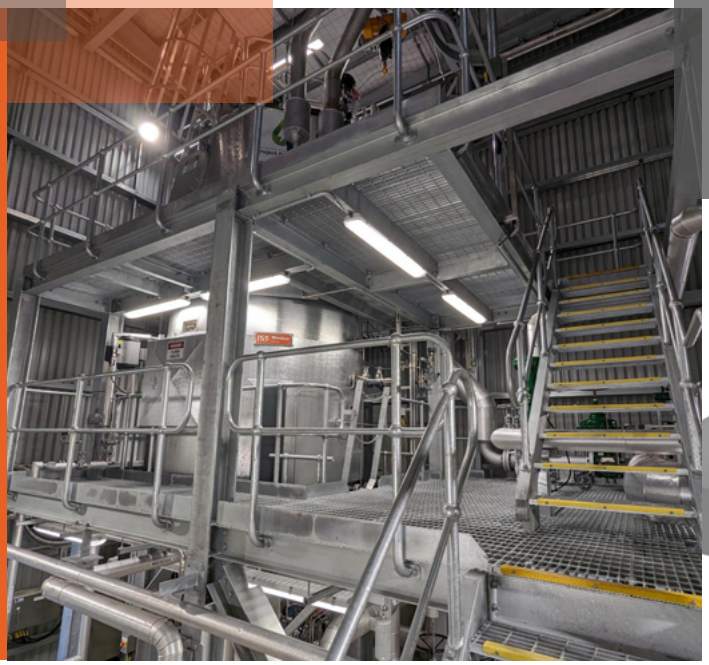
Windsor Energy



Case Study

Mataura Valley Milk, Boiler 2 - Gore, New Zealand

20MW$_{th}$ Electrode Boiler

Client:	Mataura Valley Milk
Location:	Gore, Southland, New Zealand
First Steam:	Q4 2023

Background

Mataura Valley Milk (MVM) was formed in 2008 to pursue the construction of "The World's Best" nutritional formula plant. The processing plant in Gore started construction in 2016 and by mid 2018 Windsor Energy, (then RCR Energy), had commissioned a 20MW Towerpak boiler to produce the full steam production required for the site. After many successful years of producing and exporting high quality nutritional products MVM made the decision to decarbonise their production, and to do this by electrification.

For dairy companies world-wide this has been a difficult task due to limited availability of technology to provide high pressure steam. However with Windsor Energy's offering of an Electrode Boiler from our technology partners in Sweden this was no longer an obstacle.

Collaborating with the Energy Efficiency and Conservation Authority's (EECA) GIDI co-funding (Government Investment in Decarbonising Industry) as well as an innovative power supply agreement with Meridian Energy, MVM was able to make 100% "electric steam" possible, and be the first dairy site in New Zealand to do so. It is estimated that the electrode boiler will deliver carbon savings of 22,000 tonnes per year.

The Solution

Project Recharge was launched, and the EPC boiler contract was awarded to Windsor Energy in May 2022. The project planned to use as much of the existing coal fired boiler's infrastructure as possible, so the new boiler plant needed to integrate with the existing steam, feedwater, blowdown and control systems. The new boiler house is seamlessly added to the side of the existing boiler house for ease of integration and operation. The new Windsor scope includes:

- 20 MW High Pressure (38Barg operating) Electrode Steam Boiler
- Duty and standby circulation pumps and associated instrumentation for operation;
- State of the art chemical dosing and analysing station (vital for maintaining high performance of an electrode boiler);
- Boiler control panel and MCC system;
- High voltage equipment including protection switchgear;
- Boiler structure, platforms and galleries;
- New boiler house and HV room;
- Complete installation and commissioning;

Since the project launch MVM have won the Environment Southland Community Award for Project Recharge and for fully electrifying their steam requirements. With this project successfully completed New Zealand has its first fully electrified dairy plant in operation.

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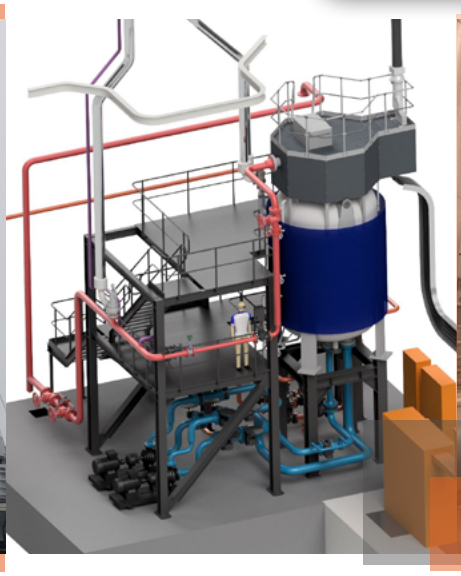

Why Windsor Energy?

As a trusted provider of energy plant and services in New Zealand and Australia, Windsor Energy offered the following advantages:

- Extensive installed base of heat plants in New Zealand and worldwide for a range of industrial clients.
- Project team experienced in the practical details of designing a variety of boiler types.
- Our electrode boiler technology partners Elpanneteknik are industrial leaders in high voltage electrode boilers and have been installing plants worldwide since the 1980s.
- Modular plant package, optimised for long-distance transport of components, and efficient, safe assembly at destination.
- Innovative plant design for high efficiency, simple operation, high availability and low overall cost of ownership.

Project Name	Mataura Valley Milk Boiler 2
Boiler Type	High Pressure Electrode Steam Boiler
Date Installed	2023
Thermal Capacity	20 MW
Process Fluid	Saturated Steam
Energy Source	Hydroelectricity
Steam Output	28,000 kg/h
Supply Pressure	37 Barg
Thermal Efficiency	99.9%
Turn Down	25:1

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