



CM Field Study 2025

> 2024 GLOBAL PRIMARY MAGNESIUM SUPPLY DEMAND AND OUTLOOK



Prepared for
INTERNATIONAL MAGNESIUM ASSOCIATION (IMA) ANNUAL CONFERENCE

Salzburg, May 12 2025

OUR VALUED CUSTOMERS



CM - a privately owned, independent, global non-ferrous metals research consultancy, specialising across a range of base and minor metals industries, including Al, Mg, Mo, W, V, Li and Sc.

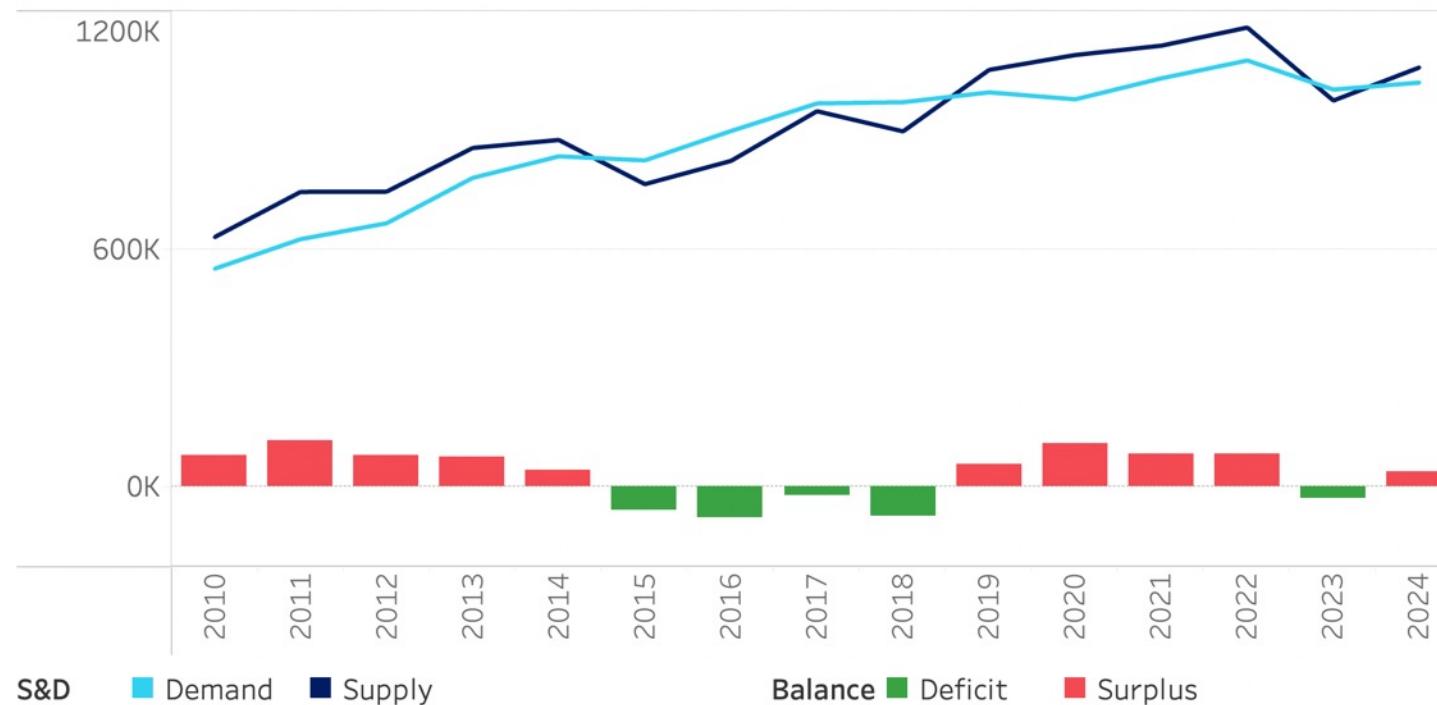
In 2024, CM continued its long association with the global primary Mg industry, conducting a deep-dive into China's supply base, updating its price outlook, cost curve analysis, technology review and new application analysis.

CM's monthly Mg subscription service entitled 'China Primary Magnesium Industry Monthly Report' provides a data-rich assessment of China's primary magnesium industry, tracking prices, production rates, costs and market dynamics in China.

> Global Mg demand at 1,022kt (+1.8%), supply at 1,057kt (+11.0%), resulting in 35kt surplus.

WORLD PRIMARY Mg SUPPLY DEMAND BALANCE 2010 to 2024

(2010 - 2024, t)

