



Hydrogen Europe: European Hydrogen & Fuel cell Project Database

Project SECOND ACT

Simulation, Statistics and Experiments Coupled to develop Optimized and Durable μ CHP systems using Accelerated Tests.

Simulation, Statistics and Experiments Coupled to develop Optimized and Durable μ CHP systems using Accelerated Tests. Second act aims at improving understanding of stack degradation in order to propose solutions enabling significant lifetime improvements for μ CHP systems using PEMFC or DMFC technology. Project will be thus founded and focused on two efforts: degradation understanding and durability improvement. These efforts will be oriented towards existing systems available in the project thanks to the involvement of three industry partners willing to enhance lifetime and hence competitiveness for market deployment. Degradation investigations will be based on lifetime tests information from existing field tests on these systems for relevant description of failure modes and related performance degradation; from stack and cells specific degradation/durability tests including validated accelerated stress tests emphasizing specific degradation or failure modes in cells and stacks. Understanding will be ensured by using expertise of research groups in different techniques such as: advanced in-situ local measurements to identify heterogeneities and local performance degradation; ex-situ investigations of components to identify mechanisms; statistical analyses to identify the impact of failure modes and to relate causes to performance losses; and modelling to simulate local performance and degradation in unit cell and stack. Durability improvement will be assessed thanks to the following methodology: exploitation of all degradation investigations for the proposal of components modifications; selection of most relevant solutions related to most critical degradation issues for their evaluation and demonstration of durability improvements; application of validated accelerated tests with improved components in unit cells or stacks to demonstrate improvement; and final achievement will be reached with the demonstration of significant measurable improvement at system level.

Project Information

Type of project : Research

Timing : 01/05/2014 > 31/10/2017

Project website: <http://second-act.eu/>

Project Budget : 4.643.707 €

Funding

European Union through FCH JU: Grant agreement 621216 - [CORDIS link](#)

Project partners

Coordinator :

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

Partners :

[EWII Fuel Cells A/S \(previously IRD\)](#)

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

[DLR - German Aerospace Center](#)

[Stiftelsen SINTEF](#)

[ICI CALDAIE SPA](#)

[POLITECNICO DI MILANO](#)

[JRC - JOINT RESEARCH CENTRE- EUROPEAN COMMISSION](#)

[TECHNISCHE UNIVERSITAET GRAZ](#)

Sub project(s)

Sub project 1

Country: France

Address:

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Sub project categories

Research

Project Id: 1084

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