

CONNECTIONS

OtagoNet - Committed to Safe, Secure and Reliable Supply

OtagoNet is the major electricity network services provider for most of Otago.

We're owned by two lower South Island-based electricity lines companies, The Power Company Limited (TPCL) and Electricity Invercargill Limited (EIL). The network is formally known as the OtagoNet Joint Venture (OJV).

How did OtagoNet come about? Back in July 2002, three electricity lines companies, including TPCL and EIL formed OJV, after purchasing electricity network assets from shareholders of the consumer co-operative company, Otago Power Limited. Last year TPCL and EIL took complete control of OJV and their contracting company Otago Power Services Limited.

The OJV network is managed by PowerNet. PowerNet manages multiple electricity networks in the south and is the fifth largest network management company in New Zealand.

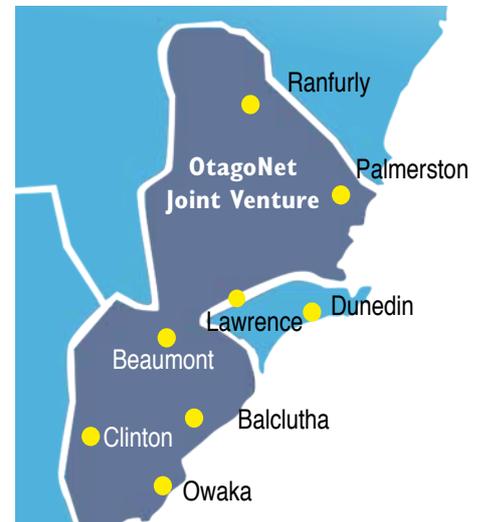
OJV's network covers almost all of Otago - from near St Bathans in Central Otago to Chaslands in Southland, and inland from the Blue Mountains in West Otago to Shag Point on Otago's east coast.

OJV owns the electricity network assets including power poles, power lines, underground power cables, transformers and substations.

It's our job to keep the OJV infrastructure in excellent shape. Over time we're reducing the average age of our network through proactive capital investments and regular maintenance work.

We complete around \$10 million in capital expenditure annually - largely projects that include replacing and rebuilding 11kV and 33kV lines - but we're also upgrading substations and working on transformers, amongst other planned works.

Continuing to improve the safety, reliability and security of electricity supply and ensuring a robust infrastructure that supports regional growth, are key drivers for our future work programmes.



Who is PowerNet?

Since 1994, PowerNet has lead the way in electricity network management. The company builds, maintains and manages networks on behalf of network owners in Southland, most of rural Otago, the Frankton region and Stewart Island.

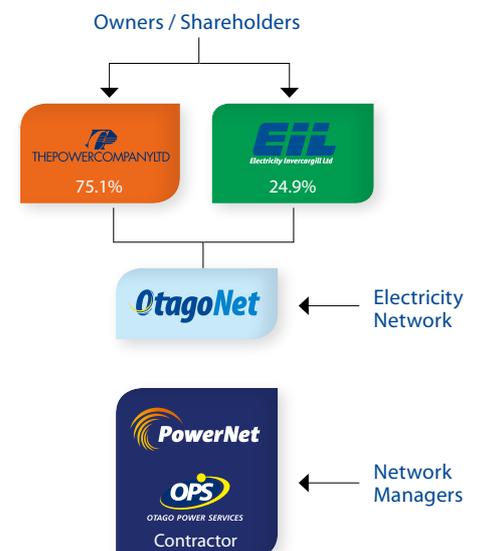
The total Regulatory Value of the networks managed is \$515 million with 14,123 kms of lines and cables, 78 Zone Substations and 15,776 transformers. The combined networks deliver electricity to over 68,000 customers. The managed networks represent diverse topography, climate zones, customer density, technical design and equipment.

The total energy conveyed through the PowerNet managed networks is 1465GWh, with a maximum demand of 259MW.

PowerNet employs 162 staff and 120 contractors. Staff work from offices and depots in Invercargill, Winton, Lumsden, Frankton, Te Anau, Gore, Palmerston, Ranfurly, Balclutha and Stewart Island.

