



# Hydrogen Europe: European Hydrogen & Fuel cell Project Database

## Project KEEPEMALIVE

Knowledge to Enhance the Endurance of PEM fuel cells by Accelerated Lifetime Verification Experiments

Small scale stationary Combined Heat and Power ( $\mu$ -CHP) generation is foreseen as a significant future market for fuel cells. Among the fuel cell types, the Proton Exchange Membrane Fuel Cell (PEMFC) technology is by far dominating the small scale stationary demonstration and field trials (~90%). The PEMFC has advantages related to high electric efficiency and excellent load following properties. A major hurdle to commercialisation, however, is their insufficient lifetime under realistic operation conditions. KEEPEMALIVE aims to establish improved understanding of degradation and failure mechanisms, accelerated stress test protocols, sensitivity matrix and lifetime prediction models for Low Temperature PEMFC to enable a lifetime of 40 000h at realistic operation conditions for stationary systems, in compliance with performance and costs targets. Main KEEPEMALIVE targets are to establish a robust and efficient methodology to identify & quantify main factors (and interactions) causing degradation/failure when imposed to stressing conditions and to characterise changes in PEMFC materials' properties and corresponding performance losses using statistical designed experiments. KEEPEMALIVE uses an integrated, iterative approach, using advanced statistical experiment design and result evaluation. Quantitative data obtained in situ from cell & stack tests under stressing conditions, are complemented by ex situ testing of materials, revealing corresponding changes in properties. Joint efforts of SMEs, energy companies and research community, including links to other related European activities, will contribute to strengthening Europe's competitiveness in this area.

## Project Information

**Type of project :** Research

**Timing :** 01/01/2010 > 30/06/2013

**Project website:** <http://www.sintef.no/keepemalive>

**Project Budget :** 2.874.206 €

---

## Funding

European Union through FCH JU: Grant agreement 245113 - [CORDIS link](#)

---

## Project partners

**Coordinator :**

**SINTEF AS**

**Partners :**

**EWII Fuel Cells AS**

**CNRS - Centre National de la Recherche Scientifique**

**EIFER - Europäisches Institut für Energieforschung**

**STICHTING ENERGIEONDERZOEK CENTRUM NEDERLAND**

**FUMATECH BWT GMBH**

**TECHNISCHE UNIVERSITAET GRAZ**

**SEAS-NVE HOLDING AS**

**JRC - JOINT RESEARCH CENTRE - EUROPEAN COMMISSION**

---

**Sub project(s)**

**Sub project 1**

**Country:** Norway

**Address:**

Strindveien 4 7465 TRONDHEIM

**Sub project categories**

Research

---

Project Id: 1033

This project datasheet was last updated on : 12.05.2020

**Modify this project datasheet**