CASE STORY

Marine diamond mining vessel keeps on digging with help of compact ADF active harmonic filter



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» **LOCATION**
Namibia

» **INDUSTRY**
Marine Diamond Recovery Vessels

» **INSTALLATION DATE**
2017/2018

BACKGROUND

Debmarine Namibia is an offshore marine diamond exploration and recovery company that operates in 3,700 square miles of diamond concession at sea area off the coast of Namibia. Established in 2002, the company is a joint venture between De Beers Group and the Government of the Republic of Namibia. It owns, operates and maintains seven marine diamond recovery vessels, one of which is the Debmar Pacific, which mines diamonds from the ocean floor using advanced drill technology. Having been built in 1977, the Debmar Pacific eventually came to be in urgent need of electrical system upgrading.

CHALLENGE

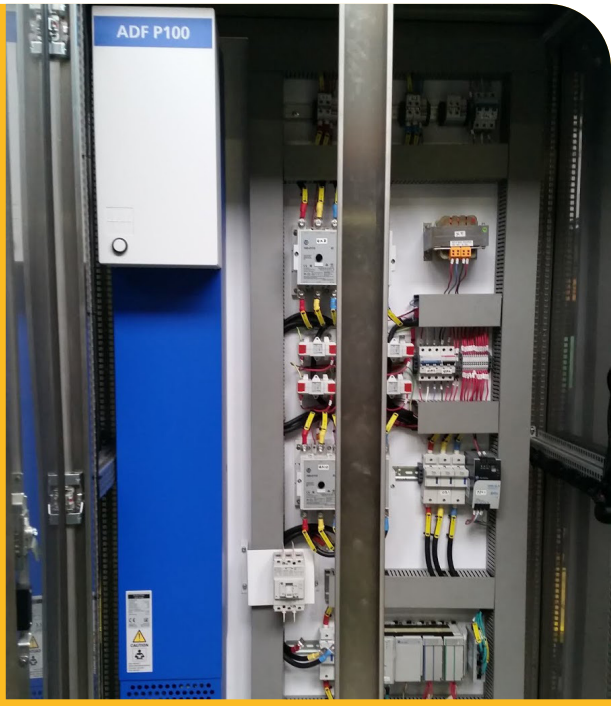
The vessel had been having problems with a particular lighting circuit, in which several transformers were blowing due to suspected poor power quality supply, a classic symptom of an electrical circuit experiencing harmonic noise related problems. This problem generally arises from the use of variable frequency drives (VFDs) and other non-linear loads. A load is considered non-linear if its impedance changes with the applied voltage.

This change means the current drawn by the non-linear load will not be sinusoidal, even when it is connected to a sinusoidal voltage. Non-sinusoidal loads contain harmonic currents that interact with the impedance of the power distribution system to create voltage distortion and power quality problems, which heat the transformer. This explains why the transformers in the lighting circuit aboard the Debmar Pacific were breaking.

SOLUTION

Debmarine Namibia chose Actom Energy, an electrical engineering specialist in South Africa, to design, manufacture and install an active harmonic filter control panel to alleviate this problem. Actom needed to quickly source a harmonic filter, and based on a recommendation from De Beers, called upon Comsys partner and specialist, CP Automation. Using the information from Actom, CP Automation recommended the compact Comsys ADF P100 active dynamic filter, ideal for applications where space is precious such as onboard a marine vessel. John Mitchell, Global Sales and Marketing Director at CP Automation, explains the choice:

"We can't stress enough how much of a positive impact the right harmonic filter can have on a company's environmental performance, lowering energy consumption and improving productivity. With this in mind, we were confident the ADF P100 was a perfect match for Actom's project, and that it would put an end to the previous transformer issues."



RESULTS

"We would certainly buy from CP Automation again," said Gregory Webb, instrumentation technician at Actom Energy. "Installing this filter was straight forward and engineer-friendly. It has continued to perform well since installation, as demonstrated by the lack of issues with the transformers in the lighting circuit, as we had seen before commissioning the harmonic filtering."

PRODUCT USED IN THIS CASE

ADF P100



- » HARMONIC ELIMINATION
- » LOAD BALANCING
- » DYNAMIC VAR COMPENSATION
- » MODULAR & SCALABLE DESIGN
- » LOW RESPONSE TIME
- » 208-415V NOMINAL VOLTAGE
- » SEVERAL ADF P100S CAN BE COMBINED FOR HIGHER POWER