



Den Danske Brint- og Brændselscelledag 2016

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*(i) HyProvide Large-Scale Alkaline
Electrolyser (MW)*

*(ii) High-efficiency, low-cost electrode
surfaces for next generation alkaline
electrolysis*

Partnere

GREENHYDROGEN.DK

SIEMENS

Technical University
of Denmark



AARHUS
UNIVERSITY



PARTNERSKABET FOR BRINT
OG BRÆNDELSCELLER



Innovationsfonden



Nøgletal

Title of project	High-efficiency, low-cost electrode surfaces for alkaline electrolysis	HyProvide Large-scale alkaline electrolyser (MW)
Funded by	HTF (now Innovation Fund Denmark)	EUDP
Project period	6/2011 – 6/2014	9/2011 - 12/2015
Own contribution	12 mio. DKK	17.3 mio. DKK
Grant	12 mio. DKK	21.4 mio. DKK
Funding rate	50%	55%
Total budget	24 mio. DKK	38.7 mio. DKK



Målsætninger

HyProvide (EUDP)

- Brint-produktion i stor skala (megawatt-størrelse).
- 125 til 1000 Nm³/h eller 0.5 til 4 MW

Electrode surfaces (HTF – now Innovation Fund Denmark)

- Bedre elektrolyse-virkningsgrad
- Lav pris

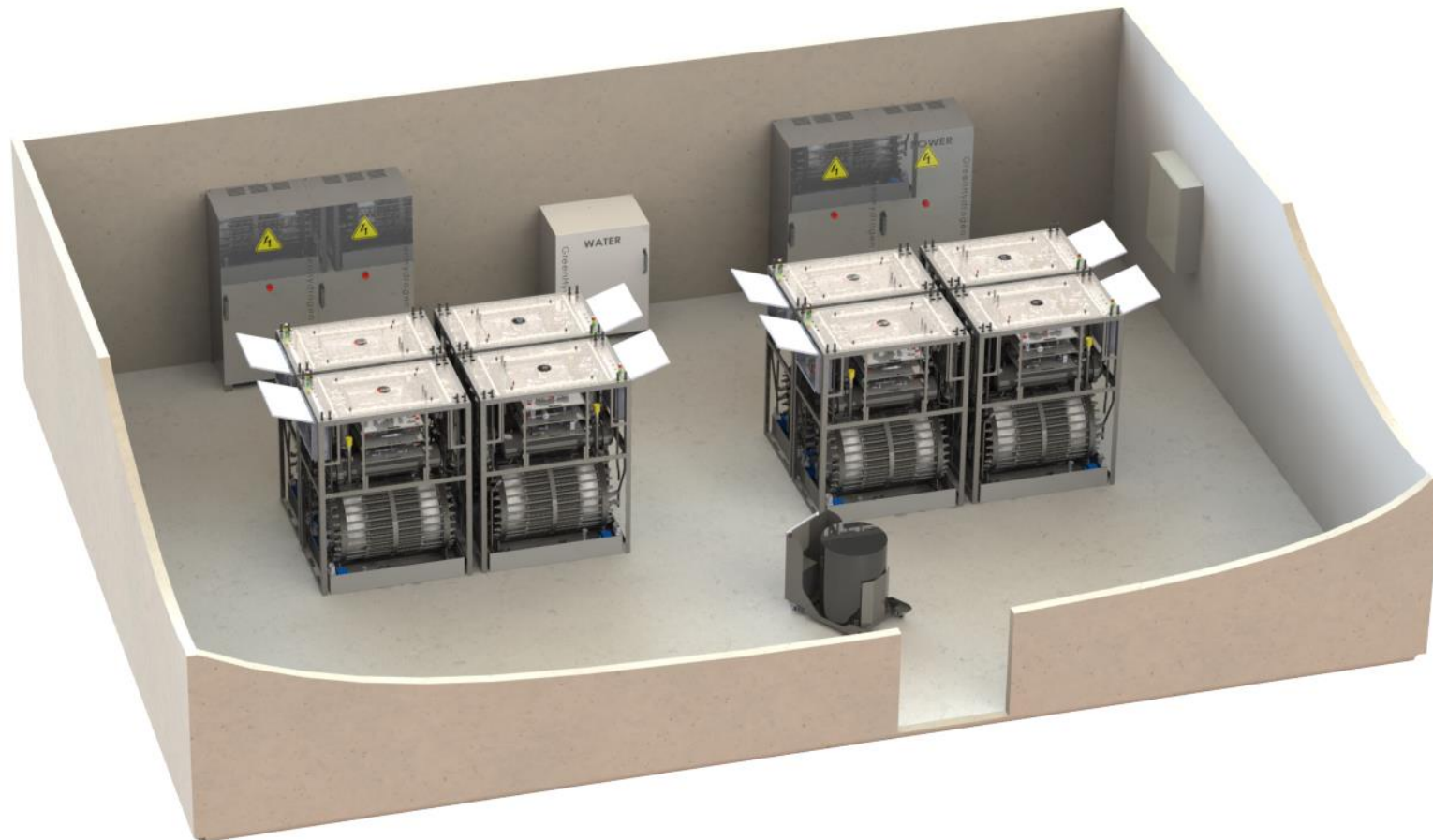


HyProvide A60

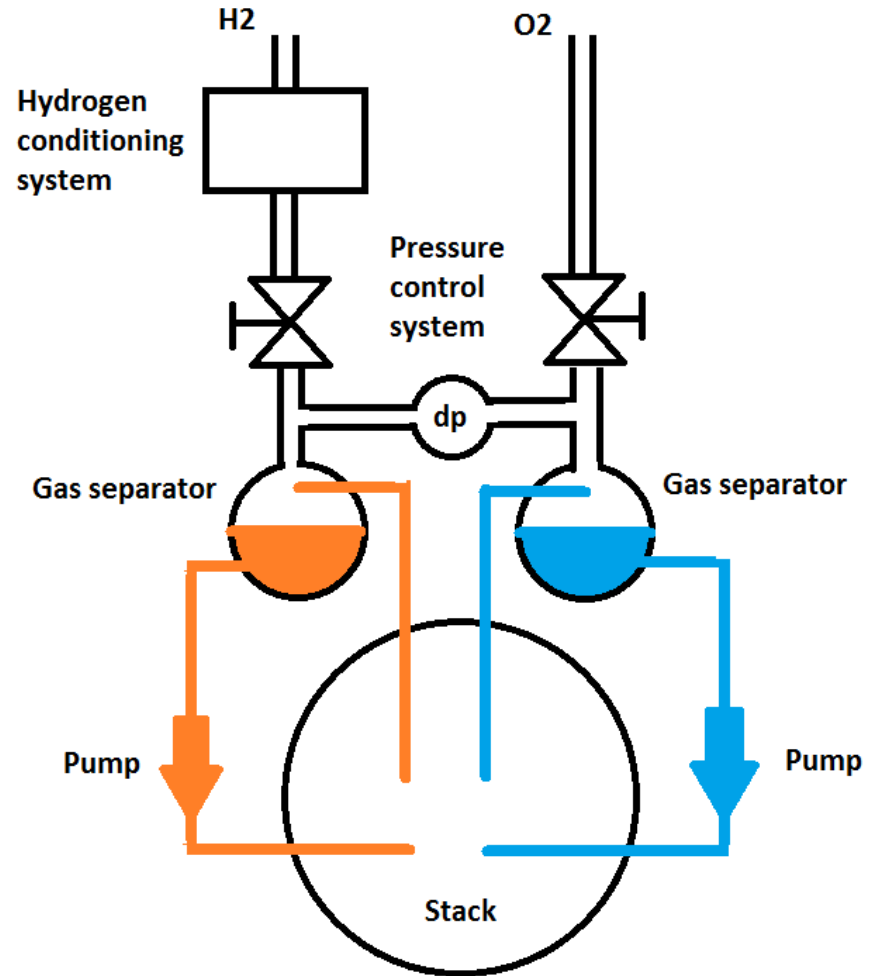
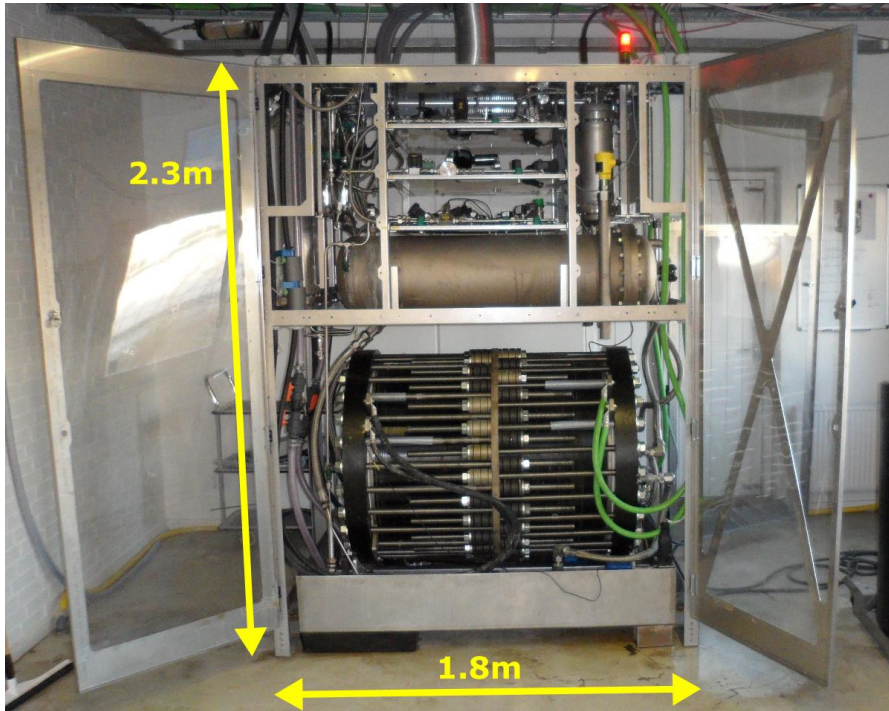
- Hydrogen production: 60 Nm³/h
- Power consumption: 250 kW
- Foot print: 1.8 × 1.1 × 2.3 meter
- Pressure: 30 bar
- Response time: <1s
- Dynamic range: 15 – 100%
- Efficiency: 84% HHV
- Cost: 1.2 mio. DKK (20,000 DKK/Nm³/h)



