Gas Asset Management Plan

Update

2022

POWERCO

Contents


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OF THE
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1. Introduction

Purpose of the document

Powerco's gas network provides a valuable service to many households and businesses across the North Island of Aotearoa New Zealand. As long-term stewards of the network assets, our aim is to deliver a safe, sustainable, efficient and reliable gas supply for customers. We strive to deliver exceptional service, and this influences our overall attitude, priorities, and day-to-day activities.

Gas energy has a bright future in Aotearoa New Zealand. For tomorrow's energy we'll look to new gases, such as hydrogen and biogas, to energise our homes and businesses. Importantly, we see the transition to 2050 net-zero as presenting significant opportunities, while we also acknowledge the challenge it presents for our gas business if we remain static in our approach. Natural gas and future gas mixes combined with our gas network, are enablers of renewable and sustainable energy options of the future. That's why we believe the continued investment and innovation in our gas network assets, alongside the exploration of future gas mix options, will support Aotearoa's journey to a net-zero energy future.

The purpose of this 2022 Asset Management Plan Update (AMP Update) is to inform our stakeholders and customers about the material changes to our most recent full AMP, published in 2020. This AMP Update covers the 10-year planning period from 1 October 2022 to 30 September 2032. The material changes presented in this AMP Update are driven by our cultural framework Ngā Tikanga – Our Way, which guides us as we work to achieve our purpose of connecting communities. Nga Tikanga, shown in Figure 4, aligns our purpose, our values and how we work with each other, our communities and industry stakeholders to ensure we're better together, work smarter, proud to be here and future focused.

The material changes described in this AMP Update are where a project has been (relative to the 2020 AMP):

- Identified because of condition or some other reason that was not identified in the 2020 AMP
- Accelerated, ie scheduled capital expenditure (capex) and reactive capex
- Deferred (rolled-over)
- Cancelled as the need is no longer required or because of a significant change in scope, ie slower than anticipated growth has removed the need for some projects
- Reprioritised due to reduction in capital renewal expenditure requiring reprioritisation of specific programmes of work.

Schedule 13 Report on Asset Management Maturity remains unchanged since the 2020 AMP.

For more detailed information on how we manage our gas assets over the long term, please refer to the 2020 AMP here.

This AMP Update was certified and approved by Powerco's Board of Directors on 19 September 2022.

Compliance with information disclosure requirements

This AMP Update complies with the Gas Distribution Information Disclosure (ID) Determination 2012 (consolidated in 2018). We have structured this document to enable the reader to easily match the contents with the disclosure requirements.

The specific requirements and the contents of the AMP update are included in clauses 2.6.5 and 2.6.6 of the ID Determination. The AMP Update must:

- Relate to the gas distribution services supplied by the gas distribution business (GDB)

- Identify any material changes to the network development plans disclosed in the last full AMP or in the last AMP update
- Identify any material changes to the lifecycle asset management (maintenance and renewal) plans disclosed in the last full AMP or in the last AMP update
- Provide the reasons for any material changes to the previous disclosures in the Report on Forecast Capital Expenditure, set out in Schedule 11a, and Report on Forecast Operational Expenditure, set out in Schedule 11b
- Identify any changes to the asset management practices of the GDB that would affect a Schedule 13 Report on Asset Management Maturity disclosure
- Include the reports set out in Schedule 11a, 11b, 12a, 12b, 12c and 14a, respectively related to:
  - Forecast capital expenditure
  - Forecast operational expenditure
  - Asset condition
  - Forecast utilisation
  - Forecast demand
  - Nominal and constant price and operational expenditure.

This AMP Update is designed to meet disclosure requirements. In the interests of brevity, we have not attempted to duplicate the more explanatory style of the full 2020 AMP.

Structure of the 2022 AMP Update

This AMP Update has five sections:

- Section 1 introduces the document
- Section 2 discusses the changes in our operating environment, the value of gas in the New Zealand economy, and the potential we see for gas distribution looking towards a 2050 net-zero future
- Section 3 discusses the material changes in the asset lifecycle and network development plans published in Sections 4 and 5 of the 2020 AMP
- Section 5 provides the justification for the changes in the expenditure forecasts
- Section 6 provides schedules 11a, 11b, 12a, 12b, 12c and 14a

2. Our transition to 100% green gas

2.1 Introduction

Gas has a significant role to play in enabling Aotearoa's net-zero energy future. Gas reticulation supports the transition to other renewable sources of energy. It also has an exciting future role in the transportation of green gas and biogas. This means the transportation and reticulation of gas for our customers and consumers will continue to play an integral part in Aotearoa's energy future and low-emissions economy.

The government's first Emissions Reduction Plan, released in May 2022, acknowledged gas fired generation and process heat will be needed after 2030. Actions from The Emissions Reduction Plan include[1]:

- The development of a Gas Transition Plan by the Ministry of Business, Innovation and Employment (MBIE) and the Gas Industry Company[2]
- Development of a New Zealand Energy Strategy by 2024
- The investigation of low-emissions energy supply options for renewable gas and bioenergy to support future emissions reduction
- The development of a Hydrogen Roadmap.

The government's Gas Transition Plan and Hydrogen Roadmap will provide key inputs into the Aotearoa New Zealand Energy Strategy. The Energy Strategy is being developed by the government to achieve its vision that by 2050 Aotearoa New Zealand has a highly renewable, sustainable, and efficient energy system that is accessible and affordable, secure and reliable, and supports New Zealanders' wellbeing. It will be important for understanding how we transition the capability of our gas infrastructure assets over the long term.

We consider this means that continued strategic investment in our existing infrastructure, with full consideration of future gas mix options, is critical for supporting the energy transition towards a net-zero 2050 future and for continuing to meet our customers' needs and connecting communities.
Continuing to maintain and, over time, repurpose our existing infrastructure will ensure access to supply is preserved. During the past 12 months, we have increased our focus to identify areas where we can enhance our gas infrastructure assets to enable the transportation of different gas blends, such as supporting demonstration projects using biogas and hydrogen blended with natural gas. This will enable a sustainable energy future.

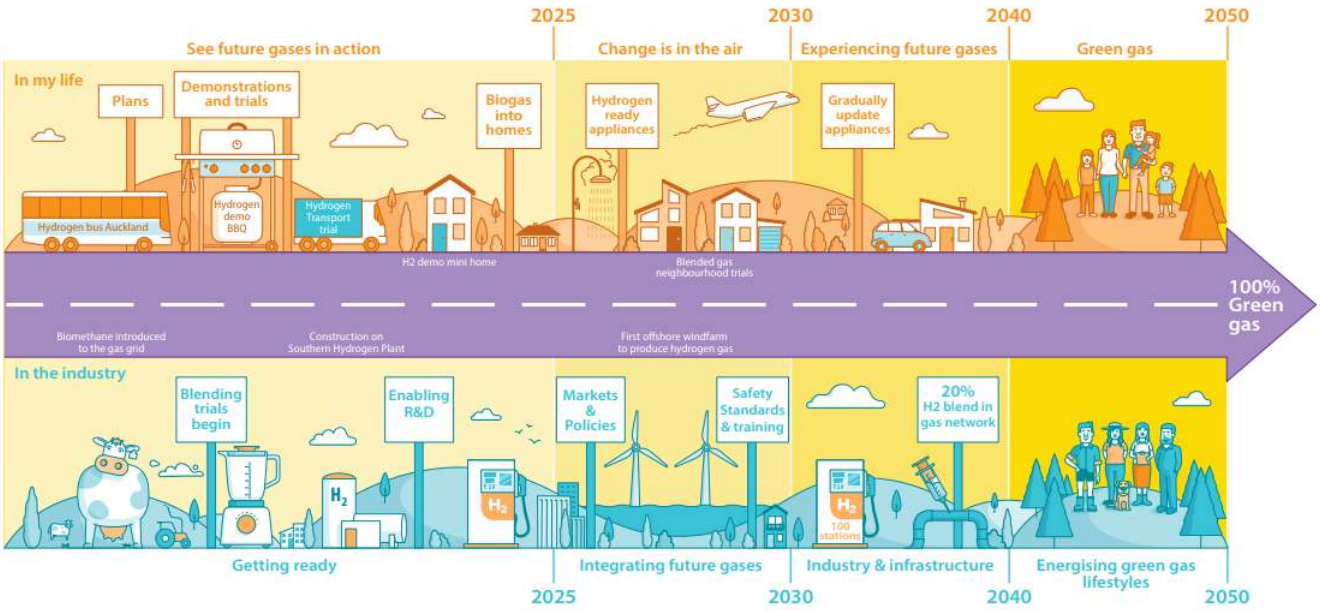
2.2 Transition to 100% green gas

As the focus of customers and policy makers moves towards decarbonisation, natural gas remains an integral part of the energy mix to meet future energy needs, and is the perfect complement to the renewable energy system of the future. To support Aotearoa New Zealand to decarbonise, we have developed our own roadmap to 100% green gas. Our roadmap in Figure 1 centres on repurposing the gas network to enable distribution of mixed gases, such as biogas and hydrogen, including initiatives that will support the transition.

[1] Summarised from page 216 of the May 2022 Emissions Reduction Plan.

[2] Public consultation on the gas transition plan is expected around mid-2023 before it is finalised and published in the second half of 2023.

Figure 1 – Roadmap to 100% green gas



Our intention is that our roadmap to 100% green gas will become a living document that will be updated and adjusted as opportunities and challenges are identified, or when a change in direction, strategy or initiative is required.

