

# CASE STUDY

## Splash Palace, Invercargill

### Quick Facts



#### Fuel usage

Summer: 10-12 m3 chip per day  
Winter: 18-21 m3 per day  
Cost: \$10,000 - 20,000 per month,  
depending on season/weather  
Wood chip specification: S50A1M30

#### System Information

675kW Binder chip boiler and back-up  
600kW diesel boiler  
Installed November 2011

#### Background

Splash Palace is located in Invercargill and it is owned by Invercargill City Council (ICC). The indoor facility includes a 50m x 8 lane sports pool with waves and sprays, including a 'tots and learners' pool. There is also a water slide, spa pool, steam room and a cafe.

#### Motivations to switch

Because of the high maintenance costs of coal, boilers are becoming prohibitive. ICC's priority has been to find a heating option that is more efficient but not cost prohibitive.

"Replacement of the boilers was a logical option for us and changing to wood chip fuel provides sustainability of fuel source and helps support a developing local industry" says Asset Manager Paul Horner.



The wood chip boiler has provided other benefits that were not considered at the time. The new system has an automatic conveyor that takes the ash away, meaning staff do not have to carry 8 buckets of 'scolding hot' ashes upstairs every day.

"The wood chip ash is only a fraction of the volume that was generated by lignite. This means we went from having 2 skips of coal ash sent to the landfill every week, to 1/2 a wheelie bin which can be composted in the garden" says Paul.

Given the considerable efficiencies in the new system, they've also been able to raise the temperature of the leisure pool by one degree, which has been met with great enthusiasm from pool users.



#### Challenges involved in the decision-making process

Initially, coal was seen as the cheapest fuel source, but management were aware that wood chips are being used more and more as we see the increasing benefits of renewable resources. The Council commissioned a feasibility study to investigate all the options, and take a proper look at the full life-cycle cost of the options.

The wood chips are produced to a size and moisture content specification and are sourced locally from Niagara Wood Fuels at Kennington. The quality of the fuel has been excellent; it is a mixture of off-cuts from the fingering process, and wood chip.

The total cost of the upgrade was estimated to be about \$650,000. While the wood chips are 15% more costly than lignite, the Council saves in other areas such as supervision of the boiler, maintenance and future clean air requirements.

#### Advice for other businesses

If you can't secure funding to have an independent engineer provide you with a cost-benefit analysis of a range of fuel sources, and you only want quotes, we suggest that you tender for 'heating solutions'. This means that a range of fuel suppliers and technology providers can team up to offer a range of options. This is far more sensible approach than just replacing your old equipment with the same again.

Having a Energy Policy and/or Environmental Policy that recognise the need to evaluate the effect of one's operations on the environment and to value the change to the use of renewable sources of energy is important for justifying projects as such. The fuel cost for Splash Palace is about 15% more expensive than lignite per GJ, however, calculations of whole life cost helped to justify it.

#### Wood Energy South

Wood Energy South is a joint initiative between Venture Southland and the Energy Efficiency and Conservation Authority (EECA). Wood Energy South is primarily focused on overcoming market barriers to establish a regional cluster of wood energy end-use in Southland. While the project focuses on building capacity on a regional scale, it is expected that this programme will act as a pilot for New Zealand, and key findings will be transferred across other regions and on a national scale.

#### Funding support for businesses

EECA has funds available to assist businesses in Southland with wood energy projects. and it welcomes applications as part of the Wood Energy South project.

More details on services and funding can be found at [www.woodenergysouth.co.nz](http://www.woodenergysouth.co.nz) or by emailing us [woodenergysouth@venturesouthland.co.nz](mailto:woodenergysouth@venturesouthland.co.nz)