



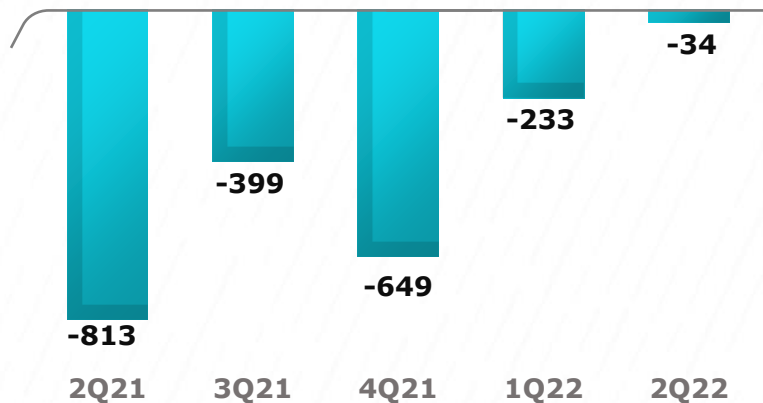
Aluminum Market Outlook

2Q22

ALUMINUM

Aluminum market remains in deficit even with supply increases in China

Global Balance¹ (kt) - Supply vs Demand

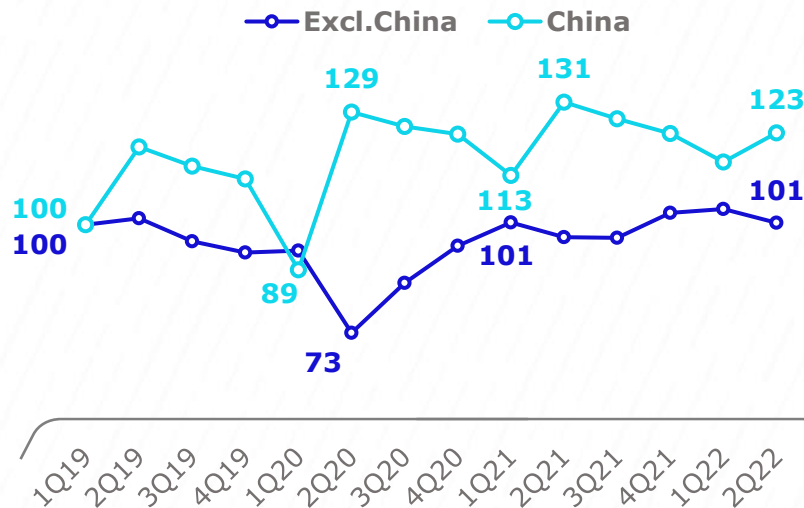


¹ Balance adjusted for net primary trade

 **Fifth consecutive quarter of deficit**

Primary Aluminum Demand

1Q19 = 100

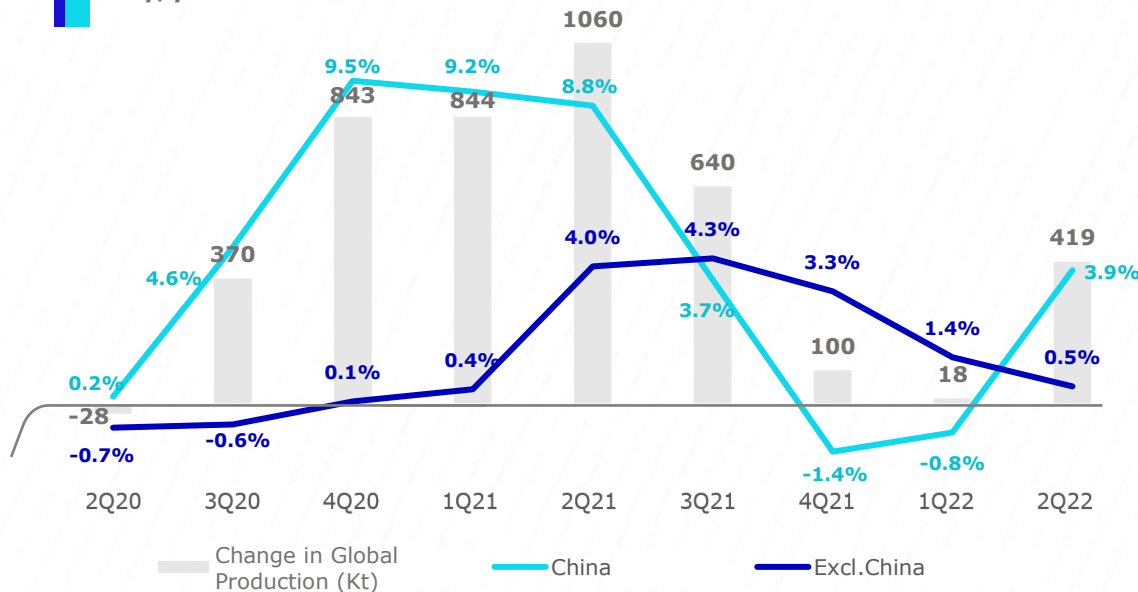


 **China's aluminum products exports boosted primary aluminum consumption in the country**

Global production resumes growth, boosted by China, with slowing pace of supply in other countries

Primary aluminum production growth

% y/y



