

Orion's post earthquake pricing and reliability

Our proposal to the Commerce Commission




Orion
yourNETWORK

Introduction



We aim to provide you, our customers, with a cost-effective, safe and reliable power supply.

The Canterbury earthquakes tested our ability to meet that aim. Many parts of our network suffered damage and thousands of customers lost power for several days.

The scale of the damage could have been much worse though if we hadn't seismically strengthened our network in the preceding 20 years. Our past investments in our network brought significant benefit to our community.

After the earthquakes we worked hard to get the 'lights on'. We also did our best to keep our community informed of our repair and recovery progress. We're proud of the work of our contractors and staff.

Our repair and recovery work continues and we are now working to support the city's rebuild – this includes connecting customers in new subdivisions and in the badly damaged CBD. This work, which supports economic growth in our region, costs many millions of dollars.

Our network prices and our network reliability targets are controlled by the Commerce Commission. We believe our prices and our reliability targets need to be reset in light of the earthquakes.

We now want to know what you, our consumers, think of our draft proposal. We will take your feedback into account before we make our application to the Commission next year.

I encourage you to read this guide to our draft proposal and also to read the other related documents we have placed on our website.

Your feedback is important. This is your initial chance to provide comment. You will also have the chance to participate in the Commission's own consultation process in 2013.

Rob Jamieson

CHIEF EXECUTIVE OFFICER

Orion New Zealand Limited

23 November 2012

Above: Orion chief executive Rob Jamieson with a giant scarf covered in thank you messages from 1,600 eastern suburbs residents grateful for our efforts to keep the power on last year.

Front cover image: Orion contractors replace damaged 11,000 volt cables in New Brighton. Seven hundred electricity sector workers from around New Zealand and Australia helped with our earthquake repairs.

Highlights

What we propose

- we propose to apply to the Commerce Commission in February 2013 for a review of our regulated network reliability targets and prices
- we propose to target a level of reliability and security of supply by 2019 that is near what we provided to our community before the earthquakes
- we propose a price increase, starting 1 April 2014, spread over several years. Our proposed price increase, excluding inflation, is the equivalent of an approximate one-off 5% increase in the average electricity bill of a household or business. For a typical household the impact of our proposal would be an increase of \$8.50 a month including GST in today's dollars
- the proposed prices would provide no more than a fair and regulated return on our investments. The Commerce Commission will scrutinise our proposal to ensure this is the case and ensure we are acting prudently and efficiently. The size of the proposed price increase is significantly lower than what it would have been had we not carried out our pre-earthquake seismic strengthening work and had prudent insurance cover

Why we are making these proposals

- we seek to have reliability targets that reflect the state of our network after the earthquakes
- we seek to recover our earthquake related costs through increased prices to those that use our network
- if prices recover costs this provides the right incentive for us to continue to make sound investments for the good of our consumers

Background

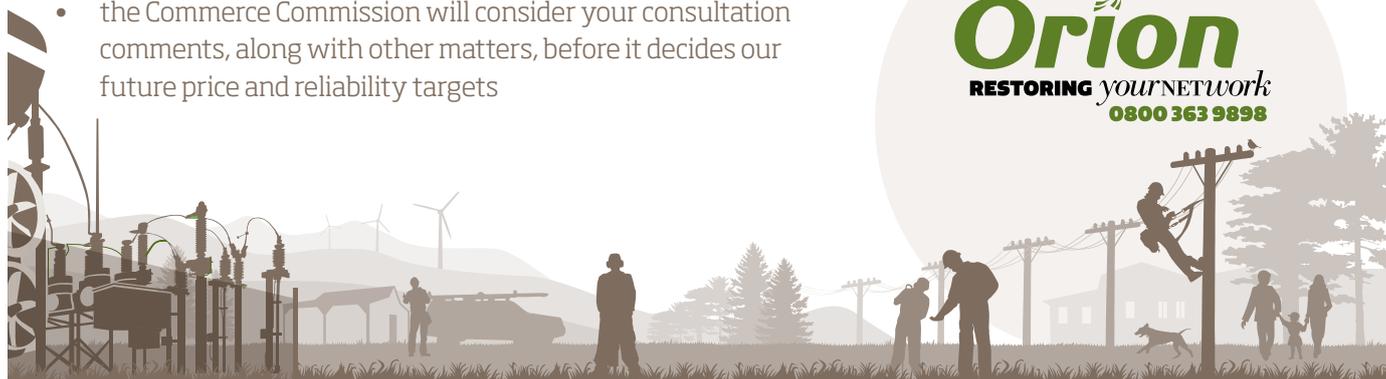
- before the earthquakes our electricity network was reliable and resilient in line with our community's expectations and our pricing was below the New Zealand average
- our prices typically amount to one quarter (25%) of a household or business electricity bill
- our pre-earthquake seismic protection and planning work is estimated to have saved approximately \$65m of damage to our network. It also avoided considerably greater damage and cost to our community's economic and social well being as it prevented more extensive power cuts
- despite our seismic protection work, the earthquakes caused significant damage to our network. The scale of the damage was unprecedented. The net result has been a significant negative financial impact on Orion
- for the three years between the earthquakes and 1 April 2014 our regulated prices will not keep pace with inflation, despite reduced revenue and significant earthquake costs

Your opportunity to comment

- we seek your feedback by 16 December 2012 on our proposed price and reliability application to the Commerce Commission. See www.oriongroup.co.nz/cpp
- you will also have the opportunity to participate in the Commerce Commission's separate consultation process on our proposals in 2013
- the Commerce Commission will consider your consultation comments, along with other matters, before it decides our future price and reliability targets



Orion
RESTORING your network
0800 363 9898



What we have considered in deciding to apply to the Commission

All electricity distribution companies in New Zealand are regulated businesses. Orion is one of these and that means we come under the control of a law called the Commerce Act.

The Act controls the price and quality of goods or services in markets where there is little or no competition.

A Government organisation called the Commerce Commission administers the Act. The Commission sets targets for how reliable our electricity network should be and also sets limits for the prices that we can charge to deliver electricity.

A regulated company like Orion is different from most other businesses. By law, we cannot make big gains in good times to balance out higher costs when times get tough.

As well as limits on our prices, there's no allowance in advance for the uninsurable costs of disasters. We couldn't insure our overhead lines and underground cables before the quakes (and still can't) because it wasn't economic to do so. We are not aware of any electricity distribution company in Australasia that insures its lines and cables. Where we could economically insure parts of our electricity network, such as our buildings, we did so.

The Commission allows us to apply for a review of our network reliability targets and prices after a natural disaster. Given the financial impact of the earthquakes, we intend to apply to the Commission for one of these reviews.

The financial impacts of the earthquakes

The earthquakes have had significant financial impacts on us through:

- lost revenue due to building demolitions and people moving away from their homes and businesses
- additional repair costs, particularly in eastern Christchurch
- uninsurable damage on our network
- additional forecast capital expenditure to connect customers in new subdivisions and in the badly damaged CBD.

Rebuilding our network

For the foreseeable future we need to spend more than usual to restore our network, if it is to be as strong and reliable as it was before the earthquakes. We believe this extra work is necessary to help the city rebuild and meet the needs of our consumers. Before the end of the decade we plan to spend \$155m more in capital expenditure on our network than was planned before the earthquakes.

In determining how to rebuild our network, we have considered many options. The balance we have struck between the different options is based on the assumption that our network should be rebuilt to a similar standard to that which our community required before the earthquakes.

For instance, we plan to continue to use underground cables in most urban areas and overhead lines in most of our rural network. Our use of underground cables complies with the policy contained in the Christchurch City Council's City Plan.

If our community tells us in the feedback we now seek that it wants different level of reliability and security in our network, we will consider that.

Our pricing

Besides considering how strong and reliable our network should be, we have also considered who should pay for it and for the earthquake related costs we have incurred to date. This is discussed further in this guide.

We believe it is appropriate for electricity consumers, who are the beneficiaries of the services we provide, to pay for the costs of those services in both good times and bad.

So far we haven't been able to recover our uninsurable costs and lost revenue since September 2010 because of the price regulation that limits what we can do. In effect, our revenue shortfall is due to the regulatory regime not reflecting that the quakes have happened. We believe it fair for our consumers to pay for our unrecovered costs and planned rebuild costs.

In order to minimise the price impact on consumers we are planning to smooth our cost recovery over 10 years, and to defer some costs into the future. We considered a shorter five year recovery period, but, on balance, we propose the longer timeframe of 10 years so that price rises each year aren't so high.

Continual improvement

The Commerce Commission will ultimately decide on our application. Regardless of the Commission's decision, we will continue to look for ways to improve our performance for the long term benefit of consumers in the years ahead. We will continue to improve our planning, our operations, our project execution and our maintenance and repair techniques to keep costs down.

Orion plays a crucial role in our city, but more than that, we are a committed partner in the rebuild, eager to help bring the vision for Christchurch and Canterbury to life. The best way we can do that is to continue to invest, continue to 'keep the lights on' and be ready to respond once again if disaster strikes.

Your opportunity to comment

We propose to apply to the Commission for a review of our network reliability targets and prices in February 2013. The Commerce Commission regulates all electricity network companies in New Zealand. The application we intend to make is formally known as a 'Customised Price-Quality Path' (CPP) application.

We have produced this guide to help you understand our intended CPP proposal. **Should you seek any further information, please email CPPfeedback@oriongroup.co.nz to request it, or call 363 9898.**

We seek your comment on our draft proposal. This initial feedback will then be considered before we finalise our application to the Commission.

Please provide your written feedback to us by 16 December 2012. We appreciate this is a relatively short timeframe, but we cannot extend it due to the February 2013 deadline for us to submit our application to the Commerce Commission.

Comments can be made via the form provided on our website www.oriongroup.co.nz/cpp or by posting them to the address provided on page 37 of this document. Page 37 also shows suggested questions for you to consider in your feedback and details how your feedback must include your name and address, and how it may be made public.

During 2013, the Commission will thoroughly assess our application to decide whether a change in price and reliability targets is warranted. The Commission will carefully examine what we spend, and why, to ensure we are running our network in a cost effective and efficient way. **The Commission will also run its own consultation process in 2013 which you will have the opportunity to participate in. In late 2013 or early 2014 the Commission will then make a final decision on our future price and reliability targets.**



Contents

This guide has five more sections after this introductory section. The purpose and content of each section is set out below.

Section 1: The electricity industry and Orion – these two pages provide you with background information about where Orion fits within the electricity industry and the nature of our business

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- 8 | Orion network overview

Section 2: Orion before the earthquakes – this section describes how we operated before the earthquakes, the quality of service we provided and the prices we charged. We also discuss the extensive seismic protection work we undertook in the years before the earthquakes – seismic protection work that proved to be extremely valuable for our community

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Section 4: How our network plans, costs and revenues have been impacted by the earthquakes – summarised here is the financial impact of the earthquakes on us, and the major network capital expenditure programmes we plan over the next five plus years

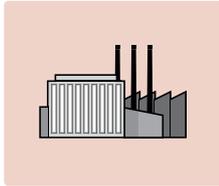
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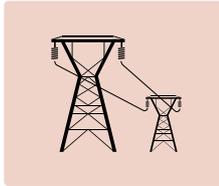
1.1 The electricity industry

Electricity usually moves through five steps to get from where it's generated to where it's needed. Orion is a 'distributor' in the third step of the chain below.



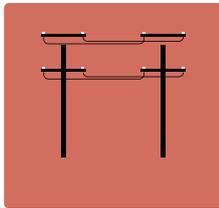
Generators

Generators produce electricity. Almost all electricity generated for retail purposes in New Zealand is sold into the wholesale electricity market for supply to electricity retailers. Several private and government-owned companies are generators – they include Contact Energy, Genesis Energy, Meridian Energy, Mighty River Power, Todd Energy and TrustPower. Most generators are also electricity retailers.



Transpower

Transpower is the state-owned enterprise responsible for transmitting the electricity produced by generators. It operates the national grid of high voltage power lines and tall pylons that connects to the power stations to send electricity around the country.



Distributors

Also called lines companies or network companies, distributors own the lower voltage power lines, substations and distribution networks in local areas. Distributors receive power from Transpower's national grid and then deliver that power to local businesses and homes. They also coordinate load management and emergency (e.g. storm and seismic) response. Orion is one of 29 electricity distributors in New Zealand.



