

Manufacturing dominance and the illusion of Western de-coupling





Abstract

Global manufacturing has entered a new regime. Electrification is intensifying, not fading, as a structural driver of energy demand, industrial investment, and geopolitical leverage. China has achieved “escape velocity” in manufacturing, a term borrowed from physics that describes the speed required to break free from gravitational pull. China has reached a state of competitive dominance so structurally entrenched that other nations cannot realistically reverse or substantially displace it through conventional competitive means. This is most evident in the Electrification Theme, such as the battery value chain, which is foundational to EVs, drones, and robots, verticals that China will also dominate. Through vertical integration, overwhelming market share in cathode, anode, separator, and electrolyte materials, and structurally lower capital, electricity, and labour costs, China now sets the marginal cost curve for the dominant battery chemistry of this decade: lithium iron phosphate (LFP).

At the same time, the United States are discovering that their own defence and advanced industrial systems are deeply entangled with Chinese supply chains, from rare-earth magnets and electronic components to battery materials. The US “can de-risk but not decouple” from China. The political

narrative of confrontation runs into the physical constraints of supply chains.

This paper explores three interlocking themes:

- 1. Electrification as a super-theme – why electricity’s share of final energy and the associated grid and storage build-out is at the beginning rather than the end of its investment cycle.*
- 2. Chinese manufacturing dominance, illustrated via batteries – how China now dominates global value chains, creating a pattern where everyone buys from China eventually, even when cells are assembled elsewhere.*
- 3. US acceptance of dependency – how the defence sector’s own admissions on rare earths, electronics, and battery-related inputs sharply lower the probability of a “Sberbank-style” wipe out for investors in Chinese assets.*

The conclusion is straightforward: dominant Chinese manufacturers in electrification-critical segments – CATL, BYD, and leading materials suppliers – are likely to become substantially larger over the coming decade. Investors who correctly interpret the structural nature of these dependencies will reassess both the risk premium on China and the opportunity set in emerging markets.



By Thematic Specialist, Morten Springborg
C WorldWide Asset Management



Electrification: a super-theme, not a cycle

ELECTRIFICATION DRIVES LONG-TERM INDUSTRIAL CHANGE

From fashionable ideas to unavoidable necessity

We have consistently argued¹ that Western policymakers have mismanaged the energy transition: too much idealism about the pace of decarbonisation, too little realism about energy density, investment cycles, and physical infrastructure. Yet beneath this criticism lies a conviction that electrification itself – the substitution of electrons for molecules across transport, heating, industry, and digital systems – remains an inexorable structural force.

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Two complementary strands define this structural super-theme.

ELECTRICITY'S SHARE OF THE ECONOMY IS DOUBLING

First, electricity is becoming the backbone of economic activity. Electricity today accounts for roughly 20% of global final energy but is expected to rise to about 40% by 2050 as transport, heating, and industrial processes are electrified. This is not a marginal efficiency upgrade; it is a doubling of electricity's share of the world's energy diet in a single generation².

AI AND DIGITAL DEMAND ACCELERATE ENERGY NEEDS

Second, the digital and AI revolutions are electricity-intensive by design. Data centers, high-performance computing, 24/7 connectivity, and all sorts of electric mobility all draw directly from the grid. Until recently, US electricity demand had been flat for decades; that long plateau has ended. Analysts now estimate that generative AI alone could consume up to 10% of US electricity by the end of this decade.

1 *The Struggle to Achieve Net Zero Emissions*. 2024. PDF.

2 “Electrification Expected to Supercharge Investment Opportunities,” *Investment Executive*, May 28, 2024.

Electrification is not an optional “green overlay”; it is the physical substrate of the next industrial era. Attempts to decarbonise without properly appreciating this will, as Europe has already discovered, lead to energy shortages, deindustrialisation, and rising geopolitical vulnerability.

**GRID BOTTLENECKS
SIGNAL REAL-WORLD
PRESSURE**

Grid constraints prove electrification is accelerating

A hallmark of a genuine structural theme is that it runs into hard capacity constraints. A structural theme is a long-term force that steadily reshapes how the economy works. A narrative is just a story. It may move prices for a while, but if it’s not anchored in fundamental shifts in demand and investment, it fizzles out before it leaves a mark on physical capacity.

