

INSTALLATION AND TEST OF A FUEL CELL BASED RESIDENTIAL POWER SUPPLY SYSTEM

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Keywords: distributed generation; PEM-fuel cell; steam reformer; home supply; inverter; measurement; simulation; system behaviour, system dynamic

ABSTRACT

In the frame of the EU project on distributed generation *DISPOWER* an experimental fuel cell system combining natural gas steam reformer, PEM-fuel cell stack and DC/AC converter has been erected as a base for design optimisation, parameterisation and development of control strategies for a residential power supply operating in parallel to the public AC grid; innovative element in particular is a fuel cell off gas re-circulation improving both efficiency and control capabilities. The configuration can be used as demonstration and testing unit, as well as for taking data measurements required for simulating the fuel cell system integration into both a local thermal supply and an electrical network. Selection, characterization and composition of the particular components installed and tested are reported and diverse measurement results are presented. Furthermore, a simulation model of the complete plant – developed in parallel – is briefly sketched.