Beyond Lithium: Novel Sodium-Based Battery Technology for Ultra Low-Cost Stationary Electricity Stor

Publieke samenvatting / Public summary

Aanleiding

Low-cost stationary storage is essential for a large-scale transition to renewable energy from variable sources including solar photovoltaic and wind energy. The sheer scale of our ever growing energy infrastructure and the stringent economic and technical requirements pertaining to stationary storage for the application of renewable integration conspire to create an urgent need for breakthrough innovation. Stationary storage solutions will need to be based on commodity materials that are abundantly available so that their production can continue to scale as renewable generation becomes commonplace–in doing so we need to move beyond lithium-based technologies. Batteries for renewable integration based on such a 'beyond lithium' technology will create a large contribution to the know how position of the Netherlands, its industry due to its large export potential, and the stability and flexibility of its electricity infrastructure.

Doelstelling

The objective of this project is to develop a novel type of sodium based battery cells and to perform a technological and economic analysis of it. This project aims to demonstrate the feasibility of a novel sodium-based battery technology and to provide evidence that costs for production will be below the 100 EUR/kWh level. Such a breakthrough cost level would, for example, bring down costs for residential storage of solar energy to a few cents

Projectinformatie / Project information

Projectnummer / Project number
TEID215008
Subsidiebedrag / Grant amount
€ 381.080,00

Algemene informatie / General information

Penvoerder / Secretariat
Exergy Business Development and Consultancy

Publicaties en materialen / Publications and attachments

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per kilowatt-hour of stored electricity, resulting in an approximate payback period for households of 4 to 5 years in EU countries like Germany based on today's electricity and feed-in tariffs.

Korte omschrijving

Main activities: 1 Development of cell materials and chemistry; 2 Development of lab cells (~1-10 Ah capacity) with stable cycling performance; 3 Development of a battery cell model based on the physico-chemical key parameters; 4 Techno-economic analysis of production process and costs, based on a prototype battery module design.

Resultaat

Key project results: 1 Proof of technology by demonstrating stable performance of laboratory size cells during deep cycling; 2 Know how of battery chemistry fundamentals pertaining to novel sodium-based energy storage and of analytical techniques and methodology for battery analysis; 3 Battery model based on key physico-chemical parameters; 4 Cost analysis for production of battery modules.

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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Voor meer informatie over de TSE / Energie-Innovatie regelingen die RVO aanbiedt, ga naar **www.rvo.nl/tse**.