

Lithium-Ion Bull

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Will CATL(le) Cause a Lithium Stampede?

Too soon to tell...Reports that CATL, the world's largest battery producer (40%+ global market share!), might be suspending production of its lepidolite lithium operation in China caused GFEX futures to jump 8% earlier this month on hopes that the lithium market might finally get the substantial supply cut it's been looking for. Initial speculation saw a meaningful 60-72kt could be cut entirely from the market, but chatter with Aussie analysts on **Sayona**'s site visit to **North American Lithium** this week suggested a more muted 1/3 of this amount would actually be cut. And, as importantly, CATL would likely switch this supply back on again if carbonate prices rise 20-25% as Citi and some others suggested was likely in coming months...

For more on this and many other recent topics, tune in to our latest Rock Stock Recap.



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Meantime, some fresh supply/demand comments from Rodney Hooper...

With spot spodumene prices at around ~US\$750/t SC6 versus Q2 2024 realized prices at ~US\$1,000/t or higher, will we see substantially weaker financial results posted in Q3 and companies reconsider production expansions? We believe that prices below US\$1,200/t for prolonged periods are unsustainable on an all-in-sustaining cost basis. Feedback from the industry is that prices need to be north of US\$1,500/t for a greenfield project to be viable. There are exceptions, with Winsome's latest PEA reflecting an IRR of greater than 40% using long-term prices of ~US\$1,375/t made possible through acquiring the Renard infrastructure near its Adina project...

...On the demand side, the disparity in EV penetration rates between China, the US, and Europe continues to widen. China is successfully growing its EV market share and is well prepared for this transition with a substantial charging infrastructure. Not only are EV sales forecasted to grow above 20% in China, but exports are expected to grow to over 2M units in 2024. Importantly, the average Chinese EV export costs ~US\$19,000, the average new car price in the US ~US\$47,000 and Europe ~US\$53,000. The EU continues to try blocking the expansion of Chinese EVs as nearly 1/3 of car plants operate below 50% capacity. In short, the EU has neither the model range nor competitive pricing to compete with China and is looking to fall back on tariffs to stem the tide. This move will have a far-reaching impact, given the high levels of trade between the regions. Autos and other EU economic sectors will pay the price for this decision. Recent articles have highlighted a move by EU OEMs to push for a delay in the 2025 CO2 emission targets to avoid penalties.

In the absence of subsidies, EV sales have stalled. Despite battery prices having fallen substantially, only ~15% of EV models are cheaper than their ICE alternatives in the EU. In China, that statistic is ~60%. Overall, global EV sales are on track to meet RK Equity's target of 17M units. However, the mix has shifted away from the US and Europe to China, which has resulted in a greater deployment of LFP cathodes. Further, with smaller battery packs, PHEVs have increased their market share. ESS cell demand growth remains impressive, so our 2024 lithium demand growth forecast remains above 20%.







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Summaries On The Following Pages

Rock Stock Recap E13: Will CATL(le) cause a Lithium Stampede?



Summary

In our latest Rock Stock Recap episode, we discuss the latest lithium market trends, focusing on the news surrounding CATL in China and its impact on lithium supply. The lithium demand thesis remains strong, with China's EV sales exceeding forecasts, while the U.S. and Europe lag. The discussion covers the volatility in the lithium market, with concerns about supply and price fluctuations, especially given CATL's potential production cuts. We also address the role of government policies, electric vehicle (EV) market growth, and the evolving dynamics in global lithium supply chains, particularly in China.

- **CATL Production Cuts:** CATL's potential lithium production cut in China is creating market speculation, with analysts divided on its impact, and a 20–25% price increase is possible if cuts are confirmed.
- China's EV Surge: China's electric vehicle (EV) penetration has grown from 6% in 2020 to nearly 40%, significantly surpassing Europe and the U.S., which are falling behind in EV adoption.
- **Lithium Demand Resilience:** Despite regional differences, global lithium demand remains robust, we maintain our bullish forecast of over 3 million tons by 2030, driven by electric vehicles and energy storage systems (ESS).
- European Auto Industry Struggles: Europe is seeing decreased EV demand after cutting subsidies, leading to lower sales, and major automakers like Volkswagen are facing potential penalties under upcoming carbon emission standards.
- Investment Opportunities: Lithium companies like Arcadium are trading at significant discounts to their replacement value, with reputable analysts suggesting substantial upside for investors in the near to medium term.
- Government Influence: U.S. government policies such as the Inflation Reduction Act (IRA) are seen as critical to maintaining momentum in EV and lithium demand, ensuring the importance of an ex-China supply chain for lithium.



