

ANALYSIS ON TRANSPORTATION METHODS OF POTASH ENERGY TRADE BETWEEN BELARUS AND CHINA

LI JUN¹, ZHUDRO M.K.²

¹ Ph.D student of the specialty 08.00.05 «National Economy and Management»

² Ph.D in Economics, professor, Department of Economics and Logistics
Belarusian National Technical University
Minsk, Republic of Belarus

Potash energy trade between Belarus and China is an important part of the economic exchanges between the two countries. As one of the world's largest potash fertilizer producers, Belarus is rich in potassium fertilizer resources, while China, as the world's largest potash fertilizer consumer, has a huge demand for potassium fertilizer. Therefore, the supply of Belarusian potassium fertilizer to China is of great strategic significance. However, the transportation of potassium fertilizer is a complex process, involving the selection and optimization of multiple transportation methods, including sea transportation, rail transportation, etc. In the potash energy trade between Belarus and China, the choice of transportation mode has an important impact on reducing transportation costs, improving transportation efficiency, and ensuring transportation safety [1]. Therefore, in-depth research and analysis on the transportation mode of potash energy trade between Belarus and China has important theoretical and practical significance for optimizing potash energy trade between the two countries, improving trade efficiency, and promoting economic exchanges between the two countries. This article will conduct a detailed analysis of the transportation methods of potash energy trade between Belarus and China, including the selection of transportation methods, analysis of the advantages and disadvantages of transportation methods, and the future development trends of transportation methods. Through in-depth research on these issues, it aims to provide a scientific decision-making basis for the potash energy trade between Belarus and China, and provide a useful reference for the economic exchanges and cooperation between the two countries. It is hoped that the research in this article can provide a comprehensive, in-depth and scientific analysis of the transportation mode of potash energy trade between Belarus and China, and provide a useful reference for relevant decision-making.

Keywords: potassium fertilizer, energy transportation, transportation economy.

INTRODUCTION

1. Overview of potash energy trade between Belarus and China

1.1 Overview of Belarus's Potash Fertilizer Industry

Belarus occupies an important position in the global potash fertilizer industry market. According to statistics, Belarus is the third largest potash fertilizer producer in the world, and its output accounts for 20% of the global total. Global potash fertilizer production and supply are highly concentrated, with only 14 countries producing potassium fertilizer, of which Canada, Russia and Belarus account for 30%, 20% and 17% respectively. Potash fertilizer production in Belarus is mainly handled by the Belarusian Potash Fertilizer Production Company (Belaruskali), which accounts for 45% of the Belarusian potash fertilizer industry.

Belarus's potash fertilizer industry has rich resource reserves, mature production technology and a complete sales network. However, Belarus's potash industry also faces some challenges. For example, due to the high concentration of the global potash fertilizer industry and fierce market competition, Belarus's potash fertilizer industry needs to continuously improve production efficiency and product quality to maintain its competitive advantage in the global market. In addition, Belarus's potash fertilizer industry has also been affected by economic sanctions from many countries, which may have an impact on Belarus's potash fertilizer exports and the stability of my country's potash fertilizer supply chain [2].

Despite the challenges, Belarus' potash industry still has great potential for development. With the development of global agriculture and the increase in food demand, the demand for potassium fertilizer will continue to increase. Therefore, Belarus's potash fertilizer industry is expected to further expand production scale and increase output in the future to meet the needs of the global market. Belarus's potash fertilizer industry occupies an important position in the global potash fertilizer market, with rich resource reserves and mature production technology. Despite facing some challenges, Belarus's potash fertilizer industry still has great potential for development.

