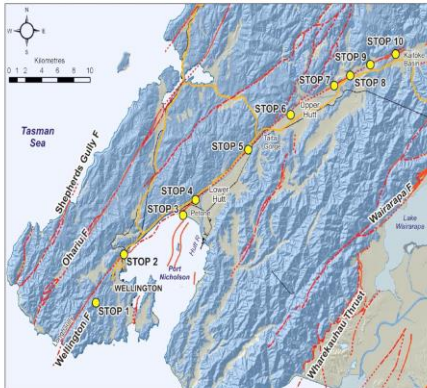




Background

- Since the 2010-11 Canterbury earthquakes, we have been proactively assessing how we can reduce the impact on consumers from the damage to our network should a major earthquake occur in Wellington.
- The Kaikoura earthquake in November 2016 sharpened everyone's awareness of Wellington's unique vulnerabilities and the need for a thorough examination of the region's preparedness to plan and respond appropriately to a disaster situation precipitated by a major earthquake.
- We are taking a staged approach: improving readiness (1-5 years), improving resilience (5-10 years), fully co-ordinated resilience planning with other lifeline utilities (10 years plus).
- Wellington Electricity is proposing a \$31 million "readiness" investment in critical spares, seismic strengthening of key buildings and improved data and communication diversity.
- The benefit to Wellington and NZ is significant as we look to shorten what would be otherwise very long outages for some of our community.
- The proposed readiness investment would lead to a modest price increase of \$1.50 to \$1.90 per month in lines charges for an average residential customer.
- We require Commerce Commission approval to recover our investment - we plan a submission at the start of December.
- This presentation provides the high level overview of our plans.

Wellington's fault lines



- Last major quake 1855
- Lessons from Christchurch
- Lifelines Group: 2012 report
- Earthquake scenario is 7.5 Wellington Fault line rupture
- Highest probability and worst damage to network
- Average return period assumed to be 300 years

Number of major fault lines in our region.

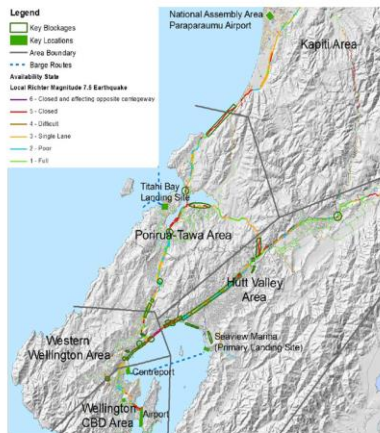
The return period (probability) is very uncertain – varies from 150-1,000 years.

We are learning more and more about the potential impact of a major quake.

Wellington Electricity (WE*) is an active member of Wellington lifelines group – 2012 published a report on potential restoration times of all lifeline utilities – (gas out for 60-80days, water out for 20-75 days and electricity out for 20-95 days).

The map shows the major fault lines - (Stops' on map are data collection points).

Earthquake impact



- Network at risk from slope failure, ground shaking, liquefaction and fault line movement
- Major transport links cut; resulting in 7 islands
- 5 islands in our network
- ~ 60% of network lost immediately following event
- ~ 35% lost for up to 3 months
- ~58,000 customers severely impacted

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We modelled the damage that would occur on our network using the same earthquake scenario as the lifelines report - 7.5 magnitude quake on the Wellington fault line.

All utilities hit hard by damage but the damage to transport links compounds the situation as it makes travel into, out of and within the region very difficult, if not impossible for weeks (up to 12 weeks in the Hutt valley region).

Modelling by Opus in 2015 concluded that the region would be split into 7 islands, 5 of which are in our network area.

Essentially means that our ability to repair will depend on what spares we have in each island at the time, and who is there to assess the damage and plan the response.

Critical Infrastructure affected:

- Beehive / Parliament / Central Govt agencies;
- Hospitals, primary care; pharmacies
- Airport
- All interisland ferries
- Telecommunications & media
- Water, sewage systems
- Fuel storage

