Hydrogen Europe:
European Hydrogen & Fuel cell Project Database

Project TriSOFC

Durable Solid Oxide Fuel Cell Tri-generation System for Low Carbon Buildings

The project (TriSOFC) aims to develop and evaluate the performance of the first-of-its-kind LT-SOFC tri-generation system for low carbon buildings. The system is based on the integration of LT-SOFC stack and a novel liquid desiccant unit. A 1.5kW low-cost durable LT-SOFC tri-generation prototype system will be designed optimised, constructed and tested. The tri-generation system incorporates additional components including a fuel processor, to generate reformate gas if natural-gas used as fuel, and equipment for the electrical, mechanical and control balance of plant (BoP). With high efficiency, low-cost and long–term duration in mind, all these components will be first tested in the laboratory for further optimisation and miniaturisation. The performance of the tri-generation system will be tested using the Creative Energy Homes (low/zero carbon homes) at the University of Nottingham, UK. The tri-generation system will be used primarily in the low carbon homes/buildings. The system will be tested using natural-gas but it could be modified for use with other clean/renewable energy fuels (e.g. alcohol, biomass liquid fuel and biodiesel). The system has the potential to reduce CO2 emission by 70% compared to a traditional energy production system comprising of separate condensate power plant, boiler and compressor-driven cooling units. The successful development of the proposed project will promote LT-SOFC applications for provision of power, heat and cooling. The commercialisation of the system will bring economic and environmental benefits to the EU.

Project Information

Type of project : Research
Timing : 01/08/2012 > 31/07/2015
Project website: http://www.trisofc.com
Project Budget : 2.727.219 €

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Project partners

Coordinator :
THE UNIVERSITY OF NOTTINGHAM
Partners :
KTH - Royal Institute of Technology
University of Birmingham
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Sub project(s)

Sub project 1

Country: United Kingdom
Address: University Park NG7 2RD NOTTINGHAM
Sub project categories
Research

Project Id: 1107
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