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Barging and Transshipment Market Research in the Coal Logistics Industry in Indonesia

Meina Wulansari Yusniar[1*], Monica Rahardian Ary Helmina[2], Ahmad Rifani[3]
[1,2,3] Faculty of Economics, Lambung Mangkurat University

[*]Corresponding Author: mwyusniar@ulm.ac.id

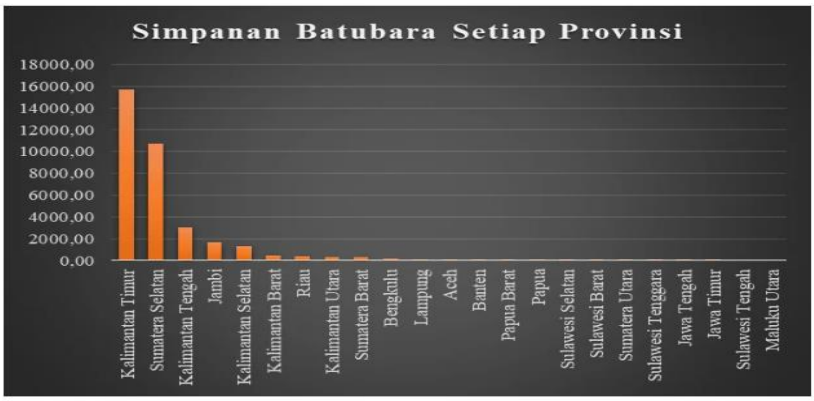
Abstract: This market research aims to analyze opportunities for coal barging and transshipment companies in Indonesia, analyze the market prices for transport barging & transhipment in 2023 and 2024, identify factors that affect the performance of coal logistics companies in Indonesian as well as prospects and strategies implemented by the coal Logistics industry. This type of research is qualitative research. The method of qualitative research is done using a survey method that describes, explains and interprets a phenomenon that occurs in an object and data is qualitatively characterized. The research was conducted qualitatively through interviews with companies operating in the field of coal logistics and coal users' logistics. The results of the research conclude that the coal logistics industry in the future still has a fairly high prospect of business. As the largest island country with the longest coastline in the world, Indonesia has the potential and advantages to be optimized as a strategic maritime transport route. With coal reserves awakened, then coal production in Indonesia is also expected to increase with the national production target of 2024 to 922.14 million tons. This growth of production will improve the performance of the coal transportation sector, thus creating a positive business prospect for the coal logistics industry.

Keyword: Barging, Transshipment, Coal , Market Research

INTRODUCTION

Indonesia's economic growth has been supported by natural resources, including mineral and coal resources. The management and utilization of mineral and coal resources has not yet reached its highest point because it only functions as a source of foreign exchange and state income. As a result, the use of natural resources has not been widespread, inclusive and sustainable. Decree of the Minister of Energy and Mineral Resources number 77 of 2022 stipulates that in order to overcome the challenges faced in the mineral and coal management process for Indonesia's development, several efforts must be made, such as: legal regulations must be harmonized and synchronized, licensing services must be accelerated, data and information must be collected and stored, funding and access to areas must be increased, development of downstream industry must be accelerated, reclamation and post-mining preparation need to be improved and recruitment of competent human resources must be increased, inventory and management improved, as well as the need to increase the use of products and components produced in domestic.

The map of coal resources and reserves on the official ESDM Geoportal website shows that the Kalimantan and Sumatra regions are the islands with the largest coal reserves. In other words, future mining potential will still be centered on the islands of Kalimantan and Sumatra. Even though there are also areas in Sulawesi, Maluku, Papua and other islands, they are still not as big and as numerous as in Kalimantan and Sumatra. The following are data and graphs of coal inventory or reserves in each province in Indonesia in million tons.



Graph 1. Coal reserves in each province in Indonesia
Source : *Handbook of Energy & Economic Statistics of Indonesia 2023*

Based on the data in graph 1, it is known that East Kalimantan and South Sumatra are the largest coal producers with the largest inventories or reserves as well. Based on data from *Handbook of Energy & Economic Statistics of Indonesia 2023* resource potentialThe amount of verified coal is still extraordinarily large, namely 90.785 billion tons. Figures are included *inferred*, *indicated*, and *measured resources*. ButThis amount, which has been verified, can be taken and become an economic profit or in mining terms ***verified reserved*** is 33 billion tons. SebuAh, that's an extraordinarily large number and will certainly support the country's economy.

In recent years, there has been a large increase in investment in the mining sector driven by domestic investors. Based on data from the Investment Coordinating Board (BKPM), it is known that since 2020, there has been an increase in the value of domestic and foreign investment in the mining sector in Indonesia. The value of domestic investment in the mining sector in 2020 was 13,755 billion Rupiah, increasing 354% in 2022 to 62,522 billion Rupiah. Meanwhile, foreign investment in the mining sector in 2020 amounted to 2,005 billion Rupiah, increasing 156% in 2022 to 5,145 billion Rupiah.

According to Sribna et al., (2019) to realize the prosperity and prosperity of the Indonesian state, coal and minerals must be managed well to support the growth and development of a national economy based on industry or towards an industrial country. With available mineral and coal resources, Indonesia has a great opportunity to become an industrial country. An appropriate policy is needed to take advantage of these opportunities. Indonesia has the opportunity to increase its comparative and competitive advantages in economic and geopolitical aspects in regional and global areas because of its mineral and coal potential as well as comprehensive, effective and consistent policies in the medium and long term. Mineral and coal resources can be a motor for local development, especially with the right policies.