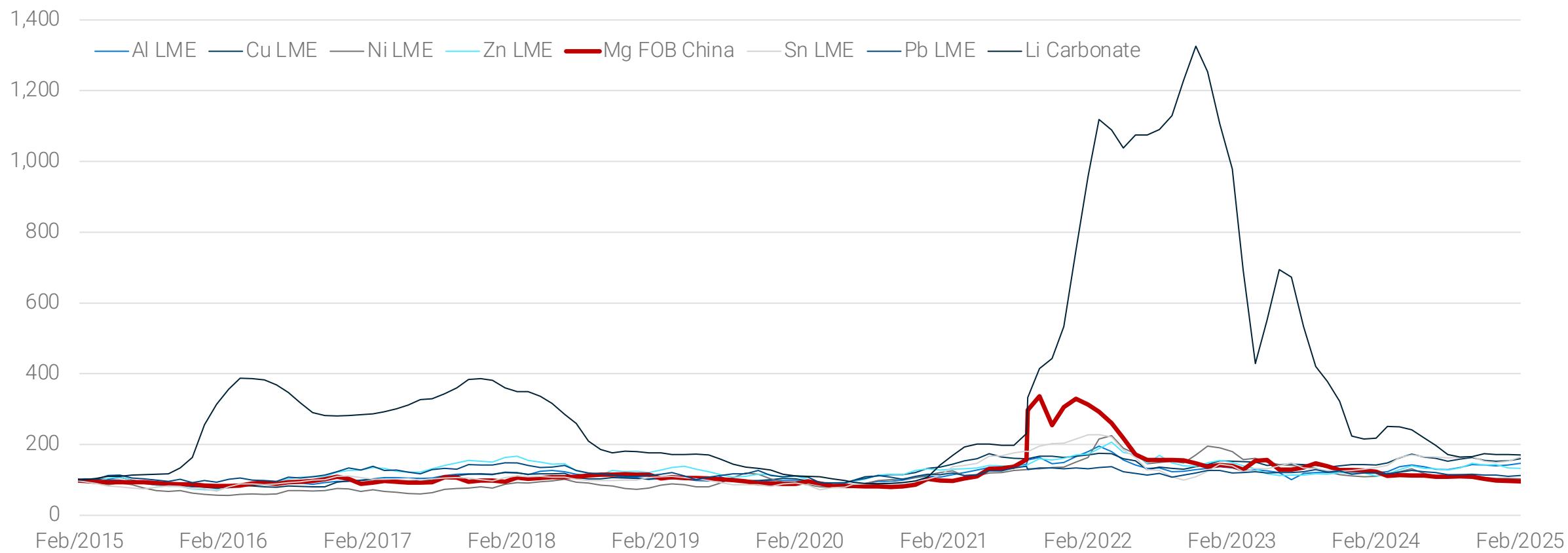


- Global primary Mg production up 11.0% y-o-y to 1,057kt,
 - China up 12.4% to 949kt, ROW stable at 109kt.
- Global Mg consumption up 1.8% y-o-y to 1,022kt,
 - China at 466kt (+3.1%), ROW at 556kt (+0.7%)
- Ave primary Mg prices (FOB China) **US\$2,616/t** (-23.6%) y-o-y.
- China Mg inventories stable (54kt Q1 24 to 57kt Q1 25)
- China Mg (all products) exports 460kt (+12.7%) y-o-y
- Ave global primary Mg cash costs at US\$2,182/t (-11.8%)
 - China at US\$2,034/t (-23.7%)
 - ROW producers at US\$3,558/t (-6.8%)

> Mg prices weaker in 2024 than other metals on increasing supply and weak demand.

CHINA METAL PRICE INDICES 2013 TO Q1 2025

(2015 - 2025, price index on January 2015 prices)



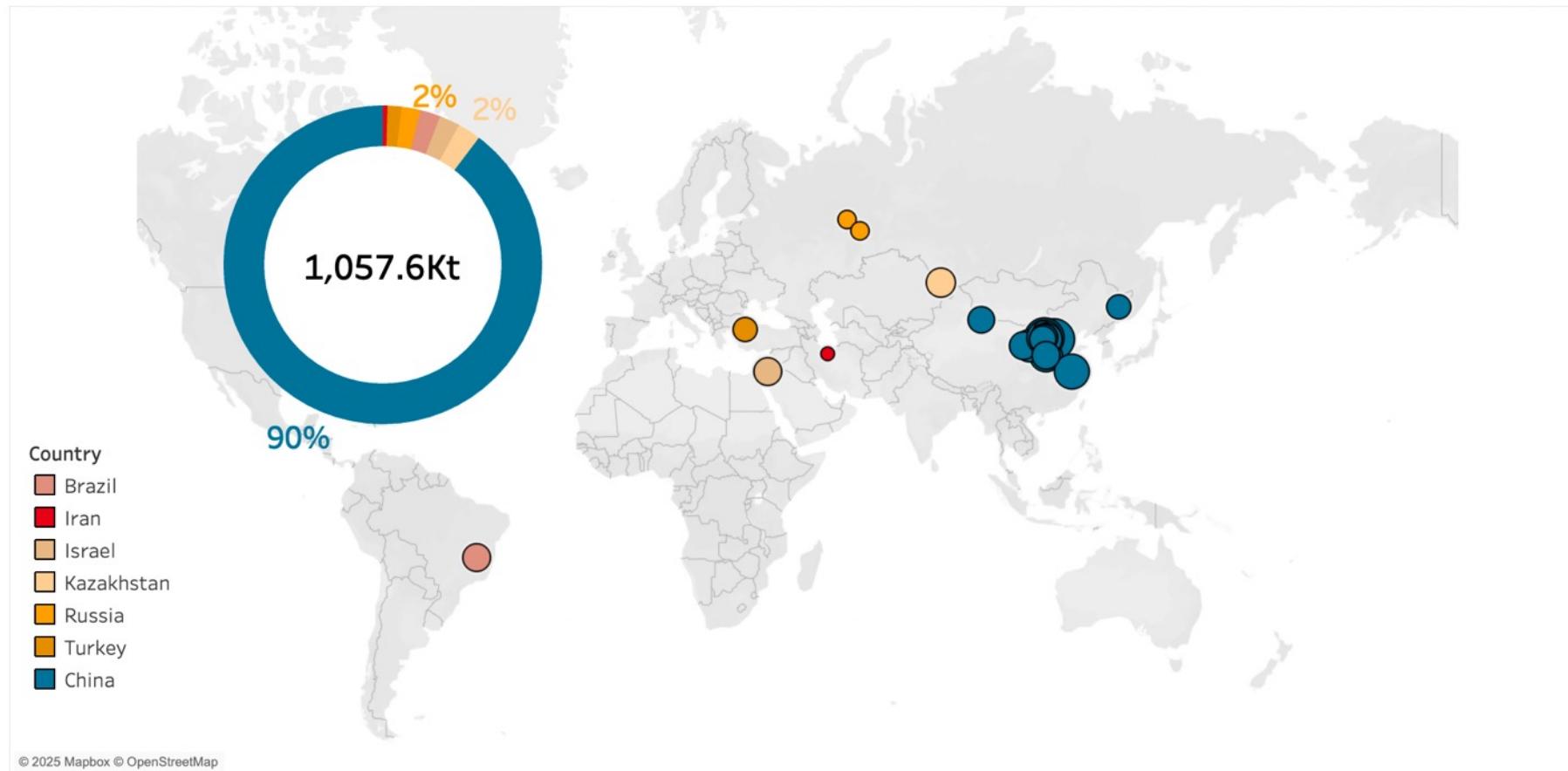
- Another slow year for new ROW projects, although some new projects were announced in 2024
 - **China** ~420ktpy above, **ROW** ~36ktpy above
- Mg producers in China without approved slag disposal procedures may be required to invest in suitable equipment.
- New Mg applications have developed slowly
 - Giga-casting encountered difficulties in repairing large components
 - H₂ storage remains in a development stage.
- Mg prices lower than Al prices for most of 2024, downstream users still cautious on Mg due to concerns over price stability.



> China continued its dominance in global primary Mg supply, hitting a record 90% in 2024.

