Diesel PP	Gas PP
11	Aceh	10.00	-	-	17.48	230.35	-
12	North Sumatera	1,229.85	-	15.97	314.85	176.29	294.26
13	West Sumatera	253.50	-	1.70	69.21	21.71	43.00
14	Riau	114.00	-	36.27	749.38	172.87	450.70
15	Jambi	-	-	16.20	57.91	43.90	156.78
16	South Sumatera	-	-	12.32	800.28	48.31	336.42
17	Bengkulu	278.47	-	3.06	7.41	49.00	-
18	Lampung	174.60	-	3.00	58.32	97.88	142.85
19	Bangka Belitung Islands	-	-	13.39	108.89	145.35	100.00
21	Riau Islands	-	-	-	1.00	329.07	199.76
31	Special Capital Region of Jakarta	-	-	-	-	381.91	-
32	West Java	2,049.05	-	-	-	225.95	1,181.85
33	Central Java	229.80	-	-	24.70	70.05	55.00
34	Special Region of Yogyakarta	-	-	-	3.80	6.63	-
35	East Java	257.80	-	2.05	147.04	163.11	176.43
36	Banten	-	-	-	-	129.86	8.40
51	Bali	-	1.38	-	-	305.22	558.35
52	West Nusa Tenggara	-	-	-	-	213.99	50.00
53	East Nusa Tenggara	-	0.09	-	-	261.50	-
61	West Kalimantan	-	-	6.90	75.59	300.61	134.00
62	Central Kalimantan	-	-	24.97	382.10	169.44	-
63	South Kalimantan	30.00	-	7.70	10.62	126.44	21.55
64	East Kalimantan	-	-	13.71	46.34	267.96	234.00
65	North Kalimantan	-	-	-	-	166.41	15.60
71	North Sulawesi	51.38	0.08	-	-	140.30	-
72	Central Sulawesi	592.18	-	-	3.20	258.15	66.00
73	South Sulawesi	756.49	150.75	-	17.20	156.20	122.72
74	Southeast Sulawesi	-	-	-	-	176.59	-
75	Gorontalo	-	-	-	0.50	25.08	100.00
76	West Sulawesi	-	-	-	4.00	2.02	-
81	Maluku	-	-	-	-	249.11	-
82	North Maluku	-	-	-	-	164.93	30.00
91	Papua	20.05	-	-	-	105.84	-
92	West Papua	-	-	-	0.55	70.80	-
93	South Papua	-	-	-	3.50	30.77	-
94	Central Papua	-	-	-	-	259.97	-
95	Papua Mountains	-	-	-	-	13.21	-
96	Southwest Papua	-	-	-	2.50	62.53	-
Total		**6,047.16**	**152.30**	**157.24**	**2,906.36**	**5,819.28**	**4,477.66**

Note : 1) Province code refers to the Ministry of Home Affairs

(Mw)

Coal Gasification PP	Combined Gas-Steam PP	Mini Hydro PP	Gas Engine PP	Micro Hydro PP	Geothermal PP	Solar PP	Waste PP	Steam PP	Other PP	Total
-	24.00	25.27	424.27	2.58	-	1.32	-	691.50	-	1,426.75
-	817.88	167.72	34.50	1.17	710.54	5.70	-	1,330.00	-	5,098.73
-	-	68.24	-	1.95	89.25	2.41	-	432.50	-	983.48
-	305.00	-	279.63	0.06	-	30.82	-	1,292.20	-	3,430.93
-	-	-	124.92	1.01	-	0.92	-	318.00	-	719.64
-	464.83	21.01	22.00	0.36	158.33	6.09	-	2,293.00	-	4,162.94
-	-	28.38	-	0.72	-	0.40	-	200.00	-	567.44
-	-	30.87	30.00	0.11	229.00	5.32	-	467.00	-	1,238.95
-	-	-	-	-	-	2.56	0.02	119.92	-	490.13
-	170.20	-	294.99	-	-	16.28	-	324.00	-	1,335.30
-	5,014.07	-	-	-	-	40.72	-	-	-	5,436.70
-	4,670.62	232.29	3.48	3.53	1,231.06	349.74	14.00	4,185.60	-	14,147.15
-	2,079.65	134.33	-	7.88	72.80	48.13	8.80	10,222.40	-	12,953.55
-	-	-	-	1.10	-	2.64	-	-	-	14.17
-	3,437.36	47.92	47.55	1.24	-	70.04	13.65	6,303.74	-	10,667.93
200.00	859.40	15.50	12.25	-	-	38.96	-	9,012.04	18.00	10,294.40
-	-	2.50	-	0.03	-	14.37	-	380.00	-	1,261.84
-	446.80	14.30	244.62	4.30	-	50.10	-	418.08	-	1,442.19
-	-	5.70	119.44	4.58	24.08	22.57	-	203.00	-	640.97
-	-	2.92	-	3.48	-	5.58	-	392.00	-	921.08
-	-	-	311.04	0.77	-	0.97	-	389.00	-	1,278.29
-	-	-	-	0.09	-	16.12	-	823.00	-	1,035.52
-	177.00	-	61.06	0.34	-	84.49	-	968.26	-	1,853.17
30.00	-	-	81.87	1.98	-	3.40	-	22.00	-	321.25
-	-	11.82	-	0.26	123.72	22.69	-	373.00	-	723.25
220.00	-	48.39	47.13	4.24	-	1.05	-	5,844.60	-	7,084.93
-	331.60	71.63	-	1.74	-	11.12	-	1,040.00	-	2,659.45
-	-	4.90	97.80	0.80	-	3.16	-	108.00	-	391.25
-	-	6.20	-	0.47	-	13.12	-	176.00	-	321.37
-	-	7.40	-	0.93	-	1.21	-	-	-	15.56
-	-	-	157.30	0.12	-	2.94	-	-	-	409.46
-	-	-	38.72	0.01	-	6.10	-	5,504.00	-	5,743.75
-	-	-	260.07	3.43	-	10.11	-	24.00	-	423.50
-	-	3.13	23.56	1.03	-	13.32	-	68.00	-	180.38
-	-	-	44.78	-	-	2.20	-	-	-	81.25
-	-	-	42.96	-	-	1.12	-	414.00	-	718.05
-	-	3.94	-	0.72	-	0.30	-	-	-	18.17
-	-	3.60	85.90	0.04	-	1.33	-	-	-	155.90
450.00	**18,798.41**	**957.95**	**2,889.82**	**51.07**	**2,638.76**	**909.43**	**36.47**	**54,338.84**	**18.00**	**100,648.77**

