Clean Hydrogen Partnership

Topics in the call 2026

Hydrogen Storage and Distribution

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Hydrogen Storage and Distribution Overview

Main Focus

Hydrogen Storage

- Novel Gaseous Storage

Hydrogen Distribution

- Inspection Tool for Off-shore Pipelines

Liquid Hydrogen

- New insulation concept for shipping liquid hydrogen
- Small scale hydrogen liquefaction

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Hydrogen Storage and Distribution Overview

Topic	Type of Action	Budget (M€)
HORIZON-JU-CLEANH2-2026-**02-01**: Affordable, Safe and Sustainable aboveground medium to large GH2 storage	RIA	4
HORIZON-JU-CLEANH2-2026-**02-02**: Demonstrating in-line inspection (ILI) to monitor cracks assuring compatibility for operation with hydrogen in new and re-purposed offshore natural gas pipelines	RIA	3.5
HORIZON-JU-CLEANH2-2026-**02-03**: New thermal insulation concepts for bulk liquid hydrogen shipping	RIA	4
HORIZON-JU-CLEANH2-2026-**02-04**: Cost-efficient small scale hydrogen liquefaction	RIA	6

Hydrogen Storage - Topic

HORIZON-JU-CLEANH2-2026-02-01: Affordable, Safe and Sustainable aboveground medium to large GH2 storage

Safe, low-cost, and recyclable compressed hydrogen storage systems with extended fatigue life and reduced safety margins for large-scale deployment. (TRL 3→5)

- Develop advanced, low-cost materials and coatings that are compatible with high-pressure hydrogen to improve tank durability and reduce degradation.
- Extend the fatigue life of storage systems and reduce safety design margins while ensuring full operational safety under cyclic pressurisation.
- Design modular, recyclable tanks and integrate circular economy principles for sustainable deployment.
- Validate the performance through the testing of a physical proof of concept.

Hydrogen Distribution - Topics

HORIZON-JU-CLEANH2-2026-02-02: Demonstrating in-line inspection (ILI) to monitor cracks assuring compatibility for operation with hydrogen in new and re-purposed offshore natural gas pipelines

To develop and validate advanced In-Line Inspection (ILI) tools in collaboration with (TSOs) and ILI tool developers, enabling reliable detection and sizing of crack-like defects to ensure the long-term integrity and safe operation of offshore hydrogen pipelines.(TRL 4→TRL 6)

- The tool should be designed and validated to reliably detect and monitor crack-like defects, particularly in critical areas such as circumferential and seam welds.
- The consortium should define acceptance criteria, operational protocols, and tool specifications tailored for high-pressure offshore hydrogen pipelines.
- Demonstration and validation activities should ensure that the tools can safely operate under realistic hydrogen conditions, supporting long-term pipeline integrity and cost-effective maintenance.

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Hydrogen Distribution - Topics

HORIZON-JU-CLEANH2-2026-02-03: New thermal insulation concepts for bulk liquid hydrogen shipping

Develop robust, scalable, and cost- and energy-efficient insulation concepts for bulk liquid hydrogen shipping to enable safe, economically viable, and large-scale international hydrogen trade (TRL 3 →5)

- Develop validated insulation and containment concepts for bulk LH2 shipping
- Design, prototype, and test tank under realistic environmental and operational conditions (at least 30m^3)
- Optimize thermal performance, structural integrity, safety, and cost-efficiency
- Ensure scalability and techno-economic viability for large transport volumes (250,000m^3)
- Address regulatory compliance and pre-normative standardization
- Strengthen European industrial capabilities and support large-scale LH2 trade

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Hydrogen Distribution - Topics

HORIZON-JU-CLEANH2-2026-02-04: Cost-efficient small scale hydrogen liquefaction

Develop innovative, energy- and cost-efficient small-scale hydrogen liquefaction technologies to enable decentralised, safe, and scalable LH_2 supply for low-demand and remote applications (TRL 4 →6)

- Develop and demonstrate innovative small-scale hydrogen liquefaction systems (<5 tpd) with reduced energy use and cost (~3.5 €/kg).
- Optimise key subsystems (pre-cooling, cryogenic cooling, ortho-para conversion, boil-off management) for higher efficiency and flexibility under fluctuating loads.
- Validate performance (12kWh/kgH_2) through a prototype of minimum capacity 500kg/day.
- Validate scalability and performance, up to 5tpd, through a Digital Twin.
- Perform techno-economic, safety, and regulatory analyses to support deployment, standardisation, and commercialisation of decentralised LH_2 solutions.

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