2.2.1 Key steps within the roadmap

Getting ready from 2022 to 2025

As we begin the journey, transitional work focuses on continuing to build confidence in gas use for our customers, promoting concepts, and building interest by establishing support and partnerships to enable renewal and development funding. Work will begin on scoping requirements in the context of Aotearoa New Zealand's regulatory, commercial, and technical needs. We will also begin testing concepts and looking towards developing commercial markets.

Integrating future gases from 2026 to 2030

We will leverage our opportunities through community trials conveying blended green gas in our networks to customers in specific neighbourhoods. In parallel, we will be testing and implementing consumer solutions, such as consumer appliances and commercial boilers, while looking to assist with the provision of green gas to fuelling stations for heavy transport.

Industry and infrastructure from 2031 to 2040

We will maximise blending opportunities, combining green gas with natural gas using existing infrastructure across sections of the network. For our customers, they will experience blended green gas in their homes and hydrogen ready appliances.

Energising green gas lifestyles from 2041 to 2050

We will work towards full transition to renewable green gas energy and phasing out of natural gas across the network.

2.3 New technology and strategic investment

Investment in new technology enables a continued focus for improvements in safety and efficiency across existing networks. These investments also support the assessment of network capability to transition towards decarbonisation with green gas options, including:

- The purchase of vehicle-mounted leak detection equipment to improve the frequency of detecting and monitoring leaks on the gas network.
- The purchase of new data loggers that measure network pressure. These will replace the existing fleet, which will become obsolete from 2025 when the 2G cellular network is decommissioned. We will install and test a set of new units in FY23 prior to investing in the replacement of the entire fleet.
- The purchase of LokRing equipment and fittings to improve safety and efficiency when completing maintenance and repair work on the steel network.
- The replacement of Microstop equipment parts, enabling us to improve safety by stopping the flow of gas while working on small diameter steel networks.
- The smart meter project is in place to deliver the replacement of 45,000 meters for Genesis gas customers. The installation of the Smart Meters will allow Genesis (the contracted retailer) the ability to capture and record customer data daily and remove the need for any estimated data reads. The project is underway due to be completed at the end of 2024, increasing our residential meter fleet by 20,000 meters.

Initiatives directly related to our roadmap to 100% green gas are:

- In partnership with New Zealand GDBs, we are participating in a hydrogen blended (1%-15%, with natural gas) demonstration project on our existing Waverley pipeline.
- Supporting tertiary research institutions, such as Victoria and Otago universities, which are investigating carbon zero technological changes through MBIE-funded campaigns.
- Undertaking a Future Sure marketing programme to continue to build confidence for new and existing customers about the future of gas, and that natural gas mix options are critical to supporting a 2050 zero carbon future.
- Participating in partner roadshows demonstrating a hydrogen BBQ and building confidence with industry partners including developers, service providers and gas fitters.
- As a member of the Gas Association of New Zealand, we are a representative on the Technical Standards Committee to support the review and development of the national standards framework to enable distribution and consumption of hydrogen using existing infrastructure in Aotearoa New Zealand.
- Partnering with the Ecogas Waste to Energy project in the central North Island where organic waste is transferred from Auckland and processed through a digestor. This project is estimated to produce a volume of biogas by 2023 to support 9000 homes. As part of this work, we are exploring market opportunities to make this available to the consumer sector, and opportunities to obtain national green gas certification.

2.4 Sustainability and managing our green gas future

To us, sustainability extends beyond our assets. It means balancing the needs of the communities we work in, our environment, and the financial health of our company. Sustainability underpins how we do business.

Although we've been implementing sustainable practices for some time, our focus this past year has been on bringing them all together as part of a cohesive, business-wide strategy. Like us, our customers and stakeholders care about sustainability. Reporting on our sustainability responsibilities not only creates transparency and holds us to account, it also gives our customers and stakeholders confidence that we're moving in the right direction. We annually publish sustainability targets and progress updates, as well as our full audited greenhouse gas emissions inventory report that can be found on our website here.

Examples of sustainability initiatives we are working on include:

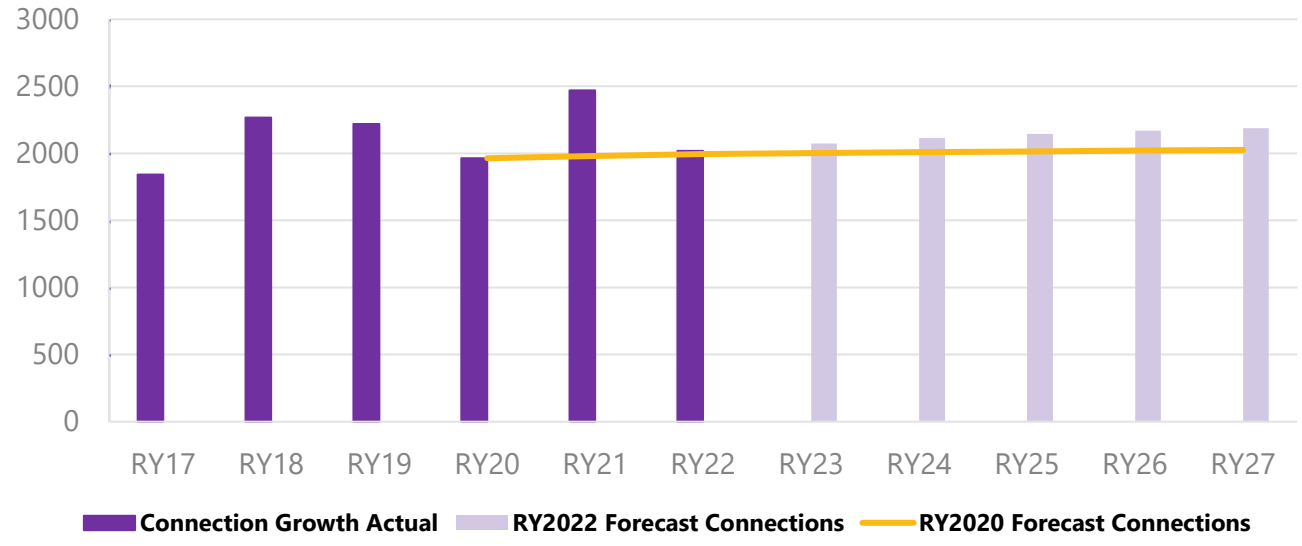
- Participating in the joint industry demonstration of alternative gas mix options using hydrogen. This initiative investigates how we can use our existing gas pipelines and infrastructure to distribute hydrogen mixed with natural gas, creating a lower carbon gas mix, to homes and businesses. Working collaboratively with the GDBs, this work will establish safety and other requirements for transitioning the gas distribution network for the transportation of a blend of hydrogen.
- Supporting tertiary research institutions, such as universities investigating technological changes (through MBIE funding) that will support a sustainable transition to carbon zero, to improve our understanding of the use of carbon in our network and maximising the knowledge gained.
- Ensuring we source our assets from responsible suppliers, using sustainably sourced materials.
- Undertaking a feasibility study to understand if the gas business could set a more robust asset-based emissions reduction target using the MarcoGaz Model (for calculating natural gas pipeline loses), including third party incidences and leak survey data. We will use this information to adjust processes to reduce natural gas loses as much as possible.
- Working on understanding our climate related risks and opportunities to enable better resilience and robust reporting disclosures such as the Task Force on Climate-related Financial Disclosures.
- Preparing our emissions offsetting programme in line with our values-based principles.

2.5 Customer gas connections

Customer connections comprise new greenfield connections and reconnections. During RY21, we saw a significant increase in connections that were delayed because of COVID-19 lockdowns. Following this catch-up period, greenfield connections have remained steady, while the volume of reconnections has decreased. While uncertainty in the future of gas and green energy solutions are common themes raised by customers, these themes are not transferring through to a decline in customer connections.

Figure 2 shows the historical and forecast number of new customer connections by regulatory year (RY). Our regulatory year ends 30 September.

Figure 2 – Gas connections, historical and forecast



Other key considerations we face during the transition to net-zero emissions by 2050 include:

- The ability to enable green gas capability to support continued network use.
- The speed at which new and existing commercial and residential consumers may choose alternative sustainable energy solutions, such as distributed generation versus hybrid bundled solutions, such as electricity and gas.
- The speed and direction of policy change. Current regulatory settings don't support the reticulation of mixed gas blends, such as hydrogen mixed with natural gas. Potential changes to the Gas Act 1992 and standards to include the introduction of alternative fuels, such as hydrogen and biogas, may not be known until the end of 2023/24.
- Understanding the capability of our assets and the level of long-term investment required to repurpose our existing infrastructure, or the new investment needed, to enable the transportation of different gas blends.
- Beyond the current customer sentiments, there are also specific challenges that will affect future demand for gas, gas connection and network utilisation.

However, we remain focused on ensuring we maintain our existing infrastructure to an appropriate level to meet customers' needs, and continue to invest where it is economic, ensuring we play our part in supporting the transition to transportation of mixed gas blends.

2.6 Regulatory and legislative changes

The market and policy environment within which we operate our gas network has changed significantly over the last five years. This has translated into changes to the economic regulation of our business. In May 2022 the Commerce Commission reset our revenues along with all gas network businesses making two key changes: a four year reset period (normally five) and implementing a dynamic approach to setting the remaining life of network assets. These changes are intended to work in tandem to reflect a combination of short-term and long-term factors and the tension between them. For example:

- Gas is an essential energy source for many homes and business, and further investment is required to continue to provideing safe and reliable networks (as this AMP demonstrates)
- At the same time, there's an increased risk of network assets being 'stranded' in the long-term as a result of policy settings decrease the demand for our network.