6.5.1 Geothermal Resources and Reserves
as of December 2024

(MW)

Province Code [1]	Province	Resources		Reserves			Total
		Speculative	Hipothetical	Possible	Probable	Proven	
11	Aceh	324	222	675	25	0	1,246
12	North Sumatera	225	388	613	39	601	1,866
13	West Sumatera	446	595	473	50	85	1,649
14	Riau	45	0	0	0	0.0	45
15	Jambi	352	87	278	17	10	744
16	South Sumatera	225	230	502	252	241	1,450
17	Bengkulu	134	0	355	159	190	838
18	Lampung	375	28	963	273	260	1,899
19	Bangka Belitung Islands	35	11	0	0	0	46
32	West Java	840	507	1,588	110	1,455	4,500
33	Central Java	85	271	710	130	275	1,471
34	Special Region of Yogyakarta	0	0	10	0	0	10
35	East Java	70	365	770	59	35	1,299
36	Banten	134	161	323	0	0	618
51	Bali	70	21	104	110	30	335
52	West Nusa Tenggara	6	0	11	61	0	78

Source : Geological Agency
Note : 1) Province code refers to the Ministry of Home Affairs

6.5.1 Geothermal Resources and Reserves (Continued)
as of December 2024

(MW)

Province Code [1]	Province	Resources		Reserves			Total
		Specu-lative	Hipo-tethical	Possible	Prob-able	Proven	
53	East Nusa Tenggara	213	134	644	138	34	1,163
61	West Kalimantan	65	0	0	0	0	65
63	South Kalimantan	49	1	0	0	0	50
64	East Kalimantan	32	0	0	0	0	32
65	North Kalimantan	20	17	6	0	0	43
71	North Sulawesi	84	51	619	108	150	1,012
72	Central Sulawesi	391	70	227	0	0	688
73	South Sulawesi	259	112	154	0	0	525
74	Southeast Sulawesi	200	36	78	0	0	314
75	Gorontalo	129	11	20	0	0	160
76	West Sulawesi	296	53	32	0	0	381
81	Maluku	325	73	128	36	2	564
82	North Maluku	190	7	379	0	0	576
92	West Papua	25	0	0	0	0	25
96	Southwest Papua	50	0	0	0	0	50
Total		**5,694**	**3,451**	**9,662**	**1,567**	**3,368**	**23,741**

Source : Geological Agency
Note : 1) Province code refers to the Ministry of Home Affairs

6.5.2 Geothermal Power Plant Capacity 2024

Province Code [1]	Province	Power Plant	IPB Owner
12	North Sumatera	PLTP Sibayak	PT Pertamina Geothermal Energy (Persero)
12	North Sumatera	PLTP Sarulla	PT Pertamina Geothermal Energy (Persero)
12	North Sumatera	PLTP Sorik Marapi	PT Sorik Marapi Geothermal Power
13	West Sumatera	PLTP Muaralaboh	PT Supreme Energy Muara Laboh
16	South Sumatera	PLTP Lumut Balai	PT Pertamina Geothermal Energy (Persero)
16	South Sumatera	PLTP Rantau Dedap	PT Supreme Energy Rantau Dedap
18	Lampung	PLTP Ulubelu	PT Pertamina Geothermal Energy (Persero)
32	West Java	PLTP Kamojang	PT Pertamina Geothermal Energy (Persero)
32	West Java	PLTP Darajat	PT Pertamina Geothermal Energy (Persero)
32	West Java	PLTP Salak	PT Pertamina Geothermal Energy (Persero)
32	West Java	PLTP Wayang Windu	PT Pertamina Geothermal Energy (Persero)
32	West Java	PLTP Patuha	PT Geo Dipa Energi (Persero)
32	West Java	PLTP Karaha	PT Pertamina Geothermal Energy (Persero)
33	Central Java	PLTP Dieng	PT Geo Dipa Energi (Persero)
53	East Nusa Tenggara	PLTP Ulumbu	PT PLN (Persero)
53	East Nusa Tenggara	PLTP Mataloko	PT PLN (Persero)
53	East Nusa Tenggara	PLTP Sokoria	PT Sokoria Geothermal Indonesia
71	North Sulawesi	PLTP Lahendong	PT Pertamina Geothermal Energy (Persero)

