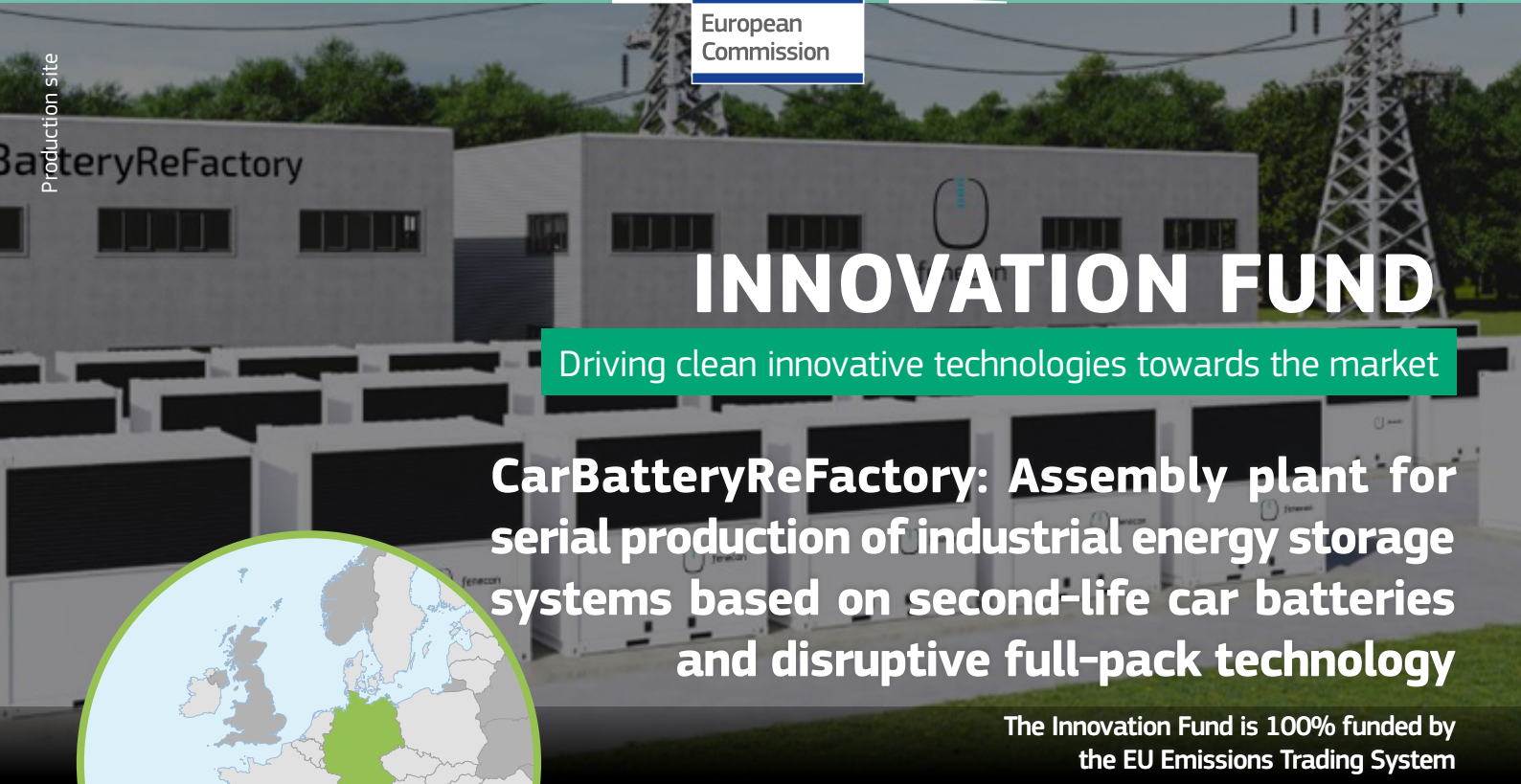




Production site

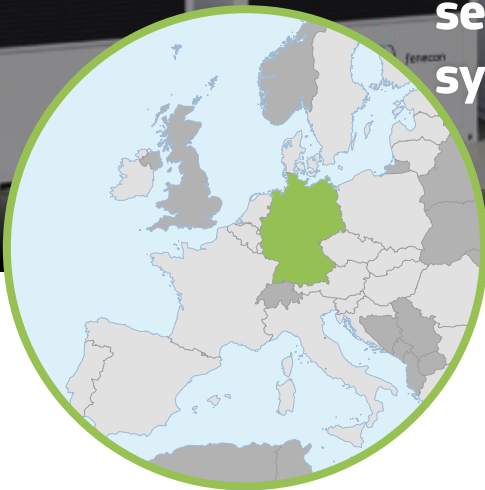


INNOVATION FUND

Driving clean innovative technologies towards the market

CarBatteryReFactory: Assembly plant for serial production of industrial energy storage systems based on second-life car batteries and disruptive full-pack technology