Cost pressure leads to smelters closures in the USA (~254ktpa)

Energy costs in Europe, North America and Australia are at historic highs, increasing the risk of further smelters closures in these regions

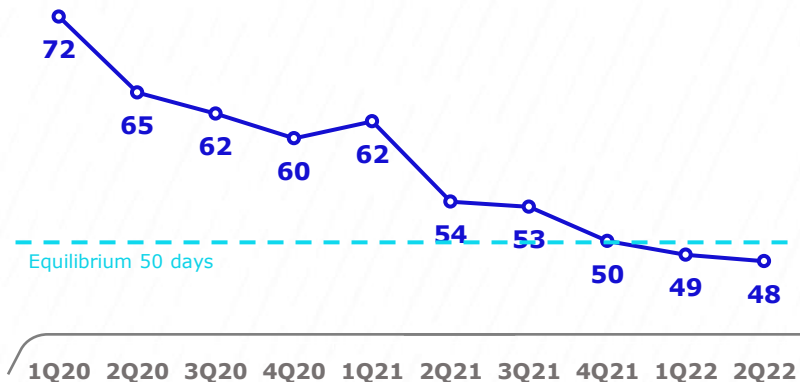
About 27% of primary aluminum production in Europe and 67% in the USA do not have medium and long-term energy contracts and are expected to be exposed to current prices in the next 18 months

Expectation that China will slow down supply additions in the coming months

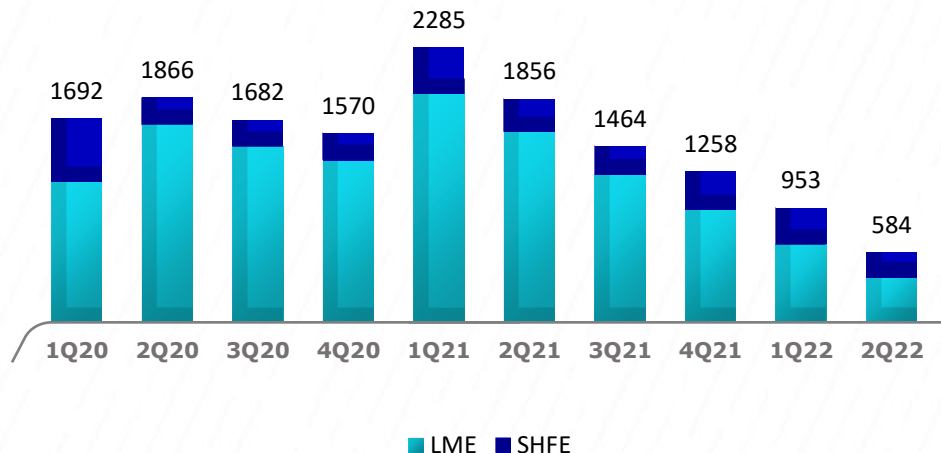
Despite the increase in production, there is an expected global deficit of -93 kt in 2022

