



PROJECT

# MARPOWER

## Efficient zero-emissions gas turbine POWER system for MARitime transport

Focused on decarbonizing maritime transport, the MARPOWER Project aims to create a gas-turbine energy conversion system on marine vessels to replace fossil fuels with net-zero alternatives.



This project has received funding from the European Union's Horizon Europe research and innovation programme under Grant Agreement No. 101138341.

11

PARTNERS

6

COUNTRIES

€8 M

TOTAL BUDGET

48

MONTHS



### IN ONE CLICK

Coordinator	Programme	Period
LUT University	Horizon Europe	2024-2028
Sector	Website	
Environment	<a href="http://marpowerproject.eu">marpowerproject.eu</a>	

### 01 Challenge

The MARPOWER Project addresses the urgent need to decarbonize maritime transport, a significant source of greenhouse gas emissions, representing nearly 3% of global emissions. As international shipping relies heavily on fossil fuels, meeting the International Maritime Organization's goals of reducing carbon intensity by 50% by 2030 and 70% by 2050 is challenging. Without viable, sustainable alternatives, the maritime industry risks failing to meet climate targets outlined in the Paris Agreement, thus contributing to escalating environmental impacts.

### 02 Solution

MARPOWER is developing a gas-turbine energy system that supports sustainable fuels like green methane, hydrogen, and ammonia to replace fossil fuels in maritime transport. This high-efficiency system combines advanced gas turbines, waste heat recovery, and low-friction magnetic bearings to maximize performance and adaptability. A digital twin model enables performance validation and testing. The project leverages expertise in combustion, turbomachinery, and shipbuilding to drive meaningful innovation in maritime transport.

### 03 Impacts

MARPOWER's flexible, high-efficiency energy system is expected to achieve a 21% reduction in greenhouse gas emissions from maritime transport, advancing global climate goals through sustainable shipping. With a conversion efficiency of up to 76% and a scalable, compact design, this solution could be widely adopted across various vessels. By fostering infrastructure and policy development for alternative fuels, MARPOWER reduces fossil fuel reliance and strengthens Europe's leadership in sustainable maritime technology, contributing to a cleaner, more resilient industry.