Batri®

WHITE PAPER

The Impact of Tariffs on Battery Materials and Cell Manufacturing

The Case for Localised, Geo-Diverse, and Scalable Raw Material Sourcing

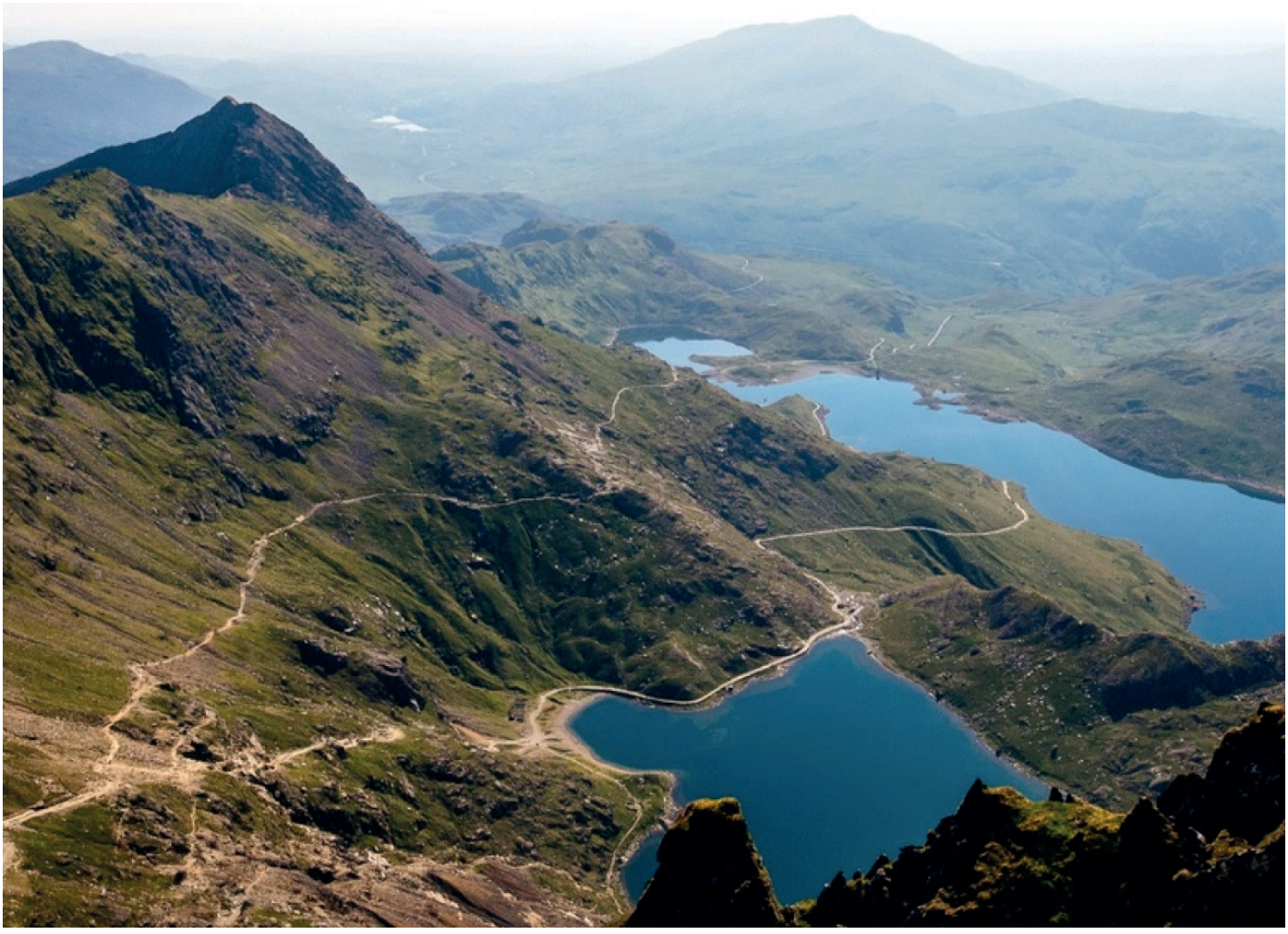
2025

INTRODUCTION

The global battery industry is experiencing a structural transformation driven by geopolitical tensions, trade tariffs, and the growing demand for energy storage solutions.

Recent tariff policies, particularly those implemented by the U.S., the EU, and other major economies, are disrupting global supply chains for critical battery materials, increasing costs, and incentivising localised production. At the same time, these trade policies are accelerating a transition away from lithium-ion technology towards sodium-ion batteries, which offer advantages in terms of resource abundance, cost stability, and sustainability.

This white paper explores the current and future impacts of tariffs on battery material sourcing and cell manufacturing. It further highlights the strategic importance of using geo-diverse, abundant, and scalable raw materials, particularly sodium, to mitigate supply chain risks and ensure the long-term sustainability of the battery industry.



