ENERGY PRICES & MARKETS IN INDONESIA

MARCH 2025

ADVANCED EDITION

BY INTRATEC SOLUTIONS LLC

ENERGY PRICES & MARKETS

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BY INTRATEC SOLUTIONS LLC

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This report is part of a subscription program providing monthly reports on energy commodity prices and markets, with each report focused on a specific country. The program covers the following 33 countries: United States, Australia, Belgium, Brazil, Canada, Chile, China, Colombia, Czech Republic, Finland, France, Germany, Hungary, India, Indonesia, Italy, Japan, Mexico, Netherlands, Norway, Philippines, Poland, Russia, Saudi Arabia, Singapore, South Africa, South Korea, Spain, Sweden, Taiwan, Thailand, Turkey, and United Kingdom.

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IMPORTANT NOTICE

This document is a preview report provided by Intratec, showcasing the full structure of an energy prices and markets analysis in Indonesia.

To protect proprietary data, numerical values have been replaced with “X” placeholders and charts have been intentionally blurred. Nonetheless, this preview faithfully reflects the structure and depth of the commercial report, including the types of tables, charts, and descriptions presented.

Intratec offers multiple preview and sample reports to support purchasing decisions. Therefore, free trials are not available.

An up-to-date commercial report about energy prices and markets in Indonesia can be purchased at https://www.intratec.us/iep.

Preamble

Understanding Intratec Energy Prices & Markets Program

Amid a global push for renewable sources and ever-evolving geopolitical dynamics, energy markets have never been more complex or unpredictable. Shifting trade alliances, supply chain disruptions, and volatile pricing trends create a landscape that demands constant monitoring and strategic foresight.

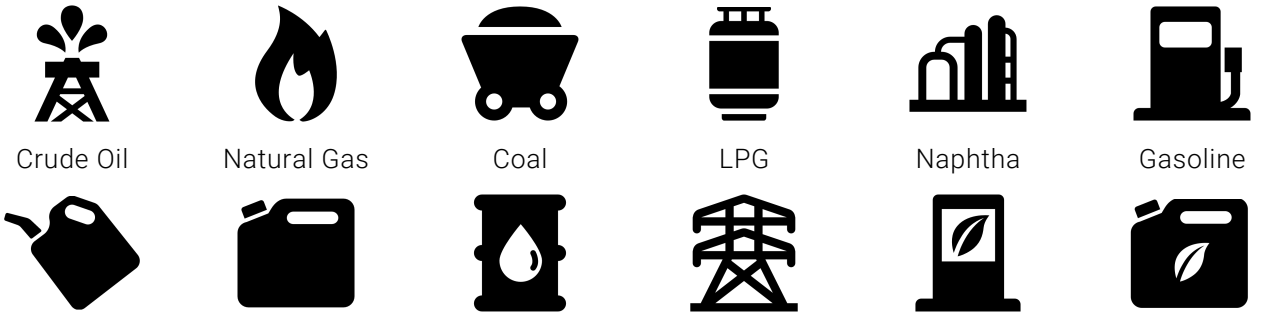
To help businesses and decision-makers navigate such uncertainties, we designed the Intratec Energy Prices & Markets, a subscription-based program that provides monthly reports with comprehensive and up-to-date assessments into the energy prices and markets worldwide.

Each report helps subscribers answer essential questions around a country's energy market, such as:

* How have energy prices changed historically, and recently?
* What are the price forecasts for energy commodities?
* How do local energy prices compare to global market prices?
* What are the key trends in the country's energy production and consumption?
* How are freight and insurance costs affecting the competitiveness of energy imports and exports?
* To what extent is the country self-sufficient in energy production?
* Which are its main energy trade partners, and how reliant is it on energy imports or exports?
* How exposed is the country to financial or supply risks in its energy trade relationships?

Commodities Approached by Report

Every report under Intratec Energy Prices & Markets program includes price and market assessments on essential energy commodities:

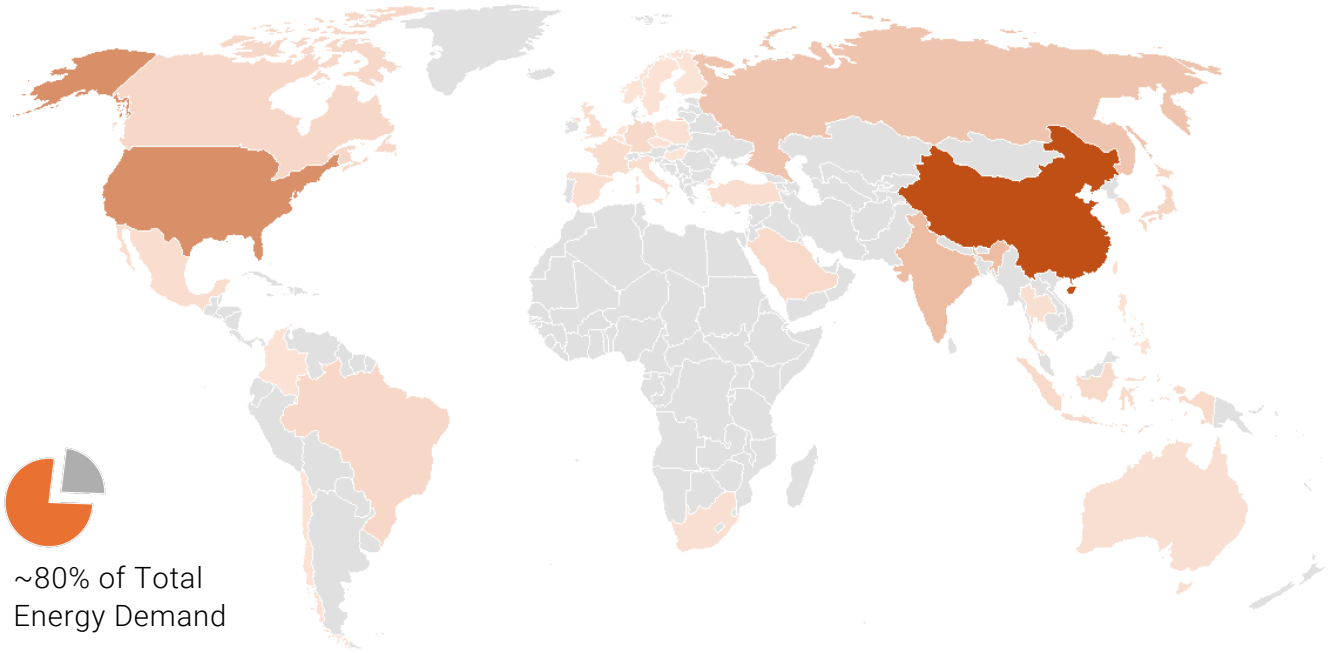


Each report is focused on a specific country. Subscribers receive new PDF reports every month, featuring the latest data and analyses, allowing them to stay informed about market trends.

Available Reports

The Intratec Energy Prices & Markets program offers a selection of 33 country-specific reports, allowing subscribers to choose the countries that matter most to them. Upon subscription, they can tailor the coverage to their specific needs and receive only the selected reports monthly.

Such selection of countries covered in the program encompasses key players in the global energy landscape. These countries collectively account for significant shares of global energy production and demand, ensuring that subscribers gain insights into the most relevant markets influencing supply chains, price dynamics, and industry trends.



How the Program is Organized

Each Intratec Energy Prices & Markets report is dedicated to a specific country, delivering in-depth analyses tailored to the selected location. The scope and depth of insights vary according to the subscription plan, ensuring that subscribers receive the level of detail that best suits their needs. Reports are released at the beginning of each month, providing timely updates on energy prices, forecasts, market trends, and key trade dynamics.

To ensure clarity and consistency, each report follows a structured identification format, which includes a unique code representing the subscription plan, the country covered, the release month and year, and the Intratec Energy Prices & Markets program designation:

INTRATEC-IEP-2403-USA-ADV

- Edition – Report edition code (e.g., ADV)
- Location – Code of the country covered in the report (e.g., USA)
- Issue – Year and month of the release (YYMM format, e.g., 2403)
- Product – Intratec Energy Prices & Markets (IEP)

This organization allows subscribers to effortlessly track their reports and stay up to date with the latest energy market developments in their regions of interest.

Subscription Plans

To meet the diverse needs of our customers, Intratec Energy Prices & Markets is offered through three subscription plans, each providing reports with increasing levels of data coverage and analysis. These reports include key market insights and are released monthly, with different access features depending on the chosen plan.

* **Starter Plan**. Reports in this plan include the latest monthly prices for key energy commodities, along with a 1-year price history. Reports are updated on the 8th business day of each month. This plan provides online access to read-only PDFs for up to 2 users, making it ideal for those who need essential, regularly updated pricing data.

* **Pro Plan**. In addition to all the content available in the Starter Plan, reports in this plan include 3 years of historical price data, price forecasts, and key global price benchmarks. Reports are updated earlier, on the 5th business day of each month. This plan allows downloading of PDFs and includes global access for up to 3 users, making it suitable for professionals who require deeper market insights.

* **Advanced Plan**. This plan provides the most comprehensive reports, covering everything in the Pro Plan plus 10 years of historical prices, global price comparisons, trade balance data, freight and insurance costs, production and demand analysis, and electricity generation by source. Reports are updated on the 3rd business day of the month. The plan also includes advanced access features such as Excel and Power BI integration, API access, and unrestricted internal use for up to 5 users.

For more details on each subscription plan's features, please refer to the full plan comparison at:

► https://www.intratec.us/solutions/energy-prices-markets/features

About this Report

Report Content

This report, focused on Indonesia, was released on March 2025 and is organized in fourteen parts:

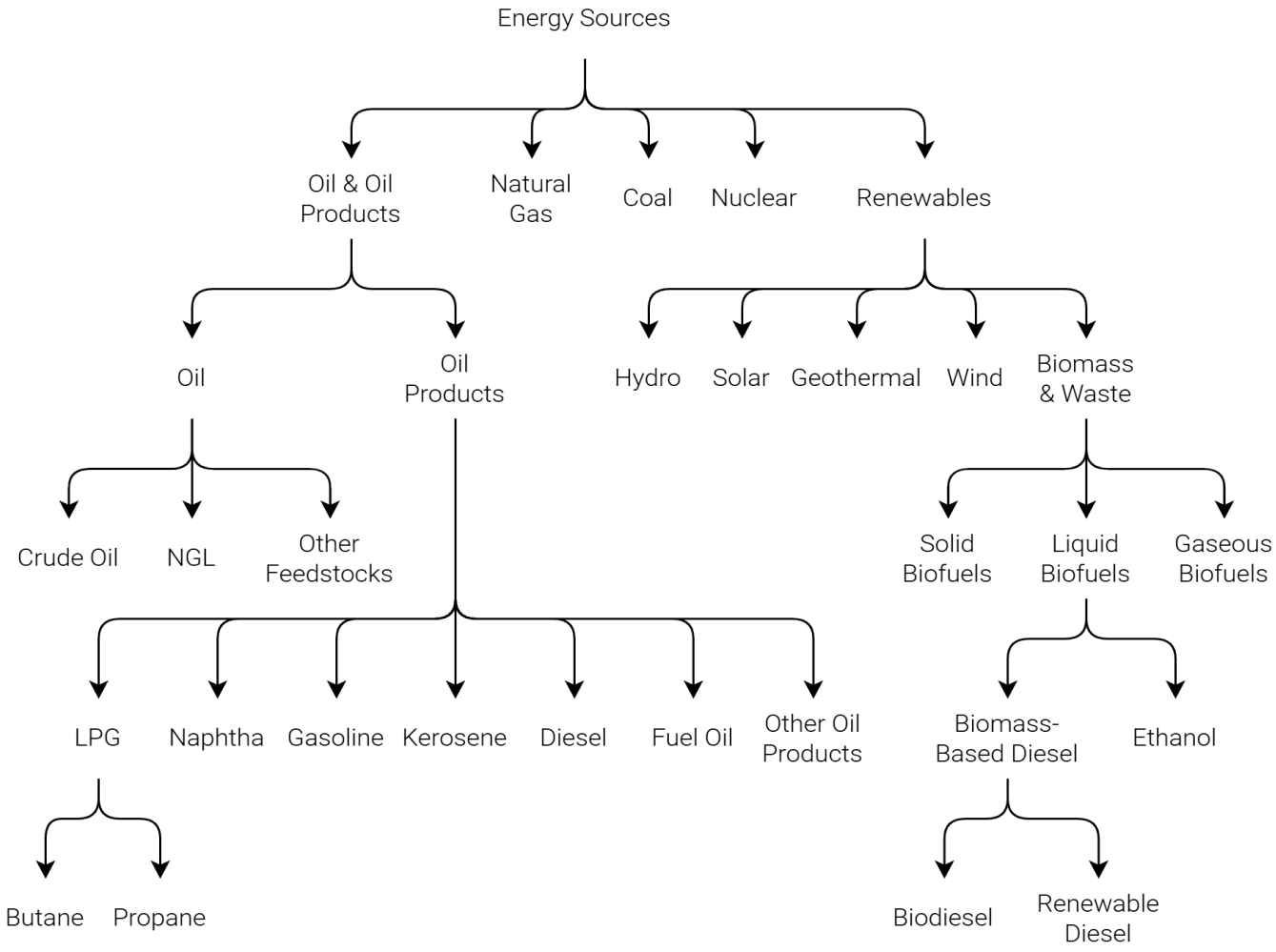
* Executive Summary: Brief context of key energy prices and recent market changes.
* Current Prices: Summary of variations from previous month and year for all assessments.
* Historical Prices: Evolution of energy commodity prices.
* Price Forecasts: Short-term forecasts for selected energy price assessments.
* Market Outlook: Information on energy market, imports, exports, production, and demand in recent years.
* Freight and Insurance: Analysis of freight rates and insurance costs for key trade routes.
* Glossary and Methodology (Appendix): Presentation of key terms and methodology.
* Currency and Unit Conversion Factors (Appendix): Summary of currency rates and unit conversions.
* Alternative Data Delivery Methods (Appendix): Explanation of Intratec's data delivery formats.
* Price Models Accuracy (Appendix): Evaluation of Intratec's preliminary price model accuracies.
* Price Forecasts Accuracy (Appendix): Assessment of relevant global sources price forecast accuracies.
* Global Prices Comparison (Appendix): Comparison of the Indonesia energy prices with other countries.
* Frequently Asked Questions (Appendix): Answers to questions about pricing methodologies, data reliability, and key concepts.

Analytical Approach

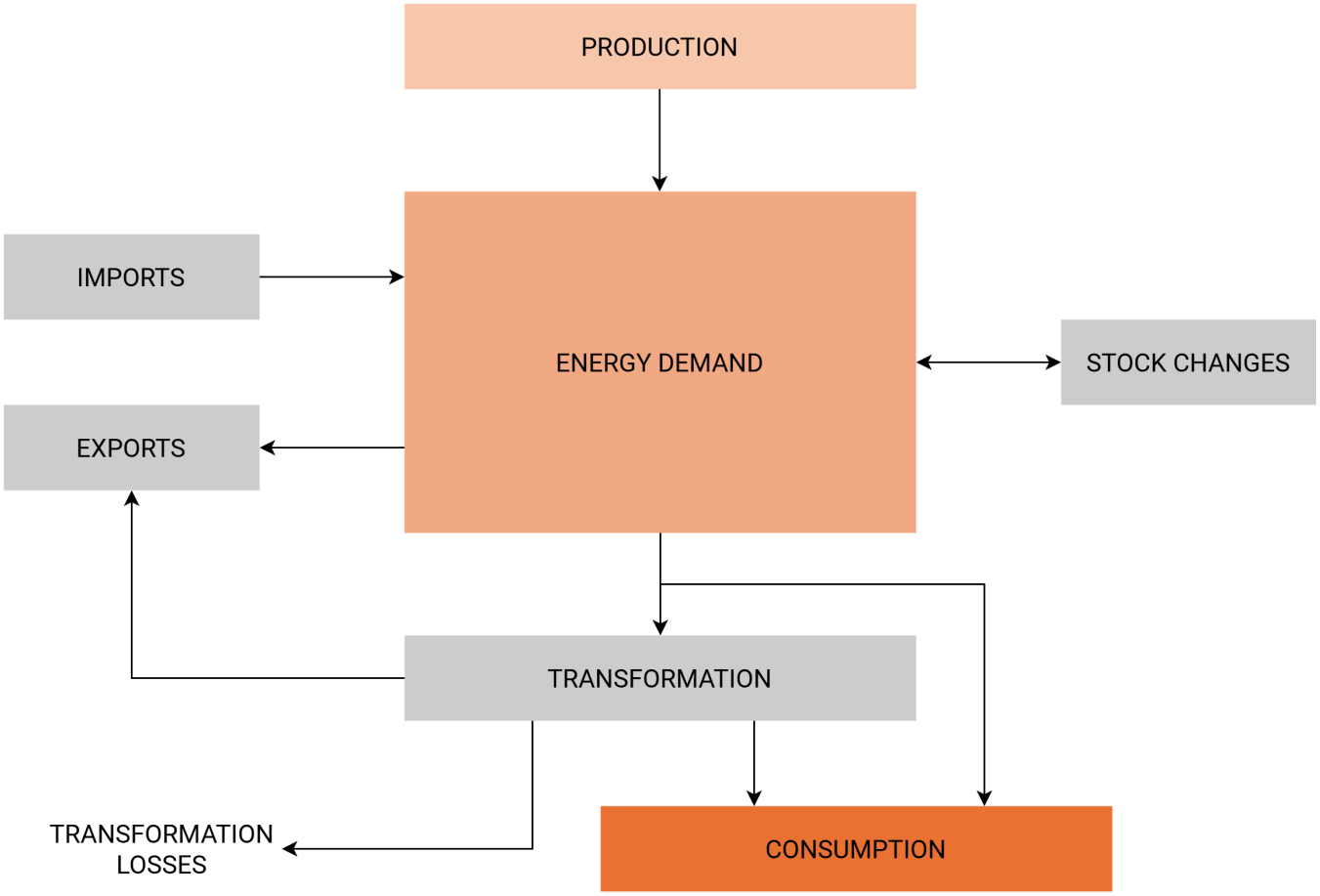
This report examines energy commodities from multiple perspectives, considering them both individually and in groups aligned with specific assessment types. To enhance clarity, this section outlines the key commodity groupings used throughout the analyses.

* Market Assessments

In market assessments, energy commodities are categorized based on distinctions between primary and secondary energy sources, exploring their transformation into usable energy products. The following diagram illustrates the classification framework used:



Additionally, the energy flows analyzed in this report are represented in the diagram below:

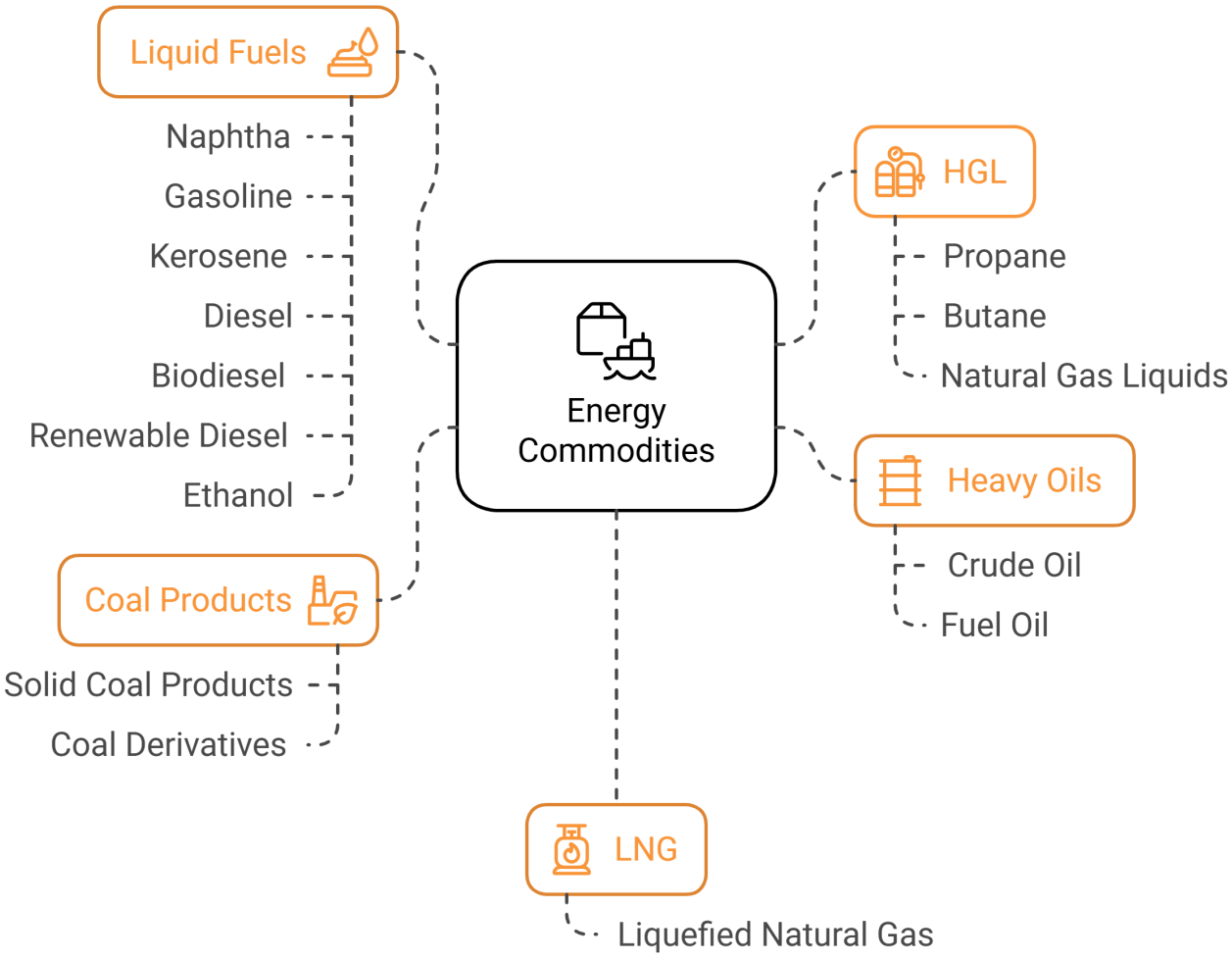


* Freight Cost Assessments

For transportation and freight cost assessments, energy commodities are classified according to industry standards commonly used in maritime shipping. This approach reflects both logistical considerations and the distinct physical and economic characteristics of different fuel types. The main categories include:

* Heavy Oils
* Liquid Fuels
* Hydrocarbon Gas Liquids (HGL)
* Liquefied Natural Gas (LNG)
* Coal Products

These categories streamline classification and transportation, ensuring consistency with shipping practices. The diagram below illustrates how energy commodities are grouped for freight cost assessments:



How to Use This Report

Intratec Energy Prices & Markets delivers reliable, data-driven insights by relying on official trade statistics and advanced computational models, rather than subjective estimates from market participants. Unlike competitors that base assessments on buyer and seller quotes – often reflecting expectations rather than actual trades – Intratec data are primarily based on effectively closed international trade deals. This ensures transparent, auditable, and unbiased energy assessments, providing a clear, objective view of market conditions.

In this context, over the years, our reports have been successfully used to:

* Track historical energy price movements and short-term forecasts.
* Assess procurement strategies and cost planning.
* Evaluate a country's energy self-sufficiency and trade dependencies.
* Compare local energy prices with global market prices.
* Identify trends in freight rates and their impact on energy imports and exports.
* Support investment analyses and commercial decision-making.

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Chapter 1

Executive Summary

1.1 Overview

Assessments Variations

Crude Oil price ↓ 2.8%

Crude Oil prices narrowed from Jan 25 to Feb 25

Electricity price ⟷ 0.0%

Industrial Electricity prices was stable from Jan 25 to Feb 25

Natural Gas price ↑ 7.0%

Natural Gas prices climbed from Jan 25 to Feb 25

Gasoline price ⟷ 0.0%

Gasoline prices stayed the same from Jan 25 to Feb 25

Oil Products price ↓ 2.0%

On average, the prices of Oil Products fell from Feb 25 to Mar 25

Average energy price ↓ 2.8%

The general energy price slipped from Feb 25 to Mar 25

Energy consumption ↓ 4.7%

Energy consumption plunged from Sep 24 to Oct 24

Energy production ↑ 6.6%

Energy production strengthened from Sep 24 to Oct 24

Energy exports ↑ 45.4%

Energy exports have gone up from Sep 24 to Oct 24

Energy imports ↓ 23.4%

Energy imports lost ground from Sep 24 to Oct 24

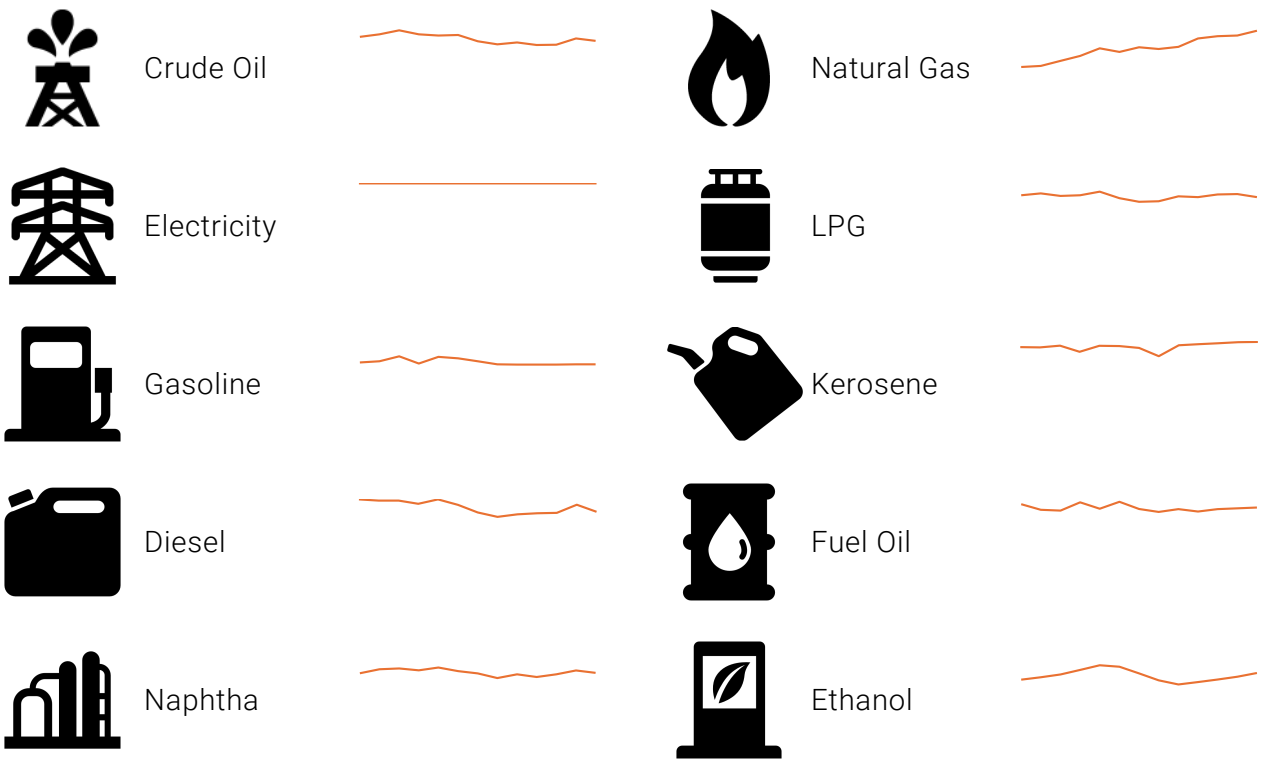
Electricity consumption ↓ 6.3%

Electricity consumption tumbled from Sep 24 to Oct 24

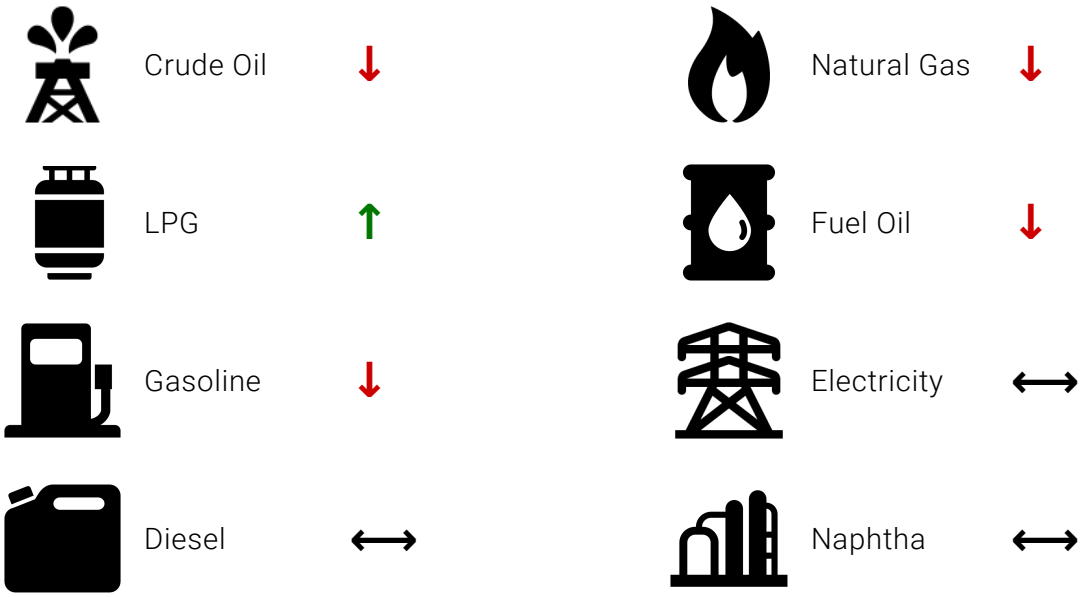
Energy self-sufficiency ↑ 28%

Energy self-sufficiency amplified from Sep 24 to Oct 24

Energy Prices (Last 12 Months)



Expected Energy Prices Trend (Forward Month)



