

ARTICLE

# The right frequency

## Shifting power to and from 60 Hz to 50 Hz



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01 LPG floating storage and offloading vessel N'KOSSA II

02 Installing and commissioning the PCS100 SFC system on the N'Kossa II offloading vessel

Because all the world is not at the same frequency, ABB PCS100 SFC technology has been developed to bridge the gap in today's industry environments where equipment has different voltages and frequencies. It provides the economical solution for converting power to and from 60Hz and 50Hz frequencies.

Oil and gas operations are mostly situated in merciless locations, from the intense forces of the arctic to the sweltering heat of deserts and hazardous conditions on the exposed open seas. To sustain and secure operating environments in these remote areas, reliable and stable power is crucial. ABB's PCS100 technology has recently been installed to improve the performance of the remote global offshore oil and gas industry operations based in the Congo. Two PCS100 1650kVA static frequency converter (SFC) units were commissioned in October this year, to shift power to and from 60Hz to 50Hz frequencies, linking LPG floating storage and offloading vessel N'KOSSA II with its connecting production

platform. This multi-billion dollar industry is heavily reliant on maintaining continuous and efficient operations of its drilling equipment, pumping systems, and refrigeration functions at the production site. Equipment must be sufficiently robust to withstand extreme conditions; flexible to support multiple services; and be cost effective to lower capital expenditures and operating costs.

ABB's power converter product range represents a quantum leap in high power technology, particularly in relation to its technical performance and economic operation. The PCS100 SFC is a proven, efficient and effective power system that is specifically designed to interconnect incompatible networks. The PCS100 SFC units installed replaced former technology to give a highly reliable system that is a more flexible, efficient, and cost competitive approach to supplying the frequency and voltage necessary. This particular

application has been designed to supply power from the platform to the vessel, avoiding operation of its onboard diesel generators.

#### Key features and flexibility

- Ability to parallel with multiple generators
- High system availability through advanced power module redundancy
- Capacity to provide output immunity to input disturbances (for voltage sags and frequency shifts)
- -The unity power factor rectifier with a
- THDi of <3% provides lower harmonics
- Aligned to inflexible space constraints
- Minimal operating and maintenance costs
- Protects sensitive and expensive loads
- Clean sinewave output voltage

#### Typical applications

- 50 to 60Hz or 60 to 50Hz industrial applications
- Dockside converter – allows generators to be turned off while at port to save fuel and eliminate pollution
- Replacement of motor generator sets
- As a clean power supply to isolate an unstable grid from a critical load

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

Web: [www.abb.com/ups](http://www.abb.com/ups)

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#### Additional information

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