

PUSHING THE LIMITS OF LARGE-SCALE ENERGY STORAGE: OPTIMIZED COMBINED CYCLE CAES

Fact Sheet

Project Information

PUSH-CCC

Grant agreement ID: 101115601

DOI

[10.3030/101115601](https://doi.org/10.3030/101115601)

EC signature date

21 June 2023

Start date

1 October 2023

End date

30 September 2027

Funded under

The European Innovation Council (EIC)

Total cost

€ 3 426 308,75

EU contribution

€ 3 426 308,75

Coordinated by

RIEGO SUR SA



Spain

Project description

Innovative storage technology could boost renewable energy integration

The EU-funded PUSH-CCC project aims to tackle key challenges of compressed air energy storage (CAES) technology by enhancing its scalability, efficiency, energy density and commercial viability in Europe. Researchers will develop an advanced CAES concept up to technology readiness level (TRL) 4, leveraging AI-optimised heat pump cycles, efficient heat storage technology and a disruptive hierarchical control system. Furthermore, the proposed technology will capture CO₂ from the atmosphere. Project activities also involve the construction of an experimental cavern lab in the Canary Islands, which will lead to the first isobaric adiabatic CAES system

at TRL4 in Europe. Project outcomes will contribute to accelerating renewable energy integration into the grid.

Fields of science

[engineering and technology](#) > [electrical engineering, electronic engineering, information engineering](#) > [electronic engineering](#) > **[control systems](#)**

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

[engineering and technology](#) > [mechanical engineering](#) > [thermodynamic engineering](#) > **[heat engineering](#)**

Keywords

[Compressed Air Energy Storage](#)

[Single stage compression](#)

[Air heat exchange](#)

[Air heat storage](#)

[AI-Based Hierarchical Control](#)

[large-scale energy storage](#)

[Isobaric Adiabatic cycle](#)

[hard-rock bedded cavern](#)

Programme(s)

[HORIZON.3.1 - The European Innovation Council \(EIC\)](#)

MAIN PROGRAMME

Topic(s)

[HORIZON-EIC-2022-PATHFINDERCHALLENGES-01-02 - EIC Pathfinder Challenge: Mid to long term and systems integrated energy storage](#)

Call for proposal

[HORIZON-EIC-2022-PATHFINDERCHALLENGES-01](#)

[See other projects for this call](#)

Funding Scheme

[HORIZON-EIC - HORIZON EIC Grants](#)

Coordinator



RIEGO SUR SA

Net EU contribution

€ 1 316 086,25

Total cost

€ 1 316 086,25

Address

AVDA BLAS INFANTE 6

41011 SEVILLA

 Spain 

Region

Sur > Andalucía > Sevilla

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 (6)



INSTITUTO TECNOLOGICO DE CANARIAS,S.A.

 Spain

Net EU contribution

€ 502 505,00

Address

CALLE CEBRIAN 3

35003 Las Palmas De Gran Canaria 

Region

Canarias > Canarias > Gran Canaria

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

€ 502 505,00



UNIVERSIDAD DE SEVILLA

 Spain

Net EU contribution

€ 973 437,50

Address

CALLE S. FERNANDO 4

41004 Sevilla 

Region

Sur > Andalucía > Sevilla

Activity type

Higher or Secondary Education Establishments

Links

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

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

[HORIZON collaboration network](#) 

Total cost

€ 973 437,50



THIRD-PARTY 

"ASOCIACION DE LA INVESTIGACION Y COOPERACION INDUSTRIAL DE ANDALUCIA ""F. DE PAULA ROJAS"""

 Spain

Net EU contribution

€ 0,00

Address

CAMINO DE LOS DESCUBRIMIENTOS S/N ESCUELA SUPERIOR DE INGENI

41092 Sevilla 

Region

Sur > Andalucía > Sevilla

Activity type

Research Organisations

Links

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

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

[HORIZON collaboration network](#) 

Total cost

No data



ETHNICON METSOVION POLYTECHNION

 Greece

Net EU contribution

€ 255 587,50

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](#) 

[HORIZON collaboration network](#) 

Total cost

€ 255 587,50



POLITECNICO DI TORINO

 Italy

Net EU contribution

€ 207 887,50

Address

**CORSO DUCA DEGLI ABRUZZI 24
10129 Torino** 

Region

Nord-Ovest > Piemonte > Torino

Activity type

Higher or Secondary Education Establishments

Links

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

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

[HORIZON collaboration network](#) 

Total cost

€ 207 887,50



UNIVERSITA DEGLI STUDI DI BRESCIA

 Italy

Net EU contribution

€ 170 805,00

Address

PIAZZA MERCATO 15

25121 Brescia 

Region

Nord-Ovest > Lombardia > Brescia

Activity type

Higher or Secondary Education Establishments

Links

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

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

[HORIZON collaboration network](#) 

Total cost

€ 170 805,00

Last update: 28 June 2023

Permalink: <https://cordis.europa.eu/project/id/101115601>