Based on data from the Ministry of Energy and Mineral Resources (ESDM) website, it is known that the realization of coal production in Indonesia has increased since 2020. In 2020 it is known that Indonesian coal production was 564 million tons with *domestic market obligation* (DMO) amounted to 132 million tons and coal exported abroad amounted to 405 million tons. Coal production in 2021 will increase to 614 million tons, with DMO of 133 million tons and exports abroad of 435 million tons. Indonesia's coal production increased

again to 687 million tons throughout 2022, and again increased to 775 million tons in 2023. During 2023, coal exported abroad reached 518 million tons, or an increase of 11.4% compared to 2023. 2022. The increase in the value of coal exports is due to increasing energy demand while the supply of other alternative energy is not yet stable. The realization of coal exports exceeded the target set by the Ministry of Energy and Mineral Resources of 177 million tons. Domestic coal use has also increased due to an increase in demand for electricity, namely the new 35 gigawatt PLTU (project) which is still underway for completion. In 2024, the Ministry of Energy and Mineral Resources targets coal production of 922.14 million tonnes, of which 181.28 million tonnes is allocated to meet domestic needs.

This increase was mainly supported by growth in countries that are highly dependent on coal. In addition, very high gas prices and generally weaker nuclear and hydropower production are driving the growth in demand for coal for power plants Budiarto (2011). This also places the coal logistics industry in a very profitable position. The chances are high *demand* This is also used to develop the sea transportation services business, *transshipment* and *intermediate stockpile* (ISP) for coal commodities.

The biggest challenge in coal distribution is the lack of accessibility to the availability of coal resources which are spread across remote areas making it difficult to reach by land transportation *(Fan et al., 2024)*. This begins the application of the method of barging and transshipment as an efficient and effective logistics solution for transporting coal from mines to main ports. Indonesia as the largest archipelagic country uses this method, barging and *transshipment* become the most effective method for distributing coal.

Market *barging* and *transshipment* Coal has become an important issue for the increasing demand for coal in Indonesia. As an energy source, coal is expected to encourage sustainable economic growth and increase demand for coal as one of the main energy sources. Therefore, a deep understanding of coal market dynamics, including practices *barging* and *transshipment*, it is essential to meet the ever-increasing demand for energy Kevin (2024). Market analysis *barging* and *transshipment* also plays an important role in energy planning and transportation infrastructure Kothiya & Thakur (2024). By understanding market needs and growth potential, together with industry interests stakeholders can develop appropriate strategies to improve transportation infrastructure, optimize distribution routes, and increase operational efficiency in the coal industry. The strategy that can be realized is the process of downstreaming the coal production chain. The increase in global demand for downstream products opens up opportunities to expand export markets

One way to analyze company opportunities is barging and *transshipment* coal in Indonesia by conducting market research. Sukesi (2020) defines marketing research as the process of designing, collecting, processing and analyzing this information. Then, they talk about the results and how they can be used to solve marketing problems. According to Malhotra & Birks (2006), marketing research is the process of identifying, collecting, analyzing and disseminating data methodically and objectively to help management make decisions about how to find and resolve problems or opportunities related to marketing. Nonetheless, the task of marketing research is to plan, collect, evaluate, and disseminate data and results related to marketing situations that an organization may face (Keller & Kotler, 2016). Zikmund (1989) say that marketing research is the application of scientific methods to find the truth about marketing phenomena. This can help marketers connect consumers, customers, and society through the information they collect, and help them discover and define marketing problems and opportunities.

This market research aims to analyze company opportunities *barging* and *transshipment* coal in Indonesia, analyzing transportation market prices *barging* and *transshipment* in 2023 and 2024, identify factors that influence the performance of coal logistics companies in Indonesia as well as the prospects and strategies implemented by the coal logistics industry.

METHOD

This type of research is qualitative research. The qualitative research method is carried out using the survey method, namely describing, explaining and interpreting a phenomenon that occurs in an object and the data is qualitative, namely data that is described with words or sentences according to categories to obtain a conclusion. Qualitative research was carried out through interviews with companies operating in the coal logistics sector and coal logistics users.

In this research, researchers have determined the location or place of research, namely in the region that has the largest coal reserves in Indonesia, namely the islands of Kalimantan and Sumatra. The research time and data collection is 3 months, starting from April to July 2024. In this research, the data sources come from primary data and secondary data. Primary data is data obtained directly from survey results, especially data obtained based on the results of interviews and discussions with informants. Meanwhile, secondary data is data sourced from information from documents related to coal and coal logistics.

In this research, qualitative descriptive analysis uses notes that describe and describe the condition of the object being studied based on facts (Budiman et al., 2013). According to Miles & Huberman (1994), research procedures are as follows: 1. Data Reduction: Data collected at the research location, also known as field data, is described in a complete report or description. During the data collection process, the researcher summarizes, codes, traces patterns, and writes a theoretical memorandum after reducing, summarizing, and selecting important elements. 2. Data Presentation: Data presentation is intended to help researchers understand the focus of the research in whole or in part. 3. Drawing conclusions and verifying conclusions in qualitative research. Drawing conclusions and verifying them is carried out continuously.

