

MultHyFuel

MULTI-FUEL HYDROGEN REFUELING STATIONS (HRS): A CO-CREATION STUDY AND EXPERIMENTATION TO OVERCOME TECHNICAL AND ADMINISTRATIVE BARRIERS



Project ID:	101006794
PRD 2023:	Panel 5 – cross-cutting
Call topic:	FCH-04-1-2020: Overcoming technical and administrative barriers to deployment of multi-fuel hydrogen refuelling stations (HRS)
Project total costs:	EUR 2 121 906.25
Clean H₂ JU max. contribution:	EUR 1 997 406.25
Project period:	1.1.2021–31.12.2023
Coordinator:	Hydrogen Europe, Belgium
Beneficiaries:	Engie, Health and Safety Executive, Institut national de l'environnement industriel et des risques, ITM Power (Trading) Limited, Kiwa Nederland BV, Air Liquide SA, Shell Nederland Verkoopmaatschappij BV, Snam SpA, Zentrum für Sonnenenergie- und Wasserstoff-Forschung Baden-Württemberg

<https://multihyfuel.eu/>

QUANTITATIVE TARGETS AND STATUS

Target source	Parameter	Unit	Achieved to date by the project	SoA result achieved to date (by others)	Year of SoA target
Project's own objectives	Safety refuelling distance	m	N/A	5–35, depending on the country	2021
	Guidelines for safety barriers	–	N/A	Dependent on the country	N/A
	Number of stakeholders endorsing project's results	number	17	N/A	N/A

PROJECT AND OBJECTIVES

MultHyFuel's ultimate goal is the amendment of best practice guidelines for the design, construction and development of multifuel refuelling stations. An analysis of the current legal framework regarding permitting requirements throughout Europe has been carried out. A risk assessment analysis and experimental data acquisition on the leakage characteristics and consequences in the station's forecourt will take place shortly.

NON-QUANTITATIVE OBJECTIVES

The project aims to contribute to safety improvement by selecting the critical scenarios identified in a multifuel refuelling station and proceeding to experimental testing of hydrogen leakage and its consequences.

PROGRESS AND MAIN ACHIEVEMENTS

- *Permitting requirements and risk assessment methodologies for HRS in the EU* (first edition) was submitted and presented to the stakeholders, with a summary of the main commonalities and differences found in permitting requirements from 14 European countries.
- Feedback from public authorities was received, as was feedback from experts during the interim review meeting.
- In work package (WP) 3, three case-study models with different configurations were identified and designed, and a preliminary

risk assessment was performed on them to identify the most critical scenarios to study in WP2.

- In WP2, *Assessment of dispersion for high pressure H₂* was submitted, with results from computational fluid dynamics modelling simulations performed to evaluate the size of clouds expected considering different scenarios of leakage in H₂ dispensers.

FUTURE STEPS AND PLANS

- MultHyFuel will complete testing on the leakage characteristics of the dispenser. The project was waiting for equipment to be delivered and to acquire the data needed for the correct design of the system – testing was expected to start in January 2023.
- The project will complete testing of leakage consequences (fire and explosion) in the forecourt. Testing was expected to start in January 2023.
- MultHyFuel will organise a workshop with hydrogen refuelling station operators and public authorities. This is to take place once results from the experimental WP 2 are ready, so that they can be presented to the key stakeholders and so that feedback can be acquired.
- The project will perform a risk assessment and amend the best practice guidelines. This will take place once the experimental results have been released.