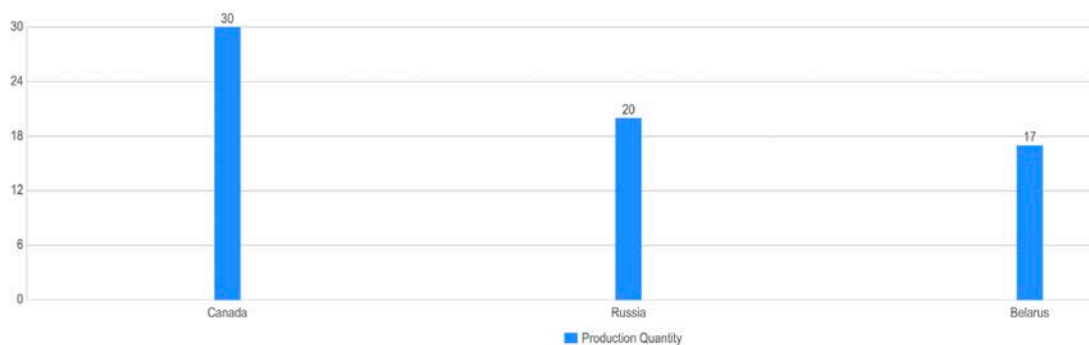


Table 1. Belarus' global share of potassium fertilizer production

1.2 Overview of China's Potash Fertilizer Demand

China is the world's largest demander of potassium fertilizer, with an annual demand of 17 million tons of potassium fertilizer, more than 50% of which needs to be met through imports [3]. According to statistics, China's potash fertilizer consumption increased from 19.42 million tons to 20.48 million tons between 2017 and 2021, with a compound growth rate of 1%. However, China's potassium fertilizer self-sufficiency rate is low, and the amount of potassium fertilizer it needs to import every year exceeds half of its domestic production.

China's demand for potassium fertilizers mainly comes from the agricultural sector. With the development of China's agriculture and the growth of food demand, the demand for potassium fertilizer will continue to increase. In addition, due to the large area of cultivated land in China, and 56% of the cultivated land is potassium deficient, China's demand for potash fertilizer will further increase. In order to improve soil fertility and increase crop yields, China needs to apply large amounts of potassium fertilizer. However, China's potassium fertilizer production capacity is low and cannot meet domestic demand. In 2021, China's potash fertilizer production capacity will be 8.6 million tons per year, with output of 6.5 million tons, a year-on-year decrease of 7.7%. Therefore, China needs to import a large amount of potassium fertilizer to meet domestic demand [4]. According to statistics, China's potash fertilizer imports in 2021 will be 7.566 million tons, a year-on-year decrease of 13.4%. China's demand for potassium fertilizers is huge and will continue to increase. However, due to low domestic potash fertilizer production capacity, China needs to import a large amount of potassium fertilizer to meet domestic demand. Therefore, China's potash fertilizer demand has an important impact on the supply and price of the global potash fertilizer market.

