Global Metals Weekly

Metal politics

08 January 2024

Commodities
Global

The pressing need for global coordination

Governments have aggressive decarbonisation targets, but many mined raw material markets are tight. The IMF highlighted this recently, outlining that the "trifecta of high concentration of (metals) production and low reactivity of supply and demand makes critical minerals for the energy transition highly vulnerable in the event of trade restrictions", a combination that in one scenario would justify price increases of 300%. Granted, the IMF analysis may be extreme. But the point about the need for global coordination is a pertinent one. Unfortunately, many government policies are inward-looking. For 2024, we expect policy making to continue apace, and we focus on a set of possible and scheduled announcements to impact the mined commodities – some bullish, some bearish.

US: protectionism, IRA and elections

We believe that the removal of **Section 232 and 301** restrictions on steel and aluminium is unlikely in the US. A sheltered domestic market means giving pricing power to the steel mills, with US HRC currently trading at a $400/t premium to China/Europe. Meanwhile, the US is also moving closer to signing off on the "**Prohibiting Russian Uranium Imports Act**", which has already pushed up uranium prices. Finally, the **Inflation Reduction Act** is instrumental in driving the installation of renewables through production and investment tax credits. That said, Republicans are not entirely happy with the IRA, so a potential removal of tax incentives could be discussed again in the run-up to the Presidential elections.

Europe: protectionism, electricity markets and sanctions

Protectionism is also on the rise in Europe, with the EU launching **an anti-dumping investigation into China's EVs**. Results should be announced later in 2024. China dominates the space and already has spare capacity, so breaking up supply chains will in all likelihood further intensify competition for feedstock. Meanwhile, the EU is looking to **reform the electricity market**, introducing renewable PPAs, which should help a restart of energy-intensive operators that temporarily shut down during the energy crisis.

China: 15th Five Year Plan – watch green commitments

China's renewable investment and EV production carried the copper market in 2023, and spending should remain critical this year, offsetting the country's weak housing market. A focus on renewables was embedded in the 14th Five Year Plan, which runs until 2025. The government has already started working on the **15th Five Year Plan**, and any indication of commitments towards green investment should be worth following. Encouragingly, President Xi recently confirmed an intention for coal demand to peak during the next five-year period.

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HRC: hot-rolled coil

EV: electric vehicle

IMF: International Monetary Fund

IRA: Inflation Reduction Act

PPA: power purchase agreement

t: ton

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Metals politics increasingly matter

IMF highlights importance of global coordination

Investment in the energy transition is gathering pace, with policymakers increasingly focused on 1) decarbonising the global economy through green technologies and 2) the raw materials required to accomplish that. In this note, we look at some of the issues at hand, also tackling a range of policy initiatives that could make a difference in 2024, bullish or bearish.

While governments pursue aggressive decarbonisation targets, many mined raw material markets are tight. The IMF highlighted this in a recent note, outlining that the "trifecta of high concentration of (metals) production and low reactivity of supply and demand makes critical minerals for the energy transition highly vulnerable in the event of trade restrictions".

Beyond just confirming how critical the metals are, the IMF took the analysis a step further, dividing the markets for four critical minerals into two hypothetical blocs that refuse to trade with each other, along the lines of a 2022 UN vote on Ukraine.

"Results show that the inability of a hypothetical China-Russia+ bloc to import copper, nickel, lithium, and cobalt from mining countries, such as Chile, the Democratic Republic of the Congo, and Indonesia, would lead to an additional price increase of 300 percent, on average. Acquiring minerals would be more expensive, which would lead to lower investment in solar panels and wind turbines and fewer EVs.

In the hypothetical US-Europe+ bloc, […] fragmentation would cause an oversupply of most of these mined minerals. However, the bloc's use of minerals would be constrained by the length of time it takes to scale up refining capacity. Fragmentation, therefore, generates only small gains in the US-Europe+ bloc by 2030: the bloc would produce slightly more EVs, but there would be no gains in renewable-energy capacity".

Decarbonizing the global economy would be more difficult if the market for minerals were fragmented. The IMF estimates that, on balance, "global net investment in renewable technology and production of EVs would be about 30 percent lower and fragmentation in critical mineral markets could make the clean energy transition more costly and potentially delay much-needed policies to mitigate climate change. Multilateral cooperation on trade policies and more data sharing would thwart additional obstacles to a cleaner global energy system. Critical minerals may someday be as important to the world economy as oil is today".

Government policies are predominantly inward-looking

Granted, the IMF analysis is an extreme scenario, with hard trade restrictions along blocks unlikely to materialise. Yet, the point about the necessity of global coordination is a pertinent one. Unfortunately, many government policies are inward-looking. For 2024, we expect policy making to continue apace, and we focus on a set of possible and scheduled announcements that will likely impact the mined commodities – some bullish, some bearish.

Exhibit 1: Policy initiatives of focus

Some policy initiatives are likely to be bullish, others bearish

Country	Policy	Timeline	Why it matters
US	Anti-dumping measures	Remain in place	They have sheltered the US market for aluminium/ steel, raising prices
	Prohibiting Russian Uranium Imports Act	2023	Russia may stop supplying the US with uranium
	Inflation Reduction Act	Run up to elections	Potential phase-out of tax credits, affecting renewables investment
Europe	Anti-dumping measures	Later in 2024	Increased competition for raw materials, also over local content targets
	Electricity market reform	Through 2043	These should facilitate restart of energy-intensive businesses through stable long-term power prices
	UK sanctions on Russia	In place	These could make Russian aluminium units less appealing, especially on LME
China	15th Five Year Plan	Through 2024 and 2025	Further commitment to the energy transition

Source: BofA Global Research

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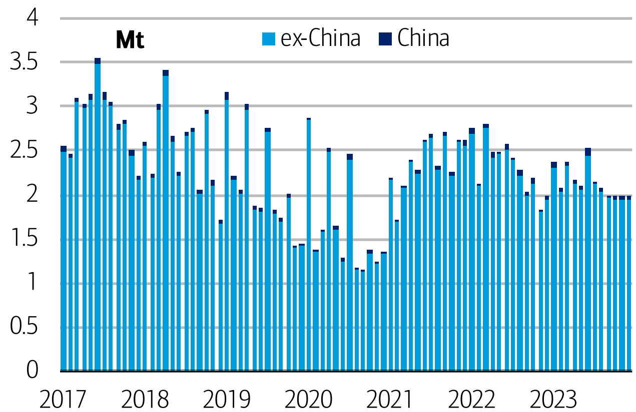
US

Steel and aluminium: Anti-dumping measures

China has been focussed on building a strong and resilient metals industry in recent years, so it has come to dominate many raw material markets. Not surprisingly, Western governments have woken up to the threat, realising that basic material industries are important. This has been very visible in the Section 232 and 301 tariffs imposed by President Trump[1]. Occasionally, some question whether these measures will be removed; we believe that this is unlikely. Exhibit 2 picks up on the implications, highlighting that US steel imports have been trending lower in recent years, so steel mills could be more disciplined. This is mirrored by Exhibit 3, which shows that capacity utilisation rates in 2023 have been below the previous 5-year average.