Source : Directorate General of New and Renewable Energy and Energy Conservation
Note : 1) Province code refers to the Ministry of Home Affairs

(MW)

	Turbine Capacity	Operator Steam Area	Operator PLTP	Total Capacity
	2 x 5,65 MWe	PT Pertamina Geothermal Energy (Persero)	PT Dizamatra Powerindo	13.30
	2 MWe (Monoblock)		PT PGE	
	1 × 139,205 MWe	KKOB Sarulla Operations, Ltd.	KKOB SO, Ltd.	418.14
	1 × 148,53 MWe			
	1 × 130,4 MWe			
	1 × 68,8 MWe	PT Sorik Marapi Geothermal Power	SMGP	279.10
	1 × 66,65 MWe			
	1 × 62,8 MWe			
	1 × 39,6 MWe			
	1 × 41,25 MWe			
	1 × 89,25 MWe	PT Supreme Energy Muara Laboh	SEML	89.25
	1 × 59,93 MWe	PT Pertamina Geothermal Energy (Persero)	PGE	59.92
	1 × 98,4 MWe	PT Supreme Energy Rantau Dedap	SERD	98.40
	2 × 55 MWe	PT Pertamina Geothermal Energy (Persero)	PLN	229.00
	2 × 59,5 MWe		PGE	
	1 × 30 MWe	PT Pertamina Geothermal Energy (Persero)	Indonesia Power	239.00
	2 × 55 MWe		Indonesia Power	
	1 × 64 MWe		PGE	
	1 × 35 MWe		PGE	
	1 × 55 MWe	KKOB Star Energy Geothermal Darajat II, Ltd.	Indonesia Power	293.21
	1 × 100,71 MWe		KKOB SEGD II, Ltd.	
	1 × 137,5 MWe		KKOB SEGD II, Ltd.	
	2 × 60 MWe	KKOB Star Energy Geothermal Salak, Ltd.	Indonesia Power	381.97
	1 × 61 MWe		Indonesia Power	
	3 × 66,99 MWe		KKOB SEGS, Ltd.	
	1 × 110 MWe	KKOB Star Energy Geothermal Wayang Windu, Ltd.	KKOB SEGWW, Ltd.	227.00
	1 × 117 MWe			
	1 × 59,88 MWe	PT Geo Dipa Energi (Persero)	GDE	59.88
	1 × 30 MWe	PT Pertamina Geothermal Energy (Persero)	PGE	30.00
	1 × 60 MWe	PT Geo Dipa Energi (Persero)	GDE	72.80
	1 × 12,8 MWe			
	4 × 2,5 MWe	PT PLN (Persero)	PLN	10.00
	1 × 2,5 MWe	PT PLN (Persero)	PLN	2.50
	2 × 3,291 MWe	PT Sokoria Geothermal Indonesia	SGI	11.58
	1 × 5 MWe			
	4 × 20 MWe	PT Pertamina Geothermal Energy (Persero)	PLN	123.71
	2 × 21,5 MWe		PGE	
	1 × 0,71 MWe		PGE	
			Total	**2,638.75**

6.5.3 Geothermal Steam Production

Year	Pertamina Field							KOB Field			
	Kamojang	Sibayak	Lahen-dong	Ulubelu	Karaha	Lumut Balai	Sub Total	Salak	Darajat	Wayang Windu	
2014	10,489	184	4,138	6,174	0	0	20,985	24,307	13,856	13,143	
2015	11,974	0	4,693	6,044	0	0	22,711	24,755	13,916	7,850	
2016	12,679	0	3,295	6,718	0	0	22,692	24,575	13,952	13,613	
2017	12,522	0	6,059	10,187	0	0	28,768	24,655	13,871	13,526	
2018	14,305	0	5,525	9,923	1,334	0	31,086	24,820	12,722	13,222	
2019	13,534	0	6,628	11,290	1,192	193	32,838	22,511	13,055	12,972	
2020	13,123	0	6,694	11,753	789	3,138	35,498	22,785	14,224	13,695	
2021	13,869	0	6,143	11,733	733	3,252	35,731	23,836	13,929	13,552	
2022	13,147	0	6,785	11,192	725	3,191	35,040	23,273	13,903	13,784	
2023	13,331	0	7,056	12,143	794	3,385	36,710	24,772	14,110	13,518	
2024	14,094	0	7,196	11,782	981	3,508	37,560	24,054	11,964	13,845	

6.5.3 Geothermal Steam Production (Continued)

Year	PT Sorik Marapi Geothermal Power		PT Supreme Energy			PT Sokoria Geother-mal Indonesia		Total
	Sorik Marapi	Sub Total	Muara Laboh	Rantau Dadap	Sub Total	Sokoria	Sub Total	
2019	649	649	197	-	197	0	0	100,157
2020	2,401	2,401	4,366	-	4,366	0	0	110,917
2021	3,569	3,569	4,533	338	4,871	0	0	114,642
2022	8,196	8,196	4,719	5,051	9,770	223	223	123,586
2023	6,071	6,071	4,617	4,376	8,994	355	355	123,020
2024	17,278	17,278	4,478	3,812	8,290	622	622	132,502