Retailers

Sometimes referred to as power companies, electricity retailers purchase electricity from the wholesale market to sell to residential and business users. Seven electricity retailers operate in the Orion network area in central Canterbury – Contact Energy (including Empower), Genesis Energy, Meridian Energy, Mercury Energy, Powershop, Pulse Utilities, Simply Energy and TrustPower.



Consumers

The last step in the process is providing power to your home or business. You can buy electricity from the competing retailers listed above.

1.2 Orion network overview

Orion owns and operates the electricity distribution network in central Canterbury, between the Waimakariri and Rakaia rivers, and from the Canterbury coast to Arthur's Pass. We operate one of New Zealand's largest electricity distribution networks. We provide electricity to around 190,000 consumers over 8,000 square kilometres. Orion bills electricity retailers for this delivery service, and electricity retailers then on-charge homes and businesses. Retailers also bill consumers for the cost of generating electricity plus a retail charge.

Orion's charges typically amount to about one quarter (25%) of an average household's electricity bill.

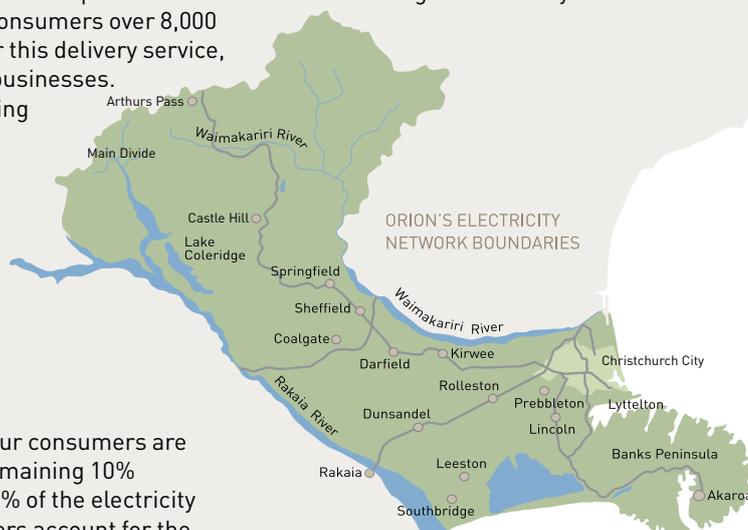
The majority of our consumers – over 85% – are residential households, with the remainder being commercial or industrial premises. Around 90% of our consumers are located in the urban area of Christchurch with the remaining 10% in rural regions. Business consumers use around 60% of the electricity delivered via our network, while residential consumers account for the other 40%.

Our network covers a varied area, from high-density urban to medium-density rural and remote rural countryside. Each of these areas is served by a technically different type of electricity network. To reach all of our consumers, we manage a sophisticated system of electrical and load control equipment, as well as multiple computer systems.

Typically, growth in maximum electricity demand is the main reason we need to continually invest in our network. For instance, in the years before 2010, increased irrigation in Canterbury's rural districts and construction activity in urban areas created strong growth in electricity demand. This in turn required considerable new investment in the network by Orion.

As a result of the earthquakes, the need for network investment in the next few years is greater than normal. We need to restore our network to a reliable standard in damaged areas – typically the eastern suburbs of Christchurch – and we need to grow our network into areas where displaced homeowners are endeavouring to re-establish their lives. For instance Rolleston, Lincoln and Belfast are growing rapidly in size. The CBD will also require new network investment, and we need to prepare for the influx of people expected to come into our network area to help rebuild Christchurch.

As was the case before the earthquakes, we will continually look to find the most cost-effective ways to do all these things.



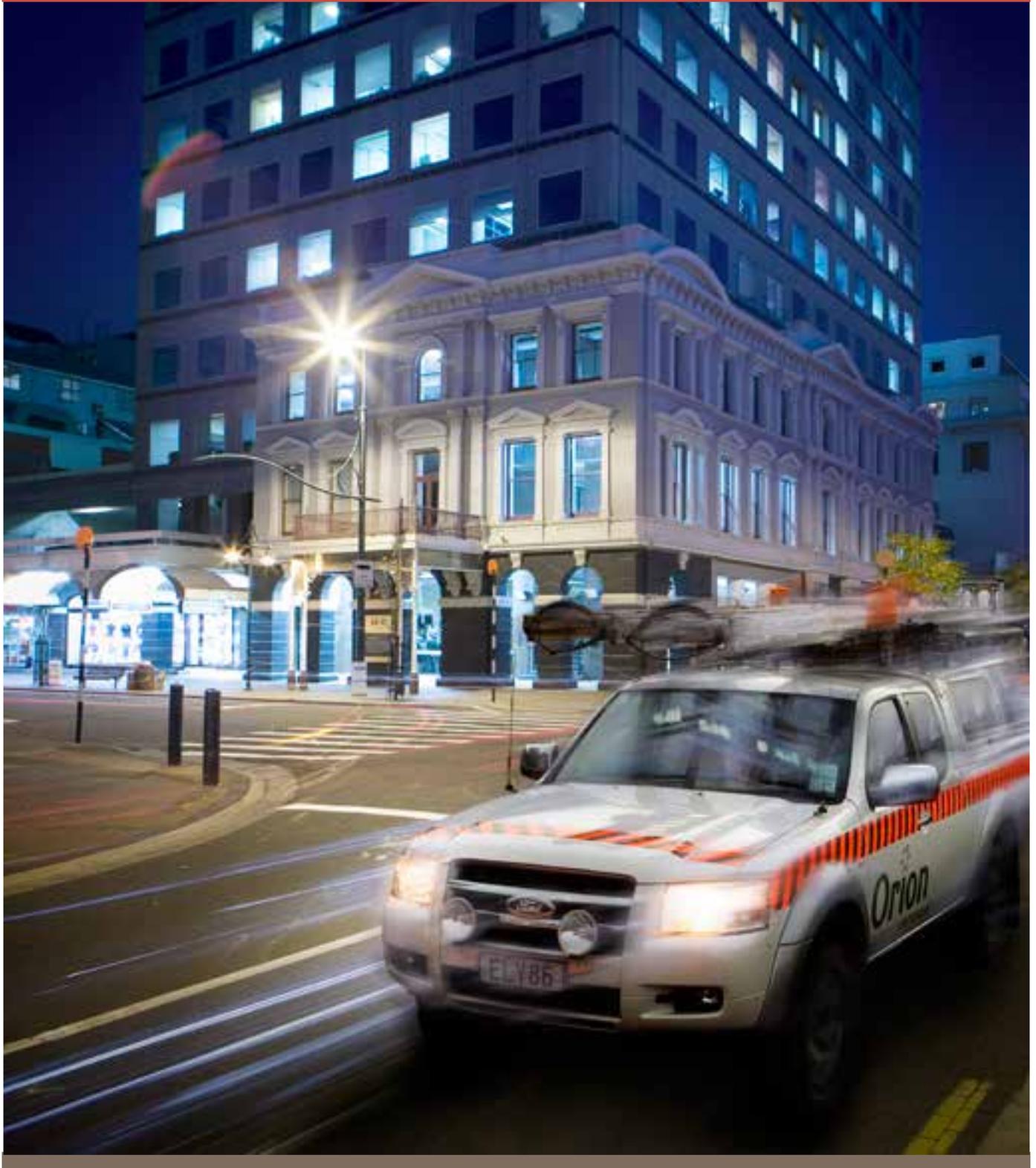
Network Summary as at 31 March 2012

Number of consumer connections	191,000
Network maximum demand (MW)	630
Annual electricity delivered (GWh)	3,100
District/zone substations	52
Distribution/network substations	10,700
Kilometers of 66kV line and cable	200
Kilometers of 33kV line and cable	340
Kilometers of 11kV line and cable	5,700

Our shareholders are:

- Christchurch City Council 89.3%
- Selwyn District Council 10.7%.

Orion before the earthquakes



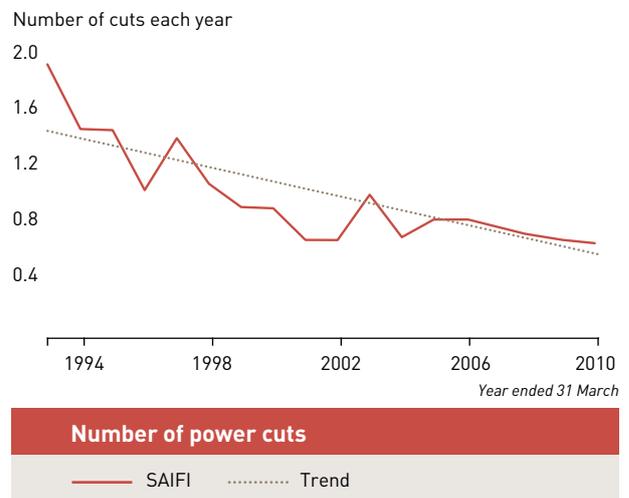
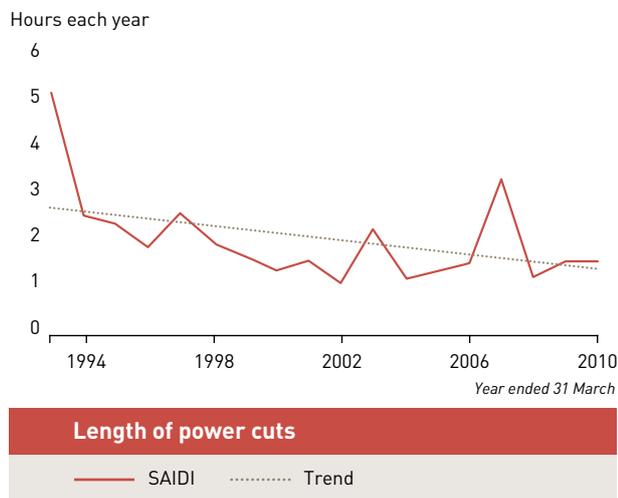
2.1 Our network reliability before the earthquakes

Our consumers have consistently told us that we should 'keep the lights on', keep our prices down and deliver electricity safely. There is often a trade-off between those requirements, so we have always focused on finding the right balance between costs to consumers and network investment. We've also worked hard to meet the needs and preferences of our consumers with fair and appropriate prices and performance levels.

Two measures are accepted internationally as the most important indicators of electricity network reliability performance. These measures are known as SAIDI and SAIFI.

- SAIDI, or system average interruption duration index, measures the average number of minutes per year that a consumer is without electricity (length of power cuts)
- SAIFI, or system average interruption frequency index, measures the average number of times per year that a consumer is without electricity (number of power cuts).

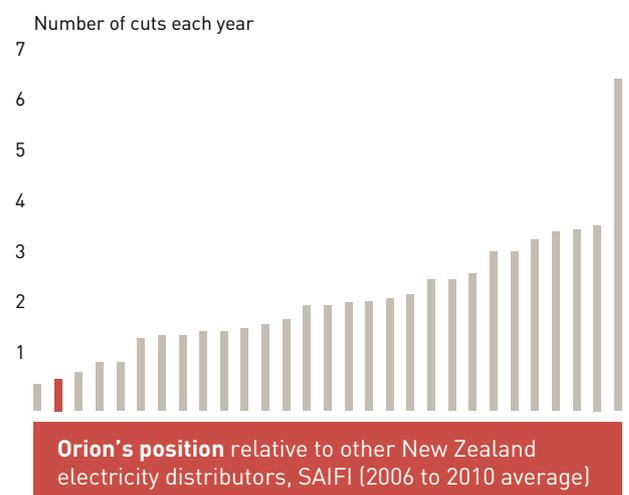
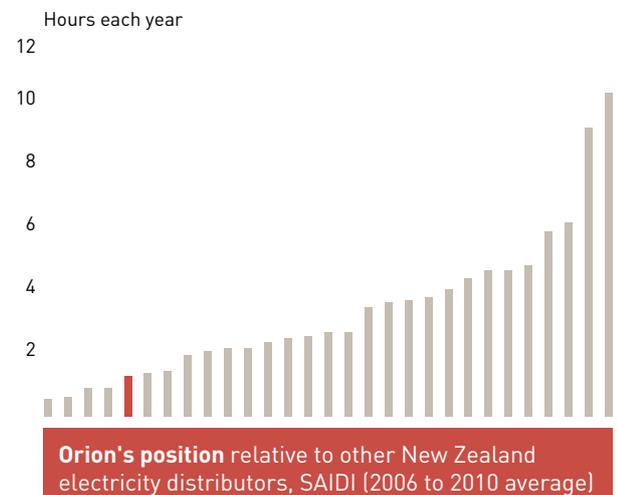
Extreme weather and other events can have a major impact on an electricity network's performance. It is therefore more meaningful to look at the long term trend in an electricity network's SAIDI and SAIFI figures, rather than look at the figures for any one year.