We are actively engaged with the Gas Transition Plan which is due to be finalised in late 2023. It is likely to set waypoints and/or tipping points that will influence the medium and long-term role our network can play in New Zealand's decarbonisation journey balancing security, reliability, and affordability of energy.

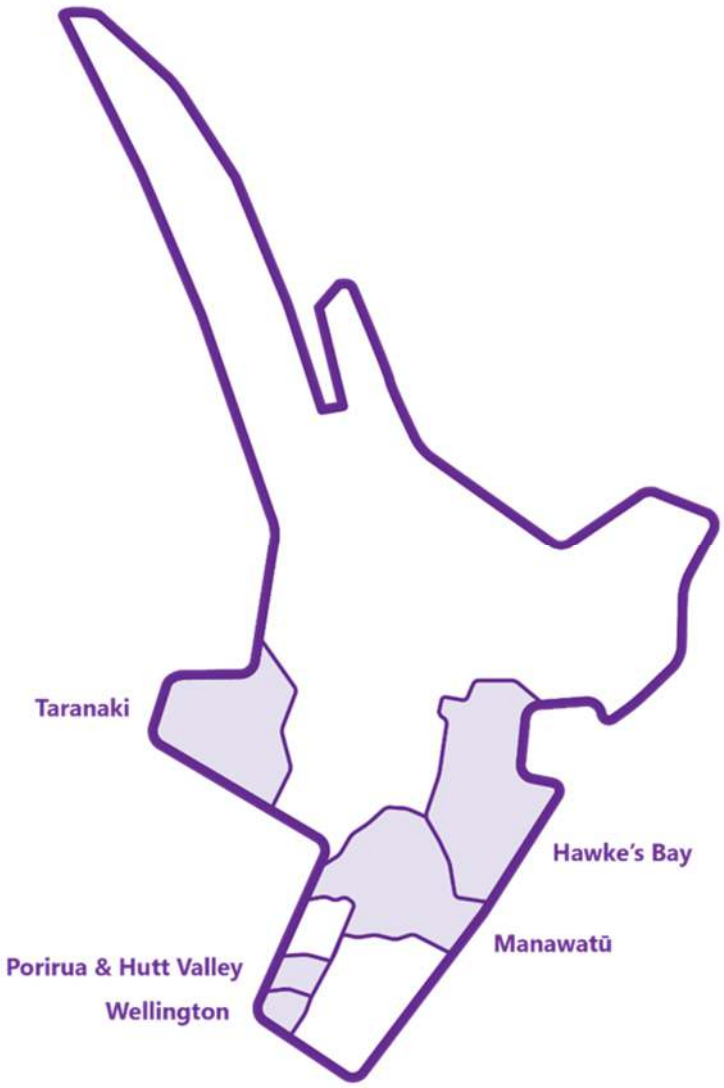
3. Our 2022 Asset Management Plan Update

3.1 Our network and investment priorities

We are not defined by our assets, but we are defined by our culture, which delivers a better energy future to our customers. We put our customers at the centre of everything we do and work in their interest to connect communities. This includes enabling a sustainable transition to a net-zero energy future.

We are one of New Zealand's largest gas distribution utilities with approximately 6000km of pipeline feeding more than 110,000 customers. Our network consists of 35 gas distribution sub-networks over five regions, covering Taranaki, Hutt Valley, Porirua, Wellington, Horowhenua, Manawatū and Hawke's Bay, as shown in Figure 3.

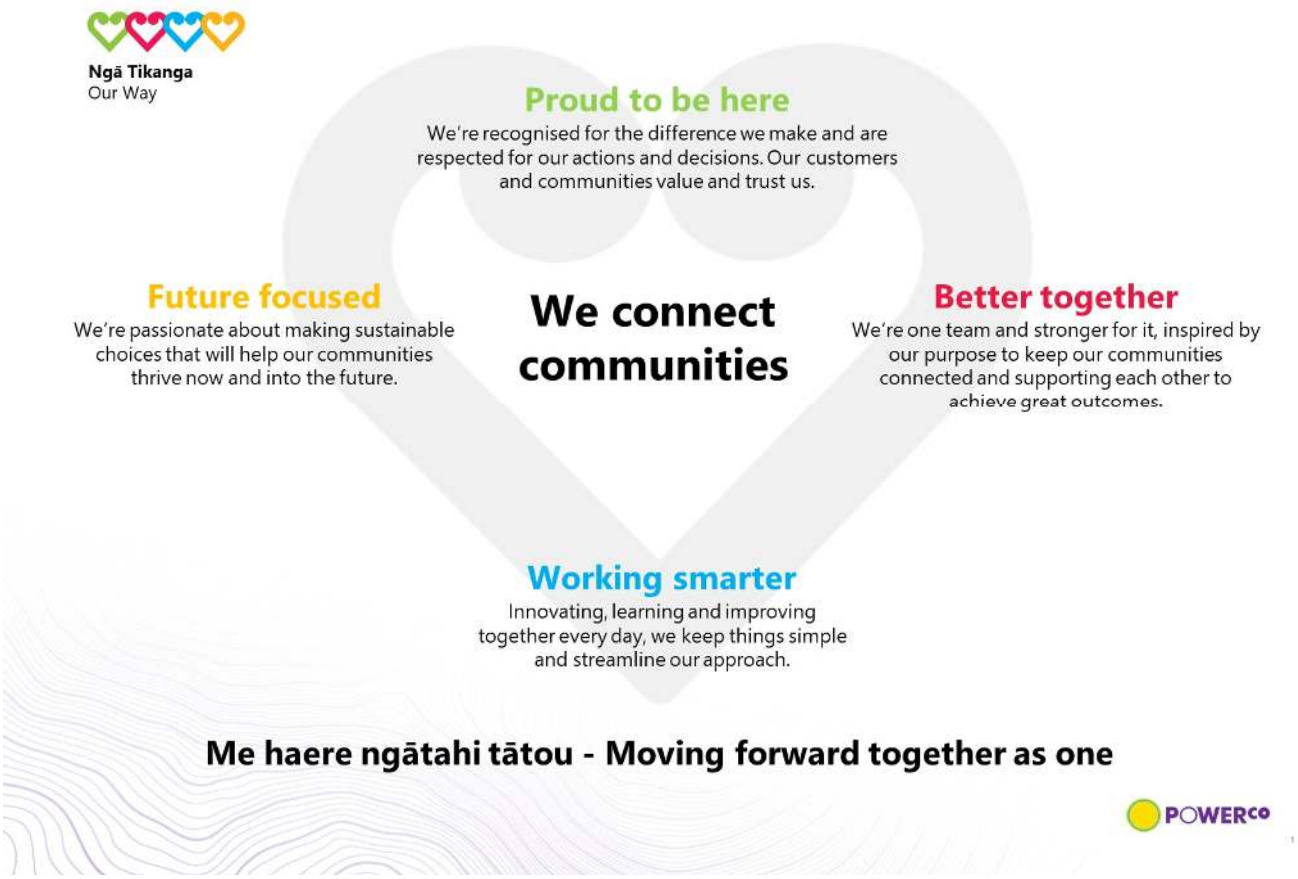
Figure 3 – Powerco gas distribution network boundary



Our key value drivers are safety, delivery, reliability, efficiency, and partnership. In line with our long-term approach to asset management, investment in our gas network reflects our guiding philosophy of moving forward together as one.

The material changes presented in this AMP Update are driven by our cultural framework Ngā Tikanga – Our Way, which defines what we value and how we behave with each other, our communities and our industry stakeholders. Ngā Tikanga, - Our Way as shown in Figure 4, aligns our purpose, behaviours and approach to ensure we work more collaboratively, and is underpinned by the following values:

Figure 4 - Ngā Tikanga – Our Way



3.2 Proud to be here

We are proud to be serving our communities' energy needs. In our latest customer survey, our customers told us the main reasons they chose to install gas was because they value having continuous hot water and prefer cooking with gas. To measure how content our customers are, we asked our new customers if they would recommend others connect to gas. By subtracting the number who said they would not recommend connecting to gas from the number who said they would, we calculated our Net Promoter Score (NPS). The NPS is unitless and is in the range of -100 (indicating a dissatisfied customer base) to +100 (indicating a content customer base). The polling for the NPS is undertaken by The Gas Hub, which is Powerco's dedicated customer and commercial team who guide our customers though the gas connection and installation process.

Our latest customer survey resulted in an improved NPS for the 2022 financial year (please refer to Table 1 for more details). This score reflects that most new connection respondents are satisfied with The Gas Hub connection process. The rating of +63 for natural gas as an energy source and +55 for The Gas Hub shows we are serving our communities' energy needs effectively.

3.3 Better together

At Powerco we're one team, inspired by the purpose to keep our communities connected. This enables us to work more safely and efficiently. Working better together allows for innovation to develop and capability to grow for the benefit of our customers. We consult with internal and external stakeholders to prioritise a list of potential capital works projects based on our key value drivers. We use the feedback from the consultation, in conjunction with our value drivers and network and asset lifecycle strategies, to identify three to six years of specific projects. The approach of selecting specific planned projects three to six years out strikes a balance between keeping long-term plans flexible, while allowing visibility of works over coming years.

Enabling electrification towards greater renewable energy sources is another opportunity we have to partner with our internal stakeholders. Working together we can align the gas asset and investment strategy directly with that of our electricity business, via the process to develop the 2023 Electricity Asset Management Plan. This will ensure that future gas and electricity planning assumptions are aligned.

In addition, working well with our partners is an opportunity to improve our processes and systems, enabling better outcomes for our customers to connect communities and achieve our shared goals through a strong, positive and collaborative working relationship. We are launching a working better together programme to further develop relationships with our partners to create a joint vision identifying what we need to put in place to create our desired future state to enhance outcomes for our customers.

