Overview and Outlook of Aluminum Industry in China

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Contents

Part I

1. Overview of Aluminum Industry in China

1.Overview of Aluminum Industry in China

2024 Production of Alumina, Primary Aluminum, and Prebaked Anode

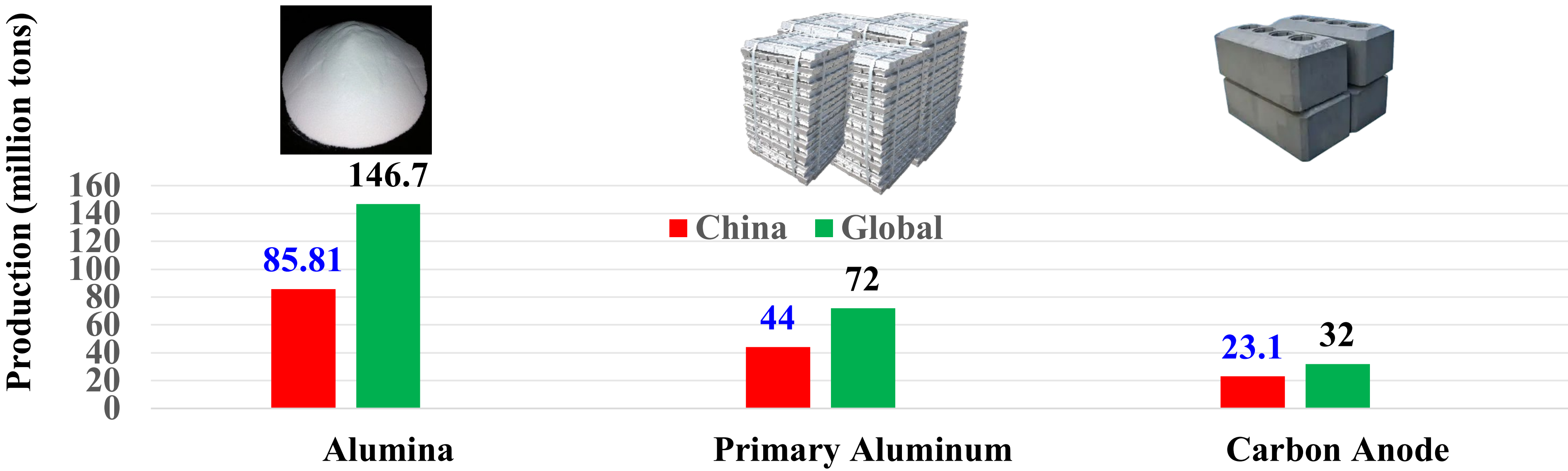


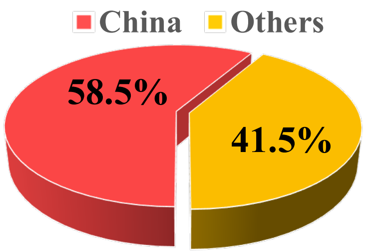
Figure 1. Production of Chinese Alumina, Primary Aluminum, and carbon Anode in 2024

A stable and healthy growth of Chinese aluminum industry happened in 2024.

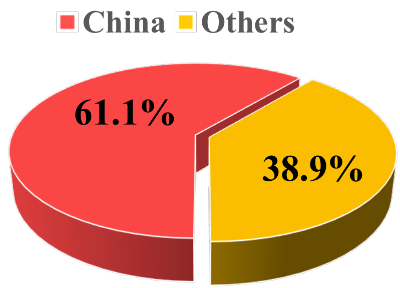
85.8 Mt of alumina, 44.0 Mt of primary aluminum, and 23.1 Mt of carbon anode were produced in China in 2024.

1.Overview of Aluminum Industry in China

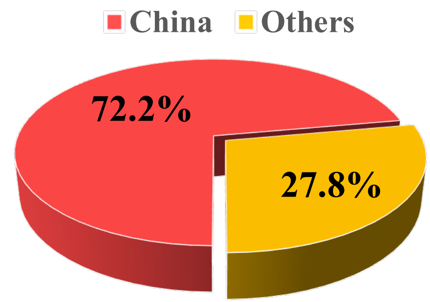
2024 Proportion of Alumina, Primary Aluminum, and Prebaked Anode



Production of Alumina



Production of Primary Aluminum



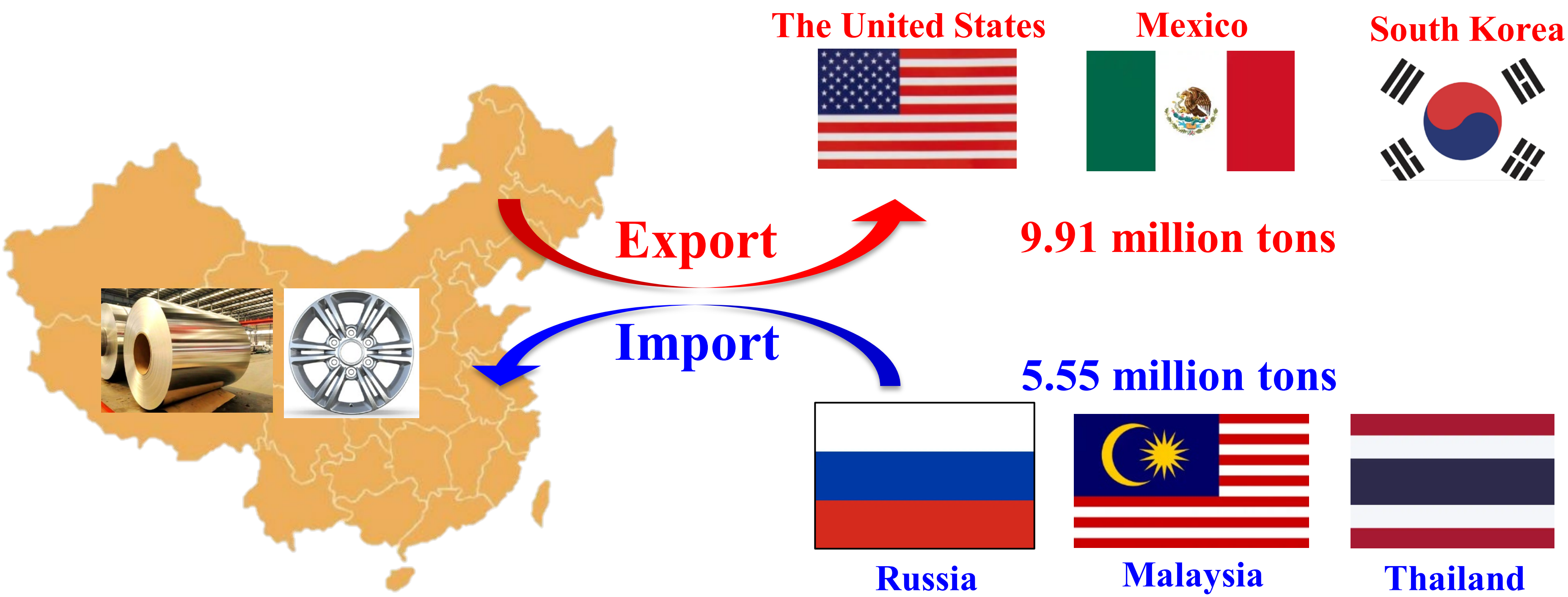
Production of Carbon anode

Figure 2. The proportion of Chinese alumina, primary aluminum and carbon anode production in the global market in 2024

