

Port of Rotterdam takes important step in making shipping more sustainable: pilot prepares port for safe bunkering of ammonia

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Trammo, OCI and James Fisher Fendercare successfully conducted an ammonia bunkering pilot between two vessels at a terminal in the port of Rotterdam on 12 April, 2025. This marks an important step in preparing the port for vessels bunkering clean ammonia. Ammonia is a carbon-free fuel, so no CO₂ is released during combustion. The first ships capable of using ammonia as a bunker fuel are expected in 2026 or 2027.

The pilot involved transferring 800 cubic meters of liquid, cold ammonia at -33 degrees Celsius between two ships. This took about 2.5 hours and was conducted alongside a new quay at the Maasvlakte 2 APM terminal. The demonstration validated the port of Rotterdam safety framework for ammonia bunkering, establishing that it is possible to do this safely and without ammonia release in the port.

Various parties collaborated on the pilot, facilitated by the Port of Rotterdam Authority. OCI, owner and operator of the port's ammonia terminal, partnered with Trammo, which supplied the two tankers carrying OCI's ammonia. James Fisher Fendercare provided equipment and expertise to ensure the safe execution of the ship-to-ship transfer at the berth location provided by APM Terminal. Bunker barge operator Victrol shared its bunkering expertise during the preparation of the pilot. The DCMR Environmental Protection Agency, Rijnmond Safety Region (VRR), and the Joint Fire Service (GB) were involved to ensure the pilot was conducted safely and smoothly.

Preparing ports for a Multi Fuel Future

Rotterdam is the world's second largest bunker port, with approximately ten million tonnes of fuel bunkered annually. Together with all parties in the port, the Port of Rotterdam Authority aims to enable the bunkering of all alternative low-carbon fuels in the future, promoting greater sustainability for international shipping. Ammonia has the advantage of being carbon-free, meaning it does not emit CO₂ when combusted. The pilot used grey ammonia, which shares the same chemical properties as clean ammonia. Looking ahead, clean ammonia (low carbon) is expected to play a key role in the large-scale decarbonisation of shipping. Introduction and upscaling of ammonia as a shipping fuel is also possible because the industry already produces, stores, transports and distributes ammonia to end users worldwide.



Port of Rotterdam Authority (Bob van Bruggen)

The port of Rotterdam uses the international Port Readiness Level assessment tool to prepare for all new marine fuels. To properly prepare the port to receive and bunker ships using new fuels, various steps will be taken to ensure that all regulatory, safety, infrastructural and supply factors are in order. The port has already fully implemented this method for LNG and, to a large degree, for methanol. For ammonia, the pilot concludes level 6 and raises the port's readiness to level 7, with all safety procedures ready to allow bunkering on a project basis. With this enhanced readiness, the port of Rotterdam is ensuring that it is prepared for bunkering of the first ammonia-fuelled ships. The learnings of the pilot and the established procedures will be disseminated to the EU, other ports and relevant parties.

European subsidies

The European MAGPIE programme brings together various ports, research institutes, universities and companies to work jointly on innovation and sustainability. This consortium wants to combine the supply and use of green energy in ports and use innovation to increase the efficiency of logistics. The programme includes several pilot projects, one of which is the ammonia bunker pilot. R&D Center Mærsk Mc-Kinney Møller Center for Zero Carbon Shipping is involved in the pilot and will drive the further dissemination of the knowledge and experience gained to the international community. MAGPIE has received funding from the European Union's Horizon 2020 research and innovation program.

Video: <https://youtu.be/K63vsp3ms84>

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