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THE ROLE OF THE INDONESIAN COAL MARKET FOR VIETNAM: PAST, PRESENT AND FUTURE

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Abstract: *With huge coal reserves, Indonesia is one of the world's largest coal-producing and exporting nations (Indonesia ranks 3rd in coal production and 1st in coal export). Coal of Indonesia plays an important role in balancing energy and fuel prices in Asian countries, including Vietnam. In about a decade, from 2014 to 2023, Vietnam imported more than 100 million tons of coal from Indonesia, especially in 2023, when Vietnam imported approximately 20 million tons, accounting for 37.6 percent of Vietnam's total coal imports. Using statistical data and traditional analysis methods, this article clearly shows the importance of the Indonesian coal market to Vietnam. Analysis results show that Indonesian coal has been used in Vietnam since the first years Vietnam imported this product and will continue to import coal from Indonesia in the coming time because of the suitability of both Indonesian coal and the Indonesian coal market to Vietnam.*

Keywords: *Vietnamese Coal, Indonesian Coal, Vietnam's coal imports, Indonesia's coal exports.*

1. INTRODUCTION

Coal is a finite, non-renewable mineral resource and an input material for many important economic sectors such as electricity, nitrogen, fertilizer, chemicals, etc. Vietnam is making many efforts to develop renewable energy, but in the future, coal will still play a dominant role in Vietnam's energy balance. This assertion is based on Vietnam's actual annual coal consumption (increasing from 33 million tons in 2014 to approximately 59 million tons in 2023 and Vietnam's forecast coal consumption by 2030 from 124 - 127 million tons. From 2014 to the present, the Vietnamese coal industry has exploited an average of about 40 million tons annually. With such output, the coal shortage is becoming increasingly severe. In this situation, starting in 2013, Vietnam has been searching for imported coal sources to meet the growing coal demand of the economy (Phan Ngo Tong Hung, 2017). In 2014, Vietnam imported

over 3 million tons of coal, which gradually increased moderately; by 2023, the imported coal volume was over 51 million tons (General Department of Vietnam Customs). Regarding coal sources, up to now, Vietnam has imported coal from 23 countries, of which Indonesia is in the group of countries with the largest market share of coal exports to Vietnam. Also, during this period, many research projects on Vietnam's coal imports, including research on Indonesian coal, were conducted. The authors of these studies are leading experts in the Vietnamese coal industry, such as Nguyen Thanh Son, Phan Ngo Tong Hung, Nguyen Canh Nam... and some works by the author of this article. The issue of coal imports from Indonesia is mentioned from many different perspectives, from quantity and coal quality to coal price and lessons learned for Vietnam when importing coal from Indonesia. However, no research project has provided in-depth discussions reflecting the role of Indonesian coal in Vietnam. In this article, we have

analyzed and summarized information on the characteristics of the Indonesian coal industry, the situation of Vietnam's coal imports, and Vietnam's coal demand in the future, and clarified the role of the Indonesian coal industry for Vietnam in the past, present, and future. Hence, strategic proposals can be made to ensure harmony of interests in coal import-export relations between the two countries.

2. RESEARCH METHOD

In this research, the authors used a process with the following steps:



Fig 1. Research process

Secondary data was collected and selected through domestic and foreign research projects, statistical reports of Vietnam Customs, statistical reports of PwC, etc., and some legal documents from Indonesia and Vietnam. Data was processed using descriptive statistics and time series analysis methods.

3. RESEARCH RESULTS

3.1. Characteristics of the Indonesia's coal industry

Indonesia is one of the countries with the largest coal reserves in the world. It has 34,869 million tons of coal, accounting for

3.2 percent of world coal reserves and 7.6 percent of coal reserves in the Asia Pacific region-updated data as of 31 December 2020 (Energy Institute, 2024).

Indonesia's coal resources and production are mainly distributed over only four provinces out of 34: East Kalimantan, South Sumatera, South Kalimantan, and Central Kalimantan. Kutai, Tarakan, and Barito coal basins located in East Kalimantan have medium-quality coal (calorific value between 5100-6100 kcal/kg), while the Central and South Sumatera Basins have low-quality coal reserves (calorific value <5100kcal/kg) (Adiatma et al, 2018).