1.2 Current Prices

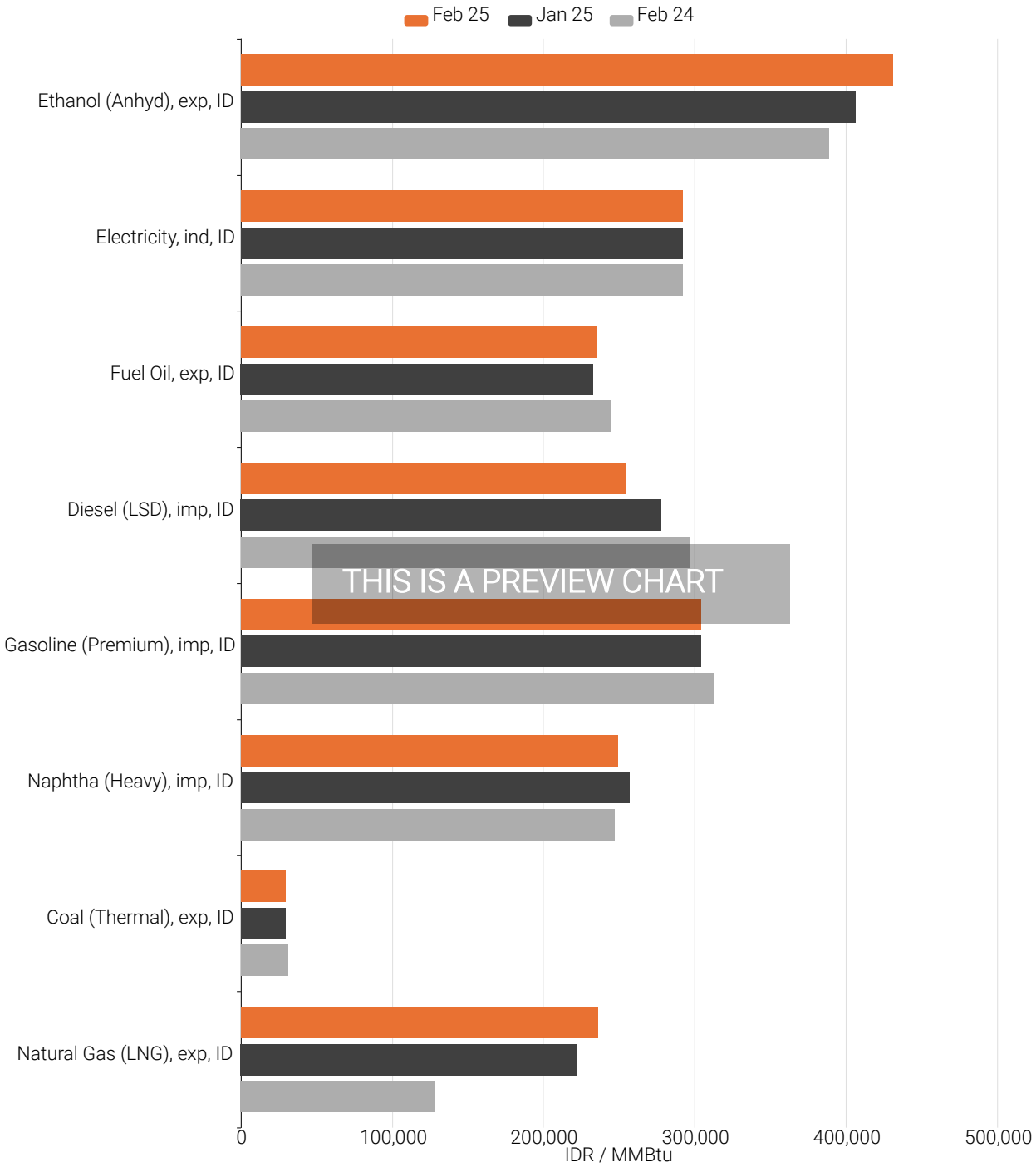


Figure 1.1 Current Energy Prices in Indonesia

Table 1.1 Energy Price Summary - National Currency

	Feb 25	Jan 25	Dec 24	QoQ (%)	YoY (%)
Natural Gas (liquified), export spot, fob (IDR/MMBtu)	236,000	222,000	220,000	+10.8 ↑	+85.5 ↑
Coal (thermal), export spot, fob (IDR/kg)	835	832	821	+3.2 ↑	-6.2 ↓
Naphtha (heavy), import spot, cif (IDR/gal)	28,900	29,800	28,300	+6.9 ↑	+0.9 ↑
Gasoline (premium), import spot, cif (IDR/gal)	36,700	36,700	36,600	+0.3 ↑	-3.1 ↓
Diesel (low-sulfur), import spot, cif (IDR/gal)	34,100	37,400	33,600	+2.2 ↑	-14.5 ↓
Fuel Oil, export transaction, fob (IDR/gal)	31,900	31,600	31,200	+5.2 ↑	-4.2 ↓
Electricity, industrial sector (IDR/kWh)	997	997	997	0.0 ⟷	0.0 ⟷
Ethanol (anhydrous), export spot, fob (IDR/gal)	32,900	31,100	29,800	+15.3 ↑	+10.7 ↑

Table 1.2 Energy Price Summary - US Dollars

	Feb 25	Jan 25	Dec 24	QoQ (%)	YoY (%)
Natural Gas (liquified), export spot, fob (USD/MMBtu)	14.5	13.6	13.7	+7.4 ↑	+77.9 ↑
Coal (thermal), export spot, fob (USD/kg)	0.0512	0.0512	0.0512	0.0 ⟷	-10.0 ↓
Naphtha (heavy), import spot, cif (USD/gal)	1.77	1.83	1.77	+3.6 ↑	-3.2 ↓
Gasoline (premium), import spot, cif (USD/gal)	2.25	2.26	2.28	-2.8 ↓	-7.0 ↓
Diesel (low-sulfur), import spot, cif (USD/gal)	2.09	2.30	2.10	-0.9 ↓	-18.0 ↓
Fuel Oil, export transaction, fob (USD/gal)	1.95	1.94	1.95	+2.0 ↑	-8.1 ↓
Electricity, industrial sector (¢/kWh)	6.11	6.13	6.22	-3.0 ↓	-4.1 ↓
Ethanol (anhydrous), export spot, fob (USD/gal)	2.02	1.91	1.86	+11.8 ↑	+6.1 ↑

1.3 Price Forecast

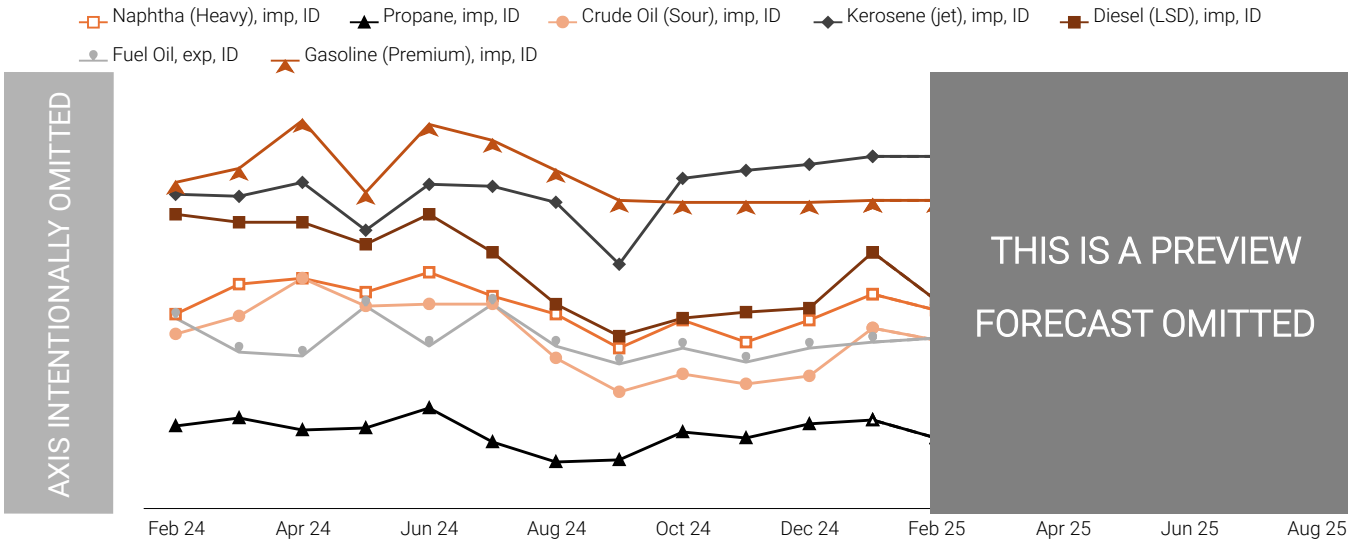


Figure 1.2 Energy Price Forecasts in Indonesia

Table 1.3 Energy Price Forecasts

	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25
Naphtha (heavy), import spot, cif (IDR/gal)	XXX	XXX	XXX	XXX	XXX	XXX
Propane, import spot, cif (IDR/gal)	XXX	XXX	XXX	XXX	XXX	XXX
Crude Oil (sour), import spot, cif (USD/Bbl)	XXX	XXX	XXX	XXX	XXX	XXX
Kerosene (jet fuel), import spot, cif (IDR/gal)	XXX	XXX	XXX	XXX	XXX	XXX
Diesel (low-sulfur), import spot, cif (IDR/gal)	XXX	XXX	XXX	XXX	XXX	XXX
Fuel Oil, export transaction, fob (IDR/gal)	XXX	XXX	XXX	XXX	XXX	XXX
Gasoline (premium), import spot, cif (IDR/gal)	XXX	XXX	XXX	XXX	XXX	XXX

1.4 Market

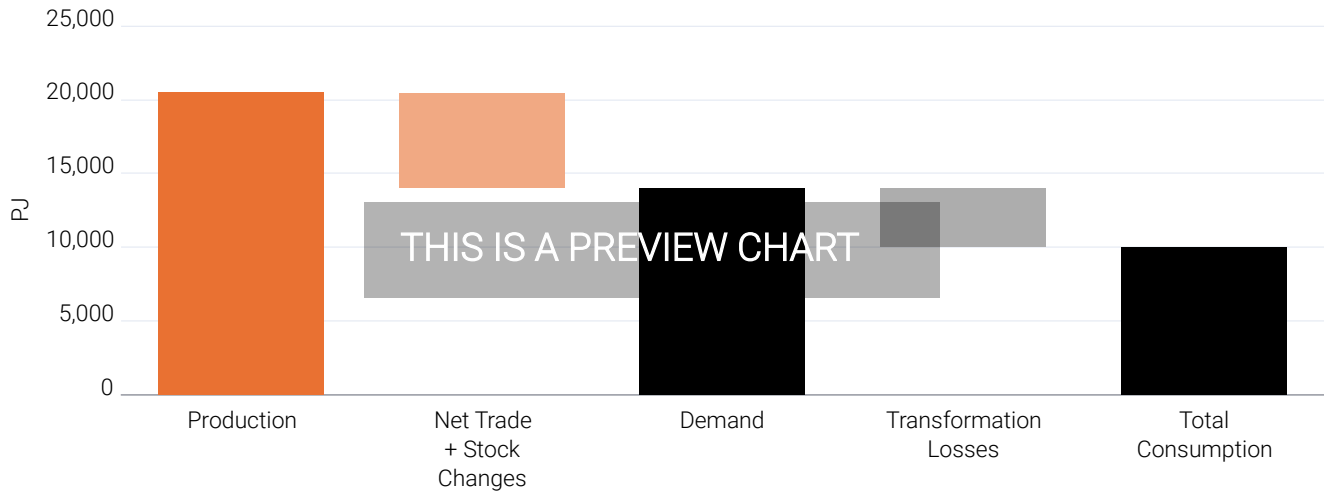


Figure 1.3 Energy Balance in Indonesia (Jan 24 - Oct 24)

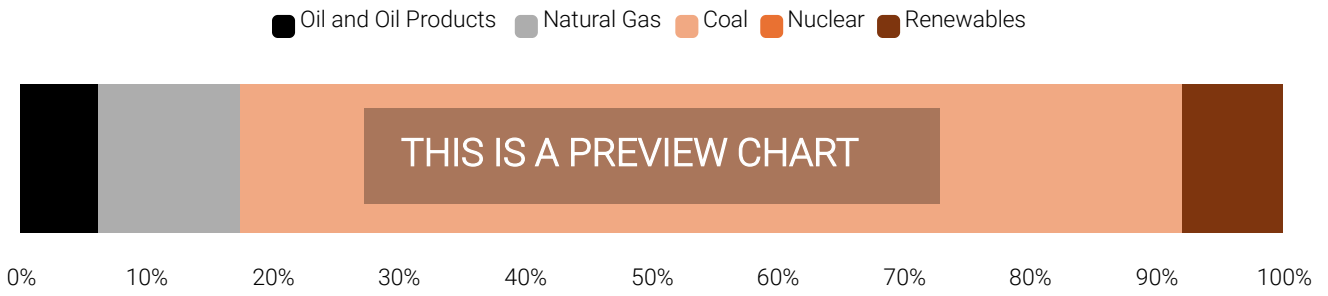


Figure 1.4 Energy Production by Source in Indonesia (Jan 24 - Oct 24)

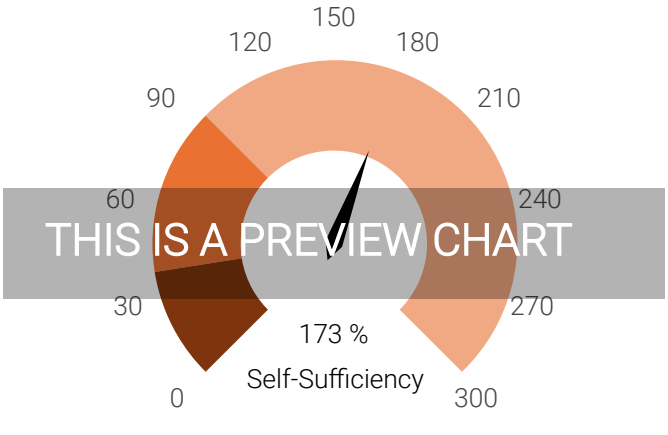


Figure 1.5 Energy Self-Sufficiency in Indonesia (Jan 24 - Oct 24)

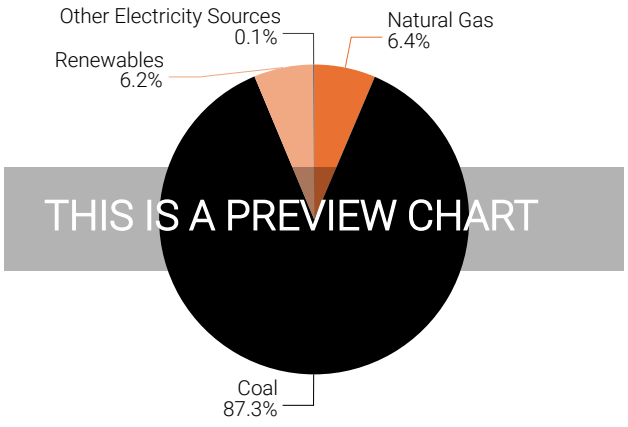


Figure 1.6 Electricity Generation by Source in Indonesia (Jan 24 - Oct 24)

1.5 Global Prices Comparison

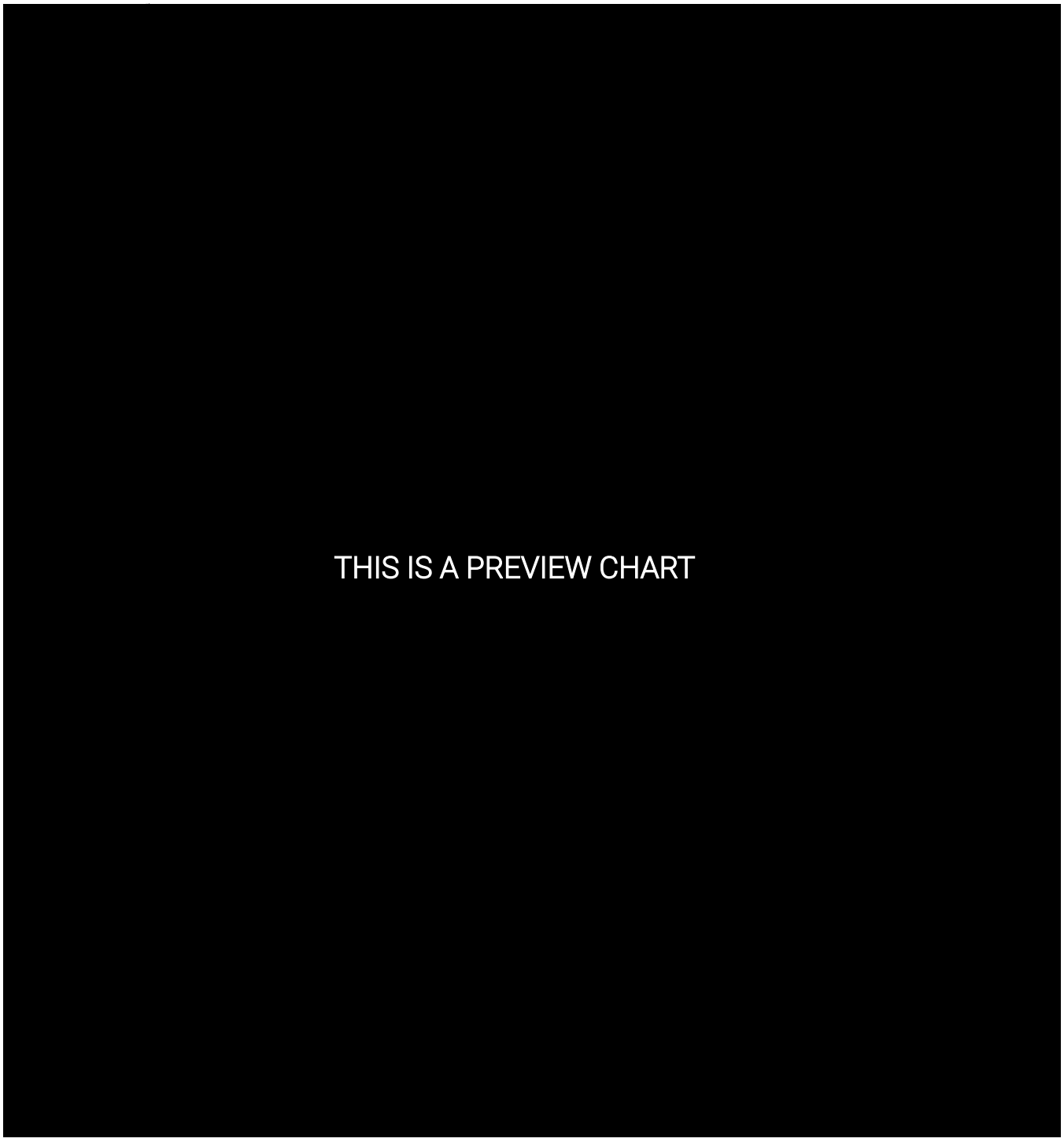


Figure 1.7 Average Energy Price Comparison

Chapter 2

Current Prices

This chapter provides an overview of the most recent energy prices in Indonesia, focusing on key commodities such as Crude Oil, Natural Gas, Gasoline, and Electricity. The analysis is presented through charts and tables, offering a comprehensive view of price trends and assessments.

To ensure clarity, readers can refer to "*Appendix A. Glossary and Methodology*" for explanations of key terms used to define the basis and types of prices of the assessments presented (e.g., "contract," "spot," and "transaction"). For more detailed information on Intratec's methodologies and assessment specifications, additional resources are available:

- General Methodology: https://intrat.ec/m?f=/iep-methodology-general
- Assessment Guides: https://intrat.ec/m?f=/iep-assessments-id

2.1 Crude Oil

Figure 2.1 illustrates Crude Oil prices over the past 13 months.

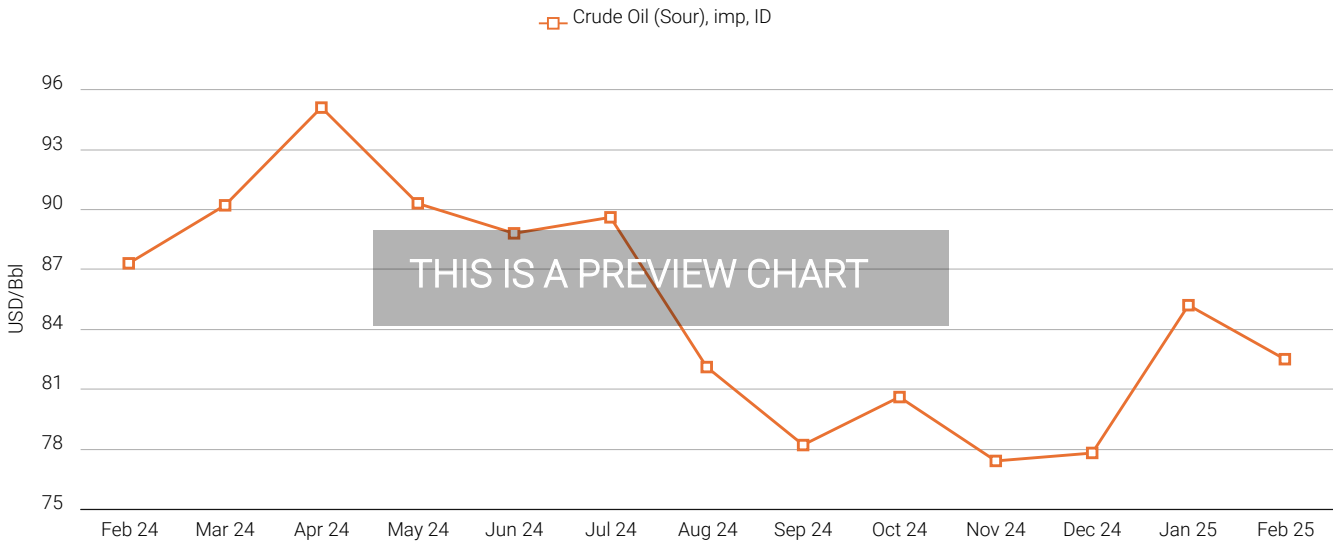


Figure 2.1 Indonesia Crude Oil Prices (Feb 24 - Feb 25)

Table 2.1 presents the most recent Crude Oil prices, along with quarterly and yearly price changes.

Table 2.1 Indonesia Crude Oil Price Assessments

	Feb 25	Jan 25	Dec 24	QoQ (%)	YoY (%)
Crude Oil (sour), import spot, cif (USD/Bbl)	82.5	85.2	77.8	+10.0 ↑	-1.4 ↓

Crude Oil (Feb 25). The Crude Oil (sour), import spot, cif price was around 82.5 USD per Bbl, which represents a fall of 2.8% compared to the previous month's value. On a year-over-year basis, Crude Oil (sour), import spot, cif prices decreased by 1.4%.

Illustrative Case Study: Applying Intratec Data

An energy importer located in Indonesia received a Crude Oil quote of USD 80.9 per Bbl in December 2024. To estimate the price for February 2025, they used Intratec's "Crude Oil (sour), import spot, cif" assessment as a market reference. Intratec's December assessment was USD 77.8 per Bbl, and by February, it was USD 82.5 per Bbl.

Using Intratec's price trend, the expected price in February would be approximately USD 85.8 per Bbl, calculated by applying the percentage change in Intratec's assessments. This approach helps validate supplier quotes and negotiate fair prices based on market trends.

2.2 Natural Gas

Figure 2.2 illustrates Natural Gas prices over the past 13 months.

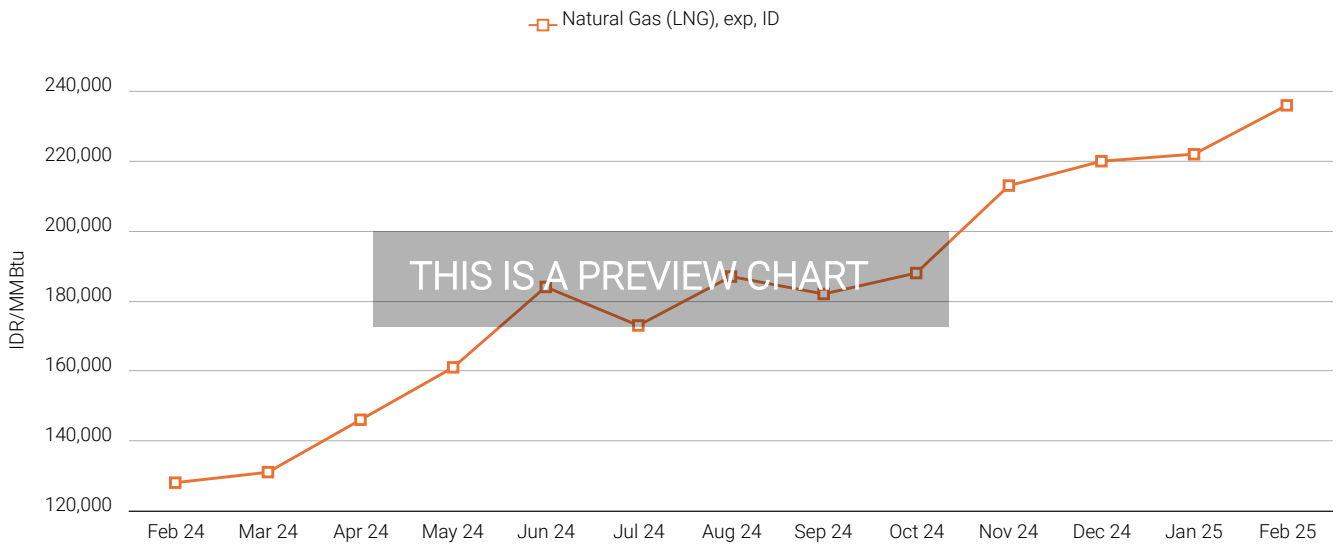


Figure 2.2 Indonesia Natural Gas Prices (Feb 24 - Feb 25)

Table 2.2 presents the most recent Natural Gas prices, along with quarterly and yearly price changes.

Table 2.2 Indonesia Natural Gas Price Assessments

	Feb 25	Jan 25	Dec 24	QoQ (%)	YoY (%)
Natural Gas (liquified), export spot, fob (IDR/MMBtu)	236,000	222,000	220,000	+10.8 ↑	+85.5 ↑

Natural Gas (Feb 25). The Natural Gas (liquified), export spot, fob price was around 236,000 IDR per MMBtu, which represents a rise of 7% compared to the previous month's value. On a year-over-year basis, Natural Gas (liquified), export spot, fob prices increased by 85.5%.

2.3 Coal

Figure 2.3 illustrates Coal prices over the past 13 months.

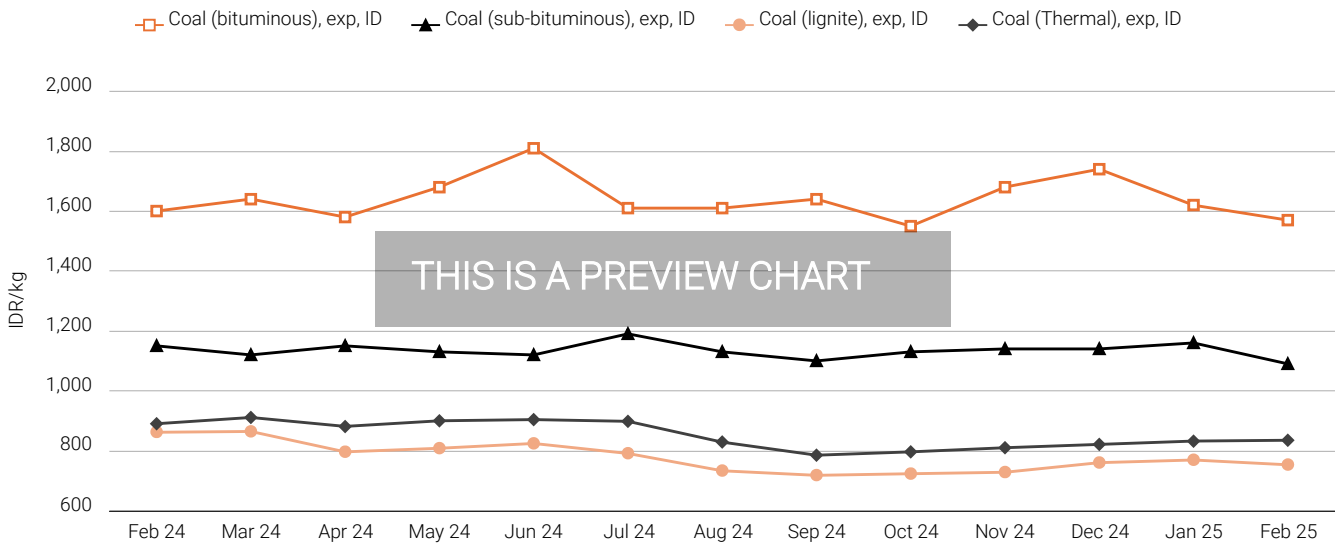


Figure 2.3 Indonesia Coal Prices (Feb 24 - Feb 25)

Table 2.3 presents the most recent Coal prices, along with quarterly and yearly price changes.

Table 2.3 Indonesia Coal Price Assessments

	Feb 25	Jan 25	Dec 24	QoQ (%)	YoY (%)
Coal (bituminous), export transaction, fob (IDR/kg)	1,570	1,620	1,740	-6.3 ↓	-2.5 ↓
Coal (sub-bituminous), export transaction, fob (IDR/kg)	1,090	1,160	1,140	-4.2 ↓	-5.1 ↓
Coal (lignite), export transaction, fob (IDR/kg)	753	769	760	+3.4 ↑	-12.7 ↓
Coal (thermal), export spot, fob (IDR/kg)	835	832	821	+3.2 ↑	-6.2 ↓

Coal (Feb 25). The Coal (bituminous), export transaction, fob price was around 1,570 IDR per kg, which represents a fall of 2.9% compared to the previous month's value. On a year-over-year basis, Coal (bituminous), export transaction, fob prices decreased by 2.5%. Meanwhile, the average price of Coal (sub-bituminous), export transaction, fob amounted to 1,090 IDR per kg, from 1,150 IDR per kg one year earlier. On a month-over-month basis, the Coal (sub-bituminous), export transaction, fob price is 6% lower than the price one month before. Another

notable point is that the current Coal (lignite), export transaction, fob price, when compared to the average price last month, declined by 2.2% and is 12.7% below the average price one year ago.

2.4 LPG

Figure 2.4 illustrates LPG prices over the past 13 months.

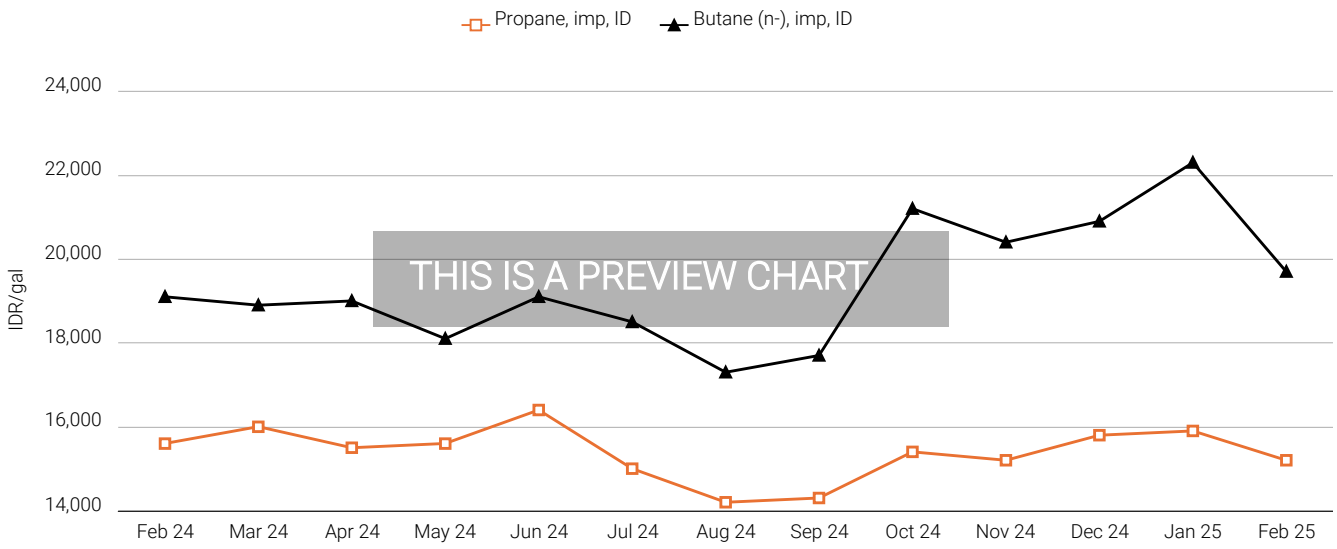


Figure 2.4 Indonesia LPG Prices (Feb 24 - Feb 25)

Table 2.4 presents the most recent LPG prices, along with quarterly and yearly price changes.

Table 2.4 Indonesia LPG Price Assessments

	Feb 25	Jan 25	Dec 24	QoQ (%)	YoY (%)
Propane, import spot, cif (IDR/gal)	15,200	15,900	15,800	-0.3 ↓	-3.1 ↓
Butane (n-butane), import spot, cif (IDR/gal)	19,700	22,300	20,900	-3.9 ↓	+2.5 ↑

LPG (Feb 25). The Propane, import spot, cif price was around 15,200 IDR per gal, which represents a fall of 4.8% compared to the previous month's value. On a year-over-year basis, Propane, import spot, cif prices decreased by 3.1%. Meanwhile, the average price of Butane (n-butane), import spot, cif amounted to 19,700 IDR per gal, from 19,100 IDR per gal one year earlier. On a month-over-month basis, the Butane (n-butane), import spot, cif price is 11.8% lower than the price one month before.

2.5 Naphtha

Figure 2.5 illustrates Naphtha prices over the past 13 months.

