HORIZON 2020 PROGRAMME
FUEL CELLS AND HYDROGEN JOINT UNDERTAKING (FCH 2 JU)
TOPIC H2020-JTI-FCH-2015-1
Improved electrolysis for distributed hydrogen production

GA No. 700008

High Performance PEM Electrolyser for Cost-effective Grid Balancing Applications

HPEM2GAS - Deliverable report

D6.1: Detailed lay-out of the integration of the electrolyzer unit with the energy grids at the field test site of Emden (Lead Beneficiary SWE)

Deliverable No.	HPEM2GAS D 6.1	
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Author(s)	A. Flat (HSEL), S. Steinigeweg (HSEL) G. Kielmann (SWE), R. Kramer (SWE)	2018-03-19
Checked by	n/a	
Reviewed by (if applicable)	Antonino Aricò (CNR-ITAE)	2018-03-21
Approved by	Antonino Aricò (CNR-ITAE) - Coordinator	2018-03-28
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Summary

The HPEM2GAS project aims to demonstrate an advanced PEM electrolyser at the Emden Council in Germany to validate the stack's and system's robustness to cope with dynamic situations under real conditions and to demonstrate achievement of TRL6 for the developed system in a field test campaign.

The generated hydrogen is fed into the gas feed station via an underground pipeline. The hydrogen has to pass through a regulator section in which the pressure is reduced from 20 bar to 9 bar. A reduction of the pressure is necessary because SWE's gas network is operated at 8.5 bar. The hydrogen then enters a mixer to mix the feeding volume with the natural gas.

The construction measures of the project HPEM2GAS have entered the final stage of planning. The preparation of the installation area for the electrolyzer is a part of it. Among other things, a foundation must be built and the electrolysis container has to be protected by a fence. The fence should have the size of 10 x 15 meters and is necessary for the protection of Ex zone 2.

SWE's electricity grid is used for the required electrical supply. Stadtwerke Emden is able to obtain electricity from renewable energies. A transformer ensures low voltage for the electrolyzer.