



Decarbonization of Ship Power Plants

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Message from the Guest Editor

Dear Colleagues,

The problem of decarbonization is as relevant for the maritime sector as it is for land transport. In the future, the environmental impact from ships will increase due to an expansion in the global fleet and the associated consumption, almost exclusively, of fossil fuels. Accordingly, the International Maritime Organization adopted amendments to MARPOL 73/78, which introduced the CO₂ emission limitation indicator—the Energy Efficiency Design Index (EEDI). EEDI also serves as an indicator of a ship's energy efficiency. The regulated improvement in the short term EEDI of 20-30% allows for the implementation of a wide range of innovative technologies that provide: reduction of resistance to movement, cogeneration and trigeneration of secondary heat sources, effective use of unconventional and alternative fuels, improvement in propulsion of ships by sources of alternative energy such as wind power, solar power, etc. Achieving a synergistic effect by the application of innovations provides a systematic approach to the multilevel parametric optimization of the indicators of systems and power plants of a ship.

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