The trend of Orion's figures since the early 1990s showed that we continually improved our network reliability performance before the earthquakes. The last full financial year prior to the earthquakes was the year to 31 March 2010.

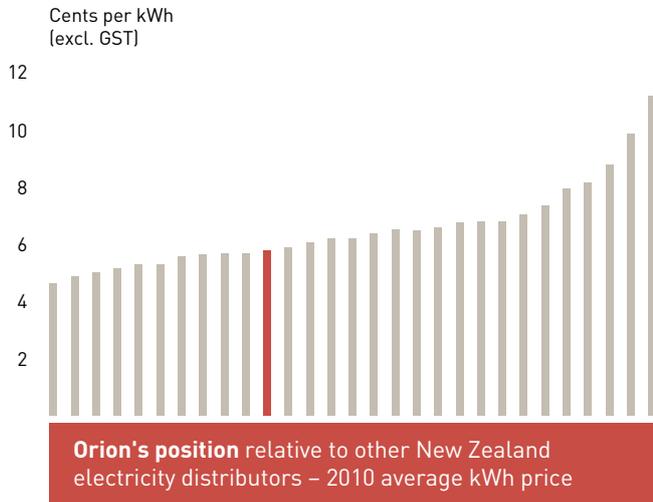
Based on the five years to 31 March 2010, Orion was the:

- fifth best performing electricity distribution company in terms of the duration of interruptions (SAIDI or length of power cuts)
- second best performing company in terms of the frequency of interruptions per consumer (SAIFI or number of power cuts).

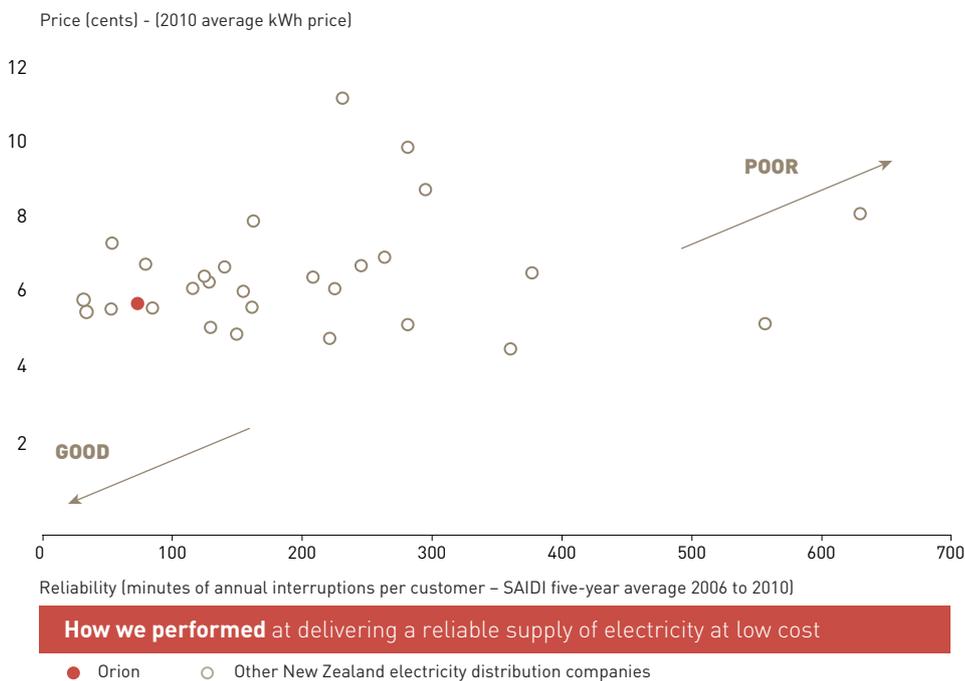


2.2 Our pricing before the earthquakes

One way to compare average prices of electricity distribution networks is to compare the revenue those networks receive with the volume of energy they deliver. This comparison represents an average across all residential and commercial connections, and is shown in the graph below for the year before the earthquakes.



The graph below shows that for the same level of reliability we provided pre-earthquakes, only three other network companies in New Zealand offered lower prices.



Before the earthquakes our electricity distribution network was one of the most reliable in New Zealand and our pricing compared very favourably with other New Zealand electricity distributors. We believe, based on community feedback we received before the earthquakes, that we struck the right price/reliability balance. Our community wanted a very reliable network with fair and efficient pricing.

2.3 How we prepared for an earthquake

Over the last 20 years an important part of Orion’s planning has been to manage risk. We believed that a resilient network could play an important part in the rapid restoration of electricity supplies after a disaster. We were proven right.

Over the years, we engineered a strong electricity supply network for Canterbury. Where risk to the power supply couldn’t be easily eliminated, we reduced it through better emergency training, up-skilling of staff, safer work practices, and improved planning and network design.

The electricity distribution system in Christchurch works a bit like a spider’s web. Rather than have a single line or cable into an area, we have multiple links, so if one fails, there’s an alternative power supply route. This spider’s web approach greatly increased Orion’s ability to restore power promptly after the earthquakes. It meant that power stayed on unless all the multiple links into an area failed. It also meant that if all the links were damaged, we could fix the link that was the easiest and quickest to repair.

Also, as part of our risk management in the mid-1990s, we participated in an “engineering lifelines” study. This looked at how natural disasters might affect Christchurch. That study prompted us to spend \$6m on seismic-protection and strengthening work.



For example, we reinforced bridges carrying cables across rivers. The photo above (left) shows a Dallington footbridge that was strengthened to carry a cable. It performed superbly, allowing the power to keep flowing, while an unreinforced footbridge 500 metres away was dramatically twisted (above right).



An example of how a strengthened Orion brick substation building (left) survived the earthquakes in good condition. The brick building on the right, previously used as a substation but no longer owned by Orion, was not strengthened.

We also strengthened hundreds of buildings which contained our network infrastructure. Many older brick buildings in Christchurch were hard hit in the earthquakes and ensuing aftershocks. In comparison, strengthening of Orion's 314 substations meant that only four sustained serious damage, and one of these was from a boulder falling onto it.

We also bolted our transformers down. This was a lesson we learnt from the North Island's 1987 Edgecumbe earthquake, when large transformers fell over, leaving some areas without power for weeks.

Other preventive measures cost only a few cents. 10 cent plastic ties, for example, stopped expensive batteries for our substation protection systems falling off walls and smashing. Doing these little things right made a big difference when the earthquakes hit.

We also carefully invested in good technology. For instance we installed innovative wireless communications equipment that continued to operate throughout the earthquakes. This helped us restore power in rural Canterbury three or four days sooner than we would otherwise have been able to.

Our commercial incentives to large electricity consumers, such as hospitals and the Police, had encouraged them to install diesel generators for use during periods of peak power demand. This meant they were well prepared with backup power supply when the earthquakes struck.

Prior to the earthquakes, we developed "Mutual Aid Partner" agreements with other electricity network companies to provide support in the event of large scale natural disasters. We were able to trigger these vital agreements in the aftermath of the February 2011 earthquake.

In addition, we regularly contributed to emergency readiness programmes run with Civil Defence and other utility organisations. These exercises enabled us to test our emergency procedures and make improvements from the lessons learnt.

Without all this work, the impact of the earthquakes would have been much worse. Months of power cuts would have been experienced, and the confidence of the Christchurch and Canterbury communities would have been potentially shattered.



Seismic strengthening of this substation kept the roof up. This meant the substation could remain operational while repairs to the walls were undertaken. Without the strengthening this substation would undoubtedly have been damaged beyond repair.

We estimate that without our pre-earthquake strengthening work and planning, the earthquakes would have cost us an additional \$65m in repair and replacement costs. And the damage to Canterbury's economy that was avoided as a result, was estimated at many times more by the New Zealand Lifelines Group in their June 2012 report "The Value of Lifeline Seismic Risk Mitigation".

Such was the force of the earthquakes however, that despite the strengthening work and planning, damage was unfortunately unavoidable and extensive.

Impact of the earthquakes on our network, and our response



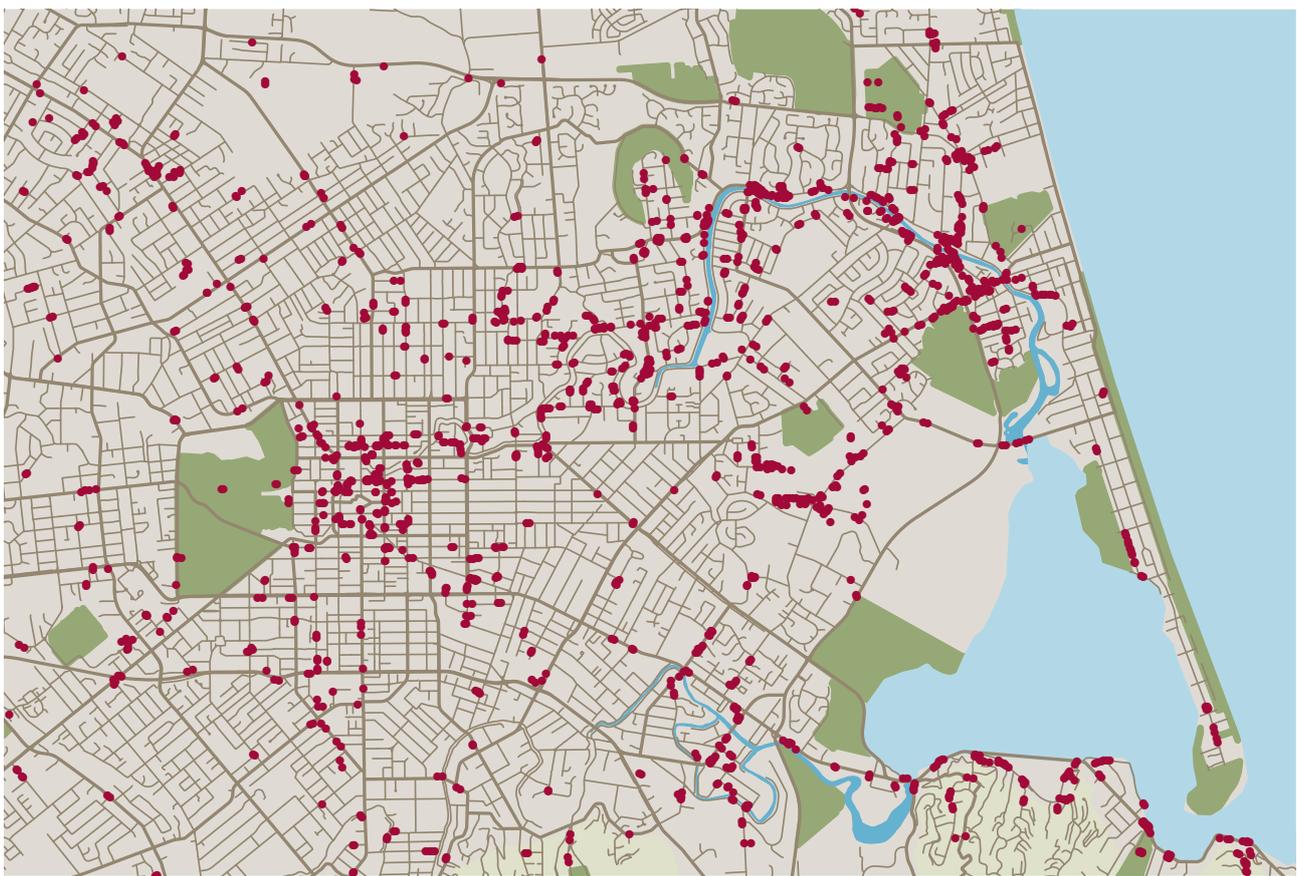
3.1 The damage the earthquakes caused to our network

There were extensive power cuts following the 4 September 2010 earthquake. Approximately 80% of these cuts were caused when the ground shaking tripped safety devices installed on our transformers. These devices were built into our system to reduce damage to our lower voltage network and minimise the possibility of fire. As our substation buildings were seismically reinforced, all of them remained operational, despite some cracking, sinking through liquefaction and other damage. There was also damage to lines and cables and ancillary equipment such as poles and insulators.

