Battery Storage: A Supply Chain Under Pressure



Earlier this year, G7 climate ministers agreed in principle that a global target is set to increase electricity storage capacity sixfold from 230GW in 2022 to 1,500GW in 2030. Despite battery energy storage systems (BESS) being one of the fastest growing technologies in the energy transition sector, the question arises as to whether we can meet this target with the BESS supply chain experiencing such unprecedented pressure.

In this article, we explore the key issues affecting the BESS supply chain and the opportunities available to overcome these challenges.

Key issues

Battery overproduction has been and continues to shape the market dynamics of the energy storage sector in 2024, placing downward pressure on pricing and providing headwinds for deployment. In particular, the rapid growth of battery manufacturing has surpassed immediate and short-term demand. In 2023, China’s battery production was already big enough to fulfil global demand as a result of a wave of investment in their supply chain over the past two years. This has led to oversupply and intense price competition, which has been great for project developers procuring BESS but less so for manufacturers who are competing in a market where China has become the default supplier for many.

Geopolitical factors are also playing a significant role in creating BESS supply chain pressures. Trade tensions and restrictions disrupt the flow of raw materials and finished products. In 2023, the US government banned the Department of Defense from purchasing batteries produced by China's six leading manufacturers from October 2027. While this necessitates the diversification of the supply chain, the question arises as to whether this could cause growing protectionism with countries prioritising domestic production and supply. If countries adopt this approach, we may see an increase in political tension between those countries with insufficient raw materials to produce batteries and those with ready access to a rich supply of raw materials.

Electric vehicles and battery storage are expected to account for about half of the increased demand for critical minerals from clean energy technologies over the next two decades, spurred by surging demand for battery materials. However, the rapid increase in demand for these materials has led to significant supply constraints with lithium in particular struggling to keep pace with demand, leading to increased prices and supply chain bottlenecks.

Opportunities amidst the pressure

While we note the current pressures in the BESS supply chain, there are also exciting potential opportunities to be had amidst the pressures:

- **Strategic partnerships** – collaborations between BESS manufacturers, developers and governments will help ease geopolitical tensions and build a more resilient supply chain where resources can be shared, joint ventures formed, investments made, and new exciting relationships formed. These relationships can also enhance bargaining power and improve efficiency of and streamline supply chain operations.
- **Investments and incentives** – the UK government has

committed to more than £2 billion in new capital and R&D funding for the automotive sector over the next six years, supporting the manufacturing and development of zero emission vehicles, their batteries and the supply chain. Investments like this will provide positive signals to the supply chain and countries to position themselves as potential leaders in the energy transition and will help diversify and grow the battery supply chain.

- **Raw materials exploration** – by exploring alternatives to lithium-ion batteries, such as sodium-ion and solid-state batteries, a significant opportunity will become available to ease supply chain pressures, battery pricing and provide cost-effective solutions for long-duration energy storage, a strategy which Canada has already begun investment into. Equally, finding alternative sources of materials might also help with domestic production and fostering economic development by moving away from the reliance on the Far East in the supply chain and instead creating a more localised supply chain.
- **Supply chain agreements** – where it is necessary to engage with the Far East, we would recommend the International Federation of Consulting Engineers (FIDIC) suite of contract forms as opposed to the bespoke form of contract often requested by the Far East which can pose a problem for financiers. We have yet to see developers favouring a wrapped EPC procurement strategy, as suppliers are presently focused on delivering their technology offering and unwilling to diversify into also providing the balance of plant works. Developers understand the interface issues and are prepared to manage them themselves to benefit from the cost savings of not paying for an EPC wrap. Please refer to our article on ‘Why FIDIC is becoming the chosen standard for BESS projects’ for more information.

Key takeaways

The BESS supply chain is facing challenges and with targets to increase electricity storage capacity sixfold from 2022 to 2030. Creativity will be paramount to find new opportunities and navigate supply chain complexities. We recommend looking into diversifying the battery supply chain by exploring the potential for domestic production and (longer term) alternative raw materials.

Read the original article on GowlingWLG.com

The content of this article is intended to provide a general guide to the subject matter. Specialist advice should be sought about your specific circumstances.

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