



ALRIGH2T

Press Release

ALRIGH2T highlights technical progress at Oslo General Assembly ahead of the 2027 Milan demonstration



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- The General Assembly presented advances in LH₂ tank testing, thermodynamic modelling and safety assessments, all contributing to preparations for the 2027 liquid hydrogen refuelling demonstration at Milan Malpensa Airport (Italy).

The [ALRIGH2T](#) consortium gathered in Oslo, Norway, on 29 and 30 September 2026 for its latest General Assembly. Hosted by SINTEF, the two-day meeting brought partners together to review the project's progress, address ongoing challenges and plan the work ahead. Held close to Oslo Gardermoen Airport, with views of the airport, the location provided a fitting setting for a project advancing hydrogen refuelling solutions for aviation.

The meeting also provided space for more focused technical work. Led by SINTEF, partners worked in groups on safety analysis and Fault Tree Analysis (FTA), sharing expertise and perspectives on key safety aspects of the project.

Project progress towards safer and more efficient LH₂ refuelling

As ALRIGH2T approaches its demonstration phase, the consortium presented the latest developments in liquid hydrogen (LH₂) refuelling technologies, with particular attention to experimental testing, thermodynamic modelling and the integration of key components into the refuelling system.

Among the research developments presented was the **validation of a thermodynamic model** using experimental data from a hydrogen truck refuelling station. The model has been used to investigate vent-free refuelling configurations for trucks and aircraft, providing valuable insights into the behaviour of subcooled liquid hydrogen during refuelling. The findings have been published in the *International Journal of Hydrogen Energy* in the paper "[Thermodynamic modeling and simulation of subcooled liquid hydrogen refueling for transport applications](#)", led by Fabian Primke from the Technical University of Munich (TUM) and co-authored by fellow researchers. Further modelling work has also refined the simulation of centrifugal pumps used for LH₂ transfer.

Progress has also been made in the development of the project's direct refuelling system. The [liquid hydrogen tank](#) has successfully **completed key qualification tests**. The control system has also been manufactured and commissioned, enabling the monitoring and management of key parameters during refuelling operations.

These developments are complemented by ongoing work on the project's **digital twin**, which will combine advanced simulations with experimental data to better understand the behavior of the refuelling system and allow future scale up and analysis of the process under



different conditions. Initial comparisons with experimental data available from other projects have been carried out, while further work will focus on integrating the different models into complete digital representation.

In parallel, preparations for integrating the liquid hydrogen tank into the **Piaggio P180 aircraft mock-up** have progressed, including structural modifications and adaptations to accommodate the tank and its associated systems.

Safety and regulatory preparations for airport demonstrations

The General Assembly also placed particular emphasis on the safety and operational requirements for introducing hydrogen refuelling technologies into real airport environments.

Partners reviewed ongoing regulatory and safety assessments, including the identification of potential risks associated with liquid hydrogen handling and the modelling of possible hydrogen release scenarios. Preliminary analyses of safety distances are being refined to support the final selection of the suitable demonstration area at Milan Malpensa Airport.

The technical session led by SINTEF provided an opportunity to advance preparations for the forthcoming **Hazard and Operability Study (HAZOP)**. Its findings will support further risk assessments and the safety documentation required for the planned demonstration.

At the same time, work is progressing on virtual reality training tools designed to familiarise airport personnel with hydrogen refuelling procedures and prepare them, using simulation in a virtual environment, to respond to different operational and emergency scenarios.

Preparing for the 2027 demonstrations at Milan Malpensa

With the demonstration activities planned for 2027, the consortium is focusing its efforts on the next stage of the project at Milan Malpensa Airport.

Work is progressing on the technical and safety arrangements for the **liquid hydrogen refuelling demonstration**, including the selection of a suitable location among the different possibilities already identified, in coordination with the Italian Civil Aviation Authority (ENAC) and the preparation of the hydrogen supply and associated equipment.

In parallel, activities related to the **hydrogen-powered ground support vehicle** are advancing. Initial assessments of its operating profile, hydrogen consumption and costs have been completed, while further work will focus on evaluating hydrogen demand and the feasibility of the necessary infrastructure at the airport.

These actions mark a stage in ALRIGH2T's progress, as the consortium continues working towards the demonstration of hydrogen technologies under real airport conditions and the development of safer, more efficient refuelling solutions for future aviation.





ALRIGH2T consortium representatives at the M33 General Assembly in Oslo, Norway.

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