At the time, the damage caused by the September 2010 earthquake seemed significant; but the scale of the destruction six months later soon put this into perspective. As everyone in Canterbury knows, the 22 February 2011 earthquake resulted in one of the highest ever recorded ground force accelerations. The sheer force of it meant that the damage was about 10 times greater than the September 2010 earthquake.

The February 2011 earthquake hit properties and infrastructure hard throughout Christchurch and particularly the eastern suburbs. It also forced the virtual abandonment of the central business district, a significant portion of which remains off-limits over 18 months later.

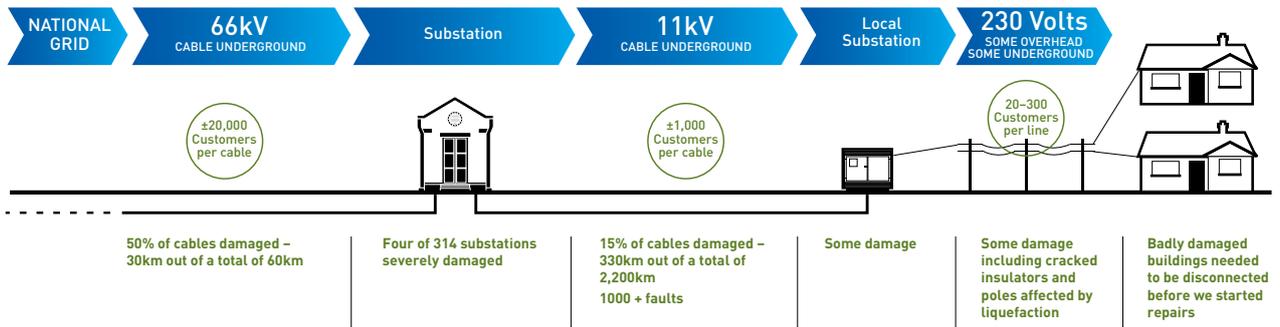
During the February 2011 earthquake, the massive lateral forces caused more faults on our underground network than we would normally see in an entire decade.



Location of high voltage cable faults after the February 2011 earthquake

Aside from underground cables stretching and breaking through ground movement, substation buildings and poles moved in areas badly affected by liquefaction. Our New Brighton substation sank into the ground, and flooding caused by liquefaction inundated other substations.

A summary of the damage that our network suffered in the February 2011 earthquake is shown graphically below.



The following series of photos gives an idea of the damage our network sustained.

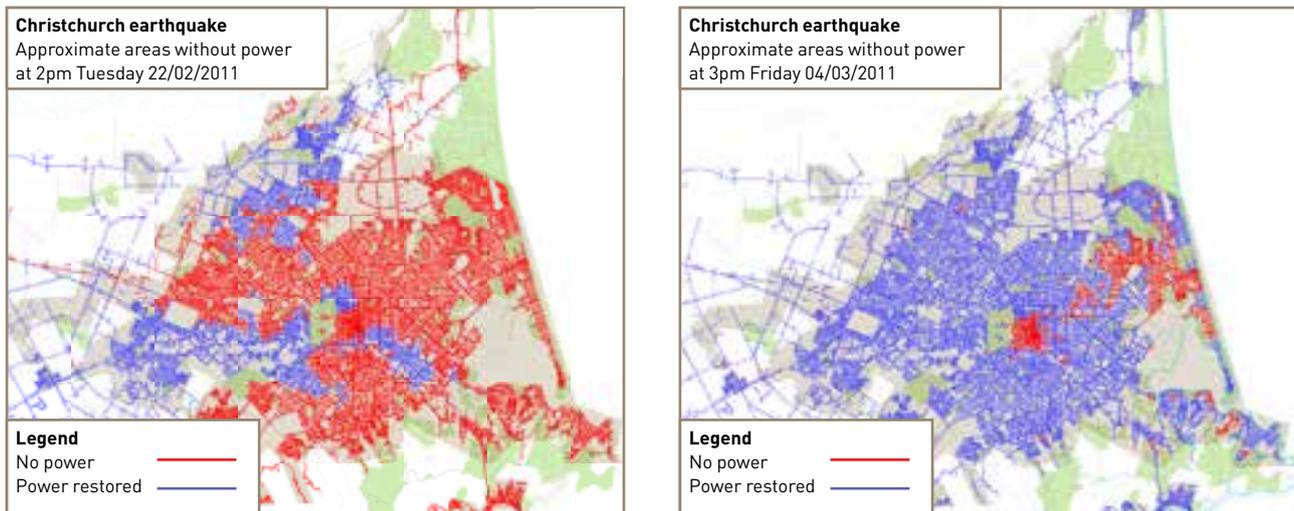


Damage was compounded by the 5.7 and 6.3 magnitude earthquakes on 13 June 2011 and the 5.8 and 6.0 magnitude earthquakes on 23 December 2011. These aftershocks caused around 10 times the number of underground cable faults than would normally occur in a week.

3.2 Our response up to September 2011

Approximately three quarters of consumers lost power in the 4 September 2010 earthquake. By the end of that day we had restored power to 90% of customers, and by the end of the week supply was restored to virtually everyone.

Approximately two thirds of consumers lost power in the February 2011 earthquake. By the end of the next day we had restored power to 50% of our consumers, by the end of the week 86%, and within 10 days 95%. With the exception of cordoned areas (and lines originating within cordoned areas), we restored all consumers (that could take power) within 24 days.



Approximate areas without power after the February 2011 earthquake (left) and 10 days later (right)

Following the February 2011 earthquake we:

- called on help from our mutual aid partners and local electrical contractors and diverted all resources from planned work to fault restoration. Seven hundred electricity sector workers, from more than 40 companies, put in more than 200,000 work hours in the months after the February 2011 earthquake to keep the power on
- disconnected hundreds of damaged properties from our network at the request of consumers or under the instruction of emergency services
- installed temporary generators to provide power to areas where there was severe damage to underground cables. At one point we had 24 generators operating, supplying electricity to 10,000 consumers
- built two temporary 66,000 volt (66kV) overhead lines to bypass four damaged underground 66kV cables in north-east Christchurch. These lines were needed to keep power on to 20,000 consumers
- repaired earthquake damage to 360 kilometres of high voltage underground cables – the distance from Christchurch to Queenstown
- relocated from our own office buildings, which were rendered uninhabitable, to our back up “hot site”. This was an alternative network control centre that we maintained for such an emergency
- provided a flow of information and advice to the public, with regular accurate assessments of timeframes for restoration of power. We also attended numerous public meetings to hear directly from our consumers
- built a new substation in Rawhiti Domain off Keyes Road in New Brighton to replace the severely damaged Pages Road substation. The new substation began to supply power to consumers in early July 2011.



Independent reviews, such as the 'Review of the Civil Defence Emergency Management Response to the 22 February Christchurch Earthquake', show that Orion's preparation and planning meant we were able to respond well to the earthquakes.

However, we still learnt some valuable lessons about risk management. We started implementing these in the months immediately after the February 2011 earthquake to make the electricity system more resilient if further earthquakes struck.

For instance, in March 2011 we were the first electricity distribution company in New Zealand to invest in a mobile centre to house our sensitive computer systems needed to operate and control our network. This mobile "nerve centre", custom-built in Germany, allows us to place the backup equipment at a different location from our main computer room. This mobility means we can 'set up shop' in many locations throughout the city if our main head office location were to become uninhabitable again.

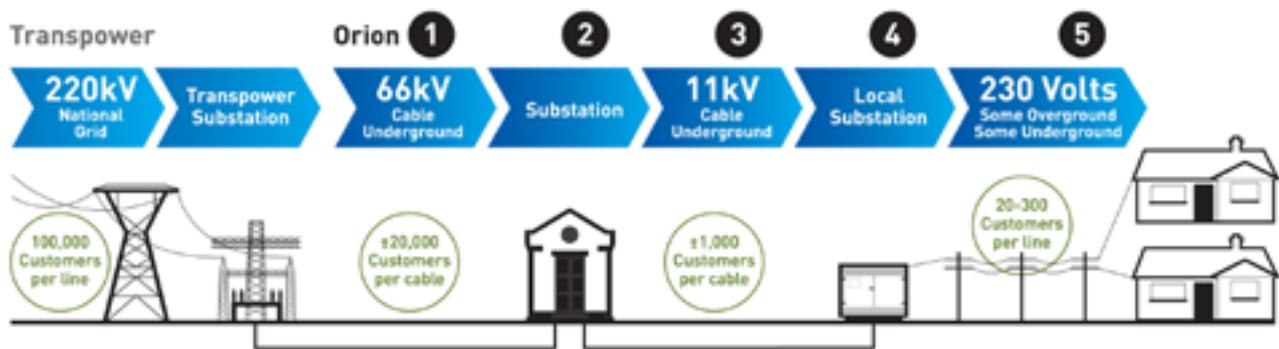


Top: Our Keyes Road substation was quickly built after the February 2011 earthquake. Above: Our new mobile control centre en-route to the city from Lyttelton port.

3.3 Our response since September 2011

All of our major emergency repair work was completed by September 2011. Residents and businesses across our network area (except in the CBD red zone) could use power as normal from this time. However, we have continued work on rebuilding the network since then to start restoring reliability and resilience.

This next diagram shows the five main parts of Orion's electricity network, starting with the high voltage cables (1) on the left through to the lines coming into houses on the right (5). The table on the next page shows our progress to date in repairing each of these five areas.



In addition to the work shown in the table, we also implemented the final stage of our new network management system during the last year. This allows us to keep track of the state of the electricity network in real time. This technology significantly improves our ability to manage emergencies and restore power faster when cuts occur.

The heart of the system is a computer-based model which holds information about the equipment on our network, including all the lines and cables. It helps us to better manage the system, plan maintenance in smarter ways and minimise the potential for equipment overload.

As a precautionary measure we also installed diesel generators in the north east of the city, and have a number of others on standby. This means power can still be supplied to these areas in the event of a network failure.



Installing large diesel generators in QEII park to provide backup power supply if needed.

