Demonstration of a combined heat and power 2 MWe PEM fuel cell generator and integration into an existing chlorine production plant

Fact Sheet

Project Information

DEMCOPEM-2MW

Grant agreement ID: 621256

Project closed

Start date
1 January 2015

End date
31 December 2018

Funded under
Specific Programme "Cooperation": Joint Technology Initiatives

Total cost
€ 10 524 200,40

EU contribution
€ 5 466 525,00

Coordinated by
NOBIAN INDUSTRIAL CHEMICALS BV
Netherlands

Objective

The project DEMCOPEM-2MW is to design, construct and demonstrate an economical combined heat and power PEM fuel cell power plant (2 MW electrical power and 1.5 MW heat) and integration into a chlor-alkali (CA) production plant. A chlor-alkali production plant produces chlorine and caustic soda (lye) and high purity

hydrogen. The hydrogen contains almost 45% of the energy that is consumed in the plant. In many cases this hydrogen is vented. The project will demonstrate the PEM Power Plant technology for converting the hydrogen into electricity, heat and water for use in the chlor-alkali production process, lowering its electricity consumption by 20%.
The partners have relevant experience in long life high efficient PEM power plant systems in hazardous environments like a chlor-alkali plant.
The PEM power plant will be fully integrated into the chlorine production unit and will also be remotely controlled. The water produced by the oxidation of hydrogen is also used. To reduce the (maintenance) cost of the integrated plant special emphasis is put on the longevity of the fuel cells (especially membranes, electrodes and catalyst) and to lower the manufacturing costs. The design is optimized for minimal energy loss. Extensive diagnostics and data acquisition are incorporated to monitor the performance.
The demonstration will take place in China as this is the ideal starting point for the market introduction. High electricity prices (up to 2 times higher than in Europe), 50% of the chlor-alkali world production and rationing of electricity all contribute to the business case.
A successful demonstration will pave the way for the roll out of the technology, staged cost efficiencies and further self-sustained market and technology developments.

Fields of science (EuroSciVoc)

natural sciences > chemical sciences > electrochemistry > **electrolysis**

natural sciences > chemical sciences > inorganic chemistry > **halogens**

natural sciences > chemical sciences > **catalysis**

engineering and technology > environmental engineering > energy and fuels > **fuel cells**

Programme(s)

FP7-JTI - Specific Programme "Cooperation": Joint Technology Initiatives

Topic(s)

SP1-JTI-FCH.2013.3.5 - Field demonstration of large scale stationary power and CHP fuel cell systems

Call for proposal

FCH-JU-2013-1
See other projects for this call

Funding Scheme

JTI-CP-FCH - Joint Technology Initiatives - Collaborative Project (FCH)

Coordinator

NOBIAN INDUSTRIAL CHEMICALS BV

EU contribution

€ 451 140,00

Total cost

No data

Address

VAN ASCH VAN WIJCKSTRAAT 53
3811 LP Amersfoort
Netherlands

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network

Participants (4)

NEDSTACK FUEL CELL TECHNOLOGY BV

Netherlands

EU contribution

€ 2 719 194,00

Address

WESTERVOORTSEDIJK 73 GEBOUW 533
6827 AV Arnhem

Region

Oost-Nederland > Gelderland > Arnhem/Nijmegen

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation] [Website]
[Participation in EU R&I programmes]
[HORIZON collaboration network]

Total cost

No data

MTSA TECHNOPOWER BV

Netherlands

EU contribution

€ 1 825 780,00

Address

WESTERVOORTSEDIJK 67
6827 AT ARNHEM

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation] [Website]
[Participation in EU R&I programmes]
[HORIZON collaboration network]

Total cost

No data

JOHNSON MATTHEY HYDROGEN TECHNOLOGIES LIMITED

United Kingdom

EU contribution

€ 259 679,00

Address

5TH FLOOR, 2 GRESHAM STREET
EC2V 7AD LONDON

Region

London > Inner London — West > Camden and City of London

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation]
[Participation in EU R&I programmes]
[HORIZON collaboration network]

Total cost

No data

POLITECNICO DI MILANO

🇮🇹 Italy

EU contribution

€ 210 732,00

Address

PIAZZA LEONARDO DA VINCI 32
20133 Milano

Region

Nord-Ovest > Lombardia > Milano

Activity type

Higher or Secondary Education Establishments

Links

[Contact the organisation] [Website]
[Participation in EU R&I programmes]
[HORIZON collaboration network]

Total cost

No data

Last update: 6 September 2024

Permalink: https://cordis.europa.eu/project/id/621256