

The Future of shipping is Green

A joint EU- and UK-funded project is expected to significantly accelerate the climate neutrality of ships through retrofitting our existing fleets. The future of shipping will be energy and fuel-efficient, capture the carbon it emits to deacidify our oceans and have closed air circulation systems that are virus free.

16/02/2023, Larnaca, Cyprus

The Green Marine project partners are delighted to announce the official start of the Green Marine project, officially launched in Larnaca, Cyprus, on the 15-16th of February, 2023. This European Commission/Innovate UK-funded project aims to develop retrofitting solutions onboard ships. Existing waterborne vessels represent 13% of the total European transport CO₂ emissions and are required by different bodies like the International Maritime Organization (IMO) to reduce their emissions. The existing fleets will still be in operation for the next decades. Thus, retrofitting solutions are needed. Retrofitting existing fleets are very challenging, among others, due to the different ships, the engines and the fuel used and the space constraints on board. The Green Marine consortium, coordinated by the Cyprus Marine & Maritime Institute (CMMI), brings together 10 partners from industry and academia from all over Europe and UK. All partners share the vision of providing the wider maritime community and industry with effective and efficient ways of onboard retrofitting solutions leading to decarbonize the maritime industry. The duration of the project is 4 years extending from February 2023 to January 2027 with an EU/UK funding of almost 5M Euros.

The Green Marine team will develop retrofitting protocols and solutions to enable the future of shipping to be energy and fuel efficient, capture the carbon it emits to deacidify our oceans and have closed air circulation systems that are virus free. To aid the different stakeholders a software tool catalogue will be made that gathers knowledge on these and other solutions. We will demonstrate these tools and the innovative solutions onboard a ship from Calmac in



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Scotland. The dept of Naval Architecture, Ocean & Marine Engineering (NAOME) at the University of Strathclyde will contribute in all technical work packages, especially in demonstrating the appropriate retrofitting within existing fleets of ships.

The project objectives are summarised below:

- Develop and validate retrofitting protocol tools suitable for adapting engines, flue gas carbon capture and utilization, and integrated energy saving solutions for water borne vessels.
- Develop and validate a software tool containing an up-to-date catalogue of suitable solutions for a wide variety of ship types and operation scenarios. The software tool is to aid decision making.
- Tailor a (nano)particle and virus removal solution suitable for gaseous steams. Demonstrate its use by allowing virus-free air-reuse in enclosed areas saving significant HVAC energy use. To utilize this new pre-treatment technology to significantly reduce OPEX costs of carbon capture technologies in flue gas streams.
- Tailor commercially available gas-gas separating membranes for CO₂ and water capture. Utilize waste heat with thermoelectric elements and combined with a unique catalyst to produce a CO and H₂ rich syngas. Aim is to reinject this syngas into the engine saving fuel.
- Develop and implement a carbon capture solution based on an alkaline solution with Ca- and Mg form sea water. Resulting products are precipitated calcium carbonates (PCCs). Also, the produced minerals can be dis-charged into the sea for the purpose of deacidification.
- Replicate project learnings to all stakeholders; Stimulate software tool use and further enrich its data; Cooperate with global marine community of ship owners, operators, shipyards and equipment providers.
- Firmly position our retrofitting, software tools as a sustainable solution. Offering a realistic and competitive new alternative in the Carbon Capture Utilisation and Storage (CCUS) market.



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