

Article

ABB's shore-to-ship solution helps to ensure environmental compliance at the Swedish port of Ystad



Another Swedish port goes green with shore-to-ship power thanks to ABB's Static Frequency Converter system. Port authorities of the city of Ystad in the south of Sweden have decided to invest in the latest power electronics technology to minimize the negative environmental impact of the vessels remaining at berth.

With around 3,500 vessels served per year, Ystad is the fifth largest port in Sweden. Its operations are based primarily on ferry traffic that follows dedicated routes to Poland and Denmark. The considerable number of ferries berthing daily for a fixed length of time results in high emission and noise levels. These are caused by the on-board diesel generators used to provide electricity for the vessels to run basic amenities, such as heating and ventilation.

Embracing sustainability

In order to mitigate this adverse influence, Ystad Hamn chose the proven technology of the shore-to-ship power connection. This seamlessly integrated system enables ships docked in the port to shut down their diesel engines used to create onboard electric power and plug into an onshore power source, thus cutting both emissions and noise.

Solution

Most ships operate with 60 Hz electricity whereas the local grid in most parts of the world is 50 Hz. ABB's PCS 6000 Static Frequency Converter platform converts the grid electricity to the appropriate load frequency, thus replacing motor generator sets. The additional flexibility of the solution allows it to be accommodated to the specific requirements of the project.

The uniqueness of this investment is that multiple vessels can be powered simultaneously, regardless of their system frequency – whether it is 50 Hz or 60 Hz – making it particularly convenient for the ships coming into Ystad.

ABB worked in conjunction with Processkontroll Elektriska AB, the general contractor. As part of the solution, ABB provided PCS 6000 Static Frequency Converter at 6.25 MVA, power transformers, medium-voltage switchgear as well as control and protection equipment. ABB's power systems team was also responsible for the electrical design, settings for the protection relays on shore, project management and commissioning.



One of the cranes enabling the shore-to-ship connection

Result

According to preliminary estimates, the shore-to-ship power connection will cut emissions by 97.5 per cent, thus ensuring compliance with environmental regulations and improving the quality of life of the local community.

“It is important to us that our services are environmentally friendly. Besides, we calculate that the effects on the environment will turn out so positively for Ystad’s inhabitants that the total socioeconomic balance will be on the plus side”, said Björn Boström, Managing Director of The Port of Ystad.

Benefits all around

Undoubtedly, the shore-to-ship solution is an investment which guarantees immeasurable benefits in the long run. In addition, it does not incur further expenditure as both operating and maintenance costs are minimal.

As far as the daily management of the on-shore power supply plant is concerned, it does not require any assistance from the port personnel. The switching process takes place on board and is very easy to handle. After the synchronization against the local grid, the load is transferred to the shore side installation and the on-board auxiliary generators are automatically switched off. This translates to lower fuel bills and less pollution.

ABB (www.abb.com) is a leader in power and automation technologies that enable utility and industry customers to improve their performance while lowering environmental impact. The ABB Group of companies operates in around 100 countries and employs about 145,000 people.

For more information please contact:

ABB Sp. z o.o.

Branch Office in Aleksandrow Lodzki

27 Placydowska St

95-070 Aleksandrow Lodzki

Phone: +48 728 401 287

Fax: +48 42 29 93 340

www.abb.com/powerelectronics (grid interconnection)

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