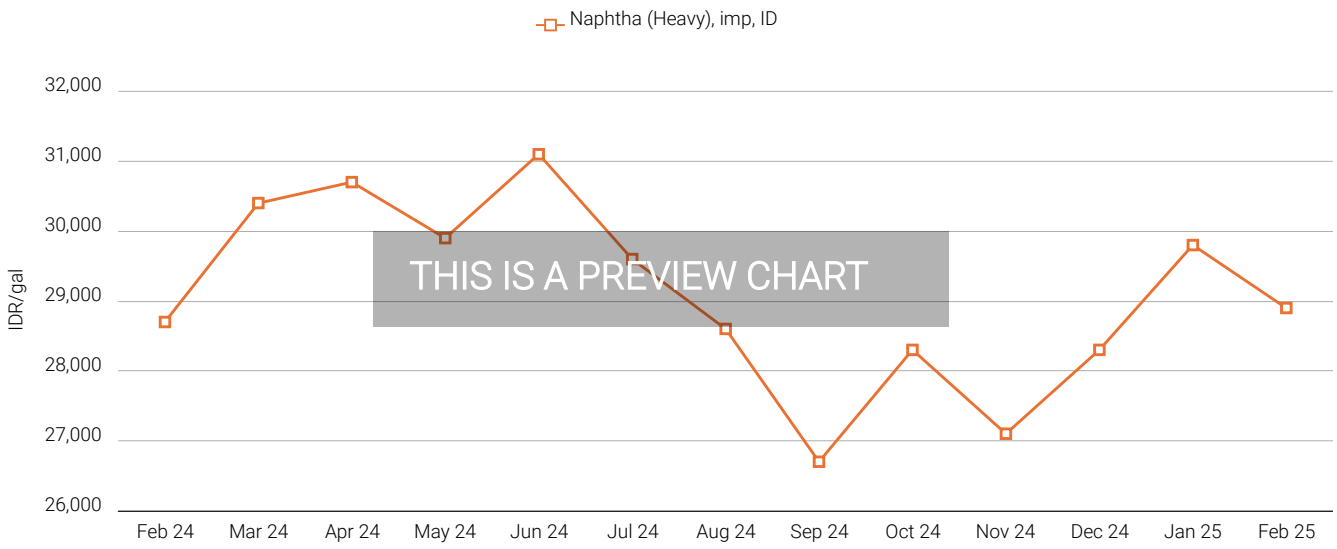


Figure 2.5 Indonesia Naphtha Prices (Feb 24 - Feb 25)

Table 2.5 presents the most recent Naphtha prices, along with quarterly and yearly price changes.

Table 2.5 Indonesia Naphtha Price Assessments

	Feb 25	Jan 25	Dec 24	QoQ (%)	YoY (%)
Naphtha (heavy), import spot, cif (IDR/gal)	28,900	29,800	28,300	+6.9 ↑	+0.9 ↑

Naphtha (Feb 25). The Naphtha (heavy), import spot, cif price was around 28,900 IDR per gal, which represents a fall of 2.8% compared to the previous month's value. On a year-over-year basis, Naphtha (heavy), import spot, cif prices increased by 0.9%.

2.6 Gasoline

Figure 2.6 illustrates Gasoline prices over the past 13 months.

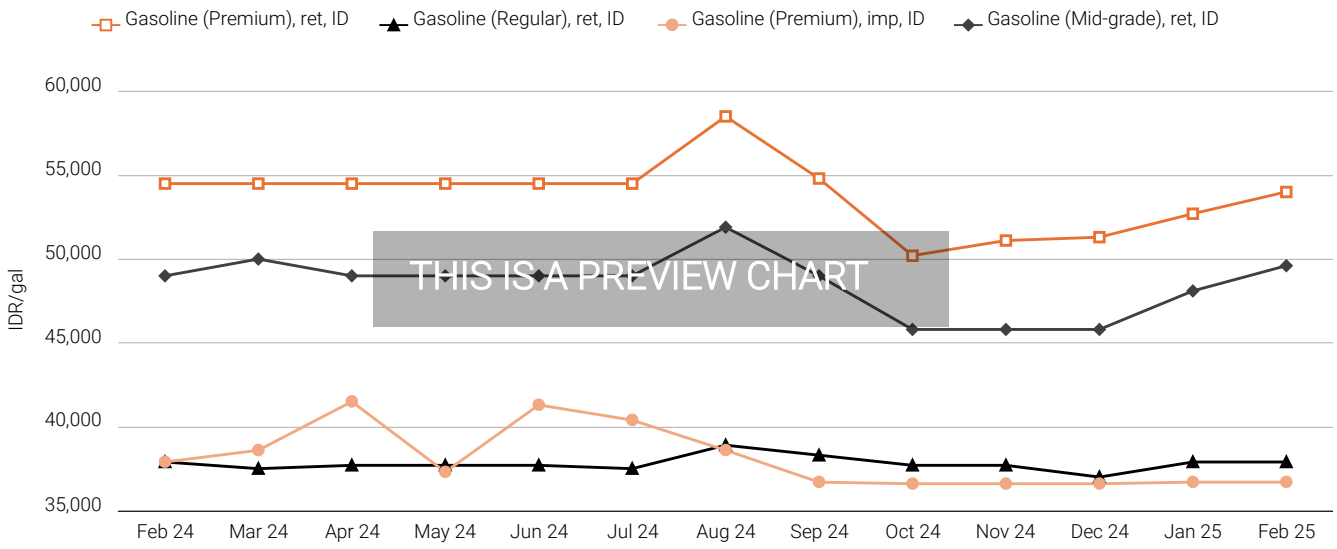


Figure 2.6 Indonesia Gasoline Prices (Feb 24 - Feb 25)

Table 2.6 presents the most recent Gasoline prices, along with quarterly and yearly price changes.

Table 2.6 Indonesia Gasoline Price Assessments

	Feb 25	Jan 25	Dec 24	QoQ (%)	YoY (%)
Gasoline (premium), retail (IDR/gal)	54,000	52,700	51,300	+5.6 ↑	-1.0 ↓
Gasoline (regular), retail (IDR/gal)	37,900	37,900	37,000	+0.4 ↑	-0.1 ↓
Gasoline (premium), import spot, cif (IDR/gal)	36,700	36,700	36,600	+0.3 ↑	-3.1 ↓
Gasoline (mid-grade), retail (IDR/gal)	49,600	48,100	45,800	+8.3 ↑	+1.3 ↑

Gasoline (Feb 25). The Gasoline (premium), retail price was around 54,000 IDR per gal, which represents a rise of 2.3% compared to the previous month's value. On a year-over-year basis, Gasoline (premium), retail prices decreased by 1%. Meanwhile, the average price of Gasoline (regular), retail amounted to 37,900 IDR per gal, from 37,900 IDR per gal one year earlier. On a month-over-month basis, the Gasoline (regular), retail price is close to the price one month before. Another notable point is that the current Gasoline (premium), import spot, cif price, when

compared to the average price last month, remained constant and is 3.1% below the average price one year ago.

2.7 Kerosene

Figure 2.7 illustrates Kerosene prices over the past 13 months.

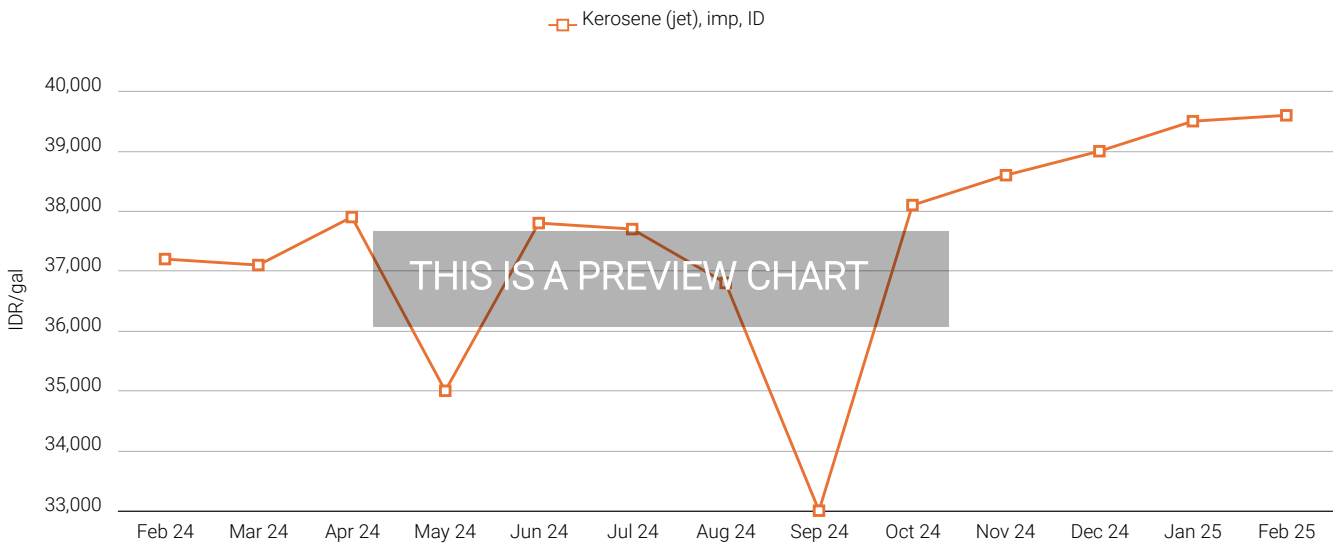


Figure 2.7 Indonesia Kerosene Prices (Feb 24 - Feb 25)

Table 2.7 presents the most recent Kerosene prices, along with quarterly and yearly price changes.

Table 2.7 Indonesia Kerosene Price Assessments

	Feb 25	Jan 25	Dec 24	QoQ (%)	YoY (%)
Kerosene (jet fuel), import spot, cif (IDR/gal)	39,600	39,500	39,000	+2.4 ↑	+6.4 ↑

Kerosene (Feb 25). The Kerosene (jet fuel), import spot, cif price was around 39,600 IDR per gal, which represents a rise of 0.2% compared to the previous month's value. On a year-over-year basis, Kerosene (jet fuel), import spot, cif prices increased by 6.4%.

2.8 Diesel

Figure 2.8 illustrates Diesel prices over the past 13 months.

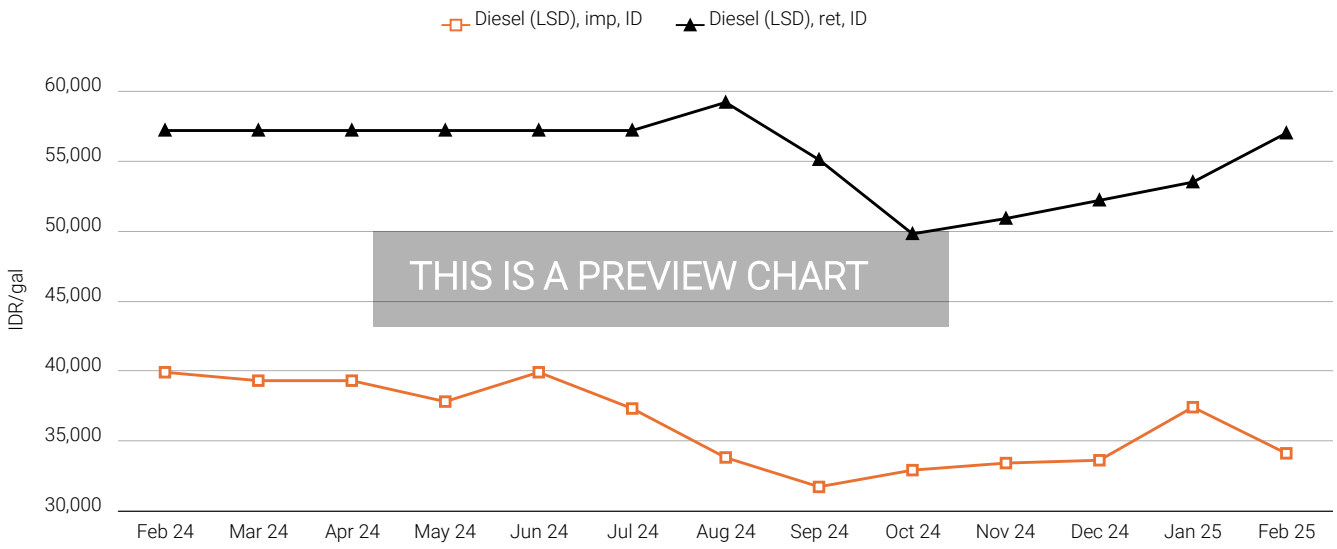


Figure 2.8 Indonesia Diesel Prices (Feb 24 - Feb 25)

Table 2.8 presents the most recent Diesel prices, along with quarterly and yearly price changes.

Table 2.8 Indonesia Diesel Price Assessments

	Feb 25	Jan 25	Dec 24	QoQ (%)	YoY (%)
Diesel (low-sulfur), import spot, cif (IDR/gal)	34,100	37,400	33,600	+2.2 ↑	-14.5 ↓
Diesel (low-sulfur), retail (IDR/gal)	57,000	53,500	52,200	+12.1 ↑	-0.3 ↓

Diesel (Feb 25). The Diesel (low-sulfur), import spot, cif price was around 34,100 IDR per gal, which represents a fall of 8.8% compared to the previous month's value. On a year-over-year basis, Diesel (low-sulfur), import spot, cif prices decreased by 14.5%. Meanwhile, the average price of Diesel (low-sulfur), retail amounted to 57,000 IDR per gal, from 57,200 IDR per gal one year earlier. On a month-over-month basis, the Diesel (low-sulfur), retail price is 6.7% higher than the price one month before.

2.9 Fuel Oil

Figure 2.9 illustrates Fuel Oil prices over the past 13 months.

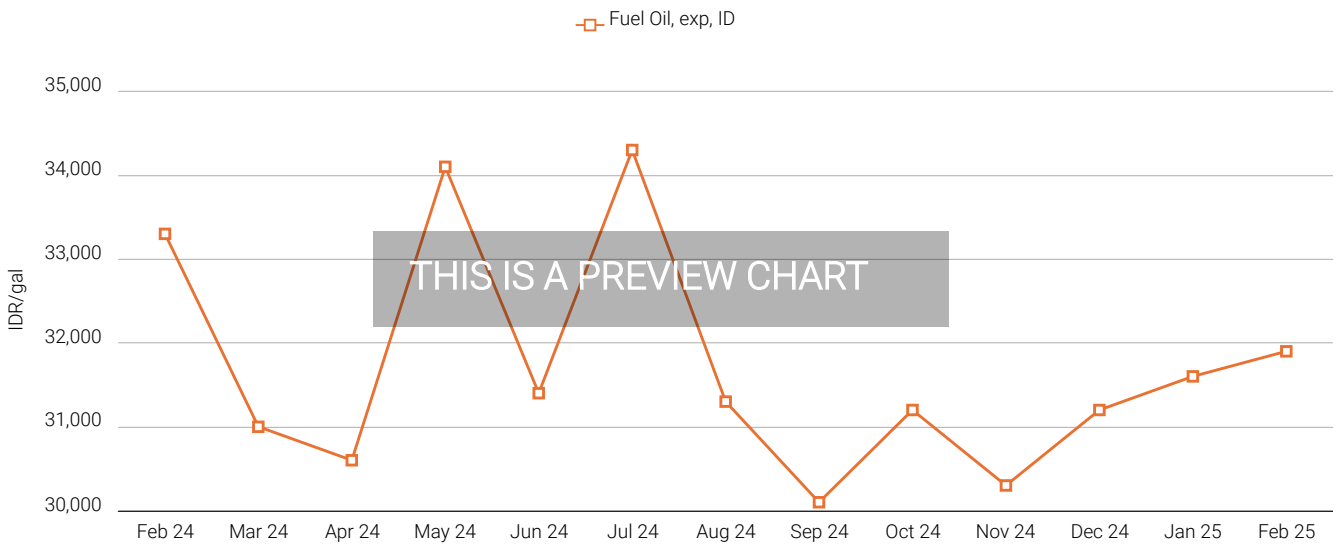


Figure 2.9 Indonesia Fuel Oil Prices (Feb 24 - Feb 25)

Table 2.9 presents the most recent Fuel Oil prices, along with quarterly and yearly price changes.

Table 2.9 Indonesia Fuel Oil Price Assessments

	Feb 25	Jan 25	Dec 24	QoQ (%)	YoY (%)
Fuel Oil, export transaction, fob (IDR/gal)	31,900	31,600	31,200	+5.2 ↑	-4.2 ↓

Fuel Oil (Feb 25). The Fuel Oil, export transaction, fob price was around 31,900 IDR per gal, which represents a rise of 0.9% compared to the previous month's value. On a year-over-year basis, Fuel Oil, export transaction, fob prices decreased by 4.2%.

2.10 Electricity

Figure 2.10 illustrates Electricity prices over the past 13 months.

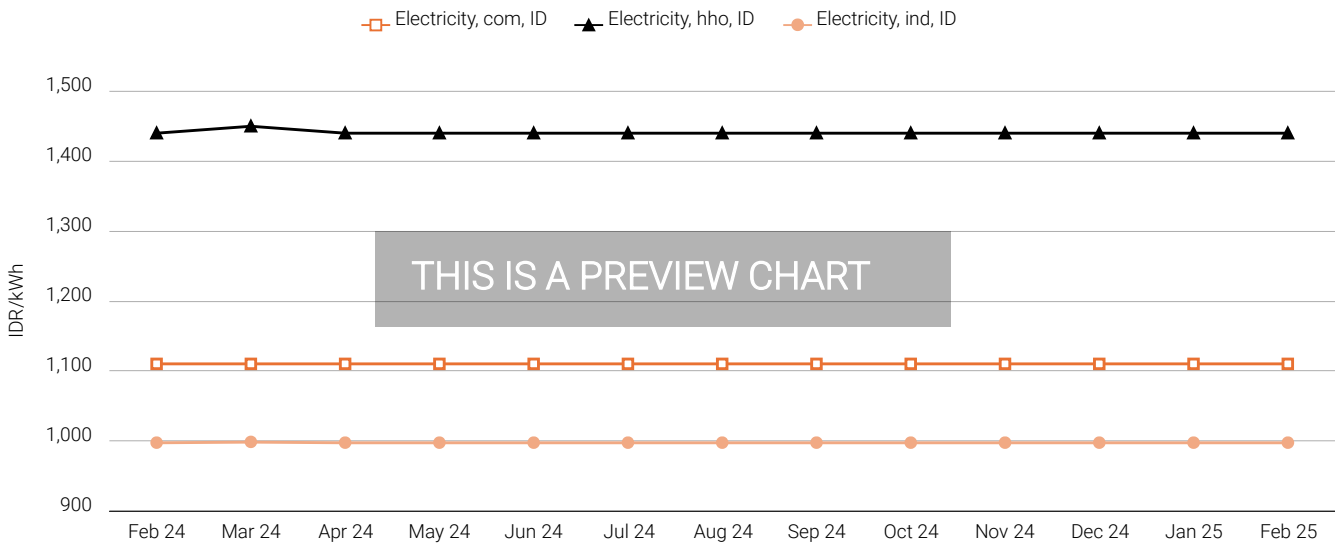


Figure 2.10 Indonesia Electricity Prices (Feb 24 - Feb 25)

Table 2.10 presents the most recent Electricity prices, along with quarterly and yearly price changes.

Table 2.10 Indonesia Electricity Price Assessments

	Feb 25	Jan 25	Dec 24	QoQ (%)	YoY (%)
Electricity, commercial sector (IDR/kWh)	1,110	1,110	1,110	-0.1 ↓	0.0 ⟷
Electricity, household (IDR/kWh)	1,440	1,440	1,440	-0.0 ⟷	-0.0 ⟷
Electricity, industrial sector (IDR/kWh)	997	997	997	0.0 ⟷	0.0 ⟷

Electricity (Feb 25). The Electricity, commercial sector price was around 1,110 IDR per kWh, which represents a rise of 0.1% compared to the previous month's value. On a year-over-year basis, Electricity, commercial sector prices did not vary considerably . Meanwhile, the average price of Electricity, household amounted to 1,440 IDR per kWh, as one year earlier. On a month-over-month basis, the Electricity, household price is close to the price one month before.

Another notable point is that the current Electricity, industrial sector price, when compared to the average price last month, remained constant and is similar to the average price one year ago.

2.11 Ethanol

Figure 2.11 illustrates Ethanol prices over the past 13 months.

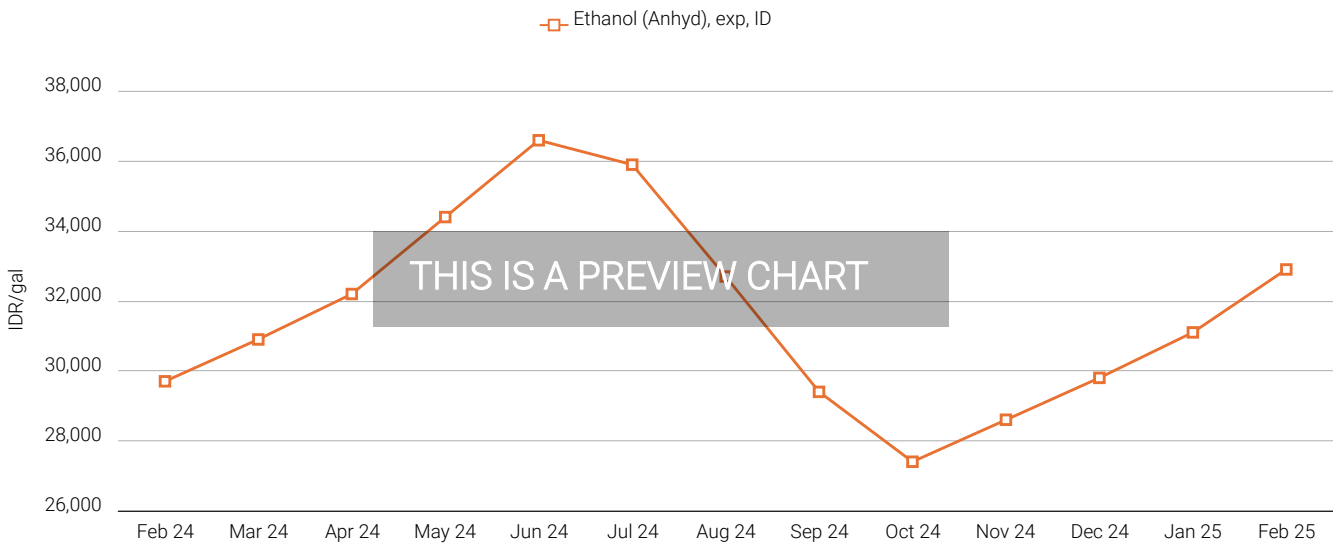


Figure 2.11 Indonesia Ethanol Prices (Feb 24 - Feb 25)

Table 2.11 presents the most recent Ethanol prices, along with quarterly and yearly price changes.

Table 2.11 Indonesia Ethanol Price Assessments

	Feb 25	Jan 25	Dec 24	QoQ (%)	YoY (%)
Ethanol (anhydrous), export spot, fob (IDR/gal)	32,900	31,100	29,800	+15.3 ↑	+10.7 ↑

Ethanol (Feb 25). The Ethanol (anhydrous), export spot, fob price was around 32,900 IDR per gal, which represents a rise of 6% compared to the previous month's value. On a year-over-year basis, Ethanol (anhydrous), export spot, fob prices increased by 10.7%.

2.12 Biomass-Based Diesel

Figure 2.12 illustrates Biomass-Based Diesel prices over the past 13 months.

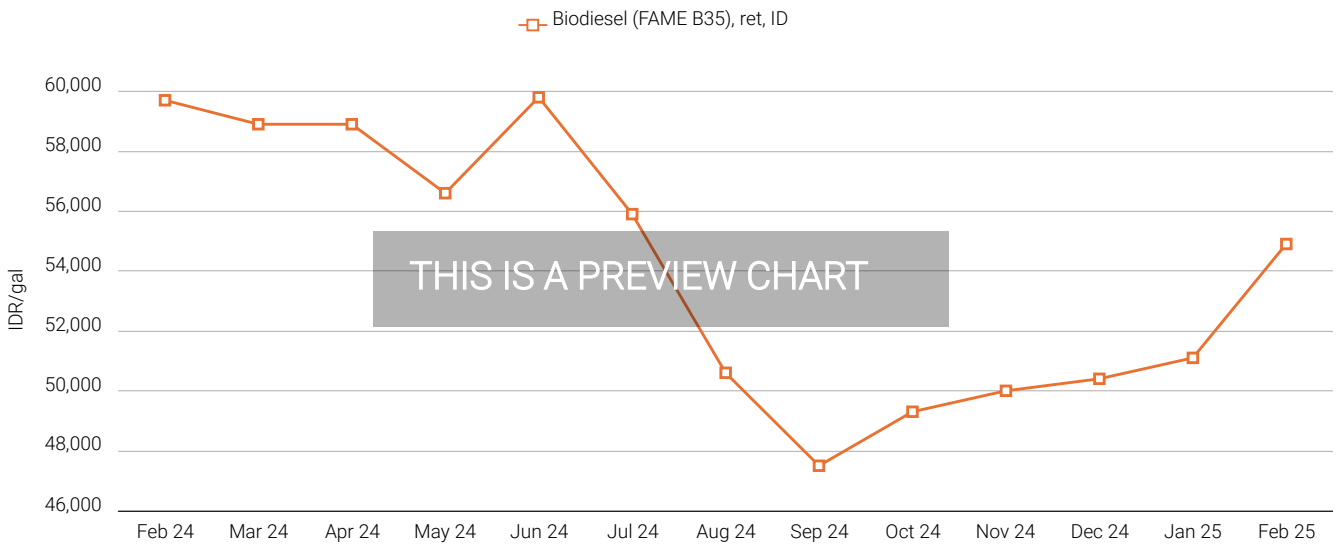


Figure 2.12 Indonesia Biomass-Based Diesel Prices (Feb 24 - Feb 25)

Table 2.12 presents the most recent Biomass-Based Diesel prices, along with quarterly and yearly price changes.

Table 2.12 Indonesia Biomass-Based Diesel Price Assessments

	Feb 25	Jan 25	Dec 24	QoQ (%)	YoY (%)
Biodiesel (FAME biodiesel B35), retail, ddp (IDR/gal)	54,900	51,100	50,400	+9.8 ↑	-8.3 ↓

Biomass-Based Diesel (Feb 25). The Biodiesel (FAME biodiesel B35), retail, ddp price was around 54,900 IDR per gal, which represents a rise of 7.4% compared to the previous month's value. On a year-over-year basis, Biodiesel (FAME biodiesel B35), retail, ddp prices decreased by 8.3%.

Chapter 3

Historical Prices

This chapter provides a comprehensive overview of historical energy prices, offering insights into market trends over different time horizons. The data is organized into three sections:

* **1-Year Monthly History**: Monthly prices for the past year available to all subscription levels.
* **3-Year Quarterly History**: A broader view of price history over the last three years, with quarterly data accessible exclusively to **Pro** and **Advanced** subscribers.
* **10-Year Annual History**: A long-term analysis of annual price trends over the past decade, available only to **Advanced** subscribers.

3.1 1-Year Monthly History

Figure 3.1 presents the energy prices in Indonesia in the last year.

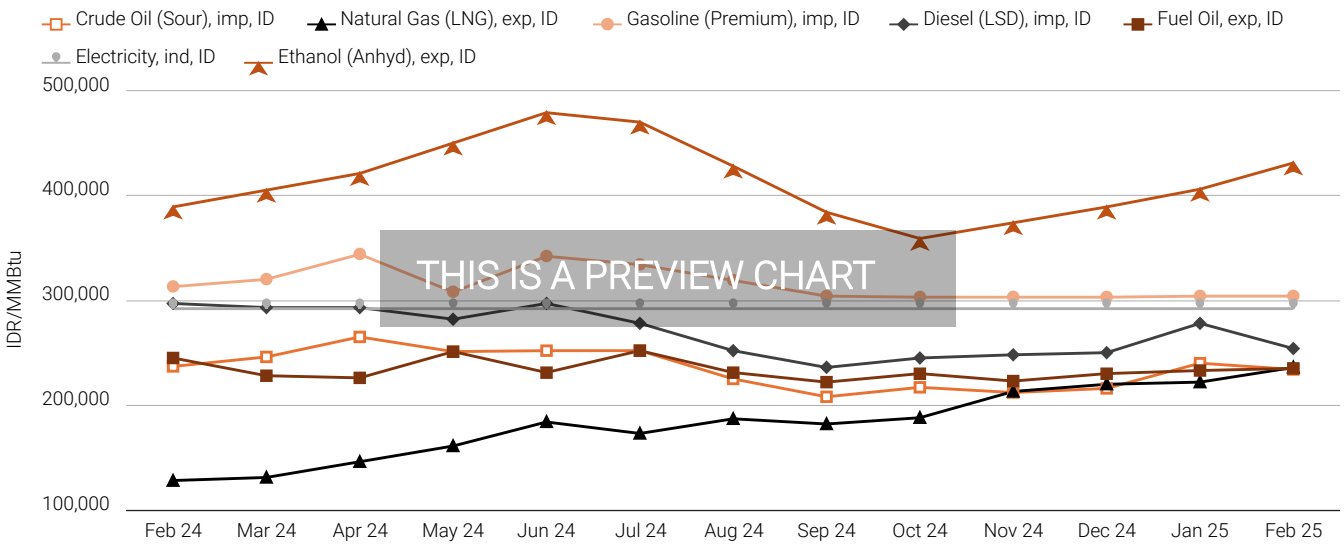


Figure 3.1 Indonesia Key Energy Prices (Feb 24 - Feb 25)

Table 3.1 presents the energy prices in Indonesia in the last year.

Table 3.1 Monthly Price Assessments

	Feb 25	Jan 25	Dec 24	Nov 24	Oct 24	Sep 24	Aug 24	Jul 24	Jun 24	May 24	Apr 24	Mar 24	Feb 24
Crude Oil (sour), import spot, cif (USD/Bbl)	82.5	85.2	77.8	77.4	80.6	78.2	82.1	89.6	88.8	90.3	95.1	90.2	87.3
Natural Gas (liquified), export spot, fob (IDR/MMBtu)	236,000	222,000	220,000	213,000	188,000	182,000	187,000	173,000	184,000	161,000	146,000	131,000	128,000
Coal (bituminous), export transaction, fob (IDR/kg)	1,570	1,620	1,740	1,680	1,550	1,640	1,610	1,610	1,810	1,680	1,580	1,640	1,600
Coal (sub-bituminous), export transaction, fob (IDR/kg)	1,090	1,160	1,140	1,140	1,130	1,100	1,130	1,190	1,120	1,130	1,150	1,120	1,150
Coal (lignite), export transaction, fob (IDR/kg)	753	769	760	728	723	718	733	791	824	808	796	864	862
Coal (thermal), export spot, fob (IDR/kg)	835	832	821	810	796	785	829	898	904	900	881	911	890
Propane, import spot, cif (IDR/gal)	15,200	15,900	15,800	15,200	15,400	14,300	14,200	15,000	16,400	15,600	15,500	16,000	15,600
Butane (n-butane), import spot, cif (IDR/gal)	19,700	22,300	20,900	20,400	21,200	17,700	17,300	18,500	19,100	18,100	19,000	18,900	19,100
Naphtha (heavy), import spot, cif (IDR/gal)	28,900	29,800	28,300	27,100	28,300	26,700	28,600	29,600	31,100	29,900	30,700	30,400	28,700
Gasoline (premium), retail (IDR/gal)	54,000	52,700	51,300	51,100	50,200	54,800	58,500	54,500	54,500	54,500	54,500	54,500	54,500
Gasoline (regular), retail (IDR/gal)	37,900	37,900	37,000	37,700	37,700	38,300	38,900	37,500	37,700	37,700	37,700	37,500	37,900
Gasoline (premium), import spot, cif (IDR/gal)	36,700	36,700	36,600	36,600	36,600	36,700	38,600	40,400	41,300	37,300	41,500	38,600	37,900
Gasoline (mid-grade), retail (IDR/gal)	49,600	48,100	45,800	45,800	45,800	49,000	51,900	49,000	49,000	49,000	49,000	50,000	49,000
Kerosene (jet fuel), import spot, cif (IDR/gal)	39,600	39,500	39,000	38,600	38,100	33,000	36,800	37,700	37,800	35,000	37,900	37,100	37,200
Diesel (low-sulfur), import spot, cif (IDR/gal)	34,100	37,400	33,600	33,400	32,900	31,700	33,800	37,300	39,900	37,800	39,300	39,300	39,900
Diesel (low-sulfur), retail (IDR/gal)	57,000	53,500	52,200	50,900	49,800	55,100	59,200	57,200	57,200	57,200	57,200	57,200	57,200
Fuel Oil, export transaction, fob (IDR/gal)	31,900	31,600	31,200	30,300	31,200	30,100	31,300	34,300	31,400	34,100	30,600	31,000	33,300
Electricity, commercial sector (IDR/kWh)	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110
Electricity, household (IDR/kWh)	1,440	1,440	1,440	1,440	1,440	1,440	1,440	1,440	1,440	1,440	1,440	1,450	1,440
Electricity, industrial sector (IDR/kWh)	997	997	997	997	997	997	997	997	997	997	997	998	997
Ethanol (anhydrous), export spot, fob (IDR/gal)	32,900	31,100	29,800	28,600	27,400	29,400	32,700	35,900	36,600	34,400	32,200	30,900	29,700

	Feb 25	Jan 25	Dec 24	Nov 24	Oct 24	Sep 24	Aug 24	Jul 24	Jun 24	May 24	Apr 24	Mar 24	Feb 24
Biodiesel (FAME biodiesel B35), retail, ddp (IDR/gal)	54,900	51,100	50,400	50,000	49,300	47,500	50,600	55,900	59,800	56,600	58,900	58,900	59,700

Easily Accessing Intratec Database

Advanced subscribers can easily access the last year price history via Excel Add-in. Monthly price history covering more than 10 years are provided through Web API and Power BI. More information in "*Appendix C. Data Delivery Methods*."