PowerNet also manages an onsite 24/7 faults call centre with its System Control room based in Invercargill.

OtagoNet Joint Venture Structure Map



Milton-Balclutha Line Rebuild Nearly Completed

The fifth stage of a long-term project to rebuild the Milton to Balclutha 33kV line is now underway.

The massive project has focused on both replacing parts of the existing line and upgrading its capacity to enhance reliability of supply and service to customers. The line provides a vital power supply in localities that include Milton, Milburn, Waihola and the Lawrence area, as well as taking the power generated from the Mt Stuart wind farm.

The fifth stage of the project has involved connecting the Transpower Balclutha Substation, the point of supply to the Elderlee Substation in Milton. While the line will run at 33kV, the overhead line has been built and insulated at 66kV for future proofing and insurance.

PowerNet Easements and Wayleaves Coordinator, Mike Harris, says the undergrounding work has brought challenges.

"In particular, we needed to thrust four big ducts under State Highway One to clear the telecommunications cables along with water mains. This meant digging nearly four metres under the road," he says.

"Much of the wider project work has been overhead work which has also had its challenges," Mike says.

"The mix of materials used - normal concrete poles, steel poles and newer fibreglass cross arms - all provided an interesting challenge for the installation of overhead lines. This work was ably completed by PowerNet's Senior Lines and Structural Engineer, Carl Rathborne, with great support from Murray Dickie and his Otago Power Services Limited (OPSL) team."

The fifth stage has largely been carried out by OPSL, with Queenstown-based Peak Power Services Limited supplying the technical expertise to connect into substation lines. The civil work has been completed by local contractors SouthRoads Ltd and Andrew Haulage, both from Balclutha.

During this fifth stage, the team took the opportunity to remove some old equipment from the 11kV circuits that feed Hillend and Stirling, and the Essex and Cromer Street feeds into Balclutha. This included removing power poles around the bend on State Highway One between Balclutha and Johnson Road.

Completion of the final stage is subject to weather conditions. Once completed, the rebuild will mean a more robust and secure power supply delivered to South Otago communities.

New Power Line for Maniototo Road

With the continued changes in irrigation in the Maniototo region, OJV has been busy installing an 11kV power line on the Maniototo Road.

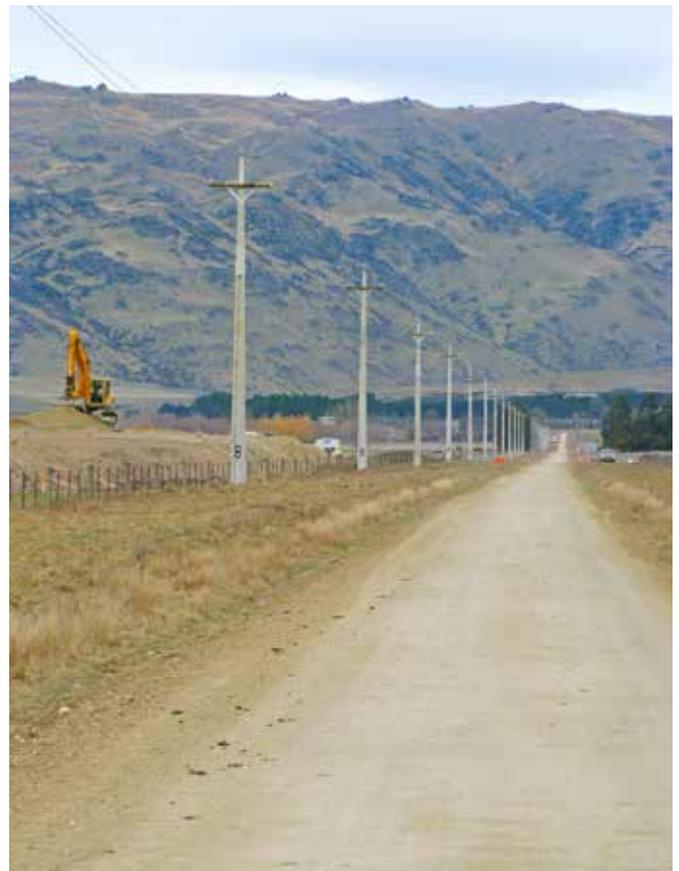
The new line will provide increased security of supply to farming customers in the locality and support new irrigation projects such as pumps, pivots and storage dams.