With structural themes, three things tend to unfold over time. Demand keeps compounding, not merely for a single product but also for the upstream inputs and infrastructure that support it. Eventually, existing capacity can no longer keep pace – across factories, power grids, ports, mines, and skilled labour. This imbalance then emerges as hard constraints: extended lead times, shortages of critical equipment, sharp price spikes at specific bottlenecks, and political or institutional responses such as subsidies, strategic stockpiles, or new regulations. These constraints are the fingerprints of a genuine structural force.

Electrification is now at that stage.





The global grid backbone – transformers, substations, high-voltage lines – was built mainly in the decades after World War II and has since been under-invested in. Over the last 2-3 years, that has changed abruptly. Orders for companies exposed to grid build-out – cabling, transformer stations, substations – have “exploded”.

The bottlenecks are telling³:

- Order a transformer station today and lead times are 2-3 years.
- Order subsea cabling for an offshore wind project and you wait 10 years.

These are not cyclical delays caused by a single boom-bust cycle. They are the natural consequence of overlaying several secular themes on a stagnant grid, including EV adoption, data centers, AI compute, electrified heating, and industrial electrification.

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In this environment, access to reliable, abundant power becomes a source of strategic advantage.

ACCESS TO ABUNDANT
POWER CREATE
STRATEGIC VALUE

In this environment, access to reliable, abundant power becomes a source of strategic advantage. It is no coincidence that Microsoft, Amazon Web Services, and others are actively seeking to purchase or build dedicated nuclear capacity to secure their own electricity supply for AI workloads. Corporations do not take on nuclear construction risk lightly; doing so signals a preference for stable baseload and an acknowledgment of how durable they believe the electrification trend to be.

BATTERIES ARE
INCREASINGLY USED TO
STABILISE THE GRID

Storage as the hinge between electrons and economics

As the share of solar and wind in the grid rises, the economic viability of electrification increasingly depends on storage. Solar and wind are intermittent; grids must be stabilised across seconds, hours, and increasingly multi-hour horizons. Mobility requires “onboard” energy. Batteries – overwhelmingly lithium-ion, and predominantly LFP – are the technology that now performs this function at scale.

The United States now deploys about 0.45 GW of batteries for every 1 GW of new renewables added to the grid. In 2024, the world deployed roughly 1,500 GWh of lithium-ion batteries, of which around 1,000

3 [The Energy Transition Has Brought on a New Energy Crisis. 2022. PDF.](#)



CHINA CONTROLS THE CRITICAL SUPPLY CHAIN

GWh went into EVs and ~175 GWh into grid-scale systems. Lithium-ion accounts for about 80% of all global battery deployment⁴.

The energy consultant Thunder Said Energy's bottom-up cost work shows that Chinese-produced LFP cells can be made for USD 50-60/kWh, reflecting a >90% cost decline over the past decade, while globally produced cells remain around USD 90/kWh. These cells translate into grid-scale systems installed at USD 250-300/kWh, with costs still gently deflating⁵.

From an investor's perspective, these facts matter because they define who controls the bottleneck in the electrified world. The more grid and demand-side applications rely on batteries for flexibility and mobility, the more value accrues to those who dominate the battery and precursor supply chains.

Which brings us to China.

4 [Energy Storage: To Infinity and Beyond?](#) Thunder Said Energy, November 20, 2025, PDF (behind paywall).

5 Ibid.



China's vertical integration and the dominance of battery supply chains

LFP SETS THE GLOBAL BATTERY STANDARD

- LFP: 81.2%
- Other chemistries: 18.8%



LFP: The chemistry that won

On the chemistry side, the verdict is already in, as LFP (lithium iron phosphate) has effectively “won” among electrochemical batteries. The reasoning is simple:

- LFP avoids expensive nickel and cobalt by using iron and phosphate, which are abundant and inexpensive.
- It offers excellent safety: LFP cathodes remain stable up to 400-500°C, while NMC cathodes degrade around 200-250°C.
- It has long cycle life and is well-suited to both high-cycle grid storage and massmarket EVs.

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In China, the world's largest EV and battery market, LFP has moved from contender to hegemon.