3.2 3-Year Quarterly History

Table 3.2 presents the energy prices in Indonesia in the last three years.

Table 3.2 Quarterly Price Assessments

	Q4 24	Q3 24	Q2 24	Q1 24	Q4 23	Q3 23	Q2 23	Q1 23	Q4 22	Q3 22	Q2 22	Q1 22
Crude Oil (sour), import spot, cif (USD/Bbl)	78.6	83.3	91.4	87.8	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Natural Gas (liquified), export spot, fob (IDR/MMBtu)	207,000	181,000	164,000	133,000	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Coal (bituminous), export transaction, fob (IDR/kg)	1,660	1,620	1,690	1,620	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Coal (sub-bituminous), export transaction, fob (IDR/kg)	1,140	1,140	1,130	1,140	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Coal (lignite), export transaction, fob (IDR/kg)	737	747	809	870	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Coal (thermal), export spot, fob (IDR/kg)	809	837	895	898	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Propane, import spot, cif (IDR/gal)	15,500	14,500	15,800	16,400	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Butane (n-butane), import spot, cif (IDR/gal)	20,800	17,800	18,700	19,700	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Naphtha (heavy), import spot, cif (IDR/gal)	27,900	28,300	30,600	29,000	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Gasoline (premium), retail (IDR/gal)	50,900	55,900	54,500	54,500	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Gasoline (regular), retail (IDR/gal)	37,500	38,200	37,700	37,600	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Gasoline (premium), import spot, cif (IDR/gal)	36,600	38,600	40,000	37,600	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Gasoline (mid-grade), retail (IDR/gal)	45,800	50,000	49,000	49,700	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Kerosene (jet fuel), import spot, cif (IDR/gal)	38,600	35,800	36,900	36,900	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Diesel (low-sulfur), import spot, cif (IDR/gal)	33,300	34,300	39,000	39,200	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Diesel (low-sulfur), retail (IDR/gal)	51,000	57,200	57,200	57,200	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Fuel Oil, export transaction, fob (IDR/gal)	30,900	31,900	32,000	31,900	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Electricity, commercial sector (IDR/kWh)	1,110	1,110	1,110	1,110	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Electricity, household (IDR/kWh)	1,440	1,440	1,440	1,440	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

	Q4 24	Q3 24	Q2 24	Q1 24	Q4 23	Q3 23	Q2 23	Q1 23	Q4 22	Q3 22	Q2 22	Q1 22
Electricity, industrial sector (IDR/kWh)												
	997	997	997	997	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Ethanol (anhydrous), export spot, fob (IDR/gal)												
	28,600	32,700	34,400	30,400	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Biodiesel (FAME biodiesel B35), retail, ddp (IDR/gal)												
	49,900	51,300	58,400	58,700	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Figure 3.2 presents the energy prices in Indonesia in the last three years.

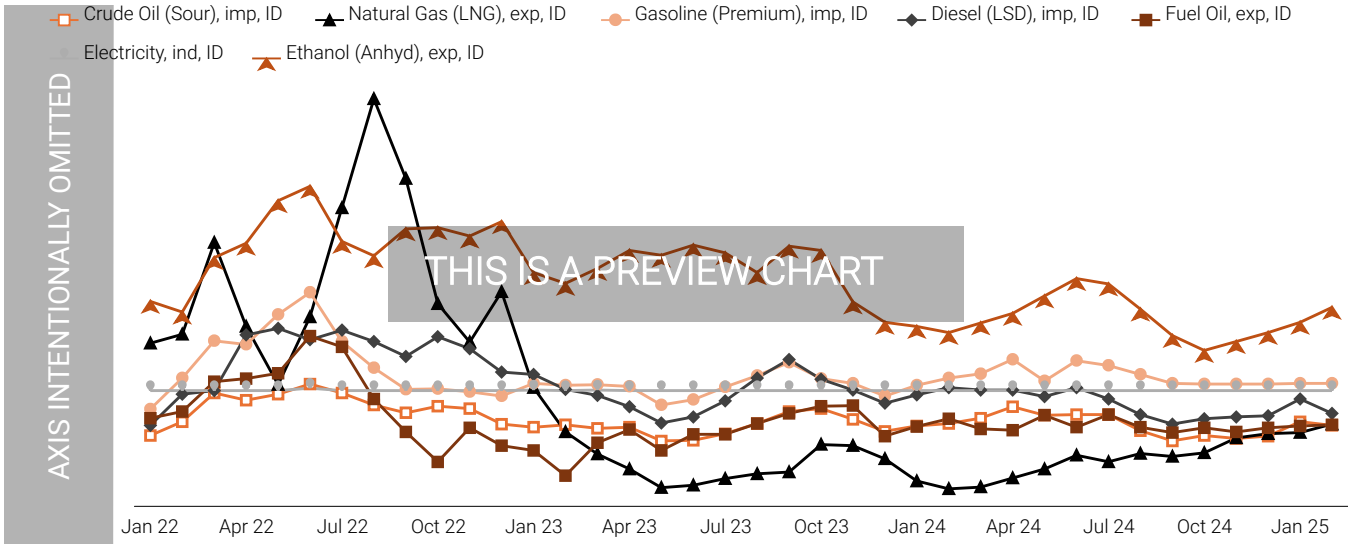


Figure 3.2 Indonesia Key Energy Prices (Jan 22 - Feb 25)

3.3 10-Year Annual History

Table 3.3 presents the energy prices in Indonesia in the last ten years.

Table 3.3 Yearly Price Assessments

2024	2023	2022	2021	2020	2019	2018	2017	2016	2015
Crude Oil (sour), import spot, cif (USD/Bbl)									
85.3	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Natural Gas (liquified), export spot, fob (IDR/MMBtu)									
171,000	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Coal (bituminous), export transaction, fob (IDR/kg)									
1,650	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Coal (sub-bituminous), export transaction, fob (IDR/kg)									
1,140	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Coal (lignite), export transaction, fob (IDR/kg)									
791	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Coal (thermal), export spot, fob (IDR/kg)									
860	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Propane, import spot, cif (IDR/gal)									
15,600	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Butane (n-butane), import spot, cif (IDR/gal)									
19,300	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Naphtha (heavy), import spot, cif (IDR/gal)									
28,900	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Gasoline (premium), retail (IDR/gal)									
54,000	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Gasoline (regular), retail (IDR/gal)									
37,700	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Gasoline (premium), import spot, cif (IDR/gal)									
38,200	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Gasoline (mid-grade), retail (IDR/gal)									
48,600	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Kerosene (jet fuel), import spot, cif (IDR/gal)									
37,000	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Diesel (low-sulfur), import spot, cif (IDR/gal)									
36,400	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Diesel (low-sulfur), retail (IDR/gal)									
55,600	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Fuel Oil, export transaction, fob (IDR/gal)									
31,700	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Electricity, commercial sector (IDR/kWh)									
1,110	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Electricity, household (IDR/kWh)									
1,440	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

	2024	2023	2022	2021	2020	2019	2018	2017	2016	2015
Electricity, industrial sector (IDR/kWh)										
	997	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Ethanol (anhydrous), export spot, fob (IDR/gal)										
	31,500	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Biodiesel (FAME biodiesel B35), retail, ddp (IDR/gal)										
	54,600	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Figure 3.3 presents the energy prices in Indonesia in the last ten years.

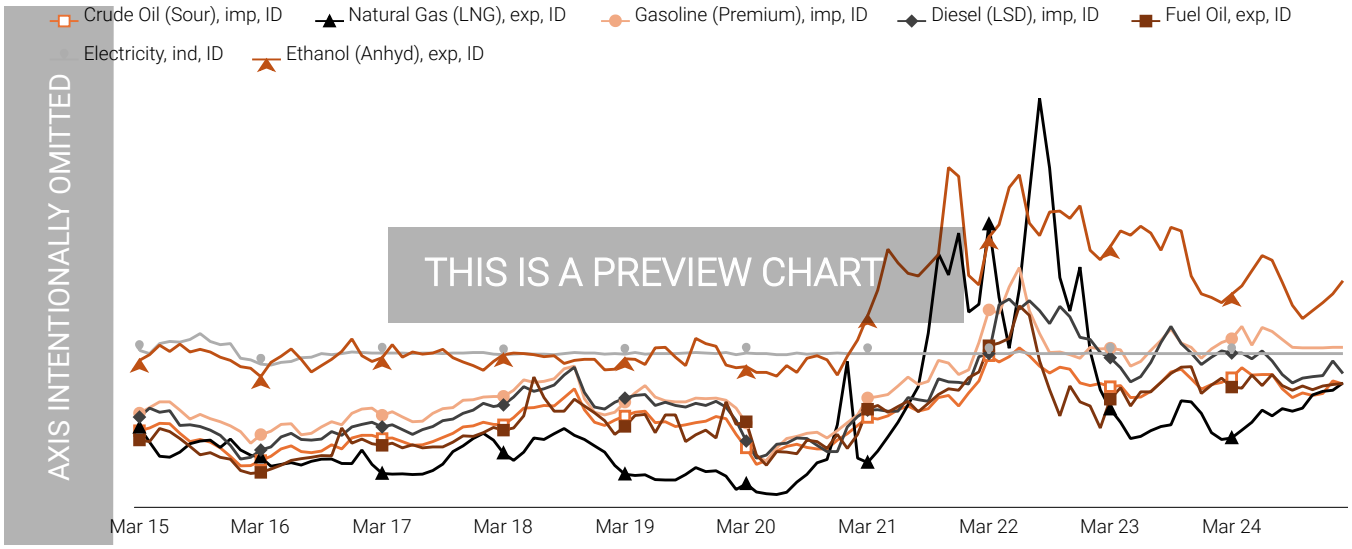


Figure 3.3 Indonesia Key Energy Prices (Mar 15 - Feb 25)

Chapter 4

Price Forecasts

This chapter provides short-term price forecasts for key energy commodities, covering the next six months. The forecasts are organized into sections based on commodity categories: Oil, Oil Products, Natural Gas, Coal, Electricity, and Biofuels.

Additionally, each section features a chart comparing the forecasted prices of major commodities using a common energy unit (e.g., USD/Bbl). This approach allows for a clear understanding of relative price movements across different energy sources and facilitates comparisons between commodities.

4.1 Crude Oil

Table 4.1 presents the six-month price forecast for Crude Oil.

Table 4.1 Crude Oil Monthly Price Forecast Assessments

	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25
Crude Oil (sour), import spot, cif (USD/Bbl)	XXX	XXX	XXX	XXX	XXX	XXX

Figure 4.1 illustrates the six-month price trend forecast for Crude Oil.

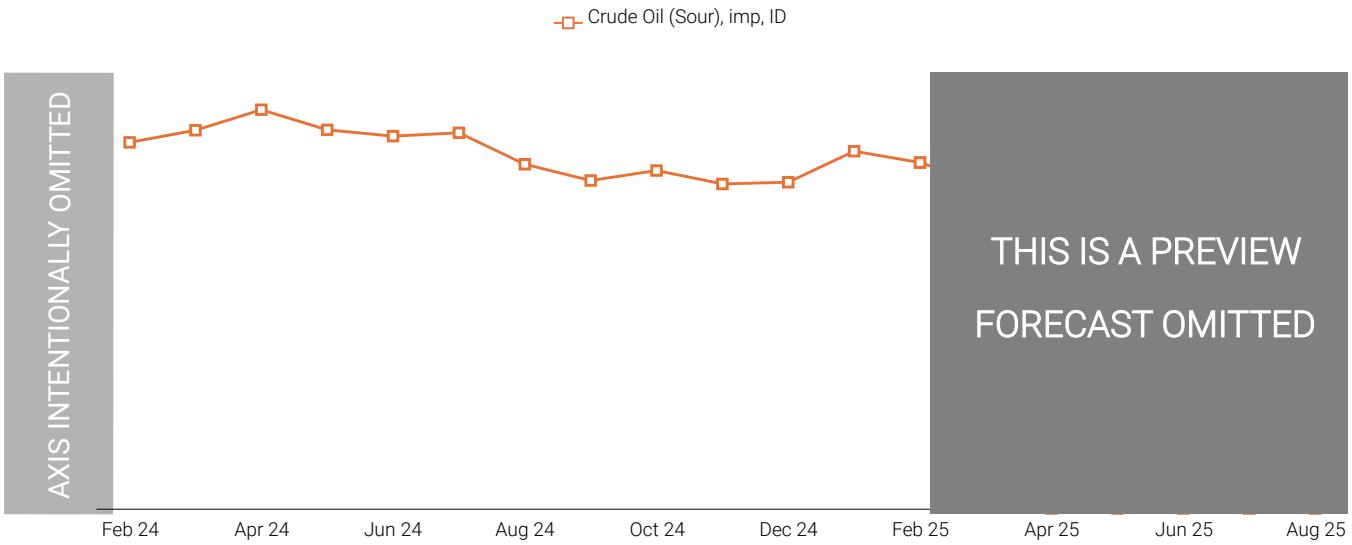


Figure 4.1 Crude Oil Historical Prices (12M) + Forecast (6M) (Feb 24 - Aug 25)

4.2 Natural Gas

Table 4.2 presents the six-month price forecast for Natural Gas.

Table 4.2 Natural Gas Monthly Price Forecast Assessments

	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25
Natural Gas (liquified), export spot, fob (IDR/MMBtu)	XXX	XXX	XXX	XXX	XXX	XXX

Figure 4.2 illustrates the six-month price trend forecast for Natural Gas.

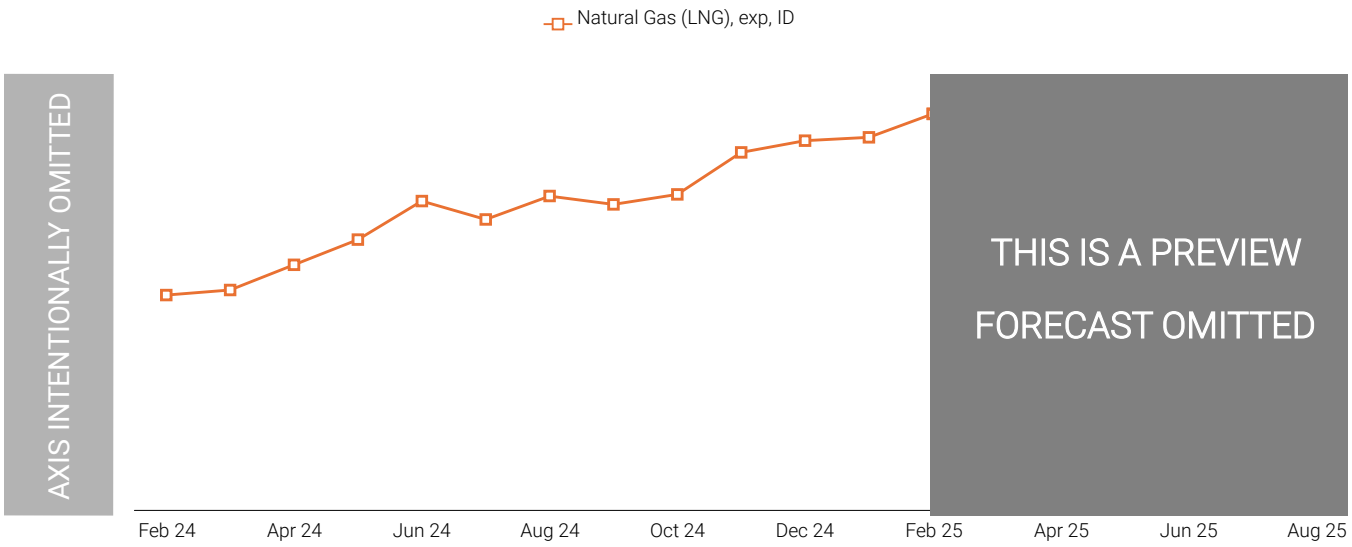


Figure 4.2 Natural Gas Historical Prices (12M) + Forecast (6M) (Feb 24 - Aug 25)

4.3 Coal

Table 4.3 presents the six-month price forecast for Coal.

Table 4.3 Coal Monthly Forecast Price Assessments

	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25
Coal (thermal), export spot, fob (IDR/kg)	XXX	XXX	XXX	XXX	XXX	XXX

Figure 4.3 illustrates the six-month price trend forecast for Coal.

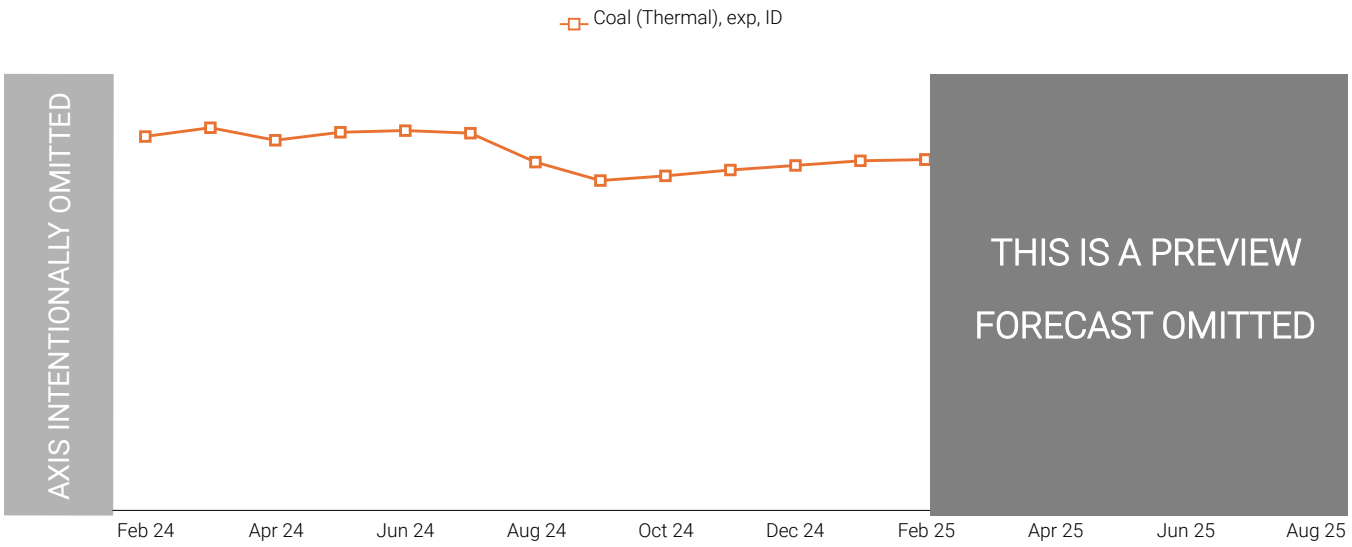


Figure 4.3 Coal Historical Prices (12M) + Forecast (6M) (Feb 24 - Aug 25)

4.4 LPG

Table 4.4 presents the six-month price forecast for LPG.

Table 4.4 LPG Monthly Price Forecast Assessments

	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25
Propane, import spot, cif (IDR/gal)	XXX	XXX	XXX	XXX	XXX	XXX
Butane (n-butane), import spot, cif (IDR/gal)	XXX	XXX	XXX	XXX	XXX	XXX

Figure 4.4 illustrates the six-month price trend forecast for LPG.

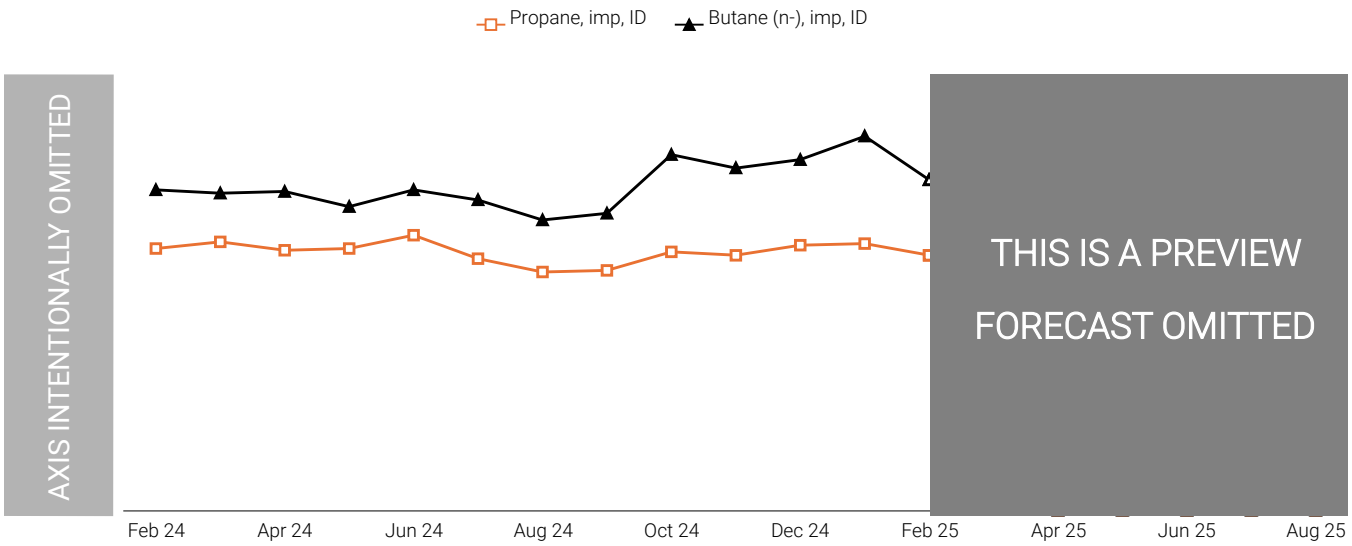


Figure 4.4 LPG Historical Prices (12M) + Forecast (6M) (Feb 24 - Aug 25)

4.5 Naphtha

Table 4.5 presents the six-month price forecast for Naphtha.

Table 4.5 Naphtha Monthly Price Forecast Assessments

	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25
Naphtha (heavy), import spot, cif (IDR/gal)	XXX	XXX	XXX	XXX	XXX	XXX

Figure 4.5 illustrates the six-month price trend forecast for Naphtha.

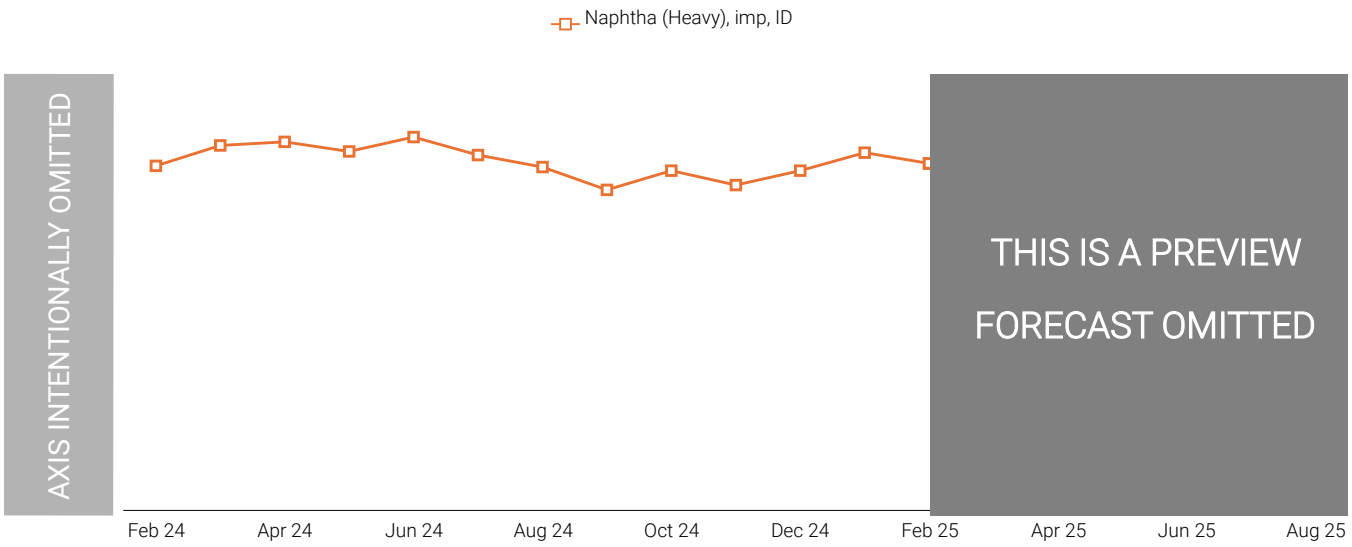


Figure 4.5 Naphtha Historical Prices (12M) + Forecast (6M) (Feb 24 - Aug 25)

4.6 Gasoline

Table 4.6 presents the six-month price forecast for Gasoline.

Table 4.6 Gasoline Monthly Price Forecast Assessments

	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25
Gasoline (premium), import spot, cif (IDR/gal)	XXX	XXX	XXX	XXX	XXX	XXX

Figure 4.6 illustrates the six-month price trend forecast for Gasoline.

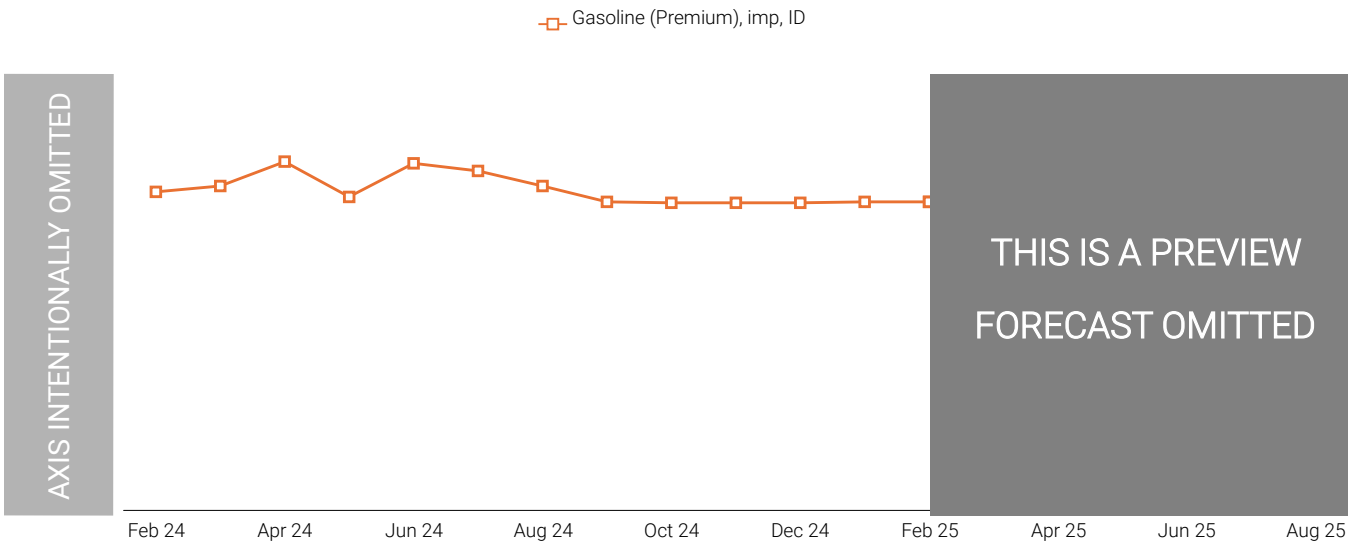


Figure 4.6 Gasoline Historical Prices (12M) + Forecast (6M) (Feb 24 - Aug 25)

4.7 Kerosene

Table 4.7 presents the six-month price forecast for Kerosene.

Table 4.7 Kerosene Monthly Price Forecast Assessments

	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25
Kerosene (jet fuel), import spot, cif (IDR/gal)	XXX	XXX	XXX	XXX	XXX	XXX

Figure 4.7 illustrates the six-month price trend forecast for Kerosene.

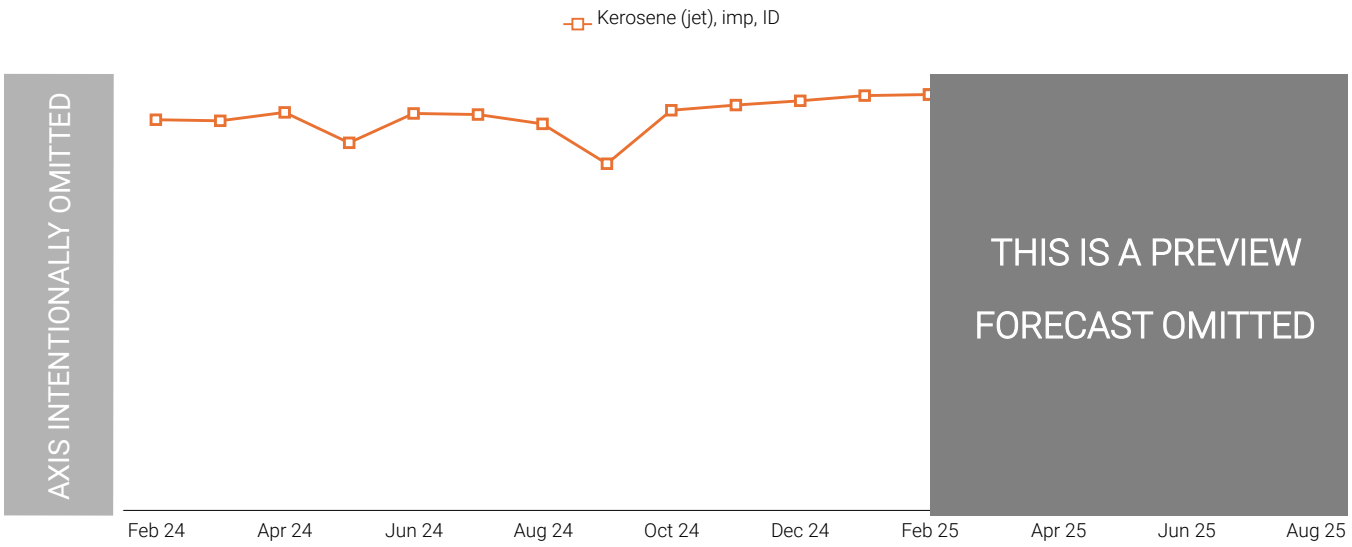


Figure 4.7 Kerosene Historical Prices (12M) + Forecast (6M) (Feb 24 - Aug 25)

4.8 Diesel

Table 4.8 presents the six-month price forecast for Diesel.

Table 4.8 Diesel Monthly Price Forecast Assessments

	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25
Diesel (low-sulfur), import spot, cif (IDR/gal)	XXX	XXX	XXX	XXX	XXX	XXX

Figure 4.8 illustrates the six-month price trend forecast for Diesel.

