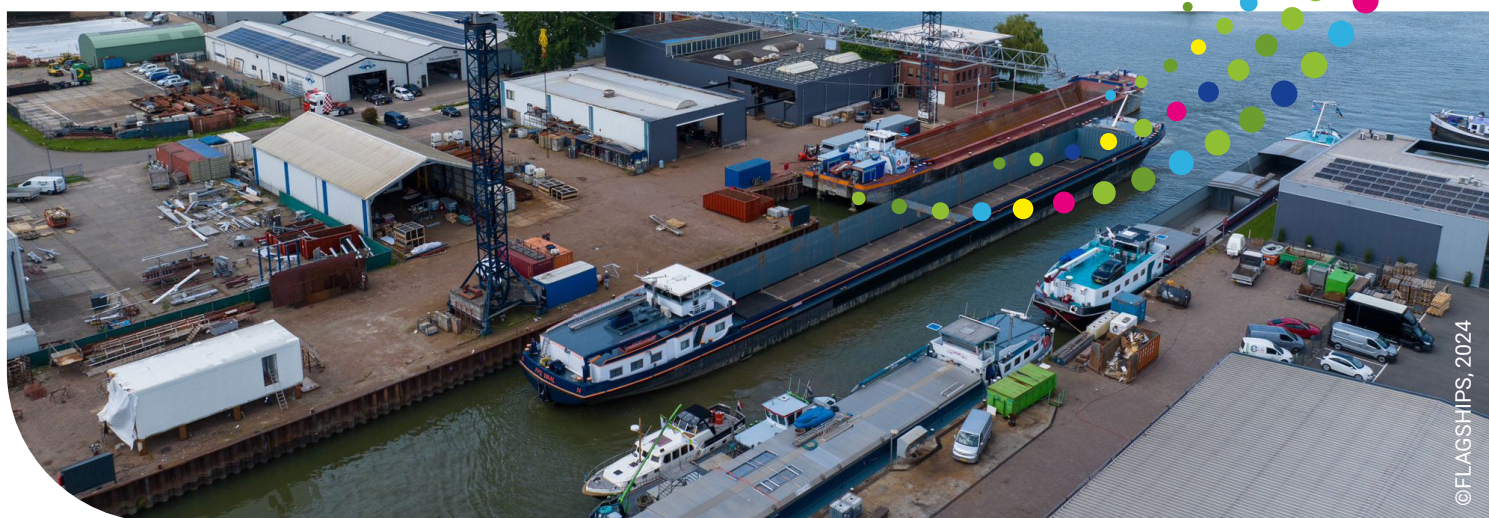


Setting sail for zero emission shipping on Europe's waterways



Transferring freight transport from road to water results in significant emission reductions. However, use of ageing vessels on inland waterways still produces high levels of pollution. Clean Hydrogen Partnership-funded projects are demonstrating how fuel cell technology can decarbonise Europe's inland waterway transport, safely and in a commercially sustainable way.

Accelerating emission-free shipping

The EU's inland waterways are cost-effective and safe transport corridors used by about 12 700 cargo vessels and 2 300 tugs and push boats. Projects FLAGSHIPS and RH2IWER are building new hydrogen fuel-cell-powered vessels, retrofitting older diesel-powered models and working to standardise the technology, to accelerate the uptake of emission-free inland shipping.

RH2IWER will demonstrate one dry cargo, two tanker and three container vessels powered by hydrogen on waterways linking the Netherlands, Germany and Belgium by 2025. Meanwhile FLAGSHIPS has retrofitted and launched the H2 Barge 2 for container transport on the Rhine between Rotterdam and Duisburg. It will start to demonstrate the Zulu 6, a new cargo barge, on the Seine in Paris.

In addition, five partners of the HEAVENN hydrogen valley in the Northern Netherlands are working on the WEVA project to build a hydrogen-powered barge, the Antonie, which will transport salt between Rotterdam and Delfzijl, replacing 120 trucks per trip, before the end of the year.

To support these initiatives, the RH2INE network is working on establishing cross-border hydrogen infrastructure in the Rhine-Alpine region.

From demos to commercial operation

The RH2IWER vessels represent roughly 80 % of inland waterway fleet used on the Rhine and Danube. Lessons learned during their construction, retrofitting and approval can easily be applied to the other vessels. The FLAGSHIPS' vessels will be kept in normal commercial operation after the project's 18-month demonstration period.

The aim is to increase the number of product designs that have regulatory, technical and safety approval from 15 in 2024 to 40 in 2030, and to increase the lifespan of fuel cell systems from 40 000 hours in 2024 to 80 000 hours by 2030.

REGULATIONS AND STANDARDISATION

Capital expenditure needs to be reduced, fuel cell systems have to be standardised and certification processes, regulations, codes and standards developed and streamlined to ensure faster approval to get hydrogen-powered fluvial vessels sailing.

NEW BUILDS AND RETROFITS

Inland vessels last for over 40 years and there is a low production of new ones. This makes new vessels and retrofitting the existing fleet vital to reaching emission reduction targets and ensuring rapid market uptake.

The goal? The Clean Hydrogen Partnership supports projects to bring together manufacturers, operators and public authorities to share expertise and make the leap from demonstrating the technical feasibility of fuel cells on inland vessels to deploying fleets of vessels and hydrogen infrastructure.

Key results? RH2IWER, FLAGSHIPS and other projects are showing the feasibility of using fuel cells and hydrogen onboard inland waterway vessels.



FIND
OUT
MORE

https://www.clean-hydrogen.europa.eu/index_en

<https://rh2iwer.eu/>

<https://flagships.eu/>

<https://heavenn.org/news/follow-the-developments-of-antonie/>

<https://www.wevaproject.nl/en/>



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KEY ACHIEVEMENTS

THE 'GREEN'-HYDROGEN powered Antonie salt barge will replace 120 trucks.

FLAGSHIPS, RH2IWER AND HEAVENN to demonstrate **NINE** hydrogen vessels.

THE SIX RH2IWER VESSELS represent roughly 80 % of inland waterway fleet used on the Rhine and Danube.

12 PARTNERS, INCLUDING SHIP OWNERS, maritime engineers and research organisations, are involved in FLAGSHIPS.

FLAGSHIPS' THE H2 BARGE 2 will be able to carry 200 20 feet (6.10 m)-long shipping containers.

IMPACTS

The Central Commission for the Navigation of the Rhine **APPROVED FLAGSHIPS' H2 BARGE 2** for sailing on hydrogen in March 2023.

H2 BARGE 2 LAUNCHED on 8 February 2024.

FLAGSHIPS' ZULU 6 is the first hydrogen-powered barge to sail on a French waterway.

RH2IWER BRINGS TOGETHER five shipowners and two fuel cell manufacturers.

RH2IWER ALLOWS FOR SYNERGIES with three ongoing hydrogen projects: MAGPIE, PIONEERS and RH2INE.



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