

The End Of The Beginning –
An Update On Global Competition
For Dominance Of Battery Metals
Supply Chains

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Prepared for: The MMSA



House Mountain Partners

Who Am I?

I am based in Washington DC and since 2010 have been an analyst focused on battery metals (Li, Co, Cg, Ni, Cu, REEs) supply chains with experience on six continents

I have Board-level experience with battery recyclers and have worked closely with investors, miners, oil & gas and EV companies



Visiting a Lithium Salar in Argentina



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History Rhymes

“Now this is not the end. It is not even the beginning of the end. It is, perhaps, the end of the beginning.”

- Sir Winston Churchill

November 10, 1942



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Agenda

Where are we in the current Battery Metals cycle?

Raw Material Pricing

The True Cost of Capital

The Price of Geopolitical Risk

Status of the Inflation Reduction Act

Takeaways



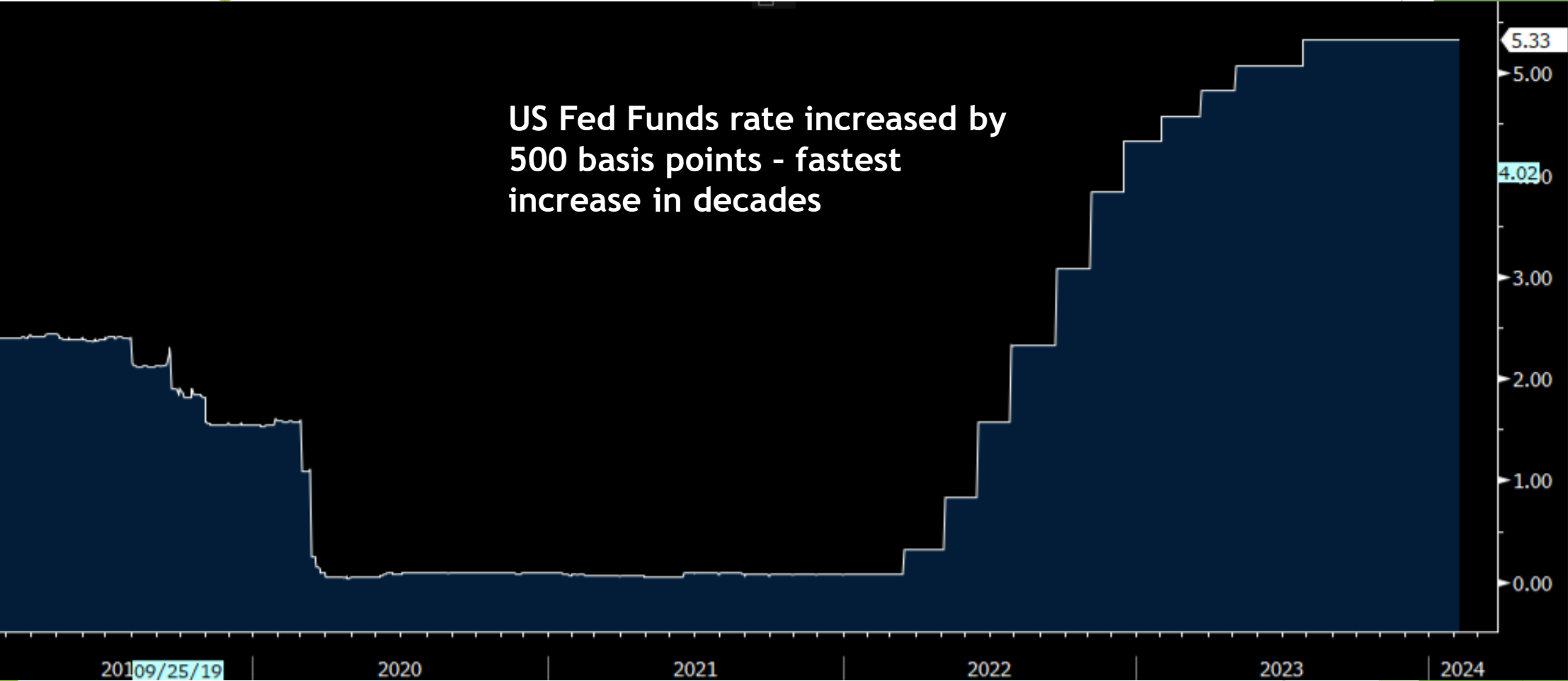


Source: Bloomberg



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Chairman Powell has increased the cost of doing business



