POWERco

Delivering on our promise

ANNUAL DELIVERY REPORT 2019

Making the Connection

Powerco is here to bring power to your door. You buy electricity from your retailer, and it's our job to look after the lines that get it to you from the National Grid, safely, reliably and efficiently.

We keep the lights on for you and around 900,000 customers, across 340,000 homes, businesses and organisations in the North Island.

Powerco works for you, and we take this seriously. When power supply is interrupted, our team responds quickly so you can get on with your life.

We are big but we are local. You'll find our people out and about in your community, making the personal connection.

You'll find us here

Year One

DELIVERING ON OUR 5-YEAR INVESTMENT COMMITMENT:

We actioned $149m ($146m target), a 30% increase on the previous year.

WE COMMITTED TO:

Delivering 17 major projects (across five years)
- We have completed two projects and three are under construction.

Reducing our defective equipment backlog
- We have reduced this by 33% in Year One.

Replacing poles and wires
We replaced :
- 3,616 poles (3,585 target), which is a 25% increase on the previous year.
- 136km conductor (148km target), which is a 50% increase on the previous year.

POLES REPLACED
Increase in Year One

25%

REGIONAL GROWTH & RENEWALS

$149m
Total spend

WE'VE ALSO PROGRESSED OTHER IMPORTANT PROJECTS:

- New Network Operations Centre
- Working towards go-live for our new core business operational system
- Completed Pole Top Photography and LiDAR trial data collection
- Working towards ISO55001 certification
- Network Evolution trials
- Improving data for better decision making

This icon shows additional information is available on our website

WE KEPT YOUR LIGHTS ON MOST OF THE TIME

99.95%
For Year One

Like numbers? You will find the full set of numbers about our CPP – Year One delivery in the companion document and online.

Working for you

THE WORK WE ARE DOING TO ENHANCE OUR NETWORK IS FOR YOU, OUR CUSTOMERS.

You told us you wanted us to:

Ensure safe, secure and resilient networks

- So, we're investing in asset renewal, maintenance and vegetation management to improve our networks and their reliability

Support growth in our communities

- We're building new and upgraded assets so we can supply the increasing demand for electricity coming from population growth and more commercial and industrial activity

Enable your energy choices

- We're evolving our network to provide for new technologies like electric vehicles and solar generation, and respond to the challenges of the 3Ds digitalisation, decentralisation and decarbonisation

INVESTING FOR YOU

We want to keep you connected with quality service and technology.

This means actively preparing for the future. Powerco has one of the largest electricity networks in the country, so we need to invest wisely for your long-term needs.

The Commerce Commission regulates us, and we follow its rules. This includes a 'Price-quality Path' that sets the maximum revenue that we can recover from our customers and the minimum standards for our service.

But, the 'Default Price-quality Path' (DPP) that we had to follow was too limited. A lot of our electricity infrastructure was built in the 1950s and 60s and needs replacing. Not to mention the growth in our regions putting pressure on our network. To deliver for you, we needed more investment in the network than the DPP allowed.

We increased our network investment by almost 60% in the five years prior to the current period (2012 to 2017). However, this was not enough to address the mounting pressures on our network from aging assets and the ability of equipment to cope with increased demand. In June 2017 we submitted a proposal to the Commerce Commission requesting the ability to increase investment to meet our customers' expectations and ensure a safe network.

In March 2018, the Commission approved our proposal. This meant a new 'Customised Price-quality Path' (CPP) for our electricity networks (and a huge milestone for our dedicated Powerco team).

> The Customised Price-quality Path (CPP) sets new rules for how we operate.
>
> We can spend $1.27b over five years to ensure the resilience of our network, allow for growth and prepare for the future demands of customers. Our investment plan includes 17 major network development projects, replacing an average of 270km of conductor each year and managing a 152% increase in hazardous tree inspections (8,300) each year. It's a massive challenge, but we are up for it.

We report our progress to the Commerce Commission, our customers and interested parties each year of the five-year CPP investment period. This is our first report, so read on to see the progress we've made against our commitments in CPP - Year One (1 April 2018 to 31 March 2019).

Kia ora koutou

It's exciting to be at the stage where we can report to you on our progress in the first year of our Customised Price-quality Path (CPP) investment programme.

We committed to you, our customers, to invest for your future. Our goals are ambitious, and we always knew we would face challenges along the way.
Now we have completed CPP - Year One, the first year of our five-year plan. It's encouraging to reflect on our achievements and show you what has been happening – and how it impacts on you.

Like numbers? You will find the full set of Powerco director certified numbers about our CPP – Year One delivery in the companion document 'The Numbers' or on our website Powerco.co.nz

DELIVERING THIS FOR YOU IS POWERCO'S PURPOSE.

So how did we go in CPP - Year One?

We wanted to have our best year of delivery yet, and we succeeded. Our people and partners put everything into this challenge and have shown what hard work can achieve.

We have replaced over 25% more overhead line assets than in prior years, commissioned two major growth projects in the Tauranga area, and undertaken new maintenance programmes such as Pole Top Photography and LiDAR (Light Detection and Ranging). We remain committed to delivering all our CPP projects and programmes.

As always, safety has been central – for the public, our contractors and team. During the year we reviewed our critical safety risk areas to ensure we're at the top of our game. We've based several new safety programmes and initiatives around these areas, and we have seen a reduction in lost time injuries across the board. We will keep pushing for ultimate safety of our people and contractors.

We have also continued to run public safety campaigns to keep our communities safe. We have seen great engagement from school children with our Sparky education programme, and with pillar box campaigns where the public can report issues with network equipment.

Keeping the power on (as much as we can)

Unfortunately, more work causes more planned power outages. To keep safe while delivering these projects, we had to turn the power off more often than expected.

We didn't meet our targets in this area, because we prioritised work to improve the long-term reliability and safety of the network. For example, we replaced and repaired assets most at risk of failing, so we could reduce the number of unexpected power cuts. We prioritised this to ensure you get the greatest value from our increased investment. Our team put effort into communicating with you about this planned work, and we'll keep improving our communication, so you stay informed ahead of time.

When it came to unplanned power cuts, the weather wasn't on our side during the year. We were unable to meet our targets for how long your electricity supply was interrupted, which is disappointing. We set high standards for this and we're looking at new ways to improve your power reliability, while also delivering our CPP investment programme to bring long-lasting benefits. The Commerce Commission has clearly stated it expects us to reduce the number and duration of unplanned power cuts through our increased investment programme. This will be challenging but we are working on innovative ways to respond.

New ways of doing things

We are busy planning for your exciting future. The world is changing around us, driven by the 3Ds, and our Network Transformation team is helping us to fully understand these developments.

We want you to benefit from technology like electric vehicles, solar generation, and other new advances in the pipeline. But to make the best decisions and deliver on our CPP commitments to you, we need information, tools and people.

We recently opened our new Network Operations Centre (NOC), a building where we can manage the network as it becomes smarter with new technology. It will improve our response to outages and is resilient to the toughest of natural disasters.

Our asset management and service delivery areas are undergoing rapid change. We are progressing towards ISO55001 certification and improving our data so we can make better decisions.

And of course, people have never been more important. We have focused on strengthening our contracting relationships during the year, as increased delivery means more contract management. We are lucky to have a committed and passionate team around us.

What next?

We dived into the first year and quickly learned to swim. Real progress has been made, and although it's early days, we know we are up to the challenge of delivering on our CPP commitments to you over the next four years.

Thank you for your support and feedback, as we head into CPP - Year Two!

Ngā mihi nui,

John Loughlin
Chair

Nigel Barbour
Chief Executive

Case Study

SOLID FOUNDATIONS:
Our new Network Operations Centre

To provide you with a strong service, we need a strong building.

Our old Network Operations Centre (NOC) was not up to scratch. It wasn't seismically rated to provide life-line services in times of crisis, and it was small and noisy, creating a safety risk for our operations. We need to hear voices clearly, and over the past five years our control centre operations had increased by 40% (that's a lot of voices and a lot of listening).

We knew that a purpose-built NOC was the fundamental building block to deliver on our CPP commitments to you. It had to be priority. We began construction in September 2017, and by late 2018 our team had moved in.

Our new centre is extremely tough and well-equipped. It meets importance level 4 for seismic resilience and can cope with a 1 in 2,500-year earthquake. It has a sophisticated fire suppression system, a backup generator capable of maintaining supply for three days, auxiliary water tanks and redundant fibre and radio communication circuits. It will meet our customers' needs well into the future.

In planning the design, we visited electricity control rooms across New Zealand and Australia. Our focus was to future-proof, so we created a floating floor that allows wiring to be changed for different uses of space. We can adapt and evolve as needed. Flexible meeting areas and improved acoustics also allow higher productivity for our team.

Crucially for you, our customers, the new NOC means we can better manage any major issues that affect the network. Our building has a dedicated 'Storm Room' with a six-screen video wall, which supplies information to all network operators. It was designed to fit our Coordinated Incident Management System (CIMS) approach, which we couldn't achieve in our old building. Thanks to our new NOC, our response protocol for major events is the best it's ever been. We have laid strong foundations to power your future.