3.4 Working smarter

Changing the way we do things by utilising technology and software tools has enabled us to work smarter, both reducing significant overhead time and contributing to ongoing asset management improvements. The development of a bulk capitalisation tool for high-volume domestic connections has enabled us to achieve this goal. The tool automatically allocates assets, such as services and risers that are built as part of new connections, with an appropriate asset value. This tool has freed up significant resource within the operations team given the 2000+ residential connections capitalised annually. Work order capitalisation was previously a time-consuming task that needed to be split over four employees. Now that the bulk tool is available, only one person is required to undertake the task, and the task now takes about 1/16th the amount of time.

We have created a Projects and Process Performance team within the Operations team. This team has been created to re-align processes within the gas team to derive operational efficiencies. Initiatives are under way that will reduce the amount of field and office-based paperwork to document fault responses and reactive repairs. Further planned initiatives will ensure consistent information comes back from scheduled maintenance activities across the regions.

In addition, we are working on an initiative that will improve our ability to extract bulk data and reports from SAP (our core asset management system). This will be used to improve the quality of data for our condition assessments, summarised in Schedule 12a, by extracting inspection and defect data from the network. Currently, for most assets (stations and valves), condition assessments are assumed based on asset age and what assets are scheduled for replacement in coming years. This improvement, made possible by the implementation of SAP and development of the new tools to extract data from SAP, will create a more mature condition-based methodology.

3.5 Future focused

Our world is changing rapidly, and we are considering how to support and enable a sustainable transition to a low-emissions energy future. Figure 1 (our roadmap to 100% green gas) outlines how we are considering lower carbon options.

As part of the Commerce Commission's 2022 GDB Default Price-quality Path (DPP) reset, we have undertaken a significant amount of work to revise the risk and cost associated with the ownership of Pre85 pipe, and reprioritised our programme to complete specific projects that meet the criteria for replacement up to 2027. This is in consideration with leakage rate and the capability of our infrastructure to convey future blended green gas in our networks (refer to Table 8 for the revised programme).

3.6 Our service levels during the past 12 months

We have quality standards and have set additional targets that help drive performance improvements and measure our progress in delivering a reliable, safe and high-quality service for our customers and communities.

Table 1 refers to some of the key performance indicators (KPI) we report on for ID:

- Our most recent KPI scores are reported in the RY21 column of the table
- The trend column represents the movement in the KPI between RY19-21
- The target column refers to the score we set to achieve over the next 12 months.

Table 1 – KPIs for our gas distribution network by regulatory year

Measure of Asset Management Objectives	RY19	RY20	RY21	Trend since RY19	2023 Target
Number of third-party damage incidents (per 1000km)	59.6	50.4	53.9	↓	55
Response time to emergencies* (percentage within one hour)	94.74%	98.25%	98.70%	↑	95%
Percentage emergency calls answered within 30 seconds	94.9%	95.0%	94.1%	→	90%
Medical treatment injuries and lost time injuries (per annum)	7	2	5	↓	0
Net Promoter Score (-100 to 100)	+52	+59	+56[3]	↑	+60
Customer complaints (per annum)	34	30	30	↓	45
Asset Management Maturity Assessment Score (number between 0-4)	2.8	2.8	2.8	→	2.8
Poor pressure events (per annum)	3	2	4	→	10
Network leaks (number per 1000km)	74.2	79.11	82.35	↑	100
Customers affected by supply interruptions because of component failure (number per annum/1000 customers)	3.3	2.2	4.2	→	10
Non-compliant odour test reported (per annum)	1	4	0	→	5
Percentage of market-tested expenditure	91.6%	81%	86%	↓	90%
Contractor KPI performance (score 0-100)	92.9	95.6	96.3	↑	90

*Quality measure under Default Price-quality Path (DPP)

In the past two years, we note that:

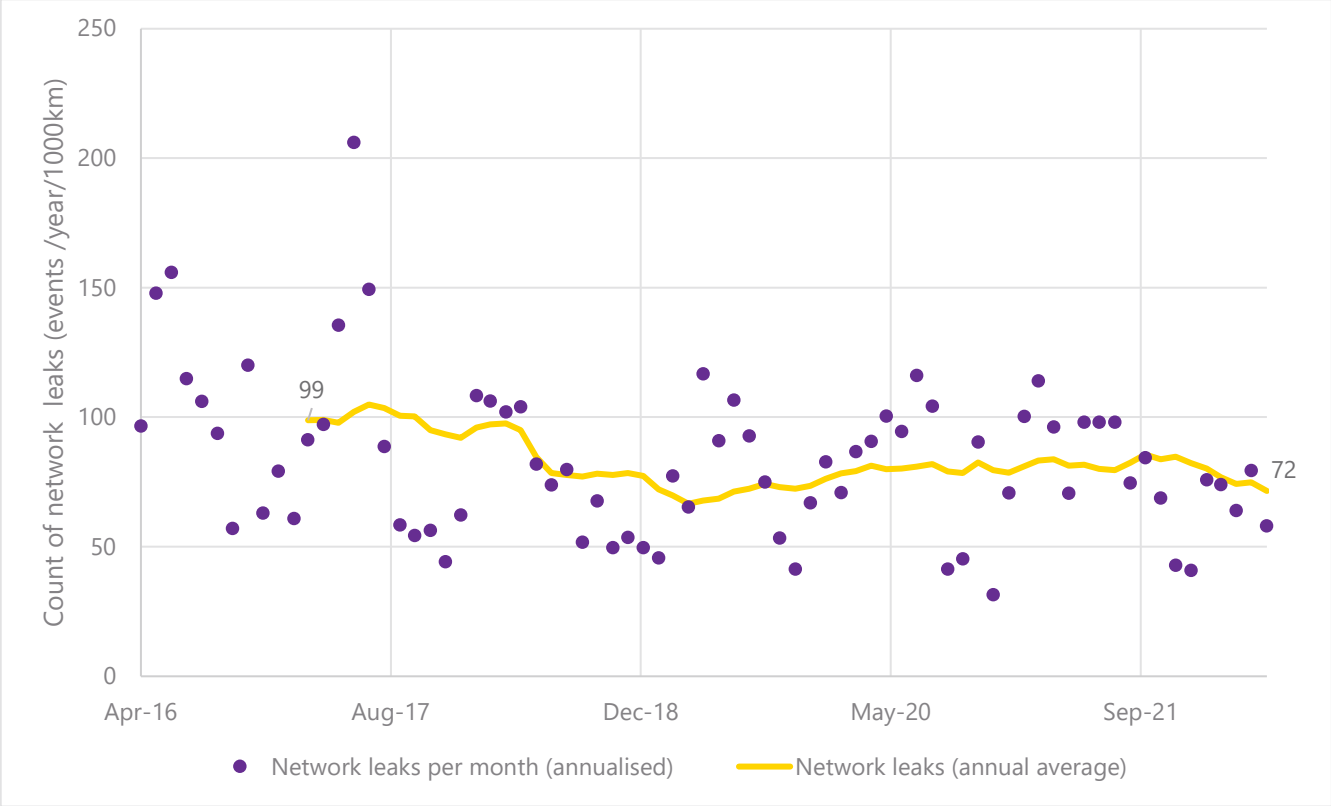
- **Third-party damage incidents**: There has been an improvement of 9.6% since RY19. However, the overall trend remains flat during the past decade.
- **Response time to emergences:** The result shows an improvement since 2019. Aside from 2019, we have met our target levels of >95% every year since 2014.
- **Medical treatment injuries and lost time injuries:** The result continues to trend down, which reflects our increased focus on safety reporting as we continue to strive for zero injuries.
- **Asset Management Maturity Assessment:** Our current score is 2.8. We intend to improve this by reviewing and further developing our suite of asset management documents in time for our next full AMP in 2024.
- **Network leaks:** We have observed an increase in the number of network leaks since 2019. However, the volume of leaks remains in line with the historical average, as shown in Figure 5. While we expect to see a similar trend in the future, we are purchasing vehicle-mounted leak detection equipment (refer Section 2.3 –

[3] The 2022 financial year result for the NPS is +55

New technology and strategic investment) to improve our network leak information, planning and reporting accuracy.

- **Percentage of market-tested expenditure:** We have observed a slight downward trend in the last two years due to the delivery of scheduled capex Wellington based projects Gotham Sector 3 and 4. While these were large projects, they were specialist in nature being sole sourced to the incumbent field service provider based on rates agreed through tender of Gotham Sector 1 and 2 stages. However, all work carried out under the Gas Field Service Agreement (GFSA), was market tested at implementation of the current contracts in 2018 and arrangements we have in place retain competitive price drivers through the contract period by means of prescribed competitive price adjustments. We expect to return to our targeted market-tested expenditure within the planning period.
- **Contractor KPI performance:** In the past two years, our service provider relationships and performance have remained strong. This is reflected in our core metric, contractor KPIs. The KPIs across our service providers continue to exceed minimum requirements and, for commercial sensitivity, are shown as average values in Table 1.

Figure 5 – Network leak trend 2016-2022



3.7 Changes to asset management practices

There have been no material changes to our asset management practices since our 2020 AMP. However, continuous improvements are ongoing, such as acquiring new stoppling and leak detection equipment, and the development of a bulk capitalisation tool for high-volume domestic connections (refer to Section 3.4 – Working smarter).

While the electricity business achieved provisional ISO55001 certification during FY21, the extra cost to obtain certification for the gas business and to maintain that certification was deemed prohibitive. However, we are starting the process of aligning the gas business asset management system to the ISO55001 requirements.

