



Hydrogen Europe: European Hydrogen & Fuel cell Project Database

Project C3SOFC

Cost Competitive Component integration for StatiOnary Fuel Cell power

Solid oxide fuel cells for stationary power have been researched since the late 1980s as potentially high efficiency and environmentally friendly means to generate electricity. Since that time substantial progress has been made however obstacles remain to reach industrial exploitation. For end users, the cost of electricity not only the cost of the fuel cell is of primary concern. This cost is driven by: the capital cost of the installed plant; the net plant efficiency that determines the fuel cost; the availability of the plant due to the reliability and ease of maintenance; and the emissions of pollutants including NO_x and CO₂ that may limit where the plant can be sited or incur additional costs. Most of these parameters are driven by the balance of plant which is hence critical to the success of SOFCs and to reaping their enormous benefits for Europe. Hybrid SOFCs offer the best potential for low cost and high efficiency but are also the most challenging in terms of balance of plant. Many components need to work together in a high temperature and pressure environment. Finding low cost and reliable solutions is therefore demanding and suitable 'off the shelf' components are not available. By changing the scale at which balance of plant functions are integrated, the C3SOFC project aims to develop solutions that satisfy the functional specifications of different users and achieve the corresponding measurable targets in terms of availability and cost. Large components with thermal expansion challenges will be reduced from system to block scale. Others requiring fabrication will be reduced to a scale where they can be integrated with other components manufactured by mass production techniques such as pressing. The future system architecture will be fault tolerant, greatly enhancing plant reliability. The final C3SOFC outcome will enable a technology and field demonstration that exceeds all the criteria of cost, performance and availability defined within the call.

Project Information

Type of project : Research

Timing : 01/10/2011 > 30/09/2014

Project Budget : 7.868.775 €

Funding

European Union through FCH JU: [Grant agreement 278195 - CORDIS link](#)

Project partners

Coordinator :

ROLLS-ROYCE FUEL CELL SYSTEMSLIMITED

Partners :

[DLR - German Aerospace Center](#)

[University of Genoa](#)

BOSAL EMISSION CONTROL SYSTEMS NV

ISOLITE GMBH

ARTTIC

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

Sub project 1

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Sub project categories

Research

Project Id: 923

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