

Samskip's new hydrogen fuel cell container vessel  
Picture credit: Naval Dynamics



# MARITIME PLATINUM

Hydrogen fuel cells offer a viable zero-emissions solution for shipping, providing the necessary power and range

Earlier this year the International Maritime Organization (IMO), the United Nations' division that governs global shipping, adopted enhanced targets to tackle harmful emissions from shipping. The 2023 IMO Greenhouse Gas (GHG) Strategy aims to reach net zero by 2050, with a series of ambitious milestones identified to help achieve this goal. These include reducing the total annual GHG emissions from international shipping, when compared to 2008, by at least 20 per cent in 2030 and at least 70 per cent in 2040.

Around 90 per cent of everything we consume is moved by sea and maritime transport is responsible for around three per cent of global CO<sub>2</sub> emissions. According to Siemens Energy, due to these revised IMO standards, thousands of container vessels, yachts, and ferry operators worldwide will need to replace their heavy fuel oil and diesel generator drive solutions in the coming years.

Fuel cells turn the chemical energy from hydrogen into electricity through an electrochemical reaction. When the hydrogen used is produced with renewable electricity, the entire energy chain is fossil-fuel free. Fuel cells are an attractive option for helping the maritime industry to achieve net zero because of their high energy efficiency and versatility. In addition, they offer zero emissions, and comply with industry regulations.

## Ground-breaking project

A ground-breaking project will see the deployment of two, six-megawatt, platinum-based proton exchange membrane (PEM) fuel cell-powered ferries for passengers and cargo transport on Norway's longest ferry connection, with journey times of up to four hours. Fuelled by green hydrogen, the ferries will have a capacity of 599 passengers, 120 cars and twelve trucks each, and reduce CO<sub>2</sub> emissions by 26,500 tonnes per year on a combined basis. They are expected to come into service towards the end of 2024.

Global logistics company Samskip has turned to 3.2-megawatt PEM fuel cells for its two new hydrogen-fuelled container vessels, which will be among the first of their kind. Both 135-metre ships vessels will operate between Oslo Fjord and Rotterdam, a distance of approximately 700 nautical miles, and are due for delivery in the second half of 2025.



Platinum-based PEM fuel-cell system. Picture credit: Nedstack

In May, a trial of the world's first hydrogen-powered inland containership took place successfully, equipped with a PEM fuel-cell system from Nedstack. Carrying products from sports brand Nike, the vessel will operate between the Netherlands' Port of Rotterdam and Benelux's largest inland container terminal located along the Albert Canal, Meerhout, Belgium.

Meanwhile Ballard Power Systems are providing PEM fuel cells for the first hydrogen-hybrid research

vessel in the world, a pioneering project marking a significant shift towards sustainable and zero-emission marine research. The vessel, currently in the design phase, will be owned and operated by UC San Diego's Scripps Institution of Oceanography. Its design will enable the ship to operate 75 per cent of its missions entirely using hydrogen, with diesel generators providing extra power for longer missions.

Contacts:

Brendan Clifford, Institutional Distribution, [bclifford@platinuminvestment.com](mailto:bclifford@platinuminvestment.com)

Edward Sterck, Research, [esterck@platinuminvestment.com](mailto:esterck@platinuminvestment.com)

Vicki Barker, Investor Communications, [vbarker@platinuminvestment.com](mailto:vbarker@platinuminvestment.com)



NOTICE AND DISCLAIMER: © 2023 World Platinum Investment Council Limited. All rights reserved. The World Platinum Investment Council name and logo and WPIC are registered trademarks of World Platinum Investment Council Limited. No part of this report may be reproduced or distributed in any manner without attribution to the publisher. The World Platinum Investment Council is not authorised by any regulatory authority to give investment advice. Nothing within this document is intended or should be construed as investment advice or offering to sell or advising to buy any securities or financial instruments and appropriate professional advice should always be sought before making any investment. Images are for illustrative purposes only. More detailed information is available on the WPIC website: <http://www.platinuminvestment.com>