Exhibit 2: US steel imports
Steel imports have been trending lower



Source: Bloomberg, BofA Global Research

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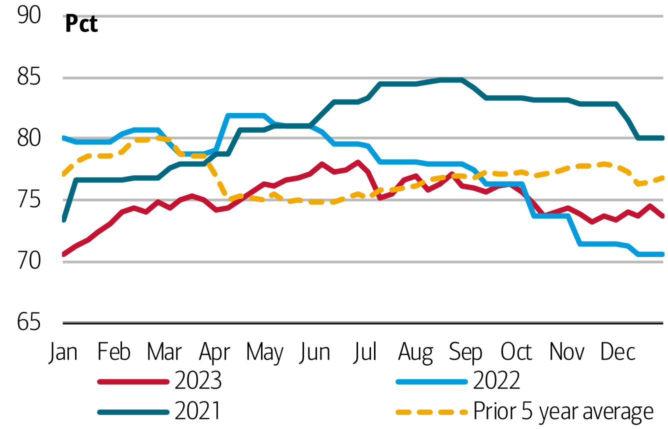
Exhibit 3: US, capacity utilisation rates at steel mills
Capacity utilisation rates have been below the longer-term average



Source: Bloomberg, BofA Global Research

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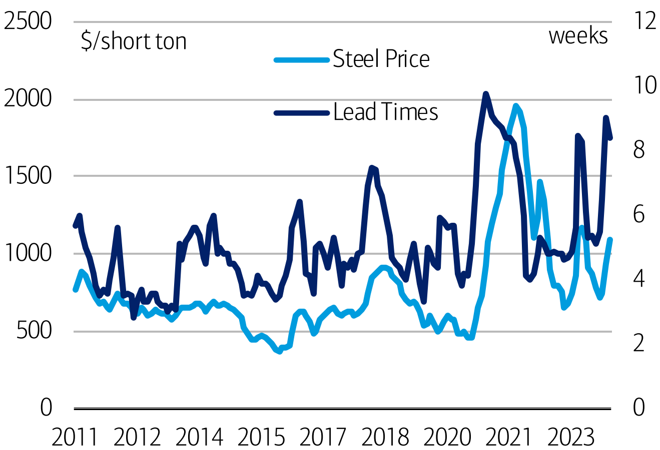
The implications of a more sheltered domestic US steel market are also mirrored by Exhibit 4, which shows frequent and more violent spikes in lead times.

Exhibit 4: US hot-rolled coil lead times
Lead times have spiked repeatedly



Source: Bloomberg, BofA Global Research

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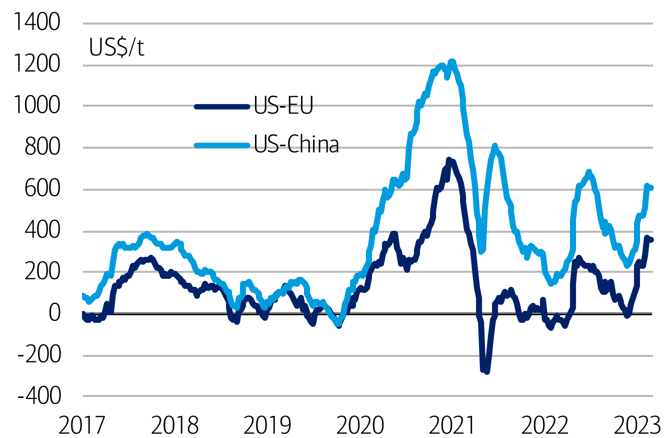
Exhibit 5: Hot-rolled coil, US premia over EU/China
US steel prices have often been trading at a premium



Source: Bloomberg, BofA Global Research

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These spikes were often accompanied by sharp steel price rallies. Indeed, US steel prices have frequently been trading above those in Europe and China (Exhibit 5). The bottom

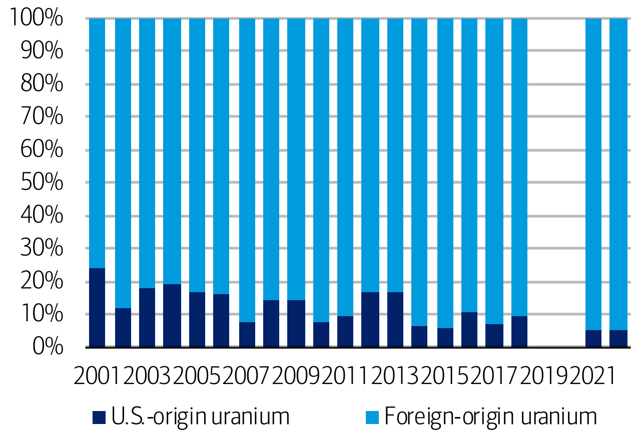
[1] Section 232 tariffs restrict imports in the interest of national security; Section 301 impose tariffs against countries with unjustified, unreasonable, or discriminatory trade actions.

line? Protecting domestic industries is not free, with buyers usually shouldering the costs.

Uranium: Russia

The war in Ukraine has added another dimension to geopolitics and supply chain concerns. Exhibit 6 picks up on this, showing the breakdown of US uranium purchases by origin. The data highlights that the North American country relies heavily on foreign supplies. This, on its own, is not necessarily an issue. Yet, Exhibit 7 shows that Russia accounts for almost one-third of enrichment services purchased by US industry participants. Of course, this is unappetizing for a couple of reasons: 1) it helps finance Russia's war efforts, and 2) it drives home the dependence of the US on a hostile country.

Exhibit 6: Uranium purchased by owners and operators of US civilian nuclear power reactors
The US relies heavily on foreign uranium supplies



Source: EIA, BofA Global Research

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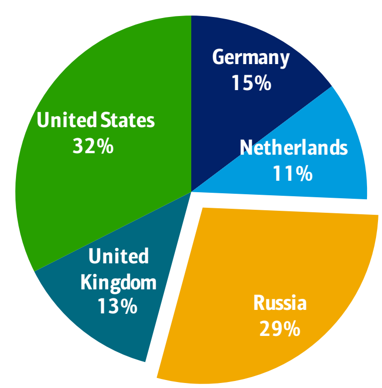
Exhibit 7: Purchases of enrichment services by owners and operators of US civilian nuclear power reactors in 2022
The US is exposed to Russia



Source: EIA, BofA Global Research

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Tackling this, the US House of Representatives in December passed the "Prohibiting Russian Uranium Imports Act", legislation that would ban imports of enriched uranium produced in Russia, although wavers would initially apply; it still needs to pass the Senate and be signed by President Biden. The caveat is that Russia has already threatened to stop sending uranium immediately after the bill is signed. This would make life difficult for US operators, which is one reason why uranium prices have rallied sharply.