Steady decline in global inventory levels in recent quarters

Global stocks (in days of consumption) are below what is considered to be the equilibrium levels, indicating tight physical market

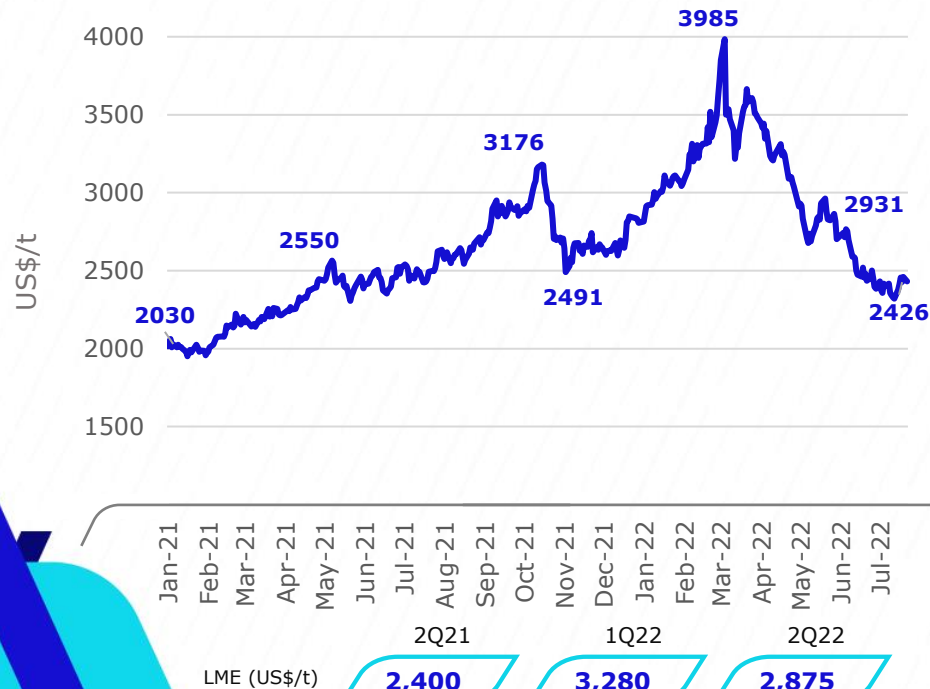


LME and SHFE inventories (kt) fell 31% in 2Q22 compared to 2Q21, reaching the lowest level since 2005