As costs fell, adoption followed. In China, the world's largest EV and battery market, LFP has moved from contender to hegemon:

- In 2025, LFP batteries have become the dominant choice in China's EV market, accounting for 81.2% of the total EV battery market.
- Across January-April 2025, cumulative LFP installations of 150 GWh represented 81.4% of total power battery installations.

In China, LFP is the default chemistry. Outside China, LFP's share is lower but catching up rapidly as Western OEMs – including Tesla and multiple European carmakers – switch standard-range models to LFP to cut cost and derisk raw material exposure.



VERTICAL INTEGRATION PROVIDES DOMINANCE

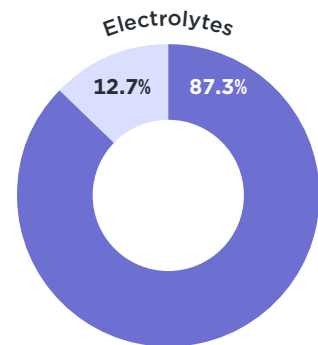
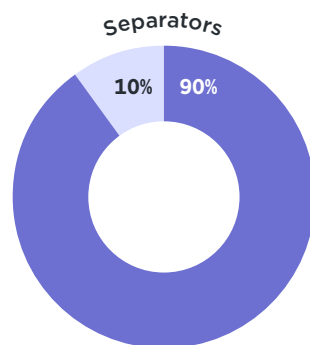
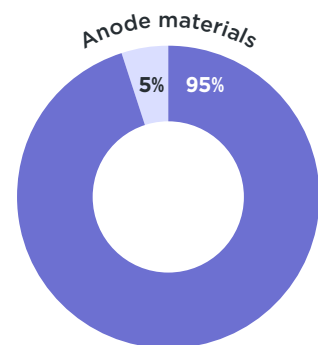
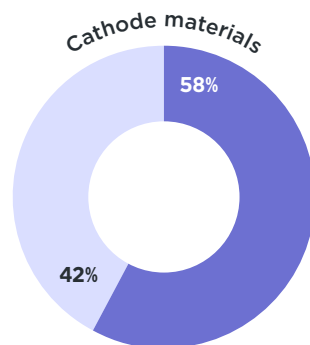
From cells to the four material pillars: where China truly dominates

The more important story, however, lies not at the cell level but in the materials stack that feeds the cell factories. Here, Chinese dominance is overwhelming.

A 2025 industry review⁶ summarises the situation across the four major battery material categories – cathodes, anodes, separators, and electrolytes – as shown below.

This dominance means that even when an LFP cell is cobranded with a Western nameplate and assembled in Hungary, the materials stack is overwhelmingly Chinese. On the surface, OEM sourcing appears geographically diversified, yet the arteries of the system all trace back to China.

● Chinese ● Non-Chinese



6 *"LFP Dominates, Anode Monopoly! In the First Half of the Year, China's Four Major Battery Materials Sweep the Globe," Plastmatch, August 18, 2025.*



COST ADVANTAGES REINFORCE CHINESE DOMINANCE

Cost structure: why western factories can't catch up

Thunder Said Energy's gigafactory database⁷ explains why Chinese producers are so difficult to dislodge.

- A typical Chinese gigafactory under construction in 2025-2030 has a capex of about \$50/kWh-pa of capacity.
- Western projects average roughly \$95/kWh-pa.

Each GWh of battery capacity employs roughly 70 people. At Chinese labor rates, this adds about \$1/kWh; at Western rates, closer to \$6/kWh. An equally important driver of cost advantage is China's low electricity prices, which typically gives China-manufactured batteries a \$5-8/kWh cost advantage⁸.

Cost per kWh: China vs. West⁹



⁷ [Battery Gigafactory Capex Costs?](#), Thunder Said Energy, last updated June 11, 2025.

⁸ "High Cost of Energy," BusinessEurope, 2023.

⁹ Thundersaidenergy, Gigafab database 2025.



These structural gaps in capital, electricity, and labour costs directly affect cell economics:

- Chinese LFP cells: \$50-60/kWh
- Western cells: ≈\$90-100/kWh

And this is before accounting for margin capture. Chinese cell makers such as CATL and BYD increasingly own or control their LFP supply chain (iron phosphate, lithium conversion, often manganese) and are embedded in dense local ecosystems of cathode/anode/separator/electrolyte suppliers. Western cell plants, by contrast, typically buy those materials from Chinese suppliers at market prices that already embed Chinese margins.