MIFTs: Inflation Reduction Act

IRA has given a boost to green spending

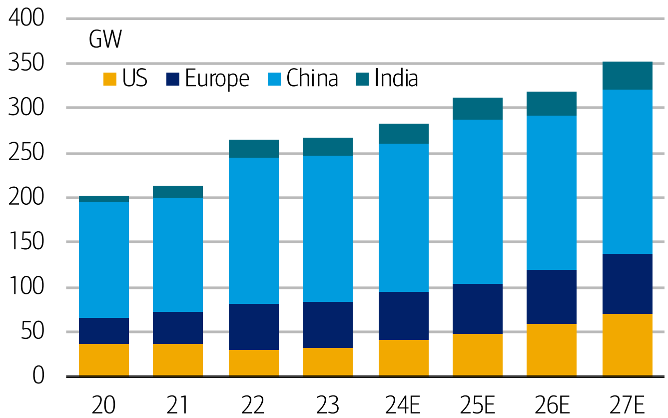
Governments have put enormous efforts into driving the energy transition:

- China's policies are embedded in a few initiatives. The 14th Five Year Plan, running between 2021 and 2025, is critical.
- The EU launched the Fit For 55 programme, but this was then enhanced by REPowerEU, which beyond decarbonisation also looks to make the economy independent of Russian energy.
- Meanwhile, the US has also focussed on a range of initiatives, with the Inflation Reduction Act one of the most aggressive.

The impact of all these policies is mirrored by Exhibit 8, which shows an acceleration of renewables investment in the past few years. Exhibit 9 digs a bit deeper for the US, highlighting that utility scale power generation capacity changes are dominated by solar and wind.

Exhibit 8: Renewable capacity installations

Most countries foster investment in renewables



Source: IEA, BofA Global Research

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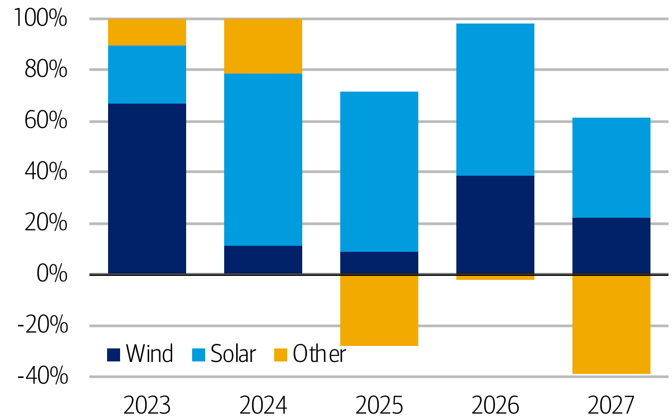
Exhibit 9: US, planned Utility-Scale Generating Capacity Changes, by Energy Source

Solar and wind dominate power generation changes



Source: EIA, BofA Global Research

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Sticking with renewables/electricity generation and revisiting some US policies, President Biden launched the Inflation Reduction Act of 2022 and the Infrastructure Investment and Jobs Act of 2021, the latter of which is commonly known as the Bipartisan Infrastructure Law (BIL). These two laws have already had far-reaching implications for the nation's energy system[2].

The laws collectively establish a broad suite of programs and financial incentives designed to reduce emissions of greenhouse gases and other harmful pollution, advance clean energy technology manufacturing and deployment, increase US energy security, and mitigate systemic environmental justice issues while increasing the affordability of energy. The Congressional Budget Office (CBO) estimates that the climate and clean energy support authorized through the two bills will total more than $430 billion, cumulatively, from 2022 through 2031, representing the largest commitment of the federal government to investing in the modernization and decarbonization of the US energy system.

Republicans would cut some of the spending

Despite their success, the Republicans have voiced opposition to the bills, so noise around the energy transition will likely become louder as we approach the US Presidential elections.

Our colleagues in equity research recently presented a scenario analysis (see the report, Industrials/Multi-Industry: Scenario analysis on federal stimulus if the Republicans win in '24 07 December 2023) for federal stimulus if the Republicans achieve a Senate majority and win the 2024 Presidential elections, looking at provisions from the **Limit, Save, Grow Act** (a Republican debt ceiling bill from 2023), the **Fiscal Responsibility Act of 2023** (the actual debt ceiling legislation), various **US House appropriation bills**, the US House Republican controlled Budget Committee's **Reverse the Curse Resolution**, and **Project 2025** (a political framework of the Heritage Foundation, a leading conservative think tank).

That analysis assumes that all the cuts to federal stimulus that were proposed across these documents were actually enacted to create a conservative scenario analysis. We find that the $1,923bn designated from the CHIPS Act, ESSER, IIJA, and IRA has the potential to shrink by ~26% to $1,431bn. We include the estimated impact from IRA tax

[2] Steinberg, Daniel C., Maxwell Brown, Ryan Wiser, Paul Donohoo-Vallett, Pieter Gagnon, Anne Hamilton, Matthew Mowers, Caitlin Murphy, and Ashreeta Prasana. 2023. Evaluating Impacts of the Inflation Reduction Act and Bipartisan Infrastructure Law on the U.S. Power System. Golden, CO: National Renewable Energy Laboratory. NREL/TP-6A20-85242. https://www.nrel.gov/docs/fy23osti/85242.pdf

credits in the totals. Excluding these, the cuts would amount to 14%. At this point, the vast majority (77%) of the stimulus enacted since 2020 remains unspent (see the report, Where are the federal dollars – stimulus money allocated and spent).

Limit, Save, Grow Act

The Limit, Save, Grow Act was the House Republican proposed plan to raise the debt ceiling and cut government spending. The act was introduced on 4/25/23 and was passed in the House on 26 April 2023. It did not become law and was superseded by the Fiscal Responsibility Act of 2023.

The Limit, Save, Grow Act targeted $76.5bn in IRA funding (out of $400bn total) – however, the enacted debt ceiling bill cut only $1.4bn. In some of the published appropriation bills, it seeks to cut $22.4bn from the IRA. Cutting tax credits could have the biggest impact on energy transition spend:

- **Production tax credit (PTC)**: the Limit, Save, Grow Act would modify the credit for certain renewable resources. It modifies the tax credit for producing electricity from renewable resources by decreasing the base amount of such credit and by advancing the terminating date (to before January 1, 2022) applicable to wind, open and closed-end biomass, solar, landfill gas, trash, hydropower, and marine and hydrokinetic renewable energy resources.