RESULTS AND DISCUSSION

Company Opportunities *Barging* and *Transshipment* Coal in Indonesia

The increasing need for coal has encouraged the growth of coal logistics companies that serve coal delivery requests. Coal entrepreneurs are trying to find ships, whether Mother Vessels, SPBs, or barges that can be used to transport coal to destination locations in accordance with the agreement between coal entrepreneurs and customers. In Indonesia, companies that own these ships are grouped as shipping companies. Apart from providing ships, several shipping companies also provide other logistics facilities, including facilities *transshipment.* Coal logistics companies, or coal logistics parent companies, have also been listed on the Indonesia Stock Exchange (IDX), including:

Table 1. Coal Logistics Company listed on the Indonesia Stock Exchange

No	ISSUER CODE	COMPANY NAME
1	LORD	Ancara Logistics Indonesia Tbk
2	BBRM	PT National Shipping Bina Buana Raya Tbk
3	BESS	Batulicin Nusantara Maritim Tbk
4	BSML	Bintang Samudera Mandiri Lines
5	BULL	Buana Lintas Laut Tbk.
6	VISITOR	Tamarin Samudra Shipping Tbk.
7	TPMA	Trans Power Marine Tbk.
8	TCPI	Transcoal Pacific Tbk.
9	DOGS	Capitol Nusantara Indonesia Tb
10	CBRE	Cakra Buana Resources Energy T

11	HITS	Humpuss Intermodal Transportation
12	HRUM	Harum Energy Tbk.
13	INDY	Indika Energy Tbk.
14	MANY	Mandiri Herindo Adiperkasa Tbk
15	MBSS	Mitrabahtera Segara Sejati Tbk
16	MCOL	Prima Andalan Mandiri Tbk.
17	PSSI	IMC Pelita Logistik Tbk.
18	PTIS	Indo Straits Tbk.
19	RIGS	Rig Tenders Indonesia Tbk.
20	RMKE	RMK Energy Tbk.
21	ADRO	PT Adaro Energy Indonesia Tbk

Source: idx.go.id data processed (2024)

Indonesia is one of the countries that produces the dominant energy source for electricity generation in the world, namely coal, after China and India. With maintained coal reserves, coal production in Indonesia is predicted to increase with a national production target in 2024 reaching 922.14 million tons. This production growth will certainly improve the performance of the coal transportation sector, thereby creating positive business prospects for the coal logistics industry. Based on data from 10 coal logistics transportation companies registered on the IDX, it is known that company revenues during the period 2021 to 2023 mostly experienced an increase in 2023. However, there were three companies that experienced a decrease in revenue in 2023 compared to 2022, namely MBSS, BESS and BSML. This shows that the coal logistics industry still has quite large business prospects.

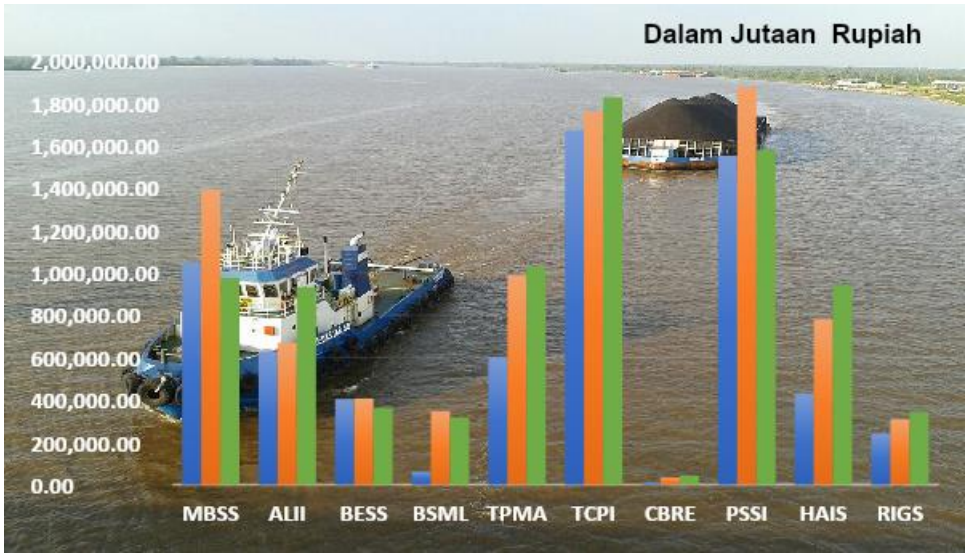


Figure 2. Revenue of Coal Transportation Companies listed on the IDX for 2021-2023
Source: idx.go.id

In general, coal distribution can be carried out via land and water transportation modes. However, the most efficient mode of transportation for long-distance coal distribution is by water or sea. The efficiency obtained through water transportation is obtained by considering:

1. Ships usually have a larger capacity than land transportation vehicles so that over long distances, ships can simultaneously load quite large volumes of coal. Moreover, Indonesia's geographic condition is an archipelagic country, while coal reserves are only concentrated in certain areas.

2. Providing water transportation infrastructure is relatively cheaper than land transportation because land acquisition, road paving and road maintenance processes are not required.

In Indonesia, the largest coal reserves are in the Kalimantan and Sumatra regions. Kalimantan, as one of the islands with the largest coal production and reserves in Indonesia, offers many opportunities for companies operating in the barging and transshipment sector. With abundant reserves and a strategic position on international trade routes, Kalimantan is a key area in the coal mining industry in Indonesia. Several supporting factors for the development of logistics companies in Kalimantan include:

1. Kalimantan has abundant coal reserves, so it has some of the largest coal mines in Indonesia, especially in East Kalimantan and South Kalimantan. High production creates a great need for barging and transshipment services. A number of company Large mining companies such as BUMI and ADRO contribute significantly to Indonesia's coal export volume.
2. Kalimantan has several main ports such as the Port of Samarinda, the Port of Balikpapan, and the Port of Banjarmasin which are the main shipping points for coal. Wide and deep river infrastructure, such as the Mahakam River, allows efficient coal transportation from mines to ports using barges.
3. Government Support and Investment The Indonesian government continues to encourage infrastructure development and regional development in Kalimantan to increase logistics efficiency. Programs such as the "Sea Highway" aim to improve maritime connectivity and logistics throughout Indonesia. Tax incentives and ease of regulation in the mining and logistics sectors create a business environment that is conducive to investment.

