Hydrogen Europe:
European Hydrogen & Fuel cell Project Database

Project NELLHI

New all-European high-performance stack: design for mass production

This project combines European know-how in single cells, coatings, sealing, and stack design to produce a novel 1 kW SOFC stack of unprecedented performance, together with the proof of concept of a 10 kWe SOFC stack. Improvements over the state of the art in cost, performance, efficiency, and reliability will be proven, covering all top-level objectives mentioned in the topic. The stacks will be developed according to system integrators' requirements guided by an industrial steering group. The target application of the development is stationary and residential combined heat and power production based on natural gas, and will form the basis for Elcogen Oy's commercial SOFC stack technology. All manufacturing methods, stack designs, and materials are chosen so that they are suitable for mass production and enable 1000 €/kW profitable stack price, which is a significant improvement to current state of the art. These methods, designs, and materials have been demonstrated successfully in small-scale and require the scale-up to suit manufacturing of 10 kWe SOFC stacks. For example, high performance of Elcogen cells and short stacks were already demonstrated with 100x100 mm2 cell size, but in this project cells and stack will be further improved and scaled up to larger 120x120 mm2 size. The project is based on the products of industrial partners and motivated by their interest to consolidate an optimized supply-chain and subsequently commercialize a high-performance product at very sharp prices. To this effect, the activity will pay great attention to designing the stack for mass production processes. One industrial partner is involved for each key function: Elcogen AS (cells), Elcogen Oy (stack assembly and production), Sandvik (interconnects and coatings), and Flexitallic Ltd (sealing). Selected research institutions complete the partnership to focus the development process towards a reliable product.

Project Information

Type of project : Research
Timing : 01/05/2014 > 30/04/2017
Project website: http://www.nellhi.eu/
Project Budget : 2.858.447 €

Funding

European Union through FCH JU: **Grant agreement 621227 - CORDIS link**

Project partners

Coordinator :

ENEA - Agenzia per le Nuove Tecnologie, l'Energia e lo sviluppo economico sostenibile

Partners :

AS Elcogen

Elcogen OY

Teknologian tutkimuskeskus VTT Oy

FLEXITALLIC LTD

BORIT NV

SANDVIK MATERIALS TECHNOLOGY AB

CLAUSTHALER UMWELTTECHNIK INSTITUT GMBH

Sub project(s)

Sub project 1

Country: Italy

Address:

Lungotevere Grande Ammiraglio Thaon di Revel 76 00196 ROMA

Sub project categories

Research

Project Id: 1051

This project datasheet was last updated on : 21.11.2017

Modify this project datasheet