Fig 2. Distribution of coal basins in Indonesia

(Source: Rosyid, F. A., & Adachi, T, 2016)

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Table 1. Top 10 countries in Coal reserves, production, export

TT	Reserves (2020)			Production(2023)			Export (2023)		
	Country	Millions of tons	World share	Country	Millions of tons	World share	Country	EJ	World share
1	US	248,941	23.2%	China	4,710.0	51.8%	Indonesia	10.00	28.2%
2	Russia	162,166	5.1%	India	1,010.9	11.1%	Australia	9.00	25.4%
3	Australia	150,227	14.0%	Indonesia	775.2	8.5%	Russia	5.39	15.2%
4	China	143,197	13.3%	US	526.5	5.8%	US	2.47	7.0%
5	India	111,052	10.3%	Australia	455.8	5.0%	Mongolia	1.96	5.5%
6	Germany	35,900	3.3%	Russia	432.5	4.8%	South Africa	1.74	4.9%
7	Indonesia	34,869	3.2%	South Africa	228.5	2.5%	Colombia	1.59	4.5%
8	Ukraine	34,375	3.2%	Kazakhstan	116.4	1.3%	Canada	0.99	2.8%
9	Poland	28,395	2.6%	Germany	102.3	1.1%	China	0.31	0.9%

(Source: Collect from Statistical Review of World Energy 2024)

Regarding coal production, Indonesia is the third country in the world and has had stable growth for many years. Indonesia continuously records increases in coal production, with an average increase in the period 2013-2023 of 5.1 percent per year (Energy Institute, 2024), except for the years 2020-2021, with the decline in domestic and global coal demand when the COVID-19 pandemic broke out, which led to coal producers decision to cut production and reduce investment. Although the coal output decreased, the amount in 2020 was still 563.7 million tons. In 2021, coal output increased to 614 million tons due to significant increases

in demand and prices. In 2022, the coal production target was set at 663 million tons. Initially, Indonesian coal mining companies were expected to have difficulty achieving this target as their production plans were disrupted by coal export restrictions imposed by the government in January 2022, which aimed to solve the problem of a lack of domestic coal supply for power plants. However, coal production reached 687.4 million tons in 2022, exceeding the target due to strong global demand and sanctions on Russian coal exports to tighten the coal market in 2022. (PwC, 2023). In 2023, after China and India, coal production reached

775.2 million tons, accounting for 8.5 percent of the world's coal production. (Energy Institute, 2024)

Regarding coal exports, Indonesia has always been the world's largest coal exporter. In 2023, the country exported 508.2 million tons of coal (Indonesia's exports reached an all-time high in 2024), equivalent to 65.5 percent of coal production. Indonesia's coal exports are increasing due to huge coal reserves and large coal production, as well as Indonesia's coal export policy. The Indonesian coal market size is expected to grow at a CAGR of 7 percent during the forecast period of 2023-2029. (Indonesia Coal Market, 2023).

Most of Indonesia's coal exports are low-quality and medium-quality (less than 5,100 kcal/kg and between 5,100 and 6,100 kcal/kg calorific value, respectively). The relatively low price is due to a combination of lower-quality coal and cheap labor (Indonesia Investment, 2018).

Indonesia's coal exports are under the DMO policy (Domestic Market Obligation). DMO stipulates a minimum percentage for domestic coal consumption, which is announced by the Indonesian Ministry of Energy and Mineral Resources (MEMR) each year. Therefore, the Indonesian Government uses DMO to ensure the continuity and sustainability of coal supply in the domestic market.

MoEMR Decree No. 267.K/MB.01/MEM.B/2022 dated 21st November 2022 regarding the "Coal Domestic Market Obligation" ("KepMen 267/2022") is the latest announced decision. This decision aims to monitor the implementation of coal export regulations, meet domestic coal needs, manage revenue from coal export, etc. The main points related to coal export policy are as follows:

Firstly, the minimum ratio for domestic coal consumption is 25 percent, which means coal mining companies are allowed to export a maximum of 75 percent of coal produced during the year only.

