
PRESS RELEASE

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Antwerp Terminal Services (ATS) and CMB.TECH Launch World's First Hydrogen Dual Fuel Straddle Carrier

Antwerp Terminal Services (ATS), a joint venture between MSC PSA Europe Terminal (MPET) and PSA Antwerp (PSAA), today officially launched the world's first H₂ dual fuel straddle carrier in the Port of Antwerp during a brief ceremony. Using state-of-the-art H₂ dual fuel combustion engine technology, developed by cleantech company CMB.TECH and integrated into a straddle carrier with the support of ATS, the machine runs on a mix of hydrogen and diesel. It can therefore play an important role in reducing terminal greenhouse gas emissions.

In line with the UN Paris Climate Agreement and the EU Green Deal, ATS, MPET and PSAA aim to reduce their carbon emissions by 50 percent by 2030 with 2019 as a baseline and have net-zero emissions for all their terminals by 2050. As part of their plans to reach these objectives, the partners announced today the launch into operations of a dual fuel straddle carrier, which injects hydrogen into its diesel combustion engine.

CMB.TECH, an Antwerp-based cleantech company specialized in developing and building hydrogen and ammonia-powered large marine and industrial applications, was responsible for integrating the technology and related expertise to design and build this first prototype, in collaboration with ATS and equipment manufacturers. The dual fuel technology is able to replace 70% of diesel consumption with hydrogen on new straddle carriers, with the eventual goal of 100 percent hydrogen injection.

Following a 24-month design and development phase, the partners will now start testing the dual fuel straddle carrier's performance in live operations at PSAA's Noordzee Terminal. They will evaluate how to improve the design of the equipment, as well as other factors that are necessary to scale up this new technology, including the supply and storage of hydrogen for an entire fleet. This next stage is supported by PIONEERS, a project funded by the EU and coordinated by the Port of Antwerp-Bruges. It is part of the Horizon 2020 program which supports and promotes the development of specific solutions to reduce carbon emissions in the port sector, with the aim of transforming ports into green infrastructures by 2050.

Roy Campe, CTO of CMB.TECH: "Ports have already been identified as hotspots for hydrogen technology. Because of the heavy use of straddle carriers, dual fuel technology can offer the right balance between lowering emissions and retaining operational performance, robustness and cost-effectiveness. We are happy to test and work with PSA for hydrogen-powered port equipment. We are hereby taking a first step away from diesel in the heavy-duty container terminal segment."

Green Straddle Carrier Program

These tests with the first dual fuel hydrogen straddle carrier prototypes are part of the MPET & PSAA Green Straddle Carrier Program, in which the terminal operators are holistically evaluating four major technological pathways to significantly reduce these vehicles' carbon emissions in their actual working

environment: hydrogen, biofuel, hybrid battery/diesel and full electrification. Which solution the partners will eventually scale up depends on the test results.

Francis De Ruytter, Regional Head of Sustainability for PSA Europe, Mediterranean and the Americas, emphasizes the importance of targeting straddle carriers to reach PSA's sustainability goals. *"Straddle carriers are crucial in maintaining highly productive operations at our terminals, but at the same time they are responsible for approximately 90 percent of our direct emissions in Belgium. While at Europa Terminal, we are gradually moving towards automated stacking cranes in the yard, we realize that straddle carriers will remain a key element in our equipment fleet for years to come. That is why we are now investing in a program that examines various technological options and partners to make these vehicles more sustainable."*



"This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no°101037564."

About ATS

ATS is a joint venture between PSA Antwerp and MPET. ATS provides Technical, HSS (Health, Safety, Security) and Barge Planning Services to both companies.

About CMB.TECH

CMB.TECH is a cleantech company that builds, owns, operates and designs large marine and industrial applications that run on hydrogen and ammonia. CMB.TECH also offers hydrogen and ammonia fuel to its customers, either through own production or by sourcing it from third party producers. <https://cmb.tech/>

About MPET

MSC PSA European Terminal (MPET) is a joint venture between PSA and Terminal Investment Limited (TIL). With an annual throughput capacity of 9 million TEU, a quay length of 3.7 km and a surface area of 242 ha, MPET is the largest container terminal in Europe and accounts for more than 50% of Antwerp's total container volume.

About PSA International

PSA International (PSA) is a leading port group and trusted partner to cargo stakeholders. With flagship operations in Singapore and Antwerp, PSA's global network encompasses 160 locations in 42 countries around the world. The Group's portfolio comprises over 60 deepsea, rail and inland terminals, as well as affiliated businesses in supply chain management, logistics, marine and digital services. Drawing on the in depth expertise and experience from a diverse global team, PSA actively collaborates with its customers and partners to deliver world-class port services alongside, develop innovative cargo solutions and co-create an Internet of Logistics. As the partner of choice in the global supply chain, PSA is "The World's Port of Call". Visit us at www.globalpsa.com, or follow us on LinkedIn and Facebook (@globalpsa).

About PSA Antwerp

PSA Antwerp is the second flagship within the PSA Group. PSA Antwerp independently operates two container terminals in the Port of Antwerp: Noordzee and Europa Terminals and is also operates the joint-venture MSC PSA European Terminal (MPET) together with TIL. It is also active in general cargo handling at the PSA Breakbulk Terminal.



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