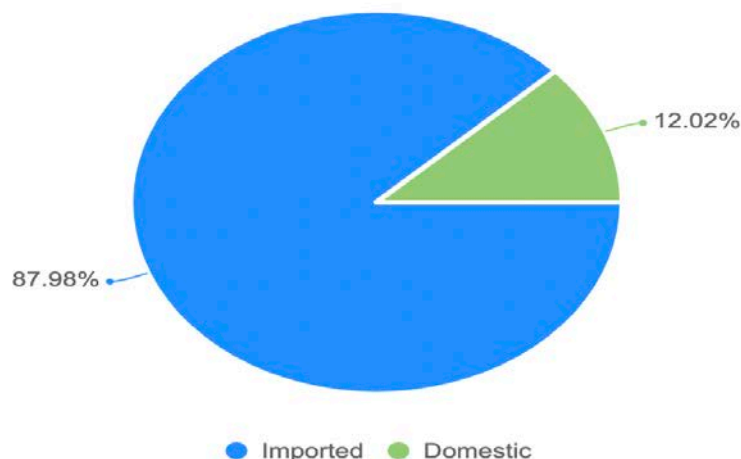


Table2. China's potash energy import and export data in 2021

1.3 Potash fertilizer trade relations between Belarus and China

Belarus has close relations with China in potash fertilizer trade, and potassium fertilizer is an important commodity in trade between the two countries. Belarus is the third largest potash fertilizer producer in the world, and China is the world's largest potash fertilizer consumer. Therefore, the two countries have a profound basis for cooperation in potash fertilizer trade. One of the main commodities exported by Belarus to China is potassium fertilizer. According to statistics, Belarus's exports to China are growing at a faster rate, of which potassium fertilizer accounts for an important share. In the 1990s, potassium fertilizer accounted for approximately 70% of Belarus' total exports to China [5]. This has enabled China to rank second after Russia in Belarus's foreign trade.

Belarusian Potash Company is the largest potash fertilizer producer in Belarus and a major potash fertilizer supplier to China. Belarusian Potash Company has signed potash fertilizer supply agreements with China's Sinochem Group, China Agricultural Materials Group, CNOOC, etc. These agreements not only ensure the supply of potassium fertilizer from China, but also provide a stable market for Belarusian potash fertilizer exports. However, the potash trade relationship between Belarus and China has not been smooth sailing. Since potassium fertilizer is the most important commodity in the import and export trade between China and Belarus, China attaches great importance to and pays close attention to the changes in Belarus's potash fertilizer export policy and business methods. For example, the Belarusian Potash Company's adjustment in potassium fertilizer prices may have an impact on China's potassium fertilizer import costs, and thus affect the development of China's agriculture. Belarus and China have close cooperative relations in potash fertilizer trade. Belarusian potash fertilizer is crucial to China's supply, and the Chinese market also provides stable demand for Belarusian potash fertilizer exports. However, the cooperation between the two countries in potash fertilizer trade also faces some challenges and requires joint efforts from both parties to maintain the stability and development of this cooperative relationship.

2. Transportation methods of potash energy trade between Belarus and China

2.1 Shipping by sea

Sea transportation is the main mode of transportation for potash fertilizer trade between Belarus and China. Since Belarus is a landlocked country, the export of large quantities of potash fertilizer cannot be separated from the intermediate link of sea transportation. Potash fertilizer from Belarus is transported by rail to neighboring countries with ports, such as Lithuania and Latvia, and then transported to China by sea. The advantage of sea transportation is that it can transport goods in large quantities and reduces transportation costs. However, shipping by sea takes longer and is greatly affected by natural factors such as weather.

2.2 Railway transportation

Railway transportation is another important way for Belarusian potash fertilizer exports. Potash fertilizer from Belarus is transported by rail to ports in neighboring countries, and then transported to China by sea. In addition, with the opening of China-Europe freight trains, some potash fertilizers can also be transported directly to China by rail. The advantages of rail transportation are that it is faster and less affected by weather. However, the cost of rail transportation is higher and the transportation volume is smaller compared to sea transportation.

2.3 Other transportation methods

In addition to sea and rail transportation, Belarusian potash fertilizers can also be transported to China through other methods, such as road transportation and air transportation. However, due to the higher cost of these transportation methods and the limited transportation volume, they are less used in the potash fertilizer trade between Belarus and China.

Generally speaking, the potash fertilizer trade and transportation between Belarus and China mainly relies on sea transportation and railway transportation. Both transportation methods have their own advantages and disadvantages, and the choice needs to be based on specific trade conditions and market demand. At the same time, with the development of transportation technology and the opening of China-Europe freight trains, more transportation methods may be used for potash fertilizer trade between Belarus and China in the future [6].

3. Analysis of the advantages and disadvantages of potash energy trade and transportation methods between Belarus and China.

3.1 Analysis of advantages and disadvantages of sea transportation

Potash energy trade between Belarus and China mainly relies on sea transportation. This mode of transportation has its unique advantages, but it also presents some challenges.