PRIMARY Mg PRODUCTION BY COUNTRY

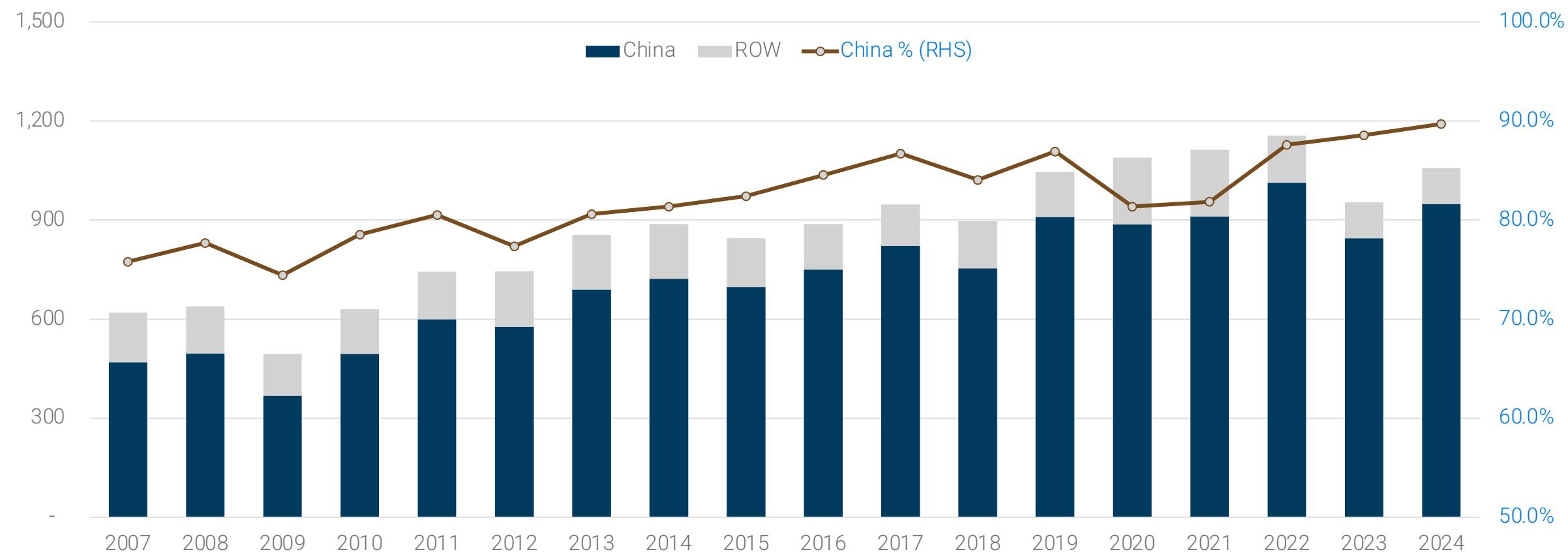
(2024, kt, %)

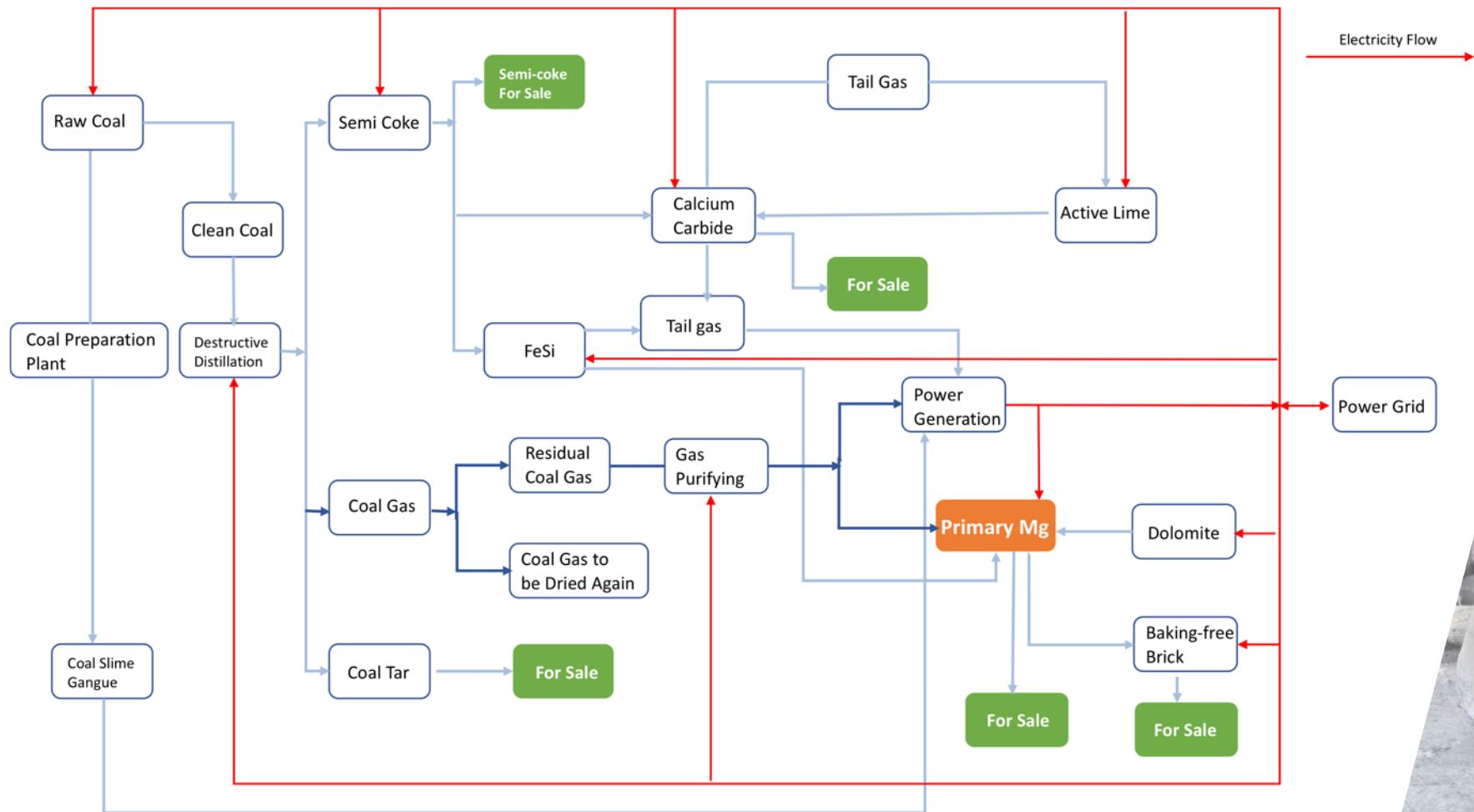


> China's global market share trending higher, driven by a rebound in domestic production.

