

The restoration is nearly over, the painting complete. Now, history is about to turn full circle for Akaroa's pelton-wheel power station. HUGH CONLY reports.



Restored: Akaroa's reconditioned 1908 pelton wheel power plant, repainted in its original colours and almost ready to generate electricity again.

Photo: LIZ CONLY



Labour of love: Electrical engineer John Dodgshun with the plant's control panel that he has rebuilt using historic switches and dials.

Repowering the people

A piece of Akaroa history will soon come back to life when volunteers turn a valve to send water surging through the town's 101-year-old hydro-electric power plant.

The water will drive a pelton wheel linked to a generator. All going well, a flick of a switch will result in the first electricity the plant has generated in Akaroa for more than half a century.

As the filaments glow in the old-fashioned light bulbs and the needles swing on the control panel dials, the seven volunteers responsible for restoring the plant will have good cause to celebrate.

It will mark a milestone in a 12-year project that has involved hundreds of hours of their time, as well as generous business and community support.

"A few years ago, many people never dreamed the plant would be restored and working again. Now it's about to happen," says John Dodgshun, electrical engineer of the Akaroa Hydro Generating-Set Trust.

So authentic is the restoration that the interior walls of the Orion Powerhouse Gallery, tucked under

L'Aube hill on Rue Pompallier, have been freshly painted in their early colours and the power plant looks resplendent in its original grey. All the switches and fittings are historic.

After years of weekend working bees, everything is close to being fully functional and ready for a trial run.

"Watch this," says Dodgshun with a gleam in his eye as he approaches his pride and joy, the control panel he has rebuilt from scratch. He tinkers with some apparatus and a loud bang echoes off the brick walls. "That's the safety switch. You can be sure that's going to work."

Dodgshun has spent hours tracking down old dials, switchgear and bulbs from sources around the country as varied as Ferrymead Heritage Park, Trade Me and the former Seaciff Mental Hospital near Dunedin.

Much of the equipment, dating no later than the 1920s, was in a sorry state. His hard work restoring it was rewarded when he met a former operator of the plant.

"He was most impressed to see what we had done, and even more so when we told him we planned to get it all working again," says Dodgshun. "Having the plant as a static display has never been my intention."

Dominating the powerhouse is a fine

example of Edwardian engineering, the pelton wheel power plant, a metallic monster waiting for life to be breathed into it. Its three large sections linked by a shaft look solid and dependable, the products of an age when things were made to last.

At one end is a flywheel; at the other is the alternator with the electromagnets that generate the power. In the middle, an intake valve pokes from the floor into the pelton wheel which is linked by a belt to a governor. A smaller machine known quaintly as an exciter is off to the side.

The first of its kind built by British hydraulic engineers Boving and Co, the plant was so advanced for its time it was displayed in the vast engine hall of the 1908 Franco-British exhibition at White City, London.

It was shipped to Akaroa four years later and installed with much fanfare in the custom-built powerhouse, where it supplied electricity from 1911 to 1955. It then served for 40 years at the Maruia Springs hotel before being returned to Akaroa in 1997.

For 12 years, the plant has been silent. But when it roars into life, with water gushing through it, belts clicking, the governor whirring and the pelton wheel spinning at 500

revolutions a minute, the 50-horsepower machine can generate 35 kilowatts of electricity – enough in 1911 for the street lighting of Akaroa as well as the needs of several homes and businesses.

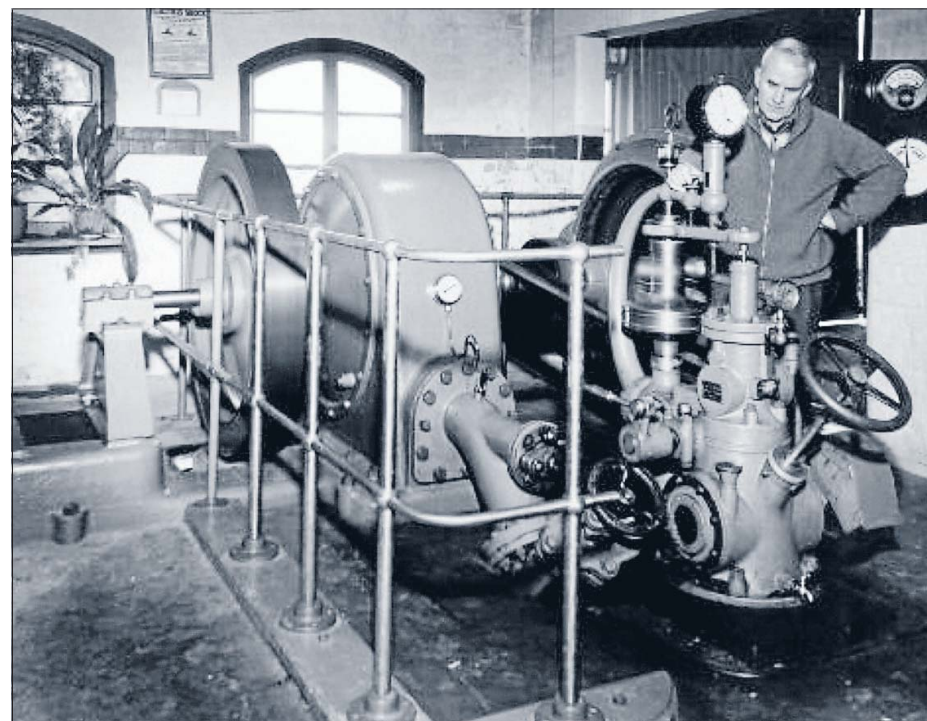
At a time of gaslight and candles, it was a huge leap forward. Today, Dodgshun says, 35kW is barely enough for five or six houses.