Additional information online

What We've Been Doing

ENSURING SAFE, SECURE & RESILIENT NETWORKS

Replacing Assets & Powering Our People

Our job is to deliver energy to your door, and we know you want us to do this safely, with secure and resilient networks.

We want this too! Powerco faced a big challenge in CPP - Year One, to deliver an almost 40% increase in our works programme. That is huge. But we have achieved it, and delivered for you, our customers.

Under our CPP programme, we committed to you to replace our old assets faster. This is about ensuring the ongoing reliability and safety of the network.

Much of our network dates back to the late 1950s and 1960s, so these assets are expectedly deteriorating and need to be replaced.

Overhead line assets like poles and wires (conductor) make up a large part of our network, and these have been a key focus in CPP - Year One. As you'll see in this table, we've met nearly all our targets and upped our game significantly from the previous year.

Conductor (km)

CPP - Year One (FY19)	**136km**
Target met?	✗
Increase	**50%**

Distribution Transformer

CPP - Year One (FY19)	**599**
Target met?	✓
Increase	**79%**

Poles

CPP - Year One (FY19)	**3,616**
Target met?	✓
Increase	**25%**

In CPP - Year Two we want to make improvements to our supply chain management, so we can have greater control of the materials that are used on our network and their costs.

Our people have really stepped up to deliver our ambitious programme in CPP - Year One. To support them to get the job done, we've provided more tools and resources. There's been a big focus on training so we can sustain this new higher level of delivery for you.

To increase our Powerco team's strength, we have:

- Worked closely with our contractors so we know we can renew, develop and maintain our assets
- Built relationships with two new contractors to maintain competitive service and prices
- Set up new vegetation management contracts
- Continued to embrace innovative technologies like Pole Top Photography and LiDAR

Achieving our CPP investment programme for you requires not only a ramp-up in resources, but a focus on how we use them.

In CPP - Year One we kept improving our processes so we could better forecast to meet our objectives.

We prioritised a new workflow and management process for our much larger capital works programme. This was important to enable us to deliver efficiently for you, our customers, into the future.

Case Study

PRACTICAL SOLUTIONS FOR YOU:
Remote Area Power Supply

To deliver energy to where you live, we want to offer practical and effective solutions that meet your needs.

In remote areas it's not always best to simply replace an asset like an overhead line. To achieve a secure and reliable power supply, an off-grid solution such as Remote Area Power Supply (RAPS) can be a better idea. It's also more cost effective for you and our customers overall.

A RAPS unit usually includes solar panels, battery storage and a diesel generator. So far, the Powerco team has installed 20 RAPS on our network and we will continue to do more. The positive impact can be seen in places like the Tangahoe Valley, where three units were installed in CPP - Year One and a further two are planned for CPP - Year Two. The new RAPS units replace the overhead power supply, which was constantly damaged in storms by trees and slips crashing through the lines. At times the destruction blocked the road for weeks, preventing contractors from reaching downed lines and poles. This was a major issue for the people who live there.

Now that RAPS are being used, storms will not impact on supply to our customers in these remote areas. They have proven to be a strong solution, at a far lower cost than re-building the 5.4km overhead line.

Additional information online

Case Study

FLEXING OUR PLANNING AND PROCESS MUSCLES

To keep you getting the best results from our CPP programme, we need to stay on our toes. We need to be more and more efficient.

Our team has introduced an 'end to end' delivery workflow for our planned capital works. This is changing our approach to planning, designing and delivering work. So what does that mean?

- Our planning timeframes no longer need to fit inside the annual calendar. We now use a rolling model, so we can adjust our scheduling, even-out our internal resourcing, and keep delivering.
- Better workflow planning means our contractors get a clearer idea of what's coming up. They can plan more efficiently and save costs – which is good for everyone.
- We are improving our quality and safety processes, so we can better understand and manage the risks on our projects.
- We now have a team that is dedicated to managing our works programme. They look for ways to optimise our resources, improve outage planning, and work alongside our contractors to ensure construction works are scheduled efficiently.
- We're learning lessons! Feedback from completed work is taken into the next project – so we keep building on what we've done. We want to continuously improve (and not repeat mistakes).

We introduced these changes in CPP - Year One, and they will take time to bed in. We'll update you next year with how these changes are working out.

Additional information online

Trimming Trees & Fixing Defects

To keep your power on, we need to keep the trees out.

We've been working on our inspection methods, so we can get quality data on our assets and the growth of trees and plants around them. This helps us make decisions on how we best manage vegetation and maintain and fix our overhead lines.

It's an important focus for us because it has a big impact on you. Trees and maintenance affect how many power outages you have in the short-term, and the overall reliability of the network in the long-term.

Let's look at how we are tracking.

Clearing trees from around your power lines

We love trees, but not in or near our power lines. They are a hazard and cause outages for you that we want to avoid. Many serious outages in storms are caused by trees or branches being blown onto lines, often from moderate distances. Proactive management is important.

We are finding ways to get on top of this issue, and we've moved from a reactive to a managed cyclical approach across our network. Using years of data, including historical tree cutting information and network reliability statistics, we can see where changes need to be made.

We've determined that by shifting the cycles of tree and vegetation cutting in certain parts of our network, we can get better outcomes for you, our customers.

THE ILLUSTRATED CYCLES HAVE BEEN ESTABLISHED IN CPP - YEAR ONE

These cycles achieve the best balance of network reliability and cost-effectiveness. They are underway now and we've significantly increased tree trimming and cutting compared to previous years. It will take time to get to the clearance level that's required by regulation. but once this happens, we expect you'll have fewer vegetation-related power outages. Great news!

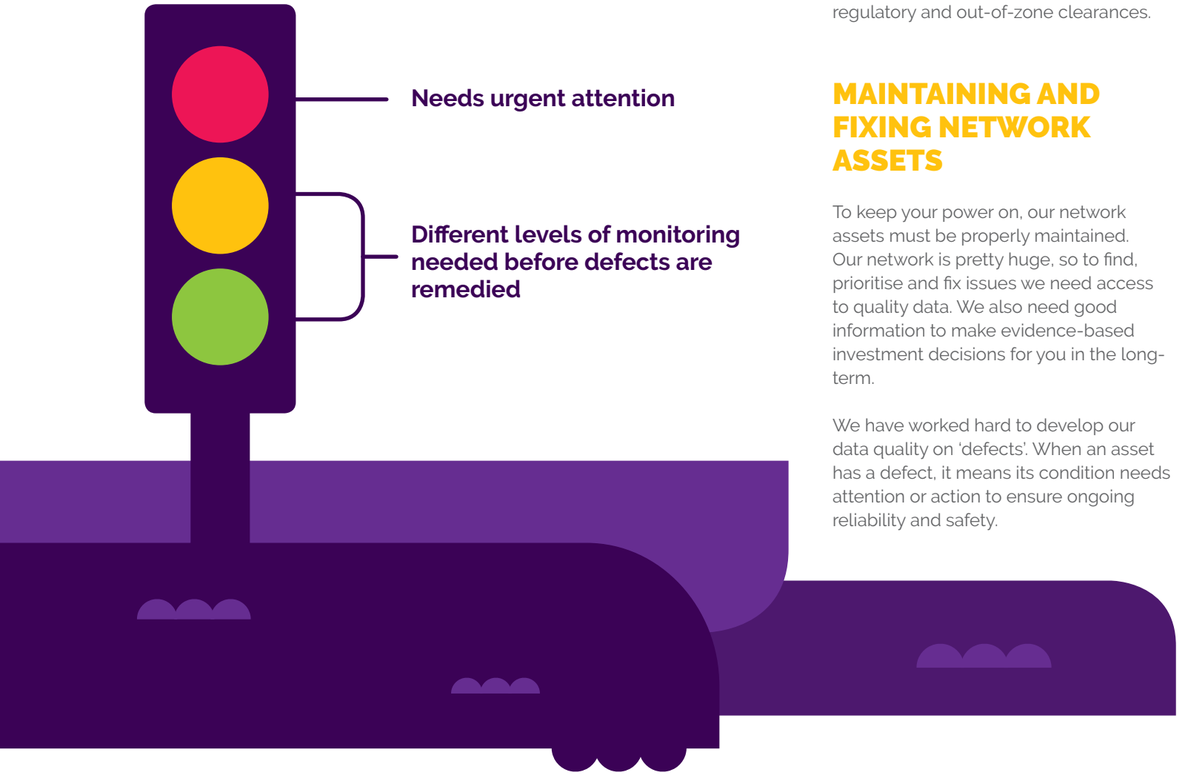
Additionally we're taking a risk-based rather than a cyclical approach for our most critical network assets. From CPP - Year One, trees in these areas will be annually inspected and trimmed or removed to meet regulatory clearance levels.

Helpfully, our contractors keep advancing their techniques, including using an improved spraying approach and new styles of tree shearers, shelter trimmers and larger mulchers.

One of the most exciting developments we have trialled is LiDAR (Light Detection and Ranging). A small aeroplane flies over our power lines with a special unit attached that maps and measures the distance of trees from the lines. The map that the LiDAR produces means we can see where vegetation is or will be encroaching on lines.

If we can see it, we can deal with it before it becomes a problem.

We use a traffic light system to categorise defects



Regulation requires us to keep trees cleared from our power lines, but we also need to ensure trees are managed properly in out-of-zone areas.