Power Metals Critically Important Cesium Discovery - Haydn Daxter



Summary

Power Metals' exciting cesium discovery in Canada with CEO Hayden Daxter is the topic of this episode. Cesium, a critical mineral with high demand but limited global supply, has become Power Metals' main focus. The Case Lake deposit could be the fourth major high-grade cesium mine globally, providing significant value in a niche market dominated by China. Power Metals' strategic partner, Winsome Resources, holds a 19.5% stake, further boosting interest in the company's growth potential in both cesium and lithium projects.

- Cesium Discovery at Case Lake: Power Metals' Case Lake project in Ontario holds high-grade cesium deposits, making it a rare global find. This could be the world's fourth high-grade cesium mine, with initial drilling showing grades of up to 25%.
- Niche Market and High Demand: Cesium is used in various high-tech applications, including oil and gas drilling, cancer treatment, military technology, and GPS systems.
 The global cesium market is valued in the tens of billions, but it is almost entirely controlled by China, making non-China sources like Case Lake critical.
- Strategic Partnership with Winsome Resources: Winsome Resources holds a 19.5% stake in Power Metals, having bought shares after Canadian regulators forced Sinomine, a Chinese company, to divest. Winsome also transferred two properties in Quebec to Power Metals, strengthening the partnership.
- Mining Costs and Speed to Market: Case Lake's mining costs are expected to be relatively low, with capex in the tens of millions, thanks to near-surface high-grade deposits. Power Metals aims to begin production within 18 months after securing necessary permits.
- Global Supply Constraints: Only three high-grade cesium deposits have been mined to date, and China's Tanko mine, the largest producer, faces environmental and logistical challenges. Power Metals is well-positioned to fill this gap in supply.
- Lithium Exploration Continues: While cesium is the current focus, Power Metals is still exploring lithium at Case Lake and other properties in Quebec. The company is conducting structural interpretation on these lithium targets for future development.



Will Solar rESScue Lithium?! w/ Morgan Bazilian



Summary

We featured Morgan Bazilian, a professor at Colorado School of Mines. We discuss the massive growth of solar energy as a key driver for lithium and copper demand. Gaining insights from The Economist's "Sun Machines" article - which quoted Morgan greatly - our discussion highlights the rapid expansion of solar power, expected to surpass nuclear and fossil fuels by 2030, and explores China's dominance in the solar panel market, along with challenges related to supply chains, policy, and grid integration.

- **Solar Energy Growth:** Solar power is now the largest global electricity-generating technology, surpassing coal in 2024, with the IEA projecting it will outperform other energy sources by 2032.
- \$500 Billion Investment: Solar energy saw \$500 billion in investments in 2023, making it the largest category of electricity generation investments, rivaling upstream oil and gas.
- China's Market Dominance: China produces 75-80% of the world's solar panels, driving down costs and improving efficiency. Trade tensions between the U.S. and China could shift supply chains but are unlikely to derail growth.
- Energy Storage Demand: As solar becomes a dominant energy source, batteries are increasingly needed to balance energy variability, adding another key demand driver for lithium.
- Solar's Impact on Global Grids: Integrating solar energy with existing power grids is a challenge globally, especially in regions like South Africa and parts of the U.S., where grid complexity can limit the growth of renewables.
- **Policy Uncertainty:** U.S.-China trade tensions and varying global policies create uncertainty, but the long-term trajectory for solar remains strong due to its low cost and rapid deployment capabilities.



Red Bull: Anglo's Dr. Copper - Paul Gait



Summary

In this episode we interview Paul Gait, Group Head of Strategy at Anglo American, about copper's crucial role in global electrification. Paul highlights the growing demand for copper driven by electric vehicles, Al data centers, and infrastructure, while discussing supply challenges due to high capital costs, exploration hurdles, and societal pressures. He compares copper to lithium, noting both metals' key roles in securing future supply chains.

