

LOWER LAKE MARGARET

# Power Station Pipeline

Date: 2010

Principal: **Hydro Tasmania**

Project Value: **\$4.89M**

## TASK

Restoring the Lower Lake Margaret Power Station to the grid of Tasmania's highly ecologically sustainable hydro-based electricity system has seen a masterful combination of old and new technologies. A mix of "on the job smarts" and "solid engineering principles" brought about a set of practical solutions to a series of economical, environmental and community issues, not to mention the construction tasks of working in a rugged landscape with slopes of 38 degrees and temperatures ranging from - 3 to 25 degree Celsius.

Hydro Tasmania initially looked to re-commission the Lower Lake Margaret Power Station using steel pipes or possibly fibreglass pipes on the two-kilometre hilltop section. But it faced considerable community opposition to replacing the century old wood stave pipe - despite its obvious poor condition. The solution was one that addressed not only these community concerns, but also a more pressing practical one - cost.

The answer, replace the wood stave pipeline with a wood stave pipeline for the two-kilometre hilltop section. And on the crucial penstock section leading to the power station inlet valve, the decision was taken to replace the old steel pipeline with fibreglass reinforced plastic, leading to a world first in the above ground use of this type of composite pipe.

The task of blending these two technologies, separated in their development by thousands of years, harnessed Shaw's broad expertise across a range of civil engineering practices to complete what many would see as two complete projects in one.

## CHALLENGES

The logistical complexity of the project was acknowledged by Hydro Tasmania as being one of the most significant features of the job. Integrating the completely different types of technologies and different methodologies into the one project, within a tight timetable to meet a series of changing deadlines, also added another level of complexity.

On the environmental side, the area had been listed by Heritage Tasmania. This meant that every step of the process had to be approved by the listing authority and changes to the approved plans had to be submitted for acceptance before progressing.



## CHALLENGES Cont'd ...

The 10-page listing included both natural environmental features, such as flora and fauna, varying from rain forest sections through to sub-Alpine regions, as well as the “built environment” of the old Lake Margaret Village, the old tramway tracks, the wood stave pipeline, heritage bridges, old camp sites and the historic power stations.

## OUTCOMES

When full, the pipe will hold three million litres of water on its way to the penstock, which, although officially rated at 1600 kilopascals, has been tested up to 2000 kilopascals pressure down the 38-degree slope to the rejuvenated Lower Lake Margaret power station.

The project was finished on time, on budget and on target to rejoin Hydro Tasmania’s electricity network, but it also became one of the prime pieces in the jigsaw of Tasmania West Coast Wilderness Tourism Trails.

