

EXERGY STORAGE

Aspiring SME Exergy Storage improves battery performance with support from EU project STEPS



THE STEPS BUSINESS SUPPORT PROGRAMME

The goal of the STEPS business support programme is to help small and medium-sized enterprises (SMEs) in the North-West Europe region (NWE) bring their product to the market and increase their competitiveness. STEPS is part of the Interreg NWE programme financed by the European Regional Development Fund (ERDF). The programme consists of two phases, the first of which offers product enhancement support from universities across the NWE region to 40 most innovative applicants. 20 of these SMEs will receive additional support in a second phases, testing and demonstrating their energy storage solution at suitable end-user testbeds. Exergy Storage is one of the 40 SMEs in the STEPS business support programme, receiving support from the University of Twente (NL) and the Faraday Institution (UK) in measuring and evaluating the performance of their battery cells.

STEPS is an abbreviation of Storage of Energy and Power Systems

We support innovative energy storage SMEs from all over North-West Europe

Exergy Storage

Sustainable and safe storage

Dutch energy start-up Exergy Storage was founded by Dr. Gert Jan Jongerden after an extensive career in the chemical industry and as business manager for the development of flexible solar PV. Exergy Storage, in cooperation with international partners, such as Nobian (formerly part of AkzoNobel Salt), is developing a new battery technology based on abundant, ultra low-cost materials, such as rock salt, (recycled) aluminium and iron. The advantage of this technology compared to current battery technologies like lithium-ion is that it is based on abundant raw materials, is intrinsically safe and has a minimal impact on the environment, without compromising the energy density of the system. The technology is easily scalable, fully recyclable and can be applied to large-scale utility and residential storage systems. What makes the batteries even more special is that they can be used in a circular way, as they are refillable and reusable.



Gert Jan Jongerden

Founder CEO, technology and business development



Jacques Jongerden

Modeling, instrumentation, electronics and firmware



Ferdy Jongerden

Data analysis, software and business administration



Auke Talma

Chemistry and business development



Ferdy Jongerden

Engineering, technology development, prototyping and tooling

The team

An introduction

Working towards a prototype

At what development stage is your product right now?

We are currently working towards a prototype battery. Initially, we are focusing on developing a 15 kWh battery which will be about the size of a refrigerator and can be used for residential storage. The residential energy storage market is growing, as more and more people are using solar panels to generate their own energy, but there are currently no affordable and completely safe solutions available that allow people to store their self-generated energy. The technology of our battery cells is safe, which makes it possible not only to integrate it into homes, but also into urban environments, for example in the form of a 'neighbourhood battery'. In the latter case, we also contribute to solving grid congestion and reduce the need for grid extensions, which are very expensive in urban environments. Our battery cells also lend themselves well to containerised solutions because, unlike lithium-ion batteries, they do not need to be cooled. As a result, batteries can be packed tightly while maintaining safety and high energy efficiency. In mass production, this technology will offer ultra-low energy storage costs.



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How does the STEPS Business Support Programme help you enhance your product?

The scientific challenge was to obtain detailed information on the frequency-dependent impedance of Exergy's battery cells. Via STEPS, we receive support from two knowledge institutions: the University of Twente from the Netherlands and the Faraday Institution from the United Kingdom. The University of Twente performed electrochemical impedance spectroscopy measurements on a selection of our battery cells, after which the Faraday Institution evaluated and interpreted the results. These insights are very valuable because they help to learn more about the dynamics and time-dependent behaviour of our battery cells and what the implications are for application of Exergy's Cells.



Future steps

What are the business expectations and ambitions for Exergy Storage in the future?

The next step is to use the insights gained through the STEPS support for scaling our battery technology, finetune our upscaled battery cells for the intended applications to develop prototypes and demonstration batteries. We hope to be able to test and demonstrate Exergy's Cells in the second phase of the STEPS Business Support Programme. If the demonstration is successful, we want to work with a number of partner companies to arrange the necessary certifications for the battery cells, prepare for serial production and enter the market with our product.

"A safe and robust battery technology based on abundant raw materials with an outlook on ultra-low levelized cost of storage"

Contact details

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