

# End of project Press release

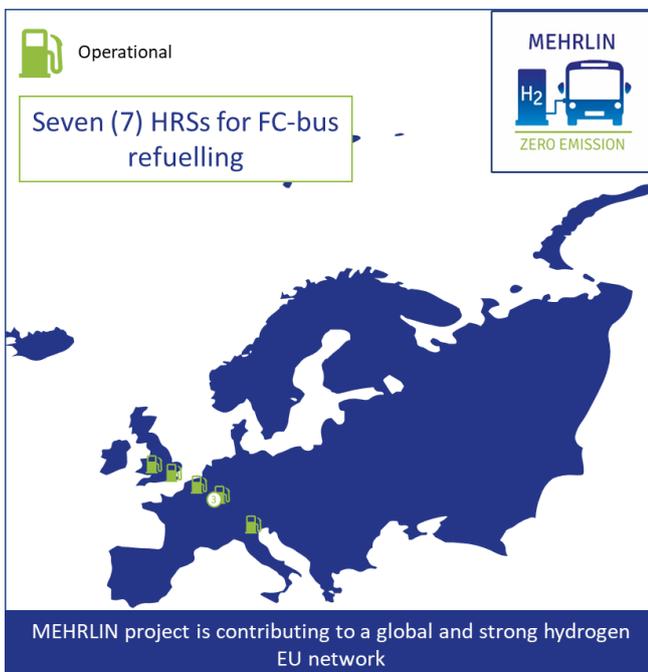
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## Results from Models of Economic Hydrogen Refuelling Infrastructure (MEHRLIN) project to support the future of hydrogen in transport

### Introduction

MEHRLIN is a flagship European project set up to stimulate the deployment of hydrogen as an alternative fuel for public transport in Europe. Co-financed by the European Commission's Connecting Europe Facility and the European Climate, Infrastructure, and the Environment Executive Agency (CINEA), the project started in July 2016 with the aim to demonstrate a financeable demand-led business model for hydrogen refuelling stations in Europe and to expand the deployment of hydrogen as an alternative fuel in the EU.

The project supported the deployment of 7 hydrogen refuelling stations in 4 European countries and followed



their daily operations refuelling public buses: Bolzano (Italy), Wermelskirchen-Köln, Wuppertal and Hürth (Germany), Heinenoord-South Rotterdam (the Netherlands), Birmingham and London (the United Kingdom).

Data from operations of the 7 stations have been collected and analyzed for a minimum period of 12 months to help establish viable business models for future hydrogen stations.

The project also conducted several successful communication and dissemination events, such as workshops and site visits at all stations to disseminate the learnings. All these activities had a great impact in promoting the sector's potential with stakeholders and decision makers, as well as contributed to knowledge sharing around hydrogen in the transport sector with the wider public.

### Development

The MEHRLIN project is a first-of-a-kind initiative, with partners testing new systems and solutions. The project delivered on all activities, overcoming challenges associated with testing first-of-kind solutions as well as the effects of the COVID-19 pandemic, which greatly impacted the supply chain and delayed the deployment programme. By June 2022, all stations had begun operations and have been refuelling buses on a daily basis ever since. The experiences of these frontrunner deployment sites have provided valuable information for future projects aiming to install new facilities or expand existing stations.



The first and longest phase of the project focused on permitting and construction of the 7 HRS. The first station to start operations in January 2020 was the German site of Hürth, which benefited from an upgrade of an existing HRS to adapt to buses refuelling. By June 2021, 5 out of the 7 stations were operational, and all reached the milestone of 18 months of operations within the project. The stations of Heinenoord - South Rotterdam (The Netherlands) and Birmingham (United Kingdom) commenced activities respectively in March and June 2022, and have therefore completed 12 months of monitored operations each within the MEHRLIN project.

This extended period of monitored operations enabled all the partners to gain considerable knowledge of day-to-day real-world operation of hydrogen refuelling facilities, and data to evaluate the financial viability of the business model.

The final and closing stage of the project focused on sharing lessons learnt with partners of the linked JIVE and JIVE 2 projects, on the experience of operating a hydrogen refuelling station. The JIVE projects include public and private organisations deploying hydrogen fuel cell buses. Technical cases were presented during dedicated events and the results from the technical and economic studies and business cases analysis carried out by IIT during the last year of the project, based on data collected from the deployment partners, shared.

A final public report on the economic viability of the station will be published by the end of June 2023. The report will highlight the importance of matching the size of the stations with the demand and operation profile of vehicles using the stations, to support economically viable operation. This is particularly true for larger stations (i.e. with capacity >1500 kg/day). In addition, the report describes the importance of securing long-term contracts, either for hydrogen or electricity when hydrogen is produced on site by electrolysis, to reduce the risk of high price fluctuations.