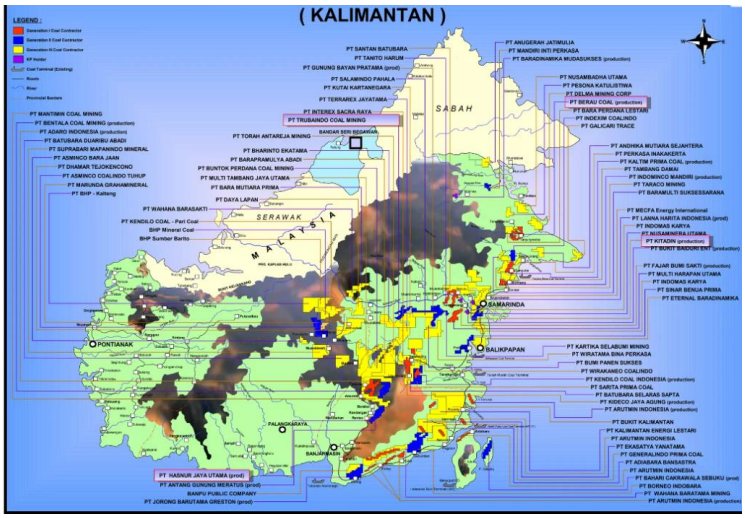


Figure 3. Distribution of mining-related companies in Kalimantan
Source: Ministry of Energy and Mineral Resources

For the Sumatra region, the largest coal reserves are in South Sumatra Province. The abundant coal energy potential in this province has become an integral part of Indonesia's mining sector. The geology of South Sumatra supports the existence of coal reserves. Geological formations formed over thousands of years have created an ideal environment for the formation of abundant coal reserves. This makes South Sumatra one of the areas with the most potential for coal mining in Indonesia. There are approximately 93 mining companies in the Sumatra region, including those located in Jambi Province which also hold coal reserves with economic value.

The government has allocated more than 1 million hectares of land in South Sumatra for exploitation, strengthening its position as one of the leading coal production centers in Indonesia. Every year, this province can produce up to 57 million tons of coal, contributing around 15.78% to the province's Gross Regional Domestic Product (GRDP) in 2022. The

largest coal mining areas in South Sumatra are located in Muara Enim, Lahat, and Ogan Komering Ulu .

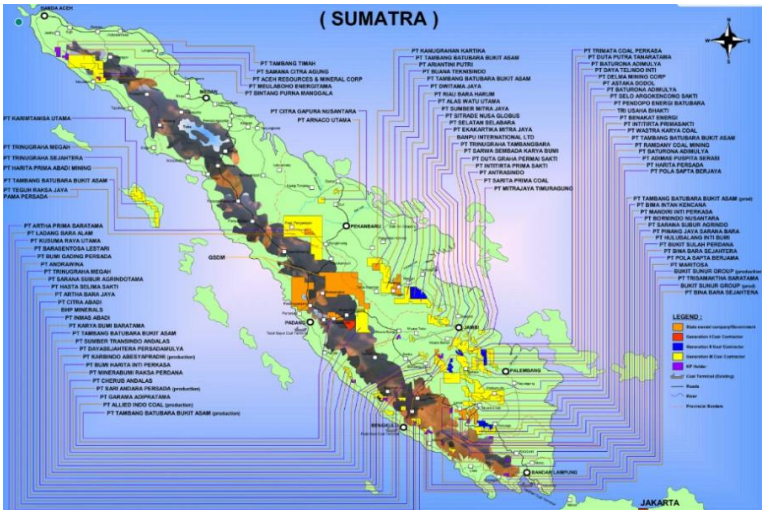


Figure 4. Distribution of mining-related companies in Sumatra
Source: Ministry of Energy and Mineral Resources

Using technology such as GPS and digital logistics management systems to optimize delivery routes can reduce costs and delivery times. This allows companies to provide more competitive services. Use of larger, more modern barges to reduce costs per tonne of coal transported. Investment in facilities *transshipment* More efficient and high-tech ports can increase shipping capacity and speed. Facilities like *floating cranes* and *automated loading systems* can increase productivity. Collaboration with international ports to improve connectivity and supply chain efficiency.

Apart from transportation services, companies can offer additional services such as storage, stock management and integrated logistics services for various commodities other than coal such as palm oil, iron ore and other mining materials. Development of value added services such as pre-processing or coal blending to meet different customer specifications. Explore opportunities for collaboration with large mining companies and international players in the form of joint ventures or strategic alliances. This can open access to wider markets and greater resources. Expansion to other regions in Indonesia or regional markets with high potential.

Barging Rates in the Kalimantan and Sumatra Regions

Based on the results of a survey conducted, for the Kalimantan region, the furthest distance for coal delivery from South Kalimantan POL is 1,100 NM, namely from the Muara Kintap area to PLTU Takalar with the highest tariff of IDR 360,000/MT. Meanwhile, the nearest delivery area/point in the Kalimantan region is from Jetty ARG Sangkulirang to Muara Sangkulirang as far as 5.9 NM with the highest tariff of IDR 80,000/MT.

