

ARTICLE

# Bridging the gap between the vessel power system and the shore



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01 ABB 500 kVA PCS100 SFC housed in a stainless steel enclosure

02 400 kVA PCS100 SFC installed at Neorion, Greece

When building new vessels in a shipyard electrical equipment on board needs to be powered up at various stages of the construction project. For refits, most vessels require power on board the whole time they are in the dock. With a new build scenario, the on board diesels may not be ready, and with refits the diesel generators may be down for servicing.

In these circumstances, it is required to connect the vessel to a shore supply. Herein lies the problem. Most vessels operate a 440V 60Hz system on board and at this particular yard, Neorion Shipyard on the Island of Syros, Greece, in the Aegean Sea, the local utility supply is 380V 50Hz. In the past Neorion Shipyard used diesel generators to provide the 60Hz supply. However, they were noisy, had a dirty exhaust and over a period of time proved quite expensive to run. Add to this the inconvenience factor, and it is evident why Neorion went looking for an alternative solution.

### Static frequency converter to replace diesel engine

In 2006 Neorion installed their first PCS100 SFC (static frequency converter) from ABB's Power Quality business unit. This first installation was a 500kVA unit that was specially constructed in an outside stainless steel enclosure. This solution

ensured that it could sit on the dock in close proximity to the vessel it was powering. This portable unit gave the yard the most versatility, which closely resembled their previous diesel generator sets in physical characteristics, but contained all the extra advantages of near silent operation, no exhaust pollution, very high efficiency, and eliminated the mess associated with diesel refueling.

### Additional order for second converter

In 2007 Neorion ordered an additional PCS100 SFC, but in this instance they chose a 400 kVA unit to be installed inside their electrical switch room. These new frequency converters proved to be a clean and efficient way to supply vessels with many advantages over previous solutions. The additional advantage of the static solution being configured to replicate a traditional diesel generator set is when larger loads are required, either both the static frequency converters can be paralleled or they can simply parallel with a conventional diesel generator.

**Challenge**

- - Supply vessels with clean stable power at required frequency

**Solution**

- ABB Power Quality provided static frequency converters

**Benefits**

- Silent operation
- Lower cost energy from local power supply
- Less maintenance costs compared to diesel generator
- Low harmonic interference on local supply
- Unity power factor reducing local power supply charges
- Elimination of diesel refueling



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

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