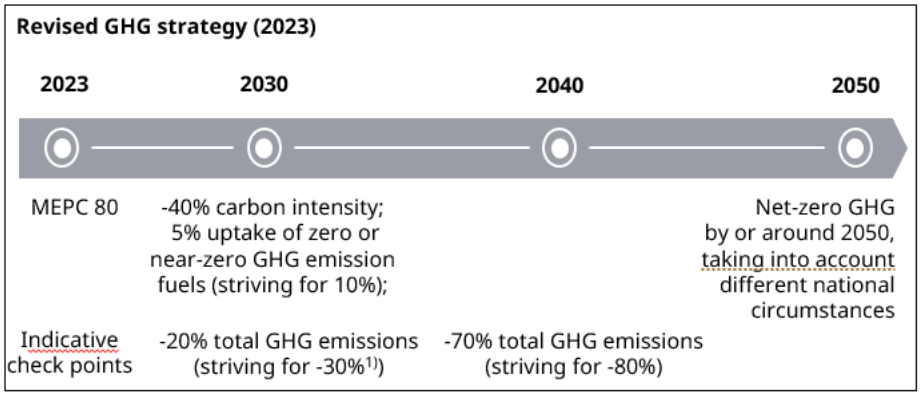
Future fuels for marine – the path to decarbonization

The world is calling for a transition from the dependence of fossil fuels and the use of energy in the marine business towards a sustainable future. The transition can and will happen in many areas from energy use and the optimization of the logistics to the fuels themselves.
IMO set out the targets in 2018 for the decarbonization of the marine industry. These targets were considered as rather ambitious then, but as the urgency of our actions need to be even more focused on, an update of the GHG strategy has been worked out in 2023.

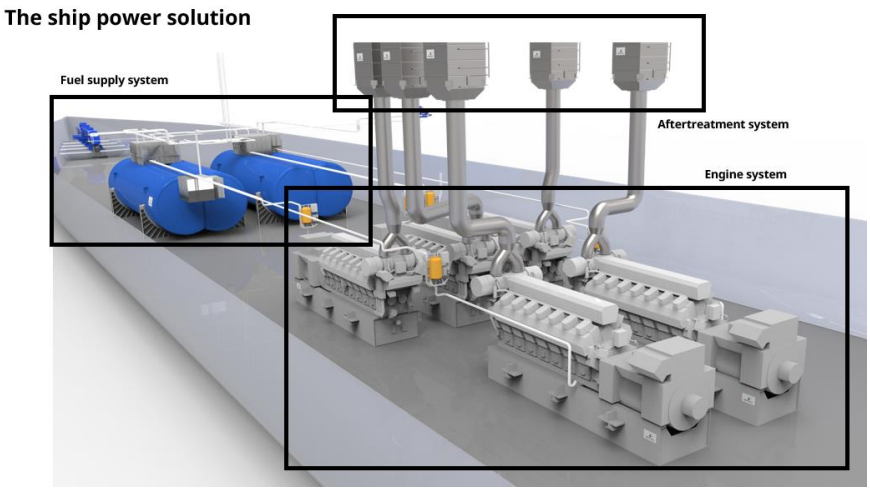


Wärtsilä is emphasizing the flexibility in our solutions. The engines are designed to be multifuel capable already from the start. Furthermore, the engines are designed in a modular way in order to have a flexible platform for possible variations and updates.

Fuel flexibility by modular architecture

A modular design of the engine is providing a flexible platform for a wide variety of applications and fuels.

The engine itself only represent a part of the solution. The whole system needs to be carefully planned, when designing for a future proofed solution. The fuel handling system requires sufficient space and possible new safety features. With new fuels, there will also be new types of exhaust emissions that can require exhaust gas aftertreatment.
By setting up the whole system for future and alternative fuels, many dynamic operations can be optimized and controlled by the automation control system.



Wärtsilä is already testing and demonstrating engine operation with alternative fuels as hydrogen, ammonia and alcohols (methanol, ethanol). The first methanol engines were taken into use already in 2015 on the vessel Stena Germanica. The lessons learnt from the operation has provided a very robust platform for new design of different engine sizes for methanol operation.
Blending of hydrogen into natural gas was tested and verified in 2015. The target has been mainly for engines in land based power plants as the interest for hydrogen has up to now been less on the marine side. The technology can also be used for marine engines. Also, pure hydrogen engine operation is being developed.
Ammonia is an interesting future fuel as it is carbon free and easier to store and handle than hydrogen. Testing of different concepts is being carried out at several engine laboratories in Finland and Norway. The results have been promising and a pilot installation with ammonia as fuel is to be seen in the near future.

Seeing is believing and doing is learning!

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