- Copper vs. Lithium Market: Copper's annual market size is 20 times that of lithium by volume, with a market value of \$225 billion compared to \$13 billion for lithium. Copper plays a critical role in EVs, AI data centers, and infrastructure.
- **Future Demand for Copper**: Demand for copper is projected to grow significantly, requiring the production of another 25 million tons by 2045. This is driven by electric vehicles, charging stations, and emerging technologies like AI data centers.
- Supply Challenges: Capital intensity and societal pressures make copper more challenging to explore and mine compared to lithium. New copper supply has been slow due to limited exploration and difficulty in accessing new sources.
- Investment Outlook: Major copper assets like Anglo American's Los Bronces and Caraveco are seen as vital for future supply. New supply development will require higher copper prices, but prices must rise to incentivize capital investment outside China.
- Global Supply Chain: Countries like China dominate lithium processing and supply. The
 challenge for the West is securing supply chain resilience and new sources of copper
 outside China, similar to what lithium faces.
- Technological and Environmental Factors: Advancements such as 800-volt EV charging systems may reduce copper intensity in vehicles. However, long-term copper demand will remain high due to urbanization, electrification, and new technologies like Al and data centers.



Rock Stock Recap E12: Bottom Fishing



Summary

In the latest Rock Stock Recap episode, we discuss SQM's Q2 earnings call and lithium market volatility. SQM is expanding production at Mount Holland and globally, aiming for long-term growth despite market challenges. They highlight that many lithium companies are trading below replacement value, and M&A activity, such as Pilbara's acquisition of Latin Resources, continues. The conversation also touches on China's role in overcapacity and its impact on global lithium supply, as well as the potential for long-term recovery in lithium prices driven by strategic underinvestment and future demand growth.

- **Lithium Volatility and Undervaluation:** Many lithium equities, including junior companies, are trading below replacement value, signaling potential investment opportunities. Price volatility driven by oversupply concerns and fluctuating demand underscores the need for a 3-5 year investment outlook in the sector.
- **Plug-in Hybrid Adoption Impact:** The shift towards plug-in hybrids, particularly led by BYD in China, could slow down full battery electric vehicle (BEV) adoption, as hybrids use less lithium, potentially leading to slower demand growth in certain markets.
- Economic Challenges in Europe and the USA: EV sales have declined in Europe and the
 U.S. due to reduced government subsidies and rising inflation, tempering growth in key
 markets and impacting lithium demand projections.
- Impact of U.S. Election and Policy Uncertainty: The upcoming U.S. elections create
 uncertainty around policies related to EV adoption and green energy, which could shift
 depending on the outcome, presenting both risks and opportunities for the lithium
 industry.
- Challenges in Lithium Production Costs: Rising capex and opex, driven by inflation, supply chain disruptions, and labor shortages, have increased the costs of building new lithium projects, affecting the ability of new ventures to meet rising demand unless prices recover.
- Western OEM EV Production Setbacks: Western automakers, such as Ford, have scaled back their EV production targets, reducing the urgency for long-term lithium supply agreements and impacting near-term lithium demand, especially outside China.



