



## Project Review

### Fonterra Darfield Boiler 2

#### 45MW<sub>th</sub> Coal Fired Boiler

Client: Fonterra Cooperative Group  
 Location: Darfield, South Island of New Zealand  
 Duration: 15 months Design & Build  
 Site hours 60,000 man hours with no lost time injuries.

#### Background

Fonterra is a global, co-operatively-owned company with its roots in New Zealand where it processes around 22 billion litres of milk each year in over 30 processing factories nationwide.

The newest site is at Darfield (around 30 minutes drive inland from Christchurch).

In 2012, before Stage 1 of the Darfield plant was even commissioned, Fonterra decided to proceed with the Stage 2 expansion. Stage 2 involved construction of the world's largest dairy spray dryer with a capacity of over 30t/hr of whole milk powder (equivalent to 4.4 million litres/day of milk).

#### The Solution

The contract scope for this project included to design, build, erect and commission a 45MW coal fired boiler to produce 68t/hr of saturated steam:

- Boiler house building;
- Steam boiler plant including integral ancillaries;
- Feedwater deaerator and pumping system;
- Steam, water and condensate piping systems;
- Coal conveying and storage of 140 tonne capacity;
- Dual bag house filter system;
- Ash handling systems, including dense phase conveying;
- Electrical, instrumentation and control (EI&C) systems;

- Full integration with Stage 1 Boiler common services including coal and ash handling, chimney stack, electrical and control systems.

For both Darfield 1 and 2 Projects Fonterra was recipient of awards:

- Darfield 1 was awarded Safeguard NZ Workplace Health & Safety Award in 2013 for ACC best leadership of an industry sector or region; and
- Darfield 2 was awarded PMINZ Project of the Year 2013.



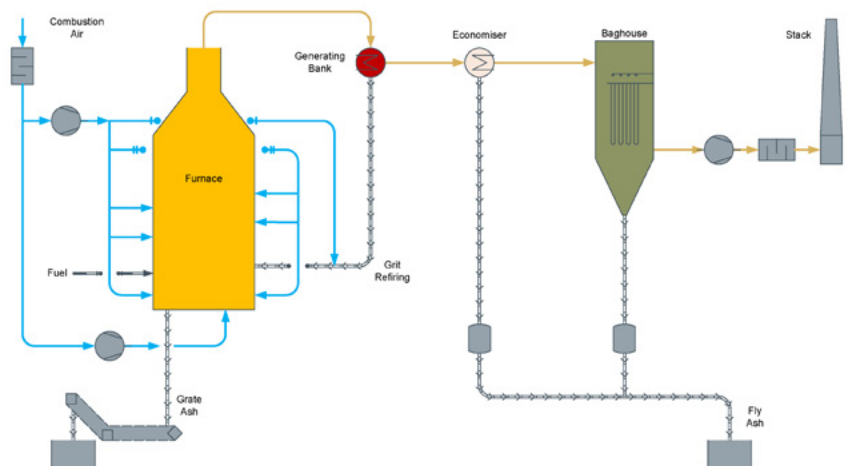


## Why Windsor Energy?

As a proven provider of plant and services to Fonterra in New Zealand & Australia, Windsor Energy offered the following advantages

- Low risk integration with recently completed Stage 1 Boiler plant at Darfield site.
- Proven track record with Fonterra and other large industrial clients.
- Established network of local and international partnerships proven to deliver safe and reliable boiler plant on time.
- Modular plant design optimised for transport and smooth, safe erection.
- Innovative plant design for high efficiency and simple operation.
- Clean burning combustion technology with very low particulate emissions.

Project Name	Fonterra Darfield Boiler 2
Project Number	2265
Date Installed	2013
Boiler Type	B & W Towerpak® Boiler
Combustion System	Spreader firing onto travelling grate (Detroit)
Thermal Capacity	45 MW
Fuel Source	Coal
Boiler Design Code	AS 1228
Steam Output	68000 kg/h
Steam Temperature	253°C (Saturated)
Design Pressure	4200 kPa
Operating Pressure	3800 kPa
Feedwater Temperature	105°C
Emissions Guarantee Particulates	< 35 mg/Nm <sup>3</sup>
Turn Down	5:1



## Contact Us

Level 2  
6 Albion Street, Napier 4110  
PO Box 1045, Napier 4140  
New Zealand  
P +64 6 899 5050  
E [energy@windsor.co.nz](mailto:energy@windsor.co.nz)  
[www.windsorenergy.co.nz](http://www.windsorenergy.co.nz)

