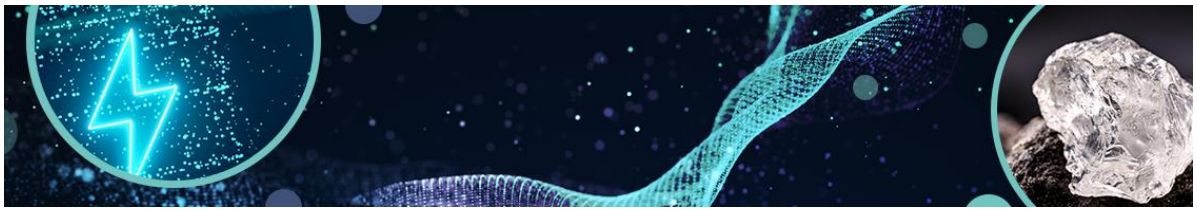

PRESS RELEASE
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Building up strategic reserves of Lithium to ensure the green and digital transformation of the European economy

A new Horizon Europe project was launched in October 2022. Funded by the European Climate, Infrastructure and Environment Executive Agency (CINEA) with € 6,766,313 under Grant Agreement N° 101069644, this 4-year project set out to establish the first ever Lithium (Li) supply chain in Europe, increasing the EU Li processing and refining capacity for the production of battery-grade chemicals from ores, geothermal and continental brines, tailings and off-specification cathode materials (waste).

An acronym for "Lithium recovery and battery grade materials production from European resources", LiCORNE benefits from an interdisciplinary and complementary consortium, covering the entire value chain. On 4 October 2022, these 16 project partners – feedstock providers, technology developers and cathode manufacturers, met in San Sebastian (Spain) to establish future collaborations that will lead the foundations of the first complete and sustainable Li supply chain in Europe.

THE URGENT NEED FOR BATTERY MATERIALS IN EUROPE

Surging battery demand, mainly driven by the electrification of the mobility sector, has boosted over the past years the request for key metals used in their production, thus increasing pressure on supply chains. Comparing with the 2021 statistics, the new EU regulatory framework for batteries Setting sustainability requirement (European Parliament 2021) estimates the Li demand will increase 18 times by 2030 and nearly 60 times more by 2050. This so-called new industrial revolution raises concerns around the tightening supply of raw materials, in particular Lithium (Li).

DEVELOPING MORE SUSTAINABLE WAYS TO EXTRACT LITHIUM IN EUROPE

Significant ore resources of Li (mainly pegmatite) and large reserves of geothermal Li deposits were identified in Europe. Additional to ores and geothermal reserves, it is expected that a significant quantity of Li, Co and Ni will be recycled from secondary resources such as the production scrap of the cathode production processes – also known as *off specification cathode waste material*.

Due to Europe's concern for ecological risks, Li production in Europe has been subject to high environmental standards, resulting in much smaller carbon footprint than imported supplies.

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Imminent utilisation of primary and secondary domestic resources of Li requires gaining the trust of the European citizens and policy makers in researchers' capacity to develop environmentally friendly production methods. Set to develop cost-effective, safe and flexible technologies able to operate at improved yield while maintaining a very low environmental footprint, the LiCORNE project will become a cornerstone in repairing this declining social trust and will allow European Li to be mined, processed and refined.

The LiCORNE project will research, develop and upscale (to TRL5) innovative, sustainable and cost-efficient technologies for producing battery-grade Li-chemicals from ores (pegmatites), brines (continental, geothermal), tailings and off-specifications cathode material (with the recycling of Co and Ni from the latter feedstock). This objective will be reached through the following specific objectives:

1. Develop beneficiation technologies to TRL4 to increase the Li concentration in pegmatite ores so that about 15% of gangue could be prevented from entering the downstream process reducing energy and reagents.
2. Develop technologies to TRL4 aiming at physico-chemical transformation of Li-pegmatite concentrates to facilitate the downstream process and reduce drastically the energy and reagents.
3. Develop technologies to TRL4 for the efficient extraction of Li contained in pegmatite concentrates and of Li, Co and Ni from cathode waste.
4. Develop technologies to TRL4 for the separation and purification of Li from leachates and brines.
5. Develop technologies to TRL4 for the recovery of Li as battery-grade chemicals.
6. Benchmark the different investigated technologies and upscale the most promising ones to TRL5 and validate their performance.
7. Communicate about the project's activities in an effective way.
   Disseminate and exploit the project's results.

PROJECT'S PATHWAY TO IMPACT. BUILDING UP THE COMPETITIVE PRODUCTION OF LI FROM EUROPEAN RESOURCES

LiCORNE will allow European Li to be mined, processed, and refined in the EU at a competitive cost and environmentally friendly way, and in the vicinity of gigafactories, securing therefore materials supply and reducing the cost of transport and associated GHG emissions. Moreover, the impact of the project will benefit not only Europe, but the entire world. Due to the expected knowledge generated, project partners secure a pathway to become global leaders in processing and refining low-grade deposits from different sources and to licence their technologies and foregrounds to other companies in Europe but also overseas.

Founded on an interdisciplinary approach covering physics, chemistry, material design, robotics, engineering, manufacturing, business, and economics, the LiCORNE project will be coordinated by the Spanish independent research and technology organization Tecnalia Research and Innovation. The partners involved will be working on different topics, from the optimisation and development of technologies, to the communication, dissemination and exploitation of results.

Project coordination: TECNALIA Research and Innovation

Dr. Lourdes Yurramendi, Waste Valorisation Unit, lourdes.yurramendi@tecnalia.com

Dr. Amal Siriwardana, Waste Valorisation Unit, Amal.Siriwardana@tecnalia.com

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Consortium members

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