

Zero emission in harbour area



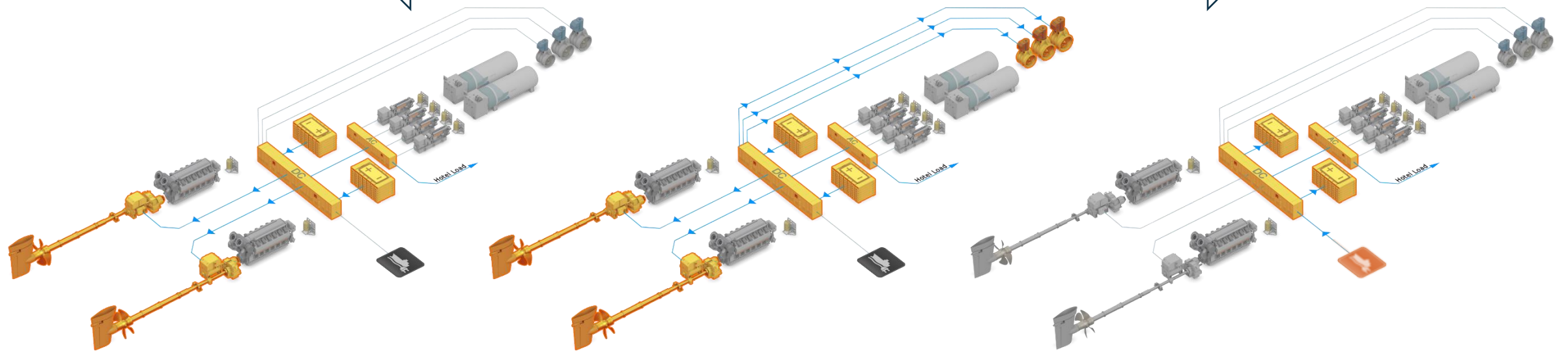
Approaching & Leaving



Maneuvering



Port stop with shore connection or on ESS w/o shore connection



Not only new-building

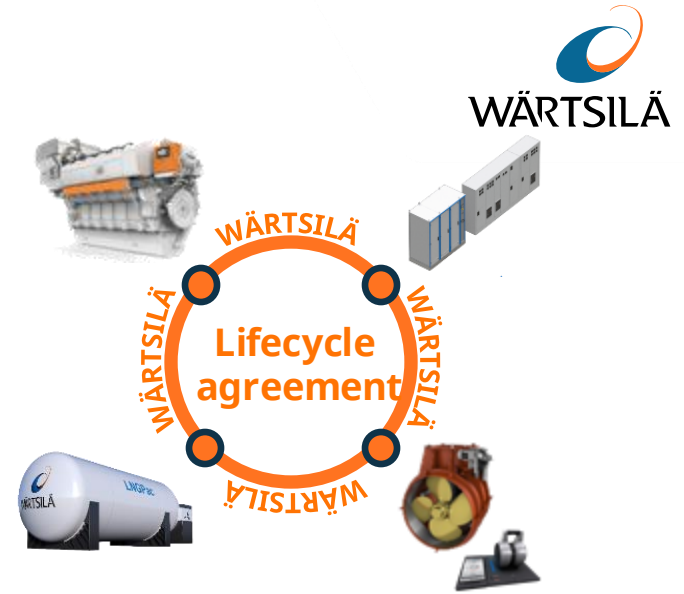
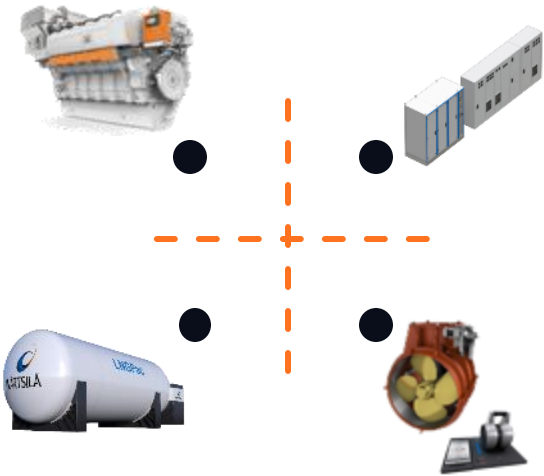


- Retrofit to sail 45min full electric at 15min charging > 20 times a day
- Battery and power conversion below deck



- Optimized fuel efficiency
- Increased zero emission operations capabilities using green power from shore

Integrated Systems and Solutions



Product Delivery

Ensuring that the Wärtsilä equipment is delivered according to the agreed schedule, quality and budget.