Secondly, there is a penalty for coal mining companies that do not complete the DMO plan with money. If they do not pay the fine according to regulations, depending on the late payment time, the following can be applied: Prohibit coal exports for a maximum period of 30 days. After 30 days of non-payment, all production activities will be temporarily suspended for a maximum of 60 days. After 60 days of incomplete suspension, IUP/IUPK will be revoked, or CcoW (Coal Contract of Work) will be terminated.

For export coal price: Indonesia instructs mining companies to determine export coal prices based on standard coal price HBA and the specific quality of each type of exported coal. According to Article 17 PerMen 7/2017 dated 11th January 2017 of the Minister of Natural Resources and Energy of Indonesia, for term coal delivery contracts, long-term coal selling price is determined based on the average standard price of the previous three months, specific calculation formula:

- + 50% HBA in the month of contract signing,
- + 30% HBA one month before signing the contract,
- + 20% HBA two months before signing the contract.

In addition, since 2014 Indonesia has planned port clusters to serve coal exports with 14 ports as follows: 4 ports in East Kalimantan (in the Balikpapan; Adang; Berau; and Maloy Bay areas); 3 ports in South Kalimantan (Tobaneo/Pulau laut

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ports; Sungai Danau; Batu Licin); 1 port in East Java (Lampung-Tarahan); 6 ports in Sumatra (Tanjung Api Api port; Bengkulu port; Jambi bay; Riau bay; Padang port; Aceh Selatan port). Since then, Indonesia has had specific regulations related to coal export through the above ports. For example, Coal export must go through main ports; coal transshipment must be carried out around main ports, main coal ports

must have specific addresses, etc. (Cecilia Quiambao, 2014).

With huge coal resources, large mining capacity, and a clear coal export policy, Indonesia has been and will continue to be a major coal exporter in the world.

3.2. Vietnam's coal consumption and imports

+ Vietnam's coal consumption

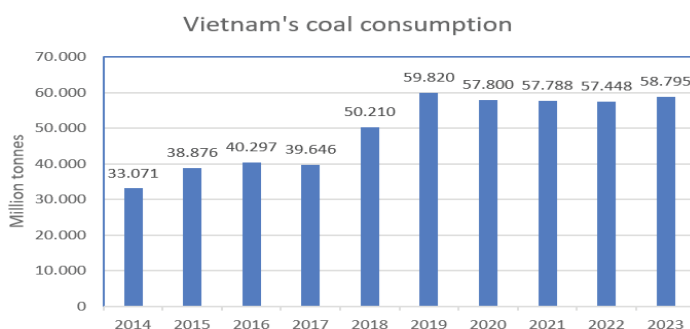


Fig 3. Vietnam's coal consumption in the period 2014-2023

(Source: Annual summary report of Vinacomin and Dong Bac Corporation)

Vietnam's domestic coal consumption has increased rapidly from 33 million tons in 2014 to approximately 59 million tons in 2023, an average annual increase of 7.1 percent, of which

coal is mainly used for electricity production at a high rate of growth and accounting for a high proportion (over 70%) of total coal consumption.

+ Vietnam's coal imports

Table 2. Vietnam's coal imports from 2020 to the end of May 2024

Unit: tons

Year	2020	2021	2022	2023	T1.2024	T2.2024	T3.2024	T4.2024	T5.2024
Total	54.811.643	36.376.375	31.704.485	51.158.858	5.077.771	4.175.670	5.433.113	5.895.665	6.497.023
Among them:									
Australia	20.339.182	15.601.636	16.905.891	19.889.709	1.277.736	1.910.239	1.078.395	1300.111	1.428.148
Indonesia	16.848.470	14.750.619	10.306.930	19.257.469	1.584.199	1.653.304	2.144.800	2.591.925	3.399.238
Russia	7.614.999	3.588.815	2.223.929	4.375.526	587.667	325.414	509.166	553.492	500.862
China	269.856	506.233	647.699	341.768	20.605	43.433	38.462	64194	101.744
Other Country	9.739.136	1.929.072	1.620.036	7.294.386	1.607.564	243.280	1.662.290	1.385.943	1.067.031

(Source: General Department of Vietnam Customs)

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The amount of Vietnamese coal imported from Indonesia is increasing. In 2021 and 2022, coal imported from this country decreased due to the impact of the Covid 19 epidemic. In 2023, coal imports from this

country increased, nearly double that of 2022. In the first five months of 2024, coal imported from Indonesia reached approximately 11.4 million tons, and Indonesia became Vietnam's most significant coal import source.