This involves working with tree-owners to get the best outcomes and long-term benefits for you, our customers. LiDAR will help to inform our approach to both our regulatory and out-of-zone clearances.

MAINTAINING AND FIXING NETWORK ASSETS

To keep your power on, our network assets must be properly maintained. Our network is pretty huge, so to find, prioritise and fix issues we need access to quality data. We also need good information to make evidence-based investment decisions for you in the long-term.

We have worked hard to develop our data quality on 'defects'. When an asset has a defect, it means its condition needs attention or action to ensure ongoing reliability and safety.

We are improving our knowledge of the network condition and high-risk assets every day.

In CPP - Year One we reviewed our overhead line inspection standards and the way we categorise defects. We also developed supporting materials to help with training and interpreting defects and the condition of our assets.

Our new inspection standards are being used for field inspections, so we can keep getting better quality data on defects.

Powerco has also cleaned up (our data, that is). Through this work and our preparation for data migration to our new core business operational system (pages 53 and 54 Getting the Data Right), we have found around 13,000 amber defects that were either duplicates, or the asset had since been re-inspected.

We have fixed a total of over 14,000 defects in CPP - Year One, by either repairing or replacing the asset. This is a 50% increase from previous years.

Our field work and data cleansing has helped us make good progress in clearing our defect backlogs. With an ageing asset base though, we know we need to stay vigilant in identifying, prioritising and fixing defects on our network.

During the year we began several new maintenance activities, including:

- Replacing significant quantities of two-piece insulators on zone substation air break switches (these tend to fail, causing safety risks)
- Carrying out storm hardening of selected overhead lines, tightening components and replacing stays, to prevent failures during storms
- Fast-tracking our pillar box data capture programme, improving the accuracy of our low voltage network data, and ensuring these assets are safe
- Increasing overhead line acoustic testing to find hidden defects and equipment issues, to prevent hard-to-stop equipment failures
- Completing our trial of Pole Top Photography and LiDAR in our Whanganui area, improving our overhead line condition and vegetation information

Total tree sites managed

FY19 (CPP - Year One)	**10,781**
FY18	6,053
Increase %	78%

Backlog reduction

FY19 (CPP - Year One)	**13,662**
Decrease %	33%

Defects closed

FY19 (CPP - Year One)	**14,367**
FY18	10,308
Increase %	39%

Case Study

INFORMATION IS POWER:
Pole Top Photography & LiDAR

We know we are a bit geeky, but one of the highlights of our year has been our Pole Top Photography and LiDAR (Light Detection and Ranging) technology trial.

This technology has the potential to really enhance the work we do for you. It provides greater visibility of the condition of our overhead lines and surrounding vegetation, helping us prioritise where we invest our resource.

The clue to Pole Top Photography is in its name. It involves taking high resolution images of each pole top from a helicopter. In our trial we surveyed 33,191 rural poles, with each pole photographed 12 times from different angles. The photos are then reviewed against our asset inspection criteria to identify defects. The photography allowed us to find and repair 37 previously unknown high-risk network defects. This was an excellent result. These high-risk defects pose significant safety and/or reliability risks, and many were in remote rural areas so could go unnoticed for some time. The data collected also identified other less critical defects that we are now prioritising for fixing.

LiDAR works by using laser light to measure distances to objects. It collects millions of points of data, which are amazingly collated into a 3D model of the lines, poles, houses, trees and other structures on our network. From this we can identify where trees and other vegetation are growing too close to our overhead lines and may cause potential outages.

Using LiDAR we could survey the entire Whanganui network area in just a few months, including the critical 33kV sub transmission lines. This technology meant we could manage significant hazards quickly and efficiently, which is exciting for our team and great for our customers. In the future, this high-quality information will influence our investment decisions, including our cyclical vegetation programme priorities and network replacement strategies.

Additional information online

The Big Stuff

SUPPORTING GROWTH IN OUR COMMUNITIES

Our Major Projects

Our communities are growing, some of them very rapidly, and we want to power them to thrive!

But with rapid growth comes pressure on our network. There's greater demand for supply, and we need to ensure we can provide back up in the event of an outage.

To manage this growing demand, we have 17 major projects to deal with existing or future network capacity issues.

These projects will give our network the required capacity, and you, the confidence that we can continue to provide our communities with a reliable supply of electricity.

How are our projects tracking?

We are committed to delivering the important projects and as such, we were already delivering stages of some major projects before the start of CPP - Year One. We also completed some projects in early CPP - Year One (such as our Pyes Pa and Papamoa network development projects).

Others have undergone large construction periods during the year. Read our case studies to learn more about the detail of these projects.

Several major projects are planned for later in the CPP period and we are getting prepared now. Our team is busy working with affected landowners to ensure we have land access arrangements sorted. Design work is also progressing.

We look forward to successful delivery in the years to come.

Case Study

SECURING POWER FOR PALMERSTON NORTH

Investment to date

$14m

We are currently working on a series of five projects for the Palmerston North community to ensure they have continued security of power supply.

Our task is to expand, rebalance and renew the sub-transmission network and zone substation supply capacity.

Up to the end of CPP - Year One we have:

- Progressed construction of a new CBD zone substation called Ferguson St, with commissioning in June 2019
- Installed new 33kV cables from Pascal St, Main St and the new Ferguson St substation, working alongside Palmerston North City Council
- Installed ducts across the He Ara Kotahi pedestrian bridge in preparation for future cable circuits

In the future, new dual circuit 33kV cables will link the Ferguson St substation to the Linton grid exit point, with the cables running over the He Ara Kotahi bridge. A second power transformer will also be added at Ferguson St substation.

These investments will help to ensure the Palmerston North CBD electricity supply is reliable and keeps up with the future demands of the growing city.

Additional information online

Case Study

MAINTAINING SUPPLY IN MOTUROA

Investment to date

$10m

With Transpower decommissioning its New Plymouth Power Station grid exit point, we needed to ensure ongoing electricity supply for our customers in the Moturoa area.

The best option for our customers was to install new 33kV cables from Transpower's Carrington St grid exit point to our Moturoa zone substation. We worked with Transpower on this. We are also replacing the switchgear and power transformers at Moturoa to ensure they keep working well (separate to the $10m cable investment).

During CPP - Year One we have:

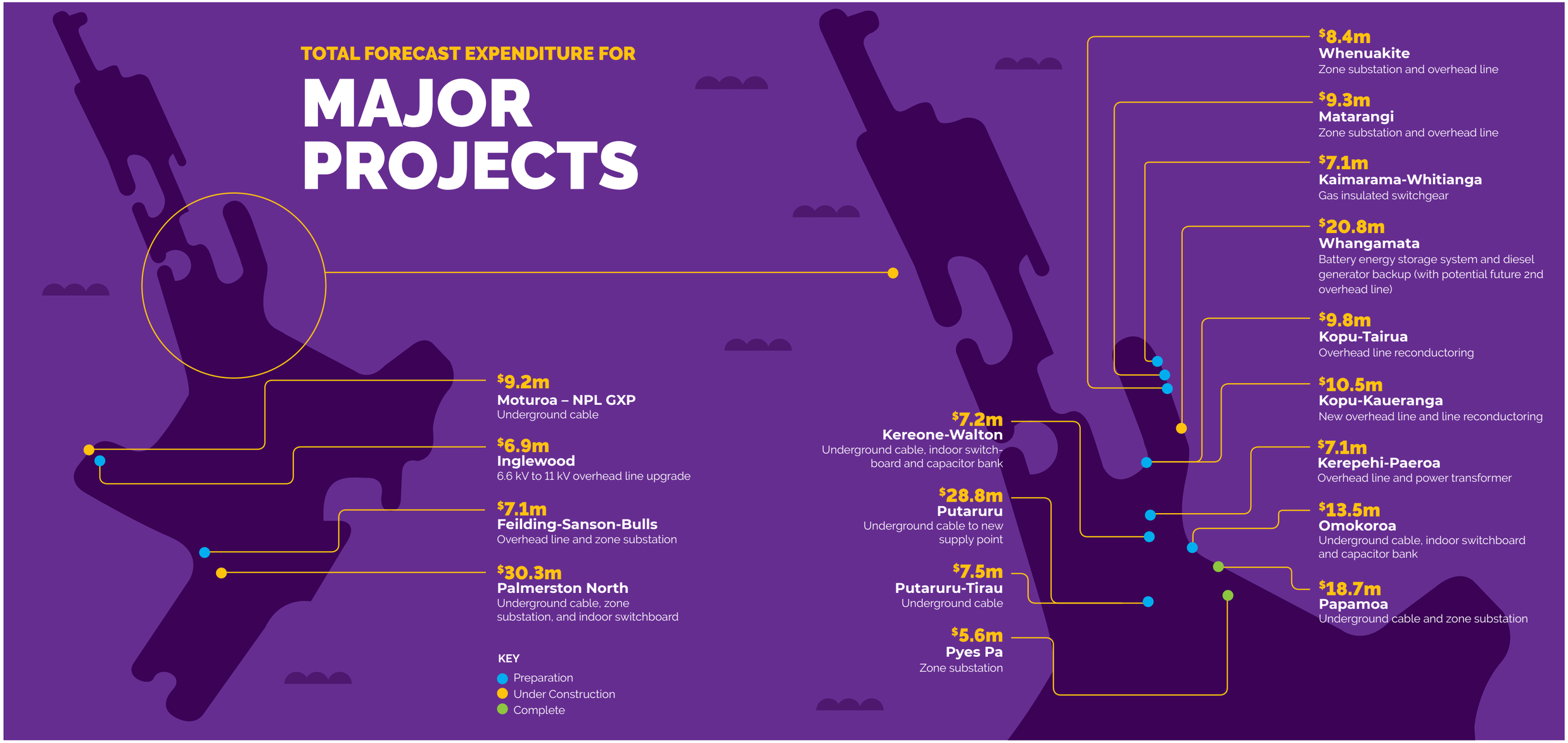
- Laid 6.5km of dual circuit ducting in open trenches along the cable route and reinstated the road
- Installed the 33kV cables in the ducts
- Constructed a new building, installed new larger transformers and begun installation of switchboards at Moturoa zone substation

We expect to complete the remaining works for Moturoa, to have ongoing reliable power supply, in the third quarter of CPP - Year Two (FY20).

