



NAUTILUS

D4.4 – Preliminary Energy / Emission System Simulation

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Deliverable D4.4 – Preliminary Energy / Emission System Simulation Report

Short

summary:

Based on the genset and ship integration design an energy/emission model of the SOFC- battery hybrid genset, compatible to the power load use cases for the genset foreseen, has been developed (especially the adjustable power balance between SOFC and battery). Three load cases have been considered: i) hotel load only, ii) hotel load + manoeuvring (coastal sailing), and iii) full ship power load.

Improvement of the ship energy simulation tools used by shipyards (i.e. energy simulation tools developed in previous EC funded Joules Project), by integration of an emission evaluation feature have been conducted. Together with this new emission evaluation feature, these energy simulation tools covers all electrical and thermal systems and sub-systems: power plant, heat recovery, propulsion, HVAC / air conditioning, lights, waste and water treatment, etc. These subsystems are connected together in a full ship model, taking into account the weather and the real cruise conditions. Therefore, they allowed the optimum dimensioning of all components with respect to energy optimization and assess the energy/emission performance consumption of the vessel in all parts of its duty (typical cruise profiles).

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Dissemination Level

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PP	Restricted to other programme participants (including the Commission Services)	<input type="checkbox"/>
RE	Restricted to a group specified by the consortium (including the Commission Services)	<input type="checkbox"/>
CO	Confidential, only for members of the consortium (including the Commission Services)	<input checked="" type="checkbox"/>

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