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

(Thousand Tonnes of Geothermal Steam)

	KOB Field		PT PLN (Persero) Field			PT Geo Dipa Energy Field			Total
	Sarulla	Sub Total	Ulumbu	Mataloko	Sub Total	Dieng	Patuha	Sub Total	
	0	51,306	261	0	261	205	840	1,045	73,598
	0	46,521	382	41	423	1,770	2,837	4,607	74,263
	0	52,140	339	0	339	1,393	3,153	4,546	79,717
	4,877	56,929	610	0	610	2,835	2,947	5,782	92,089
	13,593	64,356	545	0	545	2,511	2,967	5,477	101,465
	11,683	60,221	679	0	679	2,570	3,003	5,574	99,312
	11,503	62,207	707	0	707	2,711	3,028	5,739	104,151
	12,747	64,064	774	0	774	2,639	2,994	5,633	105,397
	13,146	64,105	692	0	692	2,515	3,045	5,560	107,599
	11,832	64,232	705	0	705	2,564	3,388	5,952	106,313
	11,550	61,413	653	0	653	3,226	3,461	6,687	123,020

6.6.1 Biofuel Production Capacity in 2024

(KL)

Province Code [1)]	Province	Biodiesel	Bioethanol
12	North Sumatera	911,984	-
13	West Sumatera	413,793	-
14	Riau	5,672,414	-
18	Lampung	1,488,506	20,000
21	Riau Islands	896,552	-
32	West Java	870,899	-
35	East Java	3,931,609	40,000
36	Banten	568,966	-
61	West Kalimantan	910,345	-
62	Central Kalimantan	449,885	-
63	South Kalimantan	1,701,724	-
64	East Kalimantan	2,546,695	-
71	North Sulawesi	475,862	-
TOTAL		**20,839,234**	**60,000**

Source : Directorate General of New, Renewable Energy and Energy Conservation
Note : 1) Province code refers to the Ministry of Home Affairs

6.6.2 New and Renewable Energy for Non Electricity

Year	Biodiesel			BioGas	Industrial Biomass	Solar Water Heater	Direct Use of Geo-thermal
	Product-ion (Thousand KL)	Export (Thou-sand KL)	Domes-tic (Thou-sand KL)	Product-ion (Thou-sand m^3)	Consumpt-ion (Thousand Ton)	Water Heat (Thou-sand TOE)	Heat (Thermal MWh)
2014	3,961	1,629	1,845	n.a	n.a	n.a	n.a
2015	1,620	328	915	18,953	47	62	n.a
2016	3,656	477	3,008	22,800	72	71	n.a
2017	3,416	187	2,572	24,786	73	82	n.a
2018	6,168	1,803	3,750	25,670	133	93	n.a
2019	8,399	1,319	6,396	26,277	217	104	n.a
2020	8,594	36	8,400	27,856	258	112	n.a
2021	10,240	133	9,294	28,390	793	122	n.a
2022	11,836	372	10,449	57,050	2,351	128	6,195
2023	13,151	188	12,290	110,793	8,971	261	6,195
2024	13,929	27	13,158	94,626	20,737	330	6,195

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

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07 GREEN HOUSE GAS EMISSION

GREEN HOUSE GAS EMISSION

GREENHOUSE GAS SOURCE FROM ENERGY SECTORS	2014	2015	2016	2017
1. Energy	**539,153**	**549,956**	**535,998**	**582,068**
1.A. Fuel combustion	510,923	521,803	509,029	553,962
1.A.1. Energy industries	226,005	237,474	256,338	268,562
1.A.2. Manufacturing industries and construction	87,734	98,885	76,712	82,078
1.A.3. Transport	144,946	130,391	127,765	152,363
1.A.4. Other sectors	52,239	55,053	48,215	50,959
1.A.5. Other	NE,NO	NE,NO	NE,NO	NE,NO
1.B. Fugitive emissions from fuels	28,230	28,152	26,969	28,106
1.B.1. Solid fuels	3,438	3,464	3,423	3,461
1.B.2. Oil and natural gas and other emissions from energy production	24,792	24,689	23,546	24,645

Note : 1) Data for 2023 and 2024 are still in the verification process from the Ministry of Environment
2) NE, NO means Not Estimate, No Objection

($GgCO_2eq$)

	2018	2019	2020	2021	2022	2023 [1)]	2024 [1)]
	614,425	**655,568**	**605,367**	**623,127**	**738,753**	**745,011**	**790,566**
	586,182	628,039	579,834	598,322	715,445	724,236	770,641
	286,868	297,581	306,256	330,586	315,594	292,515	321,886
	106,519	138,295	105,616	89,988	206,524	231,618	244,334
	156,981	159,367	134,838	143,415	158,339	165,178	168,516
	35,814	32,797	33,124	34,333	34,987	34,924	35,904
	NE,NO	NE,NO	NE,NO	NE,NO	NE,NO	NE,NO	NE,NO
	28,243	27,529	25,533	24,805	23,309	20,775	19,925
	4,186	4,624	4,230	4,607	4,244	4,363	4,706
	24,057	22,905	21,303	20,198	19,065	16,413	15,219

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01 ANNEX

METHODOLOGY AND TABLE EXPLANATION

GENERAL METHODS

Data shown in the tables of Indonesia's energy and economic statistics are consolidated from various statistics of regular publication. The data are harmonized in format and definition as well as cover an estimate of energy demand calculated by using the macro-economic approach. These data are sourced from the statistics published by Statistics Indonesia, technical units within the Ministry of Energy and Mineral Resources, energy companies, energy associations, and some international agencies.

