

Help us keep the power on in eastern Christchurch this winter

Due to the damage caused by the February earthquake, Orion's electricity network in the eastern suburbs of Christchurch is in a fragile state. Our staff and contractors continue to work hard and make excellent progress in repairing the network. I can't thank them enough.

We do still face some big challenges. The four large cables (66,000 volts [66kV] each) which take power into the north-east are damaged beyond repair, and the dozens of smaller cables which carry power around these suburbs (11,000 volts [11kV] each) suffered multiple faults.

We have had to take some emergency measures to boost electricity supply to keep the power on in the east over the winter. These are detailed inside. It will take us until around the end of July to finish this work and get capacity back close to normal.

Included in this newsletter is a comprehensive work plan showing what we are doing to keep your power on over winter, and to strengthen the network into the future. It is an ambitious plan. But, we believe it is

the best balance between temporary measures - such as the 66kV overhead lines from Bromley to the New Brighton and Dallington substations, and permanent measures - such as moving the New Brighton substation from Pages Road to Keyes Road and rebuilding the 66kV underground cables that supply those areas.

We are doing everything we can to keep your power on while permanent fixes are designed and built, but there may be some power cuts over the winter. People should still use their heaters to stay warm but at the same time be sensible about power use. Please try to conserve as much electricity as possible, especially during the early evening when our network is usually heavily loaded as people arrive home from work, turn on heating and cook the evening meal.

I know people have concerns and questions. Please get in touch with us (see page 3 for contact details) and we will answer them.

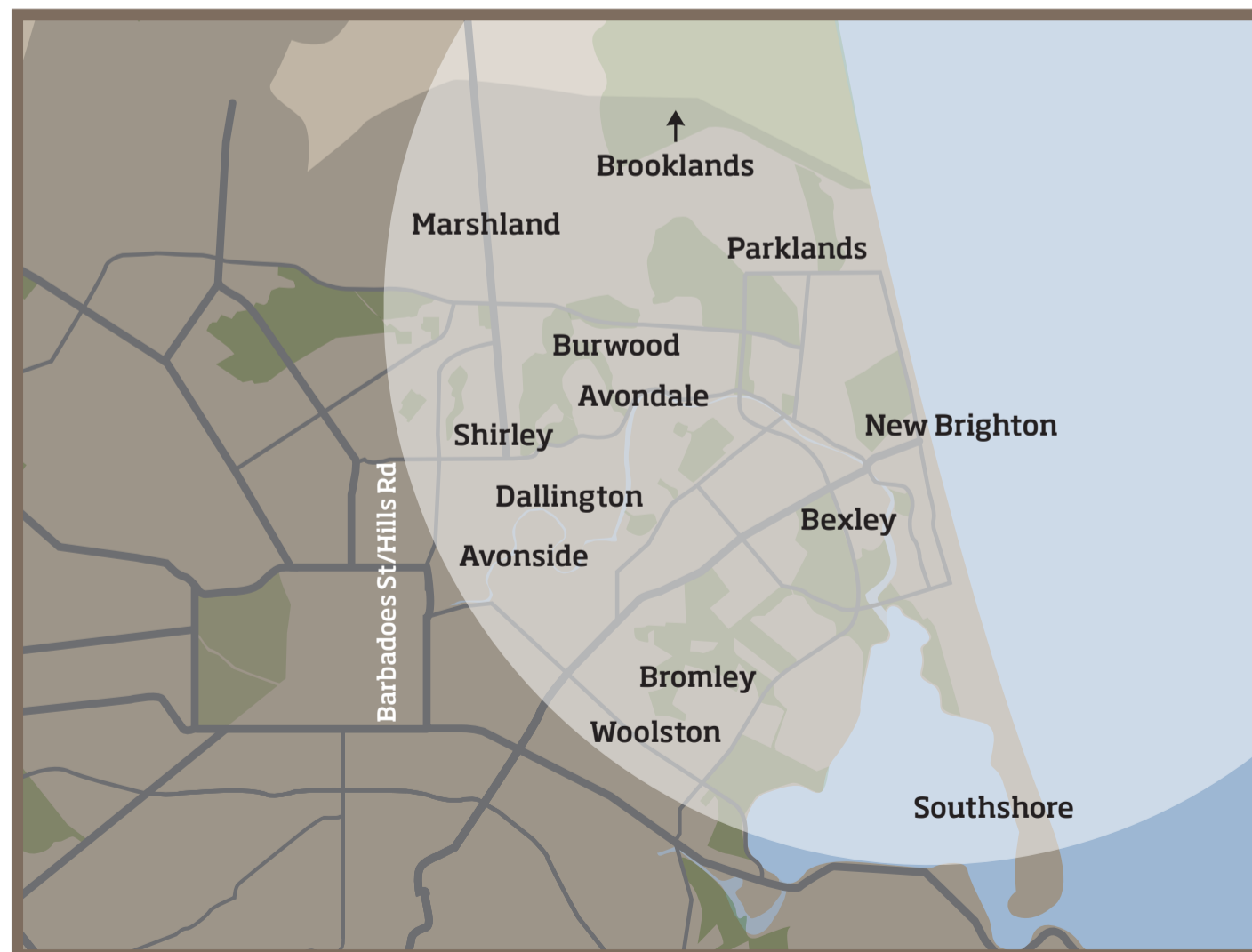
Thank you for your patience.