The US 10 Year Govt Bond As A Proxy for Inflation



With Volatility in Metals Pricing Increasing, What Is the True Cost of Capital For Projects?

**Liontown share price falls on project
cost blowout**

Why No One Wants to Pay for the Green Transition








Investors and consumers balk at costs of replacing fossil fuels with renewable energy, highlighting painful economics of climate mitigation

**Allkem flags \$640m cost blowout across three
major projects**

**'Just drastically off': Li-Cycle CEO says costs escalated
quickly, led to construction of Greece facility being
halted**



Western Auto OEMs Rethink Their Approach

Company	Announcement date	Action	Original target	New target
	November 10, 2023	Cancelled joint venture battery plant in Turkey	2026	Cancelled
	November 1, 2023	2023 EV sales target cut by 40%	202,000	123,000
	October 30, 2023	Operating profit cut (Addition 60% cut in battery production)	135 billion yen (\$903 million)	115 billion yen (\$769 million)
	October 30, 2023	Plant delays at Marshall plant (pause in construction)	Mid-decade	To be determined
	July 27, 2023	Delay in EV production target	600,000 EV run-rate by 2023	600,000 EV run-rate by 2024
	October 27, 2023	Model delay (Audi's Q4 e-tron)	2023	2024
	October 24, 2023	Cancelling EV production target	400,000 EVs produced from 2022 – 2024 1H	Cancelled
		Model delays (Chevy Silverado EV and Equinox EV)	2023	2024
	September 29, 2023	Plans for a new EV facility in Wolfsburg scrapped	2026	Cancelled
	September 26, 2023	Temporary suspension of EV production at plants in Zwickau and Dresden	N/A	N/A

Source: BloombergNEF, company statements.