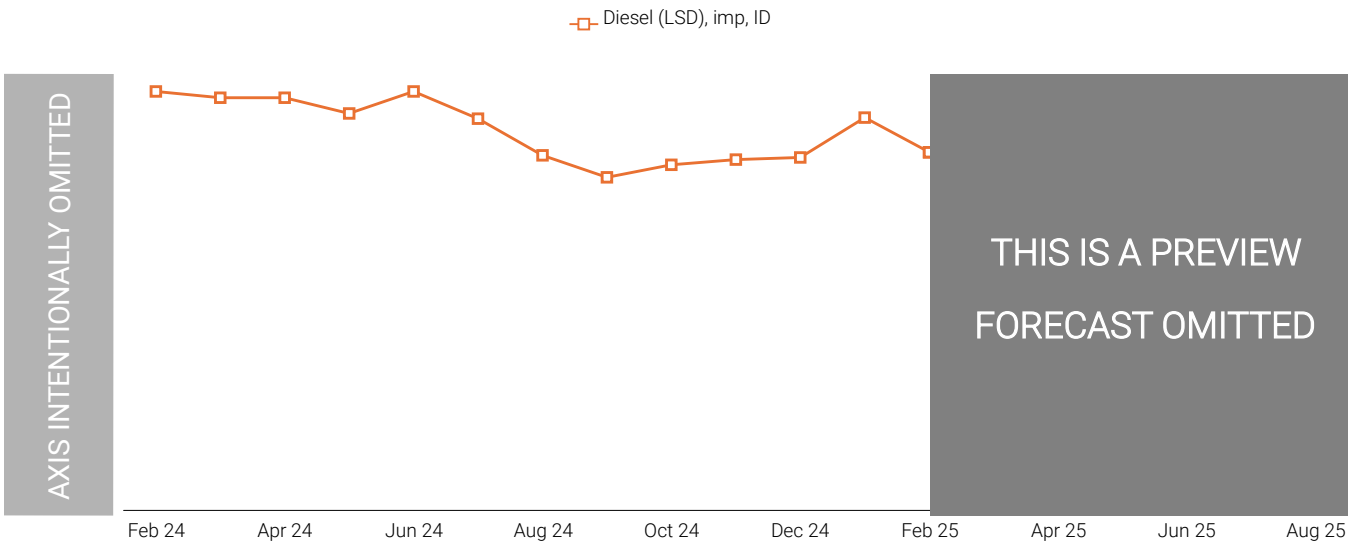


Figure 4.8 Diesel Historical Prices (12M) + Forecast (6M) (Feb 24 - Aug 25)

4.9 Fuel Oil

Table 4.9 presents the six-month price forecast for Fuel Oil.

Table 4.9 Fuel Oil Monthly Price Forecast Assessments

	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25
Fuel Oil, export transaction, fob (IDR/gal)	XXX	XXX	XXX	XXX	XXX	XXX

Figure 4.9 illustrates the six-month price trend forecast for Fuel Oil.

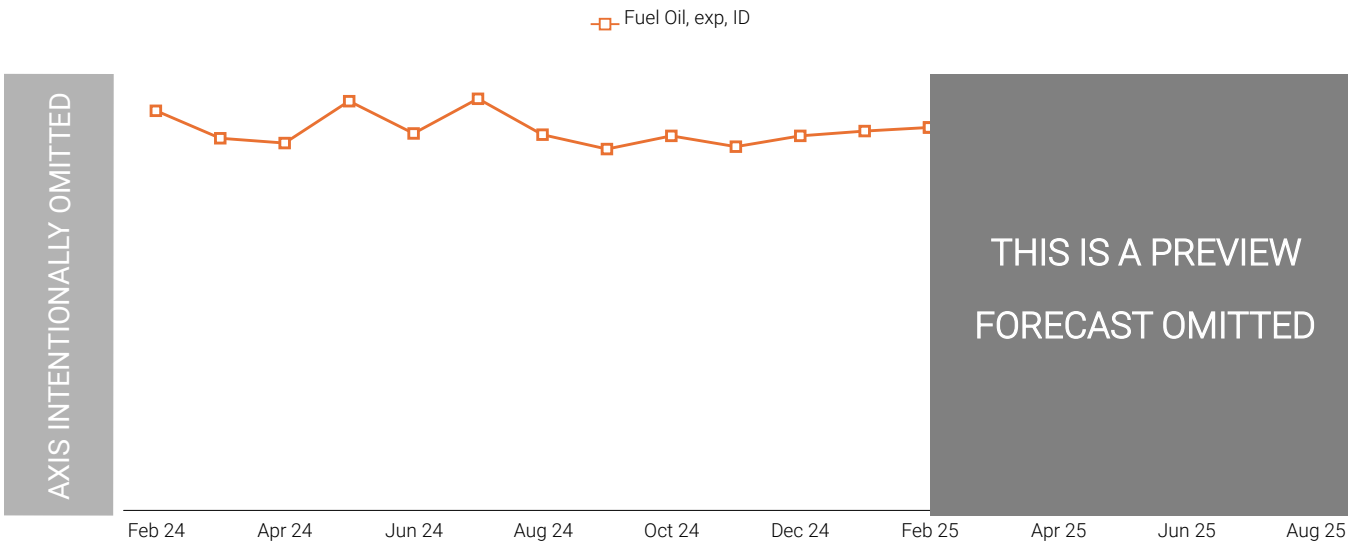


Figure 4.9 Fuel Oil Historical Prices (12M) + Forecast (6M) (Feb 24 - Aug 25)

4.10 Electricity

Table 4.10 presents the six-month price forecast for Electricity.

Table 4.10 Electricity Monthly Forecast Price Assessments

	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25
Electricity, household (IDR/kWh)	XXX	XXX	XXX	XXX	XXX	XXX
Electricity, industrial sector (IDR/kWh)	XXX	XXX	XXX	XXX	XXX	XXX

Figure 4.10 illustrates the six-month price trend forecast for Electricity.

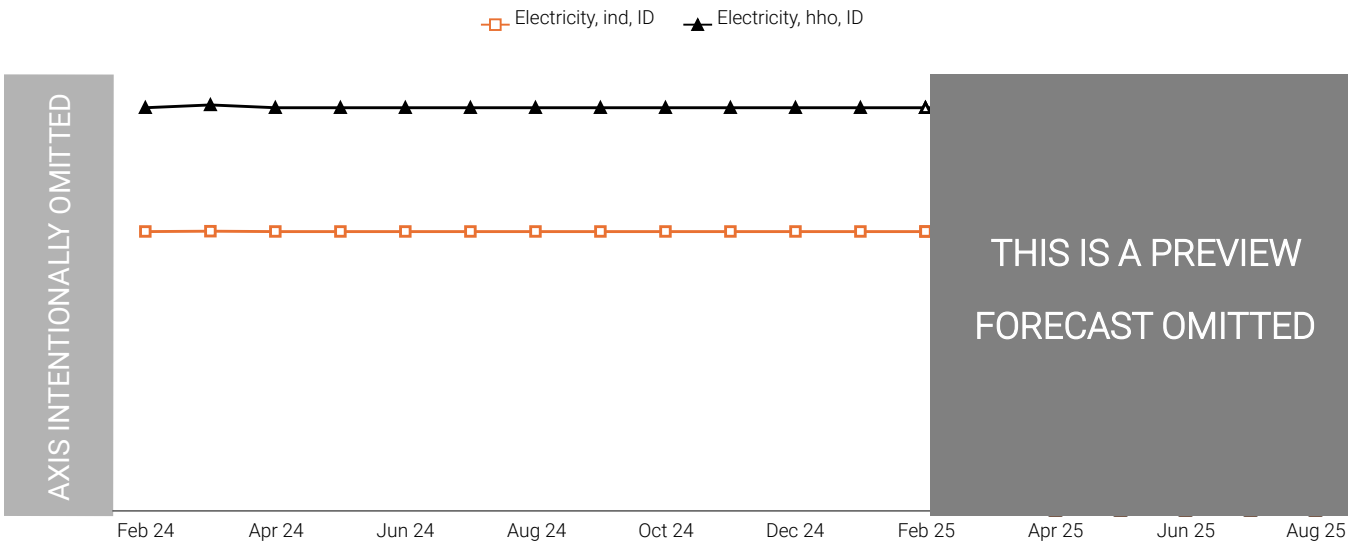


Figure 4.10 Electricity Historical Prices (12M) + Forecast (6M) (Feb 24 - Aug 25)

4.11 Ethanol

Table 4.11 presents the six-month price forecast for Ethanol.

Table 4.11 Ethanol Monthly Forecast Price Assessments

	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25
Ethanol (anhydrous), export spot, fob (IDR/gal)	XXX	XXX	XXX	XXX	XXX	XXX

Figure 4.11 illustrates the six-month price trend forecast for Ethanol.

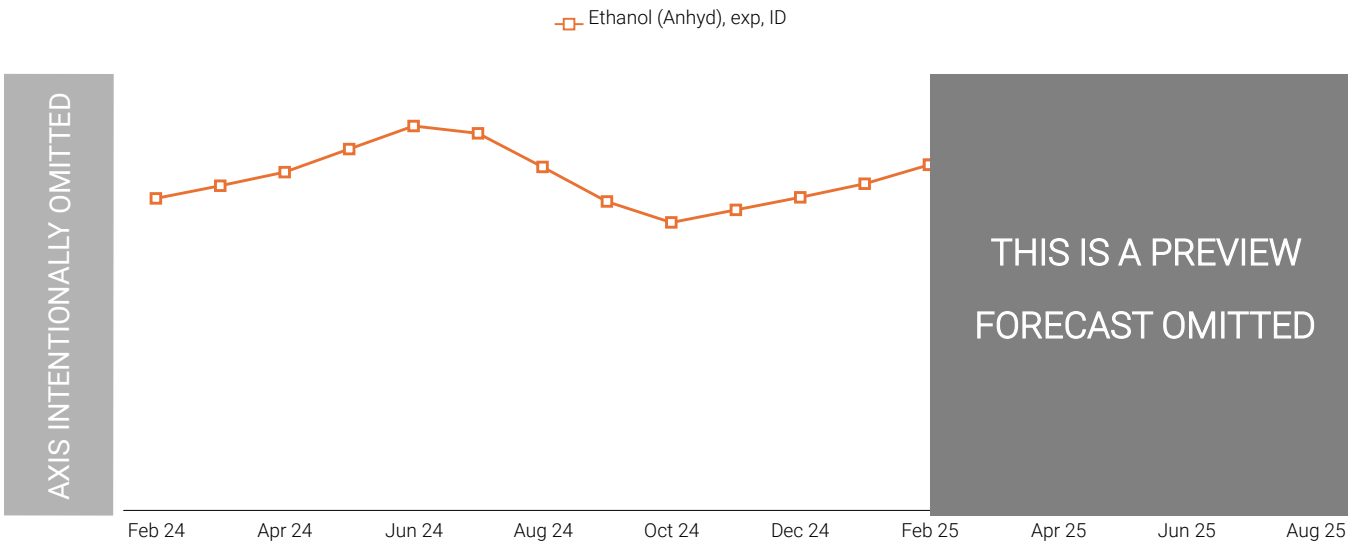


Figure 4.11 Ethanol Historical Prices (12M) + Forecast (6M) (Feb 24 - Aug 25)

Chapter 5

Market Outlook

This chapter provides a comprehensive analysis of the energy market in Indonesia, focusing on key aspects such as international trade, domestic production, total demand, final consumption, energy self-sufficiency, and trade dependencies.

The analysis is structured as follows:

* **Imports and Exports:** Examines the energy trade balance, highlighting net imports and trends in energy commodity trade over recent years.
* **Trade Partners:** Identifies key countries involved in energy imports and exports across different commodity categories.
* **Production and Demand**: Analyzes trends in domestic energy production and total demand while exploring factors influencing these metrics.
* **Energy Balance:** Summarizes how energy supply and demand interact to define overall equilibrium.
* **Electricity Generation by Source:** Breaks down electricity generation by fuel type, highlighting contributions from renewables, nuclear, and fossil fuels.
* **Energy Self-Sufficiency and Trade Dependencies**: Evaluates reliance on imports, economic implications of energy trade, and the significance of exports to global markets.

Through this analysis, the chapter aims to provide a deeper understanding of the energy landscape in Indonesia, offering valuable insights into production trends, consumption patterns, trade relationships, and the country's role in global energy markets.

Readers seeking further details on energy commodity categories and energy flows can refer to *"Appendix A. Glossary and Methodology."*

5.1 Imports and Exports

This section provides a detailed analysis of the energy trade in Indonesia, focusing on net imports as well as energy commodity imports and exports over the past years. Figure 5.1 illustrates the energy net imports from Oct 23 to Oct 24, offering insights into the country's overall energy trade balance.

Following this, Tables 5.1 and 5.2 present a breakdown of energy commodity imports and exports by category, including Oil and Oil Products, Natural Gas, Coal, Renewables, and Electricity. The units used for each commodity are tailored to their specific characteristics (e.g., barrels for Oil, metric tons for Coal), while aggregated values are expressed in energy terms where appropriate (e.g., PJ).

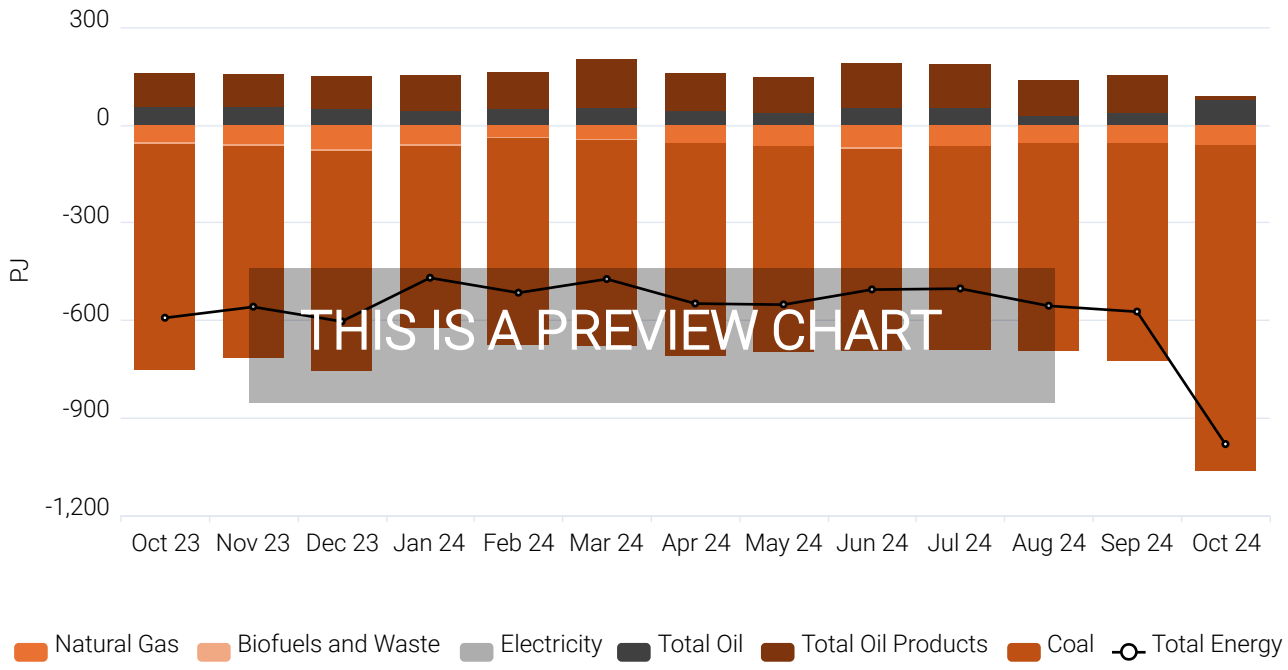


Figure 5.1 Indonesia Energy Net Trade, in PJ (Oct 23 - Oct 24)

Table 5.1 Energy Commodities Imports

Imports	Unit	2024 (i)	2023	2022	2021
Crude Oil	MMbbl (PJ)	118 (691)	XXX (XXX)	XXX (XXX)	XXX (XXX)
NGL	MMbbl (PJ)	0.00 (0.00)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Other Feedstock	MMT (PJ)	0.00 (0.00)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Total Oil	**PJ**	**691**	**XXX**	**XXX**	**XXX**
LPG	MMT (PJ)	0.00 (0.00)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Naphtha	MMT (PJ)	0.00 (0.00)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Gasoline	MMbbl (PJ)	123 (615)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Kerosenes	MMbbl (PJ)	0.00 (0.00)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Diesel	MMbbl (PJ)	40.9 (226)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Fuel oil	MMT (PJ)	0.848 (33.7)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Other oil products	MMT (PJ)	17.6 (672)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Total Oil Products	**PJ**	**1,550**	**XXX**	**XXX**	**XXX**
Total Oil & Oil Products	**PJ**	**2,240**	**XXX**	**XXX**	**XXX**
Natural Gas	PJ	0.00	XXX	XXX	XXX
Coal	MMT (PJ)	18.1 (511)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Biofuels and waste	PJ	37.7	XXX	XXX	XXX
Electricity	GWh (PJ)	0.00 (0.00)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Total Energy Imports	**PJ**	**2,780**	**XXX**	**XXX**	**XXX**

(i) Data for 2024 are incomplete and represent January to October values only.

Table 5.2 Energy Commodities Exports

Exports	Unit	2024 (i)	2023	2022	2021
Crude Oil	MMbbl (PJ)	24.6 (144)	XXX (XXX)	XXX (XXX)	XXX (XXX)
NGL	MMbbl (PJ)	0.00 (0.00)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Other Feedstock	MMT (PJ)	0.00 (0.00)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Total Oil	**PJ**	**144**	**XXX**	**XXX**	**XXX**
LPG	MMT (PJ)	0.00 (0.00)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Naphtha	MMT (PJ)	0.00 (0.00)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Gasoline	MMbbl (PJ)	0.00 (0.00)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Kerosenes	MMbbl (PJ)	0.00 (0.00)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Diesel	MMbbl (PJ)	0.00 (0.00)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Fuel oil	MMT (PJ)	0.00 (0.00)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Other oil products	MMT (PJ)	4.19 (160)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Total Oil Products	**PJ**	**160**	**XXX**	**XXX**	**XXX**
Total Oil & Oil Products	**PJ**	**304**	**XXX**	**XXX**	**XXX**
Natural Gas	PJ	700	XXX	XXX	XXX
Coal	MMT (PJ)	431 (9,120)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Biofuels and waste	PJ	57.9	XXX	XXX	XXX
Electricity	GWh (PJ)	0.00 (0.00)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Total Energy Exports	**PJ**	**10,200**	**XXX**	**XXX**	**XXX**

(i) Data for 2024 are incomplete and represent January to October values only.

5.2 Trade Partners

This section examines the key trade partners involved in Indonesia energy imports and exports, focusing on major commodity categories such as Oil, Oil Products, Natural Gas, and Coal.

Oil

Figure 5.2 illustrates the primary countries exporting and importing Oil in 2024 (January to October). Additionally, Table 5.3 presents a detailed breakdown of Oil trade partners over recent years, expressed as a percentage of total Indonesia imports and exports.

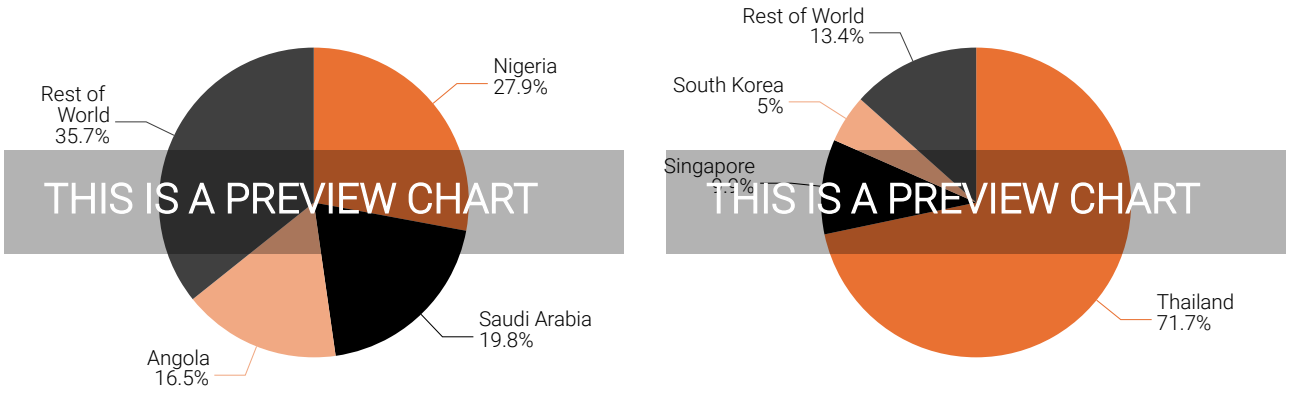


Figure 5.2 Oil Exporters, left, and Importers, right (Jan 24 - Oct 24)

Table 5.3 Indonesia Oil Trade Partners (%)

Key Partners	2024 (i)	2023	2022	2021
Top Exporters				
1st	27.9 (Nigeria)	XXX (XXXXXX)	XXX (XXXXXX)	XXX (XXXXXX)
2nd	19.8 (Saudi Arabia)	XXX (XXXXXX)	XXX (XXXXXX)	XXX (XXXXXX)
3rd	16.5 (Angola)	XXX (XXXXXX)	XXX (XXXXXX)	XXX (XXXXXX)
Rest of World	35.7	XXX	XXX	XXX
Top Importers				
1st	71.7 (Thailand)	XXX (XXXXXX)	XXX (XXXXXX)	XXX (XXXXXX)
2nd	9.9 (Singapore)	XXX (XXXXXX)	XXX (XXXXXX)	XXX (XXXXXX)
3rd	5 (South Korea)	XXX (XXXXXX)	XXX (XXXXXX)	XXX (XXXXXX)
Rest of World	13.4	XXX	XXX	XXX

(i) Data for 2024 are incomplete and represent January to October values only.

Oil Products

Figure 5.3 illustrates the key countries exporting and importing Oil Products in 2024 (January to October). Additionally, Table 5.4 provides a detailed breakdown of oil product trade partners over recent years, expressed as a percentage of total Indonesia imports and exports.

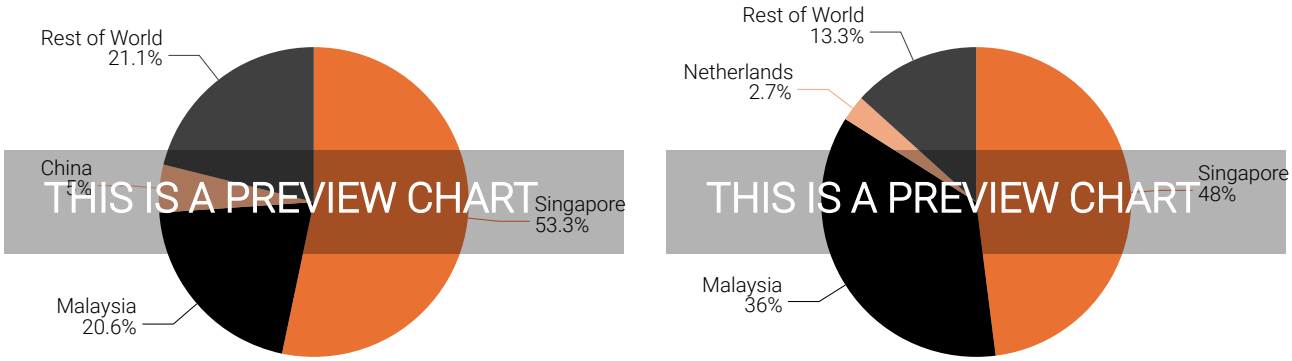


Figure 5.3 Oil Products Exporters, left, and Importers, right (Jan 24 - Oct 24)

Table 5.4 Indonesia Oil Products Trade Partners (%)

Key Partners	2024 (i)	2023	2022	2021
Top Exporters				
1st	53.3 (Singapore)	XXX (XXXXXX)	XXX (XXXXXX)	XXX (XXXXXX)
2nd	20.6 (Malaysia)	XXX (XXXXXX)	XXX (XXXXXX)	XXX (XXXXXX)
3rd	5 (China)	XXX (XXXXXX)	XXX (XXXXXX)	XXX (XXXXXX)
Rest of World	21.1	XXX	XXX	XXX
Top Importers				
1st	48 (Singapore)	XXX (XXXXXX)	XXX (XXXXXX)	XXX (XXXXXX)
2nd	36 (Malaysia)	XXX (XXXXXX)	XXX (XXXXXX)	XXX (XXXXXX)
3rd	2.7 (Netherlands)	XXX (XXXXXX)	XXX (XXXXXX)	XXX (XXXXXX)
Rest of World	13.3	XXX	XXX	XXX

(i) Data for 2024 are incomplete and represent January to October values only.

Natural Gas

Figure 5.4 highlights the key countries exporting and importing Natural Gas in 2024 (January to October). Additionally, Table 5.5 presents a detailed breakdown of Natural Gas trade partners over recent years, expressed as a percentage of total Indonesia imports and exports.

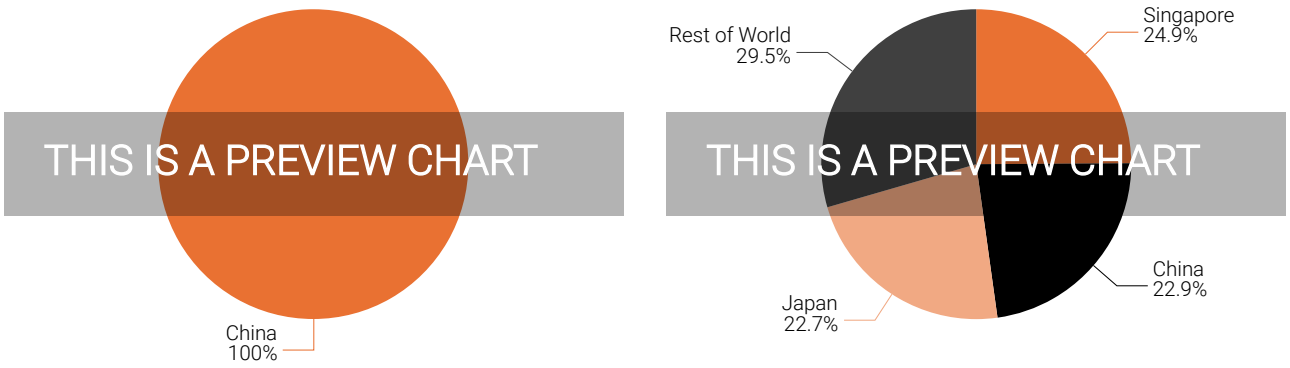


Figure 5.4 Natural Gas Exporters, left, and Importers, right (Jan 24 - Oct 24)

Table 5.5 Indonesia Natural Gas Trade Partners (%)

Key Partners	2024 (i)	2023	2022	2021
Top Exporters				
1st	100 (China)	XXX (XXXXXX)	XXX (XXXXXX)	XXX (XXXXXX)
2nd	-	XXX (XXXXXX)	XXX (XXXXXX)	XXX (XXXXXX)
3rd	-	XXX (XXXXXX)	XXX (XXXXXX)	XXX (XXXXXX)
Rest of World	-	XXX	XXX	XXX
Top Importers				
1st	24.9 (Singapore)	XXX (XXXXXX)	XXX (XXXXXX)	XXX (XXXXXX)
2nd	22.9 (China)	XXX (XXXXXX)	XXX (XXXXXX)	XXX (XXXXXX)
3rd	22.7 (Japan)	XXX (XXXXXX)	XXX (XXXXXX)	XXX (XXXXXX)
Rest of World	29.5	XXX	XXX	XXX

(i) Data for 2024 are incomplete and represent January to October values only.

Coal

Figure 5.5 highlights the primary countries exporting and importing Coal in 2024 (January to October). Additionally, Table 5.6 provides a detailed breakdown of Coal trade partners over recent years, expressed as a percentage of total Indonesia imports and exports.

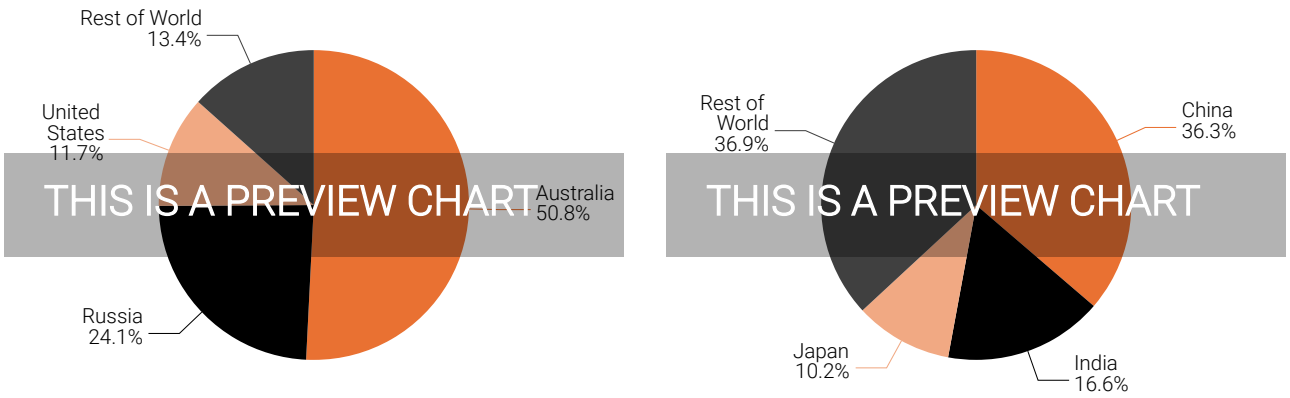


Figure 5.5 Coal Exporters, left, and Importers, right (Jan 24 - Oct 24)

Table 5.6 Indonesia Coal Trade Partners (%)

Key Partners	2024 (i)	2023	2022	2021
Top Exporters				
1st	50.8 (Australia)	XXX (XXXXXX)	XXX (XXXXXX)	XXX (XXXXXX)
2nd	24.1 (Russia)	XXX (XXXXXX)	XXX (XXXXXX)	XXX (XXXXXX)
3rd	11.7 (United States)	XXX (XXXXXX)	XXX (XXXXXX)	XXX (XXXXXX)
Rest of World	13.4	XXX	XXX	XXX
Top Importers				
1st	36.3 (China)	XXX (XXXXXX)	XXX (XXXXXX)	XXX (XXXXXX)
2nd	16.6 (India)	XXX (XXXXXX)	XXX (XXXXXX)	XXX (XXXXXX)
3rd	10.2 (Japan)	XXX (XXXXXX)	XXX (XXXXXX)	XXX (XXXXXX)
Rest of World	36.9	XXX	XXX	XXX

(i) Data for 2024 are incomplete and represent January to October values only.

5.3 Production and Demand

Production

Energy production involves extracting and generating energy from various sources. These include fossil fuels (Coal, Oil, and Natural Gas), which are used as fuels and for electricity generation, as well as Nuclear Power and Renewable energy sources (Hydropower, Wind, and Solar).

The trends in domestic energy production over recent years in Indonesia are presented in Figure 5.6, highlighting shifts in the contribution of energy sources to the overall energy mix.

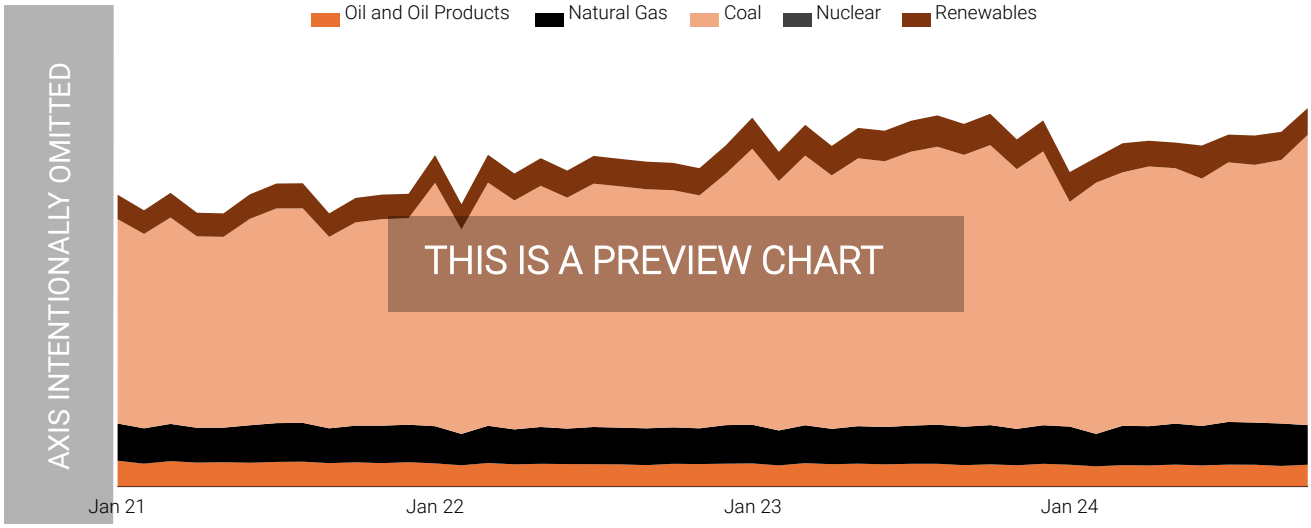


Figure 5.6 Indonesia Energy Production (Jan 21 - Oct 24)

Table 5.7 Indonesia Energy Production

Production	Unit	2024 (i)	2023	2022	2021
Oil & Oil Products	PJ	1,250	XXX	XXX	XXX
Natural Gas	PJ	2,310	XXX	XXX	XXX
Coal	MMT (PJ)	1,270 (15,300)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Nuclear	PJ	0.00	XXX	XXX	XXX
Hydro	PJ	91.4	XXX	XXX	XXX
Geothermal	PJ	621	XXX	XXX	XXX
Solar	PJ	2.66	XXX	XXX	XXX
Wind	PJ	1.79	XXX	XXX	XXX
Biofuels and waste	PJ	912	XXX	XXX	XXX
Total Energy Production	**PJ**	**20,500**	**XXX**	**XXX**	**XXX**

(i) Data for 2024 are incomplete and represent January to October values only.

