

PROJECT PARTNERS

The EUH2STARS consortium with its complementary expertise in various disciplines, and led by RAG Austria AG, covers the entire hydrogen storage value chain

- **the centrepiece of storage** (RAG Austria AG/ Austria, Shell Global Solutions International B.V./ The Netherlands, Energie Beheer Nederland BV/ The Netherlands, Hungarian Gas Storage/Hungary and Trinity Energy Storage/Spain),
- **hydrogen processing** (Axiom angewandte Prozesstechnik GmbH/Austria and Axiom Polska Sp.z o.o./Poland),
- **transport networks** (AGGM Austrian Gas Grid Management AG/Austria) and
- **energy suppliers** (LINZ AG/Austria) and also includes
- **key research institutions** (Montanuniversitaet Leoben/Austria, The Netherlands Organization for Applied Scientific Research (TNO)/The Netherlands and Energieinstitut an der Johannes Kepler Universität Linz/Austria).

FUNDING

This project is supported by the Clean Hydrogen Partnership and its members.



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European **U**nderground **H**ydrogen
STorAge Reference **S**ystem

*Paving the way towards
the future of European
Underground Hydrogen Storage*



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ABOUT THE PROJECT

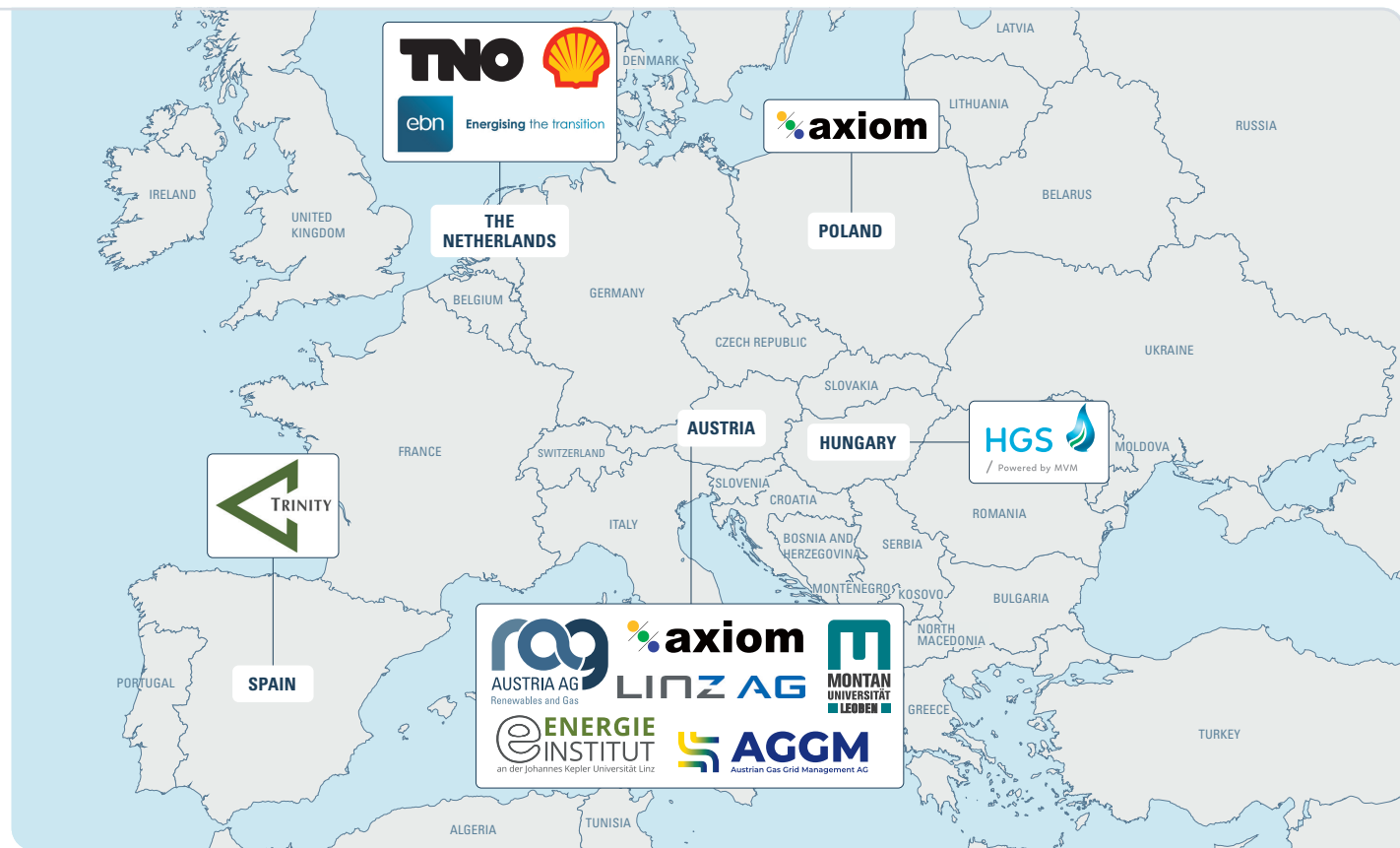
EUH2STARS is an ambitious, industry-driven flagship project to demonstrate competitive, complete and qualified underground hydrogen storage (UHS) in depleted porous natural gas reservoirs at technology readiness level (TRL) 8 by the end of the decade.

The project consortium, comprising of gas storage system operators, technology providers, utility, research- and governmental organisations, is supported by the Clean Hydrogen Partnership after successfully applying for the HORIZON-JTI-CLEANH2-2023-02-1 – Large-Scale Demonstration of Underground Hydrogen Storage funding programme. The project is scheduled to run until September 2029.



Underground Hydrogen Storage Demonstrator, RAG Austria AG, Rubensdorf

An already operational UHS pilot facility, the Underground Sun Storage 2030, is being contributed by RAG Austria AG to the EUH2STARS project. Complemented with vast project experiences on UHS from consortium partner's research activities, EUH2STARS aims to deliver following key-results throughout the project:



- **Demonstration of the storage of pure hydrogen in depleted, porous natural gas reservoirs** by operating four **seasonal storage cycles** at RAG's demonstrator and two storage cycles at HGS's replicator site.
- Development of a **beyond state-of-art hydrogen purification system** to separate hydrogen from impurities (mainly natural gas) in order to achieve standardised hydrogen purification levels (e.g. hydrogen grade A or better).
- Achievement of a relevant **green hydrogen certification** for the demonstrator's power to hydrogen electrolysis and engage actively in green hydrogen certificate trading.
- Provision of **guidelines** to successfully manage all **environmental, safety, legal** and (future) **regulatory, societal and market-related aspects** to ensure a **successful implementation of UHS facilities in Europe**.
- Execution of an **active stakeholder engagement strategy** including an external expert advisory board to consider third parties' opinions and maximise public acceptance, transparency, visibility and exploitation of the project results.
- Set-up of a **generic framework on the topic of HSEQ** (health, safety, environment and quality) to ensure UHS at an **ALARP** (as low as reasonably practicable) risk level.
- Presentation of **transformation pathways to replicate demonstrator findings in full-scale commercial settings** at existing underground natural gas storage facilities and new to be developed UHS sites in depleted natural gas reservoirs in Europe.
- Provision of **best practice examples** on how to **integrate UHS facilities into** regional, national and European **energy infrastructure and markets**.