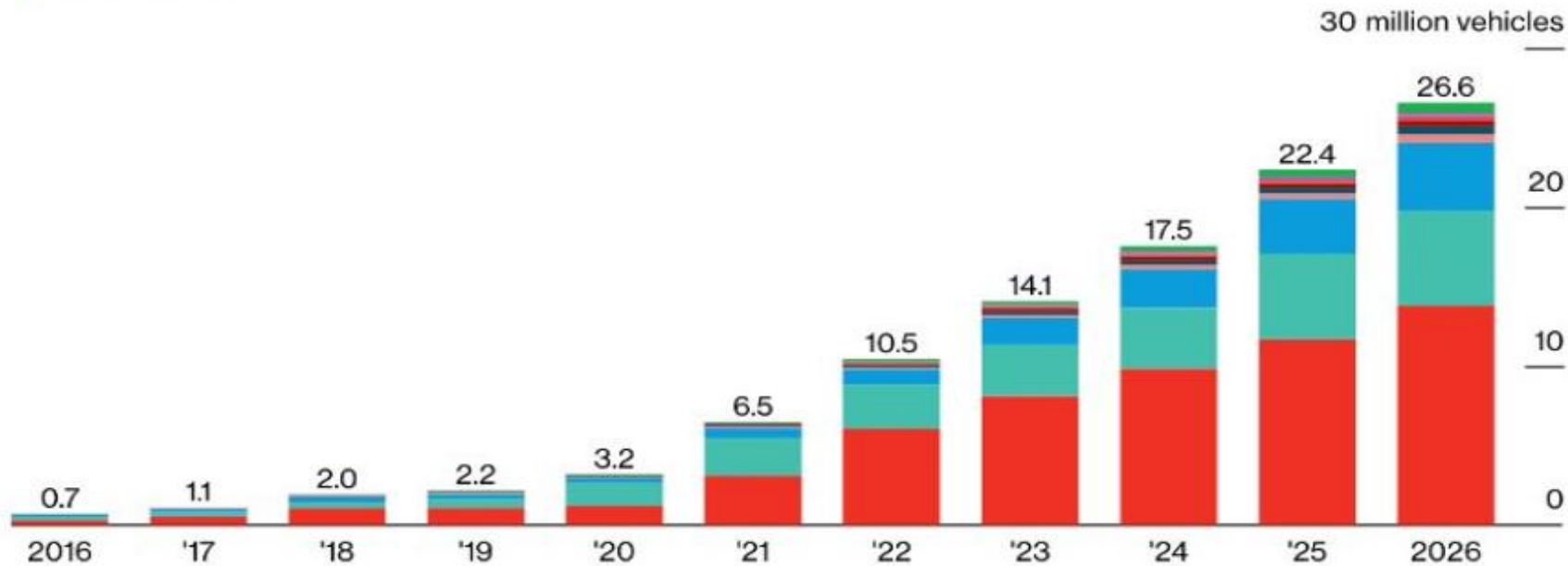


What EV sales slowdown?

Annual EV Sales to Reach Nearly 27 Million by 2026

Global near-term EV sales by market

China Europe US Japan Canada S. Korea Southeast Asia Australia India
Rest of World



Source: BloombergNEF.

Note: Europe includes the EU, the UK and European Free Trade Association (EFTA) countries. EV includes BEVs and PHEVs.