	Impact of earthquakes	Work completed to restore power	Current level of service	Progress to date	Timeframe for full recovery
66kV network 1	50% of cables known to be damaged – 30km out of a total of 60km.	Built two temporary 66kV overhead lines from Bromley to New Brighton and Dallington to replace four underground cables which were damaged beyond repair.	North-eastern Christchurch – temporary service. Rest of Christchurch classified as impaired service while assessments are carried out.	North-eastern Christchurch – stage 1 of 3 to replace temporary overhead lines in progress Rest of Christchurch – assess cables for damage then schedule any necessary works. 45% of assessments are complete. 26% of repairs are complete.	3 years 3 – 6 years
Zone and building substations 2	Four of 314 Orion owned substations severely damaged. 268 privately owned substations have sustained some damage.	Built a new zone substation in Keyes Road, New Brighton to replace the damaged Bexley Road and Pages Road substations. Two further substations have been repaired or replaced.	Impaired service.	All zone and building substations have been assessed. 11% of repairs are complete. Simeon Quay landslide damaged the main substation supplying Lyttelton. CCC reviewing land options.	3 – 5 years
11kV underground network 3	410 cables out of 6,622 damaged. 1000+ faults. A further 10 cables damaged as a consequence of 23 December earthquake.	100% of all known faults have been repaired.	Classified as impaired service while repairs are carried out.	Recheck and assess cables for damage hidden underground. 0.8% of assessments are complete. 0% of repairs are complete.	3 – 6 years
11kV overhead network 3	3,248 km of network. Some damage including cracked insulators.	100% of all known faults have been repaired.	Classified as impaired service while assessments are carried out.	58% of assessments are complete. 58% of repairs are complete.	3 – 5 years
Local substations (kiosks) 4	3,392 local substations. Some substations have moved on their foundations.	All substantial damage has been repaired.	Classified as impaired service while repairs are carried out.	All local substations have been assessed and findings collated. 100% of assessments are complete. 6% of repairs are complete.	3 – 5 years
230V overhead network 5	3,059 km of network. Some damage, including poles which have sunk or are on a lean due to liquefaction.	Repairs to make safe have been completed.	Classified as impaired service while assessments are carried out.	81% of assessments are complete. 38% of repairs are complete.	3 – 5 years
Main office/network control room	Main office building badly damaged and evacuated. Computer system servers compromised by the damaged building.	Relocated control centre to our 'hot site' and established temporary accommodation. Sourced and commissioned a portable data centre and standby generation.	Impaired service.	Build new administration centre to 'Level 4' building standard. Work on the new building on Wairakei Road has commenced. Our 1939 and 1984 Manchester Street buildings have been demolished.	1 year

How our network plans, costs and revenues have been impacted by the earthquakes



There are several technical terms in this next section. They are:

- **66kV = 66,000 volts.** Volts is a measure of the ability of a cable, or other equipment, to carry electricity. 66kV is the highest voltage on Orion's network.
- **33kV = 33,000 volts.** The bits of our network that are 66kV and 33kV could be likened to electricity 'highways'.
- **11kV = 11,000 volts.** The 'major roads' of our network.
- **400V = 400 volts.** The 'suburban streets' of our network.
- **Cable** = underground power cable
- **Grid Exit Points, or GXP for short.** These are the points on our electricity network where we take power from the national grid, owned by Transpower.
- **Line** = overhead power line
- **Sub-transmission network** = the combination of all our 66kV and 33kV cables and equipment
- **Substation or switchroom** = a place where we change high voltage down to lower voltage e.g. 66kV to 33kV
- **Zone substation** = a substation that caters for a large number of consumers

4.1 Our infrastructure plans and proposed increase in network expenditure

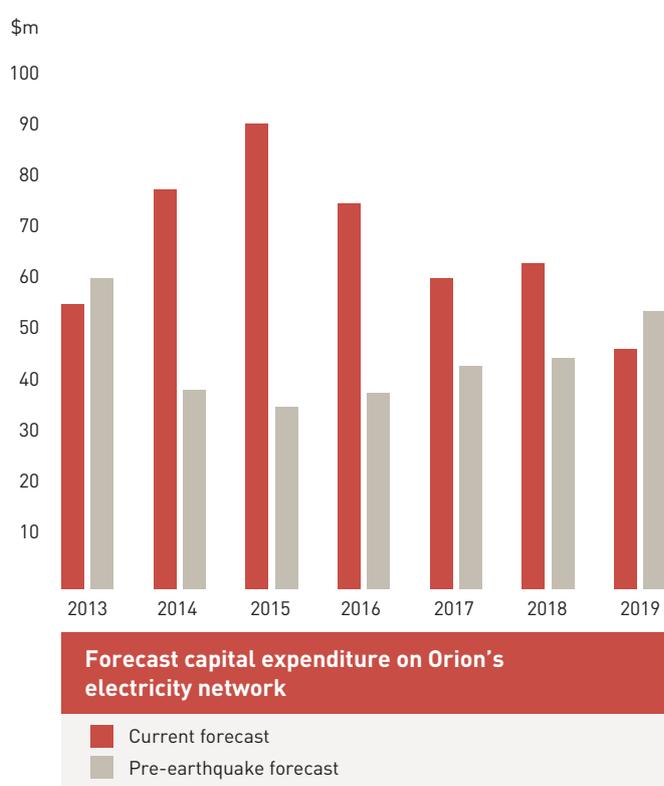
The most important contribution Orion can make to boosting both business and community confidence in Christchurch is to keep the power on where it's needed, quickly respond if it goes out, and promptly provide accurate information during major power cuts. Even though major emergency repairs are finished, we still have much work ahead to build strength back into our electricity network and to expand it to supply the many new subdivisions that have resulted from people moving.

We have needed to rethink how we configure our network and what we do to keep the power on, both now and in the future, as a result of the earthquakes. This has presented challenges, but also opportunities.

In determining how to rebuild our network, we have considered many options. The balance we have struck between the different options is based on the assumption that our network should be rebuilt to a similar standard to that which our community required before the earthquakes.

For instance, we plan to continue to use underground cables in most urban areas and overhead lines in most of our rural network. Our use of underground cables complies with the policy contained in the Christchurch City Council's City Plan.

The graph below shows how our spending plans have changed since the earthquakes. Compared to what we had forecast to spend before the earthquakes, our capital expenditure is \$155m greater now in total.



We will have to undertake repairs and/or development on every section of our electricity network, in both Christchurch and wider Canterbury, in the period until 2019 and beyond.

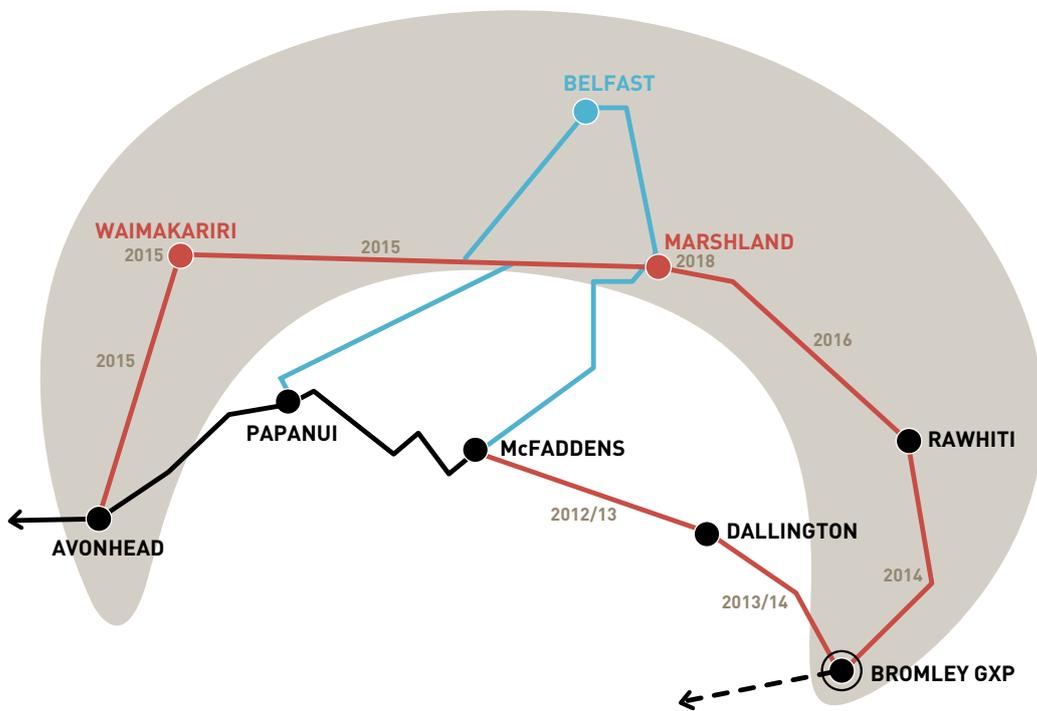
This guide does not attempt to explain all of our repair and development plans – that would take hundreds of pages. Instead we have singled out the five geographic areas of our network where we plan to undertake the biggest projects over the next few years.

1. North Christchurch

Before February 2011, we had planned to expand Orion's network in northern and western Christchurch. The earthquakes altered those plans. Instead of upgrading our network for 'typical load growth', we now have to replace damaged assets and provide for additional, unexpected growth. For instance, major expansion areas in the future now include the Russley-Airport area, Belfast and numerous 'Marshlands' subdivisions.

The north of the city is currently served from substations up to 7km away and the central north is supplied from a single heavily loaded stretch of network cables and substations. Further growth cannot be accommodated by simply extending the existing network without significantly reducing the level of security of power supply to this area. Consequently, to increase resilience and to provide additional capacity for expansion, we propose a future high voltage network configuration as illustrated below.

With regard to the proposed cable between Bromley and Rawhiti, before February 2011 power was supplied from the national grid to the north-east of Christchurch via two sets of parallel cables. Now, because of extensive cable damage, power is supplied to the area via individual temporary overhead lines. We installed these overhead lines in the days after the February 2011 earthquake. We promised the community these would be installed on a temporary basis only and we plan to replace them with underground cables by 2014.

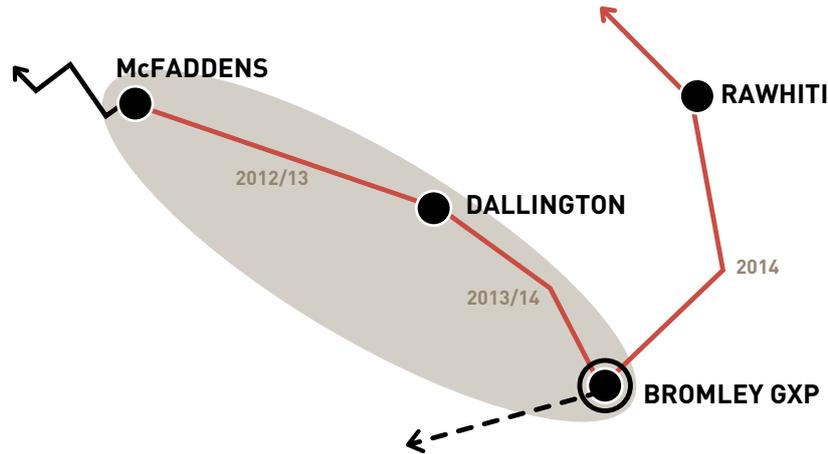


● Existing zone substation	— Existing 66kV cables
● Proposed zone substation before 2020	— Proposed 66kV cables before 2019
● Proposed zone substation after 2019	— Proposed 66kV cables after 2019
	- - - Transpower national grid

2. Dallington and surrounding suburbs

Our goal in this area of Christchurch is to remove the temporary overhead Bromley to Dallington line, which was installed to replace damaged cables after the February 2011 earthquake, and restore network resilience to the Dallington zone substation. To achieve this we intend to install two 66kV cables, as shown below, from the McFaddens zone substation in St Albans to the Dallington zone substation, and from the Dallington zone substation to Bromley GXP, along with other necessary equipment and new switchroom buildings at both Dallington and McFaddens.

The cables will complete one of four links between Transpower's Islington and Bromley GXPs, adding further resilience to our entire network.



