

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	
Related WP	WP6 - Field testing and validation	
Deliverable Title	Detailed lay-out of the integration of the electrolyzer unit	
Deliverable Date	2018-03-31	
Deliverable Type	REPORT	
Dissemination level	Confidential (CO)	
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Status	Final draft	2018-03-28

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This project has received funding from the Fuel Cells and Hydrogen 2 Joint Undertaking under grant agreement No 779540. This Joint Undertaking receives support from the European Union's Horizon 2020 research and innovation programme and Hydrogen Europe and Hydrogen Europe Research.

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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.