Roger Sutton, CEO



Repair crews replace damaged 11kV cables on Bexley Road.

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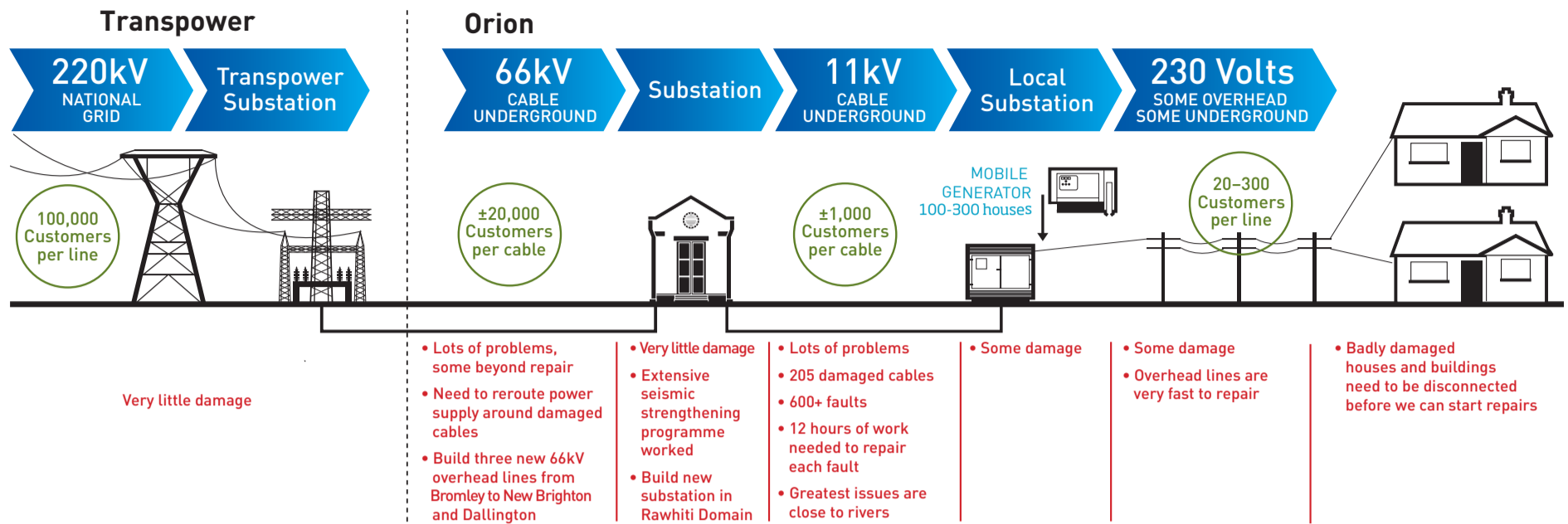
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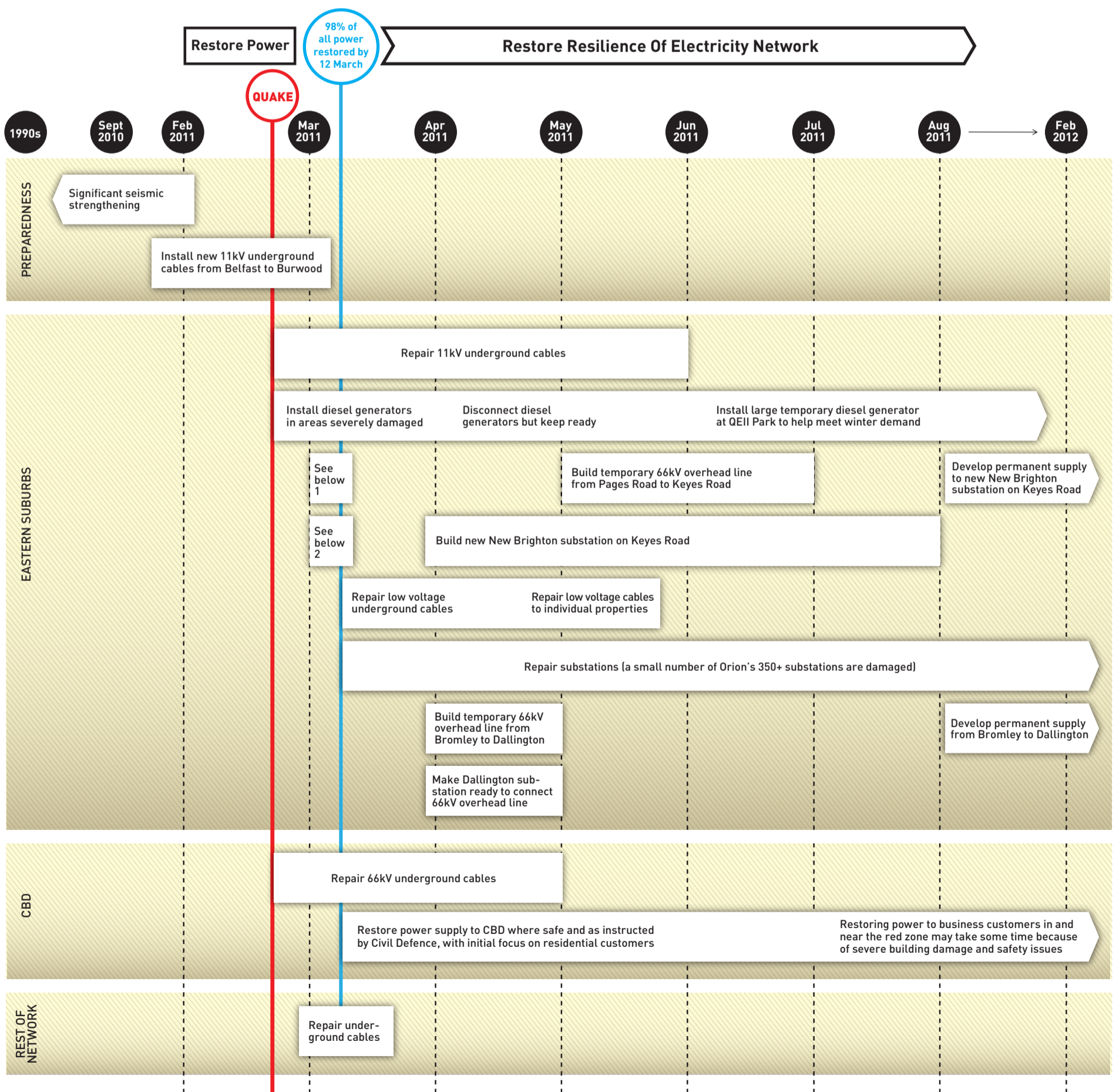
Key questions

Orion
yourNETWORK

Overview of damage to the electricity network



Orion's earthquake recovery work plan



1) Build emergency 3.5km 66kV overhead line to supply existing New Brighton substation at Pages Road. 2) Install temporary transformer at New Brighton.

