

Impact and outcomes



The key outcome of the SOURCE project is the development of environmentally and economically viable methods to produce battery-grade synthetic graphite.



The project will introduce energy-efficient production processes, efficient recycling technologies, production of sustainable graphite from biomass, and the creation of high-performance battery grade anode materials.



This will significantly reduce the reliance on petroleum-based coke for synthetic graphite production and strengthen the competitiveness of EU graphite suppliers and anode manufacturers in the global market.

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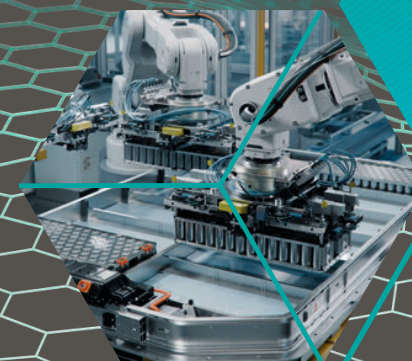


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**Sustainable rOUtes for
synthetiC graphitE
production for
high-performance
lithium-ion battery
anodes**



The project

SOURCE has received funding from the European Climate, Infrastructure and Environment Executive Agency under the Horizon Europe Cluster 5 program. The project aims to make battery production more sustainable through innovative solutions across the battery value chain, with particular emphasis on synthetic graphite production for high-performance battery-grade anodes.

Currently, an estimated 40% of emissions from battery production arise from the extraction of raw materials and refining processes [3]. SOURCE aims to cut energy consumption and production costs by over 30% through sustainable technologies such as low-temperature graphitization, innovative high-performance graphite coatings and recycling methods to recover graphite.

In addition to technological innovations, SOURCE will use alternative sustainable petroleum feedstocks, biomass, and black mass from recycled batteries. To address the technical and economic challenges, SOURCE unites key EU industries with main businesses in graphite precursors and synthetic graphite production, with support from leading European research and technology organizations (RTOs) to complete the value chain.

The project will integrate diverse technologies and methodologies, demonstrating how targeted actions across the value chain can effectively pave the way to create high energy-density, fast-charging batteries.

Driving innovation for a circular economy

SOURCE will also evaluate the impact of developing synthetic graphite production on the EU's economy, technology and material supply. This analysis will provide insights into optimizing the production process to lower emissions, reduce costs and improve performance, thereby contributing to the EU's strategic independence.

Additionally, the project will further engage industry partners and communities to strengthen the graphite supply chain by advancing sustainable production methods and encouraging the use of locally produced carbon sources for the production of high-quality battery grade synthetic graphite and anode materials for the European battery sector.

The knowledge and results generated by SOURCE will contribute valuable insights to inform future standards, including quality definitions for synthetic graphite, commercial viability, and suitability high performance applications in batteries. In doing so, SOURCE will contribute directly to the strategic goals of the EU to reduce dependence on foreign resources, advancing the Circular Economy Action Plan, and supporting the Green Deal's objectives of reducing greenhouse gas emissions and promoting green industry innovation.

Objectives

SOURCE aims to advance synthetic graphite production and strengthen the lithium-ion battery (LiB) value chain by providing high-quality anode material. The project tackles challenges like petroleum dependence, high energy use, and production costs of synthetic graphite to improve sustainability of EV battery value chain across the EU.

The project members recognize the challenges of reducing the current dependence on petroleum-based coke, as well as the high energy consumption and production cost of graphite. As such, they have laid out specific objectives to address these challenges and improve the sustainability of the entire EU EV battery value chain.