Additional information online

TOTAL FORECAST EXPENDITURE FOR

MAJOR PROJECTS



$9.2m
Moturoa – NPL GXP
Underground cable

$6.9m
Inglewood
6.6 kV to 11 kV overhead line upgrade

$7.1m
Feilding-Sanson-Bulls
Overhead line and zone substation

$30.3m
Palmerston North
Underground cable, zone substation, and indoor switchboard

KEY
- Preparation
- Under Construction
- Complete

$7.2m
Kereone-Walton
Underground cable, indoor switch-board and capacitor bank

$28.8m
Putaruru
Underground cable to new supply point

$7.5m
Putaruru-Tirau
Underground cable

$5.6m
Pyes Pa
Zone substation

$8.4m
Whenuakite
Zone substation and overhead line

$9.3m
Matarangi
Zone substation and overhead line

$7.1m
Kaimarama-Whitianga
Gas insulated switchgear

$20.8m
Whangamata
Battery energy storage system and diesel generator backup (with potential future 2nd overhead line)

$9.8m
Kopu-Tairua
Overhead line reconductoring

$10.5m
Kopu-Kaueranga
New overhead line and line reconductoring

$7.1m
Kerepehi-Paeroa
Overhead line and power transformer

$13.5m
Omokoroa
Underground cable, indoor switchboard and capacitor bank

$18.7m
Papamoa
Underground cable and zone substation

Connecting With You

Powerco people are real people. And we want to connect with you.

Your needs, priorities and perspectives are important. Understanding what you think and what you want, means we can deliver you the best service.

While our asset management strategy is focused on how to develop the network for your exciting future, we also know that you care about what is happening today. You've told us that you want clear and accurate information when your power is out, or is going to be out.

So in CPP - Year One we have worked with our delivery partners to better communicate with you about outages that affect you.

We've focused on these things to help:

- Planning – our team has worked hard to understand how to best schedule the timing of planned outages. This means trying to plan large rural outages around seasonal periods that better suit farmers who are milking, and outages in tourist destinations outside of peak times.
- Process – we have removed back-up days to reduce the number of outages cancelled on the day. We've reviewed our outage planning and taken steps so we can finalise outages as early as possible so you can prepare.
- Delivery – contractors have been enabled to use larger crews to deliver projects in a shorter, more intense period. We've seen this in action in a large cross-arm renewal job in Feilding and vegetation job in Featherston.

Over the last year we have focused on you, our customers. Not only have we put in place initiatives to better inform you of our upcoming work, but our Board has also approved our Customer Strategy. This key document will guide our longer-term commitment to delivering for you.

Previously we have relied on going through others – our established stakeholders and your retailers – to share information with you on our works programme and planned outages.

This is still an important part of our communication, but we have also now adopted a more direct approach for communities and customers who are most impacted by our work.

This has resulted in more two-way engagement with you, our customers, and you've been pretty positive about it.

Case Study

CUSTOMER STRATEGY: Keeping you informed and connected

You value great customer service – so do we, and so does our Board. They have approved our Customer Strategy, which is our roadmap to achieving excellence for you.

The strategy guides our work, by helping us to ensure that our priorities and direction deliver positive customer experiences.

The initiatives that come from the strategy have been driven by what we have heard first-hand from you, our customers.

Communication is a significant focus. We want to engage with you and provide information in a way that is relevant, easy to understand and helpful. Customer service is more than just keeping you on side. It's about ensuring that you and all our customers stay safe, and have the information you need so that you can manage in the event of a power outage.

Over the last year we have developed new services for you, that have been prioritised and driven by your feedback. This includes being able to log network faults online and providing you with visibility of future planned outages. We will keep building on initiatives to keep you informed and connected.

Additional information online

Examples of this approach in action are:

- **Letter drops** – informing you of when and why a likely disruption may occur, and when multiple outages are required in a short amount of time
- **Pole Top Photography & LiDAR** – ahead of the trial flights we talked to people in the area affected, so we could engage with you around the timing of work involving helicopters and planes
- **Investment maps** – we have produced maps of where our major investments are planned in your region, so you can see the work we are undertaking to invest in your future
- **Whangamata Battery stakeholder sessions** – we've held face-to-face meetings to uncover and discuss concerns and matters related to this project
- **Road signage** – increased use of signage has been helpful to inform communities of upcoming work that may disrupt you
- **Planned outage page** – the Powerco planned outage webpage now has more functionality so you can check if there's a planned outage affecting your property in the next 30 days

We know some of you experience more power outages than the majority of our customers. We are working hard to address this through increased work to improve the reliability of power lines. Unfortunately, we often have to increase the number of planned power cuts to allow this work to be completed safely. In these situations, we know you need information on what is going on, and why. We have used letter drops to explain why the disruption is necessary to improve our customers' longer-term power reliability.

There's plenty of work to be done

Our network keeps growing and changing. New connections are being added and our customers want changes to existing assets.

In CPP - Year One we carried out approximately 13,000 customer-initiated jobs on our network. Our dedicated Electricity Customer Solutions team has continued to skilfully manage this ever-increasing workload.

To ensure our team has the resources, experience and skills to best respond to your needs, we moved the team's reporting lines to be closer to others who are involved in the process. This has resulted in a quicker, more streamlined process for you, and means we can respond to your enquiries promptly.

Caring for our vulnerable customers

A loss of power can be particularly hard on some people in our communities. They can become vulnerable due to being unable to carry out activities that support their daily needs and welfare.

The length of time a customer is considered vulnerable, or the level of vulnerability, varies according to the unique situation. We assess and consider our response to customers who feel vulnerable, on a case by case basis.

Examples of support we have provided include:

- Installing a changeover switch at a Taranaki retreat to allow easy access to generation in outages. This gives them more flexible and cost-effective options to support their vulnerable clients.
- Working with private medical facilities to rearrange planned outages in 'flu season', to minimise disruption to those seeking their service.
- Becoming a member of the ERANZ (Electricity Retailers of New Zealand) medically dependant and vulnerable customer working group. This provides insight into how the wider industry is managing vulnerable customers and means we can align our thinking.

Supporting our communities

It's important to us that we support the local communities where we operate.

In CPP - Year One we continued to get involved locally. This included distributing $270,000 to 40 community projects and supplying surplus IT equipment to local schools.

You can read more about the community projects we have supported at powerco.co.nz.

Case Study

GOING OLD SCHOOL: Letter drops to keep you posted

The research shows that you actually read what we put in your letterbox!

We've been using good old-fashioned letter drops to let you know about why you might experience more power cuts in a short period and why the work has to happen.

This is a new initiative aimed at reducing the disruption multiple outages has on you. We commissioned research to see if letter drops were helpful and to understand how we can improve your experience of planned power cuts in the future.

We discovered that 88% of people remembered receiving the letters and of these, 73% considered them very or somewhat useful. We've expanded the initiative now and we will keep improving it, based on additional research findings.

Things we have found out, include:

- 59% of customers prefer condensed outages while 41% preferred spread outages
- 31% experienced some issues as a result of the planned power cut
- The main reasons why some letters were unhelpful were unclear display of the date and time and insufficient explanation for the outage
- 3 out of 5 customers believed their experience would improve if they received at least 1 to 2 weeks' notice of planned outages

We have taken these findings on board and made changes to our letters to display the information more clearly. We will keep working on this!

The information we have gained about your preferences relating to planned outages is very useful (thank you). Your feedback has been passed to our Release Planning team and will be reflected in future process guidelines.

Additional information online

Protecting Everyone's Safety

We put safety at the centre of everything we do. For our customers, our team and our contractors.

This is a core value that shapes Powerco. We continually challenge ourselves to ensure we have the right level of leadership, culture and systems so we can avoid serious harm to people and the environment.

We want everyone who lives or works near our networks to be safe.

Continuously improving safety is about learning, reviewing and taking action. In CPP - Year One we did all of this, and delivered several initiatives specifically designed to raise the safety bar.