HISTORICAL GLOBAL PRIMARY Mg PRODUCTION BY REGION

(2007 - 2024, kt, %)

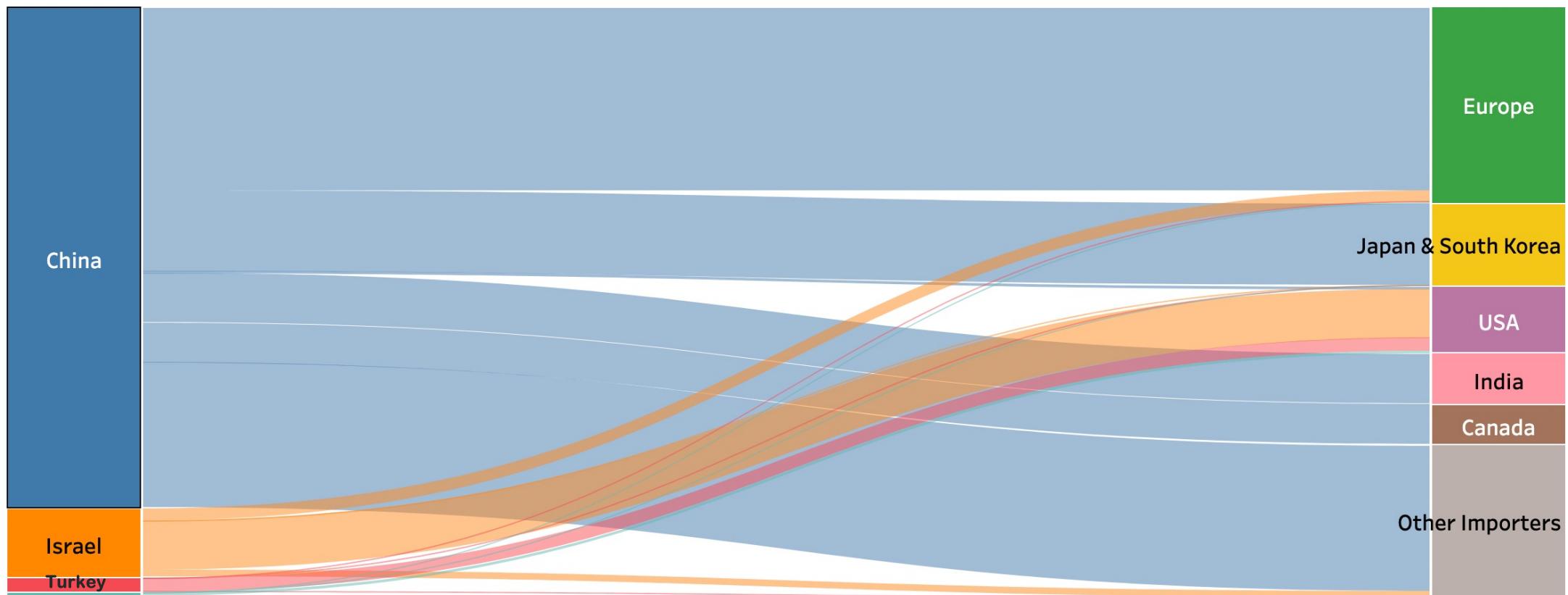




> Europe still the largest importer of primary Mg from China at 104kt (+22.1%) in 2024.

GLOBAL Mg TRADE FLOWS

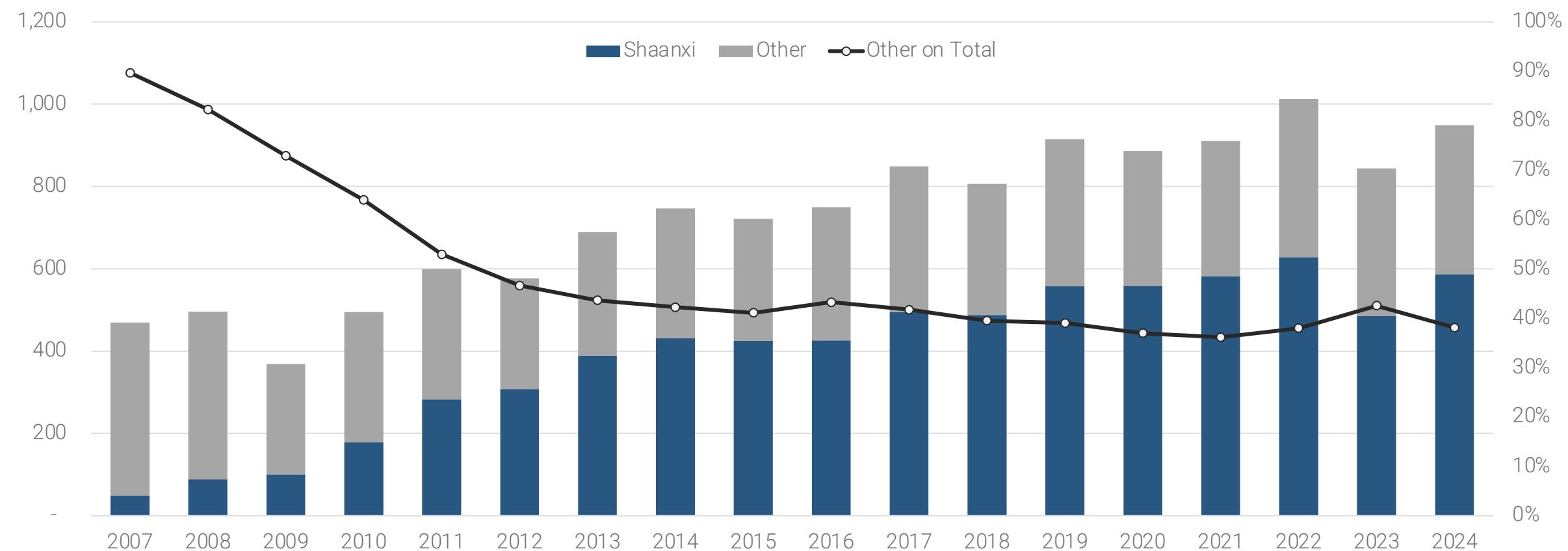
(2024, t)



> China production at 949kt (+12.4%), Shaanxi smelters complete semi-coke furnace upgrades...

HISTORICAL CHINA PRIMARY Mg PRODUCTION BY PROVINCE

(2007 - 2024, kt, %)



> Slow progress on new ROW primary plants in 2024. USA tariff policy shifts remain a concern.

Global Mg INDUSTRY DEVELOPMENTS (2024-2025)

USA – New Project

Western Magnesium
Capacity: 30ktpy
Status: Suspended

Magrathea Metals
Mg production using seawater
Pilot Capacity: 5tpy
Status: Pilot plant operation

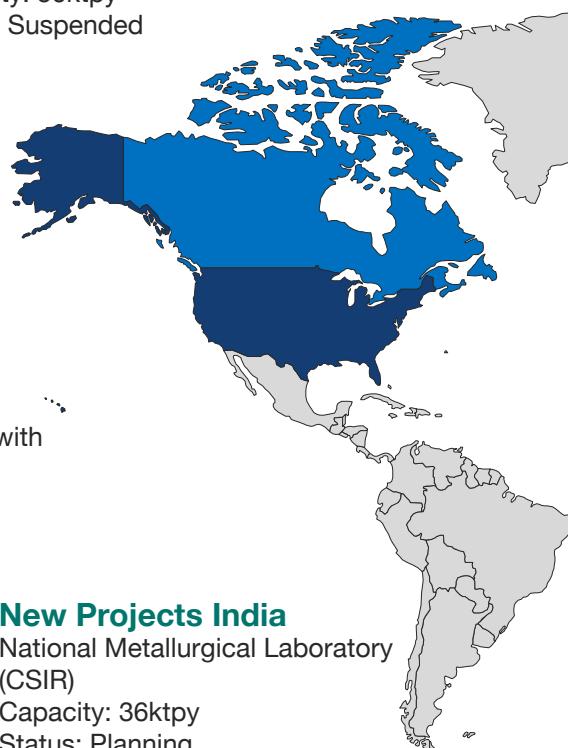
Producer Update

US Magnesium
Production on hold for two years, with
the timing of resumption uncertain
due to ongoing production issues.

