

Indicative Program

Time	Topic
9:00	Welcome and Introduction
10:00	1 st Presentation Block SOEC/RSOC systems
11:30	Coffee Break
11:45	2 nd Presentation Block Cell and stack maturity
13:00	Lunch Break
13:45	Excursion to GrInHy system
14:45	3 rd Presentation Block Techno-economics of various concepts involving SOEC
15:45	Coffee Break
16:00	4 th Presentation Block Cross-cutting topics
17:00	Closure

Travel directions:

Salzgitter Flachstahl GmbH close to Hannover



Location

Salzgitter Flachstahl GmbH
Visitors Center
Eisenhüttenstraße 99
38239 Salzgitter
TOR 1 / Gate 1

Registration

info@green-industrial-hydrogen.com

Participation is free. Registration is required with dead line August 3, 2018. Please note that the number of participants is limited.



FUEL CELLS AND HYDROGEN
JOINT UNDERTAKING



Route to the Industrialisation of High-Temperature Electrolysis

Joint Workshop

**September 3 2018, Salzgitter,
Germany**

First Announcement

Organised by:

**GrInHy – Green Industrial
Hydrogen via reversible high-
temperature electrolysis
&**

**Efficient Co-Electrolyser for
Efficient Renewable
Energy Storage – Eco**

Scope of the Workshop

High-Temperature Electrolysers (HTE) have the potential to lower operational costs by up to 20% compared to state-of-the-art alkaline or PEM based electrolysers. Due to the gas flexibility and high efficiency of solid oxide electrolysers (SOE), numerous applications are possible involving production of hydrogen and carbon monoxide and mixtures of both (synthesis gas).

Specific examples are

- The production of industrial hydrogen (or CO), which holds a huge market potential, if cost and quality targets can be met.
- The production of hydrogen or synthesis gas (with the optional route to hydrocarbons) for seasonal and large capacity storage of electricity from renewable sources and for transportation.

The technology still needs to be matured, specifically regarding costs, scale, lifetime, and robustness.

Considerable progress has been made in recent years, resulting in first demonstration projects in the field.

The workshop provides a platform for discussion of achievements in the technology maturity in the field of cells, stacks and systems, techno-economics, market applications, certification requirements in terms of 'green' hydrogen, hydrogen processing and life cycle analysis of HTE technology.

The organising EU projects

Green Industrial Hydrogen via reversible high-temperature electrolysis (GrInHy)

- GrInHy is committed to the proof-of-concept of operating a high-temperature electrolyser in the industrial environment of an integrated iron and steel works, while meeting its hydrogen quality standards and reaching highest electrical efficiencies by using steam preferably from waste heat.
- Furthermore, the project pursues research and development activities on cell and stack level and periphery components.
- Hydrogen from renewable energy has the potential of either avoiding direct CO₂ emissions in industrial processes or along the product value chains.

Partners:

- Salzgitter Mannesmann Forschung GmbH
- Salzgitter Flachstahl GmbH
- Boeing Research & Technology Europe
- SUNFIRE GMBH
- Teknologian tutkimuskeskus VTT Oy
- European Institute for Energy Research
- Ustav fyziky materialu, Akademie Ved Ceske republiky
- Politecnico di Torino

Coordinator:

SZMF (Simon Kroop)



Efficient Co-Electrolyser for Efficient Renewable Energy Storage (ECo)

- The concept of ECo is to convert excess renewable electricity into distributable and storable hydrocarbons, such as methane, by the simultaneous electrolysis of steam and CO₂ via Solid Oxide Electrolysis Cells (SOEC).
- “The ECo project will bring the technology from proof-of-concept to validation of the technology in a relevant environment, and make it ready for prototype demonstration.”
- Activities include improvement of state-of-the-art cells and stacks, system design, techno-economic evaluation of specific application cases, and LCA.

Partners:

- Technical University of Denmark
- Commissariat à l’Energie Atomique et aux énergies alternatives
- European Institute for Energy Research
- École polytechnique fédérale de Lausanne
- Catalonia Institute for Energy Research
- HTceramix
- Laborelec/ENGIE
- Enagas
- VDZ (Research Institute of the Cement Industry)

Coordinator:

DTU (Anke Hagen)