SCOREBOARD

AUGUST 2024

Lithium-Ion Bull

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RK Equity						Market					
LITHIUM SCOREBOARD August 31, 2024	Ticker	Exchange		e Price 31/24)		Cap USDM)	1 mo	3 mo	YTD	Location	Туре
		_				cal Prod					
Qinghai Salt Lake Industry	000792.SZ	Shenzhen	¥			10 989	-4%	-16%	-7%	China	Brine
SQM Albemarle	SQM ALB	NYSE NYSE	\$	38.79 91.65	-	10 915 10 607	2% -4%	-17% -26%	-35% -39%	Chile, Australia Chile, Nevada, Australia	Rock, Brine Rock, Brine
Ganfeng	1772.HK	HKSE	\$	17.70	\$		10%	-25%	-40%	China, Australia, Argentina, Mexico	Rock, Brine
Tianqi Lithium	002466.SZ	Shenzhen	¥	25.57			-6%	-28%	-53%	China, Australia	Rock
Arcadium Lithium	ALTM	NYSE	\$	2.67	\$		-15%	-39%	-64%	US, Argentina, China, Japan, Australia, Quebec	Rock, Brine
Chengxin Lithium Sichuan Yahua	002240.SZ 002497.SZ	Shenzhen Shenzhen	¥	11.74 8.42	\$		-3% 0%	-28% -19%	-46% -32%	China China	Rock
YOUNGY	002497.SZ 002192.SZ	Shenzhen	¥	29.59	\$		-1%	-19%	-43%	China	Rock Rock
Jiangsu Dingsheng	603876.SS	Shanghai	¥	8.51	-		2%	-16%	-29%	China	Rock
Yibin Tianyuan	002386.SZ	Shenzhen	¥	3.80	\$		0%	-15%	-26%	China	Rock
Lithium Argentina	LAAC	NYSE	\$	2.64	_		-13%	-42%	-58%	Argentina	Brine
Dilhara Minarala	DLCAV	ACV	d d			nene Prod		220/	250/	Austrolia	Dools
Pilbara Minerals Mineral Resources	PLS.AX MIN.AX	ASX ASX	\$	2.91 40.61	\$		6% -23%	-22% -44%	-25% -43%	Australia Australia	Rock Rock
Sigma Lithium	SGML.V	TSXV	\$	14.78			-23%	-31%	-64%	Australia Brazil	Rock
AMG Critical Minerals	AMG.AS	Amsterdam	€	15.19	\$		-3%	-27%	-36%	Brazil	Rock
Sayona Mining	SYA.AX	ASX	\$	0.03	\$	186	-10%	-34%	-61%	Quebec	Rock
Piedmont Lithium	PLL	NASDAQ	\$	8.33	_		-18%	-37%	-70%	Carolina, Quebec, Ghana	Rock
Lieuteum Deseuvees	LTR.AX	ACV	d d			ging Proj		440/	E E 0/	Australia	Dools
Liontown Resources Lithium Americas	LAC	ASX NYSE	\$	0.73 2.59	\$		-18% -10%	-41% -28%	-55% -61%	Australia Nevada	Rock Clay
Vulcan Energy Resources	VUL.AX	ASX	\$	3.86	\$		-8%	-18%	39%	Germany	DLE Brine
Patriot Battery Metals	PMT.AX	ASX	\$	0.46	\$		-9%	-48%	-61%	Quebec	Rock
Develop Global Limited	DVP.AX	ASX	\$	2.16	\$	377	4%	-4%	-21%	Western Australia	Rock
Latin Resources Ltd	LRS.AX	ASX	\$	0.21	\$		43%	-20%	-27%	Argentina, Brazil	Rock
Lithium Royalty Corp	LIRC.TO	TSX	\$	6.01	\$		-7%	-13%	-26%	Global	Other
Standard Lithium Wildcat Resources	SLI.V WC8.AX	TSXV ASX	\$	1.85 0.29	\$		-4% 28%	-25% -30%	-35% -56%	Arkansas Western Australia	DLE Brine
Ioneer	INR.AX	ASX	\$	0.27	\$		27%	-20%	10%	Nevada	Rock Rock
International Battery Metals	IBAT.CN	CSE	\$	1.01	\$		-17%	-27%	32%	Global	Tech
Atlas Lithium	ATLX	NASDAQ	\$	10.15	\$		-7%	-27%	-68%	Brazil	Rock
Core Lithium	CXO.AX	ASX	\$	0.09	\$		3%	-30%	-65%	Australia	Rock
