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

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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;
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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