



Redefining green hydrogen production

H₂ HYDROGEN
ZERO EMISSION
CLEAN ENERGY OF THE FUTURE





Advancing green hydrogen production

HYScale is a multinational, industry-focused, interdisciplinary EU-funded project with a primary goal of enhancing its electrolyser technology to produce green hydrogen.

The project will focus on refining materials synthesis and components production looking for optimisation and upscaling.

The project's final goal is to integrate the stack into a functional electrolyser system and to get to its validation in an industrial relevant environment (TRL5).

Innovative electrolyser technology

HYScale aims to produce sustainable, cost-effective and scalable **green hydrogen**. This innovative technology stands out by using membranes and ionomers that are **non-fluorinated** and electrodes **free from critical raw materials**.

The industry-focused EU-funded project will contribute to reducing greenhouse gas emissions and combat climate change by **redefining the hydrogen production system**.

Sustainable



Optimising stack components and plant design for enhanced energy efficiency and reduced resource demands.

Cost effective



Lowering the electrolyser's CAPEX and OPEX through smart design of materials, components, stack, and system.

Scalable



Ensuring the scalability potential of water electrolyser production to multi-gigawatt (GW) levels in Europe before 2030.



About the technology

The HYScale technology results from research and development within multiple projects, such as the EU-funded projects NEWELY, Anione, and ECO2Fuel. It is based on the anion exchange membrane water electrolysis (**AEMWE**) technology.

The HYScale solution is well suited to become the **future electrolyser technology** delivering **economical** and truly **green hydrogen**.

The CAPEX is estimated to be 400 € kW^{-1} at the system level. It operates with:

- critical raw material free catalysts,
- fluorine-free anion exchange membranes and ionomers,
- a 2.9 times larger current density than the SoA, namely at 2 A cm^{-2} below 2.0 V.





Towards a cleaner Europe

Aligned with Europe's **circular-economy** action plan, HYScale means a step-forward to pave the way for a cleaner Europe.

HYScale contributes to the European Hydrogen Strategy of the European Commission to maintain its leadership position in water electrolysis technologies and innovations.

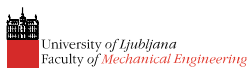


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Our partners

Led by CENmat, the consortium brings together nine partners from seven EU countries among which we count with top level European research centres specialising in hydrogen technology and industrial partners.



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