Statistics books used as the sources of the energy and economic data consolidation are as follows:

a. Crude Oil and Oil Products
   - Indonesia's Oil and Gas Statistics, Directorate General of Oil and Gas

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

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

d. Biomass
   - National Survey on Social & Economic Issues (Survei Sosial dan Ekonomi Nasional. SUSENAS) Statistics Indonesia, 1993, 1996, 1999, 2002

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

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

g. General
   - Indonesia Statistics, Statistics Indonesia Finance and Economic Statistics, Bank 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 table is a table of energy input-output system. The rows indicate the activities of an energy commodity which consist of four main elements, namely primary energy activity, transformation, own use & losses, and energy consumption, while the columns indicate the types of energy. Energy balance is presented to fully depict the energy activities in a region.

ENERGY BALANCE DEFINITIONS BY COLUMN

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

RENEWABLE ENERGY

Hydropower is energy derived from flowing water. Hydropower plants consist of two basic configurations: with dams and reservoirs, or without. Hydropower dams with a large reservoir can store water over short or long periods to meet peak demand. The amount of hydro energy required to generate electricity is equivalent to that of fossil energy to do the same.

Geothermal energy is good energy produced from the magma inside the earth in the volcanic areas. The hot and high pressure steam emitted from the production well head can be utilized to propel the steam turbine in a geothermal power plant or be used directly for drying agriculture products.

Solar power is the conversion of energy from sunlight into electricity, either directly using photovoltaics (PV), indirectly using concentrated solar power, or a combination of both. Concentrated solar power systems use lenses or mirrors and tracking systems to focus a large area of sunlight into a small beam. Photovoltaic cells convert light into an electric current using the photovoltaic effect. The amount of solar energy required to generate electricity is equivalent to that of fossil energy to do the same.

Wind power is the use of air flowing through wind turbines to provide the mechanical power to turn electric generators and, traditionally, to do other work like milling or pumping. Wind power is, as an alternative to burning fossil fuels, plentiful, renewable, widely distributed, and clean. It produces no greenhouse gas emissions during operation, consumes no water, and uses little land. The net effects of wind power on the environment are far less problematic than those of fossil fuel sources. The amount of wind energy required to generate electricity is equivalent to that of fossil energy to do the same.

Other renewable energy is generally used in small-capacity power plants, for example biomass power plants (PLTBm), BioGas power plants (PLTBg), waste power plants (PLTSa), and hybrid power plants. PLTBm is a thermal power plant that uses fuel wood as primary energy, while PLTBg uses oil palm waste and livestock manure as primary energy, and PLTSa uses waste. The amount of other renewable energy required to generate electricity is equivalent to that of fossil energy to do the same.

Solar-powered energy-saving lamp (*Lampu Tenaga Surya Hemat Energi*/ LTSHE) is a lighting device in the form of integrated lights with batteries whose energy is sourced from photovoltaic solar power plants. The LTSHE works by capturing the energy from the sun in solar panels, converts the solar energy into electrical energy which is then stored in a battery. The electrical energy inside this battery is then used to turn on the lights. Meanwhile, solar- powered street lighting (*Penerangan Jalan Umum Tenaga Surya*/PJUTS) is a street lighting lamp that uses sunlight as the source of electrical energy.

Traditional Biomass is a renewable, organic material-based fuel. Biomass includes, among others, firewood (wood, wood waste, charcoal), agriculture wastes (rice hulls, rice straw, palm fronds, coconut shell, etc.), urban solid waste, and industrial waste. The data of biomass consumption in the household sector has been calculated based on the approach of the National Socio-Economic Survey (*Survei Sosial Ekonomi Nasional*/ SUSENAS) and the share of biomass use in the household sector.

Industrial biomass is biological material derived from animals, plants, or algae, such as wood and crops, and organic waste from cities and industries. Wood chips, wood pellets, agricultural and forestry residues, and other solid forms of bioenergy that can be used as raw materials for the industry are examples of industrial biomass.

Solar water heater is a water heater that utilizes sunlight.

Direct utilization of geothermal energy is an activity of exploiting geothermal energy directly without carrying out the process of converting heat and or fluid energy into other types of energy for non-electrical purposes.