New Projects Oman
Minerals Development Oman
SAOC (MDO)
Status: Planning

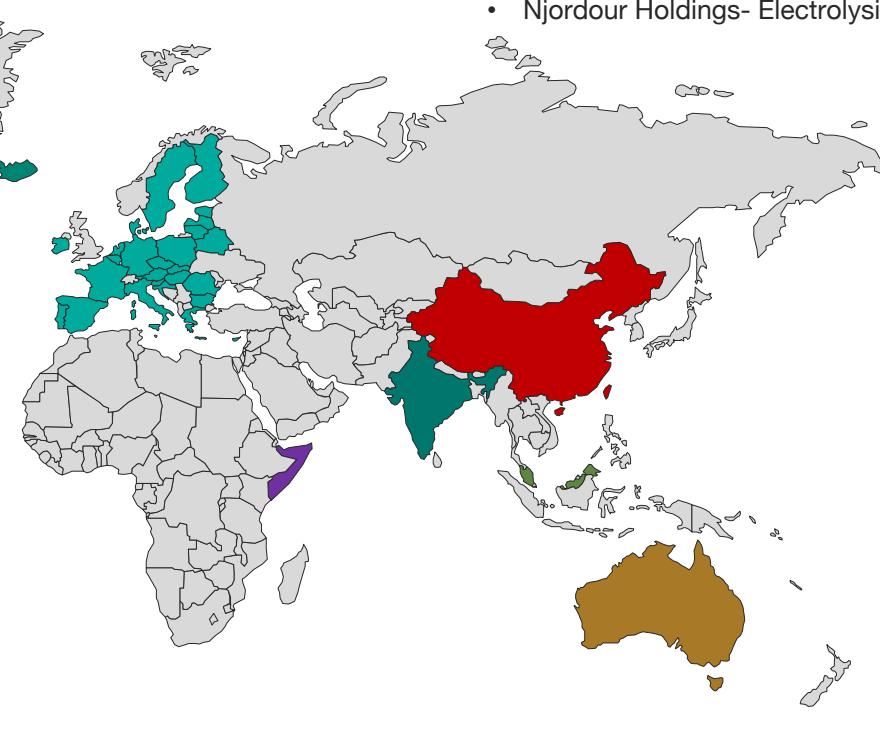
Canada – New Project

Tergeo
Capacity: 50ktpy
Status: Suspended



USA – New Tariffs

On April 8, the U.S. increased its reciprocal tariff on Chinese goods from 34% to 84%. The following day, it was raised to 125%. The end-April 2025 U.S. tariff rate on Chinese goods stood at 145%.



EU – new project pipeline

Primary Mg supply challenging for regulatory bottlenecks and price gap between products manufactured around EU and Chinese imports.
New primary projects in the EU:

- Mures Magnesium,
- Verde Magnesium- Pilot industrial test
- MFE - MFE confirms all Al-thermic process steps with its European technology partner ITÜ
- Njordour Holdings- Electrolysis technology

New Projects Malaysia

Latrobe Magnesium
Capacity: 100ktpy
Status: Early planning stage

New Projects Australia

Latrobe Magnesium
Capacity: 40ktpy
Status: Under development

Magnesium Australia

Capacity: 30ktpy
Status: suspended

> Progress on new Chinese projects also slow due to weak market and slow approvals

China Mg INDUSTRY DEVELOPMENTS

(2024-2025)

Shaanxi – New Projects

Yulin Magnesium Group

Capacity: 200ktpy
Technology: Vertical retort
Status: Planning

Fugu Dongfangrui

Capacity: 30ktpy
Technology: Unknown
Status: Start construction Oct 2024

Xinjiang – New Projects

Xinjiang Shengmei

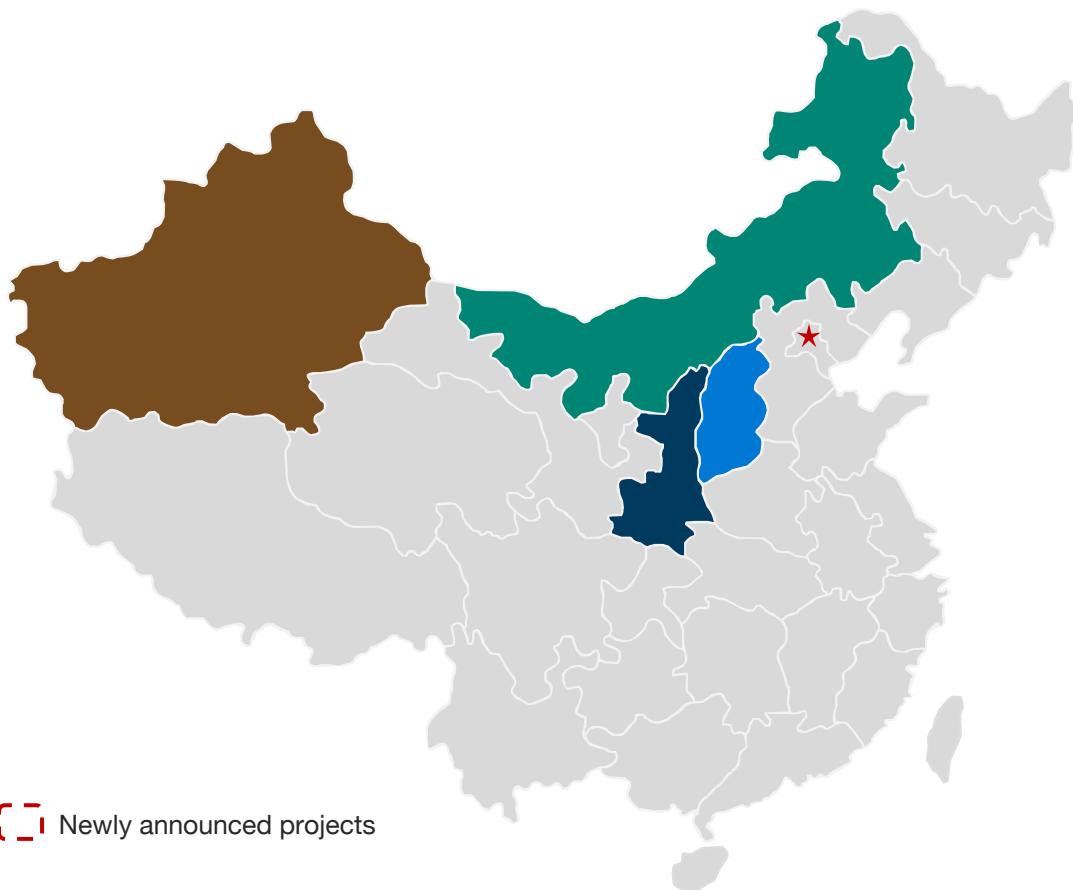
Capacity: 20ktpy
Technology: Vertical retort
Status: Constructing