Around 5.5km of line was installed in August this year along the stretch of Maniototo Road extending north and south of Duffy Lane.

"The particular area where the line has gone in was one where we didn't have a lot of supply already. With the ongoing increase in irrigation it's important for our customers that they're provided with an effective and efficient service that meets their business needs," says Mark Hastie, OPSL Project Manager.

Over the past few years, OJV's network of power lines in the Maniototo has been continually expanding, matching a growth in irrigation requirements.

Particular considerations with the installation of power lines in the area include the need to take into account the region's extreme weather conditions. Factors such as the pole loading capacity for snow are important in ensuring that the impact of harsh weather events is minimised.



The new 11kV line on Maniototo Road

Cabling Work Reveals the Past

Digging trenches for underground cabling as part of Balclutha's streetscape upgrade has, not surprisingly, revealed some of the town's former infrastructure.

Old gas, water and petrol filler pipes and bottles from the late 1800s, have been some of the buried treasure that OPSL staff discovered when carrying out the work.

A Historic Places Trust representative has been on-site when digging work has been underway to make sure that nothing of historical value or significance is destroyed or damaged.

The job for OPSL primarily involves laying 1,000 metres of low voltage underground cable the length of Clyde Street from the town hall to the south end of the central business area. Power poles and overhead lines are being removed and new lamp poles and lanterns installed. OPSL staff are also installing up-lighting under trees to create ambience and a rest area with a walled garden will also be illuminated.

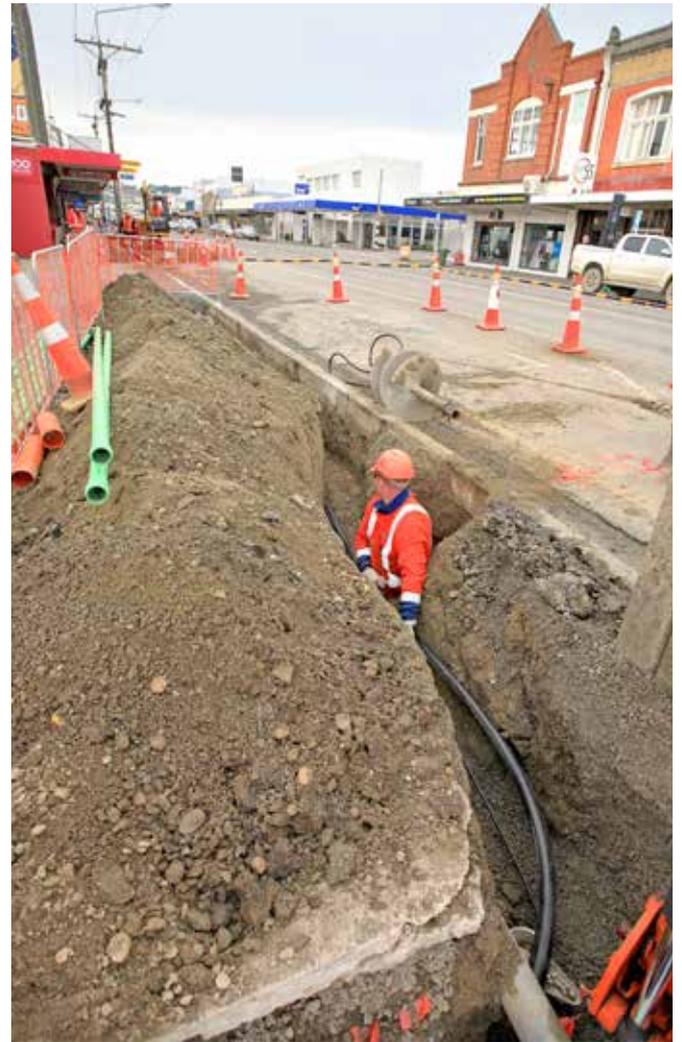
The work carried out by OPSL is part of a \$2.3 million Clutha District Council upgrade project to beautify the town's main street.