BloombergNEF



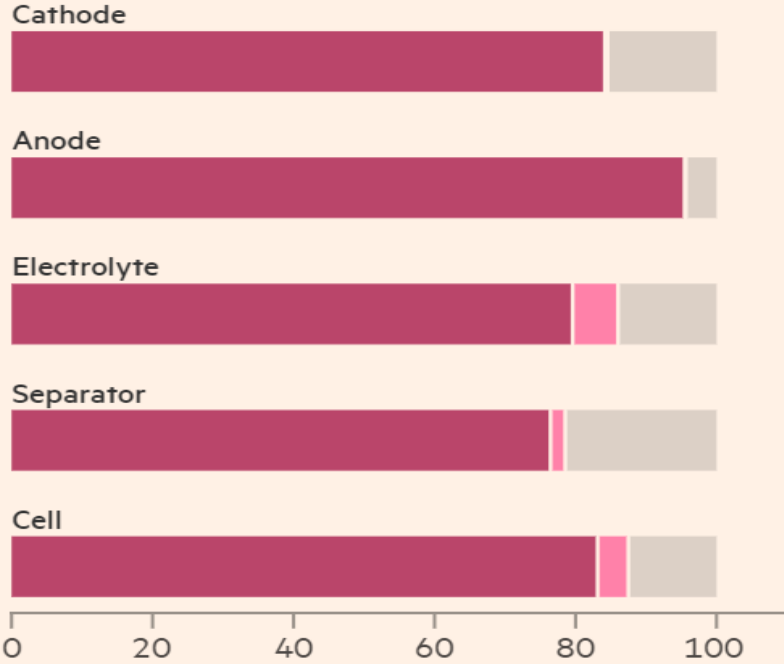
China Likely To Maintain Its Lead

China's grip on battery supply chain is expected to last through the decade

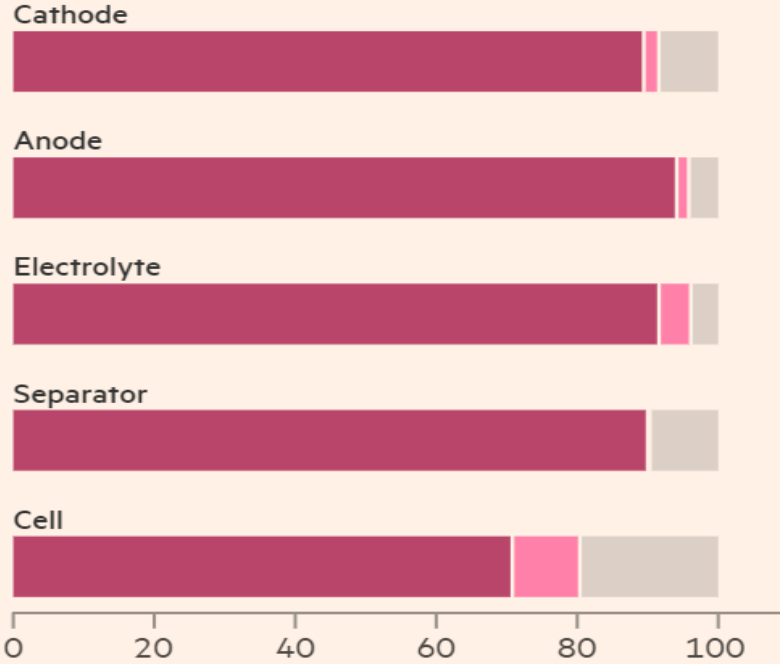
Share of supply chain (%)

China North America Rest of the world

2023



2030



Source: BloombergNEF

FINANCIAL TIMES



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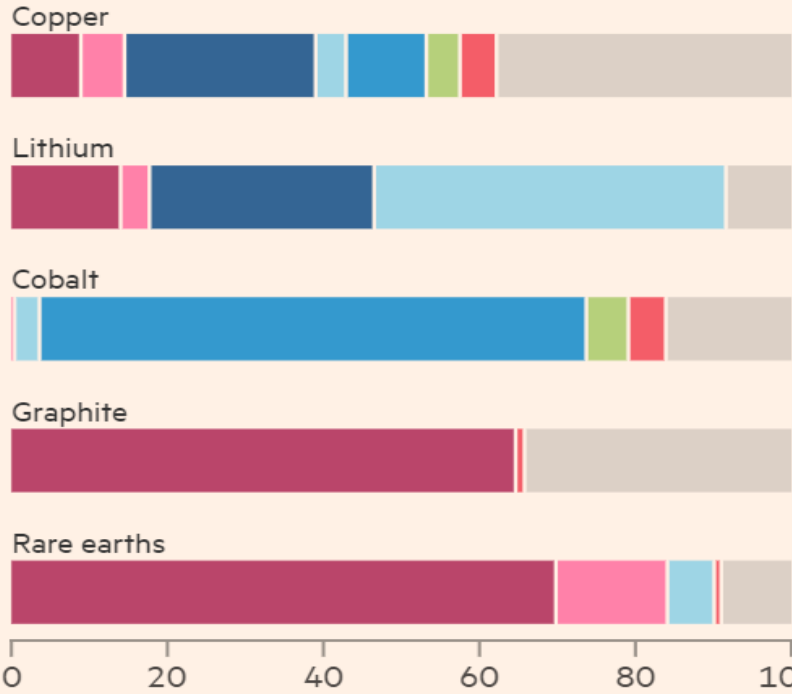
Both Upstream And Midstream