● EXISTING ZONE SUBSTATION

— EXISTING 66KV CABLES

— PROPOSED 66KV CABLES BEFORE 2015

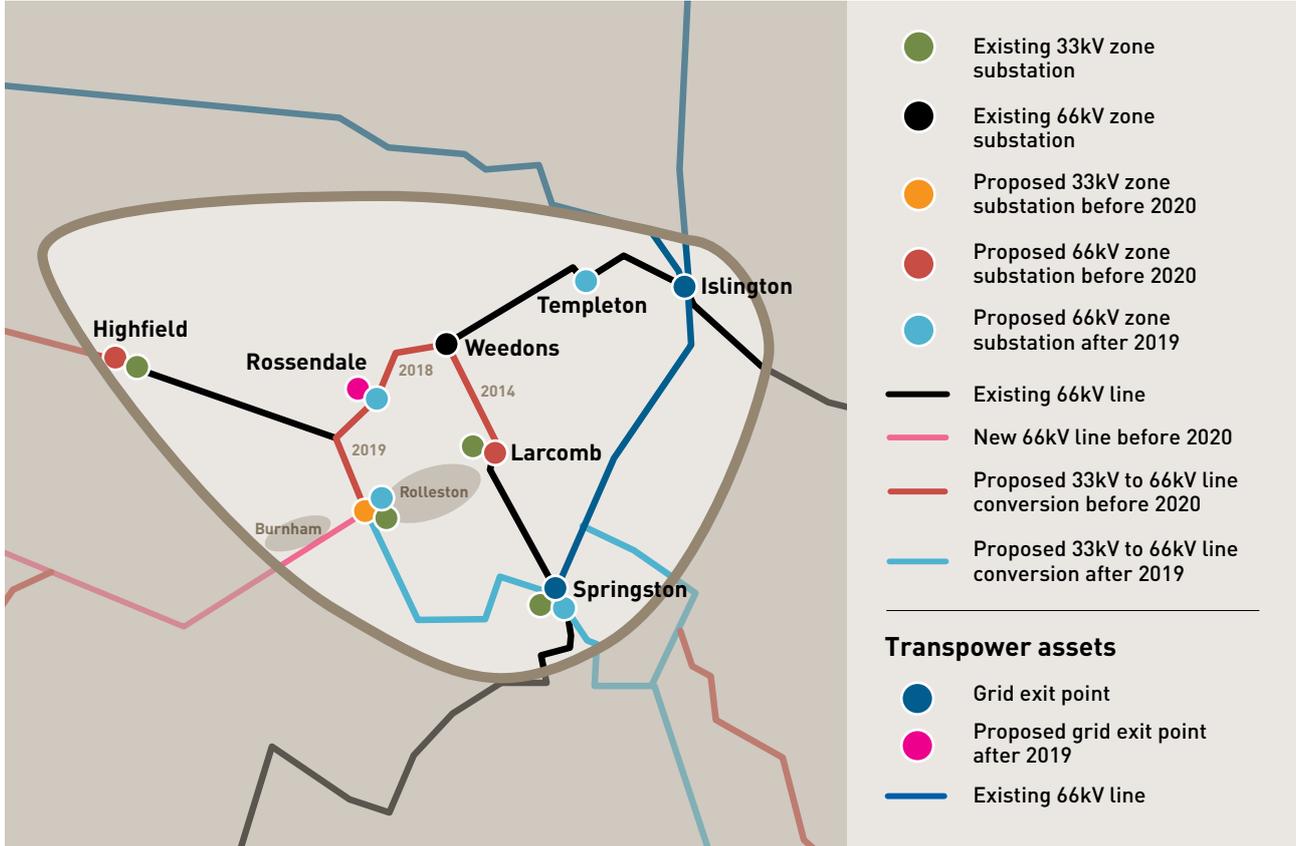
- - - - TRANSPOWER NATIONAL GRID

3. Rolleston

The Rolleston area is the hub of the Selwyn District and we need to ensure that our network infrastructure can meet the needs of the industries and families located there and moving there.

Historically, load growth in this area has been modest and our rural 33kV sub-transmission network design has reflected this. Our network plans need to reflect the transition from a small township to a major residential and industrial load centre. Consequently a number of new zone substations and associated 66kV sub-transmission lines will be established.

A summary of our existing and proposed 66kV and 33kV network around Rolleston



4. South-east Christchurch

To improve security of supply to the south-east, we plan to install a 66kV cable between the Lancaster and Milton zone substations, in Phillipstown and Spreydon respectively.

This cable will form part of the south-eastern network that would link the entire south-east of the city, including our Lancaster, Milton, Hoon Hay, Halswell, Heathcote and Barnett Park zone substations, to both Islington and Bromley GXP. By establishing this network, electricity supply to the south-east can be better maintained if supply is lost at Transpower’s Islington GXP, or at Transpower’s Addington GXP which runs off the Islington GXP, or at Bromley GXP. As per the discussion on page 12, multiple links will be created to improve our options to supply power to the area if one link fails.

This project will also improve security of supply to central Christchurch.

5. West Christchurch

The objective here is to provide for load growth in the west of Christchurch. Substantial industrial developments are planned in the South Hornby area, and residential growth is expected to occur around Templeton. The capacity of the existing zone substations in the area – Moffett, Shands and Hornby – will become insufficient as this load develops.

A number of options exist to increase capacity on our network in the South Hornby area. While the preferred solution has yet to be finally determined, it is likely that we will convert the Shands Road zone substation from 33/11kV to 66/11kV.

4.2 Insurance wasn't, and still isn't, a viable option

The earthquakes caused significant damage to our network.

Unfortunately it has not been economically viable to insure most of our network assets, especially our overhead lines and underground cables. This is because insurance for these assets has been, and continues to be, too expensive – in New Zealand and around the world.

The insurance market for electricity overhead lines and underground cables is very different to the insurance market for houses or a typical business. Even prior to the earthquakes, the annual premiums offered by insurers were up to 10% of the replacement value of these assets.

It would have cost us around \$100m every year to insure these assets and so insuring them didn't, and still doesn't, make sense for our community.

We're not aware of any electricity distribution business in Australasia that insures its lines and cables.

On the other hand, the insurance premiums charged for our other assets, such as our substations and buildings, make economic sense. The premiums for these in percentage terms are much more like what a homeowner pays on their house. Consequently, we continue to insure our key substations and our office buildings and other assets at full replacement cost.

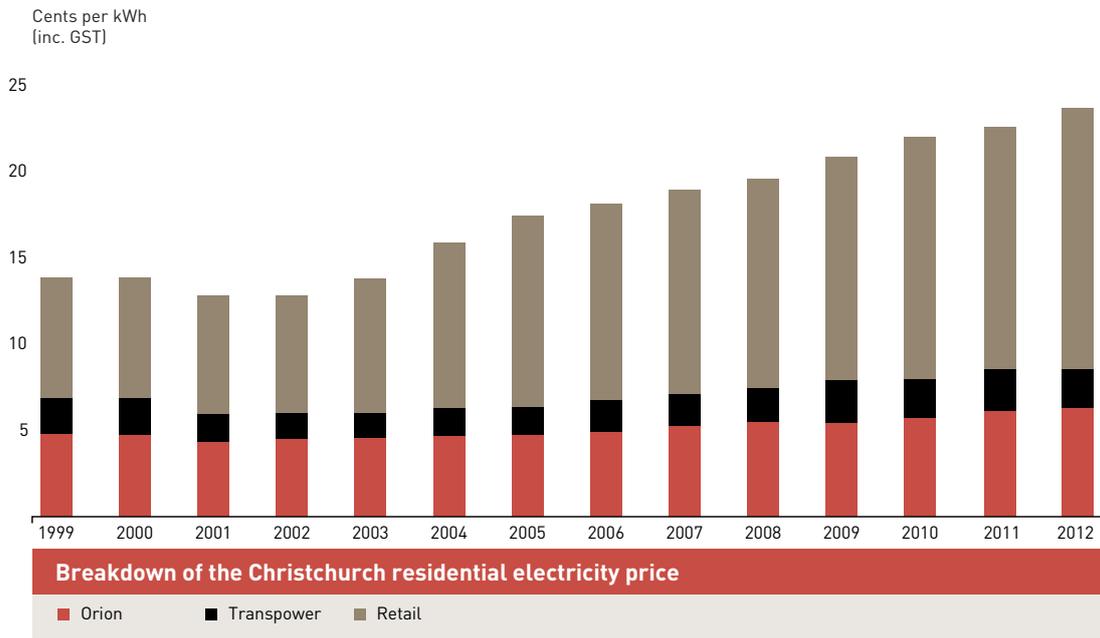
We also had, and have, good business interruption insurance related to our insured assets.

International insurance expert, Marsh, has reviewed our insurance programme. Marsh's report is publicly available on our website. Marsh concludes as follows:

"Marsh believes that Orion's approach to insurance has been:

- consistent over time
- subject to due process and due governance oversight
- appropriate, prudent and reasonable for the business and its economically insurable material damage and business interruption risks
- consistent with other New Zealand and Australian electricity distribution businesses."

4.3 The earthquakes have reduced electricity usage and our revenues

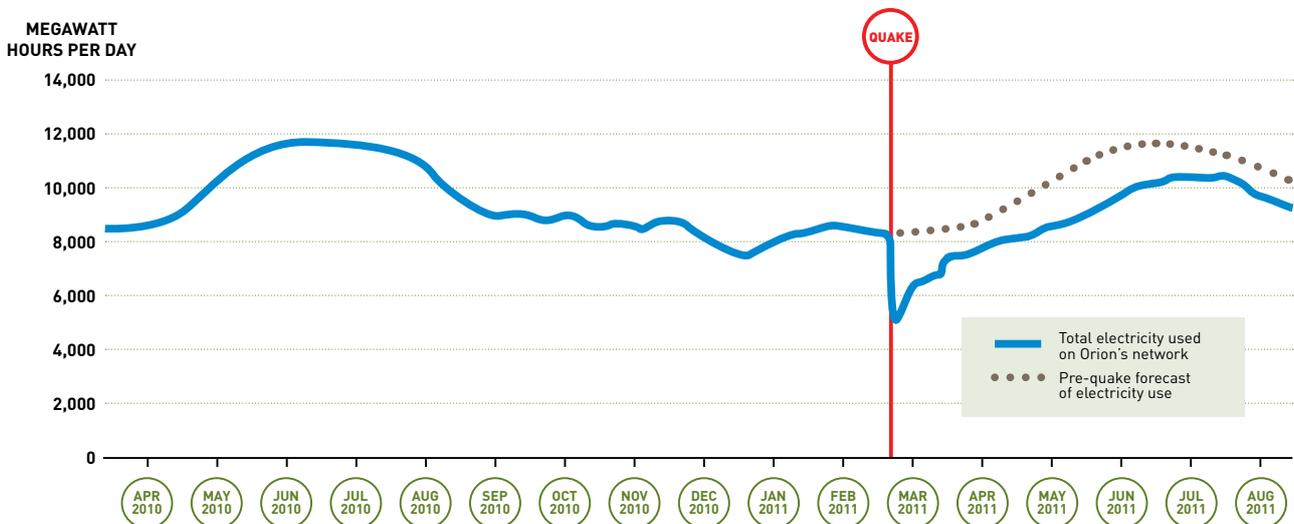


Our charges make up around 25% of a typical household or business power bill.

Unlike most other businesses, our costs do not go down significantly if the volume of product we deliver goes down. Our costs are not significantly affected if we have 100 homes at the end of a line or 110 homes. However, our revenues are significantly affected if we supply 100 homes as opposed to 110 homes.

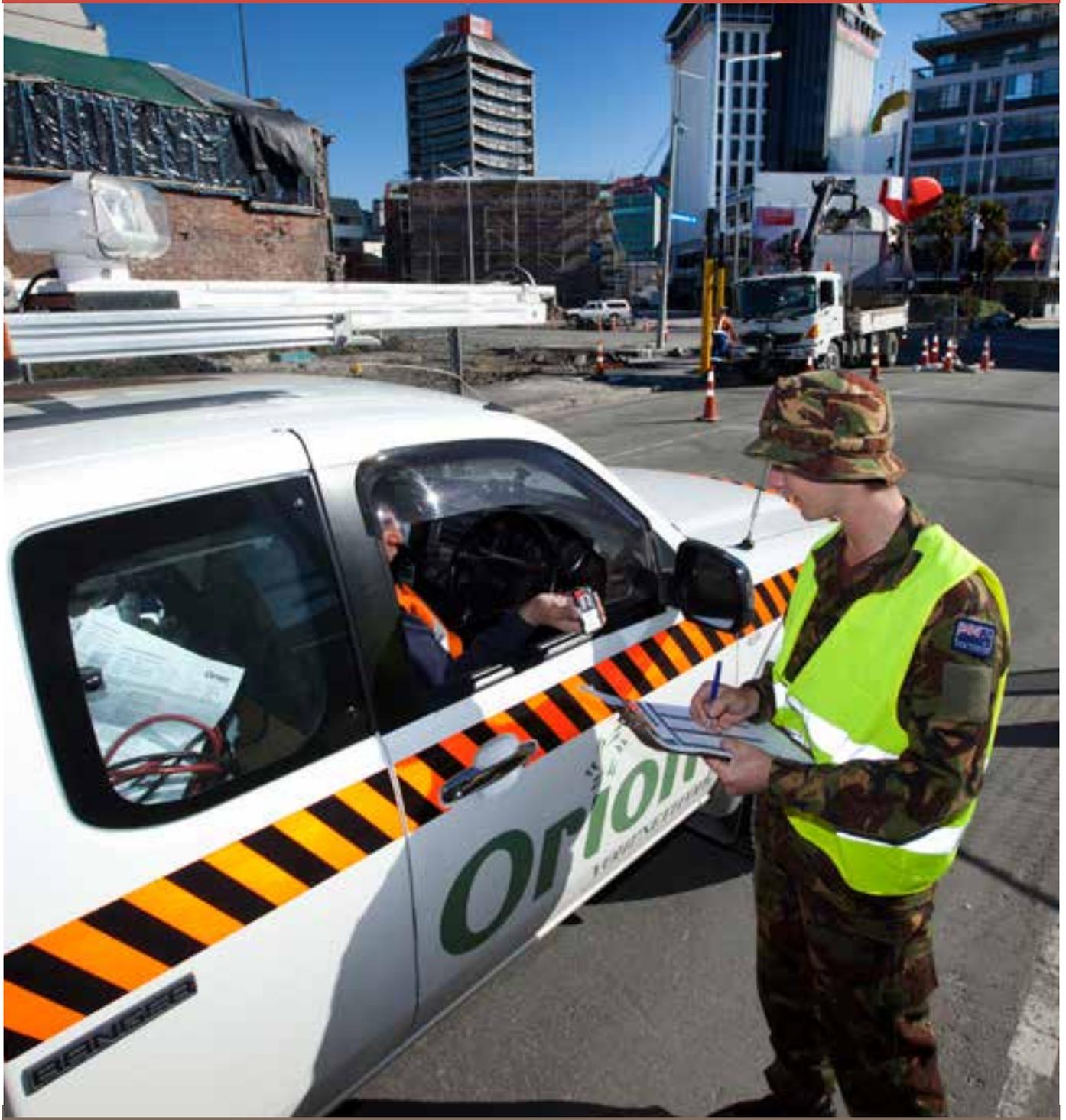
Since February 2011, the amount of electricity used in our region has dropped by around 10%, mostly due to people moving out of the damaged eastern and hill suburbs and the central business district red zone. This reduction equates to the annual usage of about 65,000 homes.