- **Investment tax credit (ITC**): this would be modified so that the percentage rate of the energy tax credit applicable to various energy properties, including solar, fuel cell, qualified microturbine, combined heat and power, and small wind energy, would be lower and advance the terminating date for such properties. The section also repeals prevailing wage requirements for the construction of qualifying energy facilities and the increases credits for using US-sourced materials in energy facilities and locating in certain energy communities.

In short, reducing the tax credits might well slow renewables installation, with a knock-on impact on metals demand. Hence, this is what we are most focused on in the run-up to the elections.

EU

MIFTs: Anti-dumping investigations

The European Commission confirmed in October that it has formally launched an anti-subsidy investigation into the imports of battery electric vehicles (BEV) from China. The investigation will first determine whether BEV value chains in China benefit from illegal subsidisation and whether this causes or threatens to cause economic injury to EU BEV producers. Should both prove true, the investigation will examine the likely consequences and impact of measures on importers, users, and consumers of battery electric vehicles in the EU. Based on the findings, the Commission will establish whether it is in the EU's interest to remedy the effects of the unfair trade practices found by imposing anti-subsidy duties on imports of battery electric vehicles from China.

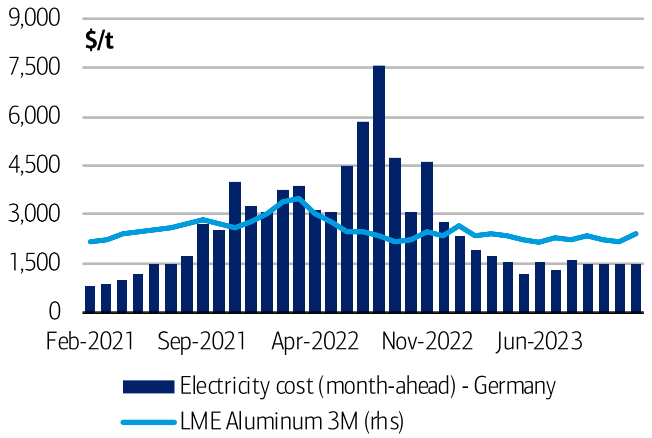
In terms of timeline, the investigation will be concluded within a maximum of 13 months from initiation. If legally warranted, any provisional anti-subsidy duties may be imposed within 9 months of initiation, with any definitive measures to be imposed up to 4 months later or within 13 months of the investigation having started.

With China dominating the EV space and especially the EV battery supply chain, this might well have implications for battery metals demand, bringing Europe as an additional buyer into the market, especially considering that Brussels added local content rules to its Critical Raw Materials Act (see the 31 March 2023 report, Metals Strategist: Delivering the energy transition: where are the bottlenecks and constraints?).

Aluminium and zinc: electricity market reform

During the energy crisis, energy-intensive industries have been under pressure over spiking gas prices. Linked to that, the EU has launched an electricity market reform, acknowledging that Russia's full-scale invasion of Ukraine caused severe spikes in energy prices across the EU in 2022.

Exhibit 10: Spot electricity costs at a German aluminium smelter
Aluminium prices did not cover spot electricity costs during the peak of the energy crisis



Source: Bloomberg, BofA Global Research

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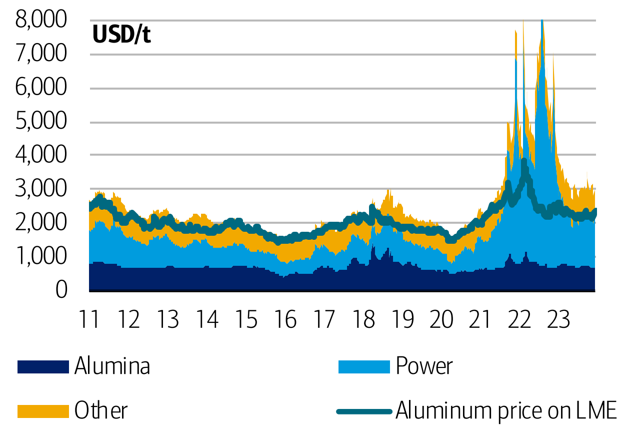
Exhibit 11: Operating costs of a European aluminium smelter
At spot raw material/feedstock prices, an average European smelter would still be loss-making



Source: Bloomberg, BofA Global Research

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Among other measures, the reform provisionally agreed will facilitate the deployment of more stable long-term contracts such as PPAs, through which companies establish their own direct supplies of energy and thereby can profit from more stable prices of renewable and low-carbon power production.

PPAs are long-term private contracts between a renewable energy or low-carbon generator and a consumer. Access to PPAs is currently available only to major actors in a few Member States (MS). To make them more available, MS are expected to 1) tackle the financial risks associated with off-taker payment default (e.g., through state guarantees), which is often a major barrier to PPAs; 2) allow renewable energy project developers participating in a public support tender to reserve a share of the generation for sale through a PPA; 3) apply in such tenders evaluation criteria to incentivise access to the PPA market for customers that face entry barriers.

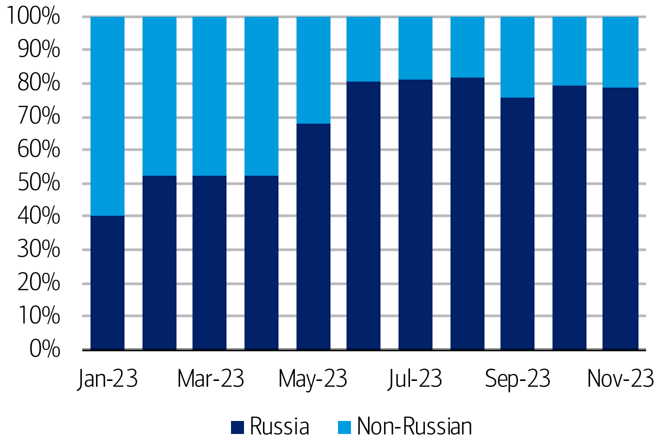
Member States will be obliged to ensure the availability of market-based guarantees for PPAs. This should help enhance the competitiveness of EU industry by reducing its exposure to volatile prices related to fossil fuels. Of course, bringing the energy crisis to an end would also increase the incentive for metals producers, including aluminium and zinc smelters, to increase production.

UK

Base and precious metals: Russia

While Western countries have proactively targeted Russian energy exports, mined commodities have mostly fallen by the wayside. That said, the UK, which hosts the London Metals Exchange (LME) and London Platinum and Palladium Market, is an exception. Indeed, the UK government introduced amendments to its Russia sanctions (EU Exit) Regulations 2019 that restrict UK Persons from acquiring Russian metal. In addition, the amendments to the Regulations restrict UK Persons from importing, supplying, and delivering Russian-origin metal or metal located in Russia. Hence, while the London Metals Exchange is a global market, there is a risk that metal market participants would be less willing to accept Russian warrants, which already dominate LME warehouses, as Exhibit 12 and Exhibit 13 show for aluminium.