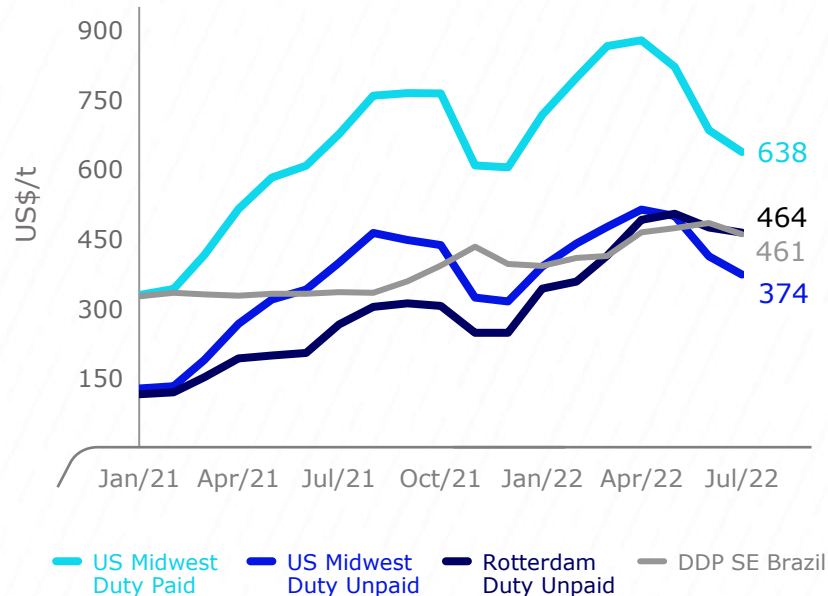


Premiums remain at high levels, despite the fall influenced by macro backdrop and Russian metal supply

Concerns over global growth weighed more than current aluminum market fundamentals, leading to a price decrease

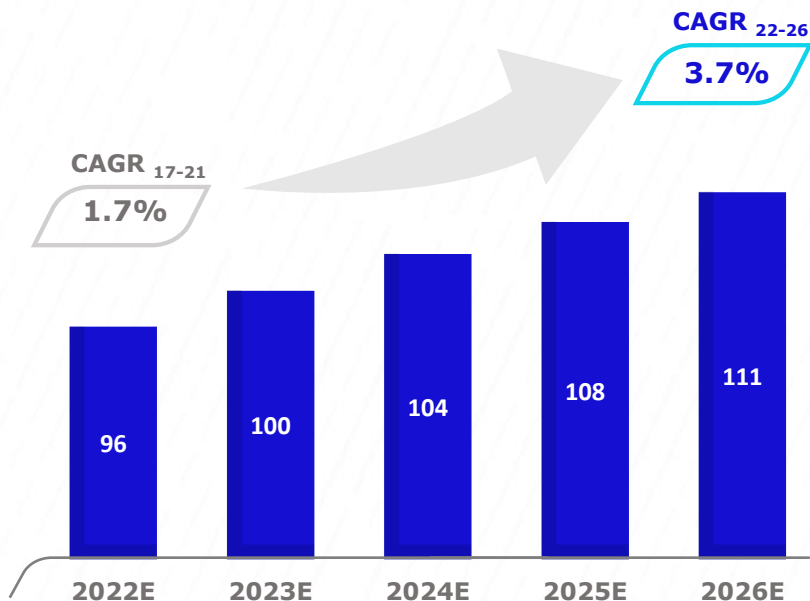


Continuity of Russian metal flows and demand uncertainties put pressure on premiums. Risk of new closures sustain their high level



Long-term fundamentals are firm, with more restricted supply by China and growing demand

Global Downstream Aluminum Demand (Kt)

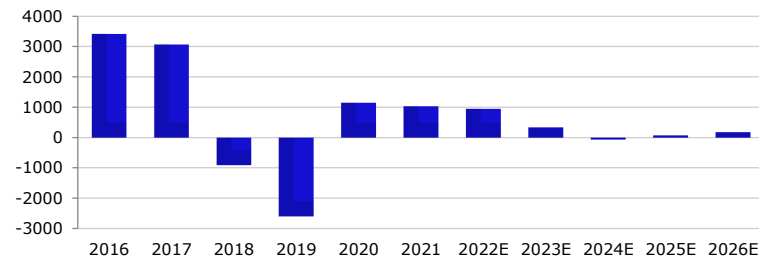


Demand growth tied to decarbonization: high aluminum intensity in solar panels and electric vehicles

Increased preference for aluminum in packaging, due to its properties, with emphasis on recyclability

