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A Bosch Company

Hybrid power for fish farms

To better manage power supplies for fish farms, Fjord Maritime has created the Fjord Hybrid® solution. With essential building blocks provided by Bosch Rexroth, Fjord Hybrid automates power generation and supply for individual fish farms, optimising all aspects of operation and reducing generator running time by up to 90 percent.

A POWERFUL SOLUTION

With over 40 years of experience in the aquaculture industry, Fjord Maritime has seen a wide range of changes and challenges. With a global shift towards electrification and reducing environmental impact, Fjord Maritime worked with Bosch Rexroth to engineer a new, innovative power solution for offshore fish farms.

In most cases, the power for fish feed barges and fish farms is provided by diesel generators, which run constantly regardless of required power. This solution has some disadvantages, such as high fuel consumption, large CO_2 footprint, excessive noise generation and regular maintenance requirements. Bosch Rexroth and Fjord Maritime saw this, and worked on a more viable, modern solution.

After extensive research and design, Bosch Rexroth was able to integrate their existing PMS building blocks into a hybrid power system for fish farms. With a regular system, the diesel generator is running 24/7, but now with the Fjord Hybrid solution, it only runs on average for four hours per day. This means that for the other 20 hours of each day, the barge gets its power from the batteries.

When the batteries need to be charged, the power management system signals the diesel generator. The microgrid is then run from the generator, which also charges the batteries with any spare capacity up to its at ideal engine load (80%), which is the point where you get maximum amount of power per litre of diesel. Bosch Rexroth provided most of the software and the technology for this system, which quickly established itself as a success.

BRINGING REAL-WORLD BENEFITS

Fjord Maritime defined two solutions which could be applied to fish farms and fish feed barges, new or existing. The first solution is fully integrated, and the second is built within
a shipping container and can be installed on deck. Both systems are plugged into the existing generator and electrical systems.

Both systems provide the same extensive benefits: reduced diesel consumption and reduced overall costs by up to 60% respectively, increased generator lifetime by 60%, and crucially, reduced emissions by up to 90%. This hybrid system makes a huge difference, and changes the industry for the better.

These systems are also connected to the cloud, so diagnostics and maintenance can be carried out remotely. Bosch Rexroth, supplier of high-end drive and control solutions, was able to contribute not only with high performing components but also with innovative and intuitive engineering and IoT solutions.

COMPLIMENTARY PARTNERSHIP

Fjord Maritime have ordered 30 hybrid systems so far. However, this looks to be just the beginning of this fruitful partnership, as the process has shown what can be achieved when two committed companies pool their expertise.

The Bosch Rexroth team have shown their technical expertise, and how well that can combine with engineering to provide an innovative solution. Fjord Maritime had the commitment and bravery to drive for this change, and the capability to work alongside Bosch Rexroth in the design and implementation phases.

This innovative, more environmentally friendly hybrid power unit is just the beginning, as both Fjord Maritime and Bosch Rexroth look at adjacent solutions which could benefit both parties, as well as the world around us, in the future.