Demand

Energy demand represents the total energy required to meet the needs of end users within a country, calculated as:

Demand = Production + Imports – Exports – Stock Change

This metric reflects the energy needed for various applications, including industrial processes, transportation, residential heating, and electricity generation. While some energy sources are consumed in their original form, most are transformed into fuels or electricity before final use. Recent trends in energy demand in Indonesia are illustrated in Figure 5.7, showcasing how total demand has evolved over the years. Additional details are provided in Table 5.8, which presents a breakdown of energy demand by year.

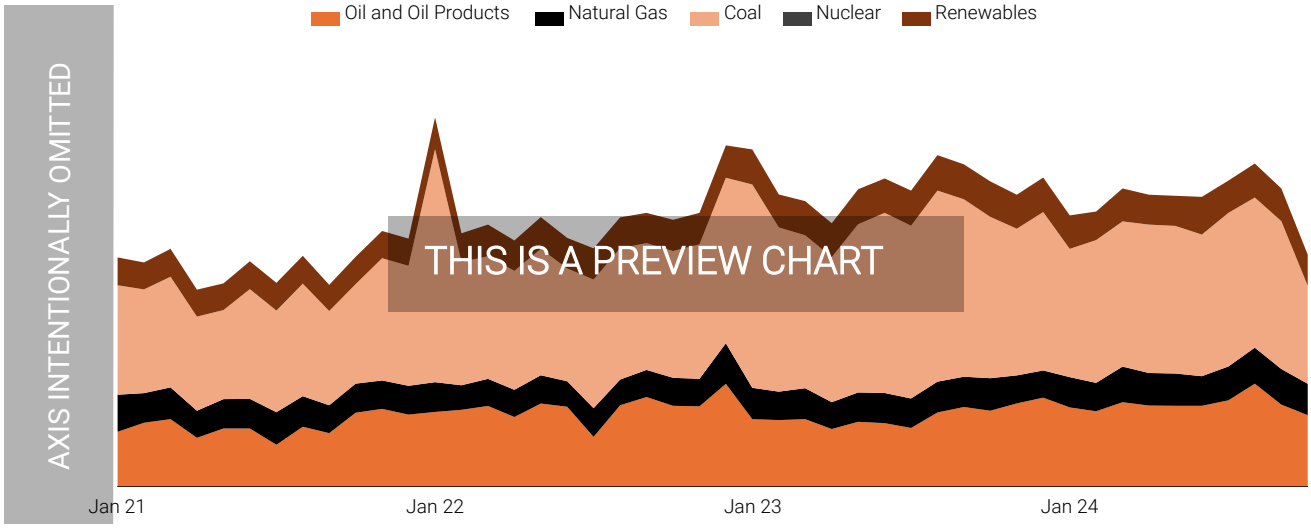


Figure 5.7 Indonesia Energy Demand (Jan 21 - Oct 24)

Table 5.8 Indonesia Energy Demand

Demand	Unit	2024 (i)	2023	2022	2021
Oil	PJ	1,810	XXX	XXX	XXX
Oil Products	PJ	2,350	XXX	XXX	XXX
Natural Gas	PJ	1,610	XXX	XXX	XXX
Coal	MMT (PJ)	304 (6,660)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Nuclear	PJ	0.00	XXX	XXX	XXX
Hydro	PJ	91.4	XXX	XXX	XXX
Geothermal, solar, wind, etc.	PJ	625	XXX	XXX	XXX
Biofuels and waste	PJ	891	XXX	XXX	XXX
Total Energy Demand	**PJ**	**14,000**	**XXX**	**XXX**	**XXX**

(i) Data for 2024 are incomplete and represent January to October values only.

Oil Products Domestic Supply

The domestic supply of oil products reflects availability and demand for petroleum products within a country. It accounts for the transformation of Crude Oil, Natural Gas Liquids, and other inputs into refined products at refineries, as well as their direct use to meet energy needs.

Refined petroleum products serve various purposes, including transportation (e.g., Gasoline, Diesel), residential heating, industrial applications, and power generation. They are also key raw materials for petrochemical production, contributing to plastics, synthetic rubber, and other industrial goods.

Figure 5.8 illustrates recent trends in the domestic supply of refined oil products in Indonesia. Table 5.9 provides an overview of key oil products and their shares in total supply.

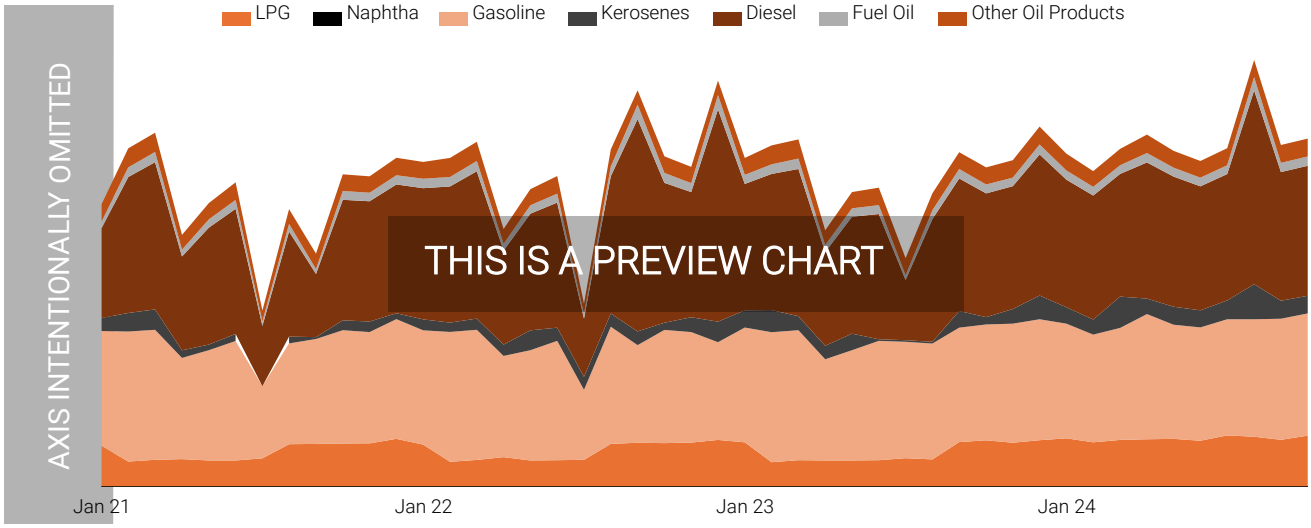


Figure 5.8 Indonesia Oil Products Supply (Jan 21 - Oct 24)

Table 5.9 Indonesia Oil Products Domestic Supply

	Unit	2024 (i)	2023	2022	2021
LPG	MMT (PJ)	10.6 (465)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Naphtha	MMT (PJ)	0.00 (0.00)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Gasoline	MMbbl (PJ)	228 (1,140)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Kerosenes	MMbbl (PJ)	39.0 (208)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Diesel	MMbbl (PJ)	237 (1,310)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Fuel oil	MMT (PJ)	2.32 (92.1)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Other oil products	MMT (PJ)	4.38 (167)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Total Oil Products	**PJ**	**3,380**	**XXX**	**XXX**	**XXX**

(i) Data for 2024 are incomplete and represent January to October values only.

Consumption

Consumption refers to the energy directly used by individuals, businesses, and industries for various activities such as heating and cooling buildings, powering appliances, lighting, transportation, and operating industrial machinery. It also includes non-energy applications, such as the use of fossil fuels as raw materials in chemical production.

During the conversion of primary energy sources into usable forms (e.g., electricity or refined fuels), a portion of energy is inevitably lost. As a result, the composition of final energy consumption often differs from demand. Understanding both metrics is essential for analyzing the efficiency of energy systems and identifying trends in energy use across sectors.

Recent trends in consumption are illustrated in Figure 5.9, which highlights changes over the years. Additional details are provided in Table 5.10, presenting a year-by-year breakdown of energy consumption across key commodity sectors.

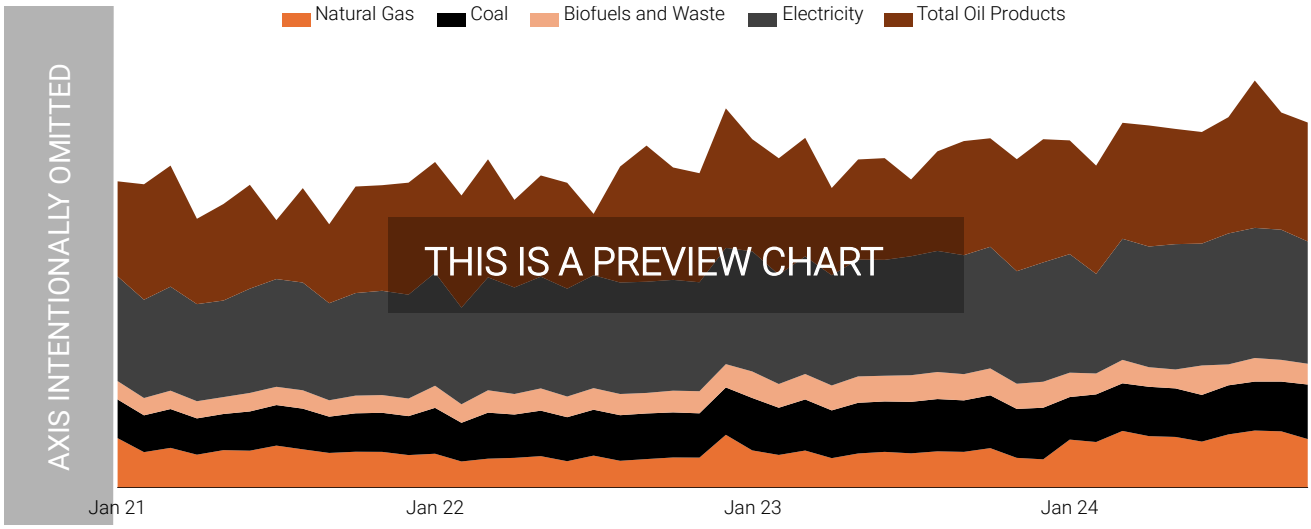


Figure 5.9 Indonesia Energy Consumption (Jan 21 - Oct 24)

Table 5.10 Indonesia Energy Consumption

Consumption	Unit	2024 (i)	2023	2022	2021
Oil Products	PJ	3,320	XXX	XXX	XXX
Natural Gas	PJ	1,400	XXX	XXX	XXX
Coal	MMT (PJ)	65.0 (1,370)	XXX (XXX)	XXX (XXX)	XXX (XXX)
Biofuels and waste	PJ	619	XXX	XXX	XXX
Electricity	PJ	3,390	XXX	XXX	XXX
Total Consumption	**PJ**	**10,000**	**XXX**	**XXX**	**XXX**

(i) Data for 2024 are incomplete and represent January to October values only.

5.4 Energy Balance

The energy balance provides a comprehensive overview of the relationship between energy production, imports, exports, total demand, and consumption. It serves as a key indicator of how energy flows within the country, highlighting self-sufficiency levels, trade dependencies, and consumption patterns.

Table 5.11 summarizes the energy balance for recent years, presenting data on production, imports, exports, total demand, and final consumption in petajoule (PJ).

Additionally, Figure 5.10 illustrates the energy balance for 2024 (January to October), providing a visual representation of how energy supply and demand interact during this period.

Table 5.11 Indonesia Energy Balance (in PJ)

Energy Balance	2024 (i)	2023	2022	2021
Production	20,500	XXX	XXX	XXX
Net Trade + Stock Changes	-6,420	XXX	XXX	XXX
Demand	**14,000**	**XXX**	**XXX**	**XXX**
Transformation Losses	-4,000	XXX	XXX	XXX
Total Consumption	**10,000**	**XXX**	**XXX**	**XXX**

(i) Data for 2024 are incomplete and represent January to October values only.

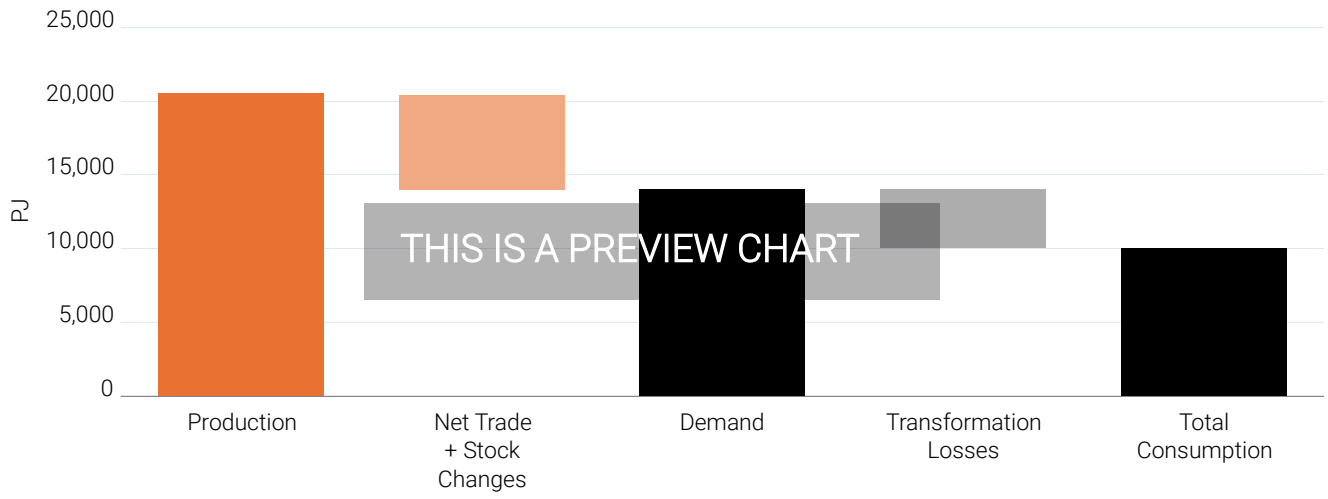


Figure 5.10 Indonesia Energy Balance (Jan 24 - Oct 24)

5.5 Electricity Generation by Source

Electricity is classified as a secondary energy source because it is produced through the conversion of primary energy sources such as Coal, Natural Gas, Nuclear Energy, and Renewables (e.g., Wind, Solar, and Hydropower). This transformation process enables Electricity to serve as an energy carrier, powering homes, businesses, industries, and transportation systems.

Figure 5.11 illustrates Electricity generation by source for 2024 (January to October), highlighting contributions of Fossil Fuels, Nuclear Power, and Renewable Energy. Additionally, Table 5.12 presents detailed data on Electricity generation by source (in GWh) over recent years.

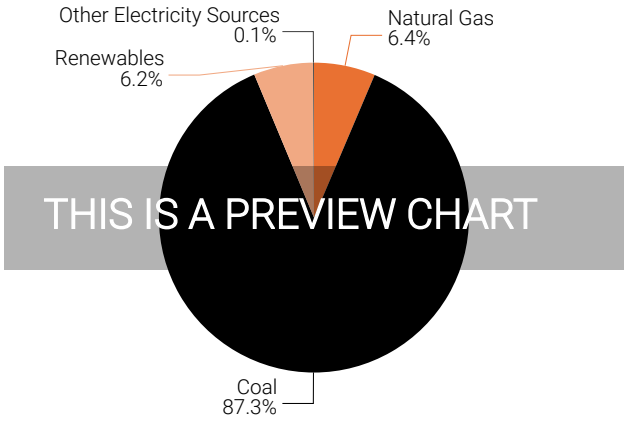


Figure 5.11 Indonesia Electricity Generation by Source (Jan 24 - Oct 24)

Table 5.12 Indonesia Electricity Generated by Source (in GWh)

Electricity Source	2024 (i)	2023	2022	2021
Nuclear	0.00	XXX	XXX	XXX
Hydro	25,400	XXX	XXX	XXX
Coal	898,000	XXX	XXX	XXX
Natural Gas	66,000	XXX	XXX	XXX
Biofuels & Waste	19,800	XXX	XXX	XXX
Geothermal	17,400	XXX	XXX	XXX
Solar	739	XXX	XXX	XXX
Wind	499	XXX	XXX	XXX
Other Sources	1,070	XXX	XXX	XXX
Total Electricity	**1,050,000**	**XXX**	**XXX**	**XXX**

(i) Data for 2024 are incomplete and represent January to October values only.

5.6 Energy Self-Sufficiency and Trade Dependencies

This chapter examines the energy self-sufficiency and trade dependencies of Indonesia, providing insights into its ability to meet domestic energy demand through local production and its reliance on international trade. Energy self-sufficiency is a critical metric for understanding a country's energy security, while trade dependencies highlight the economic relationships with key energy import and export partners.

The analysis begins with an overview of the energy self-sufficiency ratio over the last years, illustrating the balance between domestic production and demand. This is followed by an exploration of the country's dependency on energy imports, including the share of GDP attributed to imports and the contribution of top trading partners to this dependency.

In addition, the chapter evaluates the role of energy exports in the economy of Indonesia, presenting exports as a percentage of GDP and analyzing their contribution to the economies of top partner countries. Together, these insights offer a comprehensive view of the position of Indonesia in global energy markets and its economic ties to key trading partners.

Energy Self-Sufficiency

Figure 5.12 illustrates the energy self-sufficiency ratio of Indonesia over the years, calculated as domestic production divided by total demand. A ratio above 100% indicates self-sufficiency, while below 100% signals import reliance.

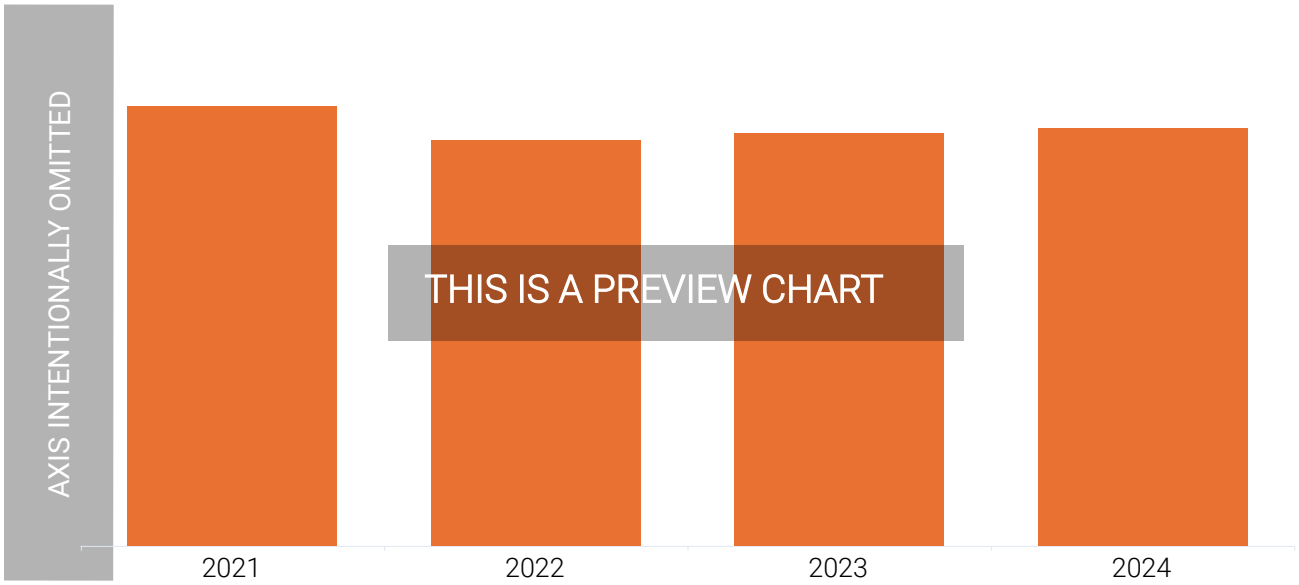


Figure 5.12 Indonesia Energy Self-Sufficiency (2024 = Jan - Oct)

Economic Impact of Energy Imports

Figure 5.13 presents energy imports as a percentage of Indonesia GDP over recent years, highlighting the contribution of key exporting countries. Figure 5.14 shows the share of GDP that Indonesia energy imports represent for these exporters, emphasizing the economic importance of Indonesia trade to their economies.

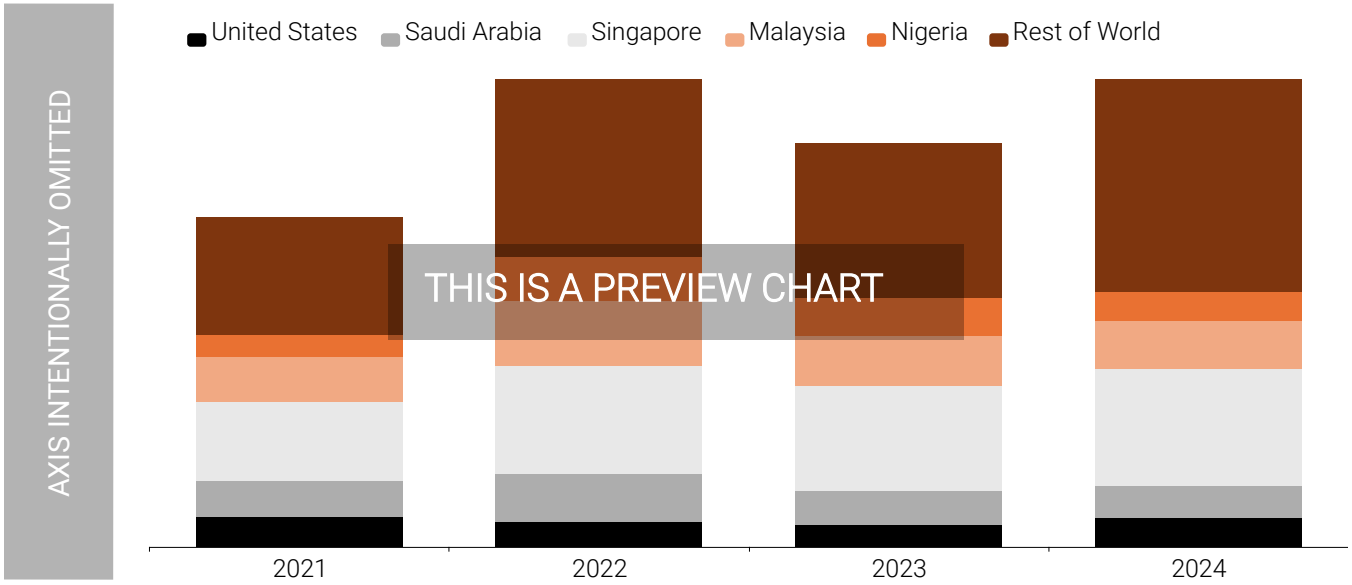


Figure 5.13 Indonesia Energy Imports Over the Last Years (2024 = Jan - Oct)

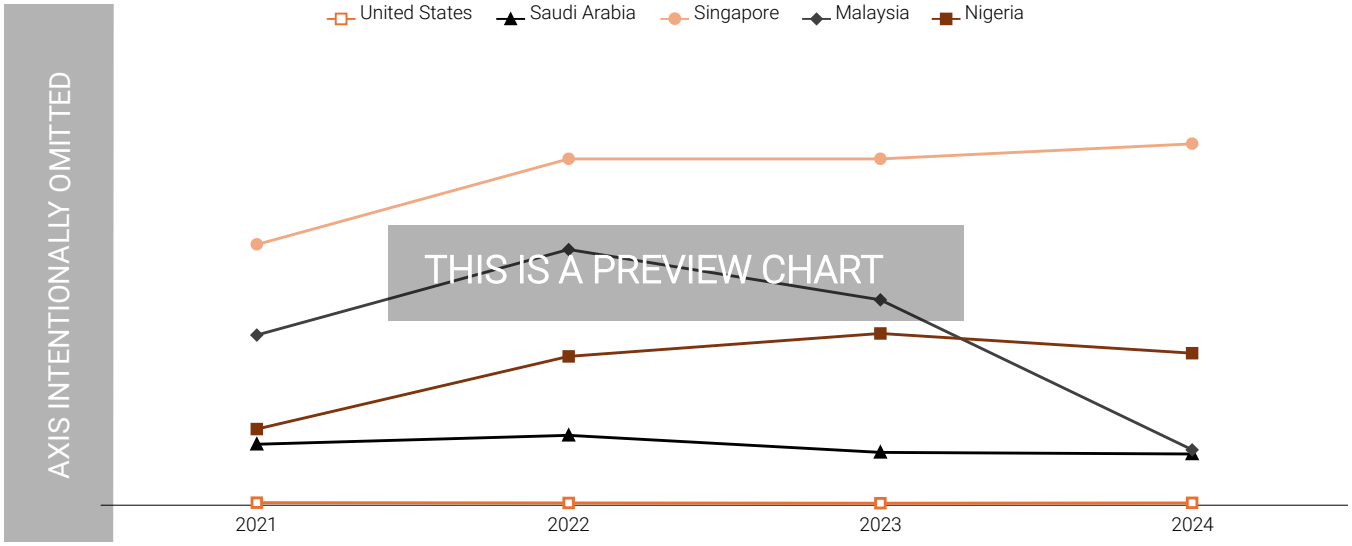


Figure 5.14 Indonesia Imports as % of Exporters' GDP (2024 = Jan - Oct)

Economic Impact of Energy Exports

Figure 5.15 presents energy exports as a percentage of Indonesia GDP over recent years, highlighting the role of key importing countries. Figure 5.16 shows the share of GDP that Indonesia energy exports represent for these importers, underscoring the importance of Indonesia trade to their economies.

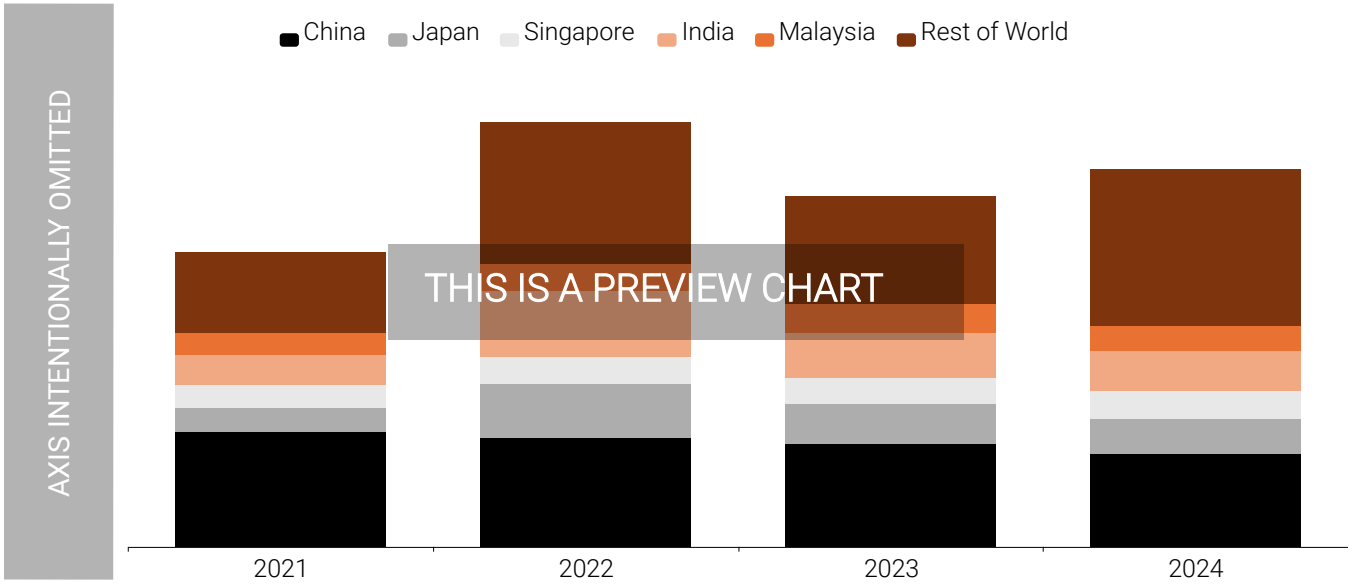


Figure 5.15 Indonesia Energy Exports Over the Last Years (2024 = Jan - Oct)

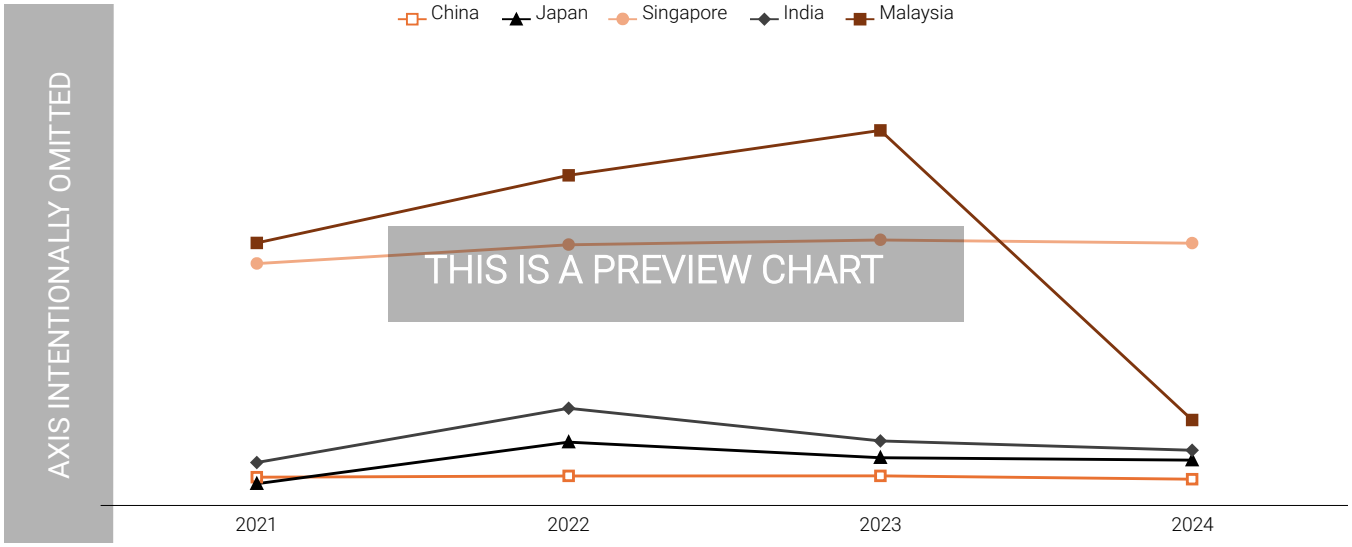


Figure 5.16 Indonesia Exports as % of Importers' GDP (2024 = Jan - Oct)

Chapter 6

Freight and Insurance

Transportation costs play a crucial role in energy markets, shaping the final price of commodities and influencing the competitiveness of suppliers across regions. This chapter examines the key cost components of moving energy commodities via maritime shipping, including sea freight rates, marine insurance costs, and their impact on market pricing.