What we are doing

Orion's comprehensive work plan detailing what we plan to do to keep the power on this winter is shown at the bottom of the facing page.

We have had emergency approval to build a new substation in Rawhiti Domain on Keyes Road in New Brighton. This will permanently replace the existing damaged substation on Pages Road (see photos to the right).

We also have had temporary approval to build two additional overhead 66kV lines. The first is a 1.5km line from the damaged Pages Road substation to the new substation on Keyes Road.

The second is a 4.5km line which will run from the national grid in Bromley to Orion's Dallington substation in Coopers Road.

These lines will only be in place for the three years it will take us to design and build new underground cables from the national grid in Bromley to the existing Dallington substation and the new substation in Rawhiti Domain.

We continue to work on fixing the smaller 11kV cables throughout these suburbs.

At the same time we will have a series of diesel generators on standby at strategic locations to help spread the load between now and the end of July when we expect to have the new substation built.

What you can do

While we at Orion are doing all that we can to keep the power on in the east of Christchurch over winter, there is certainly a lot that residents in these suburbs can do to help. The less power used the more stable the network will be and the risk of power cuts will reduce. **Do use your heaters to stay warm but please continue to use power wisely.** At right are some suggestions.

If your home or heating has been earthquake damaged, your first priority will be to stay warm and healthy. Environment Canterbury will take a compassionate approach if the earthquake means you can't meet the clean air rules. They recognise that you may need to use whatever safe means you have available including an open fire or non-compliant wood burner. However, we advise you to check that any heating is safe to use.

Please stay prepared to manage the occasional loss of power - keep a torch and battery radio handy, and charge your mobile phone often.

Contact us

Phone: If you have any questions please call us on **363 9898**.

Email: To register for updates about power supply in the eastern suburbs over winter please email info@oriongroup.co.nz, with Eastern Update in the subject line.

Follow us on Twitter: twitter.com/OrionNZ



Above: Part of the Pages Road substation which sunk two metres into the ground.
Left: Cleaning out the damaged substation.

OK to use sparingly

Fridge/freezer (open only when necessary)
Jug to boil water
Lighting: turn OFF when not in the room
If you have electric hot water heating, save power by having short showers and using cold washes on your washing machine.
TV/radio for news updates and relaxation (one TV only - avoid big home theatre systems)
Computer, toaster, slow cooker, microwave
Heat pump and electric heaters for heating

Use if absolutely necessary

If you can, use these outside the 5 to 8pm dinnertime period:
Stove elements
Oven
Iron
Hair dryer
Clothes dryer
Vacuum cleaner
Underfloor heating
Coffee maker
Dishwasher: use only when full

Do NOT use - or TURN OFF

Air conditioning for cooling
Beer fridge
Hot wash on washing machine
Heated towel rail
Spa pool
Water blaster

Key questions

Who is Orion and how are you different from my electricity retailer?

Orion is the delivery truck in the supply chain of electricity - we transport electricity from the national grid to your home or business via our extensive network of lines and cables in central Canterbury. We then charge the electricity retailers (ie. Meridian, Mercury, Contact) in our area for our delivery service, and retailers in turn charge you.

What guarantees can Orion give that the power will stay on over winter?

