

# McCallum Group builds for the future with wood chips

Switching to a wood chip boiler has helped McCallum Group cut fuel costs at its industrial laundry by nearly two thirds. It's also saving on maintenance costs – and the company's now insulated from future volatility in energy prices.

## Long-established laundry group

McCallum Group provides dry cleaning, laundry, monogramming and overall hire in Southland, Central Otago and up to Dunedin. Customers range from some of the deep south's big industrial names through to hospitality sector businesses and retail customers.

Family-owned since its founding in 1927, McCallum employs up to 60-70 staff.

## Cutting and stabilising energy costs

LPG and light fuel oil were expensive, at times up to 16% of McCallum's total costs.

The company needed to reduce this cost. Even more important was finding a way of protecting itself against market volatility which was making pricing and managing contracts difficult. The business needed to add certainty to budgeting.

The real driver for change, however, was capacity. McCallum had two sites which were already operating at 120% and reaching the end of their economic life. Neither site was big enough to handle the combined output let alone provide capacity for expansion and so the decision was taken to relocate.

## Wood chips offer significant savings

With the move, McCallum reviewed its energy options. Waste oil was trialled, and management visited sites burning wood waste and lignite.

It was found that a good supply of high quality wood residue was available from the Niagara sawmill just 7km away. Niagara was offering a fixed price on a long-term contract (five years with five years' right of renewal). On this basis a wood-chip fired boiler offered significant savings.

## Technology overview

- 3.4 MW Vekos steam boiler converted from lignite firing to wood residue
- Wet scrubbing tower. This does double duty, controlling particulate emissions and recovering heat from the flue gas to pre-heat hot water for the laundry. It is designed to recover 50% of the flue gas energy, or 240kW
- Two weather-proofed containers approx. 30m<sup>3</sup> capacity each with pneumatic feed system to the boiler
- Using hogged Pinus radiata wood block up to 40mm, maximum moisture content 12%, average 8-15%. Received in six truck loads per week
- Automated (i.e. unattended) boiler and scrubber controls
- Consumes 1480 tonnes/year of wood.

## Extra recovery and waste reduction

Apart from the direct savings in fuel, waste water from the washing process is now recycled through the emissions scrubber, recovering heat and saving more energy.

"It's lifting the water we get off the street at about 15°C to 40°C at no cost." says McCallum's Managing Director, Wayne McCallum. "We'll eventually get it to 60°C. Other businesses that didn't have a use for that hot water could use the energy to dry out the wood chips, but the chip we get is relatively dry."



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### ✓ Key features

- Wood supplied at 36% of the cost of the fuels it replaces
- Project cost \$674,000
- 50% of flue gas energy recovered – 240kW on high fire
- Current load only using 60% of boiler capacity providing substantial flexibility for future growth

### ✓ Key benefits

- Saving \$323,000 p.a. in fuel and rising as commissioning continues and load increases
- Further \$14,500 saving annually in boiler maintenance
- Simple payback 2 years
- Carbon emissions reduced by approximately 1,426 tonnes per year
- Five year fixed price energy supply agreement aids business planning/forecasting

### ✓ Sector relevance

- Industrial heat users
- Food and beverage processors
- Industrial and commercial laundries
- Wool scours

The boiler also reduces waste by accepting lint from the laundry dryer filters plus packaging and unusable cardboard.

Given that the wood chips were previously shipped to Rolleston outside Christchurch, a local contract is creating another, indirect, saving in transportation costs.

### Wood chip handling the key

Handling the wood chips has been the most problematic aspect of the project. Originally, McCallum understood that the supplier would simply transfer the chips into a wood bin, but their equipment proved unsuitable. As a result, McCallum had to install its own tubulator and hopper.

McCallum was happy to take a thorough approach to this part of the project as cutting corners would only create problems.

### Providing an environmental edge

Much of McCallum's 'new' boiler is actually recycled, both to keep the capital cost down, and because buying second hand would make it easier to get items as and when they were required.

Sourcing suitable second-hand equipment took time, and prices were up and down on budget, although the overall cost was close to the target. "Although commissioning and fine tuning took time," says Wayne McCallum, "it was on par with other equipment installations of this size."

McCallum is pleased with the results, as they have an added benefit of more physical room and capacity. The long term supply contract has given them assurance about future thermal energy costs and a significant degree of isolation from the volatile fossil fuels market. And the savings are projected to increase as the new boiler reaches capacity.

The new plant will also reduce McCallum's carbon footprint and give it environmental credibility that customers, particularly those in the tourism sector, may appreciate.

Disposing of the ash is even easier than anticipated. Staff take much of it home for garden fertilizer and McCallum may market it.

Long term security of supply is always important when switching fuels, but Wayne is quite confident, "As well as our five plus five year contract there are other sources of supply. Plus, people have offered other products like oat husks, so we have a fall-back if necessary."

### Key personnel

Wayne McCallum (Managing Director, McCallum Group)  
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### McCallum's perspective

**Wayne McCallum, McCallum Group Managing Director**

"When we realised a recession was on the way, we had the opportunity to step back from the project but we decided to get on with it. We could see that interest rates would fall, and with the edge off the building boom it would be that much easier to get contractors, parts and materials when we wanted them and at reasonable rates.

"These were all things that would make the changeover easier and when the economy turned around we'd be well positioned. That's traditionally the way we've done business. During quiet times we fit ourselves up with the infrastructure for the busy times. For a business like ours, it's too hard to grow the infrastructure and the business at the same time."

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