SOLID ENERGY

Coal consists of hard coal and lignite. Data on the volume of coal is only available in aggregate number. In the energy balance table, the conversion factor used is

the average of Indonesian coal calorific factor (4,276 BOE per Ton Coal). Detailed 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. This category includes anthracite and bituminous coal. Steam coal has a gross calorific value of more than 23,865.0 kJ/kg (5,700 kcal/ kg), lower than that of coking coal.
- Coking coal is a type of coal that is used to produce material that reduces coke 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 to those of 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 or brown coal.
- Coke is the product of high temperature carbonization of steam coal. Coke is used as reducing agent in steel plants.
- Briquettes is the fuel produced by briquetting sub-bituminous coal, lignite, or peat through the process of carbonization or powdering. Briquette is more convenient to use and has better quality than its raw materials.

GASEOUS ENERGY

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

GREENHOUSE GAS EMISSIONS

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

a. Fuel Combustion is a type of GHG emissions generated by combustion process:

   - Energy Industries: emissions are generated by energy producing facilities such as power plants, oil and gas refineries, and coal processing.
   - Manufacturing Industries and Construction: emissions are generated by manufacturing industries, such as the iron and steel industry, smelter industry, cement industry, fertilizer industry, pulp and paper industry, and other processing industries.
   - Transportation: emissions are generated by transportation activities on land, sea, and air.
   - Other Sectors: emissions are generated by activities in other energy sectors.
   - Other Emissions are generated by sources not included in points a-d.

b. Fugitive Emissions are GHG emissions accidentally released in energy production and supply activities:

   - Solid Fuels: fugitive emissions are generated by coal mining activities.
   - Oil, Natural Gas, and Other Emissions from Energy Production: fugitive emissions derived from oil and gas exploration and exploitation activities.

c. CO_2 Transportation and Storage Emissions are GHG emissions derived from CO_2 transportation, injection, and storage activities in geological formations.

Energy Sector Greenhouse Gas Emissions are calculated by means of activity data multiplied by emission factors. Activity Data is data on human activities related to the amount of GHG Emissions they produce. In the energy sector, activity data consists of the volume of fuel consumption (for fuel combustion) and the volume of fuel production (for fugitive emissions). An emission factor is a coefficient on the amount of emission generated per unit of activity. In calculating Energy Sector Greenhouse Gas Emissions, the emission factors used are the default emission factors from the **Intergovernmental Panel on Climate Change** (IPCC) (Tier 1) and local emission factors (Tier 2) published by the Indonesian Ministry of Energy and Mineral Resources.

LIQUID

Crude oil is a mineral oil consisting of a mixture of hydrocarbons with blackish green color and a range of density and viscosity. It is the raw material for producing oil fuels (*Bahan Bakar Minyak*/BBM) and petrochemical products.

Condensate is a kind of liquid hydrocarbon which includes Natural Gas Liquid (NGL). NGL consists of ethane, propane, butane, pentane, and natural gasoline.

OIL FUELS/Petroleum Products, (BBM), The energy balance table contains petroleum products used for energy, namely AvGas, Avtur, Mogas (Motor gasoline, Gasoil (HSD/ADO), Medium Distillate Fuel (MDF/IDO), Fuel Oil, and Kerosene. Detailed description of each fuel is as follows:

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

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

Mogas (motor gasoline) is a light hydrocarbon used in the internal combustion engine of motorized vehicles (excluding aircrafts). Mogas is distilled at a temperature between 35°C and 215°C and processed in Reformer, Catalytic Cracking, or Blending with aromatic fraction to achieve a high octane number. In the Indonesian markets, three gasoline types are available, namely RON 88, RON 92, and RON 95.

Diesel Oil is a refinery product containing heavy gasoil. This type of fuel is obtained from the lowest fraction of crude oil distilled at atmospheric pressure, while the heavy gasoil is obtained from the vacuum residue of crude oil distilled at atmospheric pressure. On the market, diesel oil is divided into Gasoil CN 48 (*Minyak Solar*) and Medium Distillate Fuel (MDF) which include Industrial Diesel Oil (IDO/*Minyak Diesel*).

Fuel Oil (FO) is oil made from the distillation of residue. This type of fuel includes all kinds of residues including those from blending. FO has viscosity of about 10 cSt at SOT. Its flash point is higher than SOT and its density is more than 0.9.

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

LPG is light hydrocarbon fraction of crude oil, produced at oil refinery, consisting of either propane (C3H8) and butane (C4H10) or a mixture of both. In addition to oil refinery, LPG is also produced from natural gas purification.

Electricity is the electric power generated by various kinds of power plants, such as Hydro Power Plant (*Pembangkit Listrik Tenaga Air*/PLTA), Geothermal Power Plant (*Pembangkit Listrik Tenaga Panas Bumi*/PLTP), Solar Power Plant (*Pembangkit Listrik Tenaga Surya*/PLTS), Wind Power Plant (*Pembangkit Listrik Tenaga Bayu*/PLTB), Biomass Power Plant (*Pembangkit Listrik Tenaga Biomassa*/PLTBm), BioGas Power Plant (*Pembangkit Listrik Tenaga BioGas*/PLTBg), Waste Power Plant (*Pembangkit Listrik Tenaga Sampah*/PLTSa), Gas Power Plant (*Pembangkit Listrik Tenaga Gas*/PLTG), Gas Steam Power Plant (*Pembangkit Listrik Tenaga Gas Uap*/PLTGU), Coal Steam Power Plant (*Pembangkit Listrik Tenaga Uap*/PLTU), and Diesel Power Plant (*Pembangkit Listrik Tenaga Diesel*/PLTD), etc. The capacity data displayed in the table is in accordance with those stated in the power plant construction permit.

