



**PROJECT ACRONYM AND TITLE:** Development of advanced methods for waste heat utilization on passenger ships (WHUPS)

**FUNDING PROGRAMME:** Call for funding of Institutional research projects of the University of Rijeka financed from source 581 – Recovery and Resilience Mechanism (University of Rijeka, Institutional Research Projects)

**PERSON RESPONSIBLE:** Fran Torbarina

<b>Project total cost</b>	<b>22.967,32 EUR</b>
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**SUMMARY AND OBJECTIVE:** In accordance with global climate agreements, the International Maritime Organization has adopted guidelines to improve energy efficiency and reduce greenhouse gas emissions in the maritime sector. Special attention has been given to passenger ships, which, although representing a smaller portion of the maritime industry, have a significant impact on emissions due to their high energy consumption. The propulsion system accounts for the largest share of this consumption, while auxiliary systems such as HVAC, sanitary water production systems, and other auxiliary systems significantly contribute to the total energy consumption.

This project focuses on improving the energy efficiency of passenger ships by increasing the utilization of waste heat. It involves the development of computational models for individual components of ship energy systems for waste heat recovery, suitable for implementation in computer programs for running dynamic simulations. Additionally, the project includes the development of a computational model of the entire energy system for waste heat utilization on passenger ships, covering energy production, distribution, and consumption. These computational models will be used to explore different waste heat management strategies on passenger ships to enhance their energy efficiency.

The expected contribution of this research is to expand existing knowledge on the design and management strategies of energy systems for waste heat utilization on passenger ships and to develop computational models for such systems. These models represent new digital tools with the potential to improve current design practices for these systems, ultimately enhancing the energy efficiency of passenger ships, supporting the green transition, and contributing to sustainable development in the maritime industry.

Start date	End date
1 October 2025	30 September 2029