INDUSTRIAL LAUNDRY CLEANS UP ON ENERGY SAVINGS

"Wash day" takes on a whole new meaning when you're handling up to 10,000 kg of laundry per day. So for industrial laundry Southern Lakes Laundries Ltd, achieving efficient energy usage is far more sensible than simply hoping for some sunshine.

Established four years ago, the Queenstown-based business has been quick to take control of its energy costs.

Last year they installed a high-efficiency Heat Exchange Unit for their main industrial washing machine that is delivering savings of up to $45,000 per year.

As an energy-saving project, the new system was eligible for a 40% grant towards the capital cost as part of Energy Efficiency and Conservation Authority's (EECA) Energy Intensive Business (EIB) grants programme.

Southern Lakes Laundries' general manager, Rob Young, says the impetus for installing the new heat exchanger was in direct response to the rising cost of energy.

"We saw it as a way of combating increasing energy costs. Ninety per cent of our energy usage is LPG – and the price of that kept going up."

"We started looking around in the market to find something that would do the job for our laundry."

Although heat exchange technology is nothing new, the different applications for it are on the increase.

"Heat exchangers have been around for a hundred years," says Rob.

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About Southern Lakes Laundries Ltd

Southern Lakes Laundries Ltd is the only industrial-sized laundry in Queenstown – providing linen hire and laundry services to hotels, motels and restaurants in the Southern Lakes area.

Established in May 2004, the business now employs an average of 28 staff, allowing for seasonal fluctuations.

Their heavy-duty industrial laundry equipment includes washing machines, dryers, and finishing equipment (such as ironers, folders and stackers). The industrial-size operation – with its high-tech equipment and economies of scale – provides a more economical service for clients than processing laundry on their own premises.

The plant currently has capacity to handle up to 10,000 kg of laundry per day; and there are plans to expand the plant to cater for further growth.

"But I think the technology is becoming used in more and more applications in different industries now."

The "tricky part", according to Rob, was finding a heat exchanger that could be easily retrofitted to the existing laundry equipment.

It also had to be quick and easy to install – as the laundry could not allow any disruption to its 364-day-a-year operation.

"After installing the heat exchanger in the floor, we plumbed it up overnight and were in full operation the following morning, with no disruption to work flow."

The business case

The primary energy source at Southern Lakes Laundries is LPG. Approximately 187,000 kg of LPG per year is used to generate the steam heating for the big washing machine, the CBW (or Continuous Batch Washer); as well as the industrial two-roll ironer. It also heats the 600-litre continuum for hot water for the two stand-alone washing machines; while the driers are heated by direct LPG gas burners.

"While we also use a reasonable amount of electricity, it is relatively small (10%) compared to our LPG usage," says Rob Young.

Before the installation of the heat exchanger, Southern Lakes Laundry was spending $300,000 on LPG per year.

"Without the grant, we probably would have deferred the purchase another one or two years. Having the grant means we're able to start reaping the energy savings and other benefits that much earlier."

The technology

The EMS 18 rotating heat exchanger is manufactured by EMSROTOR in the Netherlands, and is distributed in New Zealand by Burgundy Holdings. It is used in various industries such as textiles, paper, laundry, dying, food processing and others.

Rob Young believes it is the first time this particular machine has been installed in New Zealand.

"It's really well engineered," he says. "And its efficiency is quite amazing...the transfer of heat is almost 100%."

During the heat-exchanging process, the warm waste water is gravity-fed into a stainless steel tank. The clean water flows through an axle with discs that is mounted in the tank. The heat-exchanging surface (the axle and discs) is driven by a small motor and runs at about 60 rpm.

The heat exchanger boosts the temperature of the fresh water from 8 degrees Celsius up to 40 degrees. Steam from the gas boiler then finishes the process by taking the water to the required 60-degree washing temperature.

Conversely, the waste water is cooled from 70 degrees back down to 38 degrees before it is disposed of.

Savings and other benefits

The heat exchanger will offer significant on-going cost savings, of about $40-45,000 per year, due to the reduced usage of LPG.