Exhibit 12: LME metal inventories by origin
Russian aluminium units dominate LME storage



Source: LME, BofA Global Research

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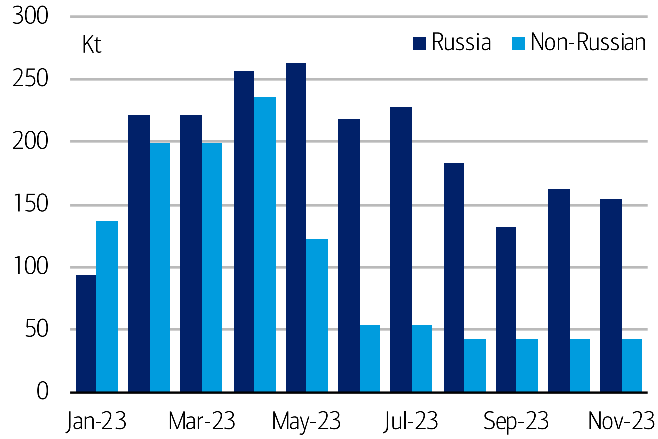
Exhibit 13: LME metal inventories by origin
Russian tonnages in LME warehouses are practically depleted



Source: LME, BofA Global Research

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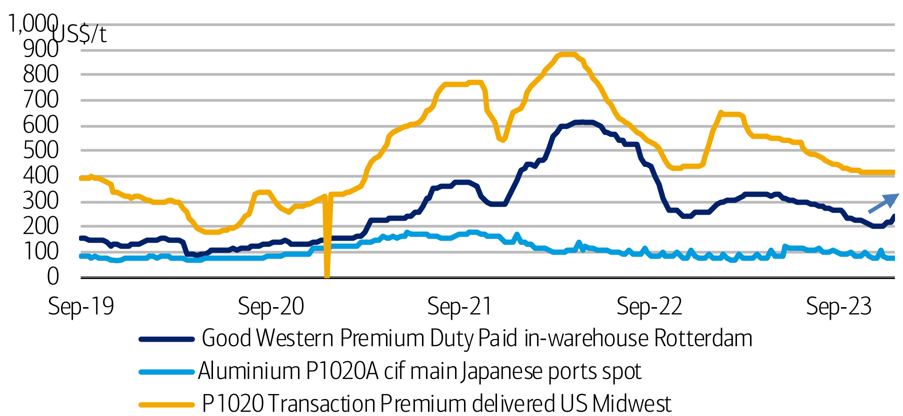
What could be a natural reaction to that? Lack of access to Russian aluminium units, once a staple for Europe, could lead to an increase of premia, which has already started happening, as the following chart shows[3]:

Exhibit 14: Aluminium, physical premia
Premia have bottomed



Source: Bloomberg, BofA Global Research

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China

In December, China's top economic planner began its preliminary study of the country's 15th Five-Year Plan, which runs between 2026 and 2030, with the National Development and Reform Commission (NDRC) starting to go through major issues that require early planning and research. Encouragingly, President Xi said that China was committed to green development and upgrading its coal-dependent energy system, reinforcing that "We will strictly limit the increase in coal consumption over the 14th five-year plan period (2021-2025) and phase it down in the 15th Five-Year Plan period (2026-2030)".

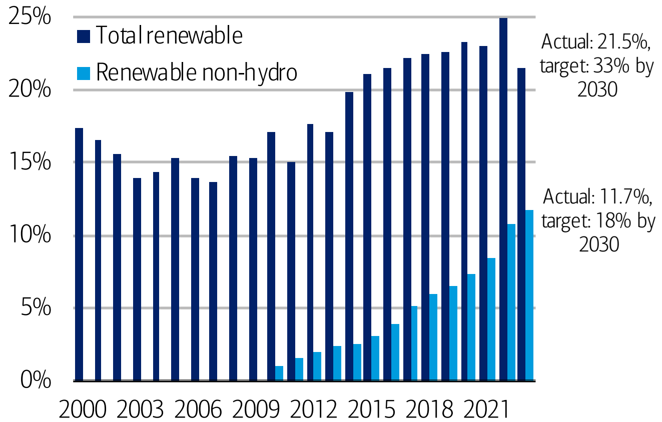
In a recent note, we highlighted the importance of the Five Year Plans for metals demand (see [Global Metals Weekly: Copper has come a cropper, but will again be a hopper 23 February 2023]). Indeed, China released the 14th Five-Year Plan (FYP) on Renewable Energy Development (2021-25) in June 2022. Remarkably, that policy aimed

[3] Physical premia have to be paid on top of the quoted LME price; they can include items such as transportation cost and insurance. However, they are also an indicator for the tightness of regional markets.

at increasing renewable energy generation by 50% to 3.3tn kilowatt hours (kWh) in 2025, which should ultimately give renewable electricity consumption a share of 33% by 2025, up from 28.8% in 2020. Meanwhile, non-hydro renewable power generation is set to hit 18% in 2025, from 11.4% in 2020 (Exhibit 15).

Exhibit 15: China, renewable power generation of total

While renewable power generation has risen, it still falls short of targets from the 14th Five Year plan



Source: Bloomberg, BofA Global Research

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Exhibit 16: China's 2025 renewable energy target

China has ambitious renewables targets

Indicators	Unit	2020 level	2025 target
1. Renewable electricity utilization			
• Renewable electricity consumption share	%	28.8	33
• Non-hydro renewable electricity consumption share	%	11.4	18
• Renewable electricity generation	trillion kWh	2.21	3.3
2. Renewable non-electric utilization (geothermal heating, biomass heating and fuel, as well as solar heating)	million tonnes of standard coal		60
3. Total renewable consumption	billion tonnes of standard coal	0.68	1
4. Non-fossil power generation share	%	33.9	39
5. Electrification rate	%	27	30
6. From 2021 to 2025, more than 50% of the country's incremental electricity and incremental energy consumption should come from renewables			

Source: National Energy Administration, Energy Foundation

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Converting these figures into capacity installations, the Asian nation needed to install an average 130 gigawatts (GW) of renewable capacity per year between 2020 and 2025. For reference, having added 125GW of solar and wind capacity in 2022, China's National Energy Administration guided for additions of 160GW last year. This on its own should raise domestic and global copper demand by 9ppt and 4.5ppt, respectively. Commitment to further investment would be a strong signal that demand for the red metal will remain strong.