Xinjiang Dayou Magnesium

Capacity: 150ktpy
Technology: **Electrolysis**
Status: Planning

Zhongze Group

Capacity: 60ktpy (Phase I)
Technology: Unknown
Status: Planning



Inner Mongolia – New Projects

Inner Mongolia Huihao

Capacity: 12ktpy
Technology: Horizontal Pidgeon
Status: Planning

Inner Mongolia Zhengneng

Capacity: 300ktpy
Technology: Unknown
Status: Planning

Shanxi – New Projects

RSM Wutai (Baosteel)

Capacity: 100ktpy
Technology: Vertical Pidgeon
Status: Construction

Shanxi Regal

Capacity: 30ktpy
Technology: Vertical retort
Status: suspended

Shanxi Guowei

Capacity: 200ktpy
Technology: Unknown
Status: Planning

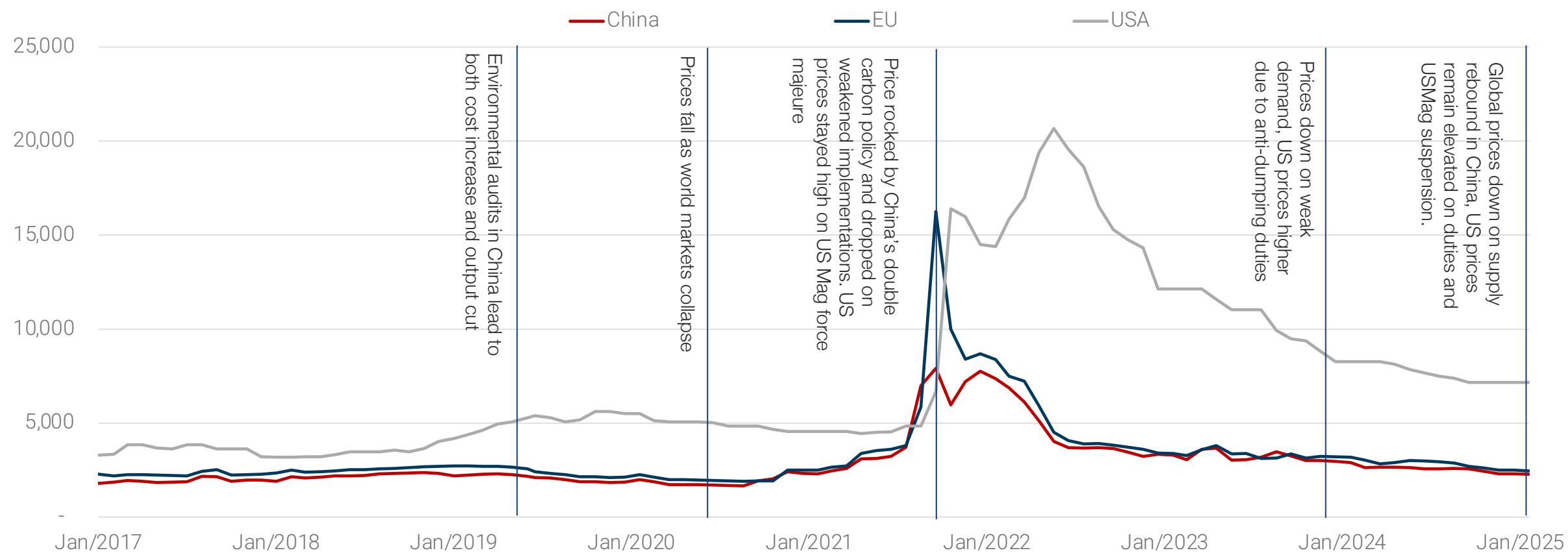
China Mining (Shanxi) Energy

Capacity: 60ktpy
Technology: Unknown
Status: Planning

> Primary Mg prices lower in all regions; US Mg price gap remains wide on ongoing duties.

WORLD PRIMARY Mg PRICES

(2017-Q1 2025, US\$/t)



> Lower FeSi prices have driven down Mg costs, but lower prices mean narrowing margins.

COMPARISON OF PRIMARY Mg PRICE AND Fe-Si PRICE

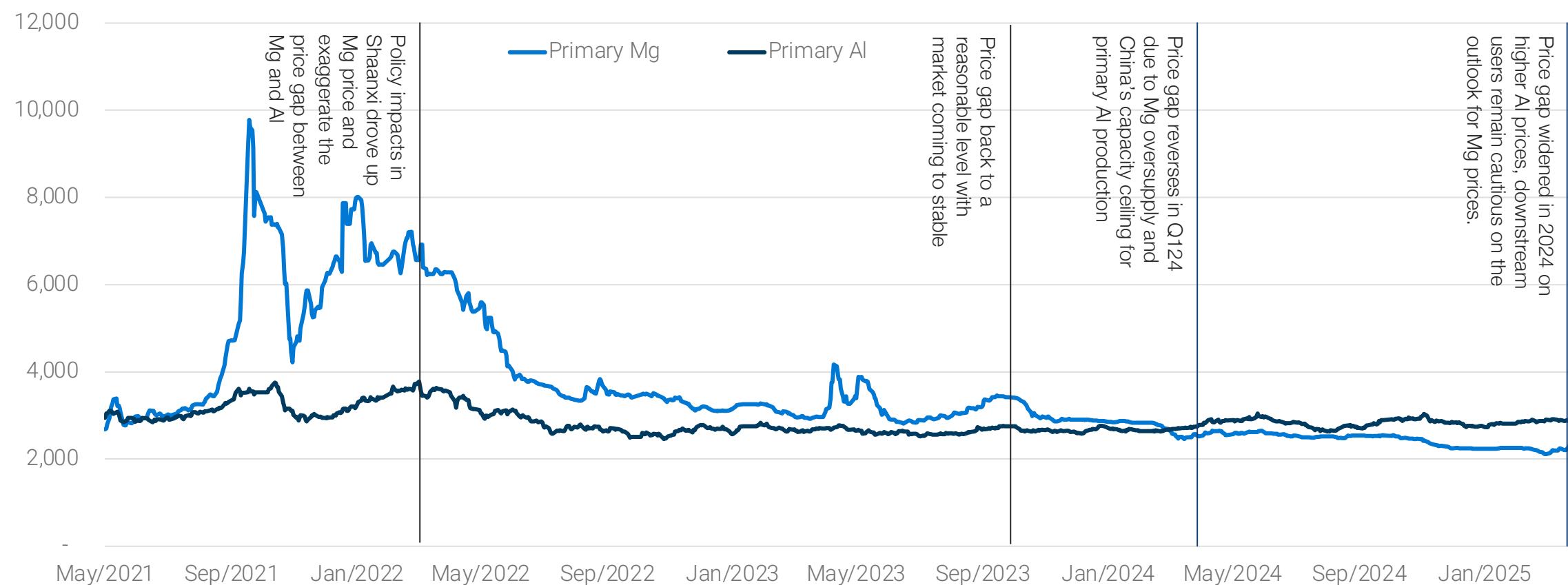
(2020- Q1 2025, EXW, VAT Incl, US\$/t)



> Downstream users cautious on Mg despite lower prices, due to concerns over price stability.