Examples include the rollout of a technical competency framework as well as the introduction of a new documented information management standard. As part of this we are working closely with our electricity business to adopt the processes and documentation they implemented.

4. Material changes

4.1 Introduction

This section provides an overview of the material changes since 2020 to the Asset Replacement and Renewal (ARR), Growth (GRO) and Quality of Supply (QOS) network development plans. Planned works have been separated by special work programmes and region.
The year in the tables below refers to the financial year unless stated otherwise. The year is the forecast completion date for future projects, or the actual for completed ones.

4.2 Material changes to special programmes and projects

Special programmes include intermediate pressure (IP) and medium pressure (MP) isolation upgrades, pre-1985 polyethylene pipes (Pre85) upgrades, and cathodic protection (CP) renewals. Following a review, we have also made material changes to our station design standard. Each of these are described below.

4.2.1 Material changes to station design standard

A review of our station design standard in 2022 removed the assumption that a station would be undergrounded when due for renewal. Undergrounding will still be the preferred option where there is significant vehicle collision risk, such as the Middleton District Regulator Station (DRS). However, this new approach presents an opportunity to economise station renewals by replacing outdated functional componentry, rather than renewing or relocating the entire station.

An additional benefit is our above station pipework will remain in place, providing greater flexibility for potential equipment changes for transition to mix gas blends and conversion to biogas and hydrogen.

4.2.2 Growth project deferral

Capacity is modelled on subdivision-by-subdivision basis. To ensure there is capacity for every new connection, our forecast gas use is based on 100% of developers' intended plans. During the past 12 months, we have experienced a lower rate of uptake than forecast. Therefore, planned investment for some growth projects incorporated in the 2020 AMP have been deferred. For example, the Chartwell Drive MP and Summerhill MP have been deferred until remaining network capacity shows they are necessary. The impact on the growth projects is further described in the regional sections below.

4.2.3 IP isolation upgrades

The completion rate across all regions for IP valve projects has been slower than anticipated because of the need for bespoke and complicated design, causing delivery constraints. However, in FY23 we will complete installation of a new isolation valve on the mainline branch of the New Plymouth IP network. The remaining 18 valves at Hawke's Bay, Porirua, and Belmont were originally forecast for completion by FY25. This date assumed that 4-5 valves would be replaced per year. With the current rate of delivery being 1-2 valves per year, completion of this work is likely to fall into the early 2030s (refer to Table 7).

4.2.4 Pre85 programme

Since 2020, we have undertaken a significant amount of work to revise the risk and cost associated with the ownership of Pre85 pipe. As a result, we have reprioritised the renewals programme. The primary drivers for the

reprioritisation include additional data insights drawn from recently established information systems, a significant increase in the cost of new pipes, the reduction in capital expenditure approved by the Commerce Commission as part of our DPP reset, along with the increase in depreciation rate on our gas assets. These drivers are discussed in further detail in Section 4.9.
To mitigate risk and performance impact on the network, we use condition and leak data that has been reviewed and assessed using a failure mode and effects analysis. It's use in relation to Pre-85 pipe replacement means we use leak data over a period of time to understand when the point of failure threshold has been met. For Pre-85 replacement the point of failure has shifted (from 1.5 to 3 leaks per km of pipe), to effectively optimise our cost of ownership between repairing leaks prior to replacement.

As part of our risk management process, we are looking to undertake a programme of more intensive leak detection surveys with the purchase of a new gas leak detection vehicle. This will alert us to leaks prior to public reported escapes allowing us to intervene sooner. It will also provide additional leakage data to better profile Pre85 condition allowing available funds to be focused on areas of high leakage rates. In addition, we plan to:

- Test permanent repair clamps that would prevent additional leaks occurring
- Focus Pre-85 work on mains replacement and a survey of connections and services will be conducted for safety, addressing service defects where necessary
- Prioritise for renewal high community use areas
- Divert funds from other expenditure categories to address high priority leakage events[4].

The reprioritised work programme will enable us to maintain a balance over the medium term of providing reliability of supply while supporting a future green gas enabled network, and preparing our assets for reticulation of a hydrogen and biogas blended natural gas (refer to Table 8 for the revised programme).

4.2.5 Potential material change from customer isolation valve non-performance

With the installation of new Genesis gas customer smart meters taking place from FY23-25, there is the potential for the smart meter project to trigger an increase in customer isolation valve renewals. If these valves are not functional, Genesis will be unable to complete the meter swap without renewing the valve and replacing the riser.

A pilot project completed in FY22, indicated a large proportion of these plug valves may have condition related defects. If the smart meter project identifies any condition related defects or valves are identified as not functional, they will be prioritised for replacement. Any impacts on the full AMP 2020 budget will be managed with our overall non-growth network capex category or we will divert funds from other expenditure categories to address a higher volume of replacements.

4.3 Wellington

The material changes in the Wellington region are summarised in Table 2. The reasons for the material changes are described in more detail below.

Table 2 – Wellington 2020 AMP v 2022 summary of proposed AMP adjustments

Type	Project name	2020 AMP	2022 status	2020 AMP $	2022 AMP $
ARR	Middleton DRS	2021	2023	$200k	$500k

[4] The DPP3 final decision allows for a capex reopener to manage any unforeseen projects should the risk significantly change.

Type	Project name	2020 AMP	2022 status	2020 AMP $	2022 AMP $
GRO	Chartwell Drive uplift	2023	Deferred	$50k	NA
GRO	Westchester Drive overlay	2023	2023	$400k	$400k
GRO	Mark Avenue overlay	2024	Deferred	$390k	NA
GRO	Butavas St DRS inlet reinforcement	2022	Cancelled	$125k	NA
ORS	Butavas St removal	NA	2024	NA	$50k
GRO	Tawa gate DRS upgrade	2022	Deferred	$40k	NA
GRO	Karori rationalisation	2023	Cancelled	$520k	NA
ARR	Karori and Chaytor station renewals x2	NA	2026	NA	$75k
ARR	Regulator swaps x3	NA	2023	NA	$100k
ARR	Simla Crescent renewal	NA	2024	NA	$350k
ARR	Taylor Preston DRS renewal	NA	2023	NA	$200k
ARR	Queens Wharf DRS renewal	NA	2023	NA	$500k

Middleton DRS renewal was deferred because of a change in scope, driven by the need to include a renewal of the regulator componentry. Further investigations concluded that a full undergrounding and renewal of the regulator station was the best solution, resulting in increased construction costs.

Chartwell Drive and **Mark Avenue** planned capacity upgrades were based on the developers' forecast plan. These upgrades have been deferred until pressure/capacity monitoring shows they are needed.

Westchester Drive is proceeding in FY23 as the growth has shown continuously high uptake rates.

Butavas St regulator station was installed as a temporary measure to enable the Wellington CBD upgrade works to be completed, and a project was planned for 2022 to reinforce supply preventing high velocities, drop in pressure events, and to address defects including corrosion and seized functional components. However, modelling now indicates supply into the Wellington high low pressure (HLP) network is sufficient, and this project has been replaced by the **Butavas St removal** to decommission the station in 2024. During winter demand conditions in 2022 a trial has been underway. The initial results of the trial are promising in that they indicate it is likely we will be able to remove this poor-condition station without customer pressure impacts.

Tawa gas gate upgrade feasibility and scoping studies determined a regulator equipment change is the best solution for meeting any future peak demand. This change is small-scale enough that it could be undertaken reactively if required, hence the proactive upgrade of the gas gate has been deferred until required.

Karori rationalisation has been cancelled in favour of a more economic station renewal for the core functional components of the **Karori and Chaytor stations** in 2026. The budget for the station renewals is relatively modest but is required to ensure they maintain safe, reliable operation.

Figure 6 – Chaytor St DRS showing outdated over pressure shut-off valves

Regulator swaps will be performed at three stations with outdated regulators that no longer have spare parts available. This is an example of new work that has been enabled by changes made to the Station Design Standard following its review in 2022.

Simla Crescent renewal is a new project, identified since 2020, for renewal of a station with obsolete over pressure protection equipment and a sealed over fire valve. We are still establishing whether to underground the regulator station away from the train station area or undertake like-for-like renewal in its current location.

Taylor Preston DRS is a new project identified following a scheduled inspection in 2021 where pipework was found to be in poor condition. Work will take place in 2023 as this station feeds a large commercial customer.

Queens Wharf DRS renewal is a newly identified project. The DRS contains regulators for which suppliers no longer stock spare parts. The pipework on the station is in poor condition and the ergonomics of access inside the restricted mesh protective cage needs improvement.

4.4 Hutt Valley Porirua

The material changes in the Hutt Valley and Porirua region are summarised in Table 3. The reasons for the material changes are described in more detail below.

Table 3 – Hutt Valley Porirua 2020 v 2022 summary of proposed AMP adjustments

Type	Project name	2020 AMP	2022 Status	2020 AMP $	2022 AMP $
ARR	Avalon rationalisation	2021	2023	$1.6m	$1.47m
ARR	Linden Avenue DRS renewal	2023	2024	$200k	$200k
GRO	Pāuatahanui IP upgrade	2023	Deferred	$50k	NA
GRO	Wainuiomata IP upgrade	2025	Deferred	$450k	NA

Type	Project name	2020 AMP	2022 Status	2020 AMP $	2022 AMP $
GRO	Wallaceville rationalisation	2022	Completed	$220k	$420k
ORS	Upper Hutt rationalisation	2021	Completed	$900k	$460k
ARR	Whites Line East special crossing	NA	2023	NA	$300k

Avalon rationalisation has had a longer completion timeframe than initially expected. This was driven by the critical nature of the high-pressure network requiring a more detailed design process.