Wärtsilä
responsibility
and
commitment

Integrated Solution Project

Ensuring that the Wärtsilä Solution project is integrated to the customer's overall project and targets – supporting the success.

Case study

Start

Introduction

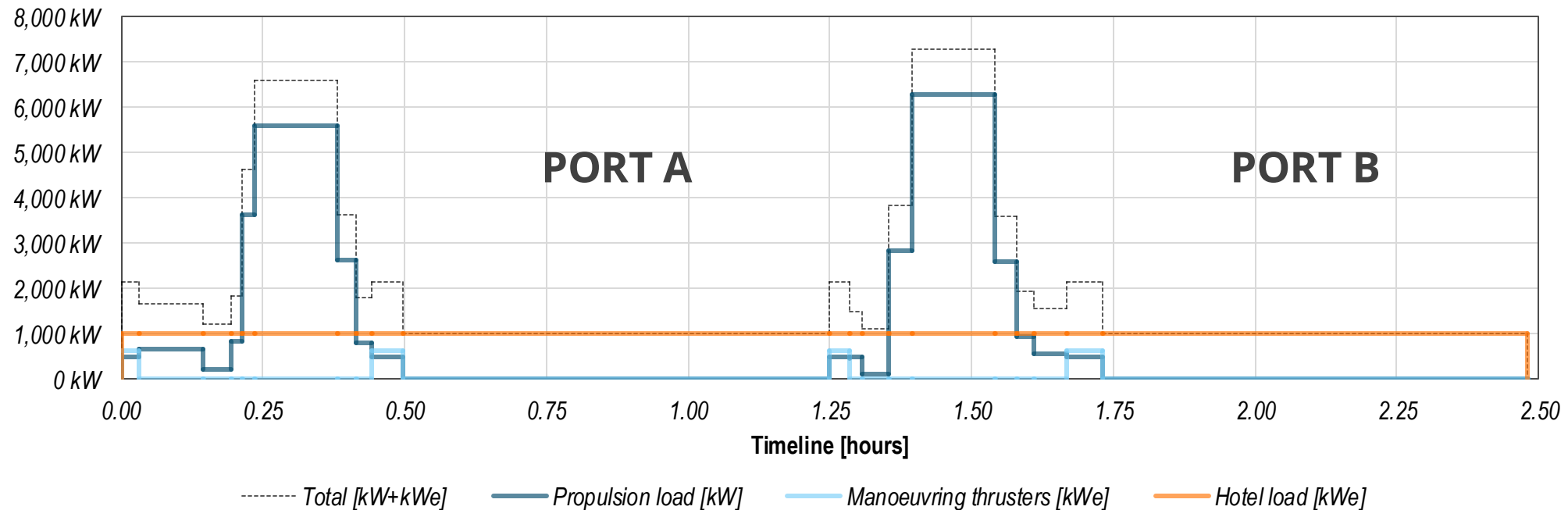
Machinery configurations

Machinery comparison

