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**On the Way towards Decarbonization – Green Fuels,
Hybridization and Digitalization in Large Engine Applications**

Hybridization in Large Engines Applications

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Today's ship power and energy systems benefit from hybridization in multiple dimensions. The fuel consumption and greenhouse gas emissions are reduced, and the level of redundancy is increased. Additionally, the spinning reserve capabilities are enhanced and enable efficient utilisation of the resources. The transient behaviour of the machinery is also improved.

To reach the full potential of such a system, the integrator must ensure the appropriate integration of the main engine into a system with optimally sized rest of the components, fulfilling concrete operational requirements. They all should be controlled as a coordinated whole, otherwise the outcome may lead to undesired system behaviour, including worsened fuel consumption.

This presentation discusses the challenges WinGD faced, and the approaches taken to deal with them when it comes to development and deployment of integrated systems.