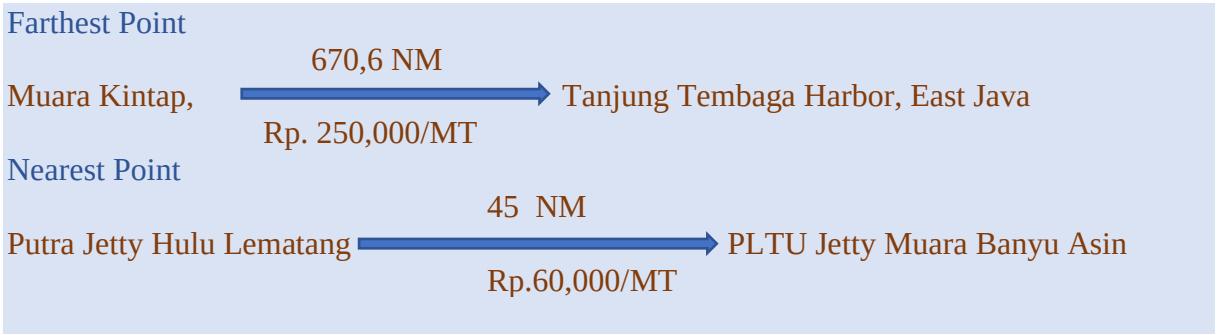
Farthest Point

Muara Kintap — 1.100 NM → PLTU Takalar
Rp. 360,000/MT

Nearest Point

ARG Sangkulirang Pier — 5,9 NM → Muara Sangkulirang
Rp.80,000/MT

For the Sumatra region, based on the survey results, it is known that the longest distance within the country is 670.6 NM, from the Palembang Gandus Jetty area to Tanjung Tembaga Port, East Java with the highest fare of IDR 250,000/MT. Meanwhile, the nearest delivery area/point in the Sumatra region is POL Jetty Putra Hulu Lematang to PLTU Jetty Muara Banyu Asin as far as 45 NM with the highest fare of IDR 60,000.



The following table shows some of the costs *barging* coal based on survey results for the Kalimantan and Sumatra regions

Table 2. Cost *Barging Port of Loading* Central Kalimantan 2023 – 2024

Port of Loading	Port of Discharge	Jarak (NM)	2023 (min)	2023 (max)	2024 (min)	2024 (max)
Kelanis	Taboneo Anchorage	147	50.000	90.000	53.000	90.000
Jetty Hasnur Pendang Kalteng	Taboneo Anchorage	195	115.000	135.000	125.000	145.000
Teluk Timbau	Taboneo Anchorage	200	77.000	87.000	78.000	87.000
Muara Tuhup	Kelanis	207	160.000	181.000	169.000	180.000
Muara Tuhup	Teluk Timbau	216	150.000	175.000	163.000	175.000
Kelanis	Pulau Laut	249	58.000	104.000	62.000	104.000
Teluk Timbau	Pulau Laut	274	100.000	116.000	102.000	116.000
Kelanis	Gresik/ Probolinggo	360	81.000	141.000	86.000	141.000
Muara Tuhup	Taboneo Anchorage	363	241.000	266.000	250.000	266.000
Kelanis	Buleleng	399	140.000	153.000	142.000	153.000
Kelanis	Batang	469	188.000	212.000	194.000	212.000
Kelanis	Cirebon	527	195.000	223.000	198.000	223.000
Kelanis	Cikarang	619	200.000	221.000	201.000	221.000
Kelanis	Cigading	669	263.000	295.000	267.000	295.000
Kelanis	Lebak	805	266.000	301.000	271.000	301.000

Based on table 2, it is known that there are several loading port locations in Central Kalimantan with various loading and unloading port locations. If a coal company wants to send coal abroad, usually the loading and unloading is in Taboneo Anchorage, which is one of the places in Indonesia that is usually used to carry out coal loading and unloading activities. *offshore* in the South Kalimantan region, Indonesia. Other loading and unloading locations are on the islands of Java and Bali. The lowest barging costs in 2023 will be IDR 50,000 per Metric Ton with a distance of 147 Nautical Miles and the highest cost in 2023 will be IDR 301,000 per Metric Ton with a distance of 805 Nautical Miles. In 2024 the lowest barging costs will be IDR 53,000 per Metric Ton while the highest costs will be IDR 301,000 per Metric Ton.

Table 3. Cost *Barging Port of Loading* South Kalimantan 2023 – 2024

Port of Loading	Port of Discharge	Jarak (NM)	2023 (min)	2023 (max)	2024 (min)	2024 (max)
Muara Asam-asam	Muara satui	20	55.000	60.000	55.000	60.000
Taboneo Anchorage	Muara satui	30	70.000	85.000	70.000	85.000
Muara Kintap	Taboneo Anchorage	83	70.000	80.000	70.000	80.000
Jetty Talenta Bumi (Batola)	Taboneo Anchorage	85	55.000	80.000	57.000	80.000
Jetty Kelanis	Taboneo Anchorage	110	50.000	90.000	53.000	90.000
Taboneo Anchorage	Pulau Laut	115	40.000	65.250	41.000	70.000
Jetty Geronggang	Taboneo Anchorage	121	70.000	125.000	70.000	125.000
Jetty Arutmin	Taboneo Anchorage	135	90.000	135.000	90.000	135.000
Muara Kintap	PLTU Teluk Naga Lontar	375	155.000	180.000	155.000	180.000
Muara Kintap	PLTU 2 Adipala Cilacap	388	130.000	150.000	130.000	150.000
Muara Kintap	PT Semen Tonasa	475	125.000	155.000	127.000	155.000
Muara Kintap	PLTU Tanjung Anwar	510	125.000	145.000	125.000	145.000
Muara Kintap	Suralaya	591	195.000	220.000	245.000	270.000
Muara Kintap	PLTU Takalar	619	130.000	155.000	130.000	155.000
Muara Kintap	PLTU Medan	1100	300.000	320.000	340.000	360.000

Based on table 3, it is known that there are several loading port locations in South Kalimantan with various loading and unloading port locations. If a coal company wants to send coal abroad, usually the loading and unloading is in Taboneo Anchorage, which is one of the places in Indonesia that is usually used to carry out coal loading and unloading activities. *offshore* in the South Kalimantan region, Indonesia. Other loading and unloading locations are on the islands of Java, Sulawesi and Sumatra which are requested from PLTUs and manufacturing companies. The lowest barging costs in 2023 will be IDR 55,000 per Metric Ton with a distance of 20 Nautical Miles and the highest cost in 2023 will be IDR 320,000 per Metric Ton with a distance of 1100 Nautical Miles. In 2024 the lowest barging costs will be IDR 55,000 per Metric Ton while the highest costs will be IDR 360,000 per Metric Ton.

