



HOT-WATER BOILERS ARE WORTH GETTING STEAMED UP ABOUT

Companies which use steam boilers to heat water for cleaning should consider replacing them with more energy-efficient hot-water boilers, according to Pernod Ricard process engineer Andrew Waller.

"They're a similar price to steam boilers but they're much more efficient, which helps cut your energy costs."
 – Andrew Waller,
 Process Engineer,
 Pernod Ricard

About this energy efficiency project

Key features of the project

- Hot-water boiler replaces steam boiler
- Energy-efficient solution that meets manufacturing requirements

Key benefits of the project

- Saves \$21,000 per year in energy costs
- 12% more efficient than the steam boiler it replaces
- Payback period is less than three years

Other applications

Food processing, including meat processors, dairy factories and bottling plants

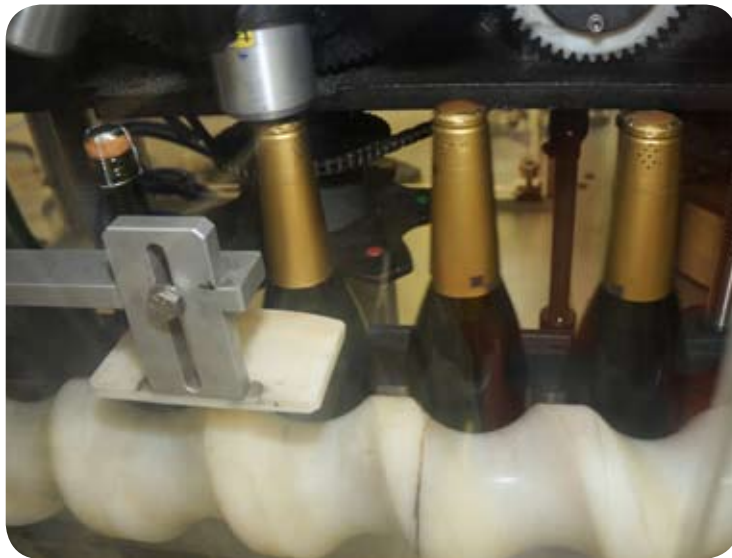
Pernod Ricard is set to cut its energy bill by \$21,000 a year, thanks to a new hot-water boiler at its Auckland wine-bottling plant. The new boiler is almost 12% more efficient than the traditional steam boiler it replaced, and it is expected to reduce the amount of natural gas the plant uses by 479,000 kWh a year.

"Anyone who needs to heat water for cleaning, but doesn't need to use steam, should definitely consider a hot-water boiler," says Mr Waller. "They're a similar price to steam boilers but they're much more efficient, which helps cut your energy costs."

Pernod Ricard is one of New Zealand's leading winemakers. The company bottles wine at its Auckland plant, including popular brands such as Montana, Corbans, Church Road and Stoneleigh.



The old steam boiler at Pernod Ricard



The bottling plant uses 90,000 litres of hot water to clean its equipment every day.

“Cleaning the equipment is quite a large part of the process and we do it at least daily, and sometimes more often,” says Mr Waller. “If you’re going from a red wine to a white you have to remove all traces of red wine before you start bottling. That requires a much more thorough clean than if you’re changing from a sauvignon blanc to a chardonnay.”

In search of energy efficiency

Until recently, the Pernod Ricard bottling plant heated most of its cleaning water using one of two steam boilers on the site. However, while steam boilers are commonly used to heat water for cleaning, they do so less efficiently than hot-water boilers. That is because they operate at much higher temperatures, which increases the potential for heat loss.

Like many companies which use a lot of energy, Pernod Ricard was keen to find ways of cutting its energy costs. Last year, faced with the prospect of having to spend \$18,000 on a replacement burner for its main steam boiler, the company began investigating other more energy-efficient options.

Eventually it decided to replace the steam boiler with a Northvale hot-water boiler. The company bought the \$55,000 boiler with the help of an EECA Business grant.



Pernod Ricard's new hot water boiler

"We could have just bought a new burner for the older boiler, but it would have been less efficient, and we were looking for ways to make energy savings," says Mr Waller.

Like its predecessor, the new hot-water boiler is powered by natural gas. But rather than creating steam by heating water to a temperature of 175°C, the new boiler heats water to a temperature of just 105°C. This water then goes through a heat exchanger to produce cleaning water at a temperature of 95°C.

EECA Chief Executive Mike Underhill has commended Pernod Ricard for taking a long-term view of its energy needs. He says the company's decision to invest in a more energy-efficient hot-water boiler will soon pay off.

"When it comes to saving energy, it's important to invest in the technology that best suits your needs. In this case, buying a new hot-water boiler was a much better option for Pernod Ricard than repairing its old steam boiler. The initial outlay may have been greater, but it's worth it in terms of the financial payback, increased productivity, as well as of course, the long term energy savings."



"... we were looking for ways to make energy savings"
- Andrew Waller,
Process Engineer,
Pernod Ricard

“Even small increases in the temperature of your system can generate large increases in heat loss.”

– Sam Fairley,
Engineer, Energy NZ

Why are hot-water boilers more efficient?

The main reason that hot-water boilers are more efficient is that they operate at much lower temperatures than steam boilers. This reduces the temperature of the exhaust gases and the amount of energy going up the flue.

According to Energy NZ engineer Sam Fairley, heat loss is proportional to the temperature of a surface. In other words, pipes carrying steam at a temperature of 175°C to heat cleaning water to a temperature of 95°C lose much more heat than pipes carrying water of 105°C to do the same thing.

In addition hot-water boilers are cheaper to maintain than steam boilers, which require water treatment chemicals to prevent fouling of the boiler by contaminants.

Mr Fairley says hot-water boilers can be used in many different industries, but they are particularly suitable for producing the very hot water needed to sterilise equipment in food processing plants.

“Hot water boilers are an efficient way to produce very hot water in places such as dairy factories and meat processing plants. Even if you still need to use steam, it’s worth looking at buying a stand-alone hot-water boiler to produce hot water, and keeping your steam boiler to produce only steam.”

EECA enables organisations to increase their domestic and international competitiveness by adopting energy efficiency and renewable energy practices.

We work with businesses to identify the opportunities for energy management that are available to them and help them develop energy management action plans to make the most of these opportunities.

Good energy management has many benefits for businesses, including lower costs, increased productivity,

reduced greenhouse gas emissions and a positive effect on the brand.

We have a particular interest in:

- encouraging new or under-used technology that can make processes more efficient
- projects that reduce greenhouse gas emissions, and
- developing the wood fuel industry.

For more information, contact us directly – see details below.

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