Production of alumina, primary aluminum, and carbon anodes in China accounted for **58.5%, 61.1%, and 72.2%** of the global total, respectively in 2024.

1.Overview of Aluminum Industry in China

2024 Import and Export of Aluminum and Aluminum Products in China



9.91 million tons of aluminum products were exported from China including **926.4 thousand tons of aluminum wheels**, mainly to the United States, Mexico and South Korea in 2024. Meanwhile, approximately **5.55 million tons of aluminum products** were imported mainly from Russia, Malaysia, and Thailand in this year

Part II

2. Status of Alumina Industry in China

2. Status of Alumina Industry in China

Capacity & Production in China in the Past Years

The first half of year 2025

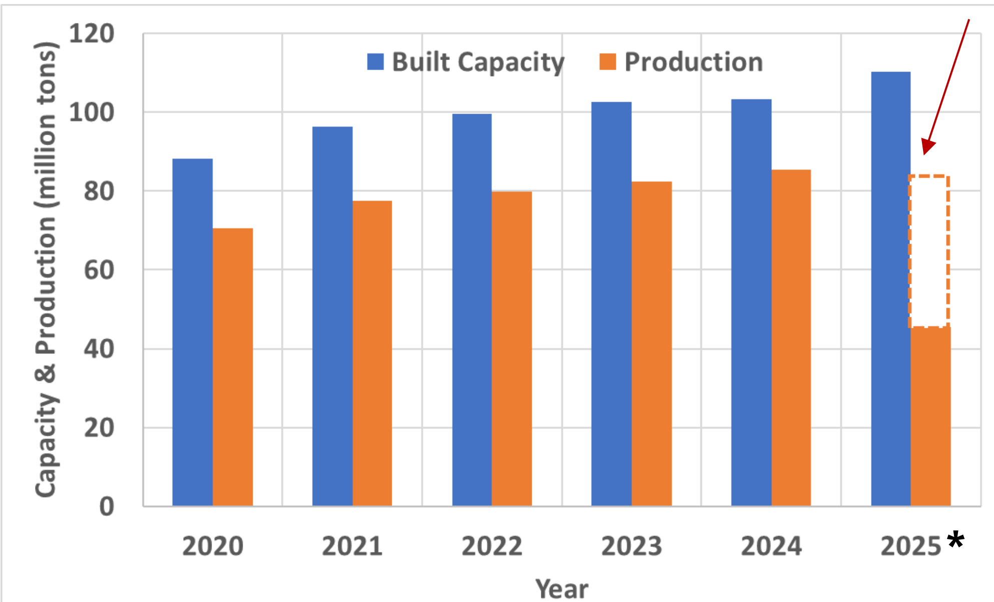
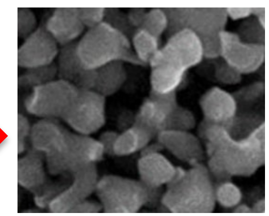


Figure 3. 2020-2024 Capacity and Production of Chinese Alumina

95%

primary aluminum

5%



Catalysts, ceramics, etc.

(1) the alumina production in China has been continuously increasing from 2020 to 2024 and reached 85.8 million tons in 2024.

(2) About 95% were used for smelting primary aluminum, while the remaining 5% were for producing such chemicals as catalysts, ceramics, fillers, electronics etc

2. Status of Alumina Industry in China

Provincial Alumina Production distribution

Table 1 Alumina production in major provinces in China (kilotons)

Rank	Provinces	2023	2024	%
1	Shandong	2945	2960	34.6
2	Shanxi	1954	2033	23.8
3	Guangxi	1384	1454	17.0
4	Henan	861	936	11.0
5	Guizhou	489	528	6.2
6	Chongqi	440	458	5.4
7	Yunnan	149	142	1.7
-	others	22	39	
	Total	8244	8552	