Table 4. Cost *Barging Port of Loading* East Kalimantan 2023 – 2024

Port of Loading	Port of Discharge	Jarak (NM	2023 (min)	2023 (max)	2024 (min)	2024 (max)
Jetty ARG Sangkulirang (Kaltim)	Muara Sangkulirang	5,9	72.000	80.000	72.000	80.000
Grogot	Balikpapan	65	110.000	135.000	125.000	150.000
Jetty MNC Kaltim	PLTU Tanjung Batu Kaltim	96	85.000	95.000	85.000	95.000
Jetty Indra Sakti Kaltim	Muara berau	106	85.000	95.000	85.000	95.000
Jetty Tanito	Muara berau	125	77.000	110.000	85.000	110.000
Jetty Citra Kaltim	Muara berau	130	85.000	115.000	85.000	115.000
Jetty Masindo Kaltim	Muara berau	133	95.000	115.000	95.000	115.000
Jetty BSSR Loajanan	PLTU Berau	159	215.000	250.000	225.000	250.000
Jetty BSSR Kaltim	PLTU Berau	210	144.300	155.000	145.000	160.000
Grogot	Muara berau	436	100.000	120.000	105.000	125.000
Grogot	Gresik	437	139.500	155.000	140.000	160.000
Jetty Berau Coal Kutai Barat	Konawe	545	234.000	260.000	234.001	260.001
Jetty Hartati Kaltim	Jetty Maspion Gresik	583	222.000	240.000	225.000	245.000
Jetty Pelindo Rengat	Jetty Pelindo Cirebon	701	233.000	255.000	238.000	260.000
Jetty Balik Buaya (Samarinda Palaran)	Jetty IKPP (Serang Banten)	855	220.500	245.000	220.500	245.000

Based on table 4, it is known that there are several loading port locations in East Kalimantan. With various loading and unloading port locations. If a coal company wants to send coal abroad, usually the loading and unloading is in Muara Berau, which is one of the places in Indonesia that is usually used to carry out coal loading and unloading activities. *offshore* in the East Kalimantan region, Indonesia. Other loading and unloading locations are on the islands of Java and Sulawesi which are requested from PLTUs and manufacturing companies. The lowest barging costs in 2023 and 2024 are IDR 72,000 per Metric Ton with a

distance of 5.9 Nautical Miles and the highest costs in 2023 and 2024 are IDR 245,000 per Metric Ton with a distance of 855 Nautical Miles.

Table 5. Cost *Barging Port of Loading* Sumatra 2023 – 2024

Port of Loading	Port of Discharge	Jarak (NM)	2023 (min)	2023 (max)	2024 (min)	2024 (max)
Jetty Putra Hulu Lematang	Muara Banyu Asin Anchorage	45	48.000	60.000	50.000	60.000
Jetty Lumbung Bara Energi Sejahtera	Muara Banyu Asin Anchorage	53	52.000	65.000	55.000	65.000
Jetty Baturona Adimulya	Muara Banyu Asin Anchorage	59	56.000	70.000	62.000	70.000
Jetty Musi Indah Sejahtera	Muara Banyu Asin Anchorage	66	58.000	73.000	60.000	73.000
Jetty Swarnadwipa Dermaga Jaya	Muara Banyu Asin Anchorage	75	64.000	118.000	70.000	118.000
Jetty Berkah Bumi Makmur	Muara Banyu Asin Anchorage	94	76.000	95.000	82.000	95.000
Jetty Kumala Bahari	Muara Banyu Asin Anchorage	100	80.000	100.000	85.000	100.000
Jetty RMK Energy	Pelindo Panjang Lampung	182	144.000	176.000	147.000	176.000
Jetty Putra Hulu Lematang	Pelindo Panjang Lampung	183	148.000	185.000	158.000	185.000
Jetty Bukit Asam Persero	Pelindo Panjang Lampung	190	152.000	190.000	160.000	190.000
Muara Enim	Banten	237	180.000	195.000	180.000	195.000
Jetty Talang Dukuh (Jambi)	PLTU Suralaya (Cilegon)	344	130.500	145.000	130.500	145.000
Jetty Talang Dukuh (Jambi)	PLTU Labuan Banten	367	139.500	155.000	139.500	155.000
Jetty Talang Dukuh (Jambi)	PLTU Teluk Naga (Banten)	375	130.500	145.000	130.500	145.000
Jetty Gandus Palembang	Pelabuhan Tanjung Tembaga	671	235.000	250.000	235.000	250.000

Based on table 5 it is known that there are several loading port locations in Sumatra with various loading and unloading port locations. If a coal company wants to send coal abroad, usually the loading and unloading station is in Muara Banyu Asin Anchorage is one of the places in Indonesia that is usually used to carry out coal loading and unloading activities *offshore* in the South Sumatra region, Indonesia. Another loading and unloading location is on the island of Java which is a request from PLTU and manufacturing companies. The lowest barging costs in 2023 will be IDR 48,000 per Metric Ton with a distance of 45 Nautical Miles and the highest cost in 2023 will be IDR 250,000 per Metric Ton with a distance of 671 Nautical Miles. In 2024 the lowest barging fee will be IDR 50,000 and the highest barging fee will be IDR 250,000.

