



MANUFACTURING OF COMPONENTS
FOR ENERGY STORAGE

INNOVATION FUND

Deploying innovative net-zero technologies for climate neutrality

GALLICAM: GALLICAM

The Innovation Fund is 100% funded by the EU Emissions Trading System

| Project Factsheet

The project aims to transform a refinery in Sandouville, France, to produce precursor Cathode Active Material (pCAM). Sibanye-Stillwater leverages Sandouville Refinery's expertise and know-how to develop an innovative approach based on hydrochloric acid to purify metal concentrates from a mine. This simplifies the process compared to conventional technologies relying on sulphuric acid. Using electricity as primary energy source, the project's overall carbon footprint is expected to be significantly lower than similar processes. The pCAM produced will be used in manufacturing Nickel-Cobalt-Manganese (NMC) cathodes, critical components in Electric Vehicle (EV) batteries. The project will avoid greenhouse gas (GHG) emissions altogether compared to a reference scenario based on Internal Combustion Engine (ICE) vehicles.

GalliCam will have a fully circular approach, avoiding any new land use and reusing many infrastructures from the existing nickel metal refinery (such as buildings, piping, reactors, energy and utility ...). The

COORDINATOR

SIBANYE-STILLWATER SANDOUILLE REFINERY

LOCATION

France

CATEGORY

Energy Storage (ES)

SECTOR

Manufacturing of components for energy storage

AMOUNT OF INNOVATION FUND GRANT

EUR 144,419,889

EXPECTED GHG EMISSIONS AVOIDANCE

6,988,642 tonnes CO2 equivalent

STARTING DATE

01 May, 2024

FINANCIAL CLOSE DATE

31 March, 2028

ENTRY INTO OPERATION DATE

31 December, 2029

CALL NAME

InnovFund-2023-NZT

* Calculated vs. the 2021-2025 ETS benchmark of 6.84 tCO2e/tH2, not taking into account additional carbon abatement due to substitution effects in the H2 end use application, i.e. conservative estimate.

process, initially fed with mixed hydroxide precipitate (MHP), readily available from mines (located in Turkey, New Caledonia and Indonesia), but will be able in the future to use crushed battery scraps (black mass) as main raw material. The use of a chlorine-based process is expected to have several advantages over conventional pCAM manufacturing processes, limiting the process steps, and the amount of waste generated. Moreover, most liquid effluents will be recirculated to regenerate process reagents, closing the loop, reducing the import of chemical products, and limiting water effluents to a saline solution. GalliCam's process is being tested in the pilot phase, and its technological components have individually reached maturity. At full capacity, GalliCam is expected to produce 16 GWh of NMC batteries annually, supporting the growth of the European EV market. This will help replace 200,000 to 300,000 ICEs with zero- or low-emissions electric engines in the European vehicle fleet each year. Over

a 10-year period, the project is estimated to avoid approximately 7 million tonnes of CO2 equivalent.

Europe has set clear priorities for raw materials through the Critical Raw Materials Act (CRMA), establishing benchmarks for domestic capacities along the strategic raw material supply chain by 2030. This project will increase Europe's domestic pCAM production capacity, contributing to the CRMA's targets of reaching at least 40% of the EU's annual consumption, and recycling capacity of at least 15% of the EU's annual consumption.

GalliCam is expected to create around 160 direct and 300 indirect jobs, contributing to Le Havre basin's economic diversification. The process's competitive cost structure could make it attractive and well-suited for Sibanye-Stillwater to continue to support the growing giga factory market in Europe.

| Participants

SIBANYE-STILLWATER SANDOUVILLE REFINERY

France

SIBANYE FRANCE SAS

France

SIBANYE STILLWATER

South Africa

Additional information on the [EU Funding and Tenders Portal](#).