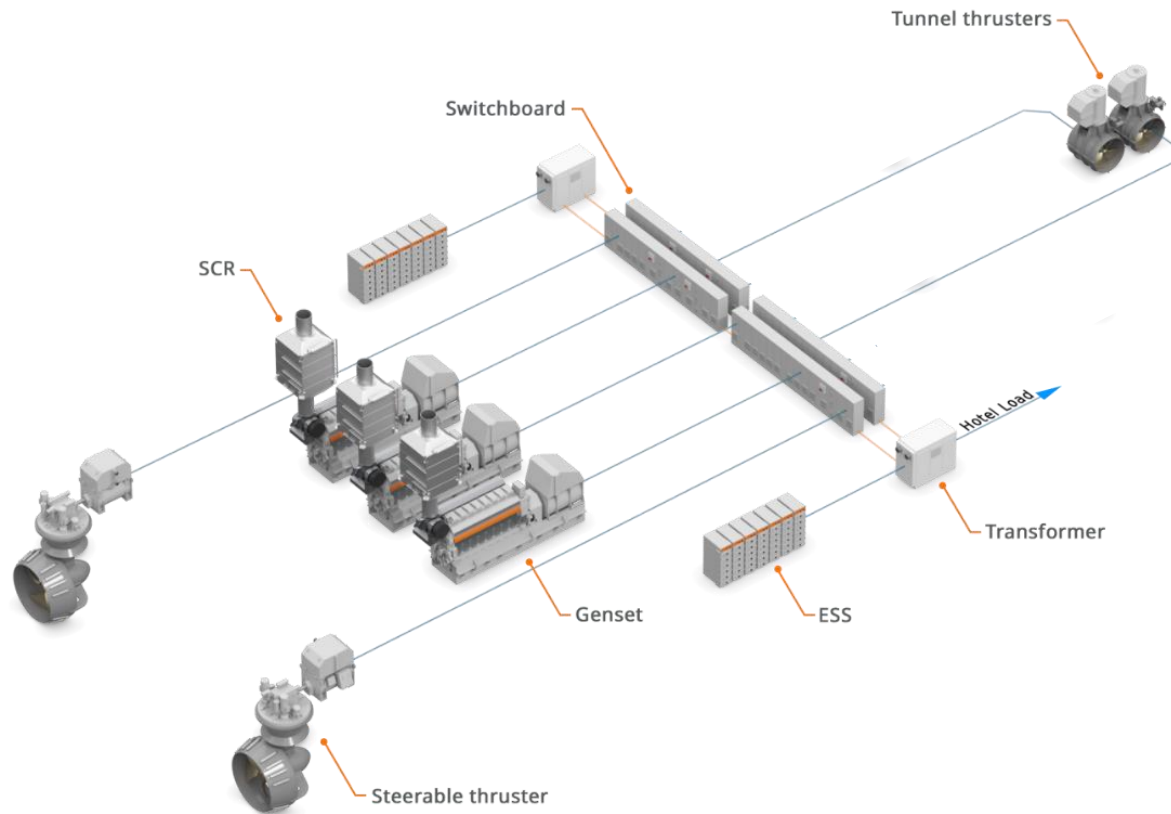
Summary

Operational profile used in the comparison

14 trips/d (7 roundtrips/d) for 365 days/y
45 mins stop in port on each side



Machinery configurations

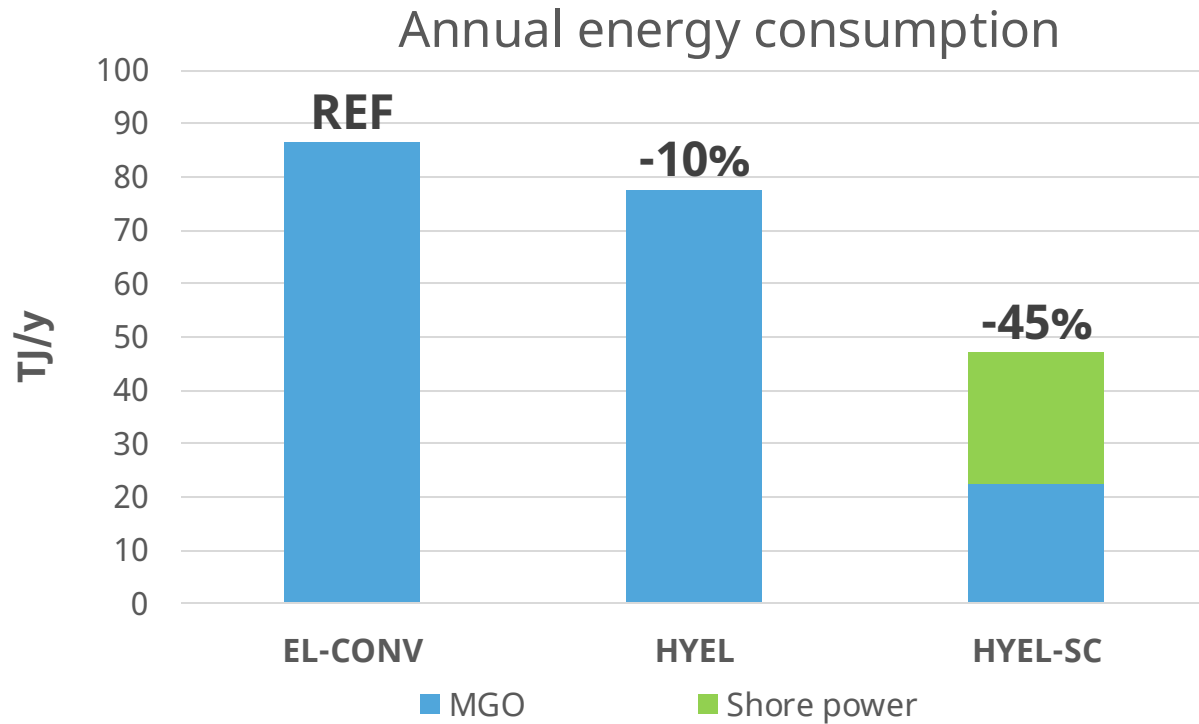


3 setups all with 3xW6L25 genset

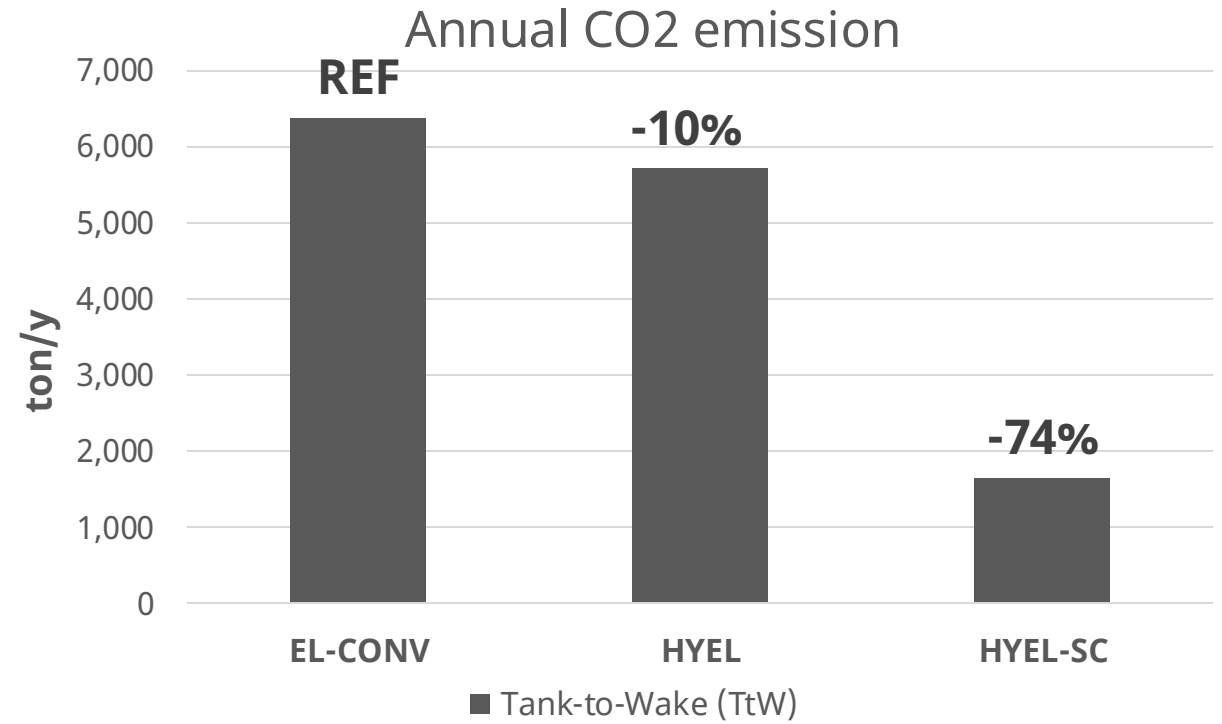
- **Electric-conventional (EL-CONV)**
 - Gensets running all time according to power demand
- **Hybrid Electric (HYEL)**
 - Optimized way of working via hybrid system to improve efficiency
- **HYEL with shore connection (HYEL-SC)**
 - Adding external green source of power to further reduce GHG emission