CHINA PRIMARY Mg AND PRIMARY AI PRICES

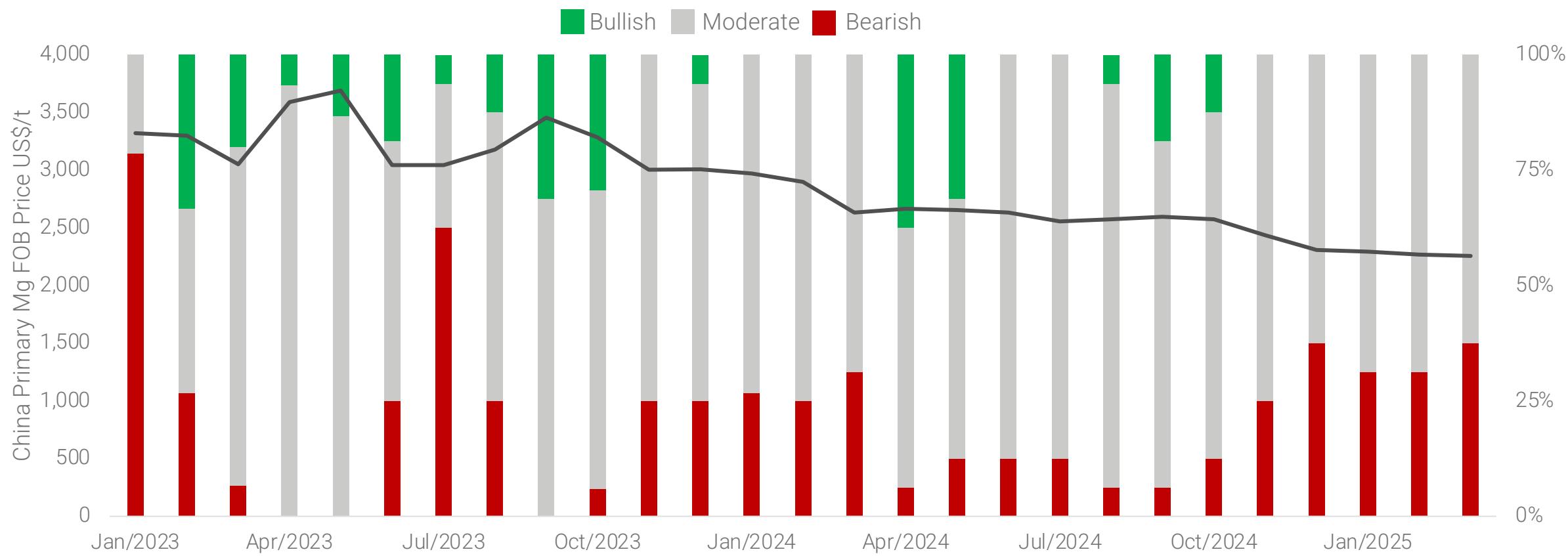
(2021 - Mar 2025, US\$/t)



> Pessimistic Mg market sentiment from mid-2024 on weak economic outlook.

MARKET PARTICIPANT SENTIMENT - SHORT-TERM MARKET TRENDS AND PRICES

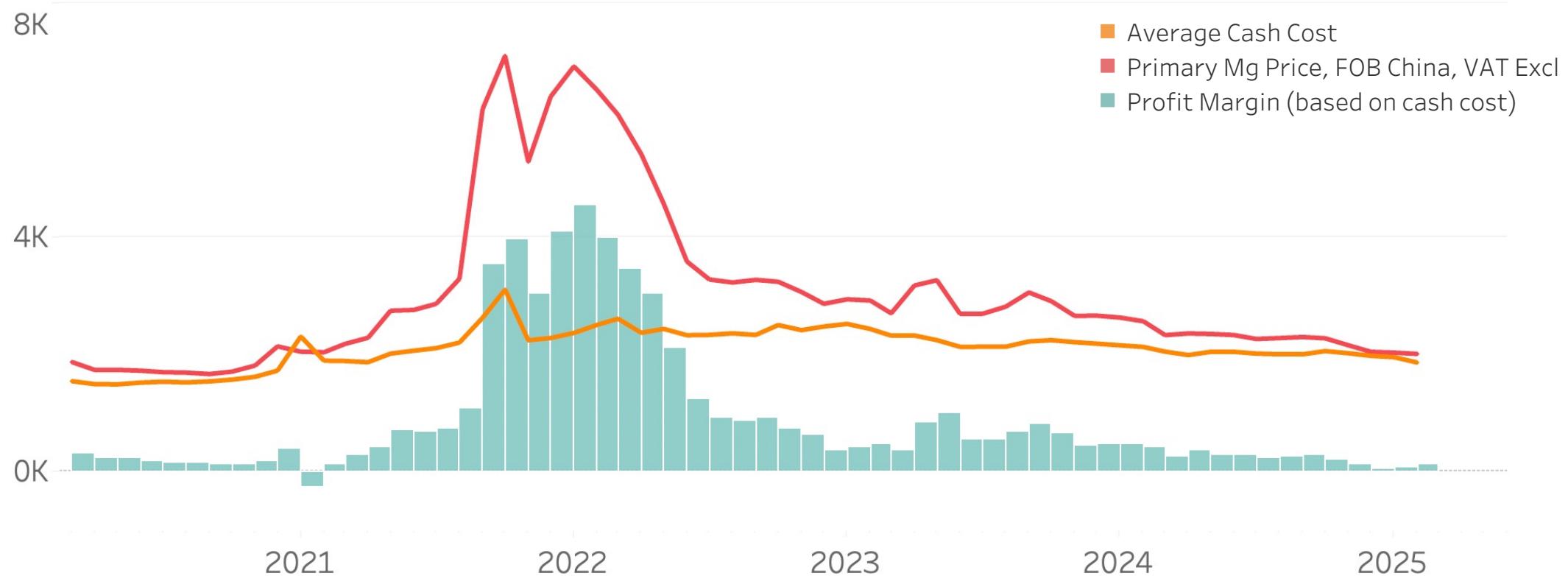
(2023 - 2025 Q1, US\$/t, % Share of Market Sentiments from CM's Monthly Market Interviews)



> Margins squeezed as prices fell in 2024. Q1 2025 saw some China producers facing losses.