76%

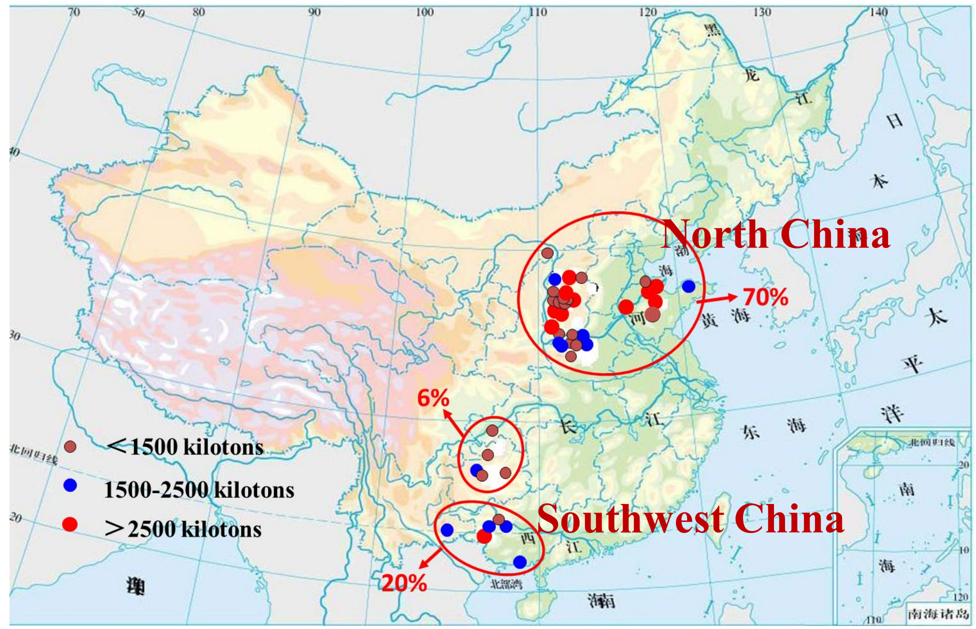


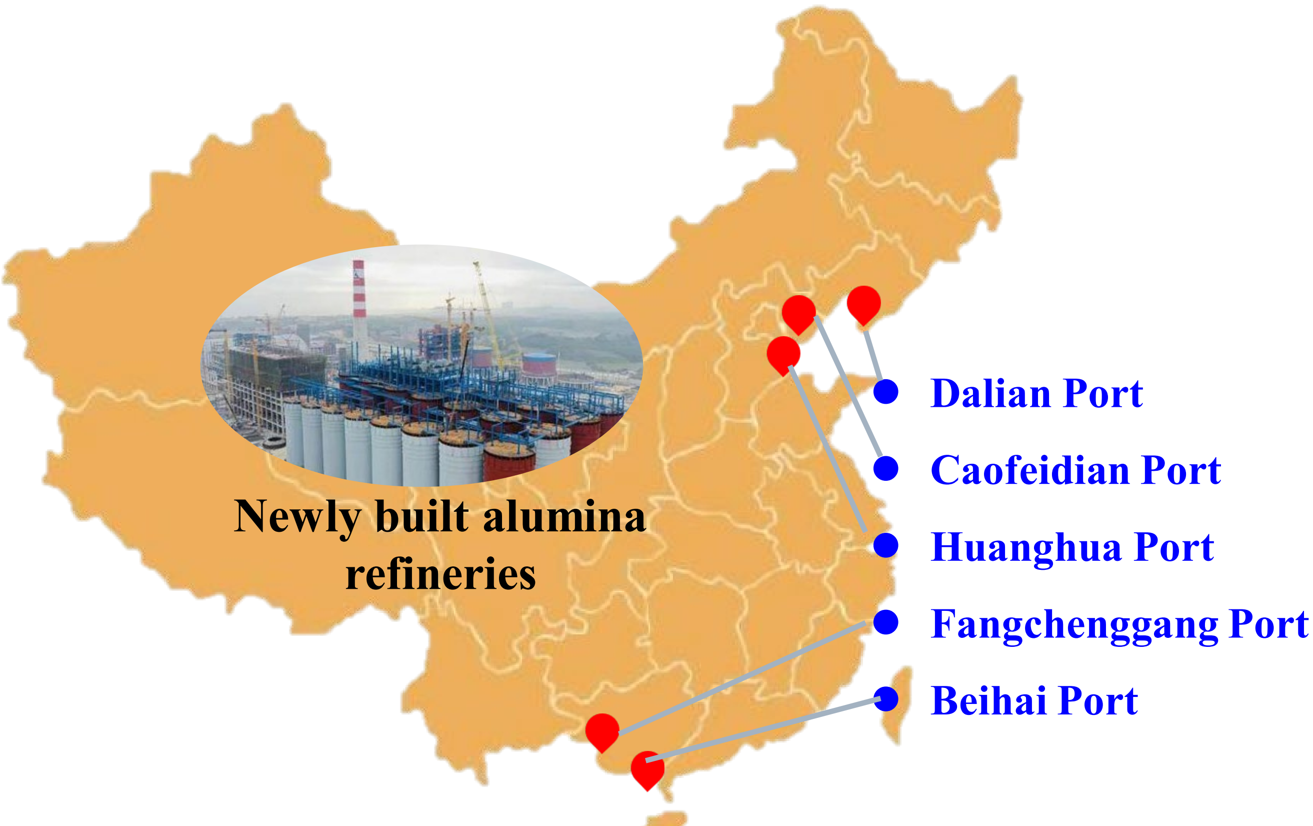
Figure 4. Distribution of alumina refineries in China

(1) Shandong and Shanxi Provinces are the major provinces to produce alumina in China, accounting for 34% and 23% respectively.

(2) Guangxi Province will be the fastest alumina growing province in the near future.

2. Status of Alumina Industry in China

Features of Newly Built Alumina refineries



Most of the newly built alumina refineries are located close to the ports.

The ports of Caofeidian and Fangchenggang, have the favorable conditions for iron-alumina integration projects.

2. Status of Alumina Industry in China

Technological Advances in Alumina Production

Tube Digestion Technology

Table 2 Composition of red mud generated by new technology

	Al_2O_3, %	SiO_2, %	Na_2O, %	Fe_2O_3, %	TFe, %
Novel Technology	5.21	5.43	1.36	71.6	50.12
Novel Technology	4.30	4.26	1.06	71.96	50.37

New Technology for Zero Red Mud Discharge

Advances in large-scale tube digestion technology have enabled a single production line to achieve an annual output of 1.6 million tonnes of alumina.

The another is the technology for the highly efficient utilization of high iron content Guinean bauxite, the discharged red mud can be fully utilized in ironmaking plant.