The result is a double handicap for non-Chinese producers: they face higher capital and operating expenditure per unit of cell capacity, alongside elevated input costs because they are price-takers on materials manufactured in China.

No plausible combination of subsidies and “Buy American” rules can fully erase that gap. At best, they can narrow it temporarily at taxpayer expense.

- CATL: 39.4%
- BYD: 26.4%
- Others: 34.2%



Scale and oligopoly: CATL, BYD and their ecosystem

At the corporate level, China’s internal market structure reinforces this advantage. In April 2025¹⁰:

- CATL held 39.4% of China’s power battery installations (21.2 GWh that month).
- BYD held 26.4% (14.2 GWh).

Together, they account for roughly two-thirds of China’s installed power battery base, atop a rapidly growing long tail of other Chinese producers.

10 *“LFP Batteries Dominate China’s Power Battery Installations, Boosting Demand for LFP,” Shanghai Metals Market, May 26, 2025.*



US defence and the acceptance of dependency on China

US DEFENCE CANNOT ESCAPE CHINESE SUPPLY

If any sector should be insulated from Chinese dependence, it is defence. The reality is the opposite. In a 2023 interview, RTX (Raytheon) CEO Greg Hayes spelled this out with unusual candor. While Western politicians talked about decoupling, Hayes stated flatly¹¹: *“We can de-risk but not decouple. Think about the USD 500 billion of trade that goes from China to the US every year. More than 95% of rare earth materials or metals come from, or are processed in, China. There is no alternative.”*

He went on to note that if Raytheon were forced to exit China, it would take many years to rebuild the necessary capabilities elsewhere. In the meantime, the company – and by extension, US defence capability – would be severely impaired.

The US can’t fight a war with China without sourcing its weapons from the same China.

CHINA LEVERAGES CRITICAL MATERIALS GEOPOLITICALLY

Electronics and rare earths

Rare earths are the most widely cited choke point, but they are not the only one. Several datasets document just how deeply embedded Chinese suppliers have become in Western defence production.

