

Siemens builds first European onshore power connection for cruise ships

The combustion of marine fuel to supply the required electricity to all onboard systems when cruise ships are in port is a major contributor to local air pollution in harbors. Siemens technology is helping harbor cities to reduce these ship-related emissions. As a general contractor, Siemens has been commissioned by the Hamburg Port Authority (HPA) to supply a turnkey onshore power supply system by 2015. The system will be able to supply electricity to cruise ships of all common sizes, regardless of the design of the ship's electrical system, while they are in port.

The facts in brief about onshore power:

- The first European **onshore power supply system** of this type has a capacity of 12 megavolt amperes (MVA) and works with a patented, mobile robot arm designed specifically for the tidal range.
- Frequency converters with control software from Siemens adjust the frequency of the harbor's local distribution grid to match the ship's electrical system. This **modular system** covers all power ranges required in the shipping industry and is suitable for the world's common ship frequencies (50 and 60 hertz) as well as all necessary voltage levels for shipping. Voltages of 6 or 10 kilovolts (kV) are provided in the 50-hertz range and 6.6 kV or 11 kV in the 60-hertz range. During frequency conversion, the system basically converts 50 hertz AC current to 60 hertz AC current and vice versa.
- The **onshore power supply system** from Siemens has a cable management system developed especially for cruise ships that provides a fast, easy, and flexible connection between the shore and the ship. A robot arm is used to carry the

connectors for the power cable and the communications link into the ship through the outer hatch, as if on a tray. The system is self-propelled and can be automatically operated from the ship as needed, so that no additional specialists are needed on shore.

- The **cable management system** is stored in a flood-protected garage when not in operation, ensuring that visitors have public access to the dock. Telescoping cranes, trucks and buses can drive over the dock operating area with no restrictions during the lay days. The concrete channel's steel plate covers can easily support the required axle loads.

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