



Hydrogen Europe: European Hydrogen & Fuel cell Project Database

Project MATISSE

MANUFACTURING IMPROVED STACK WITH TEXTURED SURFACE ELECTRODES FOR STATIONARY AND CHP APPLICATIONS

MATISSE is a 36-month project targeting to the delivery of PEMFC advanced cells and stacks for stationary applications. The project methodology will include assessment of stack incremented with new materials and processes developed during the project. The project will address three stack designs for each of the stationary conditions of operation of the fuel cell i.e. H₂/O₂, H₂/air and reformat H₂/air. MATISSE intends to achieve some objectives in term of stack robustness, lifetime, performance and cost. For this purpose, advanced materials solutions will be performed and validated as proof of concept for the manufacturability of cell and stack. New textured X-Y gradient electrodes will be optimized and manufactured taking into account the localized current density of electrode inside the cell during operation. Some localized areas of catalyst loading will be defined following the risk of electrode flooding part or of membrane drying. The new MEA should lead to an increase of durability of stack and reduction of degradation phenomenon. The manufacturability of cells and stack will be demonstrated with the electrode manufacturing using a continuous screen printing process and by the automatization of the membrane electrodes assembly step. Moreover, an automatized robot will be used to proceed at stack assembly allowing reaching a better mechanical stability under pressure and a better alignment of components. This work will allow reducing the cost so as to meet the market target allowing a large deployment of stationary PEMFC system. The technical-economic cost assessment will be carried out during the project in order to confirm the progression of MATISSE stack technology toward the objectives. MATISSE consortium is based on 3 industrial partners recognized at the international level for their activities in stationary application. 2 RTO centres play part in the project to develop and assess new innovative solutions on LT-PEMFC MEA and stacks technology.

Project Information

Type of project : Research

Timing : 01/10/2014 > 30/09/2017

Project website: <http://matisse.zsw-bw.de/general-information.html>

Project Budget : 3.192.819 €

Funding

European Union through FCH JU: Grant agreement 621195 - [CORDIS link](#)

Project partners

Coordinator :

[CEA - Commissariat à l'énergie atomique et aux énergies alternatives](#)

Partners :

[ZSW - Zentrum für Sonnenenergie- und Wasserstoffforschung Baden-Württemberg](#)

[Nedstack fuel cell technology B.V.](#)

[AREVA Energy Storage](#)

[INHOUSE ENGINEERING GMBH](#)

[Sub project\(s\)](#)

Sub project 1

Country: France

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Sub project categories

Research

Project Id: 1042

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