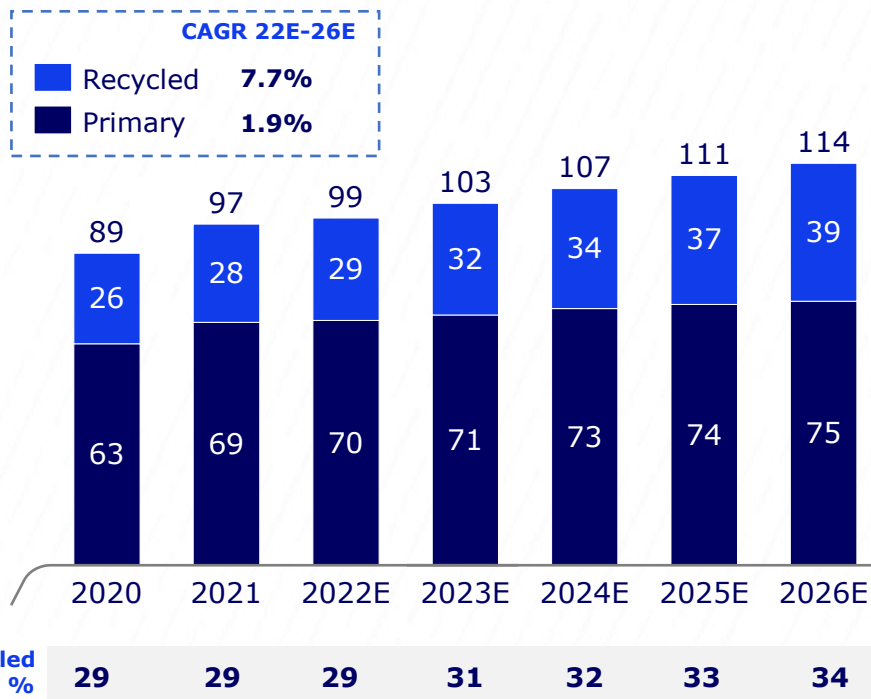
Slower supply additions in China. Capacity cap to be reached in the medium term, in order to control energy consumption and emissions

Change in Primary Aluminum Capacity in China (Kt)



Recycled consumption is expected to gain traction in the coming years, rising at a higher rate than primary aluminum

Total demand for primary and recycled aluminum (Mt)

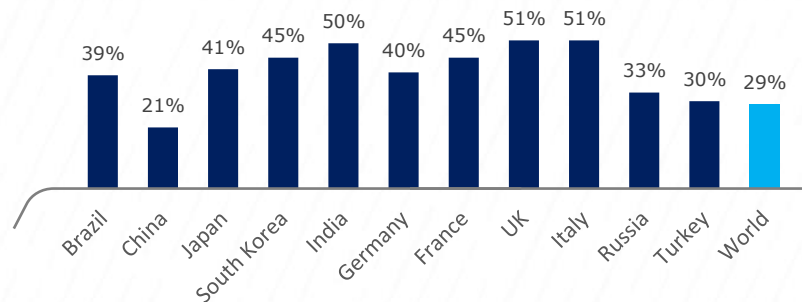


China is expected to accelerate investments in recycling. CRU estimates that the recycled share will increase from **21%** in 2021 to **28%** in 2026 in the country



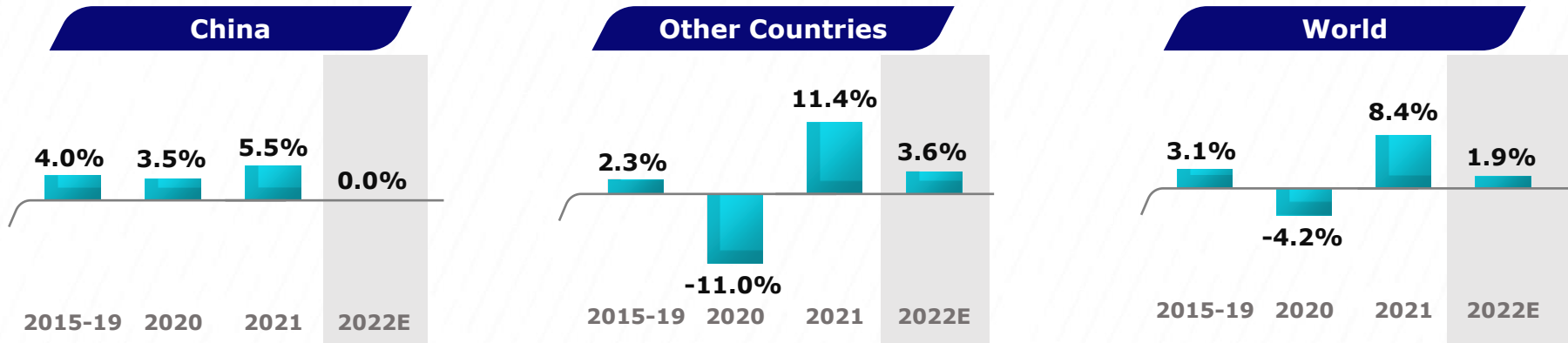
Even though Brazil is already a highlight in recycling, it will continue to advance, reaching **45%** of recycled consumption in 2026 (CRU).