THE RISING CHALLENGES IN GLOBAL BATTERY SUPPLY

As demand for batteries—particularly for electric vehicles (EVs) and energy storage—continues to surge, supply chains are under immense pressure.

Countries are implementing tariffs and trade restrictions in an attempt to secure domestic manufacturing capabilities and reduce dependency on foreign materials. The recent tariffs imposed by the U.S. on Chinese, Canadian, and Mexican imports are a prime example of such protectionist policies, increasing costs for raw materials such as lithium, graphite, copper, and nickel. Similarly, the European Union has introduced protectionist measures such as the EU Rules of Origin, which impose stricter requirements on supply chain traceability and local content, further complicating access to key markets for battery manufacturers reliant on global supply chains. However, these trade measures are also catalysing a shift in battery chemistry, with sodium-ion batteries emerging as a viable alternative due to their reliance on widely available and lower-cost raw materials.

The U.S. and Ukraine have recently forged a framework agreement to develop Ukraine's vast mineral resources, including rare earth elements critical in lithium battery technology. While this deal expands mineral sourcing options, it also highlights the geopolitical complexities of supply chains and the need for diversification to reduce risks.

At Batri, we have developed an anode material produced from widely available feedstocks, enabling the anode to be made in-country where the cells are then assembled. Further, our strategy allows for a global expansion to overcome trade restrictions and create resilient supply chains. This approach aligns with the broader industry movement toward sodium-ion technology, reinforcing the viability of non-lithium alternatives in response to trade barriers and resource constraints.

This white paper examines:

1. The current impact of tariffs and trade restrictions on battery materials and manufacturing.
2. The future implications of prolonged trade barriers, including U.S. tariffs and EU protectionist policies.
3. The opportunities for localising production using abundant and scalable resources, particularly sodium-ion technology.
4. The potential for UK-US trade agreements to support advanced battery material manufacturing, positioning the UK as a strategic hub serving both US and EU markets.

1. THE CURRENT IMPACT OF TARIFFS ON BATTERY MATERIALS AND MANUFACTURING

TARIFFS AND PROTECTIONIST MEASURES ON KEY BATTERY MATERIALS

Recent U.S. and EU trade policies have introduced additional costs and compliance requirements on battery materials sourced from traditional suppliers. Key affected materials include:

Lithium

A critical element for lithium-ion batteries, currently sourced primarily from China, Chile, and Australia.

3 Li Lithium

Graphite

China dominates over 80% of the world's supply of battery-grade graphite, making it particularly vulnerable to trade restrictions.

6 C Carbon

Nickel & Colbalt

Countries such as Indonesia, Russia, and the Democratic Republic of Congo are major suppliers, creating geopolitical risks.

28 Ni Nickel

27 Co Cobalt

Copper

Used as a foil in lithium ion batteries, copper has recently been targeted for tariff scrutiny due to national security concerns.

29 Cu Copper

In addition to U.S. tariffs, the EU's Rules of Origin mandate that a certain percentage of battery materials and components must be sourced from within the bloc to qualify for tariff-free trade. This policy is intended to strengthen domestic battery supply chains but may increase costs and complexity for manufacturers reliant on global sourcing.

These tariffs and trade restrictions are increasing raw material costs, creating supply chain bottlenecks, and reducing the competitiveness of battery manufacturers reliant on imported materials. This has led to a surge in interest in alternative battery chemistries such as sodium-ion, which does not rely on lithium, cobalt, or nickel.

IMPLICATIONS FOR CELL MANUFACTURING

Higher production costs:

Increased material costs are being passed on to battery manufacturers and, ultimately, consumers.

Investment shifts:

Companies are reassessing supply chains, looking to develop domestic production to mitigate tariff-related expenses.

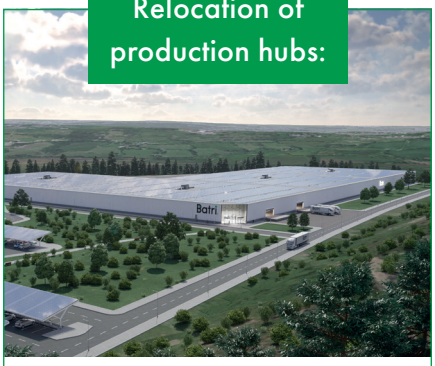
Technology adaptation:

Research into alternative materials is accelerating, particularly for sodium-ion and other next-generation battery chemistries that can leverage more locally available resources.

2. FUTURE IMPLICATIONS:
LONG-TERM TARIFFS AND TRADE BARRIERS

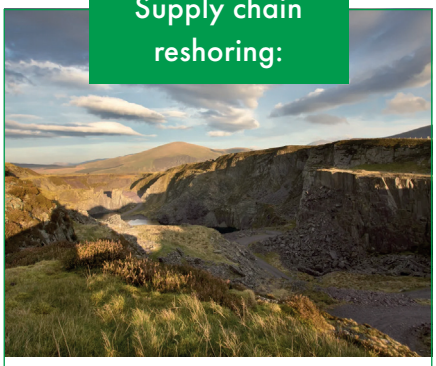
If tariffs persist or escalate, the global battery market may experience several critical shifts:

Relocation of production hubs:



More battery gigafactories and material processing plants will be developed in tariff-free regions.

