



Press Release
On 31st March 2023

HypSTER goes into work-over, a decisive stage for the first hydrogen storage demonstrator

The implementation of HypSTER, the first green hydrogen storage demonstrator in a salt cavern located in Etrez, near Lyon (France), is progressing. Since 4 March 2023 and until mid-April, site operator Storengy has been carrying out work-over operations aimed at changing the equipment in the salt cavern for equipment compatible with hydrogen.

HypSTER is the first salt cavern hydrogen storage demonstrator supported by the Clean Hydrogen Partnership and is currently being developed in Etrez. With a total budget of €13 million, it aims to better identify the position of storage in the hydrogen value chain to support the development of the hydrogen sector in Europe.

The implementation of this project, launched in January 2021, is progressing with the well work-over. This operation aims to replace the production elements installed in the well with equipment compatible with hydrogen. This operation is at the heart of the HypSTER project, as the new equipment will enable tests to be completed to confirm the salt cavern's ability to store hydrogen produced by intermittent renewable energy sources.

As an operator of industrial sites, Storengy designs solutions for the storage of natural gas and hydrogen and the production of renewable gases, but also ensures their implementation in the field. This new key step is being carried out in collaboration with various trades, such as Arverne - the drilling contractor, Schlumberger - the completion supplier, Vallourec - the pipe supplier and Technip FMC - the wellhead supplier.

Zoom on the HypSTER project, an essential link in the development of the renewable hydrogen sector:

This demonstrator studying the underground storage of renewable hydrogen sets the stage for the creation of an industrial-scale hydrogen sector and its technical and commercial reproducibility at other sites in Europe. It is a further step towards flexible and large-scale supply of renewable, low-carbon energy.

About the project:

<https://hypster-project.eu/>

This project benefits from financing through the Fuel Cells and Hydrogen 2 Joint Undertaking (now Clean Hydrogen Partnership) under the grant agreement no. 101006751. This public-private partnership has received the support of the Horizon 2020 research and innovation programme by the European Union, Hydrogen Europe and Hydrogen Europe Research.



Following the definition of the project's regulatory framework, the receipt of funding from the European Union (Clean Hydrogen Partnership, formerly FCH-JU), and the signature of the consortium by all partners in 2020, the engineering studies started in 2021. The next steps are:

- **2022:** Construction of the electrolysis unit for the production of renewable hydrogen on-site and modification of the cavern for storage.
- **2023:** Experimentation of hydrogen storage in a salt cavern, as well as hydrogen production.

About the partners

Storengy

This subsidiary of ENGIE is one of the world leaders in underground natural gas storage. Drawing on 70 years of experience, Storengy designs, develops and operates storage facilities and offers its customers innovative products. The company owns 21 natural gas storage sites with a total capacity of 136 TWh in France, Germany and the United Kingdom. Storengy is also a key player in renewable gases (biomethane, hydrogen, synthetic gas). In the hydrogen sector, Storengy is a member of France Hydrogen (formerly AFHYPAC), as well as the association Hydrogen Europe. www.storengy.com

Armines-École Polytechnique

Armines is the largest private contractual research structure in France. Under the supervision of the Ministry of Industry, it is supported by 48 research centres, including the École polytechnique, for which it is a federating operator. The École polytechnique is France's number-one institution associating research, education and innovation at the highest scientific and technological level. With its 23 laboratories, the École Polytechnique's Research Centre works at the frontiers of knowledge on major interdisciplinary scientific, technological and societal issues. www.armines.net www.polytechnique.edu

INOVYN

Founded on 1st July 2015 as a part of INEOS, INOVYN is one of the three world leaders in vinyl manufacturing. With a turnover of more than 3.5 billion euros, INOVYN has more than 4,300 employees with manufacturing, sales and marketing activities in ten European countries. INOVYN's portfolio includes a wide range of advanced products such as organic chlorine derivatives, chlor-alkali, general purpose vinyl, specialty vinyl, sulfur chemicals, salt, and electrochemical and vinyl technologies. The annual production volume amounts to more than 40 million tonnes. www.inovyn.com

ESK

ESK GmbH is a renowned engineering company for energy storage and systems services and has successfully completed national and international projects for many years. Its team of highly qualified engineers and geoscientists has extensive experience and know-how in the fields of aquifer and salt cavern storage technologies. In total, ESK has 80 employees in Holzwickede and Freiberg, as well as in its Leipzig and Stassfurt offices, in Germany. www.esk-projects.com

Element Energy



Element Energy is a consulting and engineering firm specializing in low-carbon energy, sustainability and consumer behavior. It provides strategic advice, computer models, software and engineering consultancy services for a wide range of clients in the building, transport and energy sectors.

The company has recently been bought by ERM, the world's largest sustainable development consulting firm specialising in energy and aiming to implement integrated low-carbon technology solutions which help them meet their decarbonization challenges. www.element-energy.co.uk

Ineris

Ineris (Institut national de l'environnement industriel et des risques) is a public industrial and commercial establishment under the supervision of the Ministry of Ecological Transition. This institute conducts research activities on behalf of public authorities, industrial operators and public bodies in the fields of assessment, prevention and control of risks linked to industrial activities, particularly in underground environments. Over the years, Ineris has developed solid expertise in the field of environmental risk assessment related to underground storage activities. The institute has large-scale laboratories for tests involving hydrogen. Their expertise is based on experimental skills (especially in situ) in the fields of digital modelling and risk assessment methods in health, safety and the environment. <https://www.ineris.fr/fr>

AXELERA Auvergne-Rhône-Alpes

AXELERA is the reference cluster of the chemical and environmental sectors in the French region Auvergne-Rhône-Alpes. In France and internationally, it supports the development and innovation of actors involved in the controlled management of environmental materials and resources, for a sustainable development of territories. The cluster is committed to developing chemical solutions for the industry and territories, competitive and eco-efficient processes, technologies to preserve and restore natural resources, circular management of different materials, water, air, soil and energy. www.axelera.org.

Brouard Consulting

Brouard Consulting is an engineering firm specialising in underground storage founded in 1999 and operating worldwide. This company is providing expertise to the HyPSTER project by performing digital calculations to accurately simulate the thermodynamic behaviour of salt caverns and control the mechanical stability of the surrounding rock.

<http://www.brouard-consulting.com>

Equinor

Equinor is a company from the energy sector developing new energy solutions for today and tomorrow, transforming natural resources into energy for people and progress for society.



EUROPEAN PARTNERSHIP



Co-funded by the European Union



Clean Hydrogen Partnership

Clean Hydrogen Partnership succeeds to the Fuel Cells and Hydrogen Joint Undertaking (FCH JU). Its aim is to strengthen and integrate the European Union's research and innovation capacities in order to accelerate the development and improvement of advanced clean hydrogen applications which are ready to be commercialised, especially in the energy, transport, building and final industrial usage sectors, while strengthening the competitiveness of the Union's decarbonised hydrogen value chain. This institution's three partners are the European Commission, the fuel cell and hydrogen industry (represented by Hydrogen Europe) and the community of researchers, which is represented by Hydrogen Europe Research.

<https://www.clean-hydrogen.europa.eu>

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