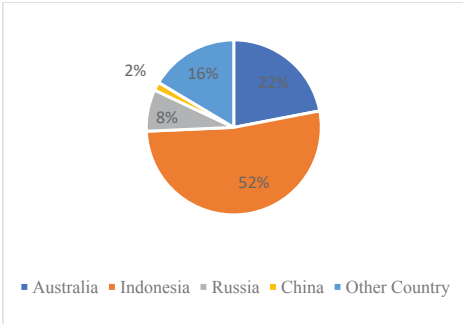


Fig 4. Vietnam's coal import proportion by country in May 2024

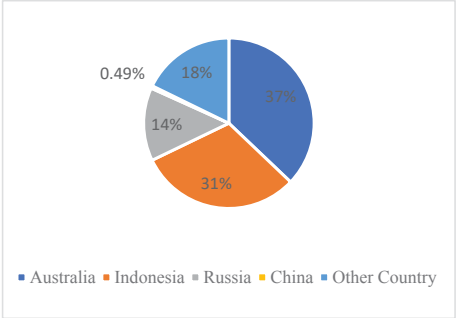


Fig 5. Vietnam's coal import proportion by country in 2020

+ Vietnam's coal demand forecast for 2045

Table 3. Forecast of Vietnam's coal demand to 2045

Unit: Thousand tons

TT	Scenario	2025	2030	2035	2040	2045
I	BASE SCENARIO					
1	Electricity	62.790	91.970	83.940	72.527	42.889
2	Final energy	30.481	30.748	27.808	22.862	16.152
3	Non-energy	1.359	1.653	3.012	6.437	14.262
	Total domestic demand	94.629	124.371	114.760	101.826	73.303
II	HIGH SCENARIO					
1	Electricity	64.268	92.889	85.142	73.615	43.223
2	Final energy	31.406	32.429	29.811	24.883	17.914
3	Non-energy	1.835	2.232	3.716	7.293	15.304
	Total domestic demand	97.509	127.550	118.669	105.791	76.441

(Source: Nguyen Canh Nam, 2023)

Demand for primary energy, including coal, will continue to increase, peaking in 2030-2035. Then, it will gradually decrease because many coal-fired power plants will stop operating after 2035, which is consistent

with the energy industry development roadmap. It is forecasted that Vietnam's coal demand will range from 94 to 97 million tons in 2025 and increase to a peak of about 125 to 127 million tons in 2030. By 2045, coal

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demand will decrease to 73 to 76 million tons annually (Nguyen Canh Nam, 2023).

Based on resources, reserves, geological conditions, and mine exploitation technology, it is expected that the ability to exploit coal (raw) will increase in the period from now to 2030, reaching 48 to 55 million tons per year, then gradually decrease to

about 51 - 52 million tons in the period 2035 - 2045. To meet the demand for coal to serve the economy's production, Vietnam is expected to import about 51 - 83 million tons in the period 2025 - 2035 and gradually reduce to about 32 - 35 million tons in 2045.

Table 4. Forecast of Vietnam’s coal import demand to 2045

Unit: Thousand tons

TT	Scenario	2025	2030	2035	2040	2045
I	BASE SCENARIO					
1	Domestic production	45.829	46.073	42.264	42.021	44.581
A	Serving exports	2.270	2.127	2.024	1.891	4.135
B	Serving domestics	43.559	43.946	40.240	40.130	40.446
2	Total domestic demand	94.629	124.371	114.760	101.826	73.303
3	Demand for coal import [(1)-(2)]	51.070	80.425	74.520	61.696	32.857
II	HIGH SCENARIO					
1	Domestic production	45.829	46.073	42.264	42.021	44.581
A	Serving exports	2.270	2.127	2.024	1.891	4.135
B	Serving domestics	43.559	43.946	40.240	40.130	40.446
2	Total domestic demand	97.509	127.550	118.669	105.791	76.441
3	Demand for coal import [(1)-(2)]	53.950	83.604	78.429	65.661	35.995

