

ARTICLE

# ABB's technology is helping Fonterra save time and money by minimizing production downtime



When leading multinational dairy manufacturer Fonterra needed a power protection solution for its processing and packaging lines at its facility in Takanini, Auckland, ABB was able to provide a solution that would eliminate voltage sags and cut out over four power quality events annually, saving an estimated cost of \$200,000 per year.

### Fonterra's Takanini facility

Globally, Fonterra produces over 22 billion litres of milk each year. This requires only the best resources to ensure high quality milk is produced in ways that add real value to Fonterra's customers and consumers around the world. The facility in Auckland produces a number of products including fresh milk, ultra high temperature (UHT) milk and cultured dairy food for some of New Zealand's best-loved brands. The resources needed to produce these products not only derive from New Zealand's natural environment, but also the equipment used at Fonterra's Takanini facility.

More than 90 percent of UHT milk and cream produced at this facility is exported to markets in the Pacific and Asia region, including China, Singapore and the Philippines. Due to the expansion and upgrading of the UHT processing

and packaging facilities, to help meet the significant growth occurring in the global UHT market, the facility now draws between 30 to 40 megawatts of power. This is mainly consumed by the large AC drives and motors used in the facility's production lines, which package more than 750,000 litres of fresh milk each day and can produce around 6.4 bottles per second.

### Minimizing production downtime

Most problems are short term voltage sags caused by faults and events in the external electricity utilities network. When this happens there is no guarantee the milk is sterilized for consumer use, so disposal or re processing of the milk is required. Peter Williams, New Zealand's Fonterra's Brand Group Automation and Control Manager, outlines the effect Fonterra's power quality events were causing. "When a glitch occurs in our facility, we need to go through a sterilization process which takes around four hours. An event like this across seven production lines, costs us 28 hours of downtime and around \$50,000 costs to our business. This would typically happen to us two, three or four times a year."

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01 The PCS100 Active Voltage Conditioner has been installed to eliminate voltage sags and correct any power quality problems Fonterra encounters

The PCS100 Active Voltage Conditioner, which is part of ABB's power protection portfolio, is able to mitigate voltage disturbances in Fonterra's facility, minimizing unwanted downtime and wasted milk product. "We would be looking to see savings in the amount of \$500,000 a year," says Williams. Fonterra decided to implement ABB's PCS100 AVC because of the global relationship with ABB and reliability of its products. "We have experience and a great deal of faith in their products... after some due diligence, we decided to implement it at our facility," adds Williams.

Further benefits of the PCS100 AVC are the lowest total cost of ownership by requiring no energy storage and maintaining an operating efficiency of 99 percent. With a small footprint in design, the PCS100 AVC was able to fit into the small Fonterra facility in Auckland, New Zealand confined area of Fonterra's equipment room, making this an ideal solution for facilities that don't have large amounts of space for their power protection requirements.

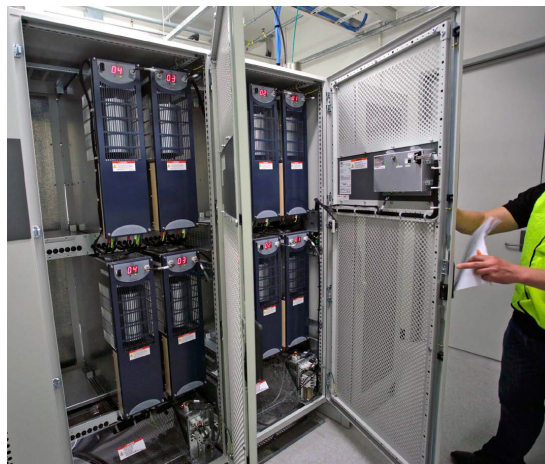
#### Proven results

After four months of installation of the PCS100 AVC, Fonterra suffered five power quality events. Because of the PCS100 AVC, the UHT area of the plant managed to maintain operations throughout each one. Areas within the facility that were not protected by the PCS100 AVC shutdown.

Williams says each voltage sag event equates to a potential loss of around \$50,000. He says initial forecasts were for the system to pay itself off within 12 to 18 months. He says the three-month return on investment is "pleasing". "To have that impact on our operating costs is a bonus." Williams says plans are in development for potentially installing more power protection systems as part of another FBNZ project.

Williams indicates in the future Fonterra plan to utilize ABB's products to improve the power quality in other locations. "Over some time we are looking at using this solution at other UHT sites, just to guarantee that supply stability we need. Our mission is to become the world's most trusted source of nutrition and ABB's product is a crucial part of that process."

Additional project planning ABB will install a PCS100 Reactive Power Conditioner at



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Fonterra's milk powder plant at Pahiatua, New Zealand. The PCS100 RPC helps to mitigate power quality problems caused by production equipment within a facility. The Pahiatua site operates from August to June and processes 1.4 million litres of milk each day from farms across northern Hawke's Bay to southern Wairarapa and Wellington, producing 55,000 tonnes of whole milk powder each year.

Fonterra is mid-way through construction of a new \$235 million drier at Pahiatua. The project, which includes a new 35 MW gas-fired boiler, will increase the current production capacity by 2.4 million litres in 2016.

#### About Fonterra

Fonterra the global co-operatively-owned company headquartered in New Zealand's Auckland facility, is the world's largest exporter of dairy products and can be found in over 100 countries.

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

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

Email: [powerconditioning@abb.com](mailto:powerconditioning@abb.com)

Watch the video on YouTube (3.34 minutes) :

[https://www.youtube.com/watch?v=sU9uMLX9pIw&list=PL-Q2v2azALUPKFQqIbhFg\\_abb\\_6df26fqU&index=40](https://www.youtube.com/watch?v=sU9uMLX9pIw&list=PL-Q2v2azALUPKFQqIbhFg_abb_6df26fqU&index=40)

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