

SUSTAINABLE INNOVATIONS, UNIVERSITAT POLITECNICA DE VALENCIA, CIC ENERGIGUNE AND CETIM TECHNOLOGICAL CENTER, PARTNERS OF THE GIGAGREEN PROJECT, SEEKING THE GIGAFACTORY OF THE FUTURE

- THE FOUR ENTITIES WILL WORK WITH TWELVE OTHER EUROPEAN ORGANISATIONS IN THE DEVELOPMENT OF SUSTAINABLE PROCESSES FOR THE PRODUCTION OF LITHIUM-ION BATTERY CELLS
- THE PROJECT HAS BEEN FINANCED WITH 4.7 MILLION EUROS, OF WHICH ALMOST 1 MILLION HAS BEEN GRANTED TO SPANISH COMPANIES

Madrid, September 13, 2022 - SUSTAINABLE INNOVATIONS, Polytechnic University of Valencia, CIC energiGUNE and CETIM TECHNOLOGICAL CENTER are the Spanish entities that will lead the execution of the GIGAGREEN project, an initiative financed by the European Union (EU) within the framework of the research and innovation programme Horizon Europe with the aim of developing **sustainable processes for the production of lithium-ion battery cells**.

For 48 months, GIGAGREEN, made up of 16 partners from eight different European countries, will work to achieve the sustainable gigafactory of the future, **positioning Europe at the forefront of the global market in the lithium-ion battery value chain, key to the next generation of electric vehicles**.

The project proposes a research structure oriented towards the objective of developing and expanding new manufacturing processes for cell and electrode components, applying an innovative Design for Manufacturing (DtM) approach.

In this sense, GIGAGREEN will seek the **minimum environmental impact and energy consumption in the design of the cells**, thus facilitating their reuse and disassembly. This will allow an **increase in profitability, in the safety of processes and products**, as well as provide high-performance technologies capable of scaling and automating easily in the context of the gigafactories planned for industry 4.0/5.0.

In short, GIGAGREEN will be a turning point for the EU cell manufacturing industry, as its results will contribute to a smooth transition between current processing methods: manual, siled, trial and error and inflexible. nor easily scalable, and the lithium-ion cell factory of the future, one based on **greener, cleaner, cheaper, safer, improved, digitalised and flexible technologies**.

Within the project, SUSTAINABLE INNOVATIONS is responsible for financial supervision, communication, and outreach tasks, as well as the strategy for the future commercialisation of GIGAGREEN. For its part, the Polytechnic University of Valencia will oversee the performance and life cycle tests of the cell prototypes. CIC energiGUNE leads the development of technologies for the dry and wet processing of cells, while the CETIM TECHNOLOGICAL CENTER will work on the application of the innovative digital twins' method, which will facilitate



the design and optimisation of the processes developed in the project, by representing them in a faithful digital model that allows their simulation and fine-tuning before their physical implementation in the production plant.

GIGAGREEN benefits from the most recent and current manufacturing approaches, mainly focused on improving those points that represent higher energy and economic costs and that have a greater margin of improvement and innovation, as is the case of cell-electrode processing and its components.

Thanks to the advances brought by GIGAGREEN, the EU industry will be able to quickly use the results related to water-based processing after 2026. In this way, **the industry performance will immediately begin to improve its competitiveness thanks to materials designed and enhanced for operation**, which will pave the way for **dry electrode processing techniques as the next technological revolution in lithium-ion manufacturing**.

All these innovations are supported by robust DtM approaches that are based on data-driven solutions to optimise factory flexibility, process scalability and the overall sustainability of production lines in the context of mass production.

Europe as a future strategic world leader in the lithium-ion battery value chain

The EU has set an ambitious industrial target to make Europe a strategic world leader in the lithium-ion battery value chain, deploying a sustainable and innovative industry.

If all the announced private projects are carried out, Europe's manufacturing capacity will grow from the current 26 GWh to approximately 500 GWh, with the support of the EU and national R&D investment programs, in public-private collaboration. This means that Europe will gain a 16% share of the battery market in 2029, up from 6% today. Recognizing that the current global demand for lithium-ion batteries is 184 GWh and that this demand will multiply by a factor of 14 by 2030 in the context of the rapid evolution of lithium-ion cell technologies, it is urgent to ensure that that industrial production is inherently sustainable, safe, flexible, and profitable while offering state-of-the-art cells.

Achieving these goals will enable the European manufacturing industry to gain global leadership in innovation. The next cell manufacturing plants are based on economies of scale (the so-called gigafactories). The estimation of costs, performance and energy consumption of the different process lines are essential to establish where R&D is needed in the manufacturing processes.

About GIGAGREEN

Led by the Polytechnic University of Turin, GIGAGREEN is made up of Sustainable Innovations, ABEE, Solvionic, Leclanche, Nanomakers, University of Parma, Polytechnic University of Valencia, Sintef, Inegi Porto, CIC energiGUNE, Arlanxeo, Alphanov, Manz Italy, CETIM TECHNOLOGICAL CENTER and Johnson Matthey.

The project has received €4,658,546 in funding from the European Union's Horizon Europe research and innovation program under grant agreement number 101069707, of which €943,056 correspond to the Spanish partners.

About SUSTAINABLE INNOVATIONS

SUSTAINABLE INNOVATIONS is a Spanish consultancy that provides innovative services to a wide range of sectors throughout Europe: bio-based industry, renewable energies, and advanced materials, among others.

The capabilities offered by SUSTAINABLE INNOVATIONS are structured around three main pillars that serve as a bridge between the conception of innovative ideas and the market: Innovation Management, Business Development Services and Training. Our main asset is the highly qualified team of engineers, environmentalists, communicators, and business development experts who work with us.

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About Polytechnic University of Valencia

The Polytechnic University of Valencia (UPV) is a university center with a scientific and technological orientation. It was founded in 1968 as the Polytechnic School of Valencia and became a university in 1971, but some of its schools are over 100 years old. The UPV is organized into nine higher technical schools, two faculties and two higher polytechnic schools, which are responsible for organising the teaching of 39 degrees and also has 42 departments and 41 research centers and institutes.

About CIC energiGUNE

CIC energiGUNE is a leading research center in energy storage, specialising in batteries, thermal energy solutions, and hydrogen technologies. In its 11 years of existence, CIC energiGUNE has positioned itself as one of the main international benchmarks in the field of solid-state batteries and has become a reference in energy storage in southern Europe.

Since its creation in 2011, CIC energiGUNE has participated in 239 R&D projects, of which more than 30 are European, has more than 700 scientific publications and has developed more than a hundred projects in collaboration with the industry, contributing to increasing the competitiveness of its products and services. To this end, CIC energiGUNE has various unique facilities, among which its prototyping and testing infrastructures for electrochemical storage (including batteries for the solid state in the automotive industry) and thermal storage stand out.

About CETIM TECHNOLOGICAL CENTER

CETIM TECHNOLOGICAL CENTER is a private R&D Technology Center established with the mission of promoting research, technological development and innovation in different sectors and economic activities through key areas of specialisation such as Advanced Materials, ECO BIO Technologies and Digital Industry. Its activity is aimed at industrial support through applied research, both at a collaborative and individual level.