Appendix

Table 1: Commodity prices, exchange rates, equity indices, yields, and inventories

Metal prices have fallen into 2024

Base metals	Cash, $/t	3-month, $/t	Cash, WoW change	3-month, WoW change
Aluminium	2,235	2,281	-4.1%	-4.1%
Copper	8,368	8,467	-1.9%	-1.8%
Lead	2,007	2,042	-2.2%	-2.2%
Nickel	15,835	16,064	-4.0%	-4.0%
Tin	24,540	24,834	-3.6%	-3.3%
Zinc	2,516	2,538	-4.2%	-3.9%
LMEX	3,670		-2.9%	
	Cash, c/lb	**3-month, c/lb**		
Aluminium	101	103		
Copper	380	384		
Lead	91	93		
Nickel	718	729		
Tin	1,113	1,127		
Zinc	114	115		
Other commodities, freight, exchange rates, equities and yields	**Spot**	**WoW change**		
Gold, $/oz	2,044	-1.1%		
Silver, $/oz	23	-4.0%		
Platinum, $/oz	959	-4.8%		
Palladium, $/oz	1,040	-8.4%		
Iron ore, China fines cfr $/dmt	142	4.4%		
Brent, $/bbl	78	0.6%		
Baltic Dry Index	2,086	-0.4%		
EUR/USD	1.095	-1.0%		
Dow Jones Industrial Average	37,440	-0.7%		
10-year US Treasury yield	4.001	4.1%		
ICE BofA Commodity index, ER	406	-0.7%		
ICE BofA Commodity index Industrial Metals, ER	176	-3.1%		
ICE BofA Commodity index Precious Metals, ER	220	-1.9%		
ICE BofA Commodity index Energy, ER	475	0.4%		
Exchange stocks and cancelled warrants	**Stocks, tonnes**	**WoW change**	**Canc. warrants, tonnes**	**Canc. warr., of stocks**
Aluminium				
LME	558,175	1.3%	183,900	32.9%
Shanghai	96,637	-5.4%		
Total aluminium	654,812	0.3%		
Copper				
LME	163,175	-2.2%	22,950	14.1%
Comex	17,538	6.1%		
Shanghai	33,130	15.4%		
Total copper	213,843	0.9%		
Lead				
LME	127,725	2.5%	42,800	33.5%
Shanghai	52,449	-7.4%		
Total lead	180,174	-0.6%		
Nickel				
LME	64,536	4.1%	6,354	9.8%
Shanghai	13,464	1.2%		
Total nickel	78,000	3.6%		
Tin	7,450	-3.3%	705	9.5%
Zinc				
LME	220,050	-0.9%	53,500	24.3%
Shanghai	21,814	-14.3%		
Total zinc	241,864	-2.3%		

Source: BofA Global Research

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Exhibit 17: Price forecasts, fundamental drivers, and risks
We are bullish a range of cyclical commodities

Metal	2024E	2025E	Fundamental drivers	Risks (D = downside; U = upside)
Aluminium	$2,563/t 116c/lb	$3,000/t 136c/lb	• China is almost operating at its 45mt capacity cap and smelters ex-China have closed capacity • China's smelters remain under pressure on hydro power shortages. At the same time, demand has been strong, so exports will likely remain capped • We expect rising deficits going forward	• D: No production discipline in China/World ex-China • D: China exports more • U: Smelter restraint and/or production disruptions reduce output • U: Stronger-than-anticipated demand growth
Copper	$8,625/t 391c/lb	$10,500/t 476c/lb	• Demand in China has been patchy, but grid spending has completely offset weakness in housing. Demand may be more balanced in 2024, and should hold up. Copper to rally, if the government pushes leads to broader recovery • Inventories are low, which is supportive, but could also increase volatility • We expect a small surplus for 2024	• D: China re-exports metal • D: Global demand slows sharply into next year • U: Strong restocking through the supply chain on improved confidence • U: Continued production disruptions in coming quarters
Lead	$2,000/t 91c/lb	$1,750/t 79c/lb	• There are no immediate scrap or concentrates shortages, suggesting the market could flip back into surplus • China's demand has slowed structurally, as the ebike market has matured	• D: Destocking in China or higher lead exports from the country. • U: Strong seasonal demand for replacement batteries after cold/hot winter/summer months
Nickel	$18,750/t 851c/lb	$20,000/t 907c/lb	• Nickel demand from electric vehicle producers should rise in the coming years, yet more NPI is being converted to nickel sulphate • China has built conversion capacity, which should take about 100Kt of Indonesian units into the refined market • Indonesian supply may prevent shortages near-term, but further out, more material is required • We expect a surplus for 2024, with prices increasingly supported by costs	• D: NPI producers don't close shop; ore inventories last for longer and more ores are imported form the Philippines. • D: Faster ramp-up of Indonesian NPI production • D: Stainless steel demand remains subdued
Zinc	$2,375/t 108c/lb	$2,250/t 102c/lb	• The zinc market has been better supplied, as demand from galvanisers has subsided • Zinc may remain an underperformer, but immediate downside more limited, also because costs have shifted higher on inflation • The surpluses could disappear, if more mine close	• D: Unreported inventories exist on the zinc market. More metal could become available • D: The zinc market is fragmented. There is evidence that miners, especially in China, could consider further output increases
Gold	$1,975/oz	$2,150/oz	• Gold has been a trade on US rates. The rally past $2,000/ounce (oz) subsided as the Fed signalled a resumption of rate hikes. Until the end of the hiking cycle is reached, gold prices will remain capped. • If rate cuts come before 2Q24, gold could end next year at $2,400/oz • Central bank buying has been strong, but not sufficient; a Fed pivot may bring more investors into the market • Gold to rally in 2H24	• D: Deterioration of investor sentiment • D: Real rates become more positive; sustained USD rally • D: High gold prices deter buyers of physical gold; increased scrap supply
Silver	$23.26/oz	$24.75/oz	• The silver market has rebalanced on production discipline and demand from new applications including solar panels • As more spending on solar panels come through, silver should rally • Bottoming out of the global economy in 2024 should also help industrial demand	• U: Investors returning to the market • U: China's imports to rise • D: ETF liquidation • D: More supply
Platinum Palladium	$1,050/oz $750/oz	$1,250/oz $500/oz	• Palladium is slowly moving into surplus, keeping pressure on prices. • More production discipline is necessary. • Any supply cuts may reduce the palladium surpluses, but will likely push platinum into a deficit, so prices might diverge. • PGMs are in a difficult spot.	• D: Jewellery demand suffers due to rising prices • D: In palladium, the risk of deliveries from Russian stockpiles has not gone away • D: Demand from key buyers like Europe not increasing • U: Production disruptions reduce availability of PT and PD
Iron Ore	$125/t CIF	$90/t CIF	• Iron ore inventories at China's mills are extremely low. • Production cuts at mills, along with higher steel demand should support steel prices, likely pulling iron ore higher as well near-term	• D: China's steel production slowing sharply • U: Mine closures/slowdown in production increases
HCC Thermal coal	$270/t $150t	$215/t $125/t	• Thermal coal prices to come under pressure as supply is increasing and the energy emergency normalises • Normalisation of supply should also contribute to lower met coal prices	• D: Lack of supply discipline • U: Chinese steel production stronger (HCC) U: mine closures