The graph below clearly shows the sharp reduction in electricity use following the February 2011 earthquake. The reduction in electricity usage continues to this day. We estimate that to date our loss in revenue has been close to \$30m. By 1 April 2014 our loss in revenue will be about \$50m.



With loss in revenue, additional repair costs, uninsurable losses on our network and additional forecast capital expenditure of some \$155m, clearly the earthquakes have significantly affected Orion financially.

Our proposal to the Commerce Commission, the Commerce Commission process and why your feedback is wanted



5.1 The regulatory environment and why we intend to apply to the Commerce Commission

Electricity distribution companies like Orion are regulated businesses under the Commerce Act.

The Commerce Act controls the price and quality of goods or services in markets where there is little or no competition. The Commerce Commission administers the Act.

The fundamental purpose of the part of the Act that applies to us is “to promote the long-term benefit of consumers”.

The Act says that the Commission must ensure that companies like Orion:

- have incentives to innovate and to invest, including in replacement, upgraded and new assets
- have incentives to improve efficiency and provide services at a quality that reflects consumer demands
- share with consumers the benefits of efficiency gains in the supply of the regulated goods or services, including through lower prices, and
- are limited in their ability to extract excessive profits.

The focus of the Act is that consumers receive the benefit of the network but owners recover their costs.

To meet the purposes of the Act, the Commission sets targets for the reliability of electricity networks like ours. Those targets identify how often and how long consumers can expect to experience power cuts each year. The Commission also controls electricity network companies’ prices.

Orion’s prices and returns are therefore effectively limited by the Commission.

When drafting the Commerce Act, Parliament understood that in markets where there is little competition there is the need for costs to be recovered over time to ensure that, for the long term benefit of consumers, incentives to prudently invest are maintained.

The Act, recognising this need for fair recovery of costs, allows electricity network companies like Orion to apply to the Commerce Commission for a review of network reliability targets and prices to meet their changed circumstances after natural disasters.

Given the exceptional circumstances of the earthquakes, we propose to apply to the Commission for one of these reviews. This review is called a “Customised Price-Quality Path”, or “CPP”, proposal. There is no provision in Orion’s current regulated prices for possible catastrophes that incur uninsurable costs.

We propose to apply for a CPP review, which would see us:

- increase our prices to recover our costs, including a regulated fair return on our past and future investments, as provided for under the Commerce Act, and
- reset our reliability targets.

The Commerce Commission will thoroughly review our proposal, consult publicly on it in 2013 and then ultimately decide what price and network reliability reset we receive.

Our earthquake related costs do not disappear - they need to be paid. As we are ultimately community owned – by the Christchurch City Council (89%) and Selwyn District Council (11%) – the extra costs the earthquakes have caused must therefore either be met by power consumers or by our community shareholders. Given this, the choices for cost recovery are:

- 1) Fully recover our costs through price increases, smoothed over several years.
- 2) Not recover any of our costs through price increases.
- 3) Recover only some of our costs through price increases.

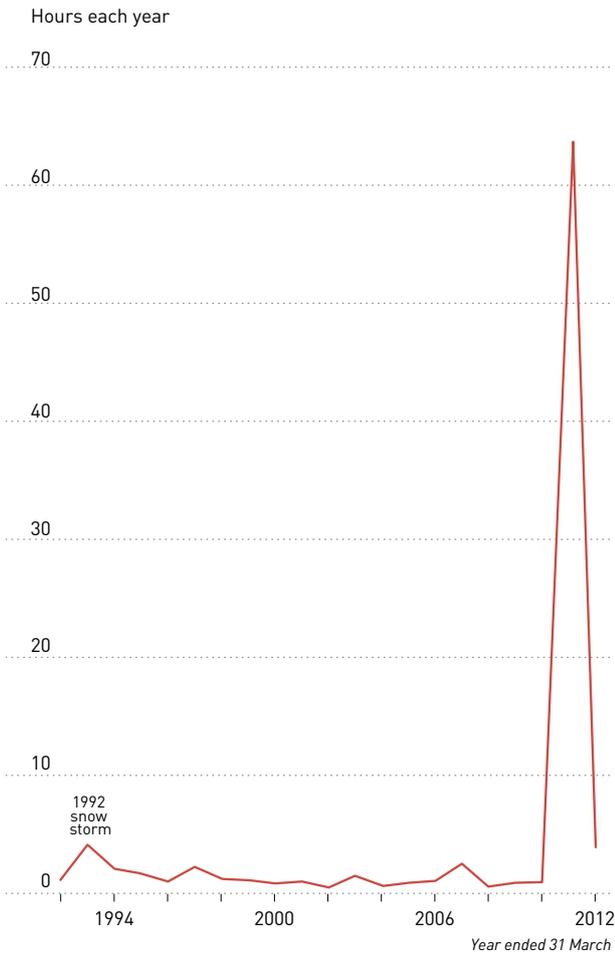
We believe that the best and fairest long term approach is for those who benefit from our network to bear the cost. We believe this approach is in the best long term interests of consumers. If prices do not recover costs this outcome removes incentives for us to continue to invest in our network to keep the lights on for consumers now and in the future. Our past investments have significantly benefitted our community – we wish to be able to continue to make sound investments in the future.

We have carefully considered an option to reduce the size of our proposed price increases and instead take on more bank debt. We have also carefully considered an option to reduce the size of our proposed price increases and instead reduce our dividends to our council shareholders. We do not favour these options because they would effectively shift our prudent costs from local electricity consumers to our local community shareholders. We believe that these options would not be in the long term best interests of consumers.

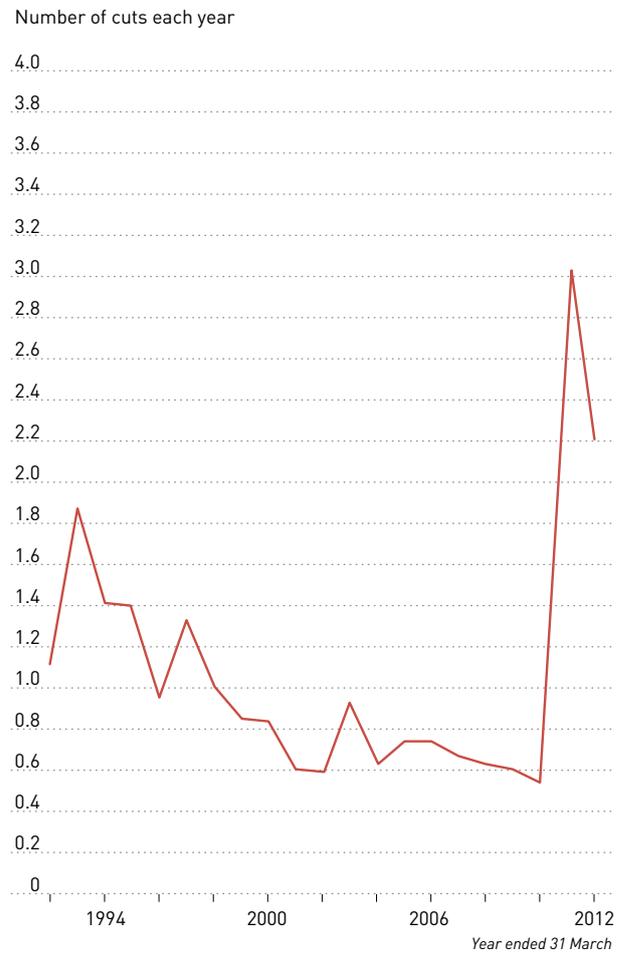
5.2 Our proposed future reliability targets

Even though major emergency repairs are finished, there is still much work needed to build strength back into the electricity network. Until this work is completed, consumers can expect to experience more power cuts than usual.

The impacts of the earthquakes on our reliability so far can be seen in the graphs below. In terms of the amount of time without power, the February 2011 earthquake was around 20 times worse than the 1992 snow storm, the biggest natural event to affect our network prior to September 2010.



Length of power cuts
— SAIDI



Number of power cuts
— SAIFI

Given the amount of work to be undertaken and the resource constraints faced, such as limitations on the number of skilled cable workers available, it will be several years before our network operates at pre-earthquake levels.

Until repairs are complete, the reliability of our network will be much lower than normal. This vulnerability means consumers will be without power more often until our recovery work is complete. Also, the impact of weather or further earthquakes is likely to be greater than usual, because the network is less robust. We don't believe this level of quality is acceptable for our residential and business consumers long term, but unfortunately it is the situation we face until we can fully restore and rebuild the network.

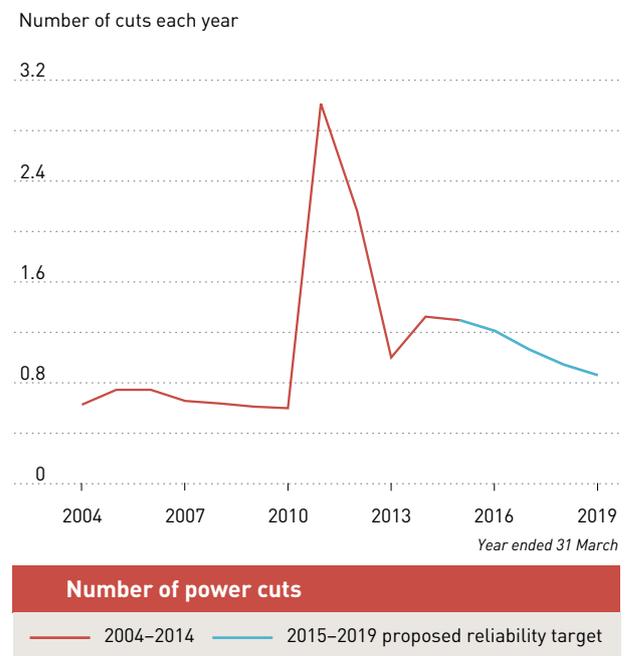
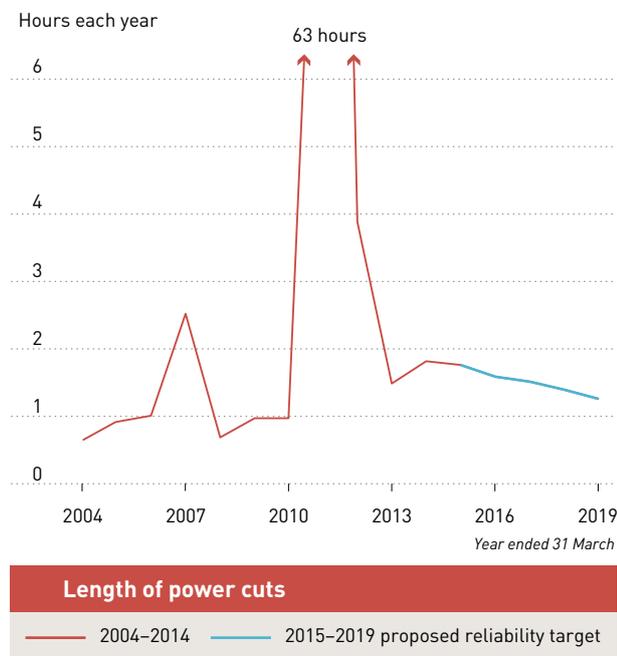
As we begin to enter a long rebuild phase in the city, the number of requests for planned power cuts will increase, as much of the rebuild work will require changes to our network.