These include:

- **Critical risk initiative** – we identified and highlighted our 10 critical risks to staff, service providers and the public. These were then used to develop focused safety communications and initiatives.
- **Live-line compliance review** – working on live power lines can be dangerous. We undertook this review to better understand how to meet the Health and Safety at Work Act requirements, while balancing the impact on you, our customers, from outages. At all times, the safety of line workers is our number one priority.
- **Contractor forum** – it's important to keep sharing lessons and talking with each other so we can work towards shared goals. This forum was set up to strengthen how we consult, cooperate and coordinate with our contractors, which can only be a good thing.
- **Switching working group** – the electricity industry is a technical industry (yes, we use a lot of acronyms), so the people working in it are best placed to keep us all safe. Powerco established this collaborative group with our key service providers to address concerns with the switching on and off of power on the high voltage network. We need careful management around high-potential incidents and near-misses associated with this work.

We know that it's not just us who cares about safety. You do too!

Powerco and our partners recognise the role the public has in keeping themselves safe. To support you, we run a targeted programme of public safety campaigns to inform and educate on the dangers related to our electricity networks.

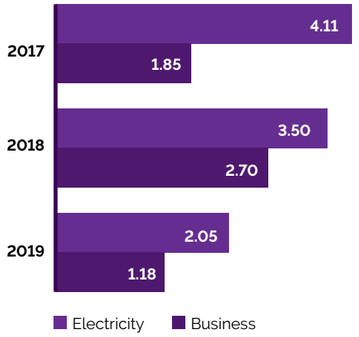
In CPP - Year One campaigns we ran included:

- Sparky - school safety education campaign
- Tree cutting - targeted campaign in rural areas to encourage identification of trees requiring cutting
- Pillar box campaign - encouraged public to report damaged pillar boxes
- Public asset awareness campaigns - reminders to look up and down before you work at heights or dig on your property

In CPP - Year One we have kept working hard to enhance health and safety for our team and contractors, and we've got good outcomes:

- Fewer lost-time injuries have occurred overall
- Lost-time injury severity rate improved by 54% compared to the previous year (FY18)
- Our Board and Executive achieved 134% of their target for Safety Leadership Present on Site Workplace safety interactions

LOST TIME INJURY FREQUENCY RATE (LTIFR) by Business Unit
Three year trend



Case Study

WORKING LIVE, STAYING SAFE

Sometimes we need to do work on live power lines. Our team are experts and we know we can manage this safely.

But to understand how to keep raising the bar and ensure we comply with the Health and Safety at Work Act, we did a big review.

This was a collaborative effort with our service providers and the wider industry. Our priority and top consideration will always be the safety of line workers. We also want to continue to maintain electricity networks with as little impact on you, our customers, as possible.

The outcome of this review is that we have been able to standardise our approach across service providers and regions. We've developed a list of requirements that must be met in order to even consider live-line work. This removes any potential for riskier live-line work to be proposed. If it doesn't meet the requirements, it doesn't go forward.

Powerco is also working with our service providers and the Electricity Engineers' Association (EEA) to put together a set of live-line working procedures. This ensures we have the same understanding on how to perform live-line work safely. The procedures have gone through consultation, and are currently being implemented.

Our review of the effectiveness of these changes is ongoing at the governance level. Next we plan to improve our assurance programme for live-line works, so we can be certain our new standards and procedures are being followed.

Additional information online

Our Shared Environment

The Powerco team believes that environmental awareness is a collective responsibility. This is actively promoted to everyone who works with us and for us.

We operate in your communities and we know that our network infrastructure has an impact on the environment – both in how it looks and how it behaves.

An essential part of our planning is to manage this impact. We consider the immediate and long-term consequences on the environment before we make decisions.

This year we challenged our Environmental Non-negotiables Standard. This standard sets our minimum expectations for our own and our service providers' environmental performance.

We have reset our environmental non-negotiables and now have a clear framework to assess our performance against them.

This means we will be able to report on trend performance in these areas, and you can hold us accountable. We encourage our communities to take an active interest in our shared environment!

Powerco achieved certification that our Environmental Management System (EMS) is compliant with ISO14001:2015 in August 2018.

This certification is recognised as the international benchmark for environmental management systems. It means you can be assured that we are responsible operators and we take our impact on the environment seriously.

During the year we focused on new environmental initiatives, including:

- Consents Licences agreements
- Ecology
- Hazardous Materials
- Pollution Control
- Heritage, Natural Significance and Contaminated Land
- Emissions
- Waste and Resources

WE USE SEVEN KEY PILLARS OF HEALTH, SAFETY, ENVIRONMENT AND QUALITY TO DRIVE OUR APPROACH:

Safety Leadership
We have visible and capable safety leadership at all levels led from the top. We have broad operational ownership of safety.

Contractor Management
We have an industry leading contractor management system delivery, robust approval competency and performance monitoring.

Engage & Communicate
We partner with our staff, contractors and the public to prevent harm by communicating and collaborating.

Engineer Out Risk
We have processes and systems that provide management of our critical risks to achieve ALARP ('as low as reasonably practicable').

Audit & Assurance
We have an 'office to field' audit programme that provides assurance, on quality and HSE (Health, Safety & Environmental) risks.

Environment & Sustainability
We strive to strike the right balance between economics, society and the environment.

Thriving At Work
Our employee health is important to us and we support them to be both physically and mentally fit for work.

OUR ACHIEVEMENTS

30%
Carbon emission reduction

50%
Reduction in waste per full time employee compared with FY09.
Full compliance with Resource Management Act

Did We Measure Up?

OUR PERFORMANCE

How We Performed In CPP - Year One

Powerco works for you. Our job is to deliver the power to your door, safely and efficiently.

We know this is a big responsibility. We understand the disruption that a loss of power can cause, and we work hard to reduce the number and length of outages you experience.

Before we embarked on our CPP delivery programme, we consulted with you, our customers. You told us you wanted the current reliability of the network to be maintained in the long-term.

To achieve this and deliver on our CPP commitments to you, we need to do more work. This means more power outages in the short-term, which is a challenging trade-off to balance. We want to keep the power on as much as possible!

There are many variables that affect the number of outages you experience. Some are within our control, such as safely delivering planned work. Some are outside our control, like when a major storm hits.

With all this in mind, let's see how we performed in the first year of our CPP investment programme.

YOUR FEEDBACK

In CPP - Year One we completed 25% more planned outages on the network than the previous year. We know that this has impacted on you at times, and put pressure on our team and delivery partners.

Where possible, we have reduced the disruption of planned outages by:

- Using mobile generation to maintain power supply where cost-effective
- Using larger crews to complete the work faster, reducing the outage time
- Where safe, performing the work with the power lines live

We've made a big effort to improve our communication and information sharing with you. We're pleased that when asked, 95% of those who responded said their power supply reliability was acceptable or better.

This is in line with previous years where less planned work occurred. So that's good!

We asked for your feedback through surveys, face-to-face interactions and our complaints process. Overall, you said:

> *As long as we keep you well-informed and communicate during planned and unplanned outages then you can manage the disruption better*

CUSTOMER COMPLAINTS

Try as we might, sometimes we just can't resolve a tricky customer complaint.

Utilities Disputes (UD) provides a valuable service when this happens, stepping in and facilitating a mediation conference call. If mediation is unsuccessful, the Commissioner will make a binding recommendation as to whether the complaint is upheld or not.

In CPP - Year One, we reported nine complaints that UD accepted for investigation. Seven of these were resolved via mediation and two are still ongoing.

The types of complaints were:

- Appliance damage caused by a neutral fault
- Heat pump hot water system failed after an unplanned power cut
- Cost of customer-initiated works (x3)
- Loss of freezer contents at holiday home after unplanned power cut (LV) that Powerco had not been made aware of
- Poor quality supply/frequency of unplanned power cuts (x2)
- Delay in restoration which resulted in spoiled food

In the previous year, Powerco reported a total of seven deadlocked complaints.

Our constructive relationship with UD allows for good information sharing without compromising UD's independence. As an example, in September last year our Customer Experience Manager and General Counsel met with the Commissioner and Deputy Commissioner. They discussed UD's jurisdiction over a complaint relating to recovering costs from a third party that had damaged Powerco's network.

We engage with UD through its Annual Forum and webinars, which help providers understand the way UD may approach a specific complaint type. We also contribute through submissions to UD when it consults on potential changes to the Complaints Scheme.

THOSE IMPORTANT REGULATORY TARGETS

Each year we need to report on our performance against our regulatory targets. This is to see if we are meeting the required quality standards for your power supply.

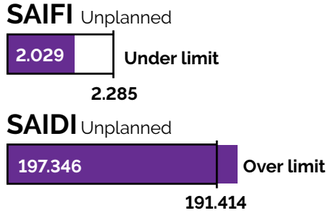
Unplanned outage targets

In CPP - Year One we exceeded our regulatory limit for the duration of unplanned outages, but we came in below the limit for the frequency of these unplanned outages. The increased outages were mainly caused by weather events (notably lightning strikes), bird strikes and vegetation issues.

Exceeding the limit for the time unplanned outages lasted for was disappointing, and we make no excuses. We are proud managers of the network and any regulatory mark against us is felt throughout our team. We strive to always meet these targets, and the standard is a tough one.

Managing variables like extreme weather conditions and bird strikes is challenging, but our CPP investment programme will help us to reduce the impact of these unplanned events in the medium to long term.