Colours indicate our stance on each commodity: Green = bullish, Yellow = neutral, Red = cautious. **Source:** BofA Global Research estimates

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Exhibit 18: Commodity price forecasts

We are constructive aluminium, copper, gold, and iron ore

		Current	1Q24E	2Q24E	3Q24E	4Q24E	1Q25E	2Q25E	2023E	2024E	2025E	2026E	2027E	2028E	LT price
Base metals															
Aluminium	US$/t	2,235	2,250	2,500	2,750	2,750	3,000	3,000	2,268	2,563	3,000	3,250	3,015	2,781	2,546
	USc/lb	101	102	113	125	125	136	136	103	116	136	147	137	126	115
Copper	US$/t	8,368	8,000	8,500	8,750	9,250	10,000	10,000	8,442	8,625	10,500	9,500	9,539	9,578	9,617
	USc/lb	380	363	386	397	420	454	454	383	391	476	431	433	434	436
Lead	US$/t	2,007	2,000	2,000	2,000	2,000	1,750	1,750	2,156	2,000	1,750	2,024	2,217	2,409	2,602
	USc/lb	91	91	91	91	91	79	79	98	91	79	92	101	109	118
Nickel	US$/t	15,835	18,500	18,500	19,000	19,000	20,000	20,000	21,786	18,750	20,000	20,000	19,141	18,283	17,424
	USc/lb	718	839	839	862	862	907	907	988	851	907	907	868	829	790
NPI, 8-12%	CNY/t		1,032	1,032	1,032	1,032	1,062	1,062	1,129	1,032	1,062	1,102	1,138	1,174	1,210
Zinc	US$/t	2,516	2,500	2,500	2,250	2,250	2,250	2,250	2,648	2,375	2,250	2,424	2,596	2,769	2,942
	USc/lb	114	113	113	102	102	102	102	120	108	102	110	118	126	133
Precious metals															
Gold, nominal	US$/oz	2,040	1,950	1,950	2,000	2,000	2,100	2,100	1,924	1,975	2,150	2,096	2,095	2,094	2,093
Gold, real	US$/oz		1,950	1,950	2,000	2,000	2,049	2,049	1,924	1,975	2,098	1,995	1,946	1,898	1,850
Silver, nominal	US$/oz	23.03	22.50	23.00	23.53	24.00	24.50	24.50	23.20	23.26	24.75	26.07	27.18	28.30	29.42
Silver, real	US$/oz		22.50	23.00	23.53	24.00	23.90	23.90	23.20	23.26	24.15	24.81	25.21	25.60	26.00
Platinum	US$/oz	951	1,000	1,000	1,100	1,100	1,250	1,250	976	1,050	1,250	1,322	1,372	1,421	1,471
Palladium	US$/oz	1,028	900	800	700	600	500	500	1,379	750	500	500	824	1,147	1,471
		Current	**1Q24E**	**2Q24E**	**3Q24E**	**4Q24E**	**1Q25E**	**2Q25E**	**2023E**	**2024E**	**2025E**	**2026E**	**2027E**	**2028E**	**LT price**
Bulk Commodities															
Hard coking coal	US$/t fob	333	360	280	210	230	240	190	290	270	215	205	212	219	226
Semi-soft	US$/t fob	155	238	185	139	152	158	125	220	178	142	135	134	133	132
Thermal Coal	US$/t fob	131	148	148	151	153	125	125	176	150	125	112	112	113	113
Iron ore fines	US$/t CIF	140	150	130	120	100	90	90	115	125	90	90	94	98	102
0E	**0E**	**Current**	**1Q24E**	**2Q24E**	**3Q24E**	**4Q24E**	**1Q25E**	**2Q25E**	**2023E**	**2024E**	**2025E**	**2026E**	**2027E**	**2028E**	**LT price**
Other materials															
Lithium spodumene	US$/t	1,300	1,950	1,850	1,750	1,500	1,500	2,000	3,802	1,763	2,188	1,858	1,722	1,586	
Lithium carbonate	US$/t	13,575	18,000	17,000	16,000	15,000	15,000	20,000	37,386	16,500	21,875	21,250	20,833	20,417	
Lithium hydroxide	US$/t	12,400	19,500	18,500	17,500	16,500	16,500	21,500	39,184	18,000	23,375	22,750	22,333	21,917	
Alumina	$/t	360	340	340	340	340	348	348	343	340	348	357	375	394	412
Uranium	$/lb		75.00	77.50	80.00	80.00	75.00	75.00	58.91	78.13	75.00	70.00	65.00	60.00	55.00
Molybdenum	$/lb	20.1	18.10	18.10	18.10	18.10	18.10	18.10	23.99	18.10	18.10	18.10	16.32	14.54	12.76
Cobalt	$/lb	15.8	18.00	18.00	18.00	18.00	18.00	18.00	17.57	18.00	18.00	18.44	19.84	21.23	22.63
Manganese ore	$/dmtu	4.15	4.35	4.35	4.35	4.35	4.35	4.35	4.79	4.35	4.35	4.93	5.52	6.11	6.70
Steel, HRC															
HRC, Europe	US$/t	712	719	701	639	674	721	702	767	683	714				
HRC, US	US$/t	1,213	1,130	1,020	882	805	799	799	975	959	799				
HRC, China	US$/t	566	568	585	602	623	592	597	565	595	602				
Energy		**Current**	**1Q24E**	**2Q24E**	**3Q24E**	**4Q24E**	**1Q25E**	**2Q25E**	**2023E**	**2024E**	**2025E**	**2026E**	**2027E**	**2028E**	**LT price**
Brent	US$/bbl	78	94	92	88	86	60	60	86	90	60	60	60	60	60
WTI	US$/bbl	73	90	88	84	82	57	57	81	86	57	57	57	57	57
Henry Hub	US$/MMBtu	2.7	3.8	3.5	4.3	4.5	2.6	2.6	2.7	4.0	2.6	2.6	2.6	2.6	2.6

Note: quarterly energy forecasts are period-end, rest are period averages; **Source:** BofA Global Research

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Supply and demand balances

Table 2: Aluminium supply and demand balance
Deficits set to increase

'000 tonnes	2022	2023	2024	2025	2026
Global production	68,412	70,338	73,363	73,793	74,333
YoY change	1.3%	2.8%	4.3%	0.6%	0.7%
Global consumption	69,106	71,074	74,842	77,836	80,949
YoY change	0.7%	2.8%	5.3%	4.0%	4.0%
Balance	**-694**	**-736**	**-1,479**	**-4,043**	**-6,617**
Market inventories	8,448	7,711	6,232	2,189	
Weeks of world demand	6.4	5.6	4.3	1.5	
LME Cash ($/t)	**2,706**	**2,268**	**2,563**	**3,000**	**3,250**
LME Cash (c/lb)	**123**	**103**	**116**	**136**	**147**

