

CASE STUDY

ABB maintenance and operational services for Marine Harvest

Fish tale



— 01 Marine Harvest's new fish feed production facility in Norway will supply the company's fish farms. ABB supplied most of the power and automation to the new factory.

To this end, Marine Harvest has opened a new fish feed factory in Norway. The plant operates 24 hours a day in the high season, so reliable operation and full productivity are vital. Marine Harvest has now signed an agreement with ABB to service the ABB installed base in the factory – including drives, the automation and decision support system, and the 22 kV system that powers the new production facility.

As marine resources come under pressure and demand for fish and fish protein shows no signs of abating, fish farms are becoming a vital part of the world's food supply chain. From its many farms, Marine Harvest ASA – one of the largest seafood companies in the world – produces farmed salmon and a variety of processed seafood. Employing over 10,000 workers, it is represented in 22 countries and, with 24 percent of the global market, is the world's largest producer of Atlantic salmon. The company has decided to start supplying its own fish feed and, for this purpose, has built a \$120 million

With the world's appetite for fish products growing daily and marine natural resources coming under increasing pressure, the business of fish farming is booming. Norway-based Marine Harvest ASA – one of the largest seafood companies and the largest producer of Atlantic salmon globally – operates a large number of fish farms. The company is now extending its business to produce the fish feed that is used in these farms.

production facility at Valsneset in Norway that is capable of producing 270,000 tons of feed per year on two production lines. This production volume covers 80 percent of the needs of Marine Harvest's Norwegian fish farms.

The new, fully automated facility allows the company to extend its quality control all the way from fish food to the final delivery of portioned fish to retail customers.

ABB was the main supplier of power and automation solutions to the new factory. The scope of supply included transformers, frequency converters, 22 kV switchgear, motor control, drives and computer networks. The automation system encompasses about 5,000 signals from processes in the factory and is integrated into the company's overall business system using ABB's Manufacturing Execution System (MES), more precisely the Enterprise Connectivity Solution. This offering is part of the ABB Ability™ Manufacturing Operations Management suite.

Achieving high productivity, energy efficiency and reliable operation

ABB has now signed a service and operation agreement with Marine Harvest for the drives, and automation and decision support system, as well as for the operation of the 22 kV system that supplies the facility with power. The agreement has a duration of three years and involves round-the-clock phone support with guaranteed response times and a dedicated contract manager.

The control and decision support system lies at the heart of factory operations and is vital to achieving high productivity, energy efficiency and reliable operation.

Control and decision support system

Feed production is a complex process that handles many ingredients and mixing ratios, and which is subject to full traceability. To make production as efficient as possible, one batch of a particular feed is produced at a time. To control the process, the factory uses Marine Harvest's own version of ABB's Extended Automation System 800xA. The control system not only runs the processes in the factory but also integrates these processes into the company's overall business system.

The control system ensures that the factory adheres to the company's rules, guidelines and quality standards. It also enables:

- Fast and correct decisions based on real-time production data and critical process information
- Agile paperless operation that can respond rapidly to changing customer demands
- Full product and process genealogy
- On-the-job support for operators by providing up-to-date information, instructions, material lists, notifications and checklists

- Operation visibility and plant performance analysis to help realize continuous improvements
- Close monitoring and control of material consumption and warehouse status

Traceability

As is common in the world of food production, every stage of farming and production adheres to strict best practice and guidelines. One of the most critical best practices revolves around traceability at all levels and every stage of the process. In a food operation, traceability relies heavily on a meticulous and efficacious use of data:

- Horizontal and vertical traceability at all stages of the production process
- Integration with external systems for extended information correlation
- Visibility in the production process and accessibility of real-time data
- Easy accessibility for all relevant parties to all critical process data

Food processor

The installation of the ABB drives, power supply, and automation and decision support system in the new facility was performed with the full collaboration of the customer, which allowed a short and smooth implementation time, and meant the factory was up and running before scheduled completion date. A simple user interface eased the training process for the new operators. The service and operation agreement with Marine Harvest will ensure that ABB support is always at hand to keep the new production facility working round-the-clock to supply feed for the company's fish farms throughout Norway.

02 The new Marine Harvest facility

03 ABB motors and drives are part of the automation solution.

04 ABB supplied most of the power and automation for the new factory.

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