



Sustainable technologies for future long distance shipping towards complete decarbonisation

**FAMOUS** PRESENTATION

**SPEAKER:** Christina NIKITA, PhD



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No.955413

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**Posidonia**  **Ποσειδώνια**  
The International Shipping Exhibition  
6-10 June 2022

09.06.22

10:45 AM EEST

Seminar Room 2A

Metropolitan Expo, Athens



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# Background and role in Engimmonia



Techno-economical consultancy services to a diverse fleet of tanker, dry and pleasure craft vessels

- Onboard surveys – Retrofit studies
- Tailor made proposals and ROI studies for modifications and upgrades onboard vessels.
- Inventory Of Hazardous Materials (IHM)
- Performance monitoring and assessment of operational practices

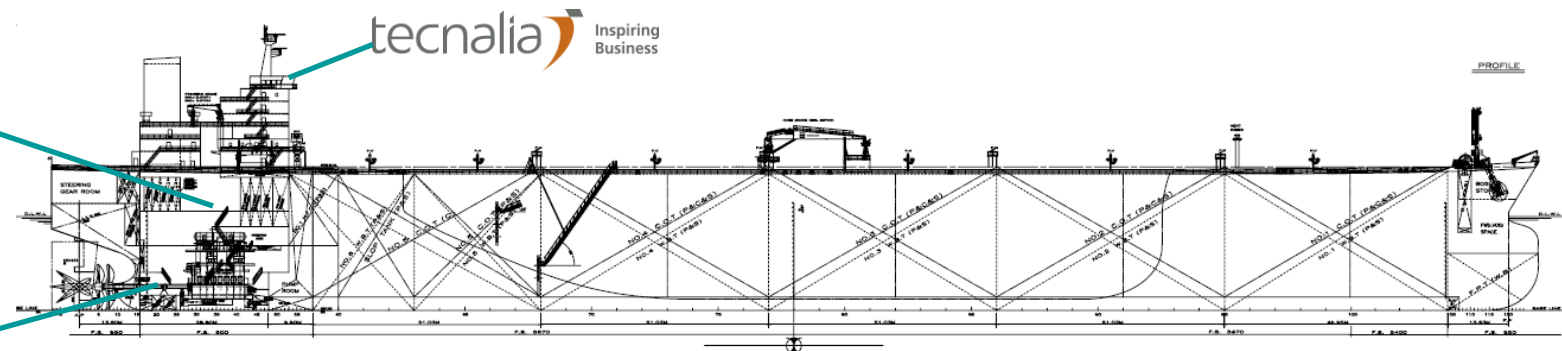
## Demonstration Committee Partner in ENGIMMONIA

Provides a VLCC Tanker vessel for the integration of supplementary decarbonisation technologies

