



PRESS-RELEASE

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THE HYSTRAM RESEARCH AND INNOVATION PROJECT TOWARDS THE TRANSFORMATION OF THE GLOBAL ENERGY SECTOR

Leading representatives from industry, research and technology organisations from 12 European countries have joined forces to develop an economic and commercial process for the production of 'green ammonia'. The HySTrAm project will facilitate the transformation of hydrogen into ammonia thereby contributing to the decarbonisation of the energy sector.

On 27-28 June 2022, the HySTrAm consortium met for the first time in Aalborg, Denmark to kick-off the collaborative work. The project has been granted EUR 5,7 million from the European Union's [Horizon Europe](#) research and innovation programme to contribute to the deployment of low carbon industry applications and breakthrough technologies, in the field of hydrogen storage. Over the next three years the project will work towards achieving the following ambitious objectives:

1. Development of functional catalyst/sorbent materials for ammonia synthesis;
2. Development of new ultra-porous materials with high H₂ capacity;
3. Realisation of a lightweight composite vessel for physical-adsorption hydrogen storage;
4. Design, construction, optimisation and demonstration of dynamically operated packed bed reactors for ammonia synthesis;
5. Demonstration of the overall HySTrAm solution at TRL5; and
6. Validation of a business case.

Europe aims to become the [first climate-neutral continent by 2050](#). However, today we are still far from achieving this objective. According to the European Commission, renewable carbon-free fuels are not yet cost competitive compared to fossil-based fuels. In this context, green ammonia (as a source of hydrogen) is essential for the decarbonisation of the European energy system of the future.

The 2020 [EU strategy for energy system integration](#), highlights the importance of creating a European hydrogen ecosystem from research and innovation, to scaling up production and infrastructure to international dimensions. This includes a vision to turn clean hydrogen into a viable



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solution to decarbonise different sectors over time, installing at least 6 GW of renewable hydrogen electrolyser in the EU by 2024 and 40 GW by 2030. Ammonia is a source of hydrogen, and since it is a liquid it is easier to store and transport.

The HySTrAm project will develop innovative solutions to **produce ‘green ammonia’ from hydrogen at lower pressure, thereby making the process more efficient**. These solutions will also aim to solve the energy challenges that Europe is facing today. In addition, this will strengthen the Europe’s technological leadership, and create economic growth and jobs across the full European value chain.

The HySTrAm project is expected to have the following outcomes and impacts:

- Resilient, sustainable and secure (critical) raw materials value chains for EU industrial ecosystems, in support of the twin green and digital transformations;
- New sustainable-by-design materials with enhanced functionalities and applications in a wide range of industrial processes and consumer products;
- Leadership in producing materials that provide solutions for clean, toxic/pollutant free environment, decarbonising industry, and safeguarding civil infrastructures;
- Leadership in circular economy that strengthens cross-sectorial cooperation along the value chain and enable SMEs to transform their activities and business models; and
- Increased adoption of key digital and enabling technologies in industrial value chains and strategic sectors, paying particular attention to SMEs and start-ups.

A consortium of 16 partners from large, small, and medium-sized enterprises and research and technology organisations covering the whole European energy value chain is involved in the development of the HySTrAm solutions. [Aalborg University](#) (Denmark), coordinates the implementation of the project. The involved partners will work collaboratively in the optimisation of technologies, construction, operation and validation of the pilot, in the assessment of their sustainable performance, as well as in the communication, dissemination and exploitation of activities and results.

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