Rates *Transshipment*

Based on market surveys conducted, cost *transshipment* in the Kalimantan area, especially Taboneo, in 2023 will vary between Rp. 30,000 per metric ton (minimum) up to IDR. 39,850 per metric ton (maximum). In 2024, this fee will increase to Rp. 32,788 (minimum) to IDR 40,985 (maximum). Meanwhile in the Sumatra area, costs *transshipment* starting from IDR 23,910 per metric ton (minimum) to IDR. 31,880 per metric ton (maximum) in 2023. In 2024, the cost range is IDR. 24,591 (minimum) up to Rp. 32,788 (maximum). There is a fee for the Muara Berau area *transshipment* which is similar to Taboneo, which is between IDR 31,880 (minimum) and IDR 39,850 (maximum) per metric ton in 2023. In 2024, costs will be in the range of IDR 32,788 (minimum) to IDR 40,985 (maximum).

Table 6. Cost *Transshipment* Coal in the Kalimantan and Sumatra Regions 2023 and 2024

Area	2023 (min)	2023 (max)	2024 (min)	2024 (max)
Taboneo	30.000	39.850	32.788	40.985
Sumatera	23.910	31.880	24.591	32.788
Muara Berau	31.880	39.850	32.788	40.985

Tahun 2023 $1 = Rp 15940
Tahun 2024 $1 =Rp 16.394

Source: Processed data survey results (2024)

Factors Affecting the Performance of Coal Logistics Companies

Based on the results of interviews with leaders of Coal Logistics Companies, it is known that there are several factors that influence the performance of coal logistics companies in Indonesia, including:

1. Coal Market Price Fluctuations
   According to the previous explanation, 2023 begins with a downward trend in coal prices until the end of the year. Several economic observers say that in 2024, coal prices will still decline and this will be a challenging year for coal mining companies. One of the factors that will trigger a decline in coal prices in 2024 is the decline in import demand from large countries such as China and India due to high coal production in China and India for domestic needs. The high production of coal in these two countries will cause a decrease in demand for coal in the global market in 2023. These price fluctuations also affect transportation rates, where when coal prices experience a decline, coal mining companies reduce production volumes, resulting in demand for coal transportation fleets. members also experienced a decline.
2. Fuel Price Fluctuations
   Fuel is a very important component in operating a transportation company fleet. As is known, one of the factors that influences barge rental prices is the increase in industrial fuel prices. During the period January 2023 to May 2024, industrial fuel prices range from IDR 20,700 to IDR 24,400. If industrial fuel prices increase, ship owners and transshipment facilities will adjust service rates so that operations can continue to run well.
3. Weather Conditions
   Another business challenge for companies operating in the logistics industry is weather. Drastic climate changes make the weather difficult to predict. When the weather is not conducive, logistics companies will divert delivery routes (*reroute)* or the ship will be asked to shelter first (*shelter*) while waiting for the ship to be more conducive. They prioritize the safety of the crew and the safety of all personnel.
   Apart from that, process *transshipment, which* is carried out on the high seas, is very affected by bad weather or heavy rain because the loading process is not optimal. In some cases, if there is heavy rain or the waves are quite high, then the process *transshipment* must be stopped.
4. Regional Conditions *Barging* and *Transshipment*
   There are several areas where the depth of the water and the width of the river cannot be passed by large barges, so the barge charterer has to spend a certain amount of money to rent small barges and this is subject to a number of fees known as FIOS, which is a cargo that includes transportation and storage costs. on the ship. This means that the customer not only has to transport it, put it in the ship's warehouse, remove it from the warehouse, and unload it, but also has to spend a certain amount of money to store it on board the ship outside of the specified transportation costs.
5. Demurrage costs due to delays in the process of loading goods onto the ship.
   In general, *demurrage* is compensation paid by the carrier to the ship owner because the ship is used longer than specified in the contract due to the loading and unloading or sailing time being longer than specified in the contract. Basically, this compensation is a replacement because the ship owner suffered losses due to using the ship for longer than stipulated in the contract.
6. Ship/Barge Capacity and Size:
   The size and capacity of the ship/barge also influences barging transportation rates. The greater the cargo capacity of the ship/barge used, the more efficient the logistics company's costs will be, resulting in lower barging rates. The use of ship sizes is greatly influenced by

the natural conditions of shipping routes, adequate port infrastructure, and the availability of ship sizes on the market.
7. Condition of Ship Unloading Equipment
8. Maintenance of equipment such as deck cranes and other related equipment used for loading coal on ships is very important for smooth operations. For this reason, loading and unloading equipment must be prepared and repaired with additional and regular maintenance. By improving management through routine maintenance and replacement of equipment that is no longer used efficiently can reduce downtime and service constraints so that operational activities become more efficient.

Prospects and Business Development Strategy for Coal Logistics Companies in Indonesia

In General, Logistics refers to a set of services and activities, such as transportation, warehousing, and brokerage, that help move goods and build supply chains across and within borders. Although these services and activities are carried out by private companies for the benefit of private companies, service delivery and supply chain efficiency depend on Government provisions and Policies.

In particular, the Logistics Industry, especially coal logistics, in the future still has quite high business prospects. As the largest archipelagic country with the longest coastline in the world, Indonesia has the potential and advantages to be optimized as a strategic sea transportation route. Likewise, the wealth of coal reserves and its use as the dominant energy source for generating electricity makes Indonesia one of the largest coal producers in the world, after China and India. This puts the coal logistics industry in a very profitable position.