We are still in the early stages of our CPP delivery work, so it's possible that we'll continue to see a higher level of unplanned outages than our regulatory targets allow, until further work on the network is completed



SAIFI = System Average Interruption Frequency Index
SAIDI = System Average Interruption Duration Index

Planned outage targets

When we need to deliver more work, we must plan for more outages. Initially we believed we could meet the standard and deliver the work, but early in the year we realised we could not do both.

We decided to prioritise delivery of our planned works programme, which meant that in CPP - Year One we exceeded our regulatory limits for the duration and frequency of planned outages.

We based our decision on what you, our customers, have told us. If we provide good information and clear communication, you've said you would prefer more planned outages in the short-term to improve your long-term power reliability.

We didn't just turn your power off ad hoc. Our team ensured we were efficient with how we planned outages and we made a big effort to communicate and engage with you in advance. At times, we used generation to continue power supply to you, where we could justify the cost.

Case Study

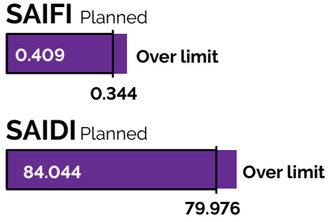
A TEAM EFFORT IN FEILDING

In April 2019 we completed a large overhead renewal project in Feilding.

It could have been a logistical nightmare, but our team was able to coordinate the work in just one six-hour outage. We wanted to minimise the disruption to our Feilding customers. This meant multiple work crews from multiple contractors (approximately 50 linesmen) all working together. We used HV generation and bundled a large package of planned work across 74 work sites, replacing cross-arms that were in poor condition and could cause unplanned outages in the future. The alternative would have been to complete the build over multiple outages. This would have meant a far greater impact on you, our customers.

Additional information online

As you read on pages 32 and 33, we have improved our process for working on live power lines. We now have new requirements for assessing whether this work is safe to do. This has meant we've had to turn the power off to complete work that doesn't meet our standards. While not ideal, we know you support our commitment to protecting the safety of our team.



SAIFI = System Average Interruption Frequency Index
SAIDI = System Average Interruption Duration Index

IMPROVING YOUR RELIABILITY EXPERIENCE

CPP - Year One was a time of balancing trade-offs and constraints, and we appreciate that the number of power outages had an impact on you. We are challenging ourselves to do better.

This will require doing different things and trying new methods. We are planning for another big year of works delivery in CPP - Year Two, so our desire to improve your reliability experience will certainly keep us working hard.

Our plans to deliver in the short-term include:

- Improving our root cause analysis, particularly for repeat faults, so we can capture network improvements
- Working with our contractors to speed up fault response times, including looking at further use of line fault indicators
- Accessing better quality information on defects by using technology such as Pole Top Photography, LiDAR and overhead line acoustic testing

In the medium and longer-term we will continue to deliver our planned CPP investments to stabilise our network performance. This includes:

- Increased renewal of assets, particularly our overhead lines
- Managing our defect backlogs to sustainable levels
- Improving our vegetation management practices, using a cyclical approach
- Increasing the use of network automation technology

We are constantly thinking about how to reduce the number and length of planned outages that you experience. Our planning is focused on the following 10 areas:

1. **Improved work bundling**
2. **Multiple work crews**
3. **Extended outages to manage SAIFI**
4. **Reviewing live-line work procedures**
5. **Managing distributed energy disconnections**
6. **Outage alignment with Transpower and customer outages**
7. **Increased generation (HV and LV)**
8. **Interrupter cable system**
9. **Reviewing maintenance frequencies**
10. **Parallel build**

SUPPORT FOR OUR CUSTOMERS EXPERIENCING POOR NETWORK RELIABILITY

If you live in certain areas, you may experience more power outages than other customers. We know this is frustrating, and we are committed to improving your network reliability.

In the "Feeder Performance" table contained in the numbers companion document you'll see areas on the network where our customers are likely to experience the lowest level of reliability.

We continually analyse this information to understand the causes of outages and the best way to fix them. Often, we will do more inspections to better understand the cause. We use several tools to do this, including techniques such as overhead line acoustic testing.

Once we have a clear understanding of the outage cause, we plan the best remedial activities. This might be additional vegetation management, minor remedial works or larger asset replacement programmes. As always, our challenge is to balance these programmes against available resources and the benefit delivered to you, and all our customers.

Case Study

ACOUSTIC TESTING TO FIND HIDDEN ISSUES

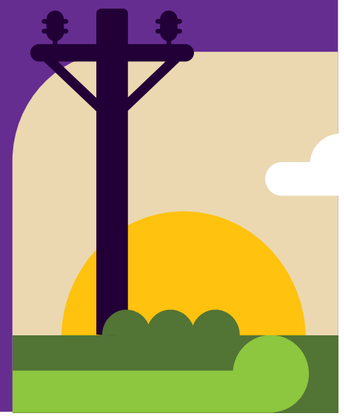
During CPP - Year One we increased our use of overhead line acoustic testing, which is a really helpful tool.

Acoustic testing involves asset inspectors using specialist monitoring equipment in a line patrol. This can identify otherwise hard to detect defects on our overhead lines.

For example, if our inspectors are looking up from the ground, it's almost impossible for them to identify a cracked insulator. Acoustic testing can help find these issues – and then we can fix them.
We have used acoustic testing in areas that have had repeated unplanned and unexplained power cuts. After an acoustic patrol is performed, the results of the inspection are fed back into our defect process. We then resolve issues according to their priority.

Identifying these defects now and then fixing them before they cause unplanned outages is our goal. These testing tools help us to ensure our network is reliable and safe for you.

Additional information online



An Exciting Future

ENABLING YOUR ENERGY CHOICES

Evolving Your Network

Who knows what the future holds? Our crystal ball says there'll be exciting advances in energy technology, and Powerco will be working to actively power your future.

For today, we are focused on building a network that provides you with a reliable power supply. For tomorrow, we are laying foundations to ensure our network can offer you flexibility in your energy choices.

To do this, we are monitoring how your use of the network is changing as a result of new technologies such as electric vehicles, batteries and solar.

We're also keeping up with global changes and trends, particularly the 3Ds: digitalisation, decentralisation of the electricity supply chain, and decarbonisation.

It's hard to predict the timing, impact and details of how changes will occur. But we know they are coming, so we need to be prepared.

Powerco subscribes to the New Zealand-specific Network Transformation Roadmap developed by the Electricity Network Association (ENA) .

It says that the network of the future will be influenced by two main factors:

- Customer behaviour – how engaged are customers with their energy supply?
- Technology – how much renewable electricity and how many associate edge devices are connected to the grid?

In CPP - Year One we established a dedicated Network Transformation team to plan how to get our network ready for these changes.

The team leads a range of helpful, thought-provoking initiatives. They consider scenarios and assess the associated impact on the network, they analyse emerging consumer trends, look at and develop new network and non-network solutions, and they coordinate pilot programmes and proofs of concept for new solutions.

DIGITALISATION

Increasing digitally enabled sensors, data and analysis to stakeholders

DECENTRALISATION

Shifting from central generation to devices that generate, store or consume electricity

DECARBONISATION

The challenge to reduce emissions to fight climate change

IN CPP - YEAR ONE , WE HAVE BEEN RAPIDLY GROWING OUR UNDERSTANDING OF HOW TO POWER YOUR FUTURE.

We've been looking at:

Emerging Energy Markets

Learning how to integrate new technology with Powerco's back end systems in case we want to control load. We've also been discovering how customers in the future will use electricity.

Electric Vehicles

Increasing our understanding of their impact on the network, and people's usage in commercial and residential settings. We know the use of EVs will likely increase in the future.

Power Quality

Installing new power quality meters and protocols to get data from our "intelligent equipment". We are learning where power quality may be an issue for our customers when they wish to install distributed energy resources.

Distribution Transformer Monitoring

We are looking at capacity constraints on the network and our ability to accommodate your new energy solutions like solar panels and batteries.

Smart Meter Data

Using this to analyse your usage patterns so we can plan our investments to meet your needs and accommodate your new energy solutions..

Development of Internet of things - compatible infrastructure

Used to retrieve and store near-real time data. We're investigating how to integrate new communications technology on our network and manage the increasing amounts of data.

Case Study

SENSING THE VALUE: MONITORING OUR SWITCHBOARDS

We like to turn failure into success (as much as possible!). Following a failure on a low voltage switchboard, we started trialling additional monitoring at three of our larger New Plymouth CBD low voltage switchboards.

The goal was to test whether it was technically and economically viable to continuously monitor our critical low voltage switchgear and protection systems.

We also wanted to get data and find out more to inform our longer-term vision – to use widespread and diverse sensors to improve our network operations and asset management. This improved low voltage monitoring has many potential benefits for you, our customers.

We can better understand the health of our assets so we can improve the network's reliability and safety. We can also see how our assets are best utilised, so we can optimise our planning. For the project, we have procured and installed load-logging equipment for the low voltage switchboard incoming and outgoing circuits. We are also using thermal monitoring cameras targeting key areas such as fuse holders and cable terminations. Data from these monitoring devices is being collected at 10-minute intervals.