Source: SNL, Woodmac, CRU, Bloomberg, company reports, IAI, BofA Global Research

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Table 3: Copper supply and demand balance
Balanced market in 2023E

'000 tonnes	2022	2023	2024	2025	2026
Global production	24,646	25,733	26,407	27,613	28,249
YoY change	2.2%	4.4%	2.6%	4.6%	2.3%
Global consumption	25,152	25,694	26,833	27,906	29,023
YoY change	0.9%	2.2%	4.4%	4.0%	4.0%
Balance	**-506**	**39**	**-426**	**-293**	**-773**
Market inventories	840	879	453	160	
Weeks of world demand	1.7	1.8	0.9	0.3	
LME Cash ($/t)	**8,822**	**8,442**	**8,625**	**10,500**	**9,500**
LME Cash (c/lb)	**400**	**383**	**391**	**476**	**431**

Source: SNL, Woodmac, CRU, Bloomberg, company reports, ICSG, BofA Global Research

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Table 4: Nickel supply and demand balance
Nickel to be well supplied

'000 tonnes	2022	2023	2024	2025	2026
Global production	3,170	3,424	3,966	4,289	4,569
YoY change	16.2%	8.0%	15.8%	10.4%	10.9%
Global consumption	3,105	3,334	3,549	3,943	4,227
YoY change	0.4%	7.4%	6.4%	9.4%	6.5%
Balance, incl. NPI oversupply	**64**	**90**	**417**	**346**	**342**
Market inventories	456	546	963	1,309	1,651
Weeks of world demand	7.6	8.5	14.1	17.3	0.0
LME price ($/t)	**25,707**	**21,786**	**18,750**	**20,000**	**20,000**
LME price (c/lb)	**1,166**	**988**	**851**	**907**	**907**

Source: SNL, Woodmac, CRU, Bloomberg, company reports, INSG, BofA Global Research

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Table 5: Zinc supply and demand balance
Project pipeline not a significant risk

	2022	2023	2024	2025	2026
Global production	13,919	14,000	15,150	15,900	16,150
YoY change	-2.8%	0.6%	8.2%	5.0%	1.6%
Global consumption	13,607	13,513	14,104	14,400	14,703
YoY change	-3.2%	-0.7%	4.4%	2.1%	2.1%
Balance	**312**	**487**	**1,046**	**1,500**	**1,447**
Market inventories	3,482	2,648	2,375	2,250	2,424
Weeks of world demand	13.3	10.2	8.8	8.1	8.6
LME Cash ($/t)	**3,482**	**2,648**	**2,375**	**2,250**	**2,424**
LME Cash (c/lb)	**158**	**120**	**108**	**102**	**110**

Source: SNL, Woodmac, CRU, Bloomberg, company reports, ILZSG, BofA Global Research

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Exhibit 19: Iron ore supply and demand balance
Flipping back into surplus

Wet Mt	2022	2023E	2024E	2025E	2026E
Global production	2,363	2,346	2,436	2,506	2,540
YoY change	2.2%	-0.7%	3.8%	2.9%	1.4%
Global consumption	2,301	2,346	2,372	2,374	2,386
YoY change	-5.0%	2.0%	1.1%	0.1%	0.5%
Balance	**63**	**-1**	**64**	**132**	**154**
Iron ore price (US$/t)	**120**	**115**	**125**	**90**	**90**

Source: Woodmac, CRU, Bloomberg, company reports, BofA Global Research estimates

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Exhibit 20: Metallurgical coal supply and demand balance
Deficit to persist

Mt	2022	2023E	2024E	2025E	2025E
Global production	904	951	987	1,007	1,015
YoY change	-0.6%	5.2%	3.8%	2.0%	0.7%
Global consumption	925	971	993	991	1,003
YoY change	-1.4%	4.9%	2.3%	-0.2%	1.2%
Balance	**-21**	**-19**	**-6**	**16**	**11**
Met coal price (US$/t)	365	290	270	215	205

Source: Woodmac, McCloskey, company reports, BofA Global Research estimates

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Exhibit 21: Platinum supply and demand balance
Flipping into a small surplus

'000 ounces	2022	2023	2024	2025	2026
Global production	6,636	6,525	7,338	7,536	7,634
YoY change	-13.9%	-0.1%	12.5%	2.7%	1.3%
Global consumption	6,057	7,231	7,327	7,364	7,465
YoY change	-22.8%	19.4%	1.3%	0.5%	1.4%
Balance	**579**	**-706**	**10**	**172**	**169**
Spot ($/oz)	964	976	1,050	1,250	1,322

Source: Matthey, company reports, BofA Global Research estimates

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Exhibit 22: Palladium supply and demand balance
Rising surpluses ahead

'000 ounces	2022	2023	2024	2025	2026
Global production	9,505	9,313	10,097	10,405	10,649
YoY change	-4.5%	-2.1%	10.0%	3.0%	2.3%
Global consumption	9,829	9,710	8,804	8,442	8,091
YoY change	-3.2%	-1.2%	-9.3%	-4.1%	-4.2%
Balance	**-324**	**-397**	**1,293**	**1,962**	**2,558**
Spot ($/oz)	2,110	1,379	750	500	500

Source: Matthey, company reports, BofA Global Research estimates

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Table 6: Lithium supply and demand balance
The lithium market is increasingly oversupplied

tonnes	2022	2023	2024	2025	2026
Global production	669,470	910,102	1,239,024	1,688,160	2,027,990
YoY change	1.7%	35.9%	36.1%	36.2%	20.1%
Global consumption	704,218	923,882	1,214,630	1,534,918	1,890,413
YoY change	51.6%	31.2%	31.5%	26.4%	23.2%
Balance	**-34,748**	**-13,780**	**24,394**	**153,242**	**137,578**
Spot ($/t)	71,531	45,980	16,500	21,875	21,250

Source: Company reports, Woodmac, Bloomberg, BofA Global Research estimates
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Table 7: Cobalt supply and demand balance
The cobalt market needs some supply cuts

tonnes	2022	2023	2024	2025	2026
Global production	198,235	231,241	274,225	301,692	309,256
YoY change	25.4%	16.6%	18.6%	10.0%	2.5%
Global consumption	190,766	221,379	267,117	313,163	355,209
YoY change	18.1%	16.0%	20.7%	17.2%	13.4%
Balance	**7,469**	**9,862**	**7,109**	**-11,471**	**-45,953**
Spot ($/t)	68,428	38,733	39,681	39,681	40,652

Source: Company reports, CRU, Bloomberg, BofA Global Research estimates
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