 **METIS**  
CYBERTECHNOLOGY

 **SEASTEMA**

 **orcan**  
The Efficiency Company



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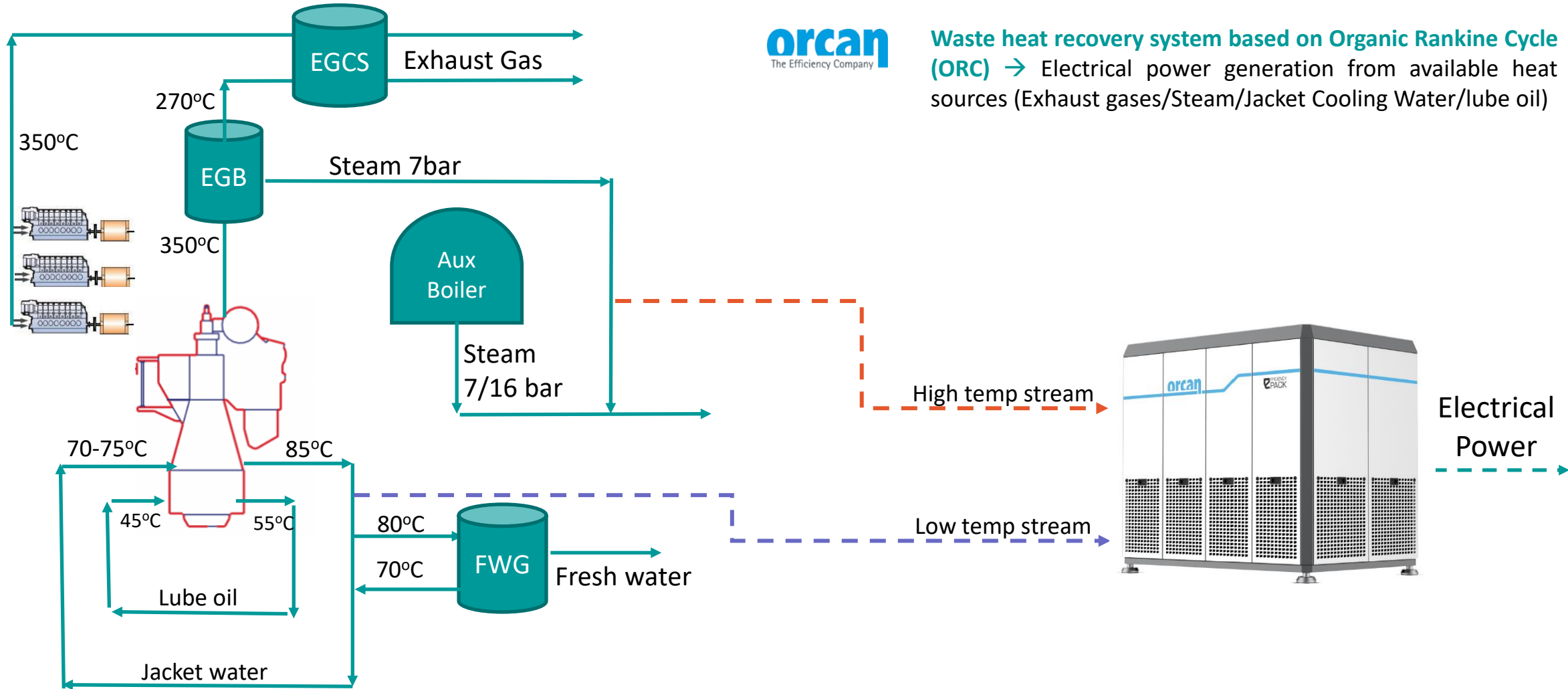
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# Planned integrations 1/3



Waste heat recovery system based on Organic Rankine Cycle (ORC) → Electrical power generation from available heat sources (Exhaust gases/Steam/Jacket Cooling Water/lube oil)



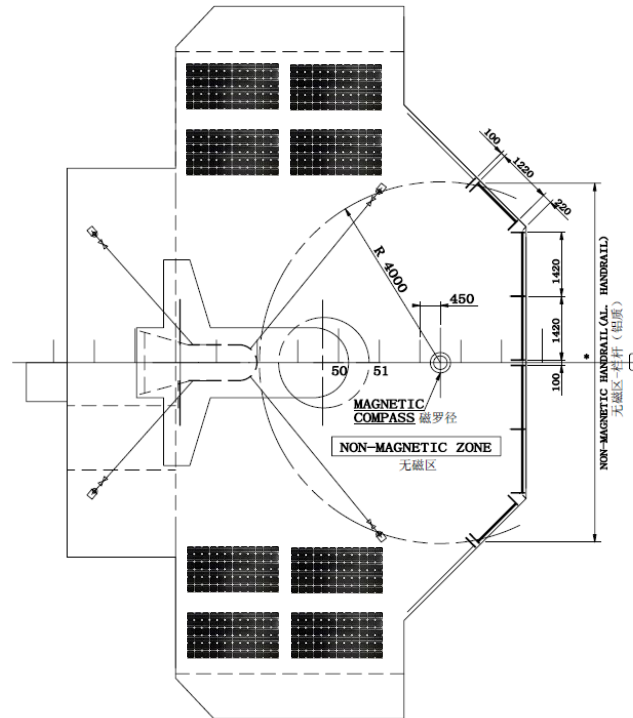
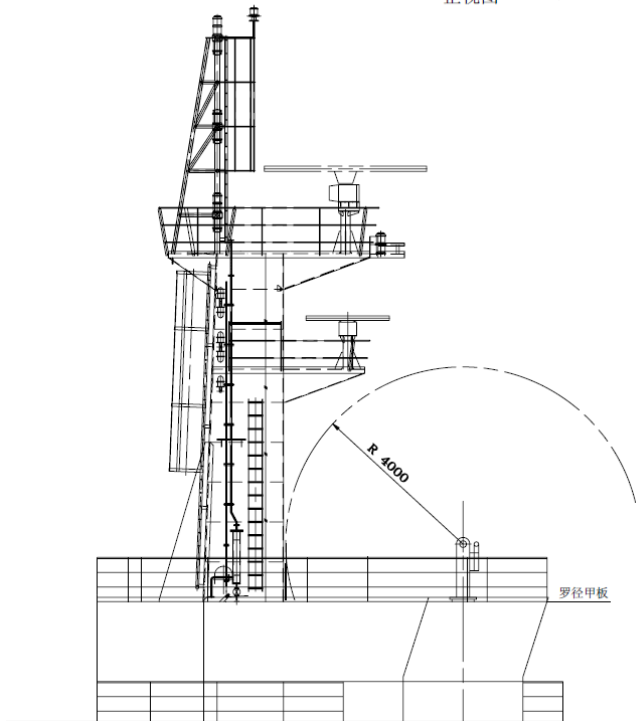
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# Planned integrations 2/3