2021 Recycled Aluminum Share in Total Demand (%)



Expected growth in global downstream aluminum demand in 2022, driven by other countries

Growth in downstream aluminum products demand % y/y



Lowered demand forecast due to Covid-19 impacts on China and global inflationary pressure



China has taken longer than expected to recover, but it is expected a stronger improvement from 4Q22, underpinned by government stimulus



Automotive production is recovering as chip availability increases. CRU estimates that light vehicle production will grow 4.5% in 2022



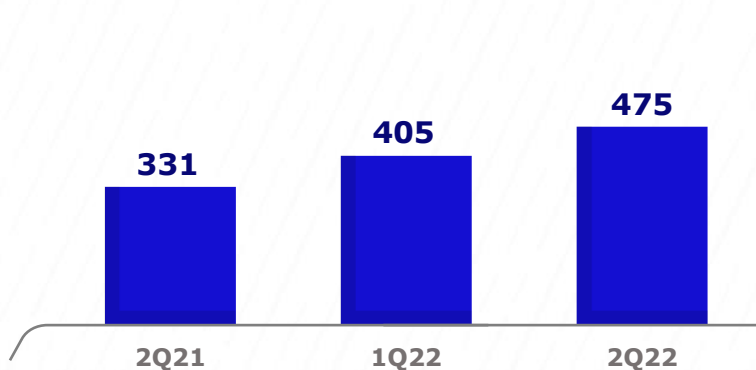
Strong global growth in packaging segment (food, beverages, pet food). In China, aluminum demand for solar panels is higher than expected

Brazil: positive outlook in 2022 for aluminum demand, mainly in the packaging sector

- ▼ Demand cooling in 2Q22 (vs 1Q22 and 2Q21), mainly in the **construction** and **consumer goods** sectors. Effect of the end of government financial assistance, high interest rates and inflation
- ▲ Despite the slight decrease in demand in 2Q22, a **healthy level of consumption** is still observed, which supported the increase in domestic premium

Brazil DDP SE Premium US\$/t [S&P Global Platts]

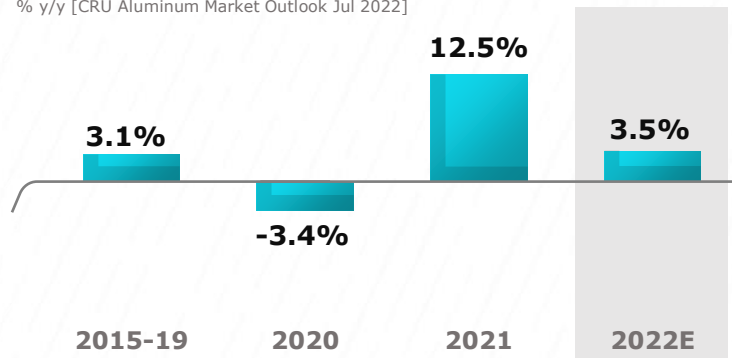
P1020: standard ingot, sow and T-bars



- ▲ **Packaging sector** (cans and excl. cans) with solid performance in 2Q22, boosted by new consumer trends
- ▲ **Packaging and Energy** sectors tend to support demand growth in 2022 in Brazil (CRU)
- ▲ Expectation of **aluminum consumption growth in 2022**, even considering a high base in 2021

