flexnconfu News

October 2022 – November 2023 || Issue 05

What's new?

The Consortium of FLEXnCONFU made important progress since the end of 2022. Partners discussed the results achieved so far, as well as next activities at two General Assemblies in Lisbon, Portugal (M36) and Cardiff, United Kingdom (M43).

👉 Project partners involved in Work Package 2 (WP) on "Combustion system compatibility with non-conventional fuels" are advancing their research activities. Experiments for the validation model are currently being carried out, whereas assessments on the most promising percentage of cracking and equivalence ratios were recently presented to the Consortium partners.

In the future, curvature profiles linked to the FGM methods for NH_3/H_2 blend flame will be defined in more detail. The evaluation of global impact of H2/NH3 combustion processes will also be finalised.

👉 As far as WP3 on "Integrated plant: balance of plant innovations, control and dynamics" is concerned, project partners reported progress on the control development (P2H/P2A). Consortium partners were also briefed about the detail engineering of the P2H2P, which was finalised in May 2023.

👉 WP4 partners on "Advanced solutions for Power to Ammonia" announced:

- The evaluation of possible solutions for the mGT fuel injection system retrofitting
- The preliminary evaluation of the impact of the NH3/CH4 blend as fuel over the mGT dynamic behaviour
- The development of the MCF control logic to fuel the mGT with a specific percentage of NH3 cracked mixture.

Further simulations on CFD models implementing results of experimental tests reached in WP2 will follow, with the simulation of a percentage of NH3 cracked ammonia and in partial load.

👉 In WP5 on "Integration and demonstration", the development and integration of the hydrogen system has continued. The compressor and the electrical containers were assembled in Ribatejo site in June 2023, whilst welding and pressure tests of the H2 pipe were carried out in the same month.

👉 WP6 on "Scale-up and replicability" is advancing. Upcoming activities include:

- The footprint and efficient evaluation for the P2HP scale up
- The techno-economic analysis for P2A2P based on PEM and storage size and Power plant operating hours defined in a positive NPV scenario

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👉 The activities of WP7 on "FLEXnCONFU impacts and benchmarking" are proceeding as planned. Project partners are engaged in evaluating the social impact of FLEXnCONFU proposed solutions. Next steps include a new webinar series on the lessons learned, which will be organised in cooperation with WP8.

During the last twelve months, the objectives and the achieved results of FLEXnCONFU were presented in a large number of policy, industrial and technical conferences. Dissemination activities include, among others:

- A presentation at ICFD 2022 by Cardiff University in November 2022
- The participation of ETN at the 16th SET Plan Conference in November 2022;
- A presentation of FLEXnCONFU objectives and results at ETN Annual General Meeting and Workshop
- The presentation of FLEXnCONFU at the European Combustion Meeting 2023 (co-organised by Université d'Orléans)
- The presentation at Hydrogen Gateway by Cardiff University
- Multiple presentations of FLEXnCONFU results and objectives at ASME Turbo Expo 2023 (Baker Hughes, Cardiff university, ETN, KTH, and University of Genoa) and 2nd Symposium on Ammonia Energy (Baker Hughes, CIRCE, Cardiff University, Eindhoven University of Technology, Proton Ventures, Technical University Darmstadt, University of Genoa, Université Catholique de Louvain, and Université d'Orléans)
- The participation of Baker Hughes, CIRCE, RINA, and University of Genoa at SUPEHR23
- The participation of RINA at Processes4Planet Projects Forum (2023)
- The participation of KTH at ETN's 11th International Gas Turbine Conference (IGTC)

The consortium has been very active on social medias and increased awareness and understanding of the project as well.

Follow us on social medias

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Discover FLEXnCONFU!

Interview with Daria Bellotti (University of Genoa), Chen Liang (Proton Ventures) and Pascal Koschwitz (Technical University of Darmstadt)



The design, development and test of an innovative small-scale containerised Power-to-Ammonia (P2A) system is one of the main goals of FLEXnCONFU To learn more about this innovative solution, we caught up with Daria Bellotti (University of Genoa), Chen Liang (Proton Ventures) and Pascal Koschwitz (Technical University of Darmstadt) who are FLEXnCONFU project partners.

Have the full interview!
HERE

Interview with Jose Angel Garcia Frediani (KTH Royal Institute of Technology)

As a leading research university in Stockholm, Sweden, the KTH Royal Institute of Technology (KTH) has a significant role in the FLEXnCONFU project consortium. More in detail, this academic institution leads the development of techno-economic models that evaluate innovative lay-outs in power-to-x-to-power (P2X2P) system. To know more, we interviewed Jose Angel Garcia Frediani, PhD Candidate at KTH Royal Institute of Technology.

Have the full interview!
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