Linden Avenue DRS delivery was rescheduled from 2023 to 2024 to manage the volume of delivery workload in the Hutt Valley Porirua region during 2023.

Pāuatahanui and Wainuiomata IP upgrades have been deferred until pressure/capacity monitoring shows they are needed.

Upper Hutt rationalisation saw scope changes from the original project that moved some of the scope into the Wallaceville rationalisation. The **Wallaceville rationalsation** relocated and upgraded supply points to optimally feed into a large new subdivision it's budget expanded due to scope changes.

Whites Line East special crossing renewal is a new project necessitated by the crossing casing having completely deteriorated at the earth penetration point. This condition information was not known at the time of the 2020 AMP.
Figure 7 shows the condition of the casing on this crossing. The gas pipework is the yellow PE pipe inserted in the corroded casing.

Figure 7 – Whites Line East special crossing

4.5 Hawke's Bay

The material changes in the Hawkes Bay region are summarised in Table 4. The reasons for the material changes are described in more detail below.

Table 4 – Hawke's Bay 2020 AMP v 2022 summary of proposed AMP adjustments

Type	Project name	2020 AMP	2022 status	2020 AMP $	2022 AMP $
GRO	Havelock North growth	2022	Completed	$700k	$1.2m
ARR	Meeanee Quay bracket replacement	2022	Completed	$250k	$340k
ARR	Ngaruroro Bridge bracket replacement	2023	2024	$190k	$310k
GRO	Taradale supply upgrade	2025	Deferred	$180k	NA

Havelock North growth was completed in FY23, before the winter peak demand. The scale and design complexity of this project contributed to increasing the estimated cost.

Meeanee Quay bridge brackets have been replaced and the crossing coating has been renewed. The complete crossing renewal cost more than anticipated because of unanticipated access challenges.

Ngaruroro Bridge bracket replacement has been delayed because of delivery capacity constraints in FY23, given the scale of the Havelock North upgrade. The updated budgeted figure is based on the Meeanee Quay project.

Taradale pressure uplift has been deferred until pressure/capacity monitoring shows it is needed.

4.6 Manawatū

The material changes in the Manawatū region are summarised in Table 5. The reasons for the material changes are described in more detail below.

Table 5 – Manawatū 2020 AMP v 2022 summary of proposed AMP adjustments

Type	Project name	2020 AMP	2022 status	2020 AMP $	2022 AMP $
ARR	Steel replacement – Waldegrave St	2020	Completed	$150k	$230k
ARR	Steel replacement – Havelock Avenue	2022	2023	$900k	$1.5m
ARR	Sanson stub renewal	2022	Completed	$80k	$120k
GRO	Summerhill reinforcement	2023	Deferred	$150k	NA
QOS	Milson Line rationalisation	2020	Completed	$750k	$610k
QOS	Palmerston North (PN) East rationalisation	2023	2023	$500k	$250k
QOS	PN West rationalisation	2025	2030	$1.1m	$1.1m

Type	Project name	2020 AMP	2022 status	2020 AMP $	2022 AMP $
ARR	Levin gate station renewal	NA	2023	NA	$200k
ARR	Steel replacement – Carter Crescent	NA	2024	NA	$450k

Steel replacement – Waldegrave St, and Sanson stub renewal are complete, or near complete, as planned. Costs were higher for both because of construction cost inflation. **Carter Crescent** is a new steel replacement project, its scope is in keeping with historical steel mains renewal practices.

Havelock Avenue steel replacment is being re-evaluated because of inflationary cost pressures.

Summerhill reinforcement has been deferred until pressure/capacity monitoring shows it is needed.

Milson Line rationalisation was completed in 2020 as planned, and was under its original budget.

PN East rationalisation is on track for delivery as planned, and is likely to achieve cost savings compared with the original estimate. The original estimate had included high contingencies for working in the CBD area, but these were avoided through minor scope adjustments.

PN West rationalisation is likely to be split into smaller sub-projects over several financial years. This will allow the work to be co-ordinated with general station renewal.

Levin gate station was found to be in poor condition in a scheduled inspection in 2022, as shown in Figure 8 – Levin gate station's seized, leaking, corroded equipment Isolation valves for both lines are seized, corrosion is advanced on the above ground pipework, the underground relief line is non-CP protected, and the station is leaking at a low rate. Therefore we have established a new project to renew the station.

Figure 8 – Levin gate station's seized, leaking, corroded equipment

4.7 Taranaki

The material changes in the Taranaki region are summarised in Table 6. The reasons for the material changes are described in more detail below.

Table 6 – Taranaki 2020 AMP v 2022 summary of proposed AMP adjustments

Type	Project name	2020 AMP	2022 status	2020 AMP $	2022 AMP $
ARR	New Plymouth MP steel replacement – Devon St East	2020	Completed	$280k	$190k
ARR	NP MP steel replacement – Gover St	2021	Completed	$120k	$80k
ARR	NP MP steel replacement – Spotswood	2020	Completed	$440k	$360k
ARR	NP MP steel replacement – Birdwood Avenue	2022	Completed	$60k	$120k
GRO	Hutchen Place reinforcement	2022	2023	$200k	$150k

Steel replacements were completed as intended. Gover St and Devon St East were delivered as a single project, which enabled cost savings to be realised.

Hutchen Place reinforcement has been delayed because of a shortage of construction resource in Taranaki and constraints caused by COVID-19. It is forecast for completion in FY23.

4.8 All regions pressure isolation upgrades

The material changes in the pressure isolation upgrades are summarised in Table 7. The reasons for the material changes are described in more detail below.

Table 7 – 2020 AMP v 2022 summary of proposed AMP adjustments

Type	Project name	2020 AMP	2022 status	2020 AMP $	2022 AMP $
ARR	HVP – Belmont HIP corroded isolation valves	2022	2023	$350k	$500k
ORS	HVP – Belmont MP sector plans	2023	2025	$100k	$120k
ORS	WEL – Wellington MP sector plans	2021	Completed	$390k	$280k
ORS	TAR – New Plymouth MP East sector plans	2023	Completed	$88k	$290k
	TAR – New Plymouth MP West sector plans		2025		
	TAR – New Plymouth MP South sector plans		2026		
ORS	HAB – Napier MP sectors	2025	New	NA	$55k

Type	Project name	2020 AMP	2022 status	2020 AMP $	2022 AMP $
ORS	TAR – New Plymouth IP sector plans	2022	2023	$400k	$400k
ORS	HAB – Hawke's Bay IP isolation plans	2025	2025-2031	$200k	$200k
ORS	HVP – Porirua IP isolation plans	2024	2026-2031	$640k	$640k
ORS	HVP – Belmont IP isolation plans	2023	2024-2031	$960k	$1.1M
ORS	MAN – Palmerston North IP sectors	2025	Cancelled	$200k	NA
ORS	Hāwera MP sectorisation	2022	Cancelled	$300k	NA
ORS	WEL – Wellington IP sector plans	2021	Completed	$760k	$800k

Belmont HIP valves has been delayed because of complexity of detailed design and works construction methodology. The intent will be to construct the new valves on temporarily-out-of-service pipelines to reduce construction risk, but some temporary reconfigurations are required downstream for this to be possible.

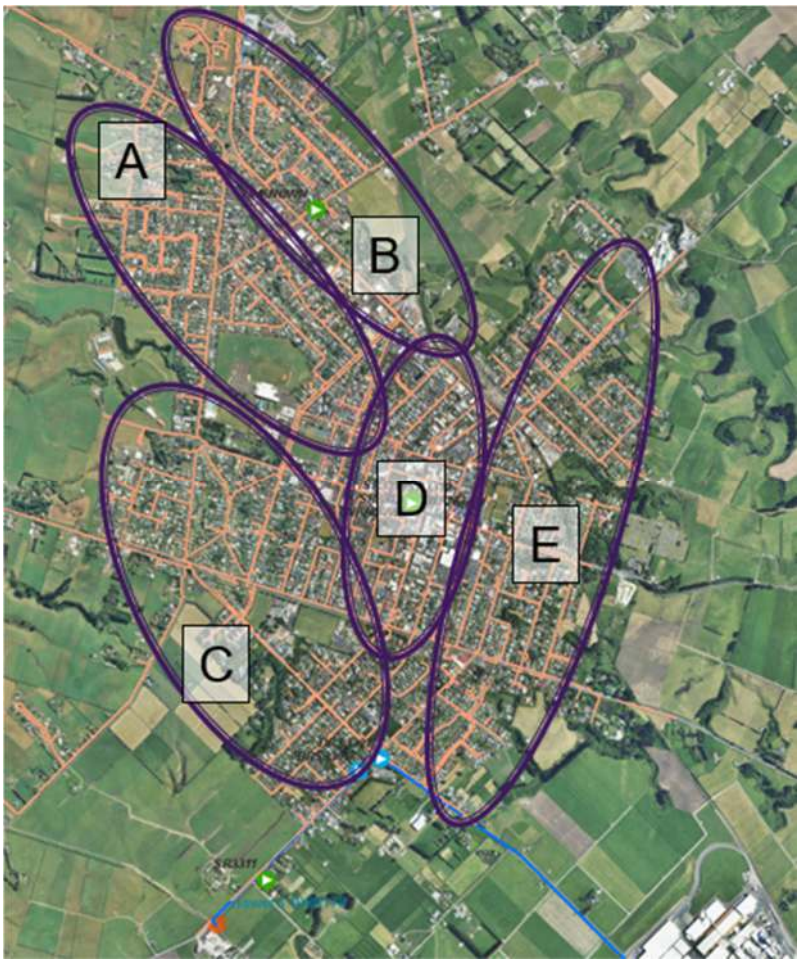
MP sector retrofits are progressing, with Wellington and New Plymouth East MP sector valves installed. Wellington came in under the original budget, which can be attributed to scope reductions from being able to remediate and uncover existing valves in the network. The New Plymouth budget in the 2020 AMP was only for the first phase of the sector improvement – further upgrades are required to fully sectorise the wider MP network. This New Plymouth work programme is intentionally being spaced over several years, partly for budgetary constraints and partly because the multi-site nature requires considerable engineering input.