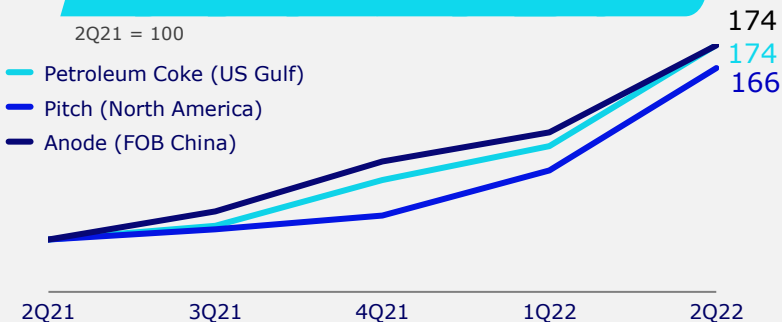
Downstream aluminum products demand in Brazil

% y/y [CRU Aluminum Market Outlook Jul 2022]

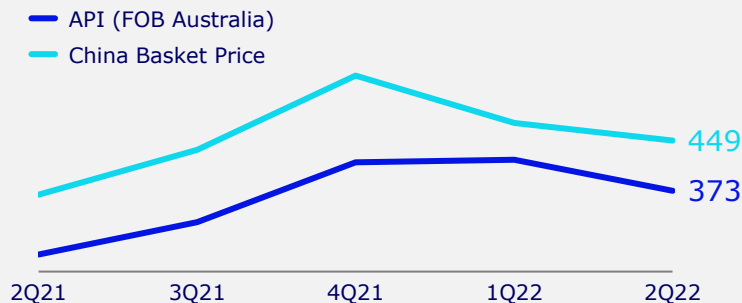


Alumina and power prices at high levels even after fall, and carbon products continue to rise

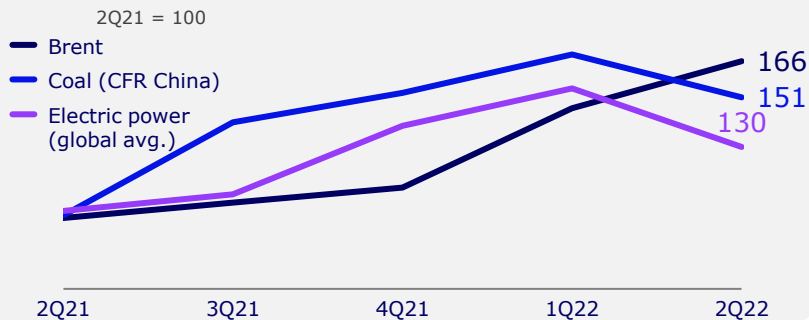
Price Index- Carbon Products



Alumina Prices - US\$/t



Price Index – Power Prices



Alumina refineries are facing steady increases in natural gas and caustic soda prices

In Europe, production cuts and refinery capacity closures (~1.4 Mt) have recently been announced. More supply restrictions are expected in case of further tightening in the gas market in Europe