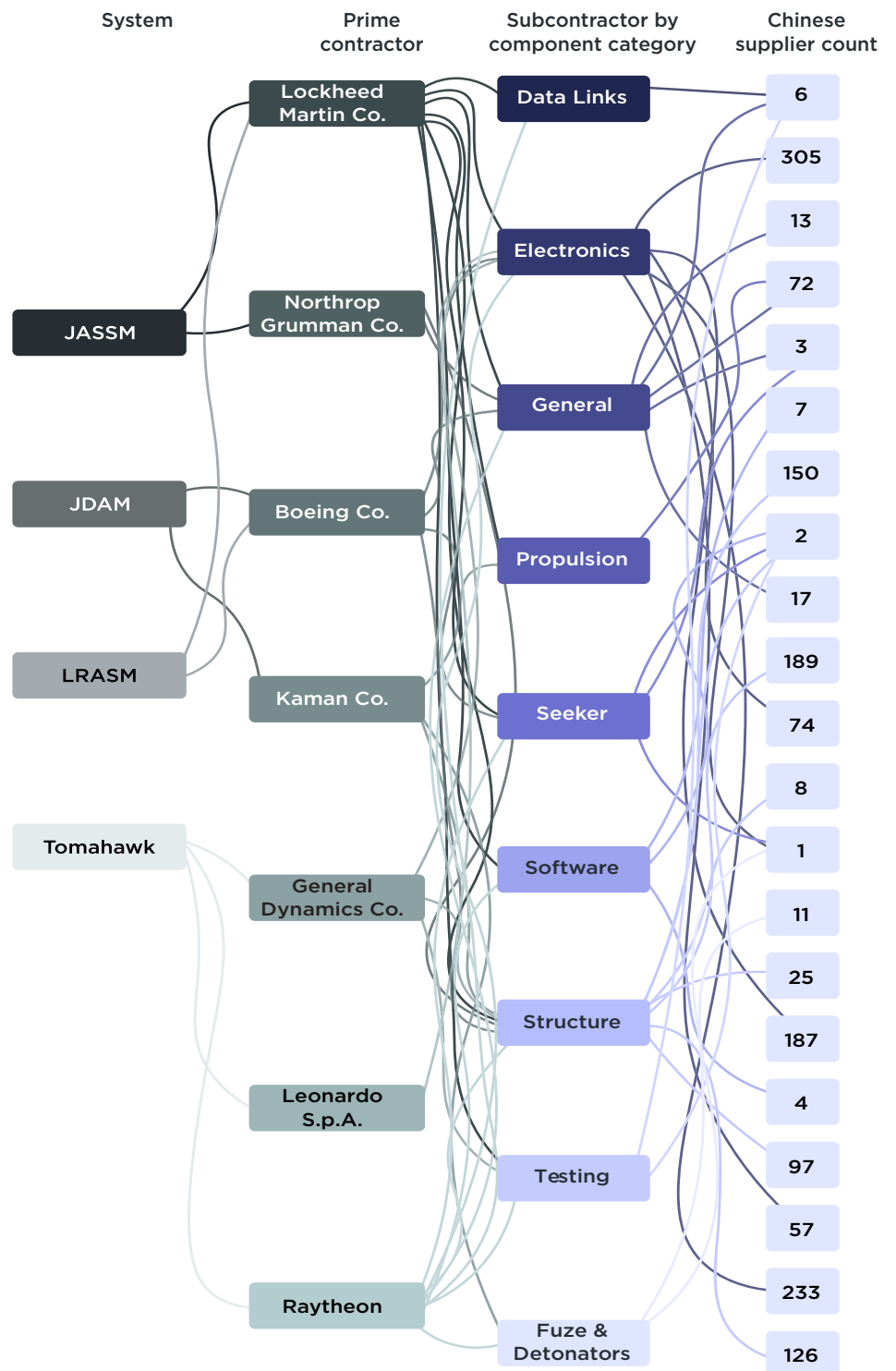
- China accounts for about 68% of global rare earth metal production, and roughly 90% of rare earth magnet production, critical inputs for iPhones, MRI machines, EV drivetrains – and also F-35 fighters and Virginia-class submarines¹².
- The UP Partners Moving World Report 2025¹³ documents Chinese supplier counts embedded in US air-launched munitions

11 *“Raytheon CEO Argues Against Decoupling From China: ‘There Is No Alternative,’” The Deep Dive, June 21, 2023.*

12 Alex Ferrara, *“Europe’s Defence Wake-Up Call: Why Innovation Can’t Wait,” Fortune, October 16, 2025.*

13 *The Moving World Report 2025: A Techno-Optimist Perspective, UP.Partners, March 1, 2025.*

supply chains. For systems such as Tomahawk, LRASM, JDAM and JASSM, there are hundreds of Chinese suppliers across categories like electronics, data links, software, seekers, structures and testing. The pattern is not a marginal exposure; it is systemic.



Source: *The Moving World Report 2025: A Techno-Optimist Perspective*, UP. Partners, March 1, 2025.



At the same time, China has begun using export controls on critical inputs as a geopolitical lever – for example, restrictions on gallium and germanium, essential for advanced semiconductors, radar and night-vision systems. These moves are signals: Beijing understands the dependency structure and is willing to remind others.

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The Chinese industrial ecosystem that houses CATL, BYD, and the LFP materials complex underpins the low-cost drones that have reshaped battlefield economics in Ukraine – and the electronics that go into Western precision-guided weapons.

● China: 31.6%
● US: 15.9%



Batteries and “defence-adjacent” technologies

China is the World’s only “electrostate”. China already uses electricity for over 30% of its final energy consumption, compared to materially lower shares elsewhere. It leads in EVs, batteries, solar, rail, robots, and drones, and accounts for 31.6% of global manufacturing output, versus 15.9% for the US.

These are not only commercial sectors; they are defence-adjacent:

- EV and LFP scale underpin military logistics electrification and dual-use vehicle fleets.
- Drone supply chains depend on lithium batteries, ESCs, avionics, and composite structures.
- Grid and storage technologies determine the resilience of bases, ports and command centres as warfare becomes more electrified and automated.

Thus, the same Chinese industrial ecosystem that houses CATL, BYD, and the LFP materials complex also underpins the low-cost drones that have reshaped battlefield economics in Ukraine – and the electronics that go into Western precision-guided weapons.



