

NAUTILUS

**Nautical Integrated
Hybrid Energy System for
Long-haul Cruise Ships**



About the NAUTILUS Project

NAUTILUS is an EU funded project, which focuses on the **improvement of the environmental footprint of passenger and cruise ships**. The shipping industry gets an opportunity to contribute to one of the biggest challenges, reduction of greenhouse gas emissions under the Paris Agreement, and recent goals of the European Green Deal.

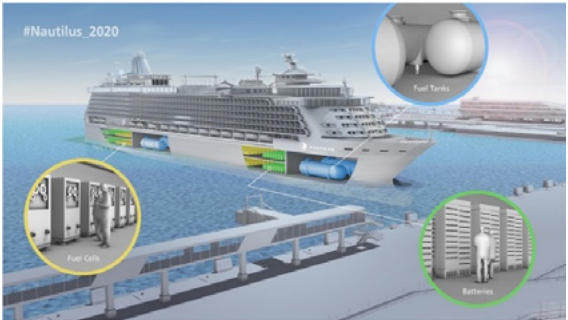
Compared to the amount of CO₂ in 2008, International Maritime Organization (IMO) has introduced a **target of 40% reduction of CO₂ by 2030** and pursuing a **70% reduction by 2050**.

There is also **societal pressure on decreasing the emissions of passenger ships because they spend more than 50% of their operation time docked on ports**. NAUTILUS results considerably reduce soot and other pollution, therefore enabling a clean and smog-free environment to travellers and local residents in ports.



What are the NAUTILUS Project Goals?

- Reduce overall greenhouse gas emissions by 50%.
- Reduce other pollutants to nearly immeasurable levels.
- Improve dynamic capacity and modularity of the novel power system.
- Allow fuel flexibility that will lead to further emission reduction (IMO 2050 targets).





How Will These Goals Be Reached?

The project has three pillars leading to a **validation of the process design concept**:

- the first pillar is dedicated to the development of a **process design concept of the on-board SOFC-Battery genset integration**
- the second pillar is the provision of a virtual tool, **the virtual genset simulator** used by the shipyards for design purposes and for evaluating the core of the ships energy system with respect to energy usage and emissions
- via a third pillar, **a laboratory scaled proof of concept** and a **functional genset demonstrator** will validate under marine relevant conditions the process for the design concept of the NAUTILUS project.

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The NAUTILUS Consortium



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