MONTHLY CHINA PRIMARY MAGNESIUM PRODUCTION AVERAGE COST AND AVERAGE PRICE

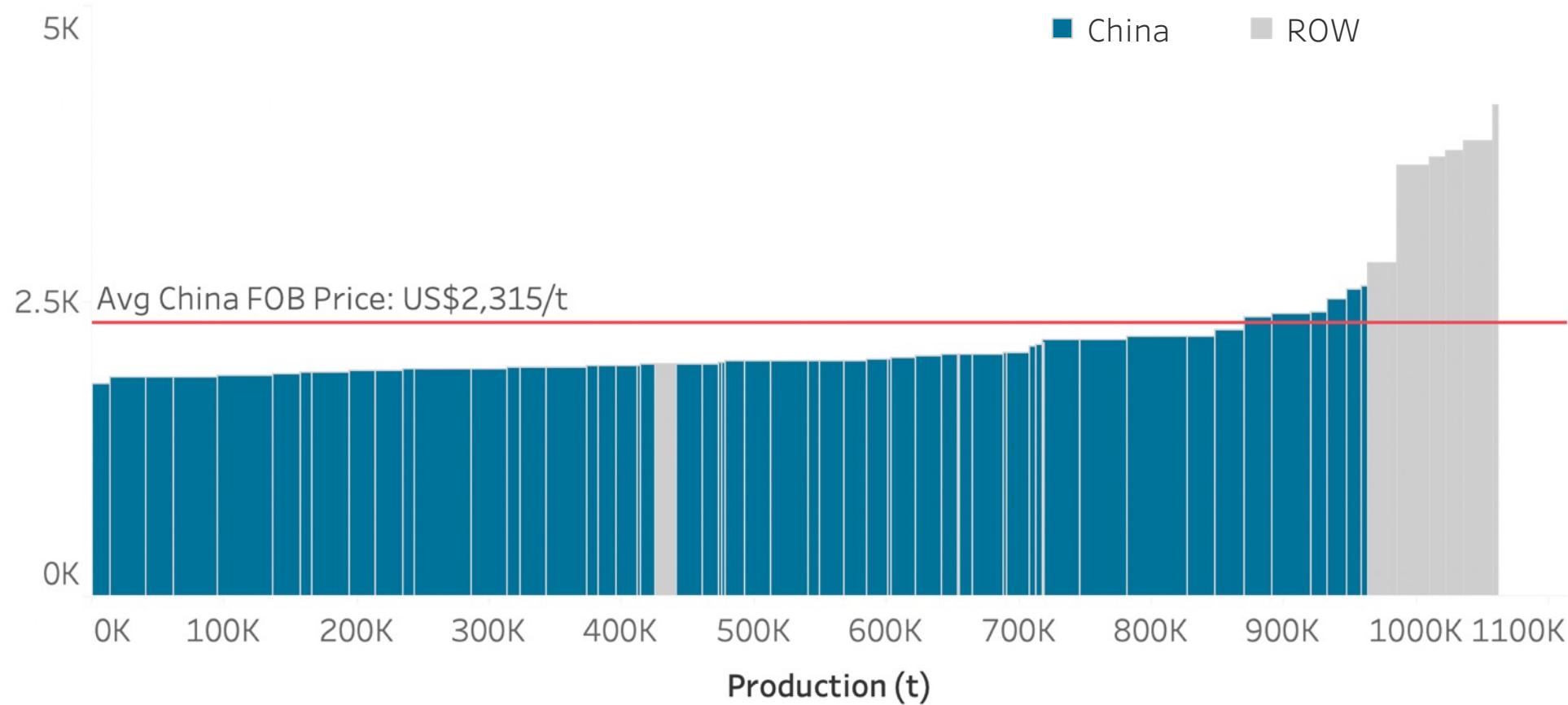
(2021 MAR–2025 MAR, US\$/t)



> Around 10% of Chinese producers facing losses at current prices, primarily in Shanxi.

GLOBAL PRIMARY MAGNESIUM PRODUCTION COST EX-WORKS

(2024 Average, US\$/t, t)



> Slag disposal procedures in the spotlight, producers required to implement new procedures.

NEW Mg SLAG POLICY

(2025)



Mg slag output

1 tonne of primary Mg typically generates 5 to 6 tonnes of Mg slag.



Mg slag utilization

In the past, Mg smelters would absorb the freight cost to deliver Mg slag to cement plants, but with limited quantities.



Major problem of Mg slag

Some magnesium plants lack proper procedures for slag disposal.

Some Mg smelters' storage space is constrained.

Latest Government Regulation

Smelters with inadequate slag disposal procedures may need to review and rectify their procedures and documentation.

This may add more cost to production.

No specific policy regarding Mg slag has been established yet.

NEW AND INNOVATIVE APPLICATIONS

Aerospace



On May 3rd, the "SJTU Siyuan II (iCUBE-Q)" lunar exploration satellite developed by Shanghai Jiao Tong University was successfully launched alongside the Chang'e-6 mission. This satellite, weighing only 6.5 kg with a total payload of 9 kg, is China's first nanosatellite (under 10 kg) for deep-space exploration and lunar missions. It marks the first deep-space exploration satellite from a Chinese university and from Shanghai Jiao Tong University.

May 3, 2024

Medical



Scientists have mastered the stable mass production of pure, homogeneous, and fine-grained medical magnesium alloys and profiles. By optimizing implant structures for magnesium's unique properties, they developed and patented a biodegradable magnesium cranial fixation system that combines biocompatibility, toughness, and controllable degradation. This innovation fills a critical gap in neurosurgical materials globally.

Jun 30, 2024

H2 Storage



On November 18th, the world's first large-scale solid-state hydrogen storage device was shipped from Waigaoqiao Phase IV Dock. The magnesium-based storage tank uses a chemical reaction between hydrogen and magnesium alloy to store hydrogen in solid form. It offers high storage density, enhanced safety, and cost-effective convenience, facilitating long-distance, large-scale hydrogen transportation.

Nov 18, 2024

Robotics



Baowu Magnesium and ESTUN have launched the "ER4-550-MI" magnesium alloy robot. This lightweight design reduces weight by 11% compared to aluminum versions, while improving cycle speed by 5%. Its material properties enhance vibration damping, electromagnetic shielding, and heat dissipation, boosting stability. Additionally, energy consumption is lowered by 10%, significantly improving operational efficiency.

Dec 24, 2024



CM Field Study 2025



> END OF PRESENTATION

With thanks to

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