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



All images © FENECON

Project summary

The aim of CarBatteryReFactory project is to develop, build and operate a new site for manufacturing an energy storage system based on second-life electric vehicle (EV) batteries. The use of the produced storage systems will save 100% of greenhouse gas (GHG) emissions compared to a conventional technology.

COORDINATOR

Fenecon GmbH

LOCATION

Germany

SECTOR

Other energy storage

AMOUNT OF INNOVATION FUND GRANT

EUR 4 499 400

RELEVANT COSTS

EUR 7 499 000

STARTING DATE

01 January 2022

PLANNED DATE OF ENTRY INTO OPERATION

01 January 2023

Innovation at process and product level

The innovativeness of the project is both process- and product-related: for the use of second-life EV batteries, no dismantling, rebuilding or partial scrapping is involved, such that a sustainable value chain is set in place. On the product side, this will be the first use of second-life energy storage as a product and not as a project. The project will also be the first to use liquid cooling technology in stationary applications. Liquid cooling allows higher outside temperature ranges (-30°C to +50°C), which increases the possible applications of the technology.

The proposed use of a mix of second-life batteries, with appropriate control to prolong their useful lifetime and diversify their applicability in plug and play systems that are suitable for use in different sectors, demonstrates a strong advancement beyond the current commercial state-of-the-art which primarily uses first-life batteries. The initial production capacity of the energy storage systems will be 200 MWh in 2023 (equivalent to 400 containers with 500 kW/kWh on average) and will increase by 10% per year. One single container with 500 kW/kWh is sufficient to cover the average daily electricity consumption of 50 single family houses in the EU.

A project at the centre of the transition of the energy supply and mobility sectors

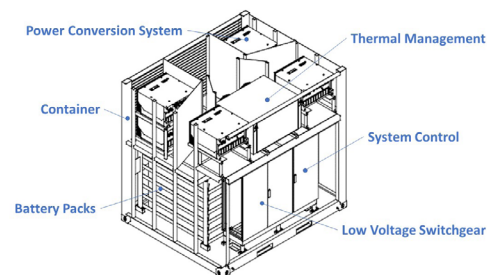
The use of the produced storage systems will save 100% of greenhouse gas (GHG) emissions compared to a conventional technology. Further, in comparison to single-cycle natural gas electricity production, the use of battery storage to cover peak demand represents approximately 1.4 Mt CO₂e



FENECON Industrial – Inside view

net absolute emissions avoided during the first 10 years of operation.

The project will also contribute to the creation of an efficient second-life battery market, adding value to those products after they have been used in the vehicle and delaying the end-of-life recycling process. The energy storage containers, made from second-life batteries will enable cost savings for industry and grid operators (potential sales price approximatively 30% below market price level).

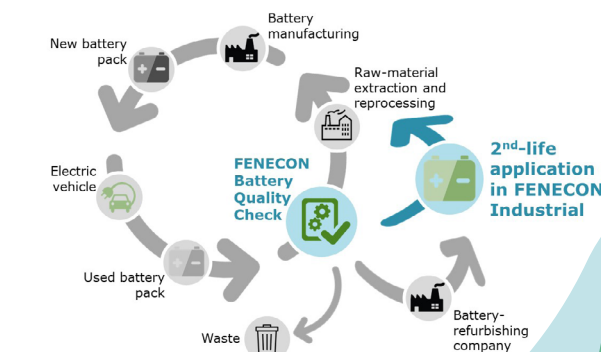


System overview

A leading project to scaling up the production of second-life energy storage systems in Europe

As a first mover, the company FENECON has the potential for scaling up the production of second-life energy storage systems in Europe, particularly given the expected increase in the availability of second-life batteries and the growing demand for them to meet the expected growth in the share of renewable energies requiring energy storage.

The project can be easily replicated within the sector and is site independent making this replicable everywhere in the EU. The scale up potential is even higher when considering expected cost reduction projections for batteries, storage and integration.



FENECON's circular battery life cycle concept