Hydrogen Europe:
European Hydrogen & Fuel cell Project Database

Project PrimoLyzer

Pressurized PEM electrolyzer

The primary objective of the PrimoLyser project is to develop, construct, and test a cost-minimised highly efficient and durable PEM-electrolyser stack aimed for integration with domestic μCHPs through a combination of the following activities: 1) Specification done by the end-user(s); 2) Basic material R&D on catalyst & membrane to increase durability & efficiency while reducing cost; 3) Process development to fabricate high performance MEAs; 4) Engineering of a durable, reliable, and robust high pressure PEM stack through CFD modelling and design optimisation; 5) Continuous test for 2,000 hours together with a 1.5 kW μCHP; and 6) An evaluation headed by the end-user(s) The key-targets for the stack are as follows: A) Hydrogen production capacity: 1 Nm3/h; B) Pressure: 10 MPa (100 bar); C) 1.68 V @ 1.2 A/cm2 not only at BoL but also after 2,000 hours of continuous operation; D) Cost: <5,000 € per Nm3 H2 production capacity per hour in series production; and E) Durability: >20,000 hours @ constant load Furthermore, the stack will be liquid cooled to enhance durability and enable easy heat utilisation. This is important as a PEM electrolyser operated with renewable will run when the electricity is cheap and therefore not simultaneous with the μCHP. The PrimoLyser project is scheduled for 2.5 years. The present proposal is phase I in a 2 step development, where phase II will comprise BoP development & full integration of the electrolyser with a μCHP followed by a field test. The Consortium is well balanced, with the following 6 partners complementing one another to achieve the project target goals: i) A PEM FC manufacturing company (IRD Fuel Cells A/S [SME], DK); ii) 3 research centres and universities VTT (FI), Åbo Akademi (FI) & ECN (NL); iii) A leading manufacturer of ion exchange polymers and membranes (Fumatech (DE)); and iv) A subsidiary utility company (Abengoa-Hynergreen [ES])

Project Information

Type of project: Research
Timing: 01/01/2010 > 30/06/2012
Project Budget: 2.619.754 €

Funding

European Union through FCH JU: Grant agreement 245228 - CORDIS link

Project partners

https://hydrogeneurope.eu/project/primolyzer
Coordinator:
EWII Fuel Cells AS

Partners:
VTT - Technical Research Centre of Finland
Abengoa Innovación
STICHTING ENERGIEONDERZOEK CENTRUM NEDERLAND
FUMATECH BWT GMBH
ABO AKADEMI

Sub project(s)

Sub project 1

Country: Denmark
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Sub project categories
Research

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