Maritime freight rates represent the cost of shipping energy commodities along various international trade routes by sea. In addition to historical data, this chapter provides short-term sea freight rate forecasts, offering insights into expected marine transportation costs in the near future.

Marine insurance costs are another vital component of energy trade, covering risks associated with cargo transportation by sea and safeguarding shipments against potential losses. By incorporating both maritime freight and insurance costs, this chapter also presents netback and netforward prices – key metrics for evaluating commodity value along the supply chain. Netback prices reflect a commodity's value at its origin after deducting sea transportation and insurance costs, while netforward prices represent its delivered value at the destination, including these costs.

Together, these analyses provide a clearer understanding of how logistics impact energy pricing, trade flows, and market dynamics.

As presented in the report Preamble, this section organizes fuels into categories commonly used in maritime shipping, reflecting industry practices and the distinct characteristics of each fuel type transported by sea. The categories include Heavy Oils, Light Fuels, Hydrocarbon Gas Liquids (HGL), Liquefied Natural Gas (LNG), and Coal Products.

6.1 Maritime Freight Rates

Figure 6.1 presents key maritime energy freight rates related to Indonesia over the past year and for the foreseeable future. These sea freight rates are expressed in IDR/mt to standardize the comparison across energy commodities with different units.

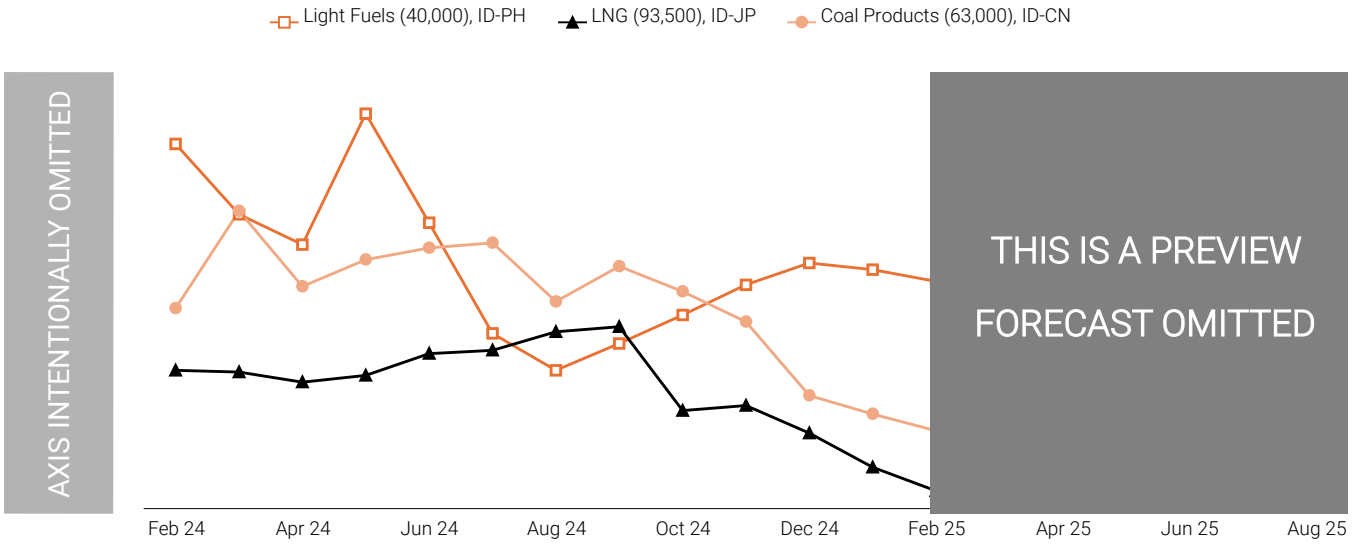


Figure 6.1 Indonesia Key Maritime Freight Rates (Feb 24 - Aug 25)

Heavy Oils

Table 6.1 presents maritime freight rates for Heavy Oils, including Crude Oil and Fuel Oil. It provides data on sea freight rates over recent months for key shipping routes related to Indonesia, specifying the country of origin, country of destination, and vessel size.

Table 6.1 Heavy Oil Maritime Freight Rates (IDR/mt)

Origin	Destination	Vessel Size	Feb 25	Jan 25	Dec 24	QoQ (%)	YoY (%)
United Arab Emirates	Indonesia	270,000 mt	127,000	114,000	82,600	-7.1 ↓	-6.9 ↓
Saudi Arabia	Indonesia	270,000 mt	160,000	144,000	104,000	-7.3 ↓	-7.2 ↓

Light Fuels

Table 6.2 presents maritime freight rates for Light Fuel commodities, including Naphtha, Gasoline, Kerosene, and Diesel.

Table 6.2 Light Fuels Maritime Freight Rates (IDR/mt)

Origin	Destination	Vessel Size	Feb 25	Jan 25	Dec 24	QoQ (%)	YoY (%)
Saudi Arabia	Indonesia	55,000 mt	499,000	446,000	429,000	+9.6 ↑	-0.9 ↓
India	Indonesia	35,000 mt	332,000	329,000	311,000	+3.2 ↑	-25.4 ↓
Singapore	Indonesia	35,000 mt	83,800	83,300	81,900	+3.6 ↑	-19.2 ↓
Indonesia	France	90,000 mt	1,310,000	1,460,000	1,260,000	+9.3 ↑	-41.2 ↓
Indonesia	Philippines	40,000 mt	185,000	192,000	196,000	+1.4 ↑	-31.1 ↓

Hydrocarbon Gas Liquids

Table 6.3 presents maritime freight rates for Hydrocarbon Gas Liquids (HGL) commodities, including LPG and NGL.

Table 6.3 HGL Maritime Freight Rates (IDR/mt)

Origin	Destination	Vessel Size	Feb 25	Jan 25	Dec 24	QoQ (%)	YoY (%)
United States	Indonesia	44,000 mt	2,500,000	2,370,000	1,650,000	+16.1 ↑	+2.3 ↑
Saudi Arabia	Indonesia	44,000 mt	669,000	716,000	535,000	+6.8 ↑	-0.6 ↓

LNG

Table 6.4 presents maritime freight rates for LNG.

Table 6.4 LNG Maritime Freight Rates (IDR/mt)

Origin	Destination	Vessel Size	Feb 25	Jan 25	Dec 24	QoQ (%)	YoY (%)
Indonesia	Japan	93,500 mt	60,200	74,200	94,600	-45.6 ↓	-54.4 ↓

Coal Products

Table 6.5 presents maritime freight rates for solid coal products and derivatives.

Table 6.5 Coal Products Maritime Freight Rates (IDR/mt)

Origin	Destination	Vessel Size	Feb 25	Jan 25	Dec 24	QoQ (%)	YoY (%)
Indonesia	Philippines	63,000 mt	60,600	106,000	117,000	-62.5 ↓	-64.2 ↓
Indonesia	China	63,000 mt	96,000	106,000	117,000	-40.5 ↓	-43.2 ↓
Indonesia	South Korea	48,500 mt	166,000	172,000	190,000	-36.2 ↓	-39.2 ↓
Indonesia	Thailand	49,300 mt	128,000	124,000	133,000	-5.2 ↓	+1.0 ↑
Indonesia	Singapore	49,300 mt	128,000	124,000	133,000	-5.2 ↓	+1.0 ↑
Indonesia	Saudi Arabia	49,300 mt	363,000	344,000	381,000	-8.0 ↓	-0.2 ↓
Indonesia	Japan	48,500 mt	166,000	172,000	190,000	-36.2 ↓	-39.2 ↓

6.2 Freight Rates Forecast

This section provides short-term freight rate forecasts, offering insights into expected transportation costs in the near future.

Heavy Oils

Table 6.6 presents six-month forecasted freight rates for Heavy Oils.

Table 6.6 Heavy Oil Maritime Freight Rates Forecasts (IDR/mt)

Origin	Destination	Vessel Size	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25
United Arab Emirates	Indonesia	270,000 mt	XXX	XXX	XXX	XXX	XXX	XXX
Saudi Arabia	Indonesia	270,000 mt	XXX	XXX	XXX	XXX	XXX	XXX

Light Fuels

Table 6.7 presents six-month forecasted freight rates for Light Fuels.

Table 6.7 Liquid Fuels Maritime Freight Rates Forecasts (IDR/mt)

Origin	Destination	Vessel Size	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25
Saudi Arabia	Indonesia	55,000 mt	XXX	XXX	XXX	XXX	XXX	XXX
India	Indonesia	35,000 mt	XXX	XXX	XXX	XXX	XXX	XXX
Singapore	Indonesia	35,000 mt	XXX	XXX	XXX	XXX	XXX	XXX
Indonesia	France	90,000 mt	XXX	XXX	XXX	XXX	XXX	XXX
Indonesia	Philippines	40,000 mt	XXX	XXX	XXX	XXX	XXX	XXX

Hydrocarbon Gas Liquids

Table 6.8 presents six-month forecasted freight rates for HGL.

Table 6.8 HGL Maritime Freight Rates Forecasts (IDR/mt)

Origin	Destination	Vessel Size	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25
United States	Indonesia	44,000 mt	XXX	XXX	XXX	XXX	XXX	XXX
Saudi Arabia	Indonesia	44,000 mt	XXX	XXX	XXX	XXX	XXX	XXX

LNG

Table 6.9 presents six-month forecasted freight rates for LNG.

Table 6.9 LNG Maritime Freight Rates Forecasts (IDR/mt)

Origin	Destination	Vessel Size	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25
Indonesia	Japan	93,500 mt	XXX	XXX	XXX	XXX	XXX	XXX

6.3 Insurance Costs

Table 6.10 presents the most recent insurance costs for energy commodities.

Table 6.10 Energy Commodity Insurance Costs (% of CFR Price)

Commodity	Shipping Category	Feb 25	Jan 25	2025 (i)	2024	2023	2022
Naphtha	Light Fuels	0.4	0.5	0.4	XXX	XXX	XXX
Propane	Hydrocarbon Gas Liquids	0.1	0.1	0.1	XXX	XXX	XXX
Butane	Hydrocarbon Gas Liquids	1.1	1.3	1.4	XXX	XXX	XXX
Ethanol	Light Fuels	0.3	0.3	0.4	XXX	XXX	XXX
Coal	Coal Products	0.1	0.1	0.1	XXX	XXX	XXX
Natural Gas	LNG	0.1	0.1	0.1	XXX	XXX	XXX
Crude Oil	Heavy Oils	0.1	0.1	0.1	XXX	XXX	XXX
LPG	Hydrocarbon Gas Liquids	0.1	0.2	0.1	XXX	XXX	XXX
Kerosene	Light Fuels	0.1	0.1	0.1	XXX	XXX	XXX
Diesel	Light Fuels	0.1	0.1	0.1	XXX	XXX	XXX
Fuel Oil	Heavy Oils	0.1	0.1	0.1	XXX	XXX	XXX
Gasoline	Light Fuels	0.2	0.1	0.1	XXX	XXX	XXX
Biodiesel	Light Fuels	0.1	0.1	0.1	XXX	XXX	XXX

(i) Data for 2025 are incomplete and represent January to February values only.

6.4 Netback and Netforward Prices

Netback and netforward prices are calculated by adjusting price assessments to account for maritime freight rates and insurance costs. Netback prices are derived by subtracting freight and insurance costs from the delivered price (CIF), while netforward prices are calculated by adding these costs to the free-on-board (FOB) price. The formulas for these calculations are:

Netback Price (FOB) = CIF Price − (Maritime Freight + Insurance)

Netforward Price (CIF) = FOB Price + (Maritime Freight + Insurance)

The values presented in this report can be used in these formulas to estimate other price assessments. CIF and FOB prices are presented in "*Chapter 2. Current Prices*," while maritime freight rates and insurance costs are detailed in sections "*6.1. Maritime Freight Rates*" and "*6.3. Insurance Costs*" of this chapter, respectively.

This process is illustrated in Figure 6.2.

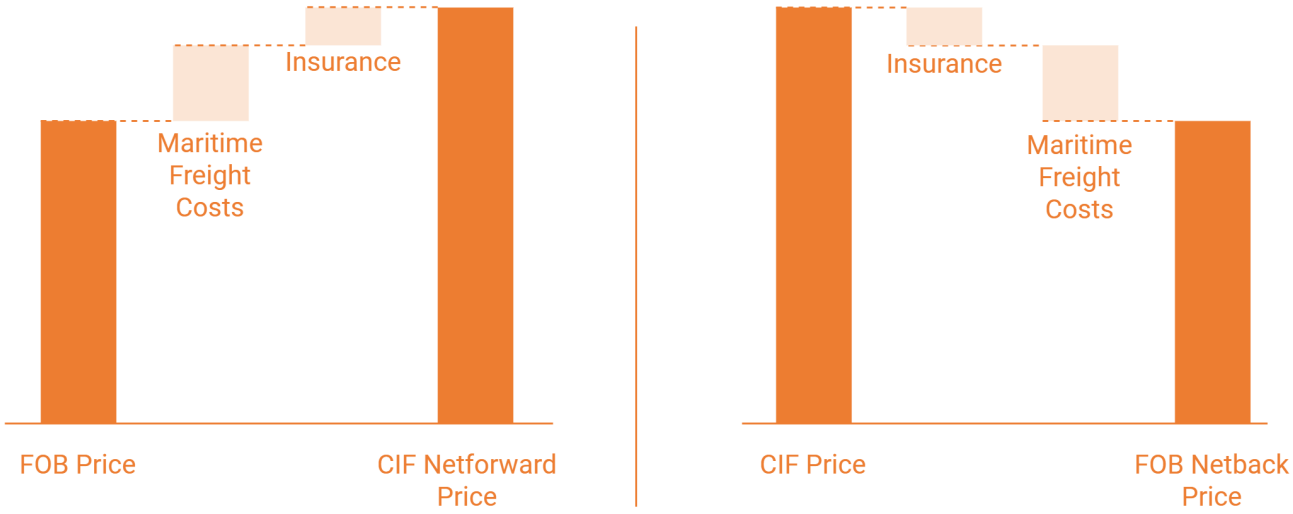


Figure 6.2 Netforward / Netback Price Calculation

Table 6.11 presents examples of key price assessments estimated using the freight rates and insurance costs detailed in this section.

Table 6.11 Indonesia Netback and Netforward Price Assessments (Feb 25)

Origin	Destination	Distance / Shipping Time	FOB Price	Freight	Insurance	CIF Price
Coal (thermal), export spot price (IDR/kg)						
Indonesia	Japan	2,890 nm / 6 d	835	166	1.00	1,000 (N)
Coal (thermal), export spot price (IDR/kg)						
Indonesia	China	1,630 nm / 3 d	835	96.0	0.931	932 (N)

(N) Indicates prices calculated using netback or netforward methodologies.

Appendix A

Glossary and Methodology

This appendix offers a detailed overview of the key terms, concepts, and methodologies that underpin the Intratec Energy Prices & Markets report. It is designed to enhance transparency and provide readers with a clear understanding of the foundational elements used throughout the analyses. The appendix is structured into two main sections:

* **Glossary:** This section provides concise explanations of essential terms, including price types, product categories, and energy flows. These definitions ensure consistency and clarity in interpreting the data and insights presented in the report.
* **Methodology:** This section outlines the rigorous methodology employed by Intratec to collect, validate, and analyze data for price assessments, forecasts, and market insights.

Complementary Documents

For further details on terms and definitions used in this report, readers can refer to the Glossary & Abbreviations document:

► https://intrat.ec/glossary

For an in-depth understanding of the methodology developed by Intratec for the Intratec Energy Prices & Markets report, readers are encouraged to explore the General Methodology Guide, available here:

► https://intrat.ec/m?f=/iep-methodology-general

A.1 Glossary

Pricing Basis

* **Compiled Prices** are modeled using price data from public sources, and their raw data consist of some price series (value per quantity) over a month.

* **Formula-Based Prices** are prices calculated using related commodity prices, economic indicators, and regression models.

* **Freight-Based Prices** adjust product values to include maritime freight costs, resulting in **Netback** and **Netforward** prices. Netback deducts freight costs to reflect the product value at the loading terminal, while Netforward adds freight costs to estimate the product value at the destination terminal.

* **Manufacturing Cost-Based Prices** are based on operating costs, including raw materials and utilities. One example is the **cash cost**, that represents the out-of-pocket expenses manufacturers pay to produce a commodity, including raw materials, utilities, labor, maintenance, taxes, and fees.

* **Preliminary Prices.** are best-estimate price values for the current period when official trade data are unavailable or delayed, typically by 1 to 3 months. They are derived using mathematical models that adjust related, timely price assessments to provide a reliable estimate until official figures are released.

* **Transaction Prices** are prices derived from trade data and calculated by filtering out data that fall outside a minimum traded quantity and then applying a univariate outlier detection algorithm with the goal of removing inaccurate data.

* **Unit Values** are prices calculated by dividing the total amount of money by the total quantity of a given commodity in each month traded by a specific country as reported by countries' custom authorities. It is calculated with no statistical treatment.

Energy Commodities Definitions

* **Biofuels** are renewable fuels derived from organic materials (biomass), such as plants, agricultural residues, animal fats, and waste. They serve as alternatives to fossil fuels in transportation, heating, and electricity generation, including liquid, gaseous, and solid biofuels.
* **Biomass and Waste** refers to organic materials from plants, animals, or waste that can be converted into biofuels (e.g., ethanol, biodiesel), biogas, or burned for energy. Key sources include agricultural residues, forestry waste, municipal solid waste, animal manure, and dedicated energy crops.
* **Coal Products** include processed coal used in power generation (thermal coal) and steel production (metallurgical coal). These bulk commodities are typically transported by rail, barge, or ship, requiring specialized handling.
* **Crude Oil** is a liquid fossil fuel extracted from underground reservoirs and refined into essential products such as gasoline, diesel, and jet fuel.
* **Diesel** is a middle distillate fuel primarily used in diesel engines.
* **Electricity** is an energy carrier generated from fossil fuels, renewables, or nuclear power. It is essential for residential, industrial, and infrastructure applications.
* **Fuel Oil** is a heavy petroleum product used in power generation, marine engines, and industrial heating. It has high energy content and is a by-product of refining.
* **Gaseous Biofuels** include biogas, produced via anaerobic digestion of organic waste.
* **Gasoline** is a refined petroleum product used in internal combustion engines, valued for its high energy content and efficiency.
* **Geothermal Energy** harnesses heat from beneath the Earth's surface for electricity generation and direct heating.
* **Heat** is produced directly (e.g., geothermal) or as a by-product of fuel combustion. It is crucial for heating, industrial processes, and energy systems.
* **Heavy Oils** are high-density petroleum products such as fuel oil that require specialized handling. In freight, they are transported under “dirty freight” conditions, referring to tankers carrying unrefined or residual oil products.

* **Hydro Energy** converts the kinetic energy of flowing water into electricity using turbines, making it one of the most reliable renewable sources.
* **Kerosenes** are refined petroleum products used in aviation (jet fuel), heating, and lighting. They are middle distillates valued for stability and clean combustion.
* **Light Oils** are low-density refined petroleum products, such as gasoline, naphtha, and kerosene, that are easier to handle and transport. In freight, they fall under "clean freight" conditions, requiring tanks free from heavy oil residues.
* **Liquefied Petroleum Gas (LPG)** refers to flammable hydrocarbon gases such as propane and butane, used in heating, cooking, transport, and industry.
* **Liquid Biofuels** include ethanol, produced from crops like corn, and biodiesel, derived from vegetable oils or animal fats. Renewable diesel, another liquid biofuel, is a sustainable alternative that closely resembles petroleum diesel in its chemical composition.
* **Naphtha** is a flammable liquid hydrocarbon used primarily as a petrochemical feedstock and industrial solvent. Intratec considers it a key oil product.
* **Natural Gas** is a methane-rich fossil fuel used in heating, electricity generation, and petrochemicals manufacturing. It is processed to remove impurities and can be liquefied (LNG) for transport.
* **Natural Gas Liquids (NGL)** are a mixture of hydrocarbons such as ethane, propane, butane, and pentanes recovered during crude oil or natural gas production.
* **Nuclear** energy is generated through nuclear fission, where uranium atoms split to release heat, producing steam to drive electricity-generating turbines. Nuclear fuels include uranium, thorium, and plutonium.
* **Primary Energy Sources** are raw energy materials extracted from nature, such as crude oil, coal, and natural gas, or harnessed from renewable flows like solar and wind.
* **Oil** corresponds to petroleum and all derivatives, such as refined fuels obtained through the processing of crude oil in refineries. Intratec considers crude oil and all oil products as oil.
* **Oil Products** are refined fuels and derivatives from crude oil, primarily used for energy, transportation, and industry. Intratec categorizes diesel, gasoline, fuel oil, naphtha, and kerosenes as oil products.

* **Other Oil Products** include lubricants, bitumen (asphalt), paraffin waxes, petroleum coke, and petrochemical feedstocks.
* **Other Feedstocks** encompass refinery feedstocks (unfinished oils), synthetic crude oils (e.g., from tar sands or coal liquefaction), and blending components for fuel enhancement.
* **Renewables** are energy sources that naturally replenish, including solar, wind, hydro, geothermal, and biomass. They generate electricity with lower environmental impact than fossil fuels and contribute to sustainability.
* **Secondary Energy Sources** result from processing primary energy sources into more usable forms, such as refined fuels and electricity.
* **Solar** energy is the Sun's radiant energy, harnessed through photovoltaic (PV) cells to generate electricity or solar thermal systems for heating and industrial applications.
* **Solid Biofuels** include wood pellets and briquettes used as substitutes for coal in heating and power generation.
* **Wind** energy converts wind's kinetic energy into electricity using turbines, with blades capturing wind currents to drive generators.

Energy Commodities Flows

* **Production** refers to the generation of energy from various sources, including fossil fuels extracted through drilling or mining, nuclear power, and renewable sources such as hydropower, wind, and solar energy. Bioenergy, derived from waste materials and biomass, also plays a significant role in domestic energy production across many countries.
* **Demand** is the total energy required in a country, calculated as domestic production plus imports, minus exports. It reflects the energy needed to meet industrial, commercial, and residential consumption, including both primary energy sources and those converted into fuels or electricity.
* **Consumption** refers to the direct use of energy by individuals, businesses, and industries for heating, cooling, lighting, transportation, and manufacturing. It also includes non-energy uses (e.g., fossil fuels in chemical production). Energy losses occur during conversion, making final consumption different from total demand.
* **Imports, Exports, and Net Trade.** Track energy flows across borders. Imports bring energy in, exports send energy out, and net trade shows whether a country is a net importer or exporter.
* **Trade Partners** are the countries involved in energy imports and exports, shaping market dependencies and geopolitical considerations.
* **Stock Change** refers to variations in energy inventories over a specific period, reflecting increases (stock builds) or decreases (stock draws), which impact supply stability and pricing.
* **Domestic Supply of Oil Products** represents the total availability of refined petroleum products within a country. It indicates how much oil products are available for domestic consumption.
* **Energy Balance** is a comprehensive accounting framework that tracks energy flows within a country, from production and imports to transformation, consumption, and exports.
* **Electricity Generation** is the production of electricity from various sources, including fossil fuels (coal, natural gas, oil), renewables (hydro, wind, solar, geothermal, biomass), and nuclear power.
* **Energy Self-Sufficiency** measures the extent to which a country can meet its energy needs with domestic production, reducing reliance on imports.

A.2 Methodology

Intratec provides reliable, data-driven insights by leveraging official trade statistics and advanced computational models. As a leading provider of commodity strategic data, Intratec empowers customers with accurate information for decision-making.

Reports are released monthly, offering timely updates on energy prices, forecasts, and market trends. This approach ensures assessments are available early each month while maintaining accuracy and reliability.

* Data Sources and Processing

Intratec relies exclusively on public sources such as government statistics, market exchanges, and multilateral organizations, ensuring high data reliability. Data processing occurs through structured pipelines developed by a team of market experts, computer scientists, and data analysts. Automated systems gather data from open sources, complemented by manual checks to minimize errors and biases.

* Data Analysis and Quality Assurance

Collected data undergo formatting, standardization, and normalization to account for variations in location and quality. Exchange rates and adjustments enhance comparability. Short-term forecasts use mathematical models and economic indicators. Rigorous reviews identify inconsistencies, refining calculation models and enhancing reliability.

* Quality Assurance and Continuous Improvement

All data undergo rigorous reviews to identify inconsistencies or anomalies. Cross-market comparisons and statistical analyses are used to refine calculation models and enhance reliability. Assessments are regularly reviewed to ensure alignment with market practices, which may result in new assessment opportunities, assessment retirements, or changes in specifications based on trading conventions and global market conditions.

Complementary Documents

For an in-depth understanding of the methodology developed by Intratec for the Intratec Energy Prices & Markets report, readers are encouraged to explore the General Methodology Guide, available at: https://intrat.ec/m?f=/iep-methodology-general

Appendix B

Currency and Conversion Factors

Table B.1 Currency Conversion from United States Dollar (USD)

Currency	Aug 25	Jul 25	Jun 25	Aug 24	2024	2023	2022	2021
Euro (EUR)	0.858	0.854	0.870	0.909	0.924	0.924	0.951	0.846
Chinese Yuan (CNY)	7.18	7.17	7.18	7.16	7.19	7.08	6.71	6.45
Japanese Yen (JPY)	147	147	145	147	151	140	131	110
Pound Sterling (GBP)	0.744	0.739	0.739	0.776	0.783	0.804	0.809	0.727
Indonesian Rupiah (IDR)	16,300	16,300	16,300	15,800	15,900	15,200	14,800	14,300

* For more currency rates, visit: https://intrat.ec/currency-exchange

Table B.2 Unit Conversion

Name	Symbol	Relation to SI	Name	Symbol	Relation to SI
Volume			Energy		
Cubic meter (SI unit)	m3		Joule (SI unit)	J	= 1 N.m
Gallon	gal	= 3.785 x 10^{-3} m3	British thermal unit	Btu	= 1,055 J
Barrel	bbl (oil)	= 0.1589 m3	Kilowatt-hour	kWh	= 3.6 x 10^{6} J
Mass			Tonne of oil equivalent	toe	= 11,630 kWh
Kilogram (SI unit)	kg				
Metric ton	mt	= 10^{3} kg			

* For more unit conversions, visit: https://intrat.ec/unit-conversion

Table B.3 Typical Densities and Net Calorific Value (NCV)

Commodity	Density (kg/m3)	NCV (GJ/mt)	Commodity	Density (kg/m3)	NCV (GJ/mt)
Crude Oil	853	45	Diesel	844	45
Natural Gas Liquids	522	50	Fuel Oil	930	40.7
LPG	522	46.2	Coal, anthracite	1,500	30
Naphtha	691	45.3	Ethanol	789	37.1
Gasoline, regular	741	44.8	Biodiesel, B99	880	37.1
Kerosenes	803	44.6	Renewable Diesel	800	43

* Values may vary according to the assessment. Typical values are shown; specific values can be found, in "General Assessments Guide" at: https://cdn.intratec.us/docs/methodologies/iep-assessments-id.pdf

Appendix C

Alternative Data Delivery Methods

Intratec Energy Prices & Markets data can be delivered in various formats to seamlessly integrate with subscribers' systems. In addition to PDF reports, the data presented in this report can also be accessed through Microsoft Excel, Microsoft Power BI, or via integration with users' workflows through a Web API. These alternative delivery methods are available as add-ons exclusively for Advanced Plan subscribers.

* Microsoft Excel

Intratec offers an Excel Add-In that allows subscribers to download updated datasets directly into Excel with a single click. This tool provides up to 1-year monthly history, enabling offline access and streamlined integration into existing workflows. It ensures flexibility for analysis and reporting, making it ideal for professionals in industries such as energy, chemicals, and manufacturing.

For more details, visit: https://www.intratec.us/delivery-methods/excel.

* Microsoft Power BI

Subscribers can integrate Intratec data directly into their Power BI dashboards, accessing up-to-date industrial economics data without additional setup. This delivery method supports real-time visualization of up to 10-year monthly price history alongside other business data, streamlining decision-making processes with visually rich and actionable insights.

For more details, visit: https://www.intratec.us/delivery-methods/power-bi.

* Web API

The Web API enables programmatic access to Intratec's proprietary datasets in standardized formats (JSON, CSV). Subscribers can retrieve historical, current, and forecast data (up to 10-year monthly history) while customizing parameters such as time span, frequency, and currency. This method is ideal for organizations seeking automated updates or integrating data into business intelligence tools, dashboards, or enterprise systems.

For more details, visit: https://www.intratec.us/delivery-methods/api.

Appendix D

Price Models Accuracy

Throughout this report, some prices are marked with (P) to indicate they are preliminary. These preliminary prices are derived from Intratec's proprietary price models, which were developed to address delays in the publication of official statistics. Such statistics are typically released with lags of 1 to 3 months. In cases where insufficient or no data is available, these models provide the best price estimates for periods up to the current month, ensuring timely and reliable information for decision-making.

This appendix evaluates the performance and accuracy of Intratec's price models, emphasizing their transparency and reliability. To assess model quality, Intratec has developed a proprietary metric called the Model Performance Score (MPS), which consolidates key evaluation metrics into a single indicator of reliability. Before delving into how the MPS is calculated, it is important to understand the foundational metrics used in model evaluation:

* **Mean Absolute Percentage Error (MAPE):** Expressed as a percentage, this metric measures the deviation between preliminary and consolidated prices. It contextualizes deviations in relative terms, enabling meaningful comparisons across time periods and datasets.

* **Mean Absolute Percentage Accuracy (MAPA):** Expressed as a percentage and calculated as *100% - MAPE*, this metric measures the accuracy of preliminary prices compared to the consolidated ones.

* **Directional Accuracy (DA):** This metric evaluates the model's ability to correctly predict price trends – whether prices will rise or fall – providing a practical assessment of its reliability for decision-making.

In some cases, there may be insufficient historical assessment data to estimate all parameters. When this occurs, Intratec indicates the data gap with a "not available" (NA) label.

D.1 Evaluation Metrics Across Timeframes

To ensure a robust evaluation of model performance, Intratec calculates average MAPA and DA values over three distinct timeframes: the last 3 months, the last 6 months, and the last 12 months where consolidated prices are available. This approach allows for a direct comparison between preliminary price estimates and actual consolidated prices over different periods.

Table D.1 presents the average values for MAPA and DA across all assessments for each timeframe. These metrics provide insights into how well Intratec's models perform in predicting energy prices.

Table D.1 Model Accuracy - MAPA and DA (Last 3, 6, and 12 Months)

Assessment	Last 3 Months		Last 6 Months		Last 12 Months	
	MAPA	DA	MAPA	DA	MAPA	DA
Natural Gas (liquified), export, fob	XX%	XX%	XX%	XX%	XX%	XX%

D.2 Model Performance Score (MPS)

Building on these metrics, Intratec developed the Accuracy Index (AI) to provide a single, user-friendly indicator of a model's reliability for each timeframe analyzed. The AI is calculated as a weighted combination of MAPA and DA using the following formula:

$$Accuracy\ Index\ (AI) = \frac{(MAPA \times (24 - num_{obs}) + (DA \times num_{obs}))}{24}$$

In this formula:

* 24 represents the maximum total number of months used for evaluation.
* num_obs refers to the actual number of data points available (e.g., last 3 months or last 12 months).

The AI ranges between 0 and 100%, with higher values indicating better model accuracy for the analyzed timeframe.

To provide an overall evaluation of model performance across all timeframes, Intratec combines the Accuracy Indexes from the three timeframes into a proprietary metric called the Model Performance Score (MPS). The MPS assigns greater weight to more recent preliminary prices

using a ratio of 5:3:2 for the last 3 months, last 6 months, and last 12 months respectively. The formula for MPS is:

$$MPS = \frac{(0.5 \times Last\ 3\ Months\ AI + 0.3 \times Last\ 6\ Months\ AI + 0.2 \times Last\ 12\ Months\ AI)}{20}$$

The MPS ranges from zero to five circles, where:

* Five full circles (●●●●●) indicate an excellent model.
* Three or fewer circles (e.g., ●●●○○) suggest areas for improvement in model performance.

Table D.2 presents the AI values for each timeframe (last 3 months, last 6 months, and last 12 months) along with the Global MPS for each assessment.

