Hydrogen Europe:
European Hydrogen & Fuel cell Project Database

Project IRMFC

Development of a Portable Internal Reforming Methanol High Temperature PEM Fuel Cell System

The complexity of the balance of plant of a fuel cell-fuel processor unit challenges the design/development/demonstration of compact and user friendly fuel cell power systems for portable applications. An Internal Reforming Methanol Fuel Cell (IRMFC) stack poses a highly potential technological challenge for High Temperature Polymer Electrolyte Membrane Fuel Cells (HT-PEMFCs) in portable applications. It aims at opening new scientific and engineering prospects, which may allow easier market penetration of the fuel cells. The core of innovation of IRMFC is the incorporation of a methanol reforming catalyst in the anode compartment or in between the bipolar plates of a High Temperature Polymer Electrolyte Membrane Fuel Cell (HT-PEMFC). In order to obtain an economically technologically viable solution, low-cost materials with certain functional specifications within 200-220oC (electrolytes, catalysts and bipolar plates) and production techniques, with easy maintenance and high durability will be employed. Taking advantage of the innovative outcomes of the ending FCH-JU IRAFC 245202 project, the functionality of MeOH-fuelled integrated 100 W system will be demonstrated. IRMFC partnership brings together specialists in catalysis (FORTH, UMCS, ZBT, IMM), HT polymer electrolytes (UPAT, ADVENT, FORTH), as well as the technological know-how to design, construct and test balance-of-plant components and HT-PEMFC stacks (IMM, ZBT, ENERFUEL, JRC-IET, ADVENT). Special role is adapted throughout the project for end-user/system integrators (ENERFUEL, ARPEDON) with respect to emerging portable applications. In particular Advent's joint development with HT PEM dedicated and recognized industrial partners like Enerfuel (USA) gives the ability to adopt and integrate the advanced technological know-how of the two companies toward the manufacture of a product that will have all assets to penetrate fuel cell early market business.

Project Information

Type of project : Research
Timing : 01/05/2013 > 31/10/2016
Project website: http://irmfc.iceht.forth.gr/
Project Budget : 3.440.043 €

Funding

European Union through FCH JU: **Grant agreement 325358** - **CORDIS link**

Project partners

Coordinator :

FORTH/ICEHT - Foundation for Research and Technology - Hellas/ Institiue of Chemical Engineering Sciences

Partners :

Advanced Energy Technologies ('Advent')

Fraunhofer ICT-IMM Fraunhofer Institute for Chemical Technology ICT, Branch IMM

ZBT - The Hydrogen and Fuel Cell Center

UNIWERSYTET MARII CURIE-SKLODOWSKIEJ

PANEPISTIMIO PATRON

JRC -JOINT RESEARCH CENTRE- EUROPEAN COMMISSION

ENERFUEL INC

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Sub project(s)

Sub project 1

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Sub project categories

Research

Project Id: 1030

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