Kodal Minerals	KOD.L	LSE	£	0.51	\$		-11%	-16%	40%	Mali	Rock
Frontier Lithium	FL.V	TSXV	\$	0.65	\$		9%	-15%	-11% 88%	Ontario	Rock
Savannah Resources Atlantic Lithium	SAV.L ALL.L	LSE LSE	£	4.00 13.02	\$		5% -31%	20% -45%	-45%	Portugal Ghana	Rock Rock
Delta Lithium (ex Red Dirt Metals)	DLI.AX	ASX	\$	0.23	\$		-6%	-21%	-54%	Australia	Rock
Lithium Chile Inc.	LITH.V	TSXV	\$	0.60	\$		9%	-20%	5%	Chile	Brine
Rock Tech Lithium	RCK.V	TSXV	\$	1.25	\$	92	-17%	-9%	-13%	Ontario	Rock
Li-FT Power Ltd.	LIFT.V	TSXV	\$	2.50	\$		18%	-28%	-54%	Canada	Rock
Anson Resources	ASN.AX	ASX	\$	0.10	\$		-19%	-25%	-33%	Utah	Brine
Lithium Ionic Corp. E3 Lithium	LTH.V ETL.V	TSXV TSXV	\$	0.66 1.39	\$		20% 22%	-23% -19%	-60% -36%	Brazil Alberta	Rock DLE Brine
American Lithium	LI.V	TSXV	\$	0.53			-23%	-49%	-69%	Nevada	Clay
Winsome Resources	WR1.AX	ASX	\$	0.51	\$		-8%	-52%	-52%	Quebec	Rock
Brightstar Resources	BTR.AX	ASX	\$	0.02	\$		27%	27%	19%	Western Australia	Rock
Andrada Mining (ex AfriTin)	ATM.L	LSE	£	3.45			6%	-29%	-35%	Namibia	Rock
Critical Elements Corporation	CRE.V	TSXV	\$	0.41	\$		-23%	-52%	-56%	Quebec	Rock
American Battery Technology Company	ABAT	NASDAQ	\$	1.09	\$		3%	-20% 94%	-75%	Nevada	Clay
Q2 Metals Corp. Zinnwald Lithium	QTWO.V ZNWD.L	TSXV LSE	\$ £	0.58 9.40			148% 17%	-16%	170% 37%	Canada Germany	Rock Rock
Argosy Minerals Limited	AGY.AX	ASX	\$	0.05	\$		22%	-60%	-66%	Argentina	Rock
Arizona Lithium	AZL.AX	ASX	\$	0.02	\$		-6%	-30%	-47%	Arizona	Clay
Galan Lithium	GLN.AX	ASX	\$	0.13	\$	47	0%	-38%	-81%	Argentina	Brine
Raiden Resources	RDN.AX	ASX	\$	0.03			13%	-42%	-37%	Western Australia	Rock
Lake Resources	LKE.AX	ASX	\$	0.04	\$		11%	-33%	-70%	Argentina	DLE Brine
Volt Lithium Corp. Global Lithium Resources	VLT.V GL1.AX	TSXV ASX	\$	0.41	\$		1% -6%	85% -33%	98% - 79 %	Canada Australia	DLE Brine Rock
Surge Battery Metals Inc.	NILI.V	TSXV	\$	0.25			-6%	-33%	-56%	Nevada	Clay
Prospect Resources	PSC.AX	ASX	\$	0.10			-5%	-45%	19%	Namibia, Zambia, Zimbabwe	Rock
European Lithium	EUR.AX	ASX	\$	0.04			-11%	-15%	-64%	Austria	Rock
Azimut Exploration Inc.	AZM.V	TSXV	\$	0.49	\$	33	0%	-15%	-43%	Canada	Rock
CleanTech Lithium	CTL.L	LSE	£	17.00	\$		-15%	-20%	-14%	Chile	Brine
Century Lithium	LCE.V	TSXV	\$	0.27	\$		-4%	-32%	-46%	Nevada	Clay
European Metals Holdings Power Metals Corp.	EMH.AX PWM.V	ASX TSXV	\$	0.19			-18% -7%	-50%	-51% 0%	Czech	Rock
Brunswick Exploration Inc.	BRW.V	TSXV	\$	0.25	\$		-11%	-19% -55%	-78%	Ontario Canada	Rock Rock
Premier African Minerals Limited	PREM.L	LSE	£	0.16			-6%	-50%	-74%	Zimbabwe	Rock
Premier African Minerals	PREM.L	LSE	£	0.06	\$		-6%	-50%	-74%	Zimbabwe	Rock
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15 YEARS OF EXPERIENCE WITH LITHIUM BATTERY METALS DEVELOPERS





