

Ore Energy Battery: Fully scalable, ultra-cheap and easily deployable stationary long-duration energy

Publieke samenvatting / Public summary

Aanleiding

Increasing the utilization of renewable energy creates a significant need for improved energy storage solutions. The energy grid is a complex system that requires stability, continually balancing energy supply and demand through methods like curtailing energy production or downsizing energy demand. Consistent energy production from renewable sources is particularly challenging due to the inherent unpredictability of weather conditions. While renewable energy sources have gained momentum and are projected to contribute nearly 30% of global power generation by 2025, the core challenge for better utilizing renewable energy is storing the produced energy for later use. This constraint hampers the ability to fully exploit renewable energy production.

Doelstelling

The aim is to develop two fully functional energy storage systems with respectively a capacity of 10 kWh and 50 kWh at the Green Village in Delft and pilot testing during a 12-month period. This initiative represents a significant milestone in the energy transition, paving the way for widespread adoption of CO₂-reducing technologies in the Netherlands. Objectives: - Development of 10 kWh and 50 kWh prototype battery modules. - Development Battery Management System (BMS) software. - System integration and pilot-testing of the battery modules, integrated as part of a small-scale energy grid. -

Projectinformatie / Project information

Projectnummer / Project number
DEI124006

Subsidiebedrag / Grant amount
€ 1.956.618,00

Algemene informatie / General information

Penvoerder / Secretariat
Ore Energy B.V.

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Evaluating the battery system in a real-life setting. -
Deliver proof of a cost-effective long-term energy storage solution, suitable for grid flexibility demands.

Korte omschrijving

Project activities include the cell design optimization, integration of cells into 10 kWh and 50 kWh battery modules, and subsequently integrate these models with electronic and auxiliary systems (including BMS). These prototypes are installed at TU Delft's green village, a field lab for sustainable innovations. There the batteries will be integrated into the local energy grid and used as an energy storage system for the balancing of renewable energy production and demand over a 12-month testing period. The pilot will provide valuable insights into the energy storage systems' performance, cost-effectiveness, and functionality. The successful development and piloting of this system will pave the way for its widespread adoption, enabling increased energy storage capacity, improved grid flexibility, and accelerated integration of renewable energy sources in real-life energy systems.

Resultaat

The goal is to develop and pilot test a 10 kWh and 50 kWh functional battery system that surpasses existing technologies in terms of performance, cost-effectiveness, and functionality. This opens up new possibilities for reliable and long-term energy storage applications which have not been showcased before and is viewed as another unique aspect of the Ore Energy battery. This also proves that the Ore Battery solely relies on very abundant materials (iron, water and air) which can be supplied within the European Union. The tangible results include the module prototypes, the data collected during the pilot and reports. The prototypes are two fully functioning energy storage systems with respectively a capacity of 10 kWh and 50 kWh with optimized components cells. The data collected during the pilot is analyzed to provide insights, trends, patterns, and potential correlations. The reports outline the optimization strategies

employed, the integration and validation procedures, as well as the findings and conclusions from the pilot testing, captured in research and testing reports. Intangible results include firsthand experience, lessons learned, human capital and knowledge collaborati

De data in deze applicatie is afkomstig van de Rijksdienst voor Ondernemend Nederland (RVO) en wordt in samenwerking met de Topsector Energie ontsloten.

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