Contribution ID: **154** Type: **Paper**

Distributed Energy Resources On-Board Cruise Ships: Integration into the Ship Design Process

Friday, 22 June 2018 11:45 (15 minutes)

An intense innovation is characterizing energy system solutions on board ships, especially in the case of large passenger ships due to the significant total amount of installed power and the variegate typology of electrical loads.
In the paper a distributed energy system will be considered for a 140.000+ GT cruise ship, in the perspective of a superior performance in terms of safety and energy efficiency.
The target is to overcome the traditional concept of power generation based on large diesel gen-sets located in few compartments. The innovative proposal is to integrate it, for the hotel needs, with a superior number of power generation units, but of a smaller size), properly distributed on board.
For the application, a reference cruise ship will be considered, characterized by LNG propulsion. Number, typology, size and integration on board of the generation units will be defined in relation with aspects of zonal independence, electrical load, weights, volumes, fuel tanks, supply systems, auxiliaries, with the minimum possible impact on commercially valuable space. Fuel cells technology will be particularly taken into account.
The critical issues in relation with the present safety rules and the whole ship design process be addressed as a fundamental aspect.

Primary author: Mr FLORE, GIORDANO (UNIGE - DITEN)

Co-authors: Mr PIETRA, ANDREA (FINCANTIERI srl); Mr NERONI, DIEGO (UNIGE - DITEN); Prof. SILVESTRO, FEDERICO (UNIGE - DITEN); Prof. MAGISTRI, LOREDANA (UNIGE - DIME); Prof. GUALENI, PAOLA (UNIGE - DITEN); Dr LAMBERTI, THOMAS (UNIGE - DIME)

Presenter: Mr FLORE, GIORDANO (UNIGE - DITEN)

Session Classification: Electrical Systems

Track Classification: Environment protection, electric system and ship energy efficiency