OPERATIONAL TIES TO CHINA ARE UNAVOIDABLE

From the decoupling fantasy to the de-risking doctrine

Hayes's formulation – “derisk but not decouple” – has effectively become the new doctrine. Defence primes and major industrials now pursue three parallel strategies:

- Secondary sourcing of the most sensitive components.
- Stockpiling and inventory buffering for components that can't be resourced quickly.
- Political signaling - supporting de-risking language to align with policy while quietly maintaining deep operational ties to Chinese suppliers.

But the crucial implication is this: complete decoupling is off the table in any time frame that matters to investors. The physical capital and knowledge embedded in China's upstream – from rare earth processing to high-volume, low-defect electronics and battery materials – cannot be replicated within any reasonable investment horizon.

That reality dramatically reduces the likelihood of a Russia-style “Sberbank moment” in China, in which assets are frozen or wiped out overnight. Sanctioning China at that level would, in effect, sanction one's own defence, electronics, and energy-transition industries.





A new strategic reality

To see why Chinese manufacturers are likely to become even larger, it is helpful to bring the three strands together.

GLOBAL DEMAND CREATES UNSTOPPABLE ORDER FLOWS

Electrification ensures the volume

Electrification guarantees volume growth for batteries and their materials:

- Thunder Said Energy's long-range scenarios have global lithium-ion deployment rising from today's 1,500 GWh/year to several multiples of that by 2030-2040, driven by EVs, stationary storage, and emerging applications like robotics.
- In China, LFP's share of power battery installations is already hovering around 80-83%, with absolute volumes growing >50% YoY.

Electrification is therefore not an abstract "theme" but a committed order book for the Chinese materials and cell complex.

CONTROL OVER MATERIALS LOCKS IN PROFITS

Chinese vertical integration ensures the margin

Within that expanding volume, China's vertical integration ensures that a disproportionate share of economic profit accrues to its companies:

- Control of lithium conversion, LFP precursors, and cathode production means Chinese firms set the marginal cost and price for key inputs.
- Nearmonopoly shares in anodes (~95%), separators (~90%), and electrolytes (87.3%) give Chinese suppliers leverage even when final packs are assembled elsewhere.
- Structural capex and labor cost advantages, combined with R&D scale (e.g., CATL spending USD 2.6 billion on R&D in 2024 and filing 7,000 patents), make it extremely difficult for latecomers to catch up on technology or cost.

EXTREME CHINA SANCTIONS ARE UNLIKELY, LOWERING INVESTMENT TAIL RISK

US acceptance removes the worst tail risk

The final piece is political risk. For years, investors have worried about the possibility of being "Sberbank'ed" – waking up to find that holdings in Chinese companies have become untradeable or confiscated following a geopolitical shock.



The defence and supply-chain evidence described above suggests that this tail risk has decreased, not increased, over the last several years:

- The deeper the integration of Chinese materials and components into US defence and critical infrastructure, the higher the cost of all-out sanctions.
- Hayes's public statements, and the UP Partners documentation of hundreds of Chinese suppliers embedded in US weapons platforms, amount to an admission that Washington does not, in practice, have a clear off-ramp from Chinese supply.
- China's own leverage – via control of rare earth magnets (~90% of global production) and a commanding position in LFP precursors and grid-scale storage – gives Beijing powerful incentives to avoid crossing red lines that would invite mutually destructive sanctions, while, realistically, giving China the long-desired recognition as a major power on equal footing with the US.

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The geopolitical discount baked into many China-exposed industrial and materials names is increasingly misaligned with underlying fundamentals.

None of this eliminates geopolitical risk. But it makes Russia-style asset expropriation far less likely for China in any basecase scenario. That, in turn, means the geopolitical discount baked into many China-exposed industrial and materials names is increasingly misaligned with underlying fundamentals.

CHINA'S BATTERY ECOSYSTEM IS POISED FOR STRUCTURAL DOMINANCE

Investment consequences: why the leaders will get larger

Putting the pieces together, the strategic logic for Chinese industrial champions, particularly in batteries and electrification hardware, is compelling.