Using communications infrastructure, it is sent back and saved on our data historian servers. We are now analysing this collected information, and understanding if and how we could use similar monitors on other parts of our network.

Additional information online

Network Transformation

Technology can help us understand how we can best meet your needs as customers, while also managing the challenges of maintaining an electricity network. An example of this at play is our project, Whangamata Central. This significant project is part of our Network Transformation programme.

We are installing the first grid-scale battery system on the Powerco network, to provide a cost-effective back up power supply for Whangamata CBD. The project will increase our understanding of how these battery systems are best integrated with the network. It will also help to ensure we are prepared for the evolving nature of electricity distribution networks.

It makes sense that we work with the wider industry on our Network Transformation programme, both collaborating with partners and sharing progress.

We have engaged with retailers, customers and manufacturers to help inform our network evolution strategy. Most recently, we have been working very closely with the Electricity Network Association (ENA) to develop its Network Transformation Roadmap. We will use this to ground our own strategy.

We proudly share our experiences and insights with the rest of the industry through industry conferences (such as Downstream and the Electricity Engineers' Association conference). We have also worked with the BusinessNZ Energy Council to develop energy scenarios through BEC2060.

We want to achieve the best outcomes for the industry – and for you, our customers!

Case Study

POWERING UP WHANGAMATA

The beautiful beachside town of Whangamata is supplied by a single 33,000-volt line running through some rugged terrain from Waihi. Historically it has experienced damage from severe weather, tree felling and several other asset failures. When damage occurs to that line, all power is cut to more than 5,700 properties. This is clearly a problem we want to fix for our customers.

To provide a more secure supply to Whangamata, we are installing a grid-scale battery back-up system. This is paired with a large-scale generator and bespoke network switching system, all designed to support supply of electricity to the Whangamata CBD in the event of a power cut.

Once successfully commissioned, we expect that Whangamata Central will be able to rapidly restore electricity supply to around 1,000 properties in the Whangamata CBD. It will continue to supply them while our field staff locate and repair the damage to the network.

During CPP - Year One, we completed the procurement process for the purchase and installation of the battery and diesel generator. We established a turn-key contract for the project, to limit our risk exposure. The scope of the project is significant, and a first for Powerco.

Civil works commenced in March 2019, with factory inspections of the battery undertaken in May and June. During CPP - Year Two, construction and commissioning of the battery and diesel generator will happen. Commissioning is currently planned for November 2019.

Thank you to the Whangamata community for your participation in this project. Powerco has consulted extensively with the business community in the area over recent years, and we've been pleased to engage with a range of stakeholders, including meetings with Enterprise Whangamata.

Additional information online

Managing Our Assets For You

We want to be the best. As proud asset managers we are always striving to learn from others and keep up with international best practice.

This is a good thing for you, our customers. You benefit from us applying global experience and a community of experts to the way we work.

In CPP - Year One we stepped into a brave new world and embarked on an ambitious work programme to increase our asset management capability.

STRIVING FOR CERTIFICATION

Central to this is our goal of being certified to ISO55001 – the international standard of best practice asset management. This would mean we can compare ourselves to external best practices and gain an objective view on which to build our skills. Initially, we measured ourselves by testing our current asset management capability. We got an independent external company to do a gap analysis, so we would get an unbiased view.
Now we are using those results to direct our ISO55001 programme.

Certification is an important milestone along our overall asset management improvement programme. We have started to use the results of the gap analysis as the basis for our longer-term continual improvement strategy.
Our team is committed to achieving ISO55001 certification by the end of 2020.

Case Study

DO WE MEASURE UP? ISO GAP ANALYSIS

We are very self-aware, because we need to be.

Regulation requires us to assess ourselves against the Asset Management Maturity Assessment Tool (AMMAT) self-assessment questionnaire. We have been constantly tracking ourselves against this since 2013.

The AMMAT assessment shows that we have constantly improved the way we manage our assets.
So far so good. However, we were only comparing ourselves with our previous performance.

In CPP - Year One, we engaged an asset management consultant to provide an independent external review of our asset management systems. They undertook a gap assessment as benchmarked against ISO55001. This allowed us to see how we performed compared to international best practice.
What followed was an honest reappraisal of our asset management maturity. We have reduced our AMMAT assessment in the areas of: corporate dissemination of strategy and objectives; competency management; asset management system documentation; information management; and achievement of continuous improvement.

However, we now have a clear understanding of what we need to do to achieve certification. We have reflected on feedback from the review, and can also see that we have achieved many improvements in asset management practices.

We will move forward with a strong focus and commitment to achieving best practice asset management.
We have also appointed a dedicated manager to coordinate and oversee our work towards achieving ISO55001 certification.

ASPIRATIONS

Alignment
Better alignment of our asset management strategies with customer and company objectives

Competency Framework
Targeted development of our staff to better manage our assets

Assurance
Continual assessment of the effectiveness of our investments

Governance
Formalisation of the collaborative approach required to manage the network

Incident Investigations
Quick understanding from incidents on our network and others

Investment Optimisation
Using advanced analytics to optimise our investments

Asset Information Strategy
Understanding the data required for us to get the most from our assets

Additional information online

GATHERING INFORMATION FOR OUR DECISION-MAKING

When we make decisions around fixing or replacing assets, we look to determine what will have the biggest impact on the network and improve outcomes for you, our customers.

We have recently expanded our use of Condition Based Risk Management (CBRM) models for our asset renewal fleet planning.

These models combine information on asset 'health' and the impact they would have if they fail. This is useful to guide us on setting priorities for fixing or replacement work.

We have developed CBRM models for several asset types and we're now considering doing more. They are also helping to inform our data quality improvement plans – providing insight into where the gaps are in our asset data.

Our team is continuing to improve and develop our fleet management plans and approaches, as we build our skills in this area. We're actively collecting information on our assets and comparing and benchmarking our practices against other electricity distribution businesses.

Our most recent plans and discussion of asset trends are summarised in our 2019 Asset Management Plan. We welcome your feedback on this plan.

STANDING STRONG

Reliability is a word we use a lot when we talk about improving our network, but equally another 'R' word is a focus for us – Resilience.

For our network, resilience is how it withstands and responds to events (such as extreme weather and natural disasters). And of course, the way it bounces back.

We are working to improve our network's resilience, through these initiatives:

- **Mobile substation** - we have commissioned the construction of a mobile substation, to minimise outages during maintenance or planned installation work. The substation will also be available for rapid deployment if a significant supply point fails (like in an earthquake, storm or floods).
- **Storm hardening** - this programme involves storm hardening work for critical sub-transmission and distribution lines in storm-prone areas. We'll replace or maintain structural components of these lines, to prevent storm-related damage.
- **Zone substation building reinforcement** - the seismic performance of our zone substation buildings is important for the safety of our team who work in them. It's also crucial that they stay fully operational in the event of a large earthquake, to maintain or quickly restore power to you.

We have assessed 123 of our zone substation buildings against the New Zealand Society of Earthquake Engineering (NZSEE) grades. The study showed that 54 of our buildings require seismic strengthening, and we are underway with this strengthening work now.

Case Study

CONDITION BASED RISK MANAGEMENT

Rather than put our finger to the wind, we are using Condition-Based Risk Management (CBRM) modelling to inform some of our asset management decisions.

CBRM is a modelling methodology that tests asset renewal forecasts, based on the combination of asset condition and risk. It's mature, widely-used, and now forms the basis of the UK regulator Ofgem's (Office of Gas and Electricity Markets) mandatory condition and risk reporting scheme.

Powerco has developed CBRM models for many of our key fleets. They bring together asset information, maintenance data, location, network and customer need, to provide a picture of what our next steps should be. This means we can see the current and future condition, performance and probability of failure of an individual asset. Our decisions are based on real data (which is encouraging).

Using CBRM modelling has allowed us to:

- **monitor the current network risk profile, as well as forecast future network reliability issues**
- **proactively manage possible safety issues**
- **be vigilant about possible environmental issues**
- **pre-empt possible financial blow-outs due to reactive replacement**

We have developed CBRM models for several asset types (including power transformers, circuit breakers, ring main unit and ground-mounted distribution transformers). We're now considering developing models for further asset types, including underground distribution cables.

CBRM modelling has also highlighted our need to improve our asset data and is helping inform our data quality improvement plans. There's always more to be done!

Additional information online

Getting The Data Right

As you may gather, we do not fly by the seat of our pants. We use information to make good decisions.

So, while we are working to improve your network, we are also seeking to capture better quality data about the network.

We are addressing this in three ways:

- **Data quality improvements** - We are focused on getting accurate data on an asset's physical attributes, condition and health, use and performance
- **Data management improvements** - We're improving the way we manage our data, through strong systems and appropriate ownership
- **Asset decision-making tools** - We are making use of our improved data quality to build our understanding of what you need and how our network and assets are performing

OUR STRATEGIC APPROACH

In CPP - Year One we have been focused on improving our data management and governance, looking to understand best practice.

We have established a Data Governance Group and a Data Governance Steering Committee (both led by Asset Management team representatives). These have a long-term mandate. They will ensure we develop and maintain a comprehensive data framework, including policies, standards and procedures. They'll also lead the implementation of data initiatives, projects and programmes.