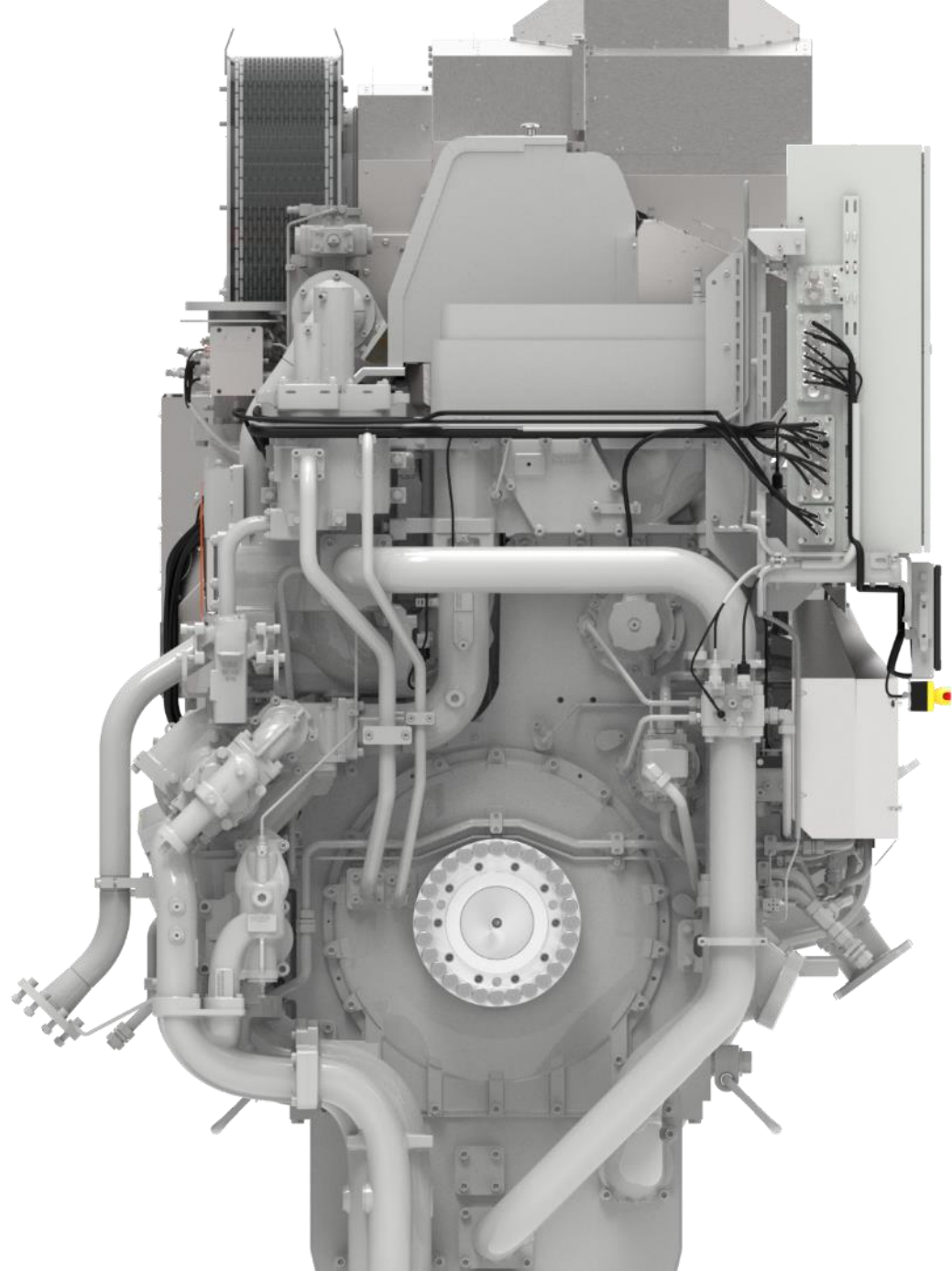
Outcomes

HYEL improve efficiency with less energy waste



HYEL reduce emissions with or without shore power availability





- Wärtsilä 25 - key takeaways
 - ✓ Best-in-class efficiency and emission levels
 - ✓ Cost efficient - with high power output per cylinder
 - ✓ Improved total lifecycle cost - with prolonged TBO
 - ✓ Futureproof – the modular design enables faster, easier upgrades and conversions
 - ✓ Reliable – robust and secure, applying component and design experience from previous engines and extensive validation



WÄRTSILÄ