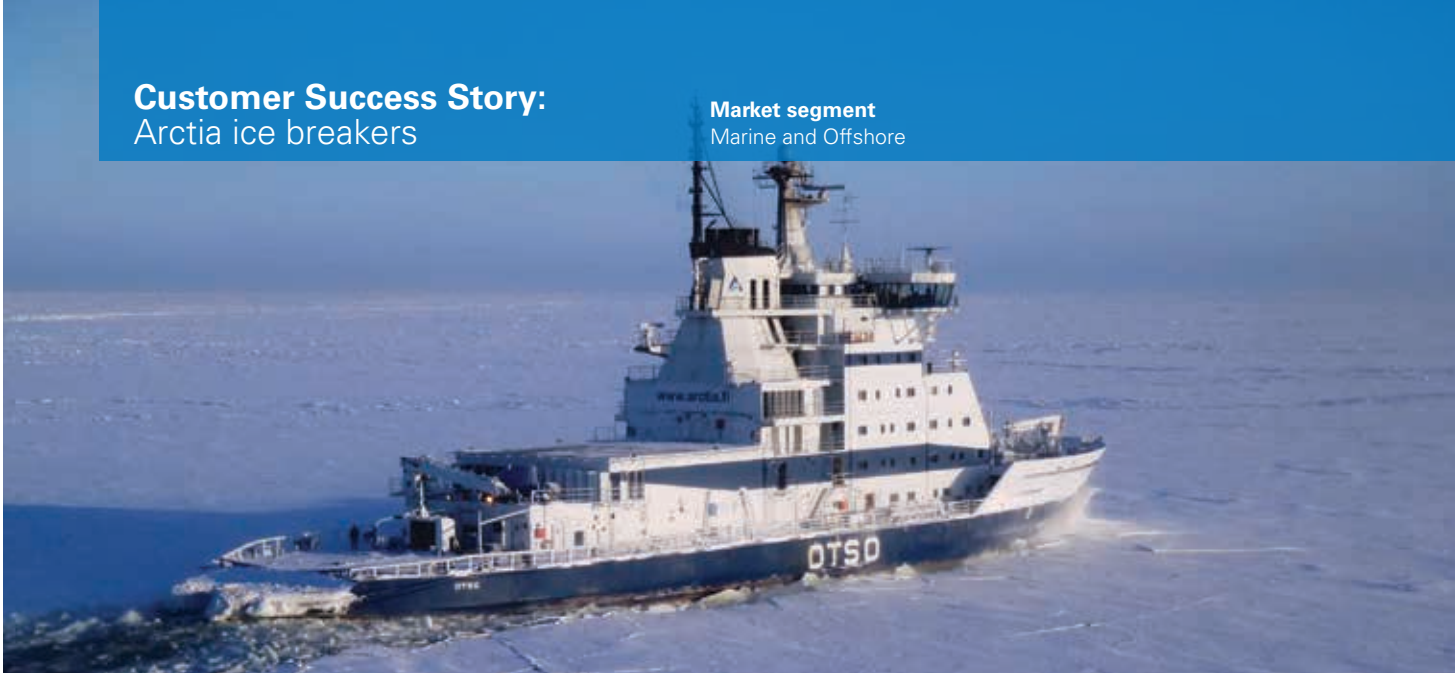
Customer Success Story:
Arctia ice breakers

Market segment
Marine and Offshore



Eaton keeps Arctia icebreakers going through Nordic winters

Location:
Baltic Sea

Challenge:
Deliver cleaner electricity and improve power quality of sensitive loads.

Solution:
2 x Eaton 93PS 20 kW
Marine UPS without batteries.

Results:
After installing Eaton's UPSs', the elevators have worked flawlessly and there is now a cleaner supply of electricity.

"We have been pleased with the overall package. UPSs are working as they should, and the electricity supplied into the elevators is now cleaner."

Petri Mikola, technical manager, Arctia

Background

Arctia is a shipowner, civil and marine engineering company. It specializes in icebreaking and ice management, as well as marine surveying services, pipe and cable laying, towing, supporting installation and maintenance works of underwater structures, oil spill response, civil engineering and manufacturing signs and buoys.

Arctia icebreakers operate in the coastal area of Finland and in challenging conditions, ensuring reliable sea links for businesses in the harsh winters. Arctia's icebreaking services include ship assistance, routing planning and related traffic management. Icebreakers ensure the safety of winter traffic and assist merchant vessels by opening fairways, towing and releasing vessels from ice.

The company, founded in 2009, is owned by the Finnish state. Its fleet includes nine icebreakers, four of which – Otso, Kontio, Nordica and Fennica – were equipped with Eaton's UPS in the spring of 2018. Due to the international role of multifunctional icebreakers, their utilization can reach up to 80%, which requires reliable power supply in all conditions.

Challenge

The ship uses generators to provide its onboard electricity, however a large number of devices are typically connected to the ship's electricity network, affecting power quality. Consequently, the ship's electricity is slightly lower in quality than the mains electricity, which can create problems for some sensitive loads.

At Arctia, this concern emerged in late 2018 with the operation of the icebreaker elevators. The frequency converters controlling the elevator drives were malfunctioning and no logical reason was found other than the quality of the generator power.

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Solution

Eaton worked with Arctia to come up with a solution to the power quality problem with the installation of three-phase Eaton 93PS Marine UPS.

The purpose of a UPS system is to ensure uninterruptible battery backed clean power for critical loads. For Arctia, Eaton's 20kW Eaton 93PS Marine UPSs were actually shipped without batteries. Instead, the key feature was the UPS's double conversion technology, which acts as an active filter to purge impurities in the power so that the supply is equivalent to that of the mains electricity. This meant that the UPS could provide a clean power supply to the ship's elevators.

The technical features of the device determined that Arctia chose Eaton as its supplier according to Petri Mikola, technical manager at Arctia.

The equipment selected by Arctia has been designed and manufactured at Eaton's Espoo (Finland) plant, where Marine UPS units have been manufactured since the 1970s. Eaton has a long tradition in securing the power supply of the marine industry, with several thousand marine UPS being shipped globally. In addition to icebreakers, installations include the world's largest luxury cruise ships, yachts, oil rigs and various fishing and dredging vessels. Indeed, Eaton's UPSs are trusted in the Caribbean sun as well as in the cold winter of the Baltic Sea.

Results

Since the installation of the UPSs, there have been no malfunctions of the elevators.

"We have been pleased with the overall package, both in terms of equipment installation and operation. The UPSs are working as they should and the electricity in the elevators is now cleaner," said Petri Mikola from Arctia.

"The project went as planned and the Eaton UPSs solved the challenge that they were acquired for.

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