ELEVATION  
正视图 S:1/100



tecnalia Inspiring Business

Photovoltaic panels → Electrical power generation from direct sunlight.

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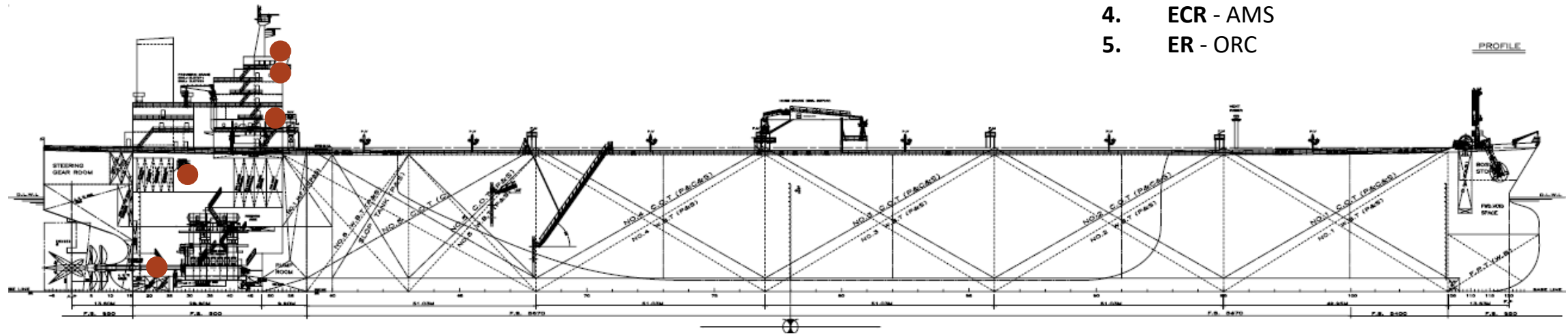


# Planned integrations 3/3



Vessel Energy Management system → Efficient monitoring of the energy consumption and distribution on the demonstration vessel

- Remote monitoring system
  1. Compass deck – PV panels
  2. Bridge deck – Navigational Equipment
  3. CCR - Drafts
  4. ECR - AMS
  5. ER - ORC



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# Objectives & Targets



- ✓ Fuel optimisation - Decrease consumption on the Auxiliary Engines
  - ✓ **200KWe** reduction from AEs on sailing days
  - ✓ Reduction of **150-180mt fuel/year**
  - ✓ Expected **savings** basis current bunker prices (*June2022*) about **150,000\$/year**
  
- ✓ Improve environmental footprint of vessel as per IMO guidelines
  - ✓ Emissions reduction of **470-560mt CO<sub>2</sub>/year**
  - ✓ Improvement on the EEXI & CII indices

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# Benefits and impacts

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- Increase efficiency rating of the demo vessel
- Quantify savings from the inclusion of new technologies
- Identify suitability of new technologies to various ship types (replication potential)
- Investigate new technologies that will lead to decarbonising our fleet (Ammonia).
- Build network for cross-fertilisation of ideas and new technological solutions for the shipping industry

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