Lessons from Kaikoura



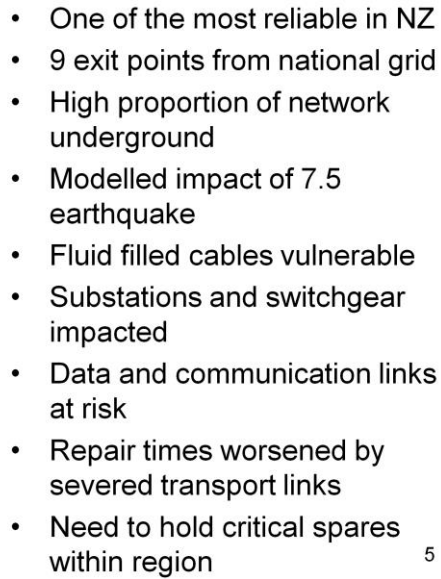
- Wake-up call for Wellington
- Huge cost to region
- Centreport took 10 months to return to normal operations
- 7.5 quake impact estimated to cost \$30-40B (BERL 2015)
- Short term readiness costs - \$31.24 million ~\$1.50-1.90 per month
- Long term resilience costs estimated at \$3-4B

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Kaikoura sharpened everyone's awareness.

In 2015, BERL concluded that a 7.5 quake would result in a permanent GDP loss to NZ of \$30-40 billion due to emigration of government services and business.

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Severed transport links means that repairs cannot start until equipment can get in which could be weeks in some areas.

Our plan

1. Improving Readiness (next 5 years)

2. Improving Resilience (5 -10 years)

3. Fully Co-ordinated Investment (10-30 years and beyond)

- Readiness is short term
- Resilience is longer term
- Requires a staged approach
- Readiness proposal is asking for \$31.24 M
 - critical spares, equipment
 - extended seismic strengthening program
 - Improved data access and communication links
- Supported by robust business case

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Readiness will reduce the impact of an earthquake, not eliminate the risk. Our proposed spares holding will improve restoration times by 12 weeks in the Hutt Valley and 6 weeks in the CBD.

Improvements in the seismic strength of our buildings will avoid significant rebuild costs of between \$50-\$80 million but as importantly will protect the equipment within the building and allow timely access so restoration efforts can start.

Without access to critical systems and data, as well as a robust communication system, it will be very difficult to safely start the restoration process. Housing data hubs in shipping containers (as Orion have done since the 2010-11 earthquakes) located at 3 separate sites provides diversity and redundancy.

Business case stands up using a narrow set of economic benefits and other conservative assumptions so supports these common sense solutions.

Improving Readiness



- Emergency hardware - \$5.41M
- Mobile substation and switchboard - \$4.73M
- Critical emergency spares - \$4.94M
- Seismic strengthening - \$10.40
- Communications systems - \$5.76M
- Total \$31.24 m
- Requires Commission Approval

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Commerce Commission is our economic regulator and oversees the rules and regulations that govern how we can recover our costs. We are currently on a “default price path” (DPP) which essentially requires us to plan based on our historical “business as usual” expenditure.

There is the ability to apply for a “Customised Price Path” (such as Powerco did earlier this year) but this is a very lengthy process seeking approval for all projected expenditure over a five year period and is usually predicated on high network growth.

We have a low growth stable network and we have sufficient headroom over the next few years. Given we only need to spend additional money (over and above our DPP) on readiness and resilience, we have worked with the Commission to come up with a “streamlined” process.

Approval being sought via a “streamlined” Customised Price Path”. Commission released discussion paper on 17 November.

Precipitated by GPS “Resilience of electricity services in the Wellington Region” issued in September 2017.

Cost recovery and price impact

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- Expenditure regulated by Commerce Commission under Commerce Act
- Investments restricted to current approved plan under Default Price – Quality Path
- Fresh approval needed for this expenditure and to recover costs
- WE applying for a 'streamlined customised price path'
- Some support from central government through GPS (Sept 2017)
- If approval granted, start work 2018
- Impact on customers estimated at \$1.50-\$1.90 per month for average customer
- Community leaders supportive
- Further stakeholder and customer consultation underway

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We have engaged directly with key stakeholders including community leaders such as the local and district councils, Chamber of Commerce, Business New Zealand, Lifelines, Environment Built Leaders forum and Energy Retailers Association. All recognise the importance of supporting our communities by reducing the amount of time that they are without power and many see this as a common sense approach as a first step to building longer term resiliency.

We are also starting to consult more widely with major critical customers such hospitals, university and schools and of course, yourselves.

We recognise that there is a small increase in cost to consumers but we feel it is modest in comparison to the significant social and economic welfare gains that the proposed spend will bring in the event of a major earthquake.

Next steps

- Commerce Commission discussion paper released 17 November
- Streamlined CPP formally lodged first week December
- Commerce Commission assesses application
- Draft decision in January 2018
- Implementing readiness initiatives 2018 - 2021

Closing

Thankyou for making time to meet us.

We would like to know what questions you have

For further Information or comments:

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