Other than in the eastern suburbs and parts of the CBD, power supply should be close to normal this winter unless we have further large aftershocks. We can't give a 100 percent guarantee that the power will stay on in the eastern suburbs. We are doing everything we can to prevent power cuts. With careful management, strategic deployment of generators and customers saving power we hope to get through the winter with minimal disruption. We expect that there may be three or four significant power cuts during the winter months, each lasting up to five hours while we reroute power supply or install generators. In a very small number of badly damaged streets, more frequent power cuts are possible.

Will you warn me when there's a power cut coming?

Unfortunately we can't warn you, unless it's a planned cut for non-critical network repairs. Most power cuts at the moment are due to faults or too much load on the network. Both occur with no warning.

If I can get notified, how and when will you let me know?

If we do need to turn your power off for planned repairs other than critical or emergency works, your electricity retailer will give you at least a week's notice.

Do I need to save power if I'm not in the eastern suburbs?

Customers outside the eastern suburbs can use electricity as normal - this won't affect the fragile localised network in the east.

Why did the power go out in some areas and not others?

Most of the high voltage electricity network in Christchurch is underground, while your local low voltage lines are overhead. Massive earth movement in some places,

particularly around rivers and streams and in the hill suburbs, caused multiple underground cable breaks which take a long time to find and fix.

What effect has the February quake had, compared with the September quake?

The damage caused by the February quake was around 10 times worse than the September quake. That is in line with other types of damage to the city.

Are overhead lines better than underground cables?

There are pluses and minuses with both. Modern overhead power lines built to the latest seismic standards generally withstand earthquakes better and can be repaired much faster than underground cables, which are not designed to move. However, in a storm underground cables are very secure while overhead lines are likely to be damaged.

Did you do anything after the September quake to strengthen the electricity network?

Yes. Two new large capacity 11kV underground cables were installed in firm ground running from Belfast to Burwood. These were finished and started supplying power to the north eastern suburbs two weeks after the February quake.

Can you do more to your network to better withstand earthquakes?

We have done extensive seismic strengthening over the past two decades. Many older brick buildings in Christchurch have been hard hit in the quakes, but strengthening of Orion's 270 brick substations meant few sustained serious damage. All our transformers are bolted down, a lesson learned from the 1987 Edgecumbe earthquake where large transformers fell over leaving some areas without power for weeks. All available options to strengthen underground cables will be looked at when we replace them. In the short term, emergency overhead lines in Dallington and New Brighton will help with power supply.

Why did you choose the route for the overhead lines?

It was simply a balancing act to get electricity from Bromley to New Brighton and Dallington as quickly and safely as possible, with as little disruption to people's property as possible. A range of criteria was used including engineering considerations, avoiding traffic hazards, construction impacts on arterial traffic routes, trees and speed of construction.



Working alongside residents to repair power lines.



Orion's temporary office in the CBD red zone.

How earthquake proof will these new poles be?

We are taking precautions to make sure these poles are well protected - they will be made of treated timber and they will be buried three metres and surrounded by compacted gravel. No poles fell down as a result of the February earthquake.

Why not underground the high voltage cables again straight away?

It will take two to three years to design and build the damaged 66kV underground cables. We need to be able to keep the power on until we can complete that work.

Why do the street lights stay on all day in some places when you are telling us to conserve power?

Those areas are currently powered by diesel generators. Unfortunately the normal street light control system does not work when generators are supplying power to those areas.

Will diesel generators be used over the next few months?

All customers in the eastern suburbs should be back on mains power within the next couple of weeks. Diesel generators will then be kept on standby to be used if there is a power cut and supply can't be quickly rerouted from other parts of the network.

Is it ok to use my nightstore heater and underfloor heating?

Yes. But please don't use them during the peak load periods between 7-11 in the morning and 5-8 at night. We continue to ask people to be sensible about power use and to conserve as much as possible.

Orion owns and operates the electricity distribution network in central Canterbury between the Waimakariri and Rakaia rivers. Our shareholders are the Christchurch City and Selwyn District Councils. oriongroup.co.nz

Orion
RESTORING your NETWORK
0800 363 9898