Beijing also dominates vast swaths of the critical minerals supply chain

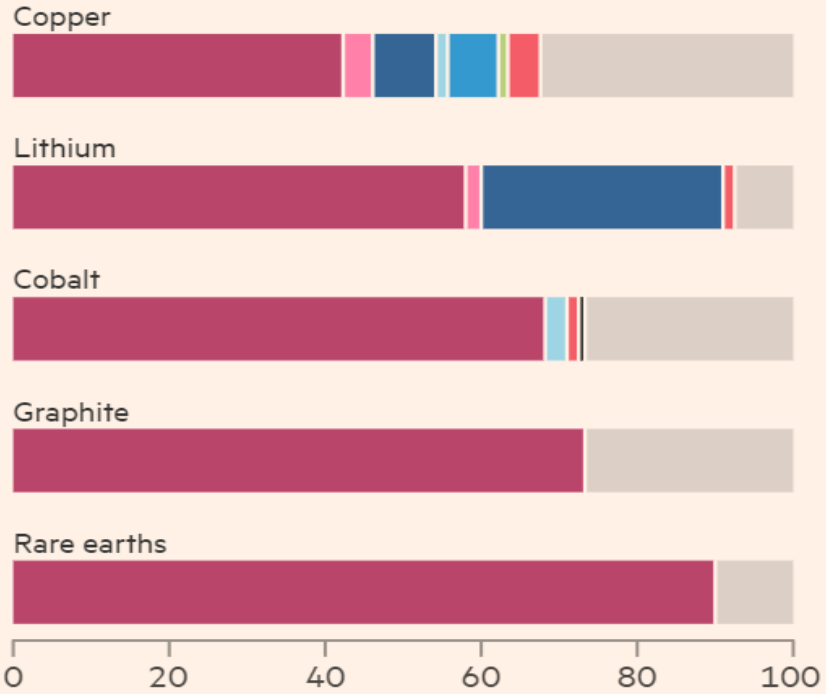
Share of supply chain (%)

China US Chile Australia DRC Indonesia Russia South Africa
Rest of the world

Mining



Refining



How Do You Price Geopolitical Risk?

Donald Trump would gut Joe Biden's landmark IRA climate law if elected

Geopolitics, policy and sustainability to forge new electric vehicle partnerships

Indonesia proposes critical minerals trade deal with US

Chile plans to nationalize its vast lithium industry



Geopolitical Flashpoints in 2024

According to VOA, 4 billion people (50% of global population) will vote in elections in 2024. Separately, what happens to US Industrial policy if Trump wins?

China's economy – speed bump or major pothole?

The effects of industrial policy will start to be felt

Lithium Americas Thacker Pass lithium project receives conditional \$2.2B DoE loan

Ukraine/Israel/Gaza/Taiwan – War is inflationary



The Inflation Reduction Act – Previous Guidance

There are four main sections in the Inflation Reduction Act which will impact lithium-ion supply chain development

30D – focuses on the consumer tax credit for EV purchases

25E – New tax credit for used EVs

45W – New tax credits for commercial EVs

45X – New tax credits for domestic cell and module production

KEY PHRASE: materials must be “extracted, processed, or recycled” in the US or by a FTA partner (only North America for recycled material)

10% tax credit for domestic manufacturing plus billions in DoE loan capacity

IRA DOESN'T ADDRESS MINE PERMITTING – this is a MAJOR weakness



The Inflation Reduction Act - Updated Guidance

In December 2023, the Biden Administration released updated guidance on the rules around tax credit eligibility for EVs in the Inflation Reduction Act.

The rules clarify how to determine what a Foreign Entity of Concern (FEOC) is.

Starting in January 2024, companies “owned by, controlled by, subject to the jurisdiction or direction of a government of a foreign country that is a covered nation” or “performing the relevant activities in a covered nation” are regarded as FEOCs.

Covered nations include China, Russia, Iran and North Korea.

If a FEOC has 25% or more of a company’s Board seats, voting rights, or equity interest, the materials the company produces would not be eligible for tax credits.

Technology licensing agreements are permitted as long as the non-FEOC partner has operational control of a facility



Takeaways

Battery Metals price volatility is a feature and not a bug of this transition

Higher interest rates have increased costs substantially across the supply chain

Decarbonization is capital intensive

The burden of proof is on miners, battery producers, and recyclers. They must do more to prove their financial sustainability to investors

Areas of interest: Companies that can leverage technology; Africa



Q & A

Thank you for your time today

cberry@house-mountain.com



@cberry1



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