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Press release

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Research results, Scientific Publications
Energy, Environment / ecology, Traffic / transport
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How can Europe boost its domestic battery production and what policy actions are needed?

A new study by Fraunhofer ISI recently published in Nature Energy explores how domestic battery production in Europe can be expanded and how the European continent can become more independent from other parts of the world. The study derives policy recommendations from modelled scenarios how to strengthen the European battery industry.

The rapid diffusion of battery electric vehicles and the decarbonization of the energy sector require an increasing number of batteries. These batteries have so far largely been manufactured in Asia. Against this backdrop, the EU has set itself the target of covering 90 per cent of its battery demand from domestic production by 2030 – but in light of the rapid market growth and the strong increase in demand, this goal is at risk.

If Europe fails to scale up production, it will face severe economic and geopolitical risks, due to an increased dependence on external suppliers, a threatened industrial competitiveness and a delayed decarbonization.

In this context a new Fraunhofer ISI study published in Nature Energy raises the question of how Europe can meet its future battery demand through domestic production, and what policy actions are needed to ensure this.

The study uses probabilistic modeling to project future battery demand and domestic production in Europe and evaluates Europe's pathway towards battery self-sufficiency. The calculations are based on historical data, actual announced production capacities, and experience about how these announced capacities materialize over time. The study provides a robust, probabilistic outlook and also accounts for uncertainties such as construction delays, utilization rates, and assesses corresponding raw material needs.

Battery cell demand will highly increase by 2030

The findings of the study show that European battery cell demand will likely surpass 1.0 TWh per year by 2030, whereas domestic production capacity is expected to fall short, creating a risk of supply constraints. Although it can be expected that Euope will meet at least 50 to 60 per cent of its demand through domestic production by 2030, achieving the EU's 90 percent self-sufficiency target is feasible but uncertain, as about half of the modeled scenarios in the study fail to meet this target.

If Europe wants to become more independent of battery cell imports, the findings highlight the urgency of accelerating production capacity expansion, scaling up a battery supply chain, and implementing strong industrial policies to support competitiveness and sovereignty. This also includes reliability in future market demand for battery electric vehicles by maintaining current CO_2 fleet standards for cars and trucks. With its recently adopted "Industrial Action Plan for the European Automotive Sector", the EU is taking important steps to strengthen European battery production.

Predictable and reliable framework conditions for industry

Steffen Link, researcher at Fraunhofer ISI and lead author, states: "Our new study appears at a time where Europe is pushing policies toward climate neutrality and striving for resilient, sustainable battery value chains with domestic production and global competitiveness. To achieve these goals, our study recommends policy makers to create predictable and reliable framework conditions for industry and end users to stimulate market demand, strengthen public-private partnerships to de-risk investments and accelerate the scale-up of battery production and regional supply chains. It is also of great importance to create a level playing field via industrial policies as well as local content and sustainability requirements and carefully balance trade policies to foster competitiveness with options for global collaboration and strategic alliances without fomenting trade conflicts."

Steffen Link underlines that the studies' approach is broadly applicable to regions aiming for battery self-sufficiency and should be examined with interacting factors such as policy support and supply chain resilience. However, the analysis does not account for disruptive market shifts, policy reversals, or unexpected technological breakthroughs, which could substantially alter production and demand trajectories.

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URL for press release: https://www.isi.fraunhofer.de/en/blog/themen/batterie-update.html Blog Battery Update

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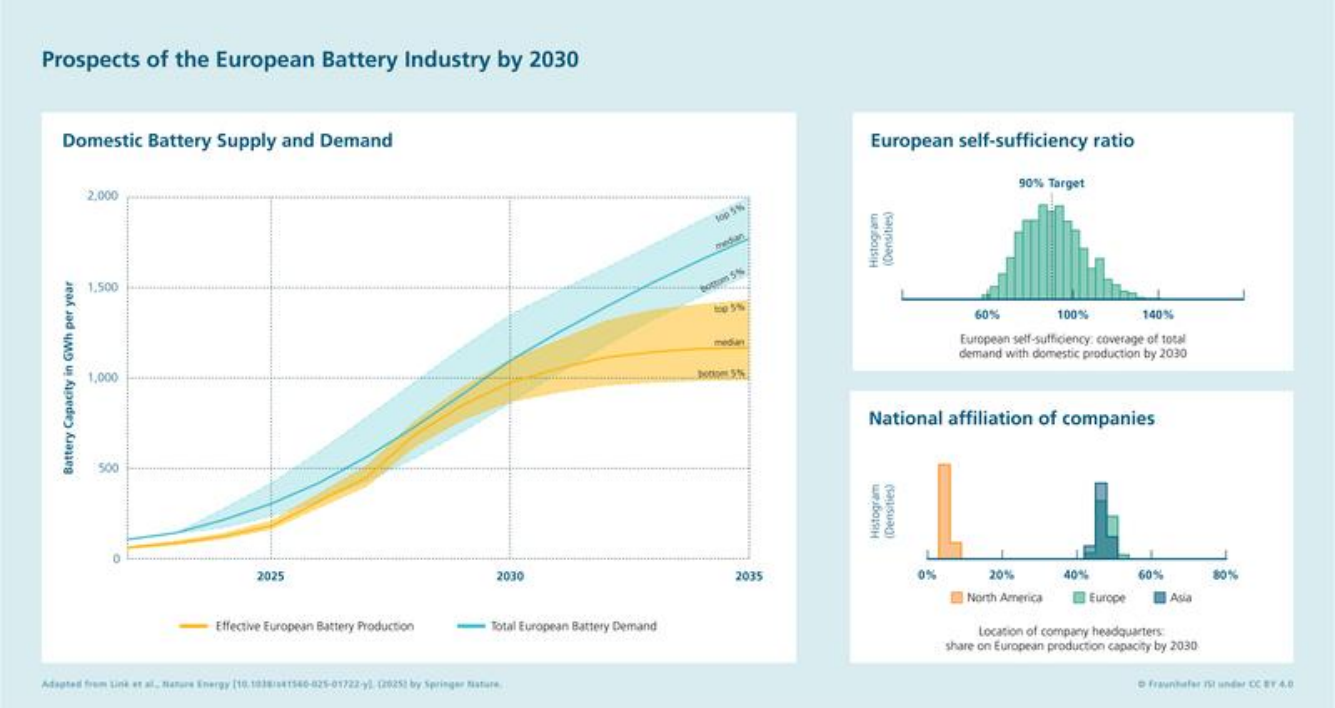

Prospects of the European Battery Industry by 2030
Fraunhofer ISI