



HYdrogen as a FLEXible energy storage for a fully renewable European POWER system

Fact Sheet

Project Information

HYFLEXPOWER

Grant agreement ID: 884229

[Project website](#)

DOI

[10.3030/884229](https://doi.org/10.3030/884229)

Project closed

EC signature date

30 March 2020

Start date

1 May 2020

End date

30 April 2024

Funded under

SOCIETAL CHALLENGES - Secure, clean and efficient energy

Total cost

€ 15 252 168,50

EU contribution

€ 10 475 081,60

Coordinated by

SIEMENS ENERGY GLOBAL
GMBH & CO. KG



Germany

Project description

First demonstration of an integrated power-to-hydrogen-to-power plant

Generating renewable electricity is an important way to reduce CO₂ emissions and tackle climate change. However, sources of renewable energy such as wind and solar suffer from supply and demand imbalances. Energy storage in the form of hydrogen could provide a remedy for this problem: excess renewable electricity is fed

into an electrolyser to split water into oxygen and hydrogen. The green hydrogen is stored and subsequently used in gas turbines to produce electricity when needed, releasing the stored energy back to the grid. The EU-funded HYFLEXPOWER project will develop and operate the first fully integrated power-to-hydrogen-to-power industrial scale power plant, including an advanced dry-low emissions hydrogen gas turbine. The already installed SGT-400 gas turbine package will be upgraded with the ultimate goal to produce 12 MW electrical energy using fuel mixtures that contain up to 100 % hydrogen.

Fields of science (EuroSciVoc)

[natural sciences](#) > [chemical sciences](#) > [electrochemistry](#) > **[electrolysis](#)**

[engineering and technology](#) > [environmental engineering](#) > [energy and fuels](#) > [renewable energy](#) > **[wind power](#)**



Keywords

[Power-to-X-to-Power](#)

[hydrogen combustion](#)

[electrolysis](#)

[hydrogen storage](#)

[fuel flexibility](#)

[energy storage](#)

[load levelling](#)

[carbon-free back-up power](#)

[carbon-free thermal power plant](#)

Programme(s)

[H2020-EU.3.3. - SOCIETAL CHALLENGES - Secure, clean and efficient energy](#)

MAIN PROGRAMME

[H2020-EU.3.3.2. - Low-cost, low-carbon energy supply](#)

Topic(s)

[LC-SC3-NZE-4-2019 - Integrated solutions for flexible operation of fossil fuel power plants through power-to-X-to-power and/or energy storage](#)

Call for proposal

[H2020-LC-SC3-2018-2019-2020](#) 

[See other projects for this call](#)

Sub call

H2020-LC-SC3-2019-NZE-RES-CC

Funding Scheme

[IA - Innovation action](#)

Coordinator



SIEMENS ENERGY GLOBAL GMBH & CO. KG

Net EU contribution

€ 3 926 369,63

Total cost

€ 7 283 032,50

Address

OTTO-HAHN-RING 6

81739 Munchen

 **Germany** 

Region

Bayern > Oberbayern > München, Kreisfreie Stadt

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 (12)



THIRD-PARTY



SIEMENS ENERGY INDUSTRIAL TURBOMACHINERY LIMITED

 United Kingdom

Net EU contribution

€ 557 768,75

Address

WATERSIDE SOUTH RUSTON HOUSE
LN5 7FD Lincoln 

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

 THIRD-PARTY

SIEMENS ENERGY SAS

 France

Net EU contribution

€ 63 984,38

Address

10 AVENUE DE L'ARCHE
92400 COURBEVOIE 

Region

Ile-de-France > Ile-de-France > Hauts-de-Seine

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



ENGIE ENERGIE SERVICES

 France

Net EU contribution

€ 3 831 975,00

Address

1 PLACE SAMUEL DE CHAMPLAIN - FAUBOURG DE L'ARCHE
92930 Paris 

Region

Ile-de-France > Ile-de-France > Hauts-de-Seine

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

€ 5 474 250,00



CENTRAX LIMITED

 United Kingdom

Net EU contribution

€ 360 283,33

Address

SHALDON ROAD
TQ12 4SQ Newton Abbot 

Activity type

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

Links

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- [Participation in EU R&I programmes](#) 
- [HORIZON collaboration network](#) 

Total cost

€ 859 673,50

CENTRAX FRANCE SAS

 France

Net EU contribution

€ 181 488,13

Address

RUE DE MONBAY

45140 Ormes 

Region

Centre — Val de Loire > Centre — Val de Loire > Loiret

Activity type

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

Links

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[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

No data



UNIVERSITAET DUISBURG-ESSEN

 Germany

Net EU contribution

€ 418 960,00

Address

UNIVERSITATSSTRASSE 2

45141 Essen 

Region

Nordrhein-Westfalen > Düsseldorf > Essen, Kreisfreie Stadt

Activity type

Higher or Secondary Education Establishments

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 418 960,00



DEUTSCHES ZENTRUM FÜR LUFT - UND RAUMFAHRT EV

 Germany

Net EU contribution

€ 198 991,25

Address

LINDER HOHE

51147 Köln 

Region

Nordrhein-Westfalen > Köln > Bonn, Kreisfreie Stadt

Activity type

Research Organisations

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 198 991,25



LUNDS UNIVERSITET

 Sweden

Net EU contribution

€ 199 250,00

Address

Paradisgatan 5c

22100 Lund 

Region

Södra Sverige > Sydsverige > Skåne län

Activity type

Higher or Secondary Education Establishments

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 199 250,00



UNIVERSITY COLLEGE LONDON

United Kingdom

Net EU contribution

€ 289 427,50

Address

GOWER STREET
WC1E 6BT London

Region

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

Activity type

Higher or Secondary Education Establishments

Links

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

Total cost

€ 289 427,50



ETHNICON METSOVION POLYTECHNION

Greece

Net EU contribution

€ 255 250,00

Address

HEROON POLYTECHNIOU 9 ZOGRAPHOU CAMPUS
157 72 ATHINA

Region

Αττική > Αττική > Κεντρικός Τομέας Αθηνών

Activity type

Higher or Secondary Education Establishments

Links

- [Contact the organisation](#)
- [Website](#)
- [Participation in EU R&I programmes](#)

Total cost
€ 255 250,00



ARTTIC

 France

Net EU contribution
€ 165 544,75

Address
39 RUE DES MATHURINS
75008 Paris 

Region
Ile-de-France > Ile-de-France > Paris

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
€ 273 333,75

 THIRD-PARTY

ARTTIC INNOVATION GMBH

 Germany

Net EU contribution
€ 25 788,88

Address
OSKAR-VON-MILLER-RING 29
80333 Munchen 

Region
Bayern > Oberbayern > München, Kreisfreie Stadt

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

Links

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Total cost

No data

Last update: 26 February 2025

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European Union, 2025