

ZHENIT Project



Zhenit Project

Zero waste Heat vessel towards relevant ENergy savings also thanks to IT technologies

PROJECT

In 2018 the International Maritime Organisation – IMO – released a directive to target the 50% reduction of greenhouse gas - GHG - emissions due to international maritime transport by the 2050, by boosting the maritime logistic sector to be more sustainable.

The ZHENIT project develops a strategy that contributes to decarbonise the maritime transport by using innovative Waste Heat Recovery – WHR - solutions, already available for terrestrial and maritime applications, to be exploited more extensively onboard to reduce pollutants also in hoteling/harbour conditions.

Furthermore, ZHENIT combines the WHR solutions with ICT monitoring and energy management solutions, thermal energy storage and a hybrid propulsion system aiming to reduce ship emissions both in harbour area and open sea. ZHENIT will prove the capabilities of different WH-to-X solutions and their key role for shipping sector by validating on board of a pilot cargo vessel and in laboratory conditions.

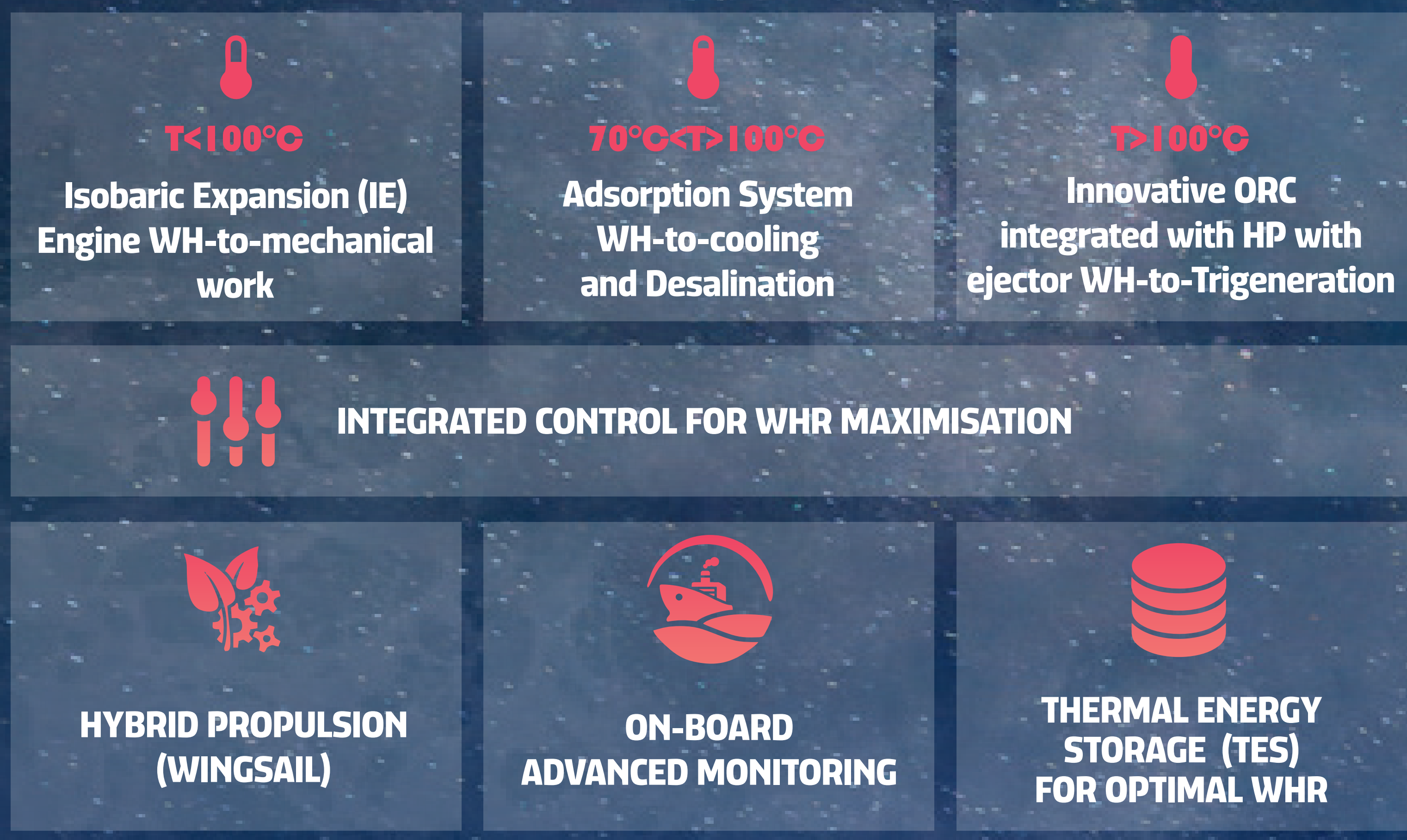
AMBITION

ZHENIT aims to promote WHR as key and “ready-to-scale up” solutions to reach the decarbonization targets by validating different systems at various temperature levels, for different end-product (cooling, power, desalination) and optimizing integration/performance thanks to Thermal Energy Storage (TES). ZHENIT valorizes WH via different WH-to-X solutions:

- WH-to-Trigeneration via innovative recuperated ORC integrated with a HP with ejector ($T > 100^{\circ}\text{C}$)
 - WH-to-Cooling and Desalination via an adsorption system ($70 < T < 100^{\circ}\text{C}$)
 - WH-to-Mechanical Work (e.g. for fuel compression) via an isobaric expansion (IE) engine ($T < 100^{\circ}\text{C}$)
- These solutions straight forward to making the shipping sector more sustainable, accessible and clean.

- 11 PARTNERS**
- 42 months**
- 7 Countries**
- 4.4M Funding**
- DIGITAL**
- SUSTAINABLE**
- PROPULSION**

FUNDAMENTALS



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