



# Hydrogen Europe: European Hydrogen & Fuel cell Project Database

## Project LOTUS

Low Temperature Solid Oxide Fuel Cells for micro-CHP applications

Since the requirements of micro-CHP systems in the European Union are becoming clearer, the technologies to reach these goals are emerging steadily. The high intrinsic electrical efficiency and the capability to be directly connected to existing heating circuits, make solid oxide fuel cells a preferred choice for this application. This proposal describes the project to build a prototype of a new generation SOFC system based on novel materials, which can run at significantly lower temperatures than today. The lower temperatures provide the opportunity to use less expensive materials and still increase the reliability of the components and thus of the whole system. State-of-the-art SOFC systems operate at much higher temperatures, which causes severe issues on degradation and limited lifetime of the materials. The novel materials will eliminate those problems and will also give a higher stability against reduction-oxidation cycles of the electrodes, bringing the technology a step further towards commercialisation. The objective of the LOTUS project is to build and test a Low Temperature SOFC system prototype based on new SOFC technology combined with low cost, mass-produced, proven components. The use of a modular concept and design practices from the heating appliances industry will reduce maintenance and repair downtime and costs of the system. The consortium gathered to work in this project is a combination of partners who have experience in: 1. Defining the market requirements 2. Translating these requirements into technical specifications and models 3. Design and build a prototype system 4. Test and validate the system 5. Bringing the technology to market This covers the whole value chain of the system under discussion. The final result is a working prototype of the system, which shows that it is able to run in a laboratory environment mimicking real-life use, and is robust enough to be ready for the next phase of field trials

## Project Information

**Type of project :** Research

**Timing :** 01/01/2011 > 30/06/2014

**Project website:** <http://www.lotus-project.eu/>

**Project Budget :** 2.954.984 €

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## Funding

European Union through FCH JU: Grant agreement 256694 - [CORDIS link](#)

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## Project partners

**Coordinator :**

HyGear Fuel Cell Systems B.V.

**Partners :**

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

LOTUS

SOLIDPOWER SPA

DOMEL ELEKTROMOTORJI IN GOSPODINJSKI APARATI D.O.O.

JRC - JOINT RESEARCH CENTRE- EUROPEAN COMMISSION

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Sub project(s)

Sub project 1

**Country:** Netherlands

**Address:**

Westervoortsedijk 73 6802 EG Arnhem

**Sub project categories**

Research

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Project Id: 1038

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