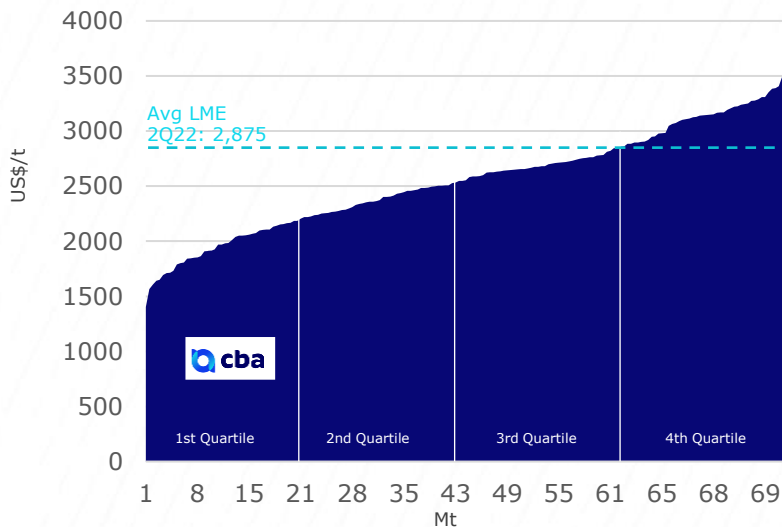
China: refinery margins under pressure due to rising costs and falling prices

Smelter margins shrank in 2Q22 despite the reduction in some raw materials prices

In a context of rising industry costs, CBA vertical integration provides better positioning on the curve

Liquid Metal Cost Curve – 2Q22

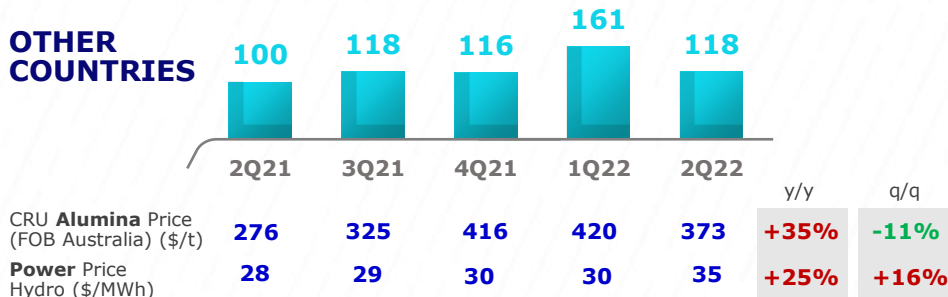
CRU Liquid Metal Cost (US\$/t)



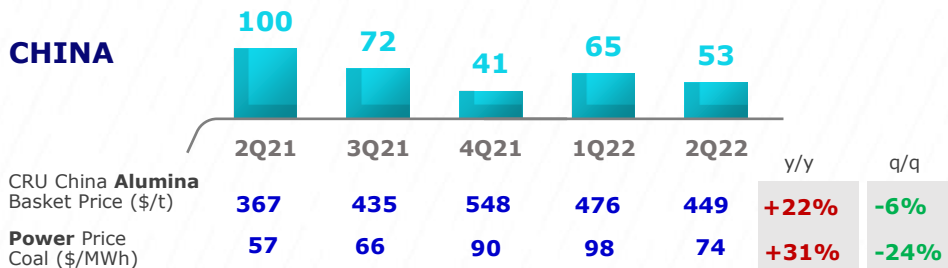
Lower aluminum prices compared to 1Q22 have reduced margins. Power prices in China has declined, but still remains above historical level

Margin Index
(2021 Q2=100)

OTHER COUNTRIES



CHINA



Key Takeaways

- Despite China's output surge, global **market continued in deficit**, with inventories below the level considered as equilibrium
- Cost pressure** continues to impact smelters' margin. Part of producers operating with costs above LME price, increasing the **risks of further production cuts** in the future
- LME Aluminum retreated 12% from the 1Q22 average, mainly reflecting **macroeconomic uncertainties**, which had greater weight than market fundamentals
- Premiums also retreated, but remained at high levels** due to concerns about the macro landscape, logistics costs and continuity of the Russian metal flow
- Brazil:** lower consumption in 2Q22, however, **demand level remains healthy**, supporting high domestic premium
- Long-term fundamentals are intact**, with expectations of greater supply discipline by China and growth in global demand, driven by the **decarbonization movement**