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 sum of all columns in certain row. In the energy transformation row, the total of all columns indicates the efficiency of the transformation process.

DEFINITIONS BY ROW

Total Primary Energy Supply equals domestic production plus import minus export minus bunker and minus/plus stock change. Data on bunker and stock change are not available. Production refers to the total gross primary energy produced (extracted) from the earth. Import refers to the energy obtained from other countries, not including energy in transit. Export refers to the energy sold to other countries.

Domestic supply is defined as indigenous production + from other sources + imports – exports – international marine bunker – international aviation bunker ± stock change. Production is defined as the capture, extraction, or manufacture of fuel or energy in a form that is ready for general use.

ENERGY TRANSFORMATION

Transformation refers to the transformation process of primary energy into final energy. Transformation includes the processes in LPG plants, and carbonizing plants. Input has a negative sign while production has a positive sign.

Oil Refining refers to the processing of crude oil and condensate to produce oil fuels such as naphtha, AvGas, Gasoil, MDF, IDO, mogas, kerosene, fuel oil, LPG, etc. The consumption of energy such as natural gas and naphta is also included.

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

Power Generation is the transformation of energy into electric power. The row records the quantity of consumed fuels (coal, oil fuels, natural gas, hydropower, geothermal power, biomass, wind, photovoltaic (solar energy), BioGas, waste, etc.) and the amount of electricity generated which includes the electricity from on-grid and off-grid systems. The data on electricity production from off-grid power plants are obtained through a data capacity approach. In 2018, data on production and electricity capacity from off-grid power plants emerged as a result of off-grid power plant inventory with the aim of calculating the national energy mix.

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

LNG Regasification is a process of converting Liquefied Natural Gas (LNG) at a temperature of -162°C back to natural gas at atmospheric temperature.

OWN USE AND LOSSES

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

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

Statistical Difference is the difference 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 consumption by household, commerce, industry, and transportation sectors as well as non- energy consumption.

Household consumption refers to all energy consumption by households, excluding consumption by private cars.

Commercial consumption refers to the energy consumption by commercial units such as the markets, hotels, restaurants, financial institutions, government agencies, schools, hospitals, etc.

Industry consumption refers to the energy consumption by the following industrial subsectors (excluding 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 consumption refers to the energy consumption by all transportation activities in all economic sectors. Transportation subsectors are air transportation, land transportation (motor-cycles, cars, buses, and trucks), ferries, and railway transportation. The consumption by the fishery, construction, and mining subsectors is also included in the transportation consumption.

Non-energy consumption refers to the energy consumption for non-energy uses, such as hydrocarbons or coal used as lubricating oils or raw materials (naphtha, natural gas, and cokes), and gas used as raw material for petrochemical products (methanol and ammonia/urea).

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02 ANNEX

GLOSSARY

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

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

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

BOE (Barrel Oil Equivalent)
Calorific equivalent of a barrel of crude oil.

Captive Power Plant
A power plant owned by an industry to produce electricity for its own use.

Coal
Sedimentary rocks 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 briquette.

Commercial
A group of energy consumers which uses 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 businesses, such as market, hotel, restaurant, financial institution, government agency, school, hospital, etc.

Condensate
Liquid extracted from natural gas; may be in the form of liquid petroleum gas or natural gasoline.

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

Crude Oil
A mixture of hydrocarbons occurring in liquid phase in the subsurface reservoir and one that remains liquid under atmospheric pressure.

Diesel Oil
A refinery product which contains heavy gasoil, and available as gasoil CN 48 or Medium Distillate Fuel (MDF) and include industrial diesel oil (IDO).

DPPU
Depo Pengisian Bahan Bakar Pesawat Udara (Aircraft Refueling Depot), a depot serving Avgas and avtur for aircraft consumption.

Electricity
Electric power generated by electric power plants, such as Hydro Power Plant (PLTA), Geothermal Power Plant (PLTP), Solar Power Plant (PLTS), Wind Power Plant (PLTB), Gas Power Plant (PLTG), Gas Steam Power Plant (PLTGU), Coal Steam Power Plant (Coal PLTU), Diesel Power Plant (PLTD), etc.

Energy Balance Table
The energy system's input-output table; the rows indicate the 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 the four sectors of energy consumers, namely household sector, commercial sector, industry sector, and transportation sector as well as the consumption of energy as raw material and reduction agent. In compiling the Energy Planning of Riau, the household sector is combined with the commercial sector due to the limited data obtained.

Final Stock
Total stock at the end of the year.

Fuel Oil
The lowest order of refinery product; heavy distillate, residue, and their mixture which are used as the fuel in industrial furnace and electric power plant.

Gasoil CN 48
A type of diesel oil with Cetane Number 48 used as the fuel for high-speed diesel engine.

Gasoline
(see mogas)

Gas Process
At 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 prices in each year.

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

Government Consumption
Expenditures for employee expenses, depreciation and purchase of goods and services (including travel expenses, maintenance and other routine expenditures), spent by central government or regional governments, but excluding revenue from the production of goods and services.

