SHIPFC

PILOTING MULTI MW AMMONIA SHIP FUEL CELLS

Project ID:	**875156**
PRD 2023:	**Panel 3 – H2 end uses – transport**
Call topic:	**FCH-01-2-2019: Scaling up and demonstration of a multi-MW fuel cell system for shipping**
Project total costs:	**EUR 3 179 056.25**
Clean H_2 JU max. contribution:	**EUR 9 975 477.50**
Project period:	**1.1.2020–31.12.2025**
Coordinator:	**Maritime Cleantech, Norway**
Beneficiaries:	Eidesvik Shipping AS, Wärtsilä Gas Solutions Norway AS, Sustainable Energy AS, North Sea Shipping AS, Star Bulk Ship Management Co. (Cyprus) Ltd, Wärtsilä Norway AS, Capital-Executive Ship Management Corp., Maritime CleanTech, Persee, Prototech AS, Equinor Energy AS, Yara International ASA, University of Strathclyde, National Center for Scientific Research 'Demokritos', Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung EV

https://shipfc.eu/

PROJECT AND OBJECTIVES

ShipFC's main mission is to prove and show the case for large-scale zero-emission shipping through developing, piloting and replicating a modular 2 MW fuel cell technology using ammonia as fuel. The project will also prove the case for large-scale zero-emission fuel infrastructure through a realistic business model. Currently, the fuel cells are being scaled up and going through laboratory testing. The onboard fuel system design is in progress, together with the integration design for the fuel cell power system. ShipFC is building the knowledge base for the development of a global green ammonia fuel infrastructure.

NON-QUANTITATIVE OBJECTIVES

- The fourth iteration of the design for the container ship is now complete.
- Concept evaluations of bulk carriers are ongoing.

PROGRESS AND MAIN ACHIEVEMENTS

- The detailed design of the fuel system is under development.
- The detailed vessel design is under development. This includes the hazard identification process with class and the Norwegian Maritime Authority.

FUTURE STEPS AND PLANS

A challenging supply chain situation for fuel cell stacks is causing delays for the project. Full-scale testing has been delayed.

QUANTITATIVE TARGETS AND STATUS

Target source	Parameter	Unit	Target	Achieved to date by the project	Target achieved?
Project's own objectives	Greenhouse gas reduction as a result of using ammonia fuel	%	70	–	
	Ammonia SOFC system power	MW	2	1.3 kW	⚙
	MW-scale SOFC operational experience	hours	3 000	–	
Project's milestone/ objective	FC system approval in principle (AiP)	–	–	1.1.2023	✓

Clean Hydrogen Partnership
Co-funded by the European Union