Napier MP sectors have been planned for valve retrofit to improve isolation points in the network.

The **IP isolation upgrades** completion rate across all regions is slower than anticipated because of bespoke projects requiring complicated designs. Installation of a new isolation valve on the mainline branch of the New Plymouth IP network will be completed in FY23. The remaining projects in Hawke's Bay, Porirua, and Belmont will be completed in 2031. A review of **Palmerston North's IP** layout after rationalisation completion led to this project being cancelled. Existing sectorisation capacity is sufficient once rationalisation is completed. **Wellington IP sector plans** are complete. The complexity and bespoke nature of the projects led to a longer completion timeframe than initially expected. This was driven by lack of available specialist resources, and suitable weather conditions for the construction activities.

Hāwera MP sectorisation improvements were cancelled because of budgets exceeding original allowances. The scope was to install 23 strategic valves into steel pipes. This would enable sectorisation in the event of a steel leak and contain the customer loss impacts to <500 ICPs, per Figure 9. However, as the design of the isolation retrofit developed, for engineering reasons, the scope expanded to include the replacement of large sections of steel. To address the ongoing risks associated with non-stopple-ability of the approximately 35km of <50NB steel mains in this network, we are purchasing Microstop and Lokring equipment that will be the first of its kind on a New Zealand distribution network.

Figure 9 – Intended Hāwera sectors approximate location



4.9 Material changes to the Pre85 programme

Pre85 PE replacement projects are prioritised based on the rate of leakage. As described above, we have undertaken an extensive revision and reprioritisation of our Pre85 programme of work to account for the changes in our operating environment. The primary drivers for the reprioritisation include improved data insights into our Pre85 pipes, a significant increase in the cost of new pipes, the reduction in capex approved by the Commerce Commission as part of our DPP3 reset, along with the increase in depreciation rate on our gas assets. For example, we have observed the capital cost of renewal tenders received in 2022 are 10-30% higher than tender prices for the same scope 1-2 years ago.

As a result of the reprioritisation, several projects have been rescheduled or delayed until such time as the leakage rate raises the priority of the replacement of the Pre85 pipe. Table 8 shows projects selected for the default price path 3 (DPP3) period from RY23-RY26, as well as those planned in the previous 2020 AMP. These will be subject to substitution as reviewing leak rate hotspots will become an annual process.

The purchase of new vehicle-mounted leak detection and survey equipment will provide the opportunity to re-assess network locations that have presented historic leakage rates (in the range of 1.5 to 3 leaks per km of pipe) and provide further information on the current state to assist with evaluating the case for renewal or repair.

Table 8 – Reprioritised Pre85 projects for the DPP3 period

Project name – Pre85	Region	Annual budget	Scheduled date	Forecast date
Henry St Pre85 replacement	HVP	Per 2020 AMP up to $1.2M/year	FY23	paused
Copeland/Pilmuir Pre85 replacement			FY23	paused
Truro/Bodmin Pre85 replacement			FY22	FY22
Stokes Valley Rd Pre85 replacement			FY24	paused
Waddington Drive Pre85 replacement			FY24	FY24
Knights/Wilford Pre85 replacement			FY24	paused
Ulric St Pre85 replacement			FY23	FY23
Jamaica Drive Pre85 replacement			FY23	FY23
Roband/Shanly Pre85 replacement			FY23	paused
Onepoto Pre85 replacement			FY22	FY22
Harbour view road renewal – adjacent to Riverlink project	HVP	~$900k/year	FY24	
Rakaia Grove renewal			FY24	
Stanhope Grove renewal			FY24	
Omapere St renewal			FY24	

4.10 Material changes to CP renewal and upgrade

This programme, which is summarised in **Table 9**, is required to improve the system protecting the ~410km of in-service steel pipe from corrosion damage. The work programme is progressing, with reprioritisation of projects within the programme to ensure that the CP system of the poorest performing steel pipes is replaced first.

Table 9 – CP renewals and upgrades

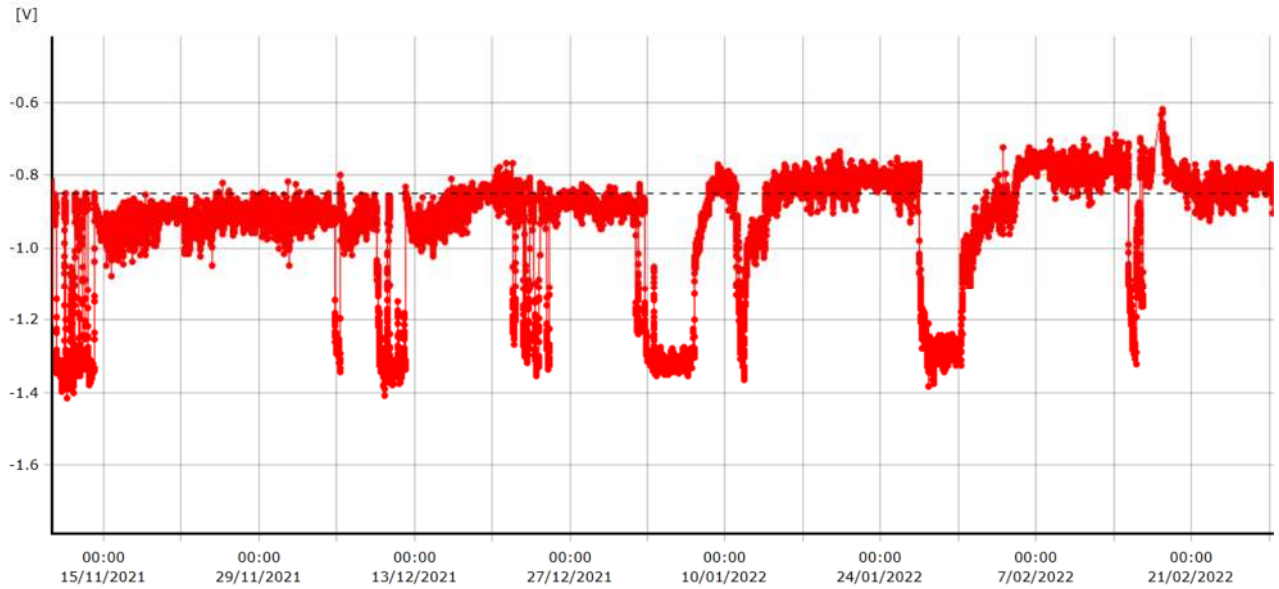
Type	Project name	2020 AMP	2022 status	2020 AMP $	2022 AMP $
ARR	Wellington IP CP	2020	2023	$450k	$1.6M
ARR	Upper Hutt IP CP	2021	2023	$250k	$370k
ARR	Lower Hutt IP CP	2023	2024	$230k	$320k
ARR	Porirua IP CP	2021	Completed	$75k	$100k
ARR	Levin MP CP	>2025	New – Completed	NA	$300k

Type	Project name	2020 AMP	2022 status	2020 AMP $	2022 AMP $
ARR	Palmerston North CP	>2025	New – Completed	NA	$8k
ARR	New Plymouth IP CP	2024	2025	$180k	$290k
ARR	Hāwera MP CP	2025	2025	$180k	$180k
ARR	Hastings IP CP	2025	2026	$210k	$160k

Wellington's CP system has been a renewal project, or series of projects, running since FY20. Troubleshooting to find how undesirable electrical charges are getting onto and off the IP pipe has been carried out for a number of years. Faults have been traced to various other utility owners' assets imparting or draining the charge off the pipe. Once the fault has been found it is isolated/repaired, but the investigations have been time consuming. The CP system layout has been reconfigured, which has improved the charge readings, but problems persist in maintaining charge in its desired range.

For example, Figure shows the potential off readings at Tory St. For reference, the ideal range for this reading is a steady value within the band of -0.8 to -1.2mV. The cause of the irregular drops in charge remains unknown.

Figure 10 – Potential off readings on the Wellington IP pipe at Tory St



The **Levin CP** project was accelerated and delivered earlier than planned in the 2020 AMP as the condition was found to be poorer than originally anticipated. This reprioritisation pushed back other scheduled CP projects in **Taranaki, Hutt Valley and Hastings**.


T.W.s.G.M.

5. Material changes to Expenditure Forecasts

5.1 Introduction

This section sets out the changes to our capex and opex expenditure required to operate, develop and maintain our networks. It represents the current view based on:

- Our Asset Management Strategies using available network information and
- Consideration of the least-cost solutions that provide positive returns across the next 15 years
- Ensure a safe and reliable gas network.

A more detailed summary of forecast expenditure is provided as part of the Schedules in Section 6.

The following sections describe the forecast expenditures through to RY 2032 and are all in constant dollar terms, as of 2022.