Greenhouse Gas Emissions
Greenhouse Gas Emissions of the energy sector consist of three activities Fuel Combustion, Fugitive Emissions and CO_2 Transportation and Storage Emissions.

Household
A group of energy consumers which uses energy for cooking, lighting, and household appliances, but excluding energy consumption for private cars.

Hydropower
Hydropower is energy derived from flowing water. Hydropower plants consist of two basic configurations: with dams and reservoirs, or without. Hydropower dams with a large reservoir can store water over short or long periods to meet peak demand.

Import
Purchase from other countries, excluding goods in transit.

Industry
A group of energy consumers which uses energy for industrial processes, such as steam boiling, direct heating, lighting, and the driving force of mechanical equipment, but does not include the energy used for electricity generation by industries; such as 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
The 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; its volatility lies between the volatility of motor gasoline (mogas) and that of 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 from crude oil; produced from oil refinery process or purification process of natural gas; consisting of either propane (C_3H_8) and butane (C_4H_{10}) or a mixture of both.

LNG Regasification
A process of converting Liquefied Natural Gas (LNG) at -162°C temperature back to natural gas at atmospheric temperature.

LSWR
Low Sulphur Waxy Residue; a by-product of oil refining.

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

Mogas
Motor gasoline; light hydrocarbon oil used in internal combustion engine, except aircraft engine; available in the market as gasoline RON 88, gasoline RON 90, gasoline RON 92, and gasoline RON 95.

Natural Gas
All kinds of hydrocarbon gas produced from wells; a mixture of hydrocarbon gas and vapor 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
Non-energy consumption includes consumption of lubricating oil, raw material for petrochemical industry (naphtha, natural gas, and coke), and gas consumed as chemical raw materials (methanol and ammonia/urea).

Non-renewable Energy
Energy which reserves 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, gasoil CN 48, MDF, 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
A category that includes energy losses and the energy used in primary energy production field and in each transformation.

Own Use in Electricity Generation
Own use refers to the amount of energy consumed in power plant and in the transmission and distribution sub-stations.

Own Use and Losses in Gas Processing
Losses that occur due to transportation, distribution, and transfer by pipe. Own use refers to the amount of 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 refers to the amount of energy consumes in oil refinery processes.

Own Use and Losses in Production Field
Losses that occur due to transportation, distribution, and transfer by pipe. Own use refers to the amount of 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 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.

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 (RON 88, RON 90, RON 92, and RON 95) and gasoil (CN 48).

Solar-Powered Energy Saving Lamp
A lighting device in the form of integrated lights with batteries whose energy is sourced from photovoltaic solar power plants.

Solar-Powered Street Lighting
A street lighting lamp that uses sunlight as a source of electrical energy.

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 at the end of the year. Stock decrease in energy balance is shown by positive sign which means there is an increase in supply, while stock increase is shown by negative sign which means there is a decrease in supply.

Sub-bituminous coal
A type of coal which has calorific value of 5,000–6,000 kcal/kg.

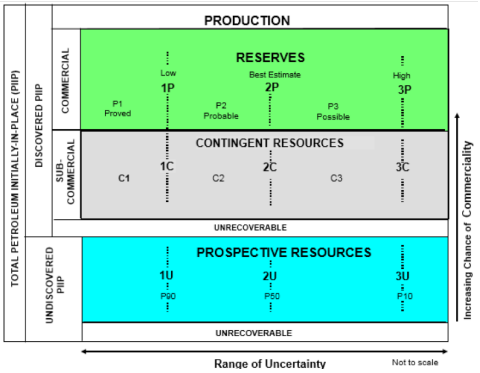
Total Energy Balance
Total of all columns in a certain row. In transformation row, the total of columns indicates efficiency of the transformation process.

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
A group of energy consumers which uses energy for transportation

Oil and Gas Classification Reserves Based on Petroleum Resources Management System 2018



Ministry of Energy and Mineral Resources
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03 ANNEX

Conversion Factor

Energy	Original Unit	Multiplier Factor to BOE (Barrel Oil Equivalent)
Coal		
Anthracite	Ton	4.9893
Imported Coal	Ton	4.2766
Kalimantan Coal[1)]	Ton	4.2000
Ombilin Coal	Ton	4.8452
Tanjung Enim Coal	Ton	3.7778
Lignite	Ton	3.0649
Riau Peat	Ton	2.5452
Briquette	Ton	3.5638
Average Coal	Ton	3.4554
Biomass		
Charcoal	Ton	4.9713
Firewood	Ton	2.2979
Natural Gas	MSCF	0.1796
Gas Products		
City Gas	Thousand KCal	0.0007
CNG	Thousand KCal	0.0007
LNG	Ton	8.0532
LNG	MMBTU	0.1796
LPG	Ton	8.5246
Oil		
Condensate	Barrel	0.9545

Conversion Factor (continued)

Energy	Original Unit	Multiplier Factor to BOE (Barrel Oil Equivalent)
Crude Oil	Barrel	1.0000
Oil Fuel		
Aviation Gasoil (AvGas)	Kilo Liter	5.5530
Aviation Turbine 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
Gasoil	Kilo Liter	6.4871
MDF	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

Source : Neraca Energi 1990-1994, Department of Mining and Energy
Note : 1) Before 2022, using 4,2 as multiplier factor to BOE

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