OPSL Project Estimator, Russel Carr, says a significant part of the project also involves reconnecting the underground cabling and service lines to businesses along the main street route. This involves running new cables up to existing businesses to link them in with the main underground cable.

Russel says the public have been hugely supportive as the work's been carried out.

"We'd like to thank them for their patience. As always, ensuring the safety of the public has been paramount and this has sometimes meant we've needed to temporarily narrow footpath access or block off parts of the pavement while work has been carried out. The public have been very cooperative and this has been greatly appreciated," Russel says.

The project, which began in May, is due for completion in November.



Rob Dickie (OPSL Arborist Supervisor) laying the new cables

Improved Supply to Wharetoa/Clydevale Area

A new 11kV 3 phase line is currently being installed along Clutha River Road to service the increasing power needs of consumers in the Wharetoa/Clydevale area of South Otago.

Work on the project began in August and it is expected to be completed by October.

"The project involves replacing an existing single wire earth return line with the new 11kV 3 phase line," says OPSL Project Manager, Mark Hastie.

"The new line will improve supply and provides an alternate feed to the area, which has experienced considerable load growth in recent years due to dairy conversions," he says.

The line links upgrades already completed on Clutha River Road, with the line crossing the Clutha River at Tuapeka Mouth.

The route follows the twists and turns of the Clutha River Road. Construction crews have needed to negotiate very rocky ground conditions and trees along the Clutha River bank.

"It was great to have good cooperation from adjacent landowners which enabled us to design a route around some difficult corners and rocky outcrops," Mark says.

Waitati Customers Benefit From Alternative Supply Option

Customers in the Waitati area are now benefiting from increased reliability in their power supply with the installation of a 33kV underground cable along Manse Road.

Work was completed in July on the Waitati Tee project to install a new kilometre-long underground cable – the longest 33kV underground cable in OJV's network.

The cable provides an optional connection that means power can run directly from Halfway Bush to Waitati rather than via the Palmerston Substation.

Until now there has been no alternative supply if a fault occurred on the existing 33kV line that connects Palmerston to Waitati. Now, if needed, power can be re-routed from Halfway Bush to Waitati through the new cable.

The cable follows Manse Road, forming a bridge connection between the 33kV overhead line from Halfway Bush to Palmerston and the 33kV overhead line from Palmerston to Waitati.

"Because the majority of 33kV feeders installed in OJV's area are overhead lines, installing 33kV cables proved an interesting project to work on," says Project Manager, Raji Senaratne.

"Installing cable along a route crossing waterways and in tricky terrain meant we had different challenges from those we might encounter when working above ground. One in particular was the winter weather – with lots of rain this year the muddy ground made some work difficult," he says.

The 71mm cable has been laid approximately one metre into the ground for safety reasons.

The installation of the cable also means that the reliability and security of power supply to customers in the Waikouaiti area is enhanced.

A new substation – a replacement for the existing Waitati Substation - is scheduled to be constructed in Manse Road in 2020/2021. The substation will increase the reliability of supply and cater for the continuing load growth in the region.



Staff from Otago Power Services laying cable on Manse Road

Collaboration Strengthens Relationships in Rebuild

Assisting Network Waitaki with a 66kV line rebuild has been a great opportunity to forge stronger, collaborative working relationships between OPSL and Network Waitaki teams.

The Network Waitaki line rebuild project runs between Kurow and Duntroon Zone Substations and will provide increased security of supply to these two areas. The new 30km line is designed and constructed as 66kV, initially operating as 33kV.

"OPSL staff were brought in on the job to ensure that timeframes would be met," says Network Waitaki Project Manager, Craig Conlan.

"We knew that OPSL crews were efficient and produced work of high quality, so we were pleased to engage them on the project," he says.

Four OPSL staff have been on the project since June and the work is expected to be completed in late October.

"The OPSL staff have been a very valuable part of our team. They are well organised, have a great work ethic, show initiative and most importantly, get on well with the rest of the team," says Craig.

"The opportunity to work with Network Waitaki brings big benefits for both companies,"

says Justin Peterson, OPSL Service Delivery and Integration Manager.

