



## Hybrid Electric Solutions for Marine Applications

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### Abstract:

The transition to a sustainable economy is one of the major undertakings in human history. Meeting the International Maritime Organization's goal of halving greenhouse gas emissions from ships by 2050 is a critical step toward sustainability. It will require a comprehensive and proactive response from the maritime community. Shipping is well positioned to take concrete action by choosing to implement technologies that provide reduced fuel consumption and lower emissions.

Technical solutions to improve energy efficiency and to decarbonize shipping are increasingly leading towards electrification in marine applications. Electric propulsion enables to optimize the power production under varying load profiles, and simplifies integration of energy storage systems and alternative power sources. In marine power distribution, DC grid solutions are gaining popularity and increasing the content of power electronics in shipboard power systems.

Strict regulations and requirements to cut emissions are accelerating investments in renewable hydrogen and electrofuels. Accordingly, the marine industry is undergoing a rapid transition from fossil to alternative low-carbon fuels. This will introduce fuel cells as a credible alternative to internal combustion engines, and further increasing the share of electric power distribution semiconductor-based power conversion.



### Biography:

**Sami Kanerva** received his D.Sc. (Tech.) degree in Electrical Engineering from Helsinki University of Technology in 2005, and since then intensively worked on various technology concepts with renewable energy and marine segments. Sami has conducted development of marine fuel cell solutions in ABB since 2017 and holds currently the position of Global Product Manager, Fuel Cells at ABB Marine & Ports division.