We are now working on an Asset Information Strategy, which will help us decide where best to prioritise our data quality improvements.

The whole Powerco team has been involved in this, as it impacts on every function. The strategy will ensure larger data quality programmes will deliver the greatest benefit to you, and to our entire business.

Alongside these larger activities, we have also done some smaller data quality projects to learn more about our assets.

These include:

- Collection and verification of asset attributes for our ring main units
- Verification of conductor size information
- Verification of pole location and conductor clearance information, through Pole Top Photography and LiDAR

Powerco has been working hard on our New Foundations Programme, which centres around our new core business operational system (more information in the next section.) This programme will allow for many future data quality-related initiatives. Even in its earliest days, the data migration process will help to improve our data quality.

Good quality data impacts on so much. It opens up ways for us to improve your experience as our customers. We can provide you with better access to relevant information.

It's also essential for us to use digital solutions to meet your communication and information needs. Watch this space!

Case Studies

KEEPING YOU INFORMED: VIEW PLANNED OUTAGES ONLINE

You have said you want access to relevant information, and we have been listening!

It makes sense for you to be able to check whether there are upcoming power outages that will affect your property, so you can plan ahead.

Your retailer will still send you updates about planned outage timings, but now we are also putting the power in your hands.

Check out the Powerco outage **www.powerco.co.nz/about-us/power-cut-information/** to see any planned outages in the next 30 days that may affect your property, street or suburb.

It's yet another example of what can be achieved with better quality data and access to information.

IMPROVING OUR DATA WITH OUR NEW BUSINESS OPERATIONAL SYSTEM

As part of our New Foundations programme, we are implementing an Enterprise Resource Planning System (ERP)

To make this great new system work, we need to bring over large amounts of data from our legacy system. Achieving a successful migration relies on the data being of good quality (otherwise the system will reject it), so we have had plenty of work to do.

In CPP - Year One, our team has put significant work into cleansing our defect data. The new ERP system has data rules, like requiring that all defects are raised against an associated equipment record. The type of related equipment record also drives further rules for the defect record, like equipment type-specific failure trees.

Some older defects in our legacy system were associated to the wrong asset (for example, a defect associated with the nearest pole, but the pole itself is not defective). Or they were not associated to any asset (other than through free-text comment information).

Defects Cleansed In CPP - Year One

14,132

It's important to get all this right, for our new system to work. Data analysts have corrected many of these issues, fixing equipment associations and cancelling defects where the equipment has been re-inspected.

Once our new system is live, its improved data rules mean these issues will not re-appear over time. Data quality will also be improved from a more sophisticated mobile field application called MyPM (read about this on page 55).

Additional information online

New Foundations

We are getting an upgrade, and it's exciting (and a lot of hard work).

As part of our CPP delivery programme, we are replacing several separate legacy systems with our new core business operational tool - an Enterprise Resource Planning (ERP) system.

This will support us in delivering our works plan for you, well into the future. The implementation of our new ERP system is part of a wider programme, called New Foundations. This is about improving our overall business processes, to make things more efficient for our Powerco team and contractors. It means better systems, availability and capture of data in the field, and using a wide range of asset management tools.

We don't shy away from a challenge

Of course, implementing a new system that impacts on the entire business is not easy. The 'go-live' date of our ERP implementation has slipped from late 2018, to September 2019. The delay is disappointing but unavoidable. We want to do things in the right way, not just the quickest way. There have been many hurdles in Phase One but we have jumped over them.
We needed to get accurate historical data to migrate, work out the many and varied complex interfaces of our existing systems, get GIS (geographic information system) and ERP to 'talk' to each other, and ensure the field mobility product was ready for use.

Despite all this, the scope and functionality of the system has not been compromised. In fact, in some areas it has been enhanced. Full integration between our outage and fault systems and ERP was included in Phase One, which is good news for you, our customers. It will streamline fault management and allow us to better react to unplanned outages, to get your power back up and running.

Where possible, the system and process design has followed industry best practice ERP implementation for utility companies. When we developed the ERP detailed design, we reviewed, simplified and aligned all our business processes to meet best practice standards.

Going forward, we'll be focused on making sure the implementation works well. This means having good training and getting all our Powerco team and service providers used to the system and new ways of doing things. Lucky we are quick learners!

Seeing the benefits

Over time you'll begin to see the positive impact of our New Foundations programme. Benefits will come from improved delivery of field work and more effective fault response.

The 'field mobility tool', MyPM, connects field crews with our ERP system. We can send work to our field crews and then they can identify other work in the vicinity, using the data at their fingertips.

This means they can do more when they are on site. It's a big driver of improving efficiency, with a direct benefit to you, our customers. Your safety will also be improved, as we can better manage and understand the condition of our assets.

In time, the improved visibility of our work will enable contractors to better plan work and keep the cost of delivery as low as possible.

Also in the longer-term, improved data and analysis of our assets' condition will mean we make even better investment decisions. Ultimately, we want to see higher reliability and lower relative costs to you and all our customers. We know you want this too!

Planning is now well underway for New Foundations - Phase Two. An important part of this will be using a new asset investment planning system. We have already started the work to use Copperleaf C55 – an industry leading investment optimisation tool.

There is other functionality still to be delivered by New Foundations. This includes management systems for HSE (Health, Safety and Environment), Quality Management, Human Resources, Treasury, Customer and Billing. The timing and approach for delivering on these functions is currently being finalised.

These investments will deliver further benefits to you. Both by streamlining how we operate as a business, and by improving our information, we'll be able to make better decisions for your network.

Case Study

MYPM: BRINGING DATA INTO THE FIELD

A core feature of New Foundations is the MyPM field mobility tool, which will change the way our field crews work.

MyPM will operate on any mobile device and will even work in areas with no data coverage.

MyPM provides important asset information in the field, with a mapping interface (it's very clever). Asset inspection data, including photographs and GPS location, will flow directly from the MyPM field device to our ERP system. They 'talk' to each other, and update in real time.

All relevant asset information will be available to the person performing the inspection. It comes to where they are and flows back to us again. This will enable continuous improvement of our assets and asset condition data.

Fault and defect data will be readily accessible, which will mean more efficient work planning. The location of other defects in the vicinity will be readily searchable.

Additional information online

Investment

PUTTING THE RESOURCES IN WHERE THEY'RE NEEDED MOST

Our Investment For You

We always knew that major investment was going to be needed to deliver on our CPP commitments to you, and the Commerce Commission agreed.

Our investment proposal included an increase in both capital expenditure (Capex) and operational expenditure (Opex), so we could achieve the work required to provide a safe, secure and resilient network for you.

We are very aware that this increase in investment is funded through electricity prices, and we need to minimise these price rises for you while ensuring appropriate and efficient investment. As you have read, we have invested in the network directly (with asset renewal, growth and maintenance) as well as in supporting areas (such as ICT and facilities investments).

Capex increased 22% relative to FY18, and Opex increased 22%, reflecting the considerable extra work completed. Further detail on our expenditure in CPP - Year One is shown here in these tables.

CAPEX

▲ 22%

$000's	Actual	CPP Plan	Var	% FY18
Capex	187,033	180,867	(6,165)	24%
Renewals	88,229	82,721	(5,508)	27%
Growth and Security	61,267	63,720	2,454	30%
Other Network (CIW and Network Evolution)	14,254	12,767	(1,487)	4%
Non-Network (ICT and Facilities)	23,283	21,659	(1,624)	13%

OPEX

▲ 22%

$000's	Actual	CPP Plan	Var	% FY18
Opex	87,760	92,385	4,625	22%
Maintenance	30,575	32,408	1,833	22%
Vegetation	10,589	10,367	(222)	68%

You will note that we spent more Capex than our approved expenditure allowances. This was primarily in the renewals area, because we increased our focus on fixing defects. It was partially offset by lower investment in major projects, as slower progress on design and land access than we expected meant some works were deferred to future years.

We invested more in our communications network in CPP - Year One to allow for a fibre link between New Plymouth and Palmerston North. Consumer connection investment was also higher than anticipated, due to strong continued growth and more complex connections required in our network areas.

In terms of non-network expenditure, overall this was greater than CPP allowances because the construction of our new Network Operations Centre was later than originally anticipated.

In CPP - Year One, our Opex was lower than allowances. This was mainly because our focus was on testing and evaluating the technology for additional preventive maintenance activities, such as our Pole Top Photography programme. We are keen to ramp up their implementation in CPP - Year Two.

Case Study

MORE CONSUMER CONNECTIONS THAN EVER BEFORE

We know you want to be connected! Demand keeps going up for new electricity connections, and our investment in this is supporting strong economic growth in our communities.

Powerco has had to increase our investment in consumer connections above what we had planned for in our CPP programme. Our original proposal anticipated consumer connection costs at levels much higher than previous years, but in CPP - Year One we have already had to go beyond this, with consumer connection expenditure (net of contributions) 15% higher than planned.

This increase in cost is being driven by a larger number of more complex connections, particularly in industrial and commercial developments in Tauranga and Manawatu.

There has also been an increase in subdivision work, primarily in the Bay of Plenty and Manawatu also.

We are pleased to be able to bring power to so many, and support this growth in our cities and regions.

Additional information online


POWERCO
part of your community