2. Status of Alumina Industry in China

Changes in bauxite import in past years

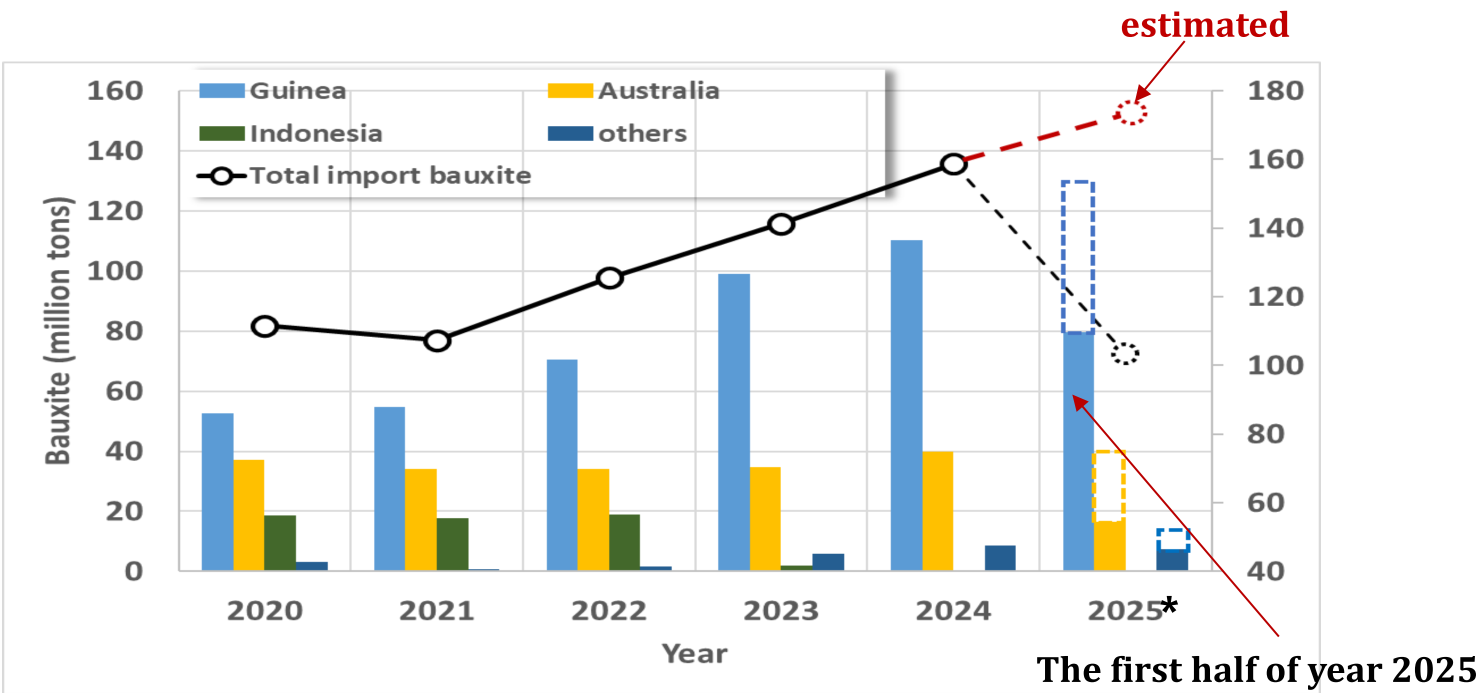


Figure 5. Countries and quantities of bauxite imported into China from 2020 to 2025

(1) The imported bauxite mainly comes from Guinea and Australia.

(2) About 150 million tons of bauxite were imported into China in 2024, of which nearly 110 million tons came from Guinea.

2. Status of Alumina Industry in China

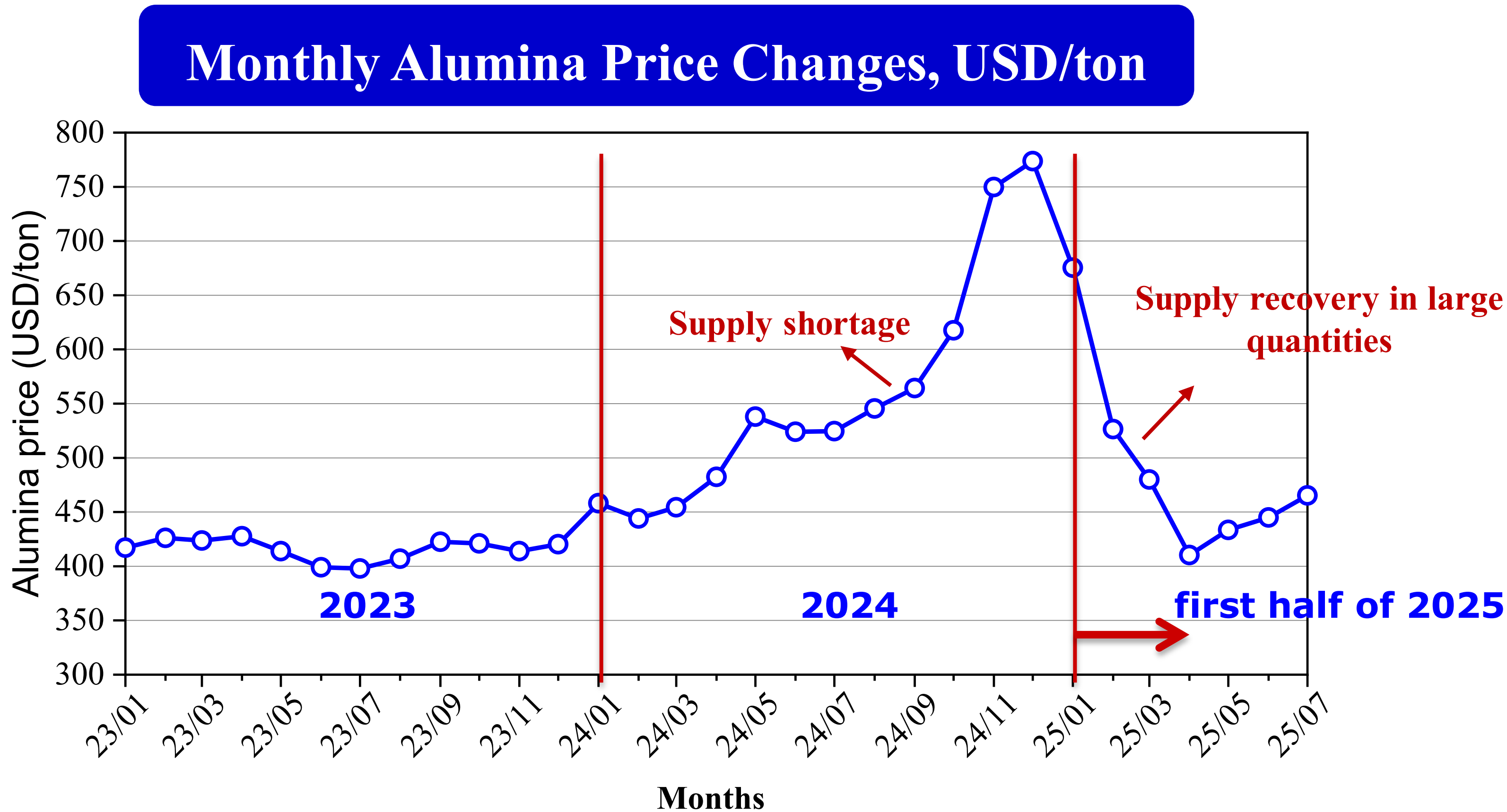


Figure 6. Changes in the price of alumina from 2023 to 2025

(1) The alumina price was rised significantly in the latter half of 2024 up to $760 per ton, but sharply reduced since the beginning of 2025.

(2) The change of bauxite supply and demand changes are considered as the key factors.