Advantage 1. Large-volume transportation: Sea transportation is currently the most important method of bulk commodity transportation in the world, especially suitable for large-volume transportation of potash fertilizer. The large cargo capacity of sea transportation can greatly reduce the unit transportation cost, allowing Belarusian potash fertilizer to be sold to the Chinese market at a lower price.

2. Stability: Compared with other modes of transportation, such as roads and railways, sea transportation is less susceptible to weather and geographical conditions and can ensure the stable transportation of goods.

3. Global trade: As an important means of global trade, shipping can connect Belarus and China and other markets around the world, which is conducive to the global sales of Belarusian potash fertilizer.

Disadvantages 1. Long transportation time: Sea transportation usually takes a long time, especially transportation from Belarus to China, which needs to pass through multiple countries and regions and may be affected by various factors, resulting in extended transportation time.

2. Transportation costs fluctuate greatly: The cost of shipping is affected by various factors such as oil prices, ship leasing fees, port fees, etc., and fluctuates greatly. Especially when global oil prices rise, shipping costs may rise significantly, affecting the export price of Belarusian potash fertilizers.

3. Environmental impact: Shipping will have an impact on the marine environment to a certain extent, such as the emission of waste gas, waste water, etc., which may cause environmental problems.

As the main mode of transportation for potash energy trade between Belarus and China, shipping has its unique advantages but also some challenges. In the actual transportation process, transportation methods need to be flexibly selected according to specific circumstances to optimize transportation efficiency and cost.

3.2 Analysis of the advantages and disadvantages of railway transportation

The potash energy trade between Belarus and China also relies on railway transportation. This transportation method has its unique advantages, but it also presents some challenges.

Advantage 1. Fast speed: Compared with sea transportation, rail transportation is faster. Especially with the opening of China-Europe freight trains, potassium fertilizers from Belarus can be transported directly to China by rail, greatly shortening the transportation time.

2. Strong stability: Railway transportation is less affected by weather, and the possibility of delays and interruptions during transportation is low, which can ensure the stable transportation of goods.

3. Environmental protection: Compared with sea transportation, railway transportation is more environmentally friendly. Rail transport consumes less energy and emits less carbon dioxide and other greenhouse gases.

Disadvantages 1. High transportation costs: Compared with sea transportation, the cost of rail transportation is higher. Especially over long distances, rail transport can cost more than sea transport.

2. Limited transportation volume: Although rail transportation is fast, its transportation volume is smaller than that of sea transportation. For bulk potash shipments, rail transport may not be able to meet demand.

3. Transportation route restrictions: Railway transportation routes are relatively fixed and cannot be adjusted as flexibly as ocean transportation. If there is a problem with the transportation route, it may affect the entire transportation process.

As an important way of potash energy trade between Belarus and China, railway transportation has its unique advantages but also some challenges. In the actual transportation process, transportation methods need to be flexibly selected according to specific circumstances to optimize transportation efficiency and cost. At the same time, with the development of transportation technology, more transportation methods may be used for potash fertilizer trade between Belarus and China in the future [7].

3.3 Analysis of the advantages and disadvantages of other modes of transportation

In addition to sea transportation and rail transportation, potash energy trade between Belarus and China can also be carried out through other methods, such as air transportation, pipeline transportation, etc.

Advantage:1. Fast: Air freight is currently the fastest mode of transportation, which can greatly shorten transportation time and increase delivery speed.

2. High safety: The safety of air transportation is relatively high, and the risk of cargo loss is small.

Disadvantages:1. High transportation costs: The cost of air transportation is much higher than that of sea transportation and rail transportation. For large quantities of potash fertilizer transportation, the cost pressure is greater.

2. Limited transportation volume: Compared with sea transportation and rail transportation, air transportation has a smaller transportation volume.

Pipeline transportation

Advantage:1. Low transportation cost: Pipeline transportation has low cost and is especially suitable for large-volume transportation.

