



Hydrogen Europe: European Hydrogen & Fuel cell Project Database

Project LASER-CELL

INNOVATIVE CELL AND STACK DESIGN FOR STATIONARY INDUSTRIAL APPLICATIONS USING NOVEL LASER PROCESSING TECHNIQUES

The alkaline fuel cell (AFC) is one of the most efficient devices for converting hydrogen into electricity. Project LASER CELL will develop a novel, mass producible AFC and stack design for stationary, industrial applications utilising the latest laser processing technology. This economically viable, sophisticated technology will enable design options, not previously possible, that will revolutionise the functionality and commercial viability of the AFC. Key parameters that will dictate fuel cell and stack design are; safety, reduced part count, easy of assembly, durability, optimised performance, recyclability and increased volumetric power density in a way which delivers a cost of under €1,000 per kW. To realise this vision, proprietary cell and stack features that have never before been incorporated into an AFC system will be employed and deliver a flawlessly functioning stack. In order to achieve these ambitious objectives, the consortium comprises world leading specialists in the fields of alkaline, polymer electrolyte and solid oxide fuel cells, advanced laser processing technologies, conductive nano composites, polymer production and large scale, stationary power plants. A cell design tool, based on physical and cost models, will be produced. This disseminated tool will provide design rational for material selection and geometric design and will be applicable for all low temperature fuel cells. Commercially viable porosity forming processes developed in this project will enable organisations working with other fuel cell types to re-evaluate the fabrication and design of their core technologies. Furthermore, other sectors that will benefit are; solar cell, aviation, medical and automotive. Having the ability to convert 'waste' hydrogen into electricity and being the 'pull through' technology for carbon capture and storage (CCS), AFCs could play a crucial role in helping the EU meet its reduced CO2 emission targets and improve its energy security.

Project Information

Type of project : Research

Timing : 01/12/2011 > 30/11/2014

Project website: <http://www.laser-cell.eu/>

Project Budget : 2.877.089 €

Funding

European Union through FCH JU: Grant agreement 278674 - [CORDIS link](#)

Project partners

Coordinator :

AFC ENERGY PLC

Partners :

[VTT - Technical Research Centre of Finland](#)

[LASER-CELL](#)

Cencorp Oyj

NANOCYL SA

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

Sub project 1

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Sub project categories

Research

Project Id: 1035

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