Indonesia is one of the countries that produces the dominant energy source for electricity generation in the world, namely coal, after China and India. With maintained coal reserves, coal production in Indonesia is predicted to increase with a national production target in 2024 reaching 922.14 million tons. This production growth will certainly improve the performance of the coal transportation sector, thereby creating positive business prospects for the coal logistics industry. Based on data from 10 coal logistics transportation companies registered on the IDX, it is known that company revenues during the period 2021 to 2023 mostly experienced an increase in 2023. However, there were three companies that experienced a decrease in revenue in 2023 compared to 2022, namely MBSS, BESS and BSML. This shows that the coal logistics industry still has quite large business prospects.

Several strategies that need to be carried out by companies in the coal logistics industry include the following:
1. Synergize with special ports coal, by providing convenience for customers to transport coal to customer destinations quickly and efficiently.
2. Increasing business effectiveness by providing the best service and maintaining punctual arrival at the port.
3. Increases the ship's utility level. Several coal logistics companies have experienced an increase in fleet demand. In order to maintain consumer satisfaction, several companies collaborate with third parties who own fleets by renting ships from third parties if there is excess demand.
4. Maintain good relations with customers. Shipping companies must strive to maintain and increase cooperation contracts with both old and new customers as well as making adjustments to commercial terms of cooperation that can benefit the parties,
5. Diversifying the types of commodities transported. Several coal logistics companies such as PT Batulicin Nusantara Maritim Tbk, PT Bintang Samudera Mandiri Lines, and PT Trans Power Marine Tbk. began to diversify the types of goods/commodities transported to support business continuity. Several companies are exploring new types of goods and commodities within the scope of the transportation services provided. Apart from coal, now

some also provide transportation services for commodities such as nickel, iron sand, clinker, processed iron ore and so on.

Maintaining the quality of the ship fleet. Logistics companies must carry out regular maintenance of their fleet of vessels in order to maintain operational efficiency. Apart from that, companies can also use technology to improve monitoring and optimization of assets. The quality and competence of the operations management team is also enhanced through training and development, building a culture of safety and compliance with regulations throughout the Company's operations. To improve services, logistics companies must always maintain the quality of their fleet of vessels through routine maintenance in accordance with applicable Department of Maritime Transportation regulations and additional vessel equipment that can increase operational efficiency and asset utility so that it can directly increase competitiveness in the shipping industry.

CONCLUSION

Market *barging* and *transshipment* Coal has become an important issue for the increasing demand for coal in Indonesia. As an energy source, coal can encourage sustainable economic growth and ultimately increase demand for coal as the main energy source. Therefore, a deep understanding of coal market dynamics, including barging and transshipment practices, is critical to meeting growing energy demand. Barging and transshipment market analysis also plays an important role in energy and transportation infrastructure planning. By understanding market needs and growth potential, together with stakeholders we can develop appropriate strategies to improve transportation infrastructure, optimize distribution routes, and increase operational efficiency in the coal industry.

The logistics industry, especially coal logistics, in the future still has quite high business prospects. As the largest archipelagic country with the longest coastline in the world, Indonesia has the potential and advantages to be optimized as a strategic sea transportation route. With maintained coal reserves, coal production in Indonesia is predicted to increase with a national production target in 2024 reaching 922.14 million tons. This production growth will certainly improve the performance of the coal transportation sector, thereby creating positive business prospects for the coal logistics industry. To help stakeholders create the right strategy in accordance with volatile market conditions, this kind of survey should be carried out regularly on a regular basis.

REFERENCES

Budiarto, R. (2011). *Kebijakan energi: menuju sistem energi yang berkelanjutan*. Samudra Biru.

Budiman, A., Roan, A., & Callan, V. J. (2013). Rationalizing ideologies, social identities and corruption among civil servants in Indonesia during the Suharto era. *Journal of Business Ethics*, *116*, 139–149. https://doi.org/10.1007/s10551-012-1451-y

Fan, Z., Ju, X., Tong, H., Liang, Z., Sun, N., Mao, H., & Peng, J. (2024). Environmental impacts of potential mining-replacing-import alternative for China in response to the China-Australia coal ban. *Journal of Cleaner Production*, *442*, 140876. https://doi.org/10.1016/j.jclepro.2024.140876

Keller, P. K., & Kotler, P. (2016). *Marketing Management ((15th Edit)*. USA: Pearson Education Limmited.

Kevin, S. R. (2024). *Penanganan Deadfreight Cargo Saat Loading Batu Bara Pada MV. Golden Magnum Di Palembang Anchorage* [Thesis]. Politeknik Ilmu Pelayaran Semarang.

Kothiya, V., & Thakur, S. (2024). *Potential Development of Indian Seaports & Container Transshipment Hub*.

Malhotra, N., & Birks, D. (2006). Marketing research: An applied perspective. *Harlow: Prentice Hall, Year*.

Miles, M. B., & Huberman, A. M. (1994). *Quantitative data analysis: An expanded sourcebook*. Sage.

Sribna, Y., Trokhymets, O., Nosatov, I., & Kriukova, I. (2019). The globalization of the world coal market–contradictions and trends. *E3S Web of Conferences*, *123*, 01044. https://doi.org/10.1051/e3sconf/201912301044

Sukesi, M. M. (2020). *Riset Pemasaran: Disertai Contoh-Contoh dan Studi Kasus*. Unitomo Press.

Zikmund, W. G. (1989). Exploring marketing research. *(No Title)*.