Such a dynamic beast is also a thirsty one. Originally, it was fed with thousands of litres of water a day via a penstock from a reservoir built for the scheme on L'Aube hill. Until the penstock is restored, mains water will be used for the restored plant.

Much of the credit for the restoration is owed to companies around Christchurch. "After explaining that we are working on an historic project, companies have been only too willing to help," says Dodgshun.

When the pelton wheel needed attention in 2002, the ABB Group stripped and overhauled it. When the intake valve was lost in the move from Maruia Springs, Gillies Manufacturing found the original patterns and cast a new valve.

But not everyone in Akaroa supported the return of the plant to its original site. After the pelton wheel was moved out, the powerhouse found a new lease of life as an



Looking back: The power plant with operator Clarrie Bryant soon after the station closed in 1955.

arts and crafts gallery and concert chamber. A proposal to move the plant back in was not well received.

"Some people could not get around the idea of a mechanical contraption in the arts space and there was a standoff," says trust chairman Willie Rutherford.

Three or four years of debate led to a public meeting and eventually a solution. An extension, funded by Orion as a centenary project, was built to the north side of the powerhouse to provide more space for the gallery. In August 2003, the pelton wheel was returned to its original pins still set in the concrete floor.

Its return marked the start of an effort to restore the plant to working order by 2011, the centenary of public electricity supply in Akaroa.

One of the first towns in Canterbury to have power, Akaroa celebrated the occasion on September 9, 1911 with a banquet in the Oddfellows hall attended by dignitaries from near and far, some arriving on the steam tug Lyttelton. Speeches were made, toasts were proposed and the evening culminated in a big moment for the small town – the mayor flicking a switch to bathe the streets in electric light for the first time.

The Press reporter watching the spectacle was underwhelmed: "It was rather unfortunate that the moon was on Saturday a most uncompromising rival of outside artificial light so the visitors could not see what the full effect of the new scheme would

be," he reported, before conceding "certainly the row of strong lights along the esplanade looked exceedingly well".

Ninety-eight years later, the tug, the power plant and the Oddfellows Hall (renamed the Gaiety) are all still around, a tribute to preservationists, but the chances of the 102-year-old tug being able to re-enact its visit to Akaroa for the centenary are slim.

In the lead-up to the centenary, good progress is being made in restoring the plant. Recent working bees have focused on aligning the shafts of the pelton wheel and fitting a safety rail (one matching the original was found at Ferrymead).

Final touches are being added before a trial run in a few weeks. Dodgshun says it will be a low-key affair, followed by thorough checks by Orion before electricity is again pumped into the grid. But there is no hiding his excitement over a landmark occasion for the trust and Akaroa.

"It will mean an important part of Akaroa's history has been restored to life," he says.

For Rutherford, there are parallels with his upbringing in the north of England. "We lived within 10 metres of Hadrian's Wall, which is 2000 years old," he says.

"In a way, the pelton wheel is the equivalent of Hadrian's Wall. It's an outstanding example of New Zealand's foundation history. In 200 years, people will say, 'Thank goodness someone thought to save it.'"

TIMELINE

- **1908:** Pelton wheel designed and made by Boving and Co, London. Governor by Kavarna, Sweden. Displayed at Franco-British Exhibition, White City, London.
- **1911:** Shipped to Akaroa and installed in powerhouse. September 9: First electric street lighting and power supply in Akaroa. Celebratory banquet in Oddfellows Hall.
- **1916:** Eel jams water works, cutting power. Water supply supplemented with a pipe from the Balguerie Stream and gas producer engine installed.
- **1923:** Current switched from DC to AC after power from Lake Coleridge reached Akaroa. Pelton wheel used as supplementary supply.
- **1955:** Plant decommissioned and sold to Maruia Springs hotel.
- **1968:** Powerhouse used as studio workshop and gallery, and for occasional concerts.
- **Early 1980s:** Fire at Maruia Springs causes extensive damage to pelton wheel. Plant rebuilt but electrical control completely changed.
- **1977:** Powerhouse becomes known as the Gallery after an incorporated society, Gallery Akaroa, set up.
- **1995:** Plant decommissioned at Maruia Springs.
- **1996:** Akaroa Hydro Generating-Set Trust formed by Akaroa identity Lois Holderness.
- **1997:** Pelton wheel bought from Maruia Springs hotel for \$4000 raised by the trust, and stored at Grehan Valley, Akaroa.
- **2002:** Public meeting held to debate plant's future.
- **2003:** Powerhouse extended. Plant refurbished and returned to powerhouse.
- **2003-:** Trust members restore plant to working order.

KEY PLAYERS

- Trust members: Trevor Bedford, Angus Davis, John Dodgshun, Peter Haylock, Mike Lawson, Roger Monro and Willie Rutherford.