5.2 Capital expenditure

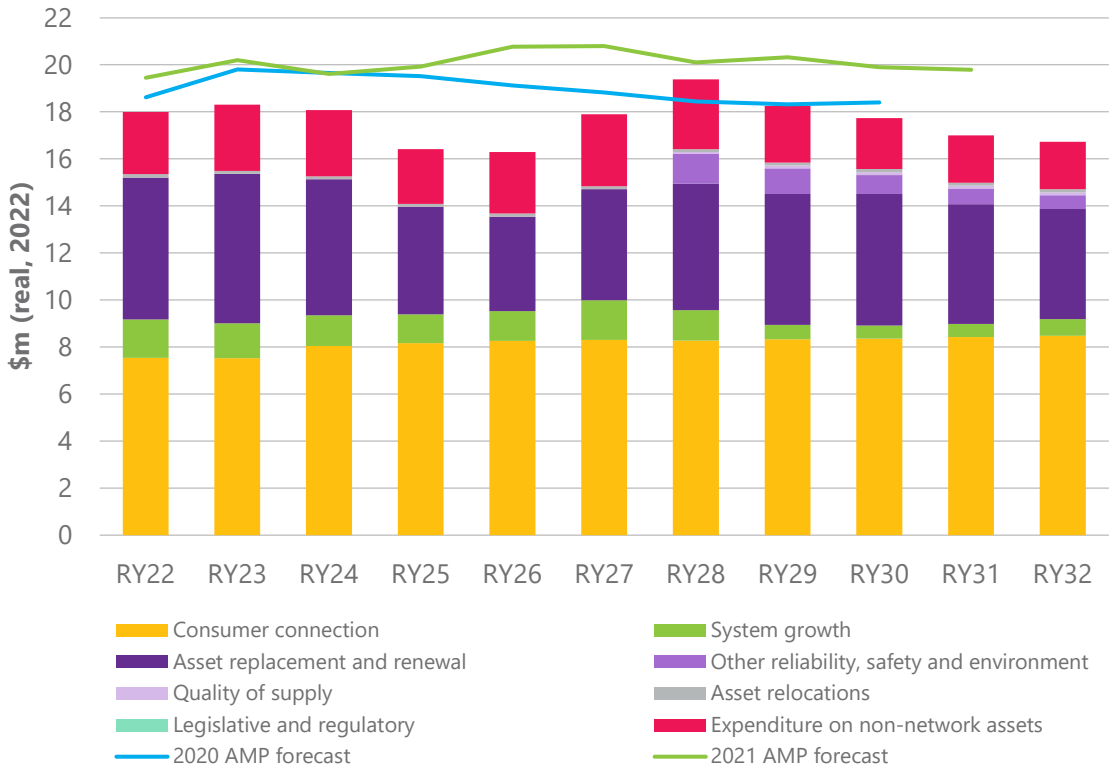
Our forecast for total Capex shows decreasing expenditure over the next five years following the Commerce Commission's DPP3 final decision resulting in a reduction of $5m for asset replacement and renewal. Beyond DPP3, we have forecast our asset replacement and renewal expenditure to that of historical forecasts, allowing time for regulatory settings to be aligned with future decisions of the government's Gas Transition Plan and Energy Strategy.

Capex investment is tested to ensure it supports transition to green gas however, there is currently no dedicated green gas investiment forecast. In alignment with Powerco's Roadmap to 100% green gas it will seek support and partnerships to enable future funding.

Customer connection remains aligned with previous forecasts however, work is underway to determine the extent and appropriate timing to offset expenditure via customer contribution. We anticipate that this wll be included in the 2023 AMP update.

Figure 11 shows the capex forecast comparison between our 2020, 2021 and 2022 AMPs.

Figure 11 – Capex forecast comparison between 2020, 2021 and 2022 AMPs



The reasons for the capex changes are shown in Table 10.

Table 10: Reasons for capex changes

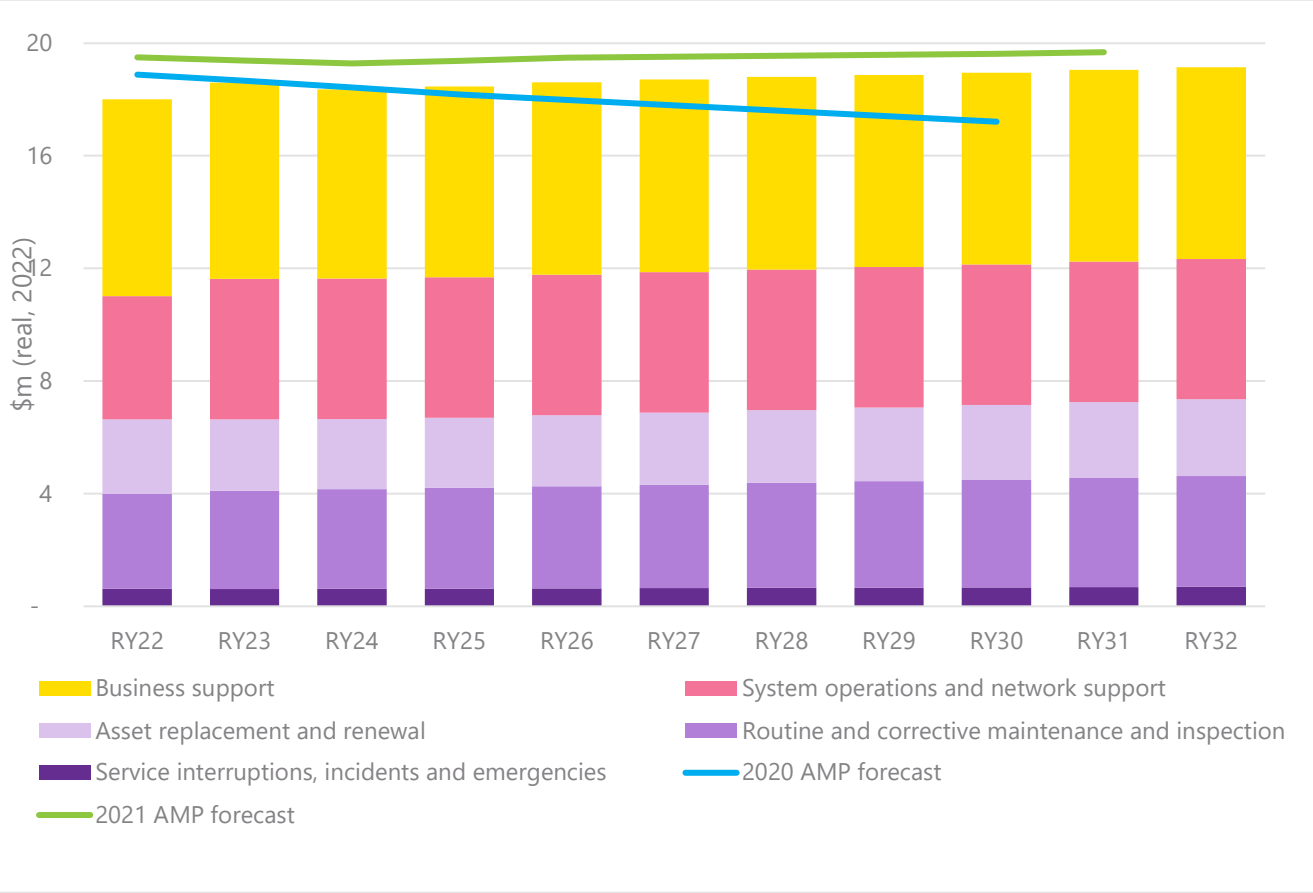
Expenditure Category	Rational for change since 2021 AMP	Cost implication
Customer connection	Expenditure remains relatively stable and aligned with previous forecasts	→
System growth	Volumes remain at current levels for the next 5 years, in line with consistent customer connection forecasts, and anticipated growth from known new subdivisions	→
Quality of supply	A reduction in quality of supply upgrades due to planned rationalisation projects that have been cancelled in favour of more economic station renewals	↓
Asset replacement & renewal	From RY24 to RY26 there is an overall reduction of $5m (6.4% per year) in alignment with the Commerce Commission DPP3 reduction in allowance	↓
Reliability & supply	Expenditure continues to fluctuate based on need for projects	→

5.3 Operational expenditure

Opex forecasts have decreased from those disclosed in the 2021 AMP Update however, they remain higher than the 2020 AMP forecast. This is because we continue to maintain our network safely but suspend gains that were planned to be delivered from asset renewal capital spend that is now reduced.

Figure 12 shows the opex forecast comparison between our 2020, 2021 and 2022 AMPS.

Figure 122 – Opex expenditure



The reasons for opex expenditure changes include are shown in Table 11.

Table 11: Reasons for opex changes

Expenditure Category	Rational for change since 2021 AMP	Cost implication
Routine & corrective maintenance	Relative to the 2021 AMP forecast, the volume of future defect work assumed has not materialised and as such we have revised the overall forecast down for the 2022 AMP Update.	ⓘ
Business support and System operations & network support	Non-Network expenditure increases slightly in RY23 then remains steady based on business requirements.	ⓘ

Expenditure Category	Rational for change since 2021 AMP	Cost implication
Research and development – green gas	New allowance (DPP3) to explore green gas transition is minimal (0.025%), but is included in this category under research and development. In alignment with our Roadmap to 100% green gas we will seek support and partnerships to enable future funding.	↑

6. Schedules

											Company Name	Powerco Limited
											AMP Planning Period	1 October 2022 – 30 September 2032

SCHEDULE 11a: REPORT ON FORECAST CAPITAL EXPENDITURE

This schedule requires a breakdown of forecast expenditure on assets for the current disclosure year and a 10-year planning period. The forecasts should be consistent with the supporting information set out in the AMP. The forecast is to be expressed in both constant price and nominal dollar terms. Also required is a forecast of the value of commissioned assets (ie, the value of RAB additions)

GDBs must provide explanatory comment on the difference between constant price and nominal dollar forecasts of expenditure on assets in