At a capital cost of $88,000 to purchase the new system, minus the EECA grant of $32,200; the project will pay for itself in approximately 18 months.

"We've been monitoring it month by month," says Rob Young. "It certainly delivered a return during our very busy period from January to March; and with gas prices continuing to rise, we're certainly on track for our predicted savings."

Capital Investment	**$88,000**
EECA Grant	$32,200
Previous Energy Usage (LPG)	$300,000
Annual Energy Savings	$40-45,000
Project Payback Period	Approx 1.5 years

Apart from the ongoing cost savings, there are several other benefits to the business and the environment.

"We're saving a huge amount of water every day – about 1,000 litres – because there's less steam required," says Rob Young.

"We've also reduced emissions from our boiler stack, and have reduced the temperature of the hot water going down the drain."

For this proactive company, this energy-saving project may be just the first of many.

"We look at anything that can reduce our energy usage and we'll continue to do so," says Rob Young.

"For instance when we expand our plant in the future, we plan to incorporate solar energy of some sort in the new building extension."

SOUTHERN LAKE LAUNDRIES

Energy Intensive Businesses – Project Grants

EECA has grants available of up to 40% of the capital cost of a project, with a maximum of $100,000 for each grant. Projects that implement new or under utilised technologies to New Zealand are encouraged to apply.

The implemented technologies should:

- be capable of reducing the energy intensity of an organisation's operation
- have the potential to be applied to a majority of businesses across their industry sector
- be commercially available and offer an acceptable payback period.

Businesses who receive a grant must be willing for their project to be used as a case study, so others can learn from their experiences. Other businesses can look to you as an example of good energy management making you a leader in your field.

Contact: Phone: 0800 358 676
email: eib@eeca.govt.nz

Other energy grants

Emprove

EECA offers the following services and funding for businesses energy efficiency projects:

Energy Achiever

- Hour-long session with EECA Emprove Account Manager to scope current energy usage
- Free for businesses spending more than $500,000 a year on energy.

Energy Audit

- Comprehensive energy audit carried out by an independent consultant
- Funding available through Emprove programme towards the cost of an energy audit for businesses with energy bills of more than $100,000 a year.

Contact: Phone: 0800 358 676
email: emprove@eeca.govt.nz

Supporting the use of wood residue

The Wood Energy Grant Scheme offers help, by way of funding and information, to businesses interested in using wood residue as an energy source.

EECA can provide:

1. Funding for demonstration projects
2. Funding for feasibility studies that review the use of wood residue as a fuel
3. Relevant information to sawmills, forestry owners and the general public on the use of wood residues via the Bioenergy Knowledge Centre (www.bioenergy-gateway.org.nz).

Funding available for business grants

Business grants for capital/demonstration projects may be up to 40% of the capital cost of the project, with a minimum of $10,000 and maximum of $200,000.

Funding is available for projects involving technologies that:

- Have the potential for widespread industry adoption
- Have an acceptable payback period or ROI.

Applicants must be willing to have their project monitored by a third party and allow the results to be published to help promote energy efficiency.

Funding available for feasibility studies

Grants for feasibility studies are available up to a maximum of 75% of the feasibility study costs and the applicant must be willing to have the results of the studies publicised as a case study.

Funding is available for feasibility studies involving technologies that:

- Have the potential for widespread industry adoption
- Are capable of saving energy or have potential for increased use of renewable energy.

Contact: Phone: (09) 374 3803
email: woodenergy@eeca.govt.nz

Energy Efficiency and Conservation Authority contact details:

EECA Head Office
Phone (04) 470 2200
PO Box 388, Wellington 6140
Level 1, EECA House,
44 The Terrace, Wellington 6011

EECA Auckland
Phone (09) 377 5328
PO Box 37444, Parnell,
Auckland 1151
Level 4, Guildford House,
2 Emily Place, Auckland 1010

EECA Christchurch
Phone (03) 353 9280
PO Box 8562, Riccarton,
Christchurch 8440
Level 1, Sinclair Knight Merz House
321 Manchester Street,
Christchurch 8013

www.eecabusiness.govt.nz

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