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M1Or4A-03: [Invited] An overview of the challenges and opportunities for liquid hydrogen aircraft development from a UK perspective

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In 2022 the Aerospace Technology Institute (ATI) published the findings of the FlyZero project, which concluded that liquid hydrogen (LH₂) is the most viable zero-carbon emission fuel with the potential to scale to larger aircraft. At the same time, the ATI published the UK aerospace technology strategy, Destination Zero, highlighting LH₂ aircraft as one of the key pathways to enable the aircraft fleet to transition towards net zero.

Amongst the reports published, FlyZero identified several gaps and opportunities for LH₂ aircraft development. The ATI Programme has funded many projects working to develop LH₂ technologies to support the next generation of zero-carbon aircraft, however, there are still several unique underpinning gaps that are limiting the pace of this development.

The Hydrogen Capability Network (HCN) was launched in April 2023 with support from the UK Government's Department for Business and Trade, to progress key recommendations from FlyZero which will enable the aerospace sector to deliver liquid hydrogen research & development (R&D) at pace to meet net zero targets.

The HCN has worked with sector stakeholders across industry and research organisations, to identify the current critical gaps across the LH₂ landscape. Three areas were identified; test and demonstration infrastructure, fundamental & basic research, and training & skills. The HCN have carried out studies to identify the global landscape in each of these areas to understand where there are opportunities for collaboration and which gaps are the priorities for further development.

This talk will highlight the critical gaps and steps the HCN is taking to try and drive collaboration to try and address them. Given the limited and dispersed existing expertise, it is important to bring the community together to share knowledge and tackle the priority research topics in an open and collaborative environment, reducing repetition and enabling fastest progress.

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