

PRESS RELEASE

Bringing a Green Future Closer: RINA awards AiP for AURELIA's Green Retrofit Solution for 205k DWT Bulk Carrier

Genoa, 22 June 2023 - RINA has awarded an Approval in Principle (AiP) for a green retrofit package solution designed by the innovative naval architecture designer, AURELIA, in partnership with Econowind, Wattlab and Vertom. Using a series of innovative solutions, the retrofit design meets CO₂ reduction targets in compliance with CII and speeds the path to decarbonisation for the shipping industry.

AURELIA's retrofit package solution can be applied to almost any kind of vessel, whatever their purpose or cargo. It does not interfere with operational aspects, such as loading and offloading cargo. The solution incorporates rigid sails, solar panels, batteries, optimised weather-routing, and a smart decision support system developed by Hydrographic and Marine Consultants (HMC) to dramatically reduce emissions of an existing Newcastlemax bulk carrier. Working with sails experts, Econowind, and leaders in PV technology, Wattlab, and AURELIA has shown that big steps towards decarbonisation can be achieved today with practical, viable solutions for the marine industry.

For the Newcastlemax bulk carrier, the challenge was to meet EEXI and the CII index for the reduction of CO₂ emissions. The 203,000 DWT bulk carrier has a length of 300 m, a beam of 50 m and a range of 24,500 nautical miles.

AURELIA developed a CII calculator used to assess the status of the vessel and give an overview of what was needed to comply with the CII index based on five annual sailings between Brazil and China.

The resulting solution proposes two investment steps for shipowners looking to comply with the CII index. The first, to be done in 2023, involves the installation of Solar Flatrack technology, batteries, and the SafePlan software developed by HMC. The combination of such technologies will aim to reduce the hours in service of the auxiliary engines. Any surplus energy not consumed by the vessel is used to charge the battery bank. This first stage of the retrofit of the auxiliary engine, reduces the total CO₂ emissions by 6.1%, or 3305 tons, and MGO fuel of the auxiliary engine by 97.5%.

The second stage of investment, required by 2025, includes the installation of six rigid, 30m high sails to provide supporting wind propulsion, along with switching from fossil to biofuels. The added wind propulsion provides power to the vessel and lowers the load of the main engine (2T), thereby reducing fuel consumption and was shown to reach 1237 kW at 67% operation per day. With the use of biofuels to further lower emissions, this investment stage reduces CO₂ emissions by 10.3% or 5560 tons of CO₂ per year.

Vertom's MV Anna: Applying the retrofit solution to a general cargo vessel

The standard dimensions and mounting method of a 20ft container and the minimum height make the model applicable to not only bulk carriers but also general cargo.

A leader in sea transport and pioneer in CO₂ emission reduction, Vertom joined the retrofit project with the general cargo vessel MV Anna. Since 2022, Vertom has already started the retrofit process for efficiency improvements and carbon reduction of MV Anna by installing two 16 m Econowind VentiFoil on the bow. For a more powerful and complete retrofit, Solar Flatrack are being tested this year and will be added to existing Vertom vessels in 2023, showing that this combined solution is possible not only for bulk carriers with available space decks but also for general cargo vessels.

The Solar Flatrack is a modular solar energy system, that comprises movable, stackable, thin plates with integrated solar panels and inverters and acts as a sustainable generator.

RINA, leading certification company and engineering company in Italy, provides a wide range of services across the Energy & Mobility, Marine, Certification, Infrastructure & Real Estate and Industry sectors. With net revenues in 2022 of 664 million euros, 5.300 employees and 200 offices in 70 countries worldwide, RINA is a member of key international organizations and an important contributor to the development of new legislative standards. www.rina.org

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