"It's been a great opportunity for us to learn from others and see how things are done on another network. It also means that for both of us, we have the opportunity to draw on additional valuable resource if it's required."

"Building closer ties between our companies allows for ideas and work methods to be shared. OPSL is a valuable resource if we ever need backup in a fault situation. In fact, this occurred in June this year when we had a large up-country snowstorm. The OPSL crew was diverted from the line build project for a week to assist in restoring our network," says Craig.

Look up and under!

Be aware of overhead lines and know where underground services are before you undertake any work. Here are a few quick tips:

- Always treat all lines as live.
- Never risk electrocution by going near a fallen or broken line. The ground can be live. Stand back at least 20 metres and call us on 0800 808 587.
- Never climb any power pole or pylon.
- Look above when using mechanical plant or high machinery.
- Look above and keep well clear when handling electric fences or moving equipment like irrigators near power lines.
- If you are operating machinery that makes contact with overhead or underground lines, stay in the cab and try to move the machinery away to break contact with the line. Then drive the machinery well clear of the line before you get out.



Before U Dig



It's vital to be aware of what's down below when you start digging.

OJV is part of a "one stop shop" which helps people and contractors identify underground services before they start excavating.

Before U Dig (www.beforeudig.co.nz or 0800 248 344) is a free service that provides contractors, or others, with details of planned works on a particular site. The Before U Dig team contacts the relevant member utilities who provide information to contractors about the location of underground infrastructure, before work starts.

Safety is paramount. If you're planning to dig below 300mm you need to get in touch with our service first, because contact with live cables or lines carries immense risk. Damage and unplanned outages become an issue for us and other infrastructure providers. If you aren't sure if a cable is live or not, don't try to find out yourself. Assume it is live and contact us first.

Keep an eye to the sky as well and be aware of your surroundings – overhead lines are just as dangerous. Irrigation pipes accidentally moved into contact with live lines are an example. Farmers with round bales on a loader which obscures vision, people trimming vegetation too close to high voltage lines – these can be potentially fatal accidents.

Trees and Electricity Don't Mix

If you have overhead power lines on your property it's important to keep nearby trees well-trimmed.

Legally – for both public safety and to protect the electricity network - you're required to keep trees on your property a safe distance from power lines.

There's a whole host of reasons why:

- In very dry conditions trees close to lines may create electrical sparking that starts a fire.
- Children who climb trees close to power lines are at risk of serious injury or death.
- In bad weather conditions, vegetation can become electrically 'live' and may electrocute anyone who comes into contact with it.
- In weather conditions such as severe wind or rain, snow or ice, trees can blow over or their branches can break off, damaging power lines and creating power outages.
- Tree roots can grow around underground electricity cables, rupturing the insulation and causing power supply to fail.

If you're trimming trees or cutting back hedges near high voltage lines, take special note of your surroundings and at all times, know where the power lines are. Be very aware of overhead lines and make sure you know where they are to avoid a potentially life threatening accident.

And remember, high voltage electricity can jump across gaps so don't work any closer than four metres to a power line without getting approval from OJV first.

Good vegetation management and robust safety practices are important to ensure the safety of you and your family and to ensure security of everyone's electricity supply.



Remember our 0800 number: 0800 808 587

If you've a fault or power problem you can call us anywhere, anytime, on our 0800 number.

OJV network manager PowerNet, provides a 24/7 customer call centre based in Invercargill to manage all faults and activity on the electricity networks they manage.

OJV customers can call our System Control on 0800 808 587. We will do our best to sort out your concern as efficiently and effectively as possible.



Thank You From PowerNet



We would like to thank our customers for their understanding and patience during the storms in early October. Southland and Otago experienced the most severe wind storms since 1995, resulting in significant disruption to power supply across the PowerNet managed electricity networks.

Power Issues?

Call  PowerNet on
0800 808 587



If you have any concerns about our service please call us on 03 418 4950 and we will be pleased to help – we have a free internal complaints process. If we are unable to resolve your concern you can contact the free and independent Electricity and Gas Complaints Commissioner on 0800 22 33 40. www.egcomplaints.co.nz

PowerNet faults/interruptions, free phone 24/7 - 0800 808 587