2 MW electrolysis plant



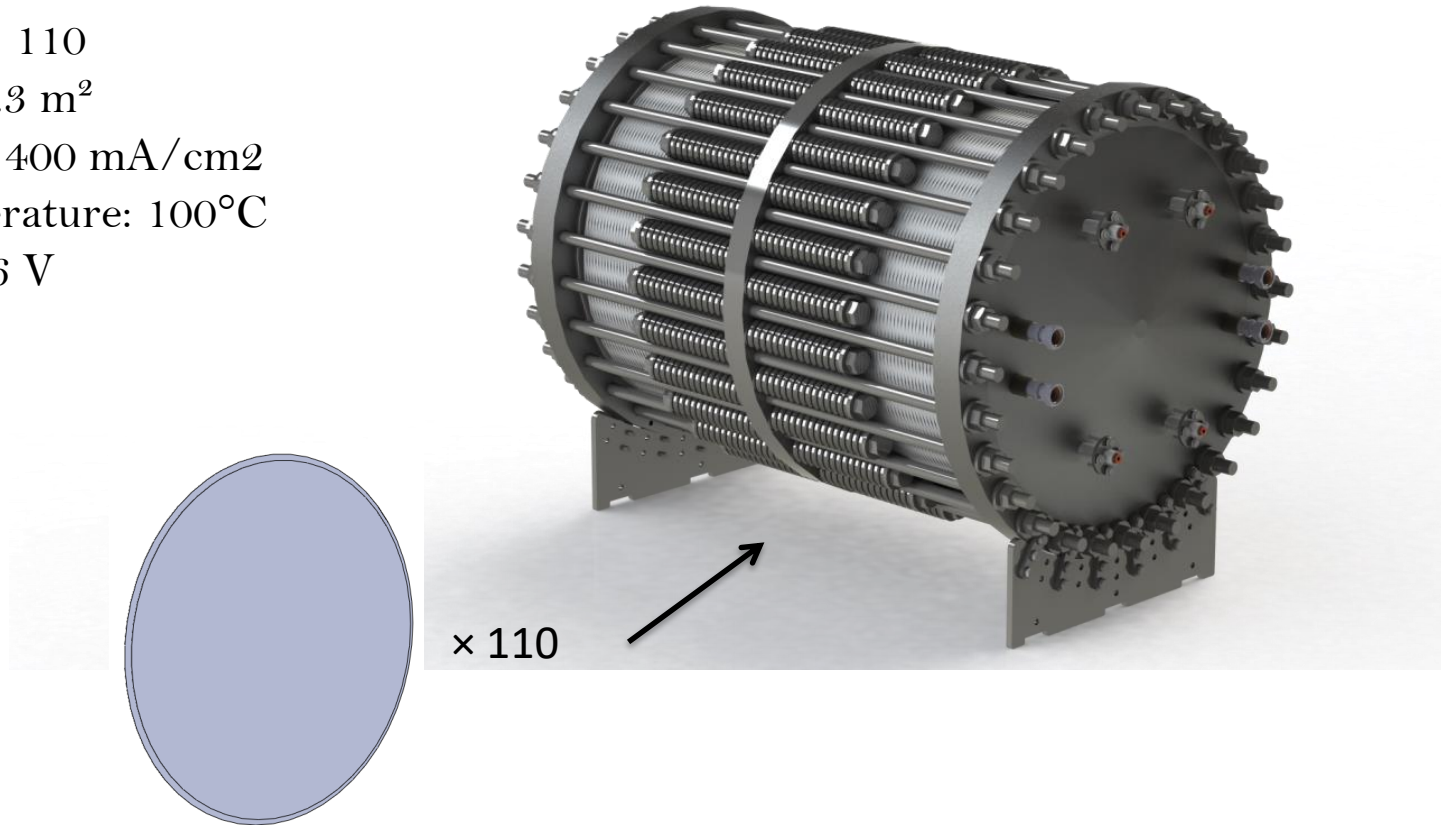
Electrolysis System



Stack and electrodes

HyProvide A60

- Number of cells: 110
- Electrode size: 0.3 m^2
- Current density: 400 mA/cm^2
- Operating temperature: 100°C
- Cell voltage: 1.76 V



Næste skridt

- CE mærkning, trykudstyringsdirektivet
- MeGa-StoRE biogas opgradering
- Power-2-Electrolysers (EUDP)
- H₂Cost2 (EUDP)



Konklusioner og perspektivering

- Synergi mellem de to projekter har gjort at vi er nået langt
- Projekterne har resulteret i udviklingen af HyProvide A60, som efter CE mærkning er parat til markedsintroduktion



Tak for opmærksomheden