We also expect further disruption from third parties as they work around the electricity network. The ongoing repair and rebuild of other infrastructure (roads, water and waste water services) exposes our assets to a higher than usual risk of damage. An example is a contractor who, while repairing water services in the suburb of Spreydon, struck one of our undamaged 66kV cables. In the six minutes it took us to re-route electricity supply, power was out to 9,000 customers. This cable had to be taken out of service and we needed to bring in specialist contractors from overseas to repair it.

For all of the above reasons, and many others, our consumers can expect a less stable power supply in the years ahead compared to that which they experienced before 2011.

The graphs below of our proposed reliability targets show:

- the amount of time a consumer on our network can unfortunately expect to be without power, and
- how many power cuts a consumer can expect each year until the end of the decade, if we undertake the rebuild and repair programme that we propose. Historical data is also included as a comparison.



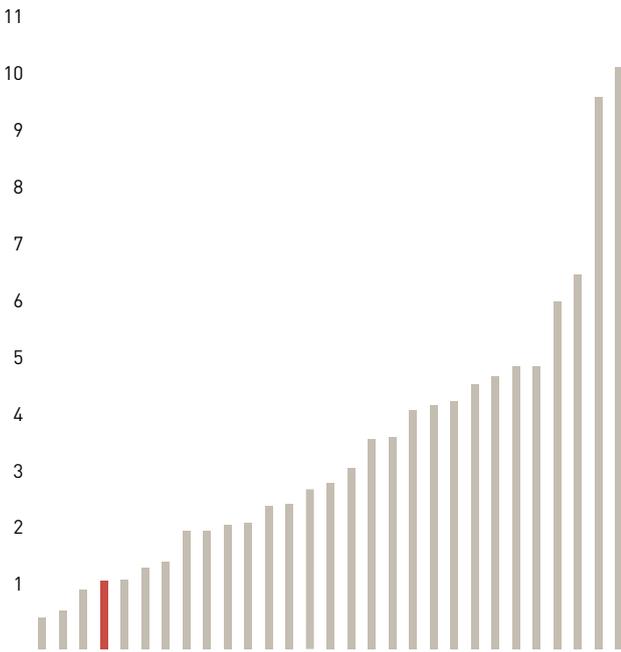
Our CPP proposal to the Commission seeks to reset our reliability targets, which the Commission monitors, to reflect the current state of our network. We seek to reduce the targets for the length of, and frequency of, power cuts that our community experiences. These targets reflect the fact that the performance of our network will improve as it is rebuilt.

If the Commission accepts our proposal, by the end of 2019 we expect to be well on the way to achieving our historical reliability levels.

Year ended 31 March	Historical reliability performance and current targets					The new targets we seek from the Commerce Commission				
	2009	2010	2011	2012	Orion's current target (as set by the Commerce Commission)	2015	2016	2017	2018	2019
Length of power cuts per consumer (SAIDI) in minutes	62	61	3812	231	60	102	93	90	81	72
Number of power cuts per consumer (SAIFI)	0.6	0.6	3.0	2.2	0.8	1.4	1.2	1.2	1.0	0.9

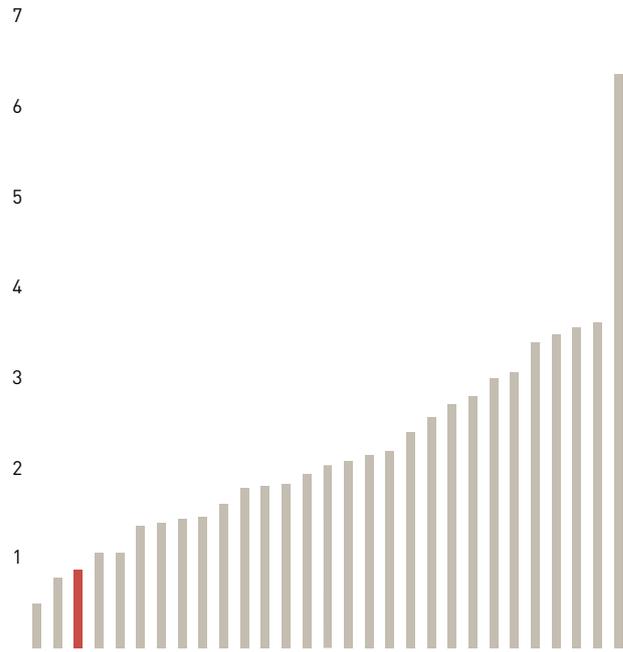
By 2019, on average, the number of minutes consumers would be without power and the number of faults a consumer would experience each year would be only slightly above pre-earthquakes levels.

Length of power cuts per consumer (hours)



Orion's proposed SAIDI in 2019 compared to other electricity distributors' performance (historical average five years to 2011)

Number of power cuts per consumer



Orion's proposed SAIFI in 2019 compared to other electricity distributors' performance (historical average five years to 2011)

As part of our CPP proposal to reset reliability targets, we are required to engage an independent engineering expert to report on our proposed reliability levels to 2019. This independent engineering company, LineTech Consulting Limited, has concluded:

“it is the reviewer’s opinion that Orion has chosen an appropriate balance between expenditure on the network and the expected improvement in performance. This recognises the present damaged state of parts of the network as well as the availability of resources for the work.”

5.3 Our proposed future prices

The final price we charge consumers for delivering electricity contains two elements:

- a distribution charge which reflects Orion’s costs for building and maintaining our local network, and
- a transmission charge which reflects Transpower’s charges for transmitting electricity along the national grid. The transmission charge is billed to us by Transpower and we then pass it on to consumers.

In this section when we mention price or charge, we are talking about Orion’s distribution prices and charges only – we are not including the transmission charge set by Transpower, or charges from generators or retailers.

Our charges make up around 25% of a typical household or business electricity bill. Around 85% of our customers are households.

We are usually permitted, through the Commerce Commission regulatory process, to change our prices on 1 April each year – roughly in line with inflation each year.

We did not increase our prices at all in 2012 and we plan to increase our prices only slightly to reflect inflation next year. For the three years between the February 2011 earthquake and 1 April 2014 our prices have not kept pace with inflation and we have not recovered any earthquake related costs.

We propose to increase our prices after 1 April 2014 and we intend to apply to the Commission in 2013 to enable us to do this. We propose to apply for approval to increase our prices by 15% above inflation in the year after next (from 1 April 2014) and by 1.2% above inflation for the four years following. In the table below we show the monthly impact, for a typical household, of this proposed price increase if it is approved.

For a household, the average, above inflation, impact of our price proposal is around \$8.50 a month.

Our proposed price increase – the impact on an average monthly household power bill (including GST, excluding inflation)						
Year starting 1 April	2014	2015	2016	2017	2018	2019 to 2023
Impact of our proposed prices	\$6.80	\$7.40	\$8.00	\$8.70	\$9.30	\$8.90

For a typical current monthly household power bill of about \$180 a month, this \$8.50 a month increase equates to a one-off above inflation price increase of around 5%. This increase would help to pay for the restoration of a repaired, resilient and reliable electricity network that is fit for purpose and that can support the Canterbury rebuild and growth.

Our proposed price increase enables us to recover the uninsurable earthquake costs and revenue losses we have incurred since September 2010. So far we have been unable to recover these costs and losses because of the price regulation that limits what we can do. In effect, our revenue shortfall is due to the regulatory regime not reflecting that the earthquakes have happened.

We have considered how quickly these costs should be recovered, and whether we can defer any costs into the future in order to minimise the immediate pricing impacts. In order to do this we have spread our proposed cost recovery over 10 years rather than the standard five years allowed for by the Commerce Act. We have also deferred the recovery of some of our asset costs until after the rebuilding phase.

5.4 The Commerce Commission process

As part of our CPP proposal, we want to know what you think Orion should do at this vital juncture in Canterbury's history. We have a long history of communicating with our community and listening to what you want from us. Historically, our community's number one priority for us has been to 'keep the lights on'. Amongst other matters, we want to know whether that priority has lessened to any degree and what you think of our proposed price and reliability targets.

We require your feedback by Sunday, 16 December 2012.

Between 17 December 2012 and 21 February 2013 we will consider your feedback and build it into our proposal. So, depending on the comments you and others provide, our proposal may change before it is submitted to the Commission in February 2013.

You will also be able to comment on our final proposal. In 2013 the Commission will formally assess our proposal and consult with interested parties, including the public, before making a final decision on our new price and reliability targets. The final decision will most likely be made in late 2013 or early 2014.

Before we submit our proposal to the Commerce Commission in February 2013, a Commission-approved 'verifier' will also effectively audit our proposal (a verifier is an expert who checks that the vast amount of information supplied in our proposal is correct). An independent engineering review of our proposed reliability standard has already been carried out.



5.5 Your feedback

We seek your feedback on our CPP proposal which has been summarised in this guide. If you would like further information on our proposal please email CPPfeedback@oriongroup.co.nz or call 363 9898.

Your feedback can be made online (www.oriongroup.co.nz/cpp) or posted to the following address:

*CPP feedback
Orion NZ Ltd
PO Box 13896
Christchurch 8141*

Please ensure we receive your feedback and comments by Sunday 16 December 2012. This will give us time to consider your submission prior to our proposal being submitted to the Commerce Commission in February 2013.

Please include in your submission, which may be made public:

- your name and address, including post code
- whether you are submitting as a residential consumer or a business consumer.

To assist you with your submission, the following questions may be useful for you to consider:

- Were you happy with the quality and reliability of your power supply before the Canterbury earthquakes?
- What impacts did power cuts after the earthquakes have on you?
- How well do you believe our electricity network stood up to the earthquakes?
- In the future, for protection against any major disaster, should our electricity network be built as strong as it was before the Canterbury earthquakes? Or do you want a stronger electricity network? Or would you be happy with an electricity network that wasn't so strong?
- On a normal day-to-day basis, do you want the lights to stay on as well as they did before the earthquakes? Or do you want a more reliable power supply? Or would you be happy with a less reliable power supply?
- We propose to rebuild our network by 2019. Do you agree with this timeframe? If not, what timeframe do you suggest? Note that completing the rebuild sooner will cost more.
- Do you think we should be able to recover our earthquake-related costs?
- Do you think we should recover our earthquake-related costs from the people who use our network?
- If we do recover our costs, should it be over the 10-year period we propose or over five years (which would mean higher prices until 2019 but lower prices for the five years after)?

5.6 What you can expect from us in the years ahead

As always, we will continue to look for ways to improve our performance so that our community gets the 'best bang for buck' out of us. Orion is committed to support the rebuild of Christchurch and we intend to provide the vital platform of a secure and reliable electricity network so that the Canterbury economy can grow. We will do this in the most efficient manner possible.

We will continue to improve our planning, our project execution and our maintenance and repair techniques to keep costs down. We will also continue to adopt an innovative approach to electricity delivery pricing that encourages household and business consumers to reduce demand when our network is heavily loaded. This means less network investment and results in savings to consumers, encourages energy efficiency and minimises environmental effects.

Over the past two decades we reinforced our electricity network to cope with earthquakes. That planning and future-proofing helped us and our community enormously during the past two years – but that planning and future-proofing is as crucial now as it was then. We will think about the next 20-40 years and ask ourselves: what will help us get through the things we could face over that period?

Also, to minimise disruption and save on costs, where possible we will work with the Stronger Christchurch Infrastructure Rebuild Team (SCIRT) to collaboratively repair underground services together.

Orion plays a crucial role in our city, but more than that, we are a committed partner in the rebuild, eager to help bring the vision for Christchurch and Canterbury to life. The best way we can do that is to continue to invest, continue to 'keep the lights on' and be ready to respond once again if disaster strikes.