

Topics in the call 2023

HYDROGEN END USES: TRANSPORT APPLICATIONS

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Hydrogen End Uses: Transport Applications Overview



Main Focus

- Aviation, maritime and non road applications;
- Adaptation of fuel cells and stacks to the specific needs of non-road applications;
- Increased power, lifetime and modularity;



What is new

- Development of dedicated fuel cells systems for non-road mobile machinery;
- Large power at stack level for maritime applications;
- Clean Aviation JU cooperation/synergies;

Transport Applications Overview

Topic	Type of Action	Ind. Budget (M€)
HORIZON-JTI-CLEANH2-2023-03-01: Real environment demonstration of Non-Road Mobile Machinery (NRMM)	IA	5 x 2
HORIZON-JTI-CLEANH2-2023-03-02: Development of a large fuel cell stack for maritime applications	RIA	7.5
HORIZON-JTI-CLEANH2-2023-03-03: Ultra-low NOx combustion system for aviation	RIA	8

Transport Applications- Topics

HORIZON-JTI-CLEANH2-2023-03-01: Real environment demonstration of Non-Road Mobile Machinery (NRMM)



New design for optimal integration of FC systems



- Develop and demonstrate FC propelled machinery;
- Sectors considered: construction & mining and/or agricultural & farming;
- NRMM performance to be the same of diesel engine and demonstrate resilience to dust, humidity, shocks and vibrations;
- FC CAPEX < 800 €/kW, Availability 80% by the project end;

HORIZON-JTI-CLEANH2-2023-03-02: Development of a large fuel cell stack for maritime applications



Focus on higher power and lifetime



- PEM or SO technologies to be addressed;
- To be achieved: PEM power range 250-500 kW and SO 100-250 kW – at stack level ;
- On-line diagnostic and prognostics to ensure 40.000 h of lifetime;
- At least 2.000 hours of testing to demonstrate resilience to maritime specific conditions;

Transport Applications- Topics

HORIZON-JTI-CLEANH2-2023-03-03: Ultra-low NOx combustion system for aviation



Development of ultra-low NOx combustion technologies



- Direct burn hydrogen combustion with low NOx;
 - Innovative fuel injection system;
 - Demonstration of the low NOx technology (NOx reduction of at least 30% compared to state-of-the-art reference engine);
 - Reliable and safe operation across all operating ranges;
- Cooperation with the Clean Aviation JU;

Questions?
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