## **Conclusions**

The MEHRLIN project is one of the pioneer projects in the hydrogen transport sector and, as such, has gathered important lessons which will greatly benefit future projects and operators of hydrogen refuelling stations and hydrogen vehicle fleets. Despite challenges associated with testing first-of-kind solutions, heightened by the COVID-19 pandemic, the partners managed to achieve all project goals, with the installation of 7 hydrogen refuelling stations in 4 European countries.

Overall and thanks to the fruitful collaboration not only between the partners of the MEHRLIN project, but also with the JIVE and JIVE 2 projects, the project was a success, enabling the testing and detailed study of real-life operations with hydrogen refuelling stations for public transport for over 12 months. The project represents a first step in the development and deployment of hydrogen in the transport sector and its benefits will be visible in the years to come, as testified by the expansion plans of several partners, who have already announced their intentions to expand their bus fleets and refuelling infrastructure (e.g. Bolzano station, Italy).

## **Quotes from partners & others**

**Michael Dolman, Partner at Element Energy / ERM, said:** “It is now widely accepted that renewable hydrogen will be required in the transition to net zero. In areas such as low carbon transport, hydrogen is a promising solution alongside direct electrification. Projects such as MEHRLIN provide valuable experience of how innovative technologies perform in the real world and insights into further development needs, and we are grateful for the opportunity to collaborate with all partners on this project.”



**Richard Ferrer, Head of Alternative Fuel at the Climate, Infrastructure and Environment Executive Agency (CINEA)** said “ Since a decade, we have been supporting initiatives for making transport more sustainable. Partners of MEHRLIN project were frontrunners in deploying hydrogen infrastructure for transport. It has been a great opportunity to learn about the main obstacles and challenges of bringing hydrogen on the transport market and make it a competitive alternative. This project contributes to decarbonising urban transport and to the AFIR objectives more globally. I am confident that it will be part of a Europe-wide network of Hydrogen Refuelling Stations which is emerging. The European Union will keep on supporting this transition towards net zero transport through various financial instrument including AFIF”.

**Luigi Lugaro, CTO - Chief Technology Officer (SASA)** said “Thanks to the MEHRLIN grant from CINEA, SASA was able to deploy its station inside the depot and carry out refuelling activities together with maintenance and cleaning of the hydrogen vehicles directly on the depot, which greatly reduced refuelling times and avoided unnecessary kilometers driven between the depot and the previous IIT station. The result was very satisfactory in terms of cycle total time reduction. Improvements have been realized recently with the conclusion of an FMEA analysis to reduce failures on the compressors, and the inclusion of an automatic data recording system to better monitor the station’s performance and amount of H2 dispensed. The overall MEHRLIN experience has been very positive for SASA, who today is planning the upgrade and doubling in size of the Bolzano station, as well as the deployment of a new station in Merano. Both infrastructures will serve light and heavy-duty vehicles through 350 bar and 700 bar dispensers and will be open to the public. The project, which also includes the purchase of two-cylinder wagons for the transport of hydrogen, is estimated at 11,5m€ and is supported by the national Recovery Fund PNRR. In parallel, a 14m€ project for the deployment of a 5MW production site has also been approved. The site will be able to produce up to 2,500 kg/day of renewable hydrogen to supply the Bolzano and Merano stations.”

**Stefan Welsch, Chairman of the Board - Stadtwerke Hürth AÖR // MEHRLIN Partner, said:** "With our hydrogen filling station in Hürth, we have impressively demonstrated that everyday operation for hydrogen buses is not a dream of the future, but lived practice for our passengers. Thanks to the MEHRLIN project, we were able to take our findings one step further and demonstrate stable everyday operation for a large bus fleet over several years. "

**Jacob Krogsaardn CEO Everfuel, said:** “We are very thankful for the support from CINEA and proud to have been part of the MEHRLIN project. With our partners Province of South Holland and Connexion we were able to realize one of Europe’s largest hydrogen refuelling stations for heavy duty vehicles which will be able to serve an increasing fleet of hydrogen vehicles in the coming years.”

- Ends -

Notes to Editor

**Partners logo:**



**About MEHRLIN**

The € 11 million demonstration project is co-funded with €5.5 million from the European Climate, Infrastructure and Environment Executive Agency (CINEA) in the framework of the Connecting Europe Facility (CEF) programme.

Partners include project lead Element Energy, alongside, Regionalverkehr Köln GmbH (RVK), Stadtwerke Hürth AöR (SWH), AWG Abfallwirtschaftsgesellschaft mbH Wuppertal (AWG), ITM Power PLC (ITM), London Buses Services LTD (LBSL), Società Autobus Servizi d'Area SpA (SASA), Everfuel NL 2020-I B.V. (Everfuel), Institute for Innovative Technologies Bozen Consortium Limited (IIT).



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