Supply chain reshoring:

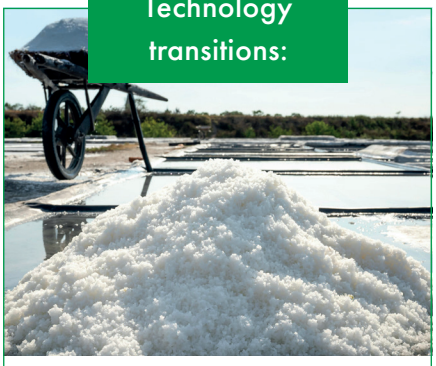


Countries will prioritise securing their own sources of key raw materials and refining capabilities.

Strategic alliances:

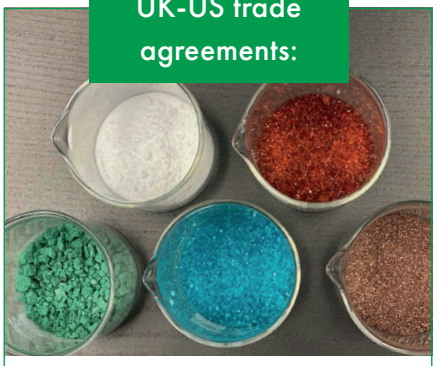
Battery manufacturers will form partnerships with non-traditional suppliers to reduce dependency on high-tariff regions.

Technology transitions:



The shift away from lithium-ion towards sodium-ion batteries will accelerate, particularly for stationary energy storage applications and non-road vehicles.

UK-US trade agreements:



Potential trade deals could create favourable conditions for UK-based battery material manufacturing, offering a strategic advantage in serving both the US and EU markets.

Price volatility:

Continued uncertainty over tariffs and trade policies will cause fluctuations in battery prices, impacting industries reliant on energy storage.

3. THE CASE FOR LOCALISED PRODUCTION AND GEO-DIVERSE, SCALABLE RAW MATERIALS

To address the risks posed by tariffs and trade barriers, industry stakeholders are actively pursuing localisation strategies.

SHIFTING BATTERY TECHNOLOGIES: THE RISE OF SODIUM-ION FOR NATIONAL ENERGY INFRASTRUCTURE

The transition to localised production is also accelerating a shift in battery technologies, particularly the move away from lithium-ion towards sodium-ion batteries for key applications, including national energy infrastructure and non-road vehicles. This shift is being driven by several factors:

Abundant and widely available sodium
Unlike lithium, sodium is more geographically diverse and can be sourced domestically in many countries, reducing reliance on high-tariff regions.

Lower raw material costs
Sodium-ion batteries do not require expensive materials such as lithium and cobalt, making them a cost-effective alternative.

Energy storage suitability
Sodium-ion technology is particularly well-suited for stationary energy storage applications, which are critical for integrating renewable energy into the grid.

Sustainability benefits
With a smaller environmental footprint compared to lithium-ion, sodium-ion batteries align with sustainability goals and circular economy principles.

Improved safety
Sodium-ion cells offer enhanced safety benefits, including lower flammability, a significantly reduced risk of thermal runaway, and the use of non-toxic materials. These characteristics are particularly crucial for applications such as ground service equipment in the aviation industry, where safety and reliability are paramount.

4. SEIZING THE OPPORTUNITY FOR A RESILIENT BATTERY FUTURE

The imposition of tariffs and protectionist measures on battery materials is catalysing a global transformation in supply chain strategy. Investing in localised, geo-diverse, and scalable raw materials will be essential for ensuring a stable supply chain, reducing production costs, and fostering innovation in battery technology.

Industry stakeholders can take advantage of this transition by:

Strengthening domestic supply chains: Reducing reliance on high-risk regions by investing in local mining, refining, and manufacturing capabilities.

Enhancing energy security: Developing battery technologies that utilise more abundant and regionally available materials, such as sodium-ion batteries, to mitigate supply constraints.

Encouraging innovation: Leveraging government incentives and R&D initiatives to accelerate advancements in battery chemistry and production efficiency.

Improving cost stability: Minimising exposure to volatile global commodity prices by sourcing raw materials closer to production hubs.

Building strategic partnerships: Forming alliances with suppliers, policymakers, and manufacturers to create resilient, regionalised supply networks.

At Batri, we are positioned to support this transition by supplying high-quality anode materials that align with localisation strategies and emerging battery technologies. To learn more about how Batri can support your business with advanced battery materials, contact us today.

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Phone: UK: +44 (0) 3300 539 699 | US: +1 (702) 442 0994
Email: contact@batri.com
Web: batri.com