



Hydrogen Europe: European Hydrogen & Fuel cell Project Database

Project Primolyzer

PRessurized PEM electrOLYZER

The primary objective of the Primolyzer project is to develop, construct, and test a cost-minimised highly efficient and durable PEM-electrolyser stack aimed for integrated with domestic μ CHPs 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 μ CHP; 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 μ CHP. The Primolyzer 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 μ CHP 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

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

Project Id: 1069

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