Winner-take-most in commoditising hardware

Battery manufacturing is structurally a winner-take-most business:

- Products are globally tradable, increasingly commoditised, and highly sensitive to cost per kWh and reliability.
- Economies of scale in manufacturing, procurement, R&D, and process optimisation favour those already at the top of the volume league tables.
- High capital intensity and rapid technology iteration punish under-scale or high-cost players.

Chinese incumbents such as CATL and BYD already sit atop this pyramid, supported by massive domestic demand, world-leading LFP



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In reality, Western reshoring trims dependence at the cell and pack level but leaves the material bottleneck intact – a headwind, not a threat.

integration, and increasingly global customer footprints. As volumes rise, their unit costs fall further, and their ability to fund the next wave of innovations – from higher-density LFP and sodium-ion hybrids to pack-level integration and vehicle platforms – grows in parallel.

WESTERN RE-SHORING WILL NOT UPEND CHINA'S EDGE

Relative, not absolute, re-shoring in the West

US and European industrial policy will not disappear. Gigafactories will be built; subsidies will be paid; politicians will cut ribbons.

But these efforts are insufficient to overturn the core economic logic:

- Western capex and labour costs will remain structurally higher.
- Western factories will, for the foreseeable future, remain heavily dependent on Chinese cathode/anode/separator/electrolyte inputs.
- Any serious attempt to de-Chinese the materials stack would require a decade or more of sustained, expensive, politically supported investment.

In practice, this means Western reshoring will reduce marginal dependence at the cell and pack level while leaving the underlying materials dependency largely untouched. From the standpoint of Chinese champions, this is a manageable headwind rather than an existential threat.

MARKET RISKS ARE REPRICED; OPPORTUNITIES ARE UNDERSTATED

Emerging markets risk repriced

The recognition that complete decoupling is impossible changes the calculus. It implies:

- The probability of outright expropriation of Chinese equities is lower than feared.
- The earnings power of Chinese leaders in electrification-critical verticals is higher and more durable than priced.
- Short-term sentiment swings around tariffs, export controls, and political rhetoric create tactical volatility, but do not overturn the underlying industrial equilibrium.

That in turn suggests that risk-adjusted returns on select Chinese and broader EM equities – especially those tied to electrification, grid hardware, critical materials, and related manufacturing ecosystems – are more attractive than their headline narratives would indicate.

Conclusion: China's manufacturing escape velocity

STRUCTURE TRUMP'S POLITICS

In our earlier writings on the energy transition, there is a recurring motif: misalignment between narratives and physics. Policymakers talk about decarbonisation; the physical system responds with shortages, price spikes, and deindustrialisation.

A similar misalignment now exists between narratives and manufacturing reality. Much Western commentary still speaks in terms of “confronting” or “containing” China's manufacturing rise.

The facts are starker:

- Electrification and AI are structurally raising global demand for electricity, grid infrastructure, and storage. Batteries are the hinge technology, and LFP is the winning chemistry for mass applications, at least for the next decade.
- China has welded together the most complete and cost-competitive manufacturing ecosystem for this new era: from lithium conversion and LFP precursors to cathodes, anodes, separators, electrolytes, cells, and packs.
- The United States, despite its rhetoric, has tacitly acknowledged that its defence and high-tech sectors cannot function without Chinese inputs, particularly in rare earths, electronics, and battery-related components.

CHINA'S MANUFACTURING LEAD IS SELF-REINFORCING

These three forces – electrification, Chinese manufacturing dominance, and US acceptance of dependency – are mutually reinforcing. They ensure that:

- Volumes will keep growing in the sectors where China is most assertive.
- Margins, though cyclical, will tend to accrue to those Chinese firms that sit lowest on the cost curve and deepest in the value chain.
- The extreme geopolitical tail risks that might have justified Sberbank-level write-downs of Chinese assets are, in practice, constrained by Western self-interest.



In that world, the most likely outcome over the coming decade is not that Chinese manufacturing champions are disciplined into modesty. It is that they grow much larger, extending their lead in batteries, electrification hardware, and related industrial technologies.

For investors willing to think in structural, not cyclical, terms – and to separate political theatre from physical dependency – this is not a comfortable conclusion. But it is, increasingly, an unavoidable one.

C WorldWide has invested in CATL in several strategies.

This is marketing material.

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