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An innovative cruise-ship onshore power supply facility in the port of marseille

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The aim of the study is to evaluate from a technical and economic point of view, the feasibility of creating an innovative High Voltage Shore Connection (HVSC), at a major Mediterranean port. The purpose is to enable two cruise ships to simultaneously connect to the Port's electric grid, thus permitting the ships to switch off the main engines and so reduce environmental footprint when docked. Additionally, the study considers the integration into the Port electric grid of Distributed Energy Sources (DES) from renewables and Energy Storage Systems (ESS) to limit the supply of energy from the public grid to a single connection point.

In summary, the main objectives of this study are to assess the feasibility of:

- Developing a HVSC facility in order to connect two cruise ships at the same time to the Port electric grid,
- Electrifying a selected number of strategic locations within the Port to serve two cruise ships, whether at berth in the cruise terminal or in a dry-dock,
- Integrating distributed renewable energy generation systems in order to increase the availability of HVSC power and reduce the Port's environmental footprint, possibly also decreasing the unit cost of energy for the end user,
- Integrating a suitable Energy Storage system (ESS) to optimize usage of the energy generated by DES,
- Identifying any reinforcement/expansion work required for the existing Port grid and associated civil engineering/structural modifications; as well as any shipside interventions required to allow the use of a HVSC,
- Lowering pollutant emissions (SO₂, NO_x, CO₂, and PM) at port,
- Financial investment and economic impact.

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