Table D.2 Model Accuracy AI and MPS

Assessment	12 Months AI	6 Months AI	3 Months AI	Global MPS
Natural Gas (liquified), export, fob	XX%	XX%	XX%	XXX

Appendix E

Price Forecasts Accuracy

Price forecasts are indispensable tools for stakeholders in the energy sector, enabling informed decision-making in trading, risk management, and policy development. Accurate forecasts provide critical insights into future market trends, supporting long-term strategies and mitigating risks associated with price volatility.

In this chapter, the accuracy of the price forecasts presented in "*Chapter 4. Price Forecasts*" is evaluated. This evaluation aims to provide transparency and convey the reliability of Intratec's data.

This chapter emphasizes the importance of M1 (forward-month) forecasts, as they are the most relevant for short-term planning and decision-making. The forward-month forecast is the most critical horizon, providing immediate insights for navigating near-term market dynamics. To evaluate M1 accuracy, Intratec employs robust statistical metrics, including Mean Absolute Percentage Accuracy (MAPA) and Directional Accuracy (DA). These metrics assess both the magnitude of forecast errors and the consistency of directional predictions. For M1 forecasts, these metrics are consolidated into a single indicator – the Model Performance Score (MPS) – to provide an intuitive and reliable measure of forecast accuracy.

Additionally, a high-level evaluation of M6 (six-month ahead) forecast performance is presented through a comparison of Intratec's model MAPA values against those of a baseline Constant Price Model (Naïve MAPA). This comparison highlights the added value of Intratec's forecasting methodology.

In some cases, there may be insufficient historical assessment data to estimate all parameters. When this occurs, Intratec indicates the data gap with a "not available" (NA) label.

E.1 Forward-Month Forecast Accuracy

As mentioned earlier, the forward-month (M1) forecast is the most critical forecast horizon, offering actionable insights for short-term decision-making. To evaluate M1 accuracy, Intratec calculates average MAPA and DA values over three distinct timeframes: the last 3 months, last 6

months, and last 12 months where consolidated prices are available. This approach ensures a robust evaluation by comparing forecasted prices to actual consolidated prices across different periods.

Table E.1 presents MAPA and DA values for M1 forecasts across all assessments, offering insights into how well Intratec's models perform in predicting forward-month prices.

Table E.1 Forward-Month Model Accuracy - MAPA and DA (Last 3, 6, and 12 Months)

Assessment	Last 3 Months		Last 6 Months		Last 12 Months	
	MAPA	DA	MAPA	DA	MAPA	DA
Electricity, industrial sector	XX%	XX%	XX%	XX%	XX%	XX%
Coal (thermal), export, fob	XX%	XX%	XX%	XX%	XX%	XX%
Crude Oil (sour), import, cif	XX%	XX%	XX%	XX%	XX%	XX%
Diesel (low-sulfur), import, cif	XX%	XX%	XX%	XX%	XX%	XX%
Ethanol (anhydrous), export, fob	XX%	XX%	XX%	XX%	XX%	XX%
Gasoline (premium), import, cif	XX%	XX%	XX%	XX%	XX%	XX%
Kerosene (jet fuel), import, cif	XX%	XX%	XX%	XX%	XX%	XX%
Propane, import, cif	XX%	XX%	XX%	XX%	XX%	XX%
Butane (n-butane), import, cif	XX%	XX%	XX%	XX%	XX%	XX%
Electricity, household	XX%	XX%	XX%	XX%	XX%	XX%
Natural Gas (liquified), export, fob	XX%	XX%	XX%	XX%	XX%	XX%

NA = not available

These metrics are consolidated into a single score for easier interpretation using the Accuracy Index (AI) formula:

$$Accuracy\ Index\ (AI) = \frac{(MAPA \times (24 - num_{obs}) + (DA \times num_{obs}))}{24}$$

The AI values for each timeframe are then combined into a weighted score called the Model Performance Score (MPS), which assigns greater weight to more recent forecasts using a ratio of 5:3:2 for the last 3 months, last 6 months, and last 12 months respectively:

$$MPS = \frac{(0.5 \times Last\ 3\ Months\ AI + 0.3 \times Last\ 6\ Months\ AI + 0.2 \times Last\ 12\ Months\ AI)}{20}$$

Table E.2 summarizes AI values for each timeframe along with the Global MPS.

Table E.2 Forward-Month Model Accuracy AI and MPS

Assessment	12 Months AI	6 Months AI	3 Months AI	Global MPS
Electricity, industrial sector	XX%	XX%	XX%	XXX
Coal (thermal), export, fob	XX%	XX%	XX%	XXX
Crude Oil (sour), import, cif	XX%	XX%	XX%	XXX
Diesel (low-sulfur), import, cif	XX%	XX%	XX%	XXX
Ethanol (anhydrous), export, fob	XX%	XX%	XX%	XXX
Gasoline (premium), import, cif	XX%	XX%	XX%	XXX
Kerosene (jet fuel), import, cif	XX%	XX%	XX%	XXX
Propane, import, cif	XX%	XX%	XX%	XXX
Butane (n-butane), import, cif	XX%	XX%	XX%	XXX
Electricity, household	XX%	XX%	XX%	XXX
Natural Gas (liquified), export, fob	XX%	XX%	XX%	XXX

NA = not available

E.2 Six-Month Ahead Forecast Evaluation

Although less critical than M1 forecasts for short-term decision-making purposes, six-month ahead (M6) forecasts provide valuable insights into medium-term trends. To assess their added value over simple assumptions, Intratec compares MAPA values for its forecasting models against a baseline Constant Price Model (Naïve MAPA). The ratio between these MAPAs is the relative performance:

$$Relative\ Performance\ Ratio = \frac{Intratec\ Model\ MAPA}{Naïve\ Model\ MAPA}$$

Values above 100% indicate superior performance by Intratec's models compared to the Naïve model.

Table E.3 summarizes relative performance ratios for M6 forecasts across all assessments.

Table E.3 Relative Performance of Six-Month Ahead Forecast vs. Constant Price Model

Assessment	Last 3 Months	Last 6 Months	Last 12 Months
Crude Oil (Sour), import, cif	XX%	XX%	XX%
Gasoline (Premium), import, cif	XX%	XX%	XX%
Butane (n-), import, cif	XX%	XX%	XX%
Naphtha (Heavy), import, cif	XX%	XX%	XX%
Natural Gas (LNG), export, fob	XX%	XX%	XX%

NA = not available

Appendix F

Global Prices Comparison

This appendix provides a comparative analysis of energy prices across the 33 countries covered in Intratec Energy Prices & Markets. By examining both individual energy commodity price rankings and an average energy price comparison, this chapter positions Indonesia within the global energy landscape. The analysis highlights how energy costs in Indonesia compare to those in other countries, offering insights into its relative affordability and competitiveness.

The appendix is divided into two sections:

* **Ranking of Energy Commodity Prices by Country:** This section ranks Indonesia against other countries for key energy commodities, including Natural Gas, Electricity, Gasoline, Diesel, Naphtha, and Fuel Oil.
* **Energy Average Price Comparison:** This section presents an average energy price comparison across all countries. It highlights the relative position of Indonesia in terms of overall energy costs.

F.1 Ranking of Energy Commodity Prices by Country

This section ranks Indonesia in relation to the other 32 countries covered by the program for six key energy commodities: Natural Gas, Electricity, Gasoline, Diesel, Naphtha, and Fuel Oil. These rankings help identify whether Indonesia is among the most affordable or expensive markets for each commodity.

The following figures present the rankings of energy commodity prices across the 33 countries covered by the program. Each chart positions Indonesia relative to other countries for a specific commodity, highlighting its rank within the global context.

Natural Gas

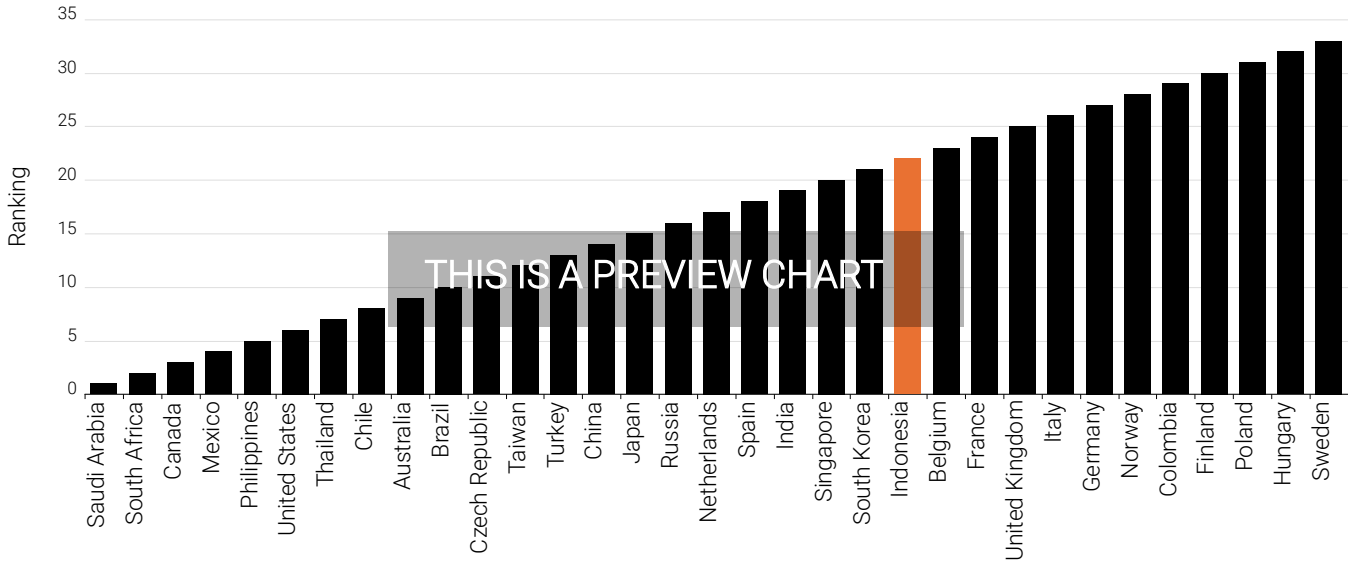


Figure F.1 Natural Gas Price Rankings by Country (Feb 25)

Electricity

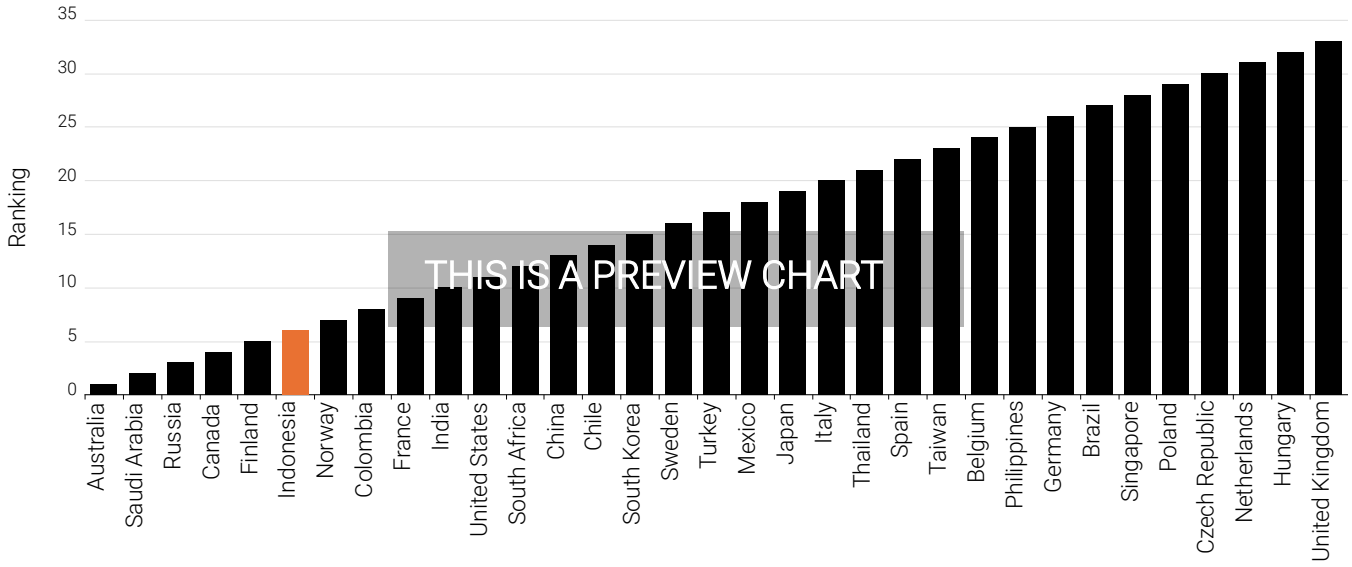


Figure F.2 Electricity Price Rankings by Country (Feb 25)

Gasoline

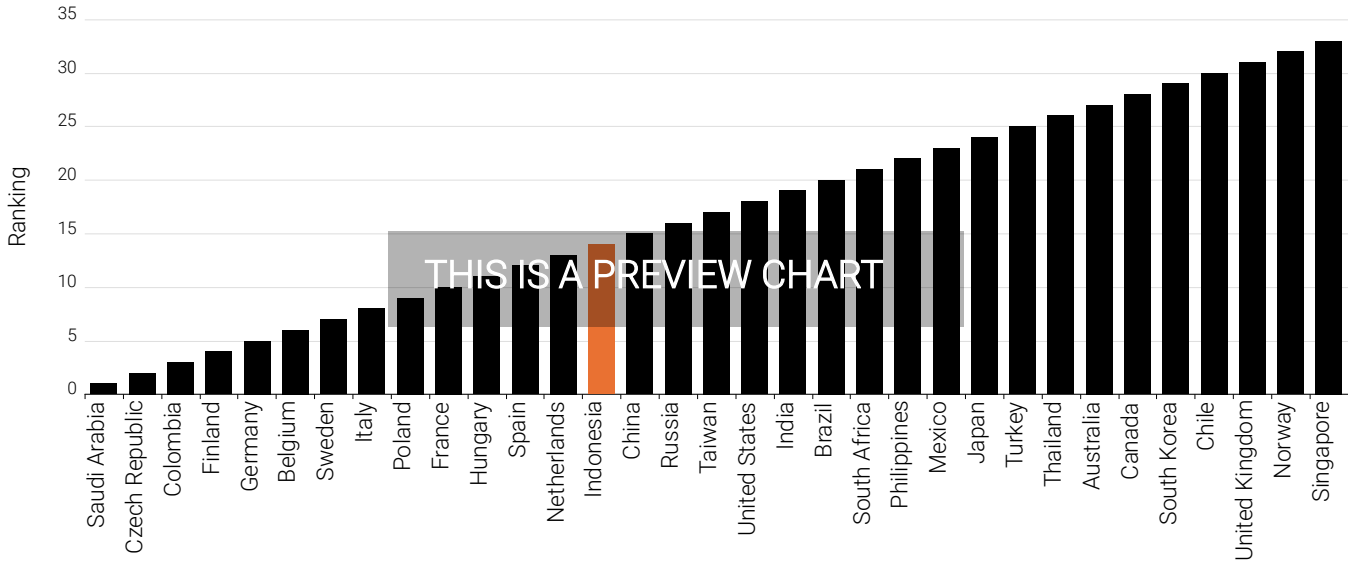


Figure F.3 Gasoline Price Rankings by Country (Feb 25)

Diesel

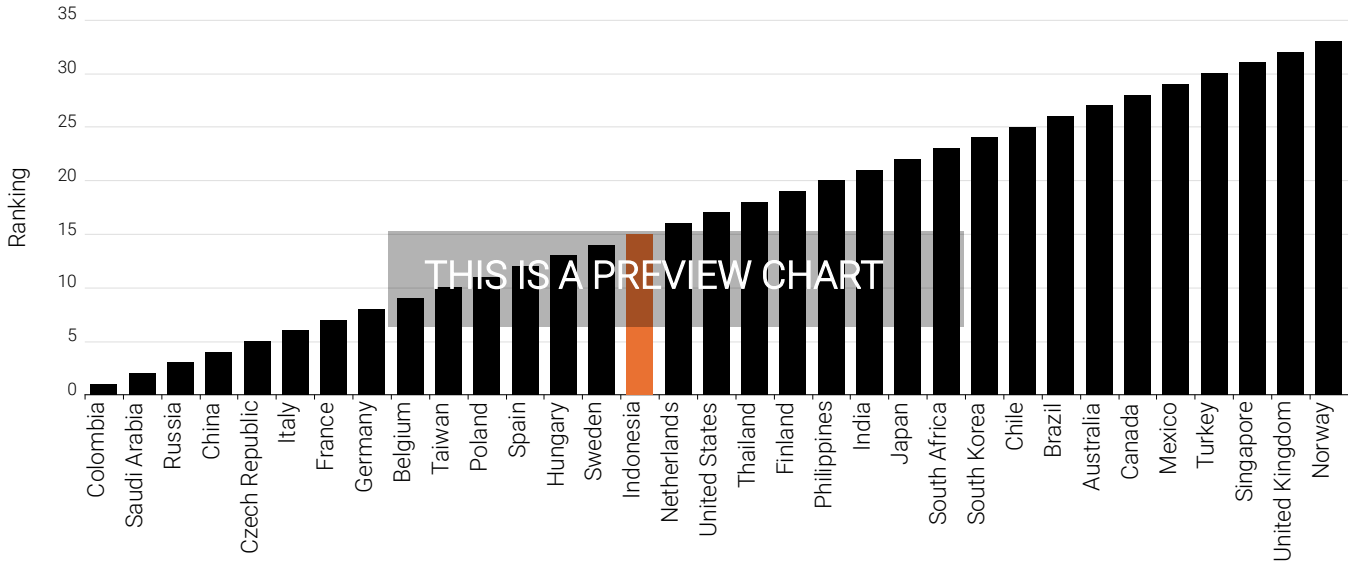


Figure F.4 Diesel Price Rankings by Country (Feb 25)

Fuel Oil

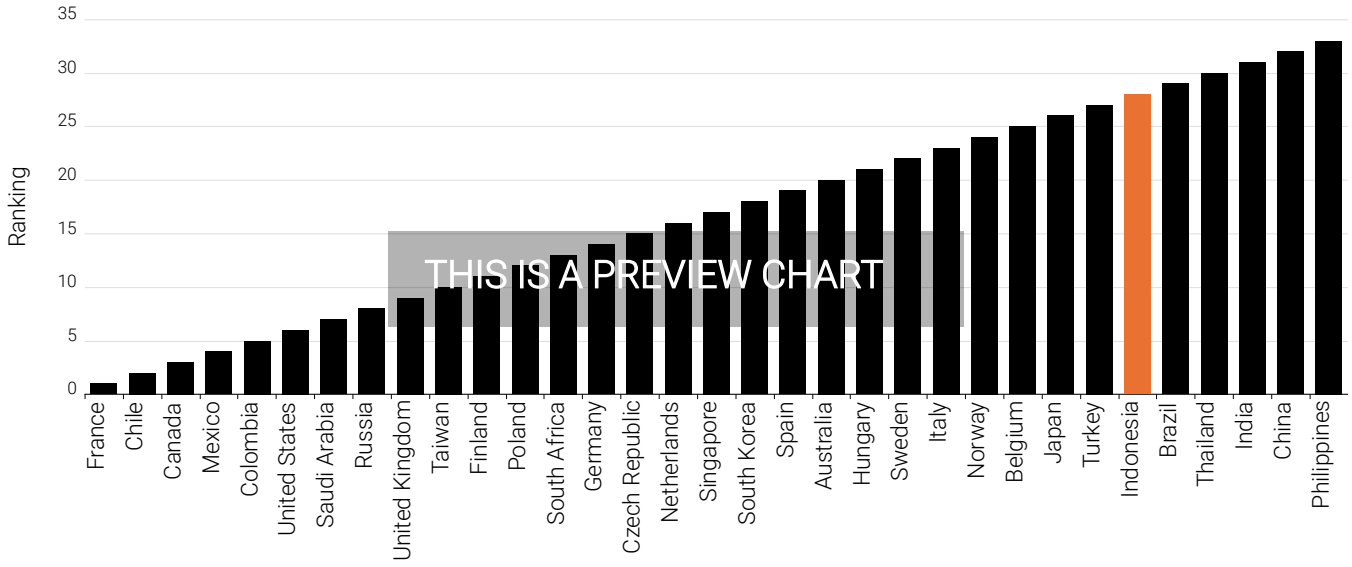


Figure F.5 Fuel Oil Price Rankings by Country (Feb 25)

Naphtha

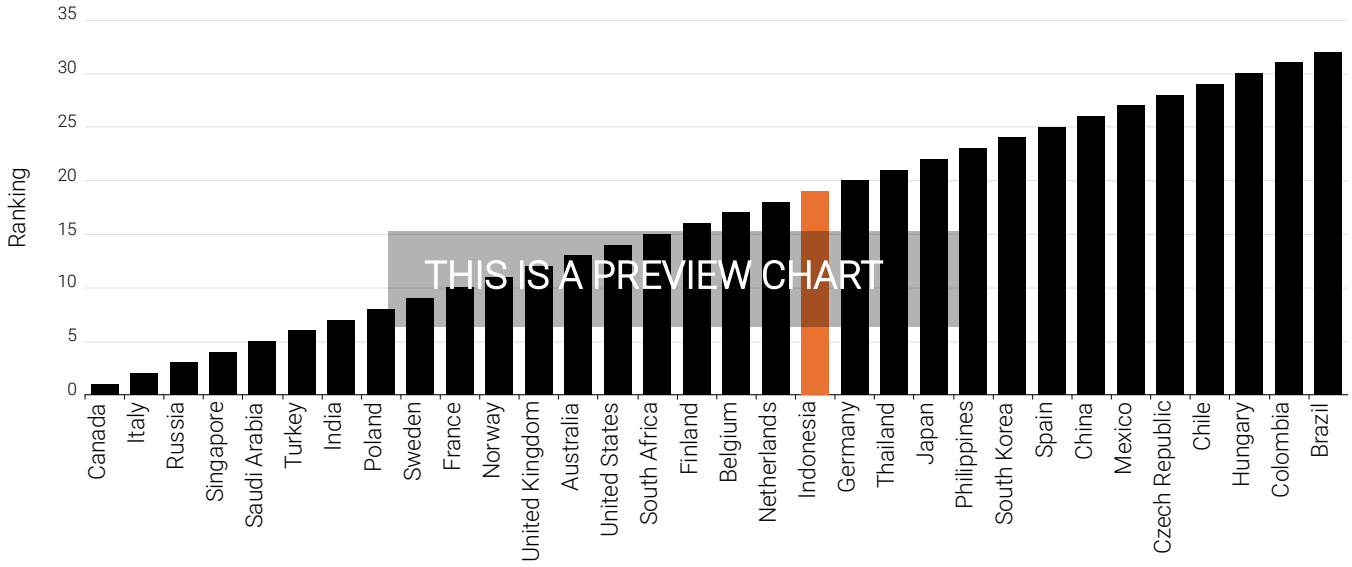


Figure F.6 Naphtha Price Rankings by Country (Feb 25)

F.2 Energy Average Price Comparison

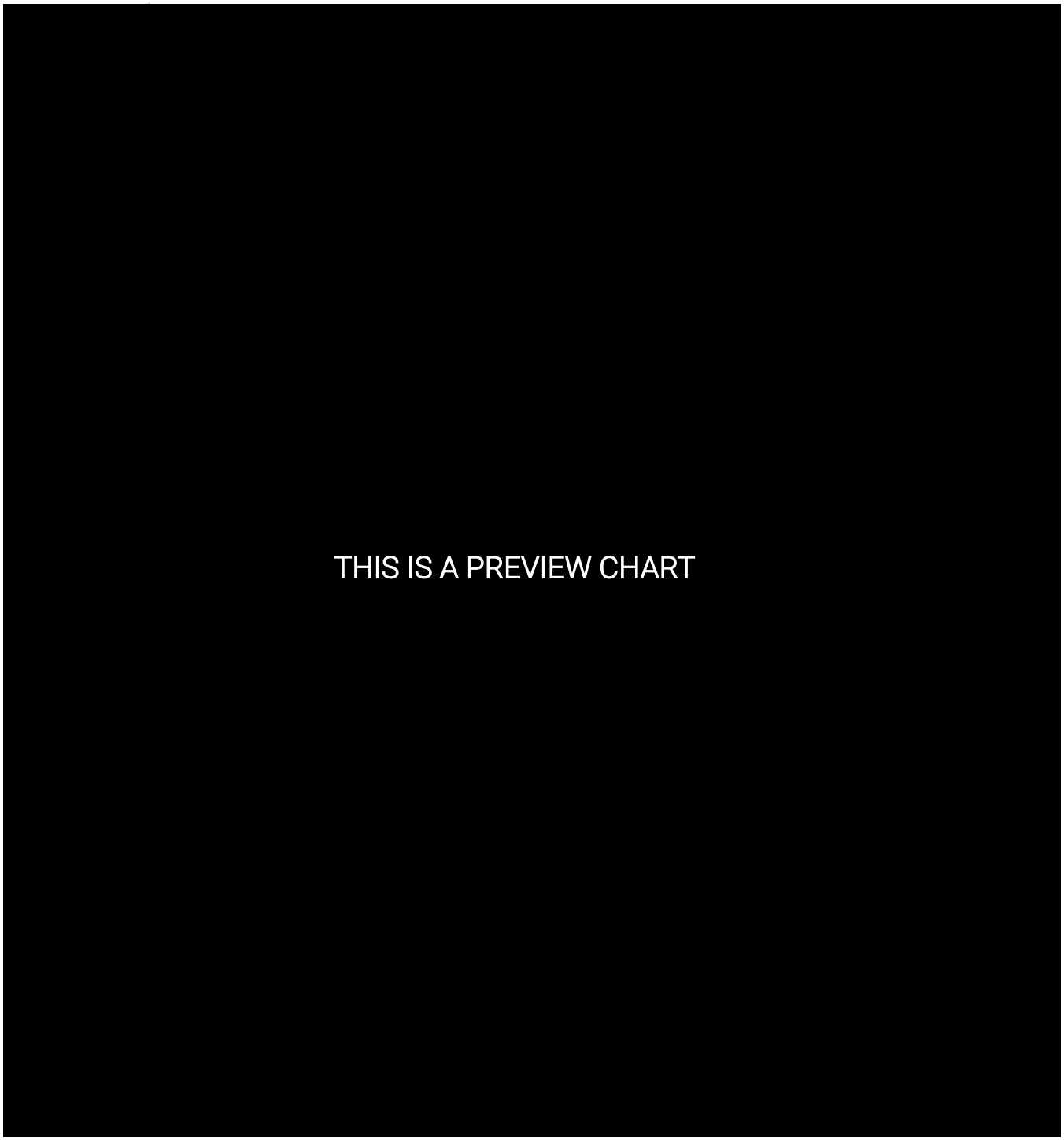


Figure F.7 Average Energy Price Comparison Worldwide

Figure F.7 compares overall average energy prices across 33 countries covered in the Intratec Energy Prices & Markets reports. The average price for each country is calculated by weighting individual energy source prices (e.g., Natural Gas, Electricity, Gasoline) based on their consumption levels within that country. The chart highlights the position of Indonesia relative to other nations, indicating whether its overall energy costs are comparatively high or low.

Appendix G

Frequently Asked Questions

This appendix addresses common questions related to the methodologies, data, and features presented in the Intratec Energy Prices & Markets report. It is designed to provide clarity on key concepts, enhance transparency, and support users in understanding the report's structure and the reliability of the information provided.

The topics covered include explanations of pricing methodologies and other relevant aspects of energy price analysis. By addressing these frequently asked questions, this appendix aims to reinforce confidence in the data and methodologies used while offering practical insights for users navigating the report.

Q: What are the limitations of using unit values for price analysis?

Unit values are calculated by dividing the total amount of money by the total quantity of a given commodity traded by a specific country each month, as reported by customs authorities. This calculation is performed without any statistical treatment. Compared to the prices presented in the Intratec Energy Prices & Market report, unit values have several core limitations in energy market price analyses:

Inherent Weaknesses Compared to Intratec's Trade-Based Prices

Trade-based prices in the Intratec Energy Prices & Market report are derived from international trade information reported by countries. These prices are selected based on a criterion of data homogeneity, ensuring that all data refer to the same assessment (i.e., the same commodity with similar specifications and trade conditions). Once data homogeneity is confirmed, trade-based prices are calculated. For instance, transaction prices are treated to remove inconsistent values by filtering out data that fall outside a minimum traded quantity and applying a univariate outlier detection algorithm to remove inaccurate data.

In contrast, unit values lack the robustness of trade-based methodologies that filter inconsistent data and adjust for quality variations. Specifically, unit values present critical flaws:

* **Aggregation Bias**: Unit values group heterogeneous products under broad classifications, blending distinct commodities into distorted averages.
* **Failure to Detect Outliers:** Unlike Intratec's trade-based indices, unit values do not systematically exclude implausible transactions. Intratec's methodology employs outlier detection algorithms to remove abnormal prices.

Lack of Market Specificity

On the other hand, Intratec's compiled prices provide granular market segmentation that unit values cannot replicate. Compiled prices are derived from price data from public sources, offering detailed insights into specific market conditions. These prices typically provide:

* **Market Destination:** Unit values do not specify market destinations, whereas Intratec's Compiled Prices differentiate between, for instance, wholesale, retail, and industrial prices.
* **Price Type Differentiation:** Unit values aggregate long-term contracts and spot prices, whereas Intratec's Compiled Prices distinguish between these price types.
* **Commodity Specifications:** Unit values average across quality grades, whereas Intratec's Compiled Prices isolate specific commodity specifications.

Q: Why Are There Missing Chapters in My Report?

To meet a diverse range of customer needs, the Intratec Energy Prices & Markets report is available through three subscription plans: Starter, Pro, and Advanced. Each plan offers a different level of depth and coverage, with the Advanced plan being the most comprehensive. Depending on the subscription plan selected, certain chapters may not be included in the report.

The content and features available in each plan can be viewed at the following link:

► https://www.intratec.us/solutions/energy-prices-markets/features

Subscriptions can be upgraded at any time while active, allowing access to additional features and chapters not available in the current plan. For more information on how to upgrade a subscription, please visit:

► https://help.intratec.us/en-us/article/can-i-upgrade-my-plan-1me6ut8/

Q: Are Intratec Prices Sufficient for Structuring Contracts?

While some customers use Intratec pricing data as an index for structuring contracts between suppliers, processors, and end-customers, Intratec discourages using its prices as the sole reference unless combined with other price indexes (e.g., those compiled by third-party sources).

This recommendation is not due to concerns about the accuracy of Intratec's data, but rather to ensure contracts benefit from a broader industry perspective. Combining multiple indexes leverages diverse datasets and polling bases, enhancing robustness through a broader range of market insights. Intratec believes its data should be used alongside other benchmarks, fostering balanced and informed decision-making in contractual agreements.

Q: What Do Preliminary Prices Mean?

Throughout this report, some prices are marked with (P) to indicate they are preliminary. These preliminary prices are best-estimate values derived from Intratec's proprietary price models. Intratec's price assessments primarily rely on official data gathered from public sources, including national governments' statistics bureaus, foreign trade agencies, and international organizations.

However, these sources often delay data release by 1 to 3 months. To address these delays and ensure timely and reliable information for decision-making, Intratec developed these models to fill the gaps until official figures become available.

To maintain a high level of transparency and reliability, Intratec also presents the accuracy of its models for calculating preliminary prices in the "*Appendix D. Price Models Accuracy*" section of the Intratec Energy Prices & Markets report.

Q: What Are the "Right" Prices Considered to Measure Accuracy of Preliminary Price Models?

Initially, it is important to recognize that there is no single "right" price, as the actual price paid by an individual customer depends on factors such as order size, trade terms, geographical location, contract types, and more. In this context, all prices presented by Intratec are constructed using a robust methodology designed to deliver reliable estimates.

Consequently, our preliminary price model accuracies are evaluated by comparing them against consolidated historical data generated using this rigorous methodology for the specific price

assessment under evaluation. This approach ensures that our preliminary prices, while not definitive, offer a dependable basis for decision-making until official data becomes available.

For more detailed information on the methodology used by Intratec to derive its published prices, the reader may visit:

- https://cdn.intratec.us/docs/methodologies/iep-methodology-general.pdf

Appendix H

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Appendix I

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