2. Strong continuity: Pipeline transportation can achieve 24-hour continuous transportation and improve transportation efficiency.

Disadvantages:1. High construction cost: The initial construction cost of pipeline transportation is high and requires a large amount of investment.

2. Limited transportation scope: The scope of pipeline transportation is limited by geographical conditions and cannot be adjusted as flexibly as sea transportation and railway transportation.

Potash energy trade between Belarus and China can occur via a variety of transportation methods, each with its own unique advantages and disadvantages. In the actual transportation process, transportation methods need to be flexibly selected according to specific circumstances to optimize transportation efficiency and cost. At the same time, with the development of transportation technology, more transportation methods may be used for potash fertilizer trade between Belarus and China in the future [8].

4. Criteria for selecting transportation methods for potash energy trade between Belarus and China

The choice of transportation mode for potash energy trade between Belarus and China requires consideration of multiple factors to ensure efficiency and cost-effectiveness of transportation. Here are some of the main selection criteria:

1. Transportation costs

Shipping costs are an important factor in choosing a shipping method. Generally speaking, sea transportation has the lowest cost, followed by rail transportation, air transportation and pipeline transportation have higher costs. However, you also need to take into account other costs that may be incurred during transportation, such as insurance, handling fees, etc.

2. Shipping time

The length of transportation time directly affects the delivery speed of goods. Air transportation is the fastest, followed by rail transportation, and sea transportation is slower. If you have strict requirements on delivery time, you may need to choose a faster shipping method.

3. Transportation volume

The choice of transportation method also needs to take into account the size of the transportation volume. Sea transport and pipeline transport are suitable for large quantities, while air transport and rail transport are suitable for smaller volumes. If the transportation volume is large, you may need to choose a transportation method with a large transportation volume.

4. Security

Safety during transportation is also an important consideration. Air transportation has the highest safety, followed by rail transportation, and sea transportation and pipeline transportation have lower safety. If the value of the goods is high, you may need to choose a more secure mode of transportation.

5. Environmental protection

As environmental awareness increases, the environmental friendliness of transportation methods has become an important selection criterion. Generally speaking, rail transportation and pipeline transportation are more environmentally friendly, while sea transportation and air transportation are less environmentally friendly.

6. Flexibility of transportation routes

Flexibility of transport routes is also an important selection criterion. The routes of sea transportation and air transportation are more flexible and can be adjusted according to needs, while the routes of rail transportation and pipeline transportation are relatively fixed.

The choice of transportation mode for potash energy trade between Belarus and China needs to comprehensively consider the above factors to optimize transportation efficiency and cost. At the same time, with the development of transportation technology, there may be more transportation methods to choose from in the future.

CONCLUSION

By analyzing the transportation modes of potash energy trade between Belarus and China, we can draw the following conclusions: land transportation, water transportation and pipeline transportation all have their own advantages and limitations and are suitable for different scenarios and needs. Land transportation costs are relatively low, but are affected by geographical conditions, climate and other factors, and rail transportation capacity is limited. Water transportation has the advantages of large volume and low cost, but it is subject to many unpredictable factors such as weather conditions and maritime conditions. Pipeline transportation is an efficient and safe energy transportation method, but it requires huge investments and the support of complex political, environmental and other factors, and may have a certain impact on the ecological environment. Based on actual needs and conditions, Belarus and China need to comprehensively consider multiple factors when selecting transportation methods for potash energy trade to achieve the optimal combination of transportation costs, efficiency and risks [9]. Both parties should strengthen communication and cooperation and jointly promote the development of potash energy trade to promote the economic development of the two countries and regional energy security. In summary, Belarus and China should comprehensively consider a variety of factors when choosing transportation methods for potash energy trade, and make flexible adjustments based on actual needs and conditions [10]. At the same time, both parties should strengthen cooperation and jointly promote the development of potash energy trade to promote the economic development of the two countries and regional energy security.

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