(Source: Nguyen Canh Nam, 2023)

4. DISCUSSION

In this study, we examine the characteristics of the Indonesian coal industry and the situation of coal consumption and import in Vietnam. Therefore, we discuss the advantages of the Indonesian coal industry and the orientation of coal imports in Vietnam.

About the advantages of the Indonesian coal industry

Indonesia has large coal reserves, high production capacity, and the highest coal export rate in the region and the world. Indonesia’s coal resources are in a favorable geographical location and easy to transport because the coal transportation

system is invested in and operates well. Indonesian coal has high calorific value, low fly ash level, and coal diversity. It allows blending with higher calorific value coal to produce ones with a desired calorific value that can still comply with environmental emission standards and is suitable for electricity production. Indonesian coal prices are lower than other countries, and coal trading policies and processes are quick and flexible. Indonesia's coal export policy is quite clear. Indonesia also focuses on exporting coal to Asian countries because it realizes the increasing demand for coal and the convenience of transporting coal.

Regarding Vietnam's coal import orientation

With the two coal import scenarios given in Table 4, it can be seen that the imported coal volume will follow the high scenario or possibly higher. Because the imported coal volume in 2023 had already reached over 51 million tons. Vietnam imports coal mainly for electricity production. Therefore, coal from Indonesia has suitable quality and price; in the future, Indonesian coal will be the most appropriate coal source for Vietnam. Negotiating and signing a coal purchase contract with Indonesia will be more favorable because the cooperation between Vietnam and Indonesia has been going on for a long time (2014); the two sides have a clear understanding of the market, the terms of the contract, the pricing mechanism and many other related issues. The good political and economic relationship between Vietnam and Indonesia is an important basis for long-term and stable cooperation in coal import activities.

5. CONCLUSION AND RECOMMENDATIONS

The above analysis shows that Indonesian coal has played and will play a critical role in Vietnam's energy balance. To have long-term cooperation and ensure the harmony of interests of the parties involved, Vietnam needs to conduct certain studies and adjustments to have a stable source of imported coal to meet the increasing demand for coal consumption. In addition, on the Indonesian side, Vietnam also expects this country to have a stable coal export policy with transparent and quickly updated related information. To move towards the harmony of interests and establish a sustainable relationship for coal import and export activities between the two countries, the group of authors has some recommendations as follows:

On the Indonesian side: (1) Create conditions for Indonesian businesses to sign stable and long-term coal supply contracts with Vietnamese partners. Stability in coal supply contracts includes stability in type, quality, quantity, and price. (2) Provide complete and timely information about coal trading enterprises to limit risks for the Vietnamese side in case the Indonesian Government revokes business licenses of enterprises due to violations or incapable enterprises of coal export activities. (3) When issuing a temporary coal export prohibition according to the DMO regulations, consider allowing exports for coal contracts that have already been signed between Vietnamese enterprises and coal exporting enterprises from Indonesia, limiting damage for coal exporting enterprises on the Indonesian side and importing enterprises on the Vietnamese side.

On the Vietnamese side: (1) Promote foreign economic activities with Indonesia by creating legal frameworks for supply and demand businesses to cooperate officially and sustainably. (2) Select coal export partners from Indonesia with long-standing mineral business activities and practical export activities. This limits risks from coal imports and avoids negative effects on foreign economic relations between the two countries. (3) Negotiate coal import contracts with Indonesian businesses with attention to terms related to Indonesia's coal export policy, such as DMO regulations, changes in coal export price calculation methods, etc. (4) Train personnel with in-depth expertise in the field of coal import and export and knowledge about the regulations of the Indonesian coal market. This helps both sides build appropriate import-export contracts, ensuring harmony of interests and easy resolution when disputes arise.

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