Part III

3. Status of Aluminum Reduction Industry in China

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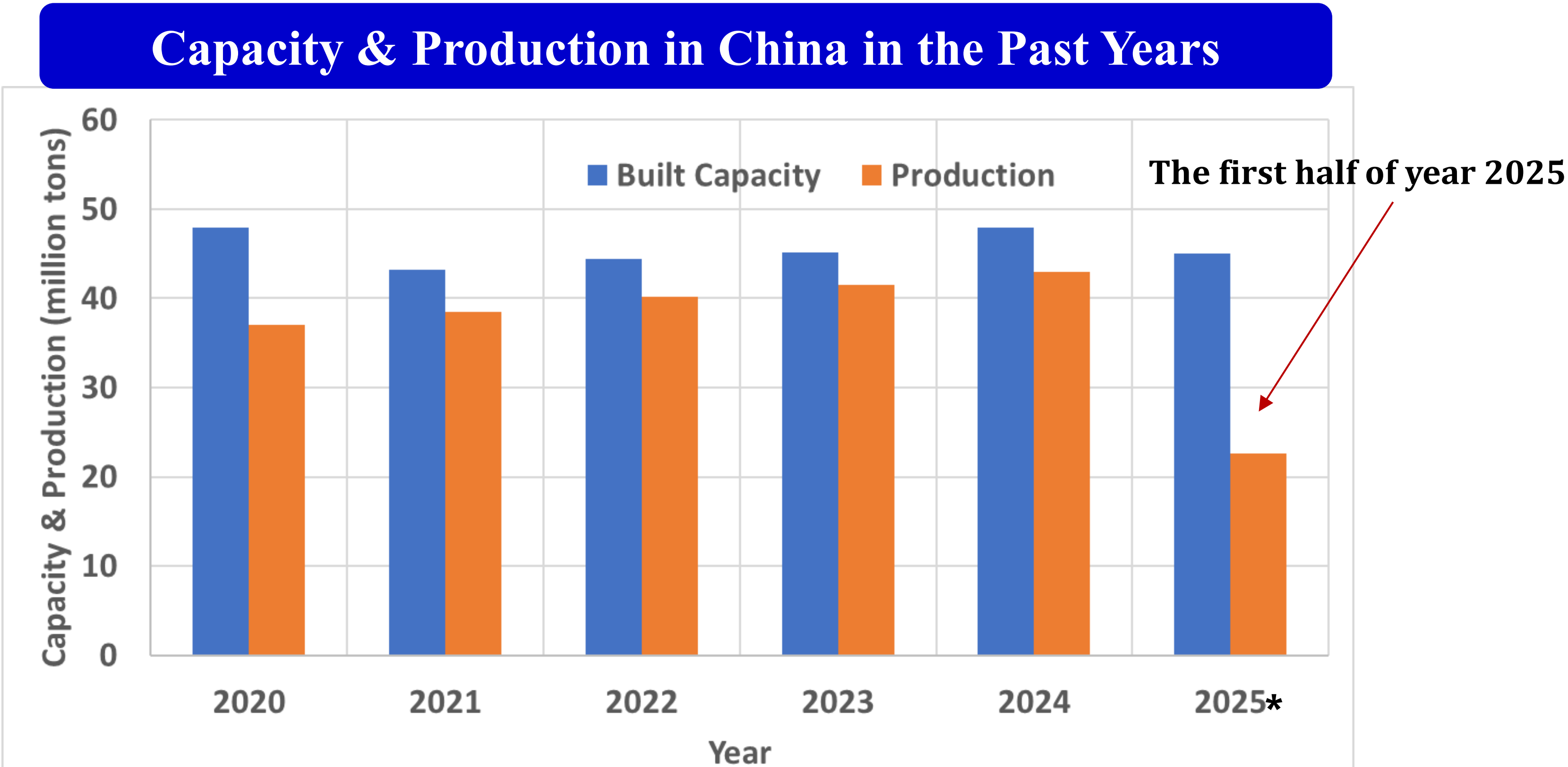

Figure 7. Capacity and production of primary aluminum in China from 2020 to 2025

China's primary aluminum production has been slowly increasing in the past years due to the increased demand and reached 44 million tons in 2024 by an increase of 3.5% compared with 2023.

3. Status of Aluminum Reduction Industry in China

Provincial Smelter Capacity distribution

(1) Shandong, Xinjiang, Inner Mongolia and Yunnan, accounts for 20%, 16.7%, 13.3%, and 12.2% of total capacity, respectively, relying on the advantages of of new energy, especially wind and solar energy in Xinjiang and Inner Mongolia.

(2) Over the past decade, China's aluminum reduction industry has shifted to the Yunnan and Inner Mongolia, Due to cheap and reliable energy sources

