Clean Hydrogen Partnership

Topics in the call 2026

Hydrogen End Uses: Transport applications

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Hydrogen End Uses: Transport Applications Overview

Main Focus

- Online control and monitoring for Fuel Cells system BoP components
- Development of LH2 supply and conditioning for aviation applications
- Standardised hydrogen storage solutions
- Multifuel SOFC powertrain for maritime applications

What is new

- European open-source platform for sharing data
- Synergy between Clean Hydrogen JU and Clean Aviation JU funded projects
- Large span of alternative fuels (CH3OH, CH4, H2 or NH3) for SOFC in maritime

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Transport Applications Overview

Topic	Type of Action	Budget (M€)
HORIZON-JU-CLEANH2-2026-**03-01**: Integration of control & monitoring tools and strategies for improved **Fuel Cell System** durability & reliability	RIA	4
HORIZON-JU-CLEANH2-2026-**03-02**: Components Development and Experimental Testing for an Onboard **Liquid Hydrogen** Supply and Conditioning System in High-Power Fuel Cell **Aviation Applications**	RIA	8
HORIZON-JU-CLEANH2-2026-**03-03**: Flexible and standardised **hydrogen storage system**	**IA**	5*
HORIZON-JU-CLEANH2-2026-**03-04**: Multi-fuel **SOFC** powertrain for **maritime** transport	RIA	8**

***This is the maximum Clean Hydrogen JU contribution that may be requested – proposals requesting Clean Hydrogen JU contributions above this amount will not be evaluated**

**** Additional EUR 8 million may become available**

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Transport Applications - Topics

HORIZON-JU-CLEANH2-2026-03-01: Integration of control & monitoring tools and strategies for improved Fuel Cell System durability & reliability

Increased fuel cell system lifetime and reliability via robust online monitoring and control at balance-of-plant level (TRL 4 → TRL 6)

- Modular and adaptable prognostic, diagnostic and control solutions applicable across multiple fuel cell system technologies (e.g. PEMFC, SOFC);
- Development of two power system demonstrators (≥ 100 kW) based on relevant fuel cell technologies and accounting for environmental and duty-cycle constraints;
- Establishment of a European open-source platform for sharing data;

HORIZON-JU-CLEANH2-2026-03-02: Components Development and Experimental Testing for an Onboard Liquid Hydrogen Supply and Conditioning System in High-Power Fuel Cell Aviation Applications

Paving the way to demonstrate a flightworthy hydrogen distribution system for regional aircraft (TRL 3 → TRL 5)

- Design and validation of onboard hydrogen distribution components (valves, piping, sensors, insulation, monitoring systems).
- Safety, certification & durability: failure-mode analysis, leakage and purity studies, material durability testing, and alignment with future aviation certification requirements.
- Components requirements for testing activities defined with the project(s) funded under the Clean Aviation JU topic “Demonstration of an integrated hydrogen fuel system for a fully electric hydrogen fuel cell powered aircraft” (Call 4 - 2026)

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Transport Applications - Topics

HORIZON-JU-CLEANH2-2026-03-03: Flexible and standardised hydrogen storage system

Standardizing hydrogen storage systems, connections and control systems for mobility (TRL 5 → TRL 7)

- Develop “plug and play” standardised H2 containers/modules, concept deriving from project StasHH (standardization of FC systems)
- Solutions based on a limited set of standardised block sizes, modular and/or scalable to fit different transport modes
- Interoperability with min. 3 different OEM platforms through standardised physical interfaces and communication protocols
- Broad span of storage fuels: GH2 mandatorily, and optionally LH2, CCH2, MH_x, NH3 + cracking, CH3OH with reforming, LOHC, …
- Output H2 should be FC compatible (purity, temperature, pressure, etc.)
- Demo on at least two TRL 7 HD prototypes with minimum 25kgH2 equivalent (truck, bus, train, ship, etc.), with one prototype using 2 different storage technologies
- Pre-normative research, safety, standardization TCO, LCA, circularity and recyclability, synergies with relevant partnerships

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Transport Applications - Topics

HORIZON-JU-CLEANH2-2026-03-04: Multi-fuel SOFC powertrain for maritime transport

Design, manufacture and demonstrate a 100+ kW multi-fuel SOFC system (TRL 4 → TRL 6)

- Technical requirements representative for maritime use and needs (cycles, durability, spatial footprint, availability, etc.)
- Sustain aggressive maritime conditions: titling, vibrations, shocks, humidity and temperature
- Testing in relevant environment for min 1,000h with one or two fuels (CH3OH, CH4, H2 or NH3), one fuel must be fully decarbonized
- Feasibility study for scalable MW SOFC system and Techno-economic and sustainability assessments (LCA and LCC)
- Synergies with Zero Emission Waterborne Transport
- Emphasis on contribution to EU competitiveness and industrial leadership