

ARTICLE

ABB innovation reduces pollution and saves costs at Viktor Lenac shipyard in Rijeka, Croatia



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ABB in Croatia have provided a leading-edge solution consisting of two 1250 kVA PCS100 SFCs (Static Frequency Converters) to the shipyard Viktor Lenac in Rijeka, Croatia to help improve quality of power and reduce maintenance costs. Aside from reducing emissions, pollution and noise level, the ABB solution provides cost savings, by using grid power instead of diesel generator (DG) power.

Over the past years on several occasions, Viktor Lenac shipyard had the need for ABB's PCS100 SFC to power the ships that used a 60 Hz network. Previously the shipyard used diesel – generator sets. For larger units, as much as up to three units with 1 MW power parallel connected, it was necessary to use the DG for a longer period, in order to ensure operation without any interference. The prevailing issues in the past were related to, parallel operation with mutual synchronization of diesel – generator units, common problems during unexpected load changes and disconnection from individual unit synchronism. High fuel for diesel engines consumption (low efficiency of internal combustion engines in relation to energy converters), a high level of noise – especially at night in a relatively urban area, close proximity to

residential buildings, pollution due to continuous operation of internal combustion engines like CO₂ emission, NO_x and other greenhouse gases were also contributing factors.

A complete package

The intention of the shipyard was to increase its competitiveness in an increasingly demanding market. Viktor Lenac shipyard identified the advantage the PCS100 SFC could provide. This was to keep equipment running through utility voltage sags and frequency variation. The first 375 kVA PCS100 SFC was commissioned and installed at the end of 2012. After insight and analysis of all the benefits, Viktor Lenac shipyard decided to purchase another PCS100 SFC, this time with a higher power rating of 2500 kVA. At the beginning of 2013 ABB in Croatia delivered a mobile container unit containing 2 x 1250 kVA PCS100 SFCs, a low voltage and medium voltage plant, a transformer and a local control system based on the ABB AC500 PLC platform. The PCS100 SFC features are that it can work in several modes – as a standalone supply unit, in parallel with other power sources and in load mode, for testing of the ship power plant.

Advantages and benefits

The new grid interconnection solution since installation has provided many advantages to Viktor Lenac. These are;

- No noise pollution
- Lower operating and maintenance costs
- No CO2 and nitrogen oxide pollution
- Easy to use and maintain
- Reliable operation
- Improved efficiency at the shipyard
- Ability to use the inverter during examination and loading of diesel generating plant on the ship and restore power to its own network instead of energy burning on resistors submerged in the sea.

Proven results

Efficiency after installing the PCS100 SFC has drastically improved and the operating and maintenance cost of equipment over time has been reduced.

To find out more about ABB's power protection solutions:

<https://new.abb.com/power-converters-inverters/grid-interconnections/industrial/pcs100-sfc>

Web: www.abb.com/ups

Email: powerconditioning@abb.com

Additional information

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