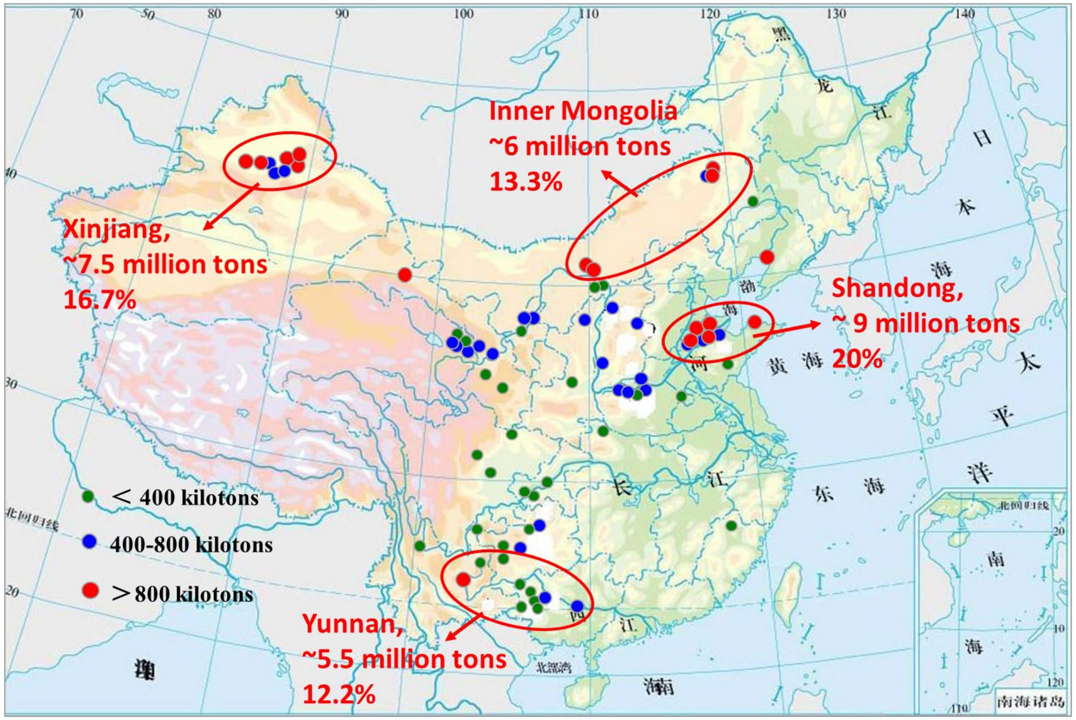

Figure 10. Distribution of aluminum smelters in China

3. Status of Aluminum Reduction Industry in China

Monthly Aluminum Price Changes, USD/ton

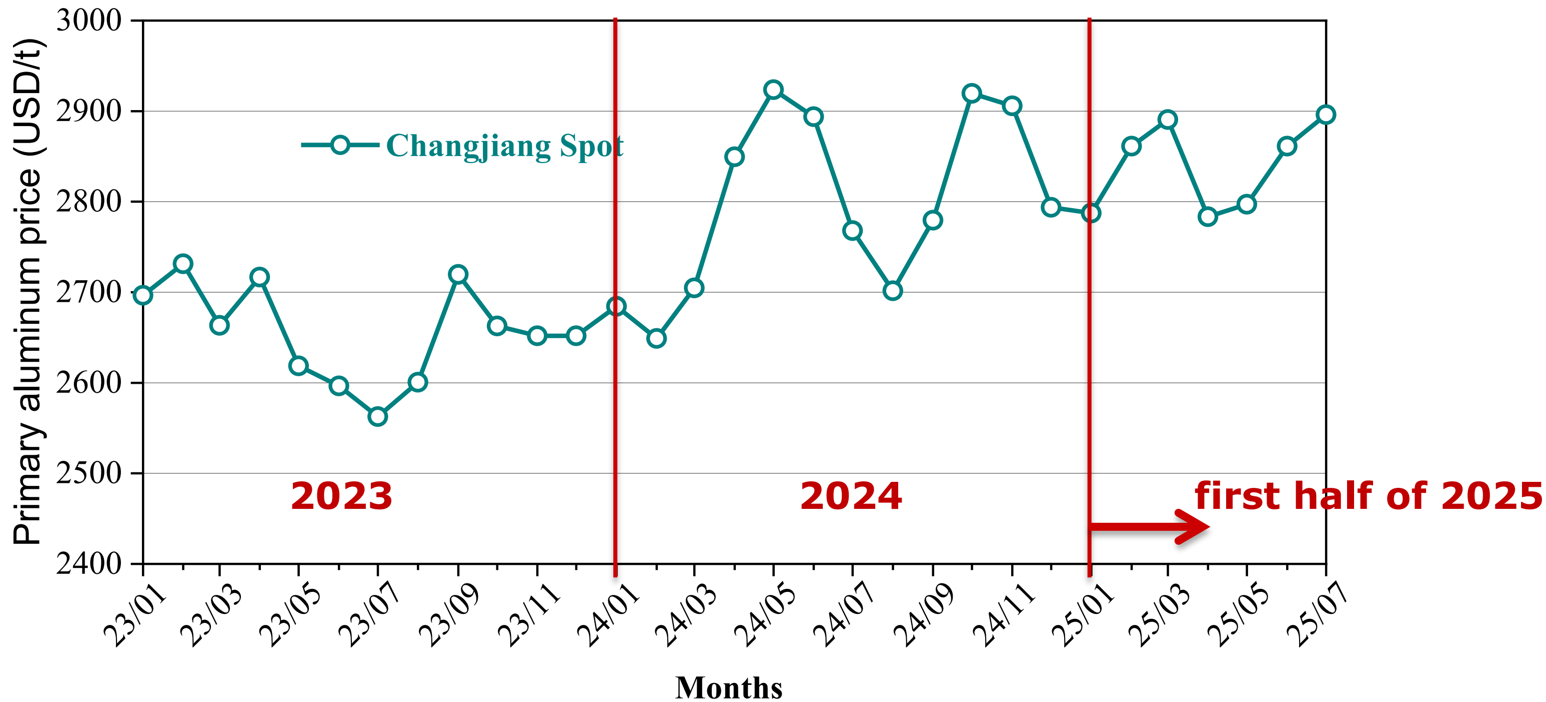

Figure 11. Changes in the price of primary aluminum from 2023 to 2025

(1) The price of aluminum fluctuates largely between $2700-$2900 per ton throughout 2024 and first half of 2025, due to the increasing demand for aluminum.

(2) The price of aluminum would remain high and fluctuate between regions, due to the intensified tariff competition.

3. Status of Aluminum Reduction Industry in China

Lightweight transportation

New Energy Support Structures

Electronic Products

The great development of emerging industries such as lightweight transportation and solar and wind power generation in China brought about the huge consumption of aluminum base products.

Part IV

4. Status of Carbon Anode Industry in China

4. Status of Carbon Anode Industry in China

Anode Capacity Changes & Growth Rates in China

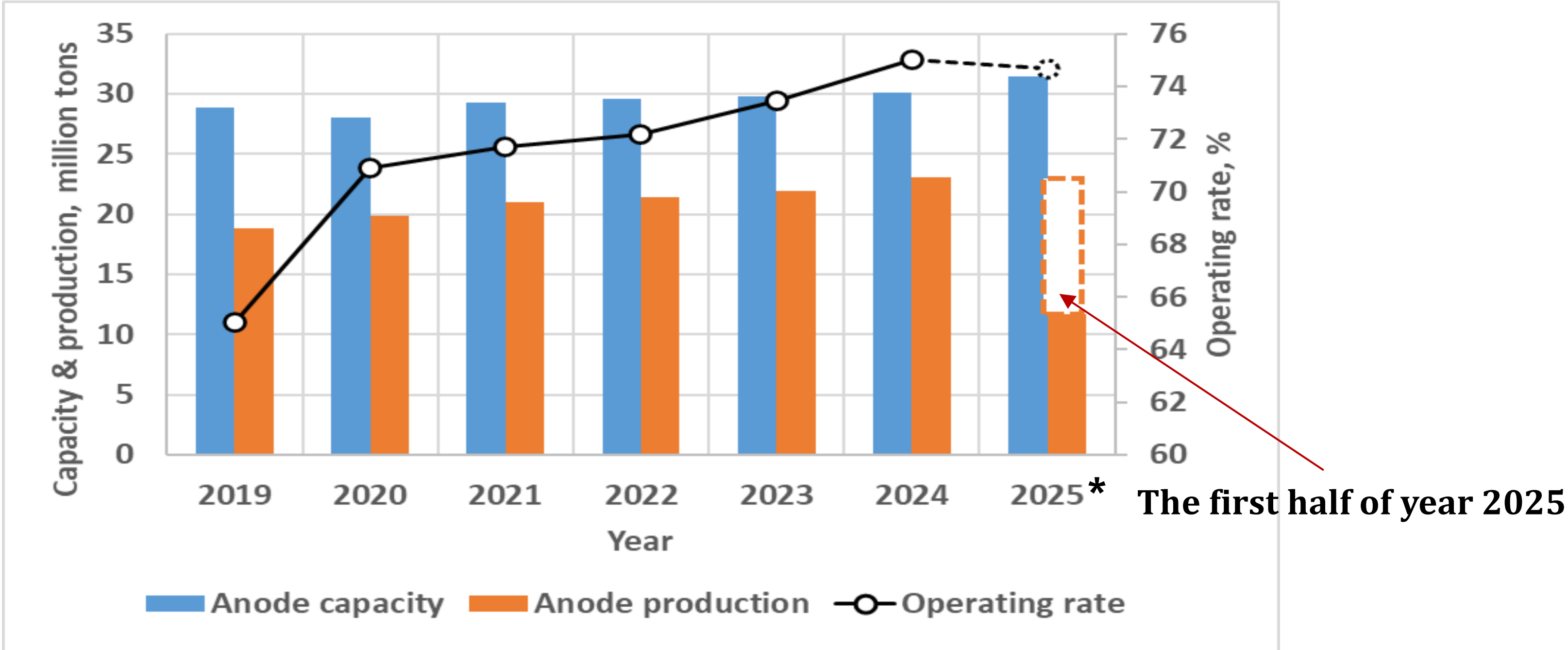

Figure 12. Capacity and production of carbon anode in China from 2020 to 2025

(1) The prebaked anode production in China has been slowly increasing since 2019.

(2) The anode production was 23.1 million tons in 2024 with an operating rate of about 75%, which was a little increased year on year owing to the primary aluminum production growing.

4. Status of Carbon Anode Industry in China

Chinese Anode Export

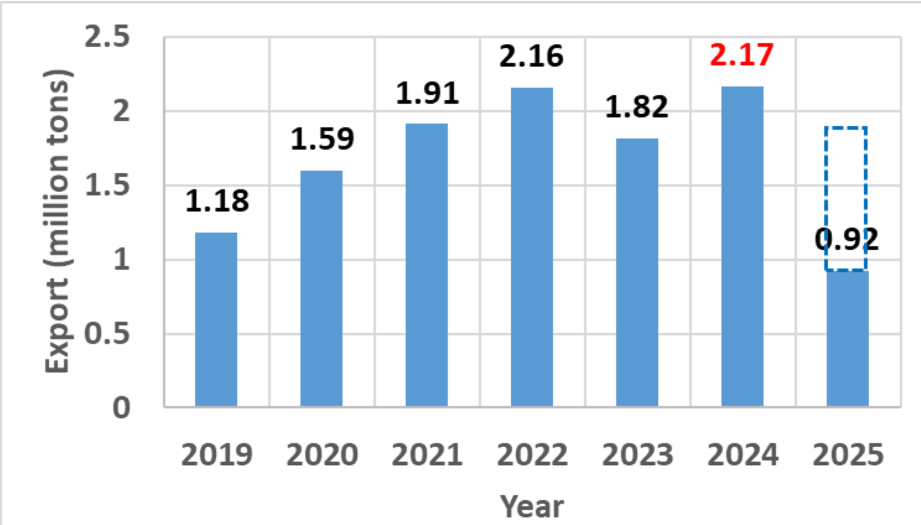

Figure 13. Export quantity of Chinese carbon anodes from 2019 to 2025

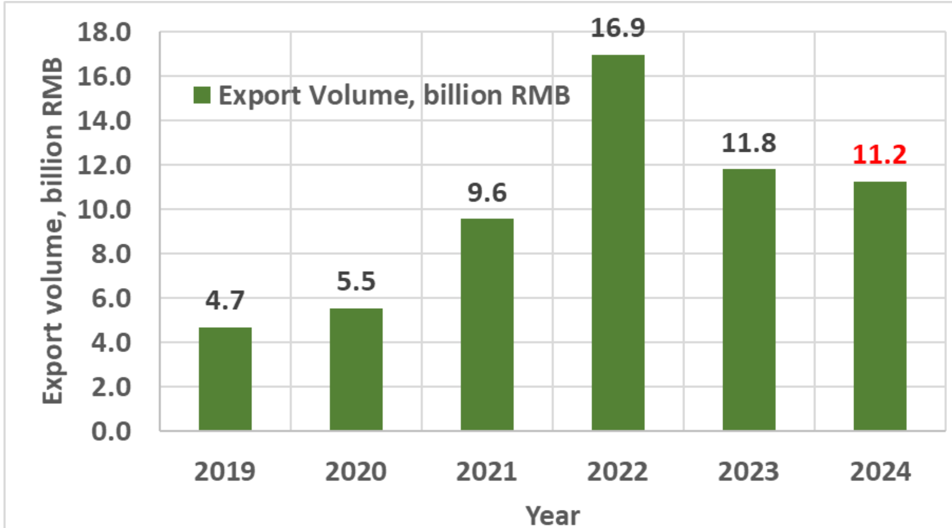

Figure 14. Export Value of Chinese carbon anodes from 2019 to 2025

(1) About 2.17 million tons of carbon anode were exported in 2024 and increased by around 25% compared the previous year.

(2) 2024 was the year with the top anode export quantity but the total value of the exported anodes was fallen due to lower anode price in the international market.

4. Status of Carbon Anode Industry in China

Importing Countries from Chinese Anode and changes

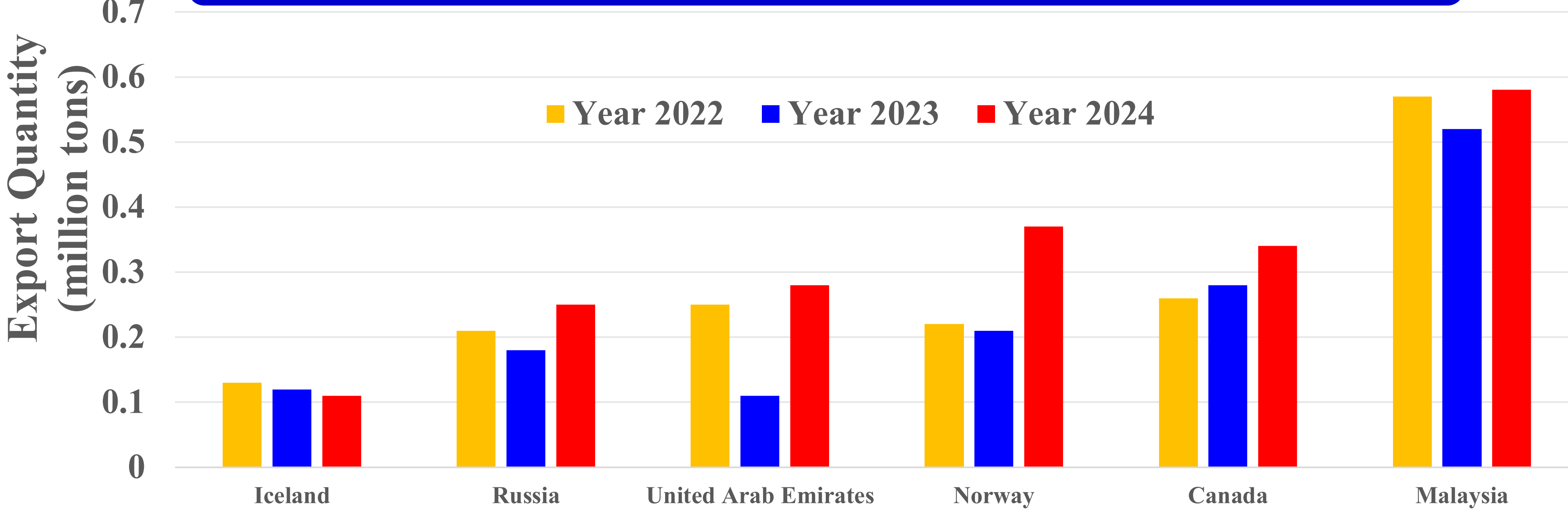

Figure 15. Export situation of Chinese carbon anodes from 2022 to 2024

(1) The Chinese anode was mainly exported to Malaysia, Canada, Norway, Russia, and United Arab Emirates (UAE) and the export volume was increased in 2024.

(2) The Chinese anode manufacturers might find the new or expanded carbon anode market in Southeast Asia and middle East areas.

Part V

5. Overseas Development of Chinese Aluminum Industry

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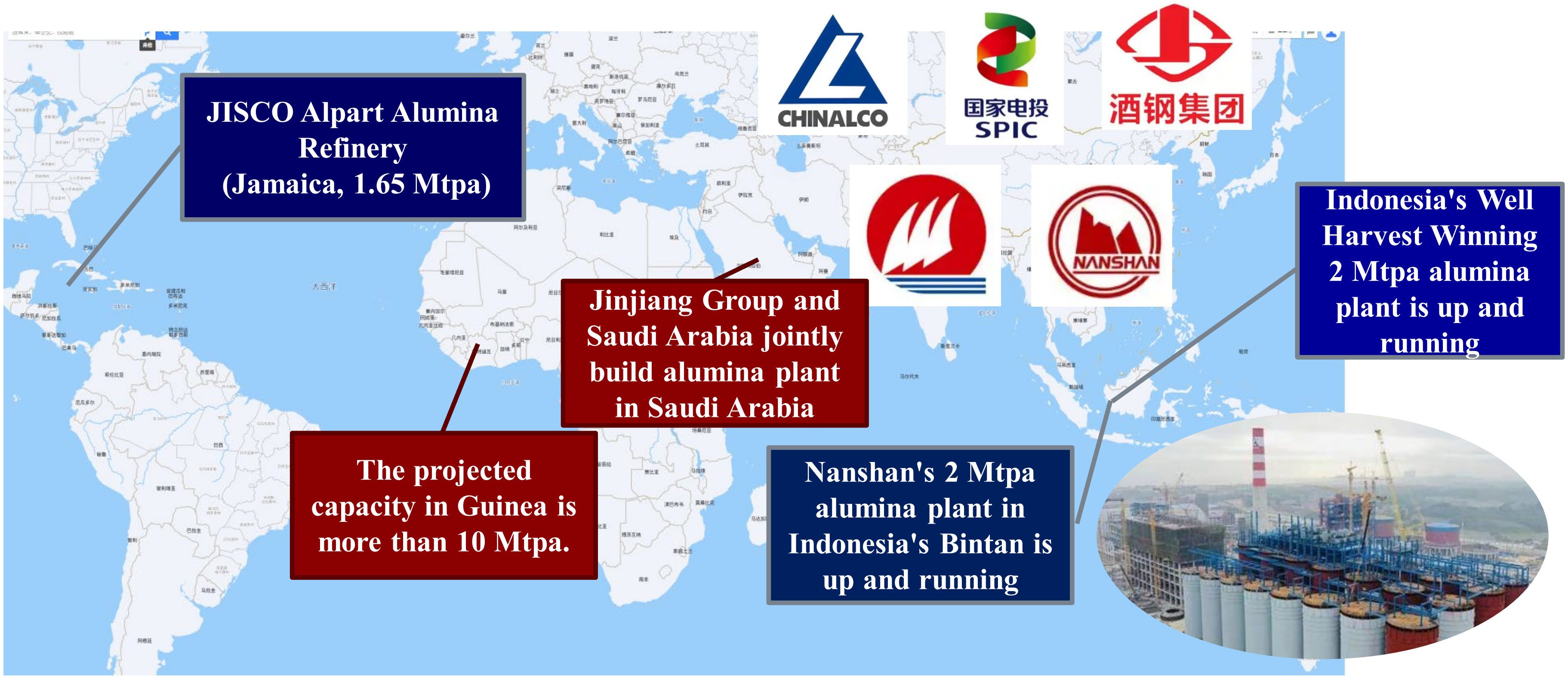
Overseas development of Chinese Alumina Industry



Some alumina refineries will be built or expanded in Indonesia, Guinea or Saudi Arabia by Chinese alumina producers, including CHINALCO, SPIC, Nanshan Group, Hongqiao Group and Jinjiang Group. Total planned annual capacity of those refineries will reach approximately 20 million tons.

5. Overseas Development of Chinese Aluminum Industry

Overseas development of Chinese Aluminum reduction industry

Some aluminum smelters will be established in Southeast Asia, Kazakhstan and Angola etc. by such Chinese leading companies as Xinfa and Chinalco and so on to use the advanced energy saving technology and large current smelting portline.

Part VI

6. Summary

6. Summary

1. China is a major global producer of alumina, primary aluminum, and prebaked anodes with the advanced and world leading production technologies.
2. The newly built refineries are located close to the Chinese ports for the lower logistic cost of imported bauxite because over 60% of bauxite resource used in China are imported from Guinea, Australia and other countries.
3. More and more Green and Clean energy resources such as Hydro power, solar and wind power are being applied in China's aluminum smelters and some of aluminum capacity is shifted to Yunnan, Inner Mongolia provinces from east areas in China.
4. The development of the carbon anode industry is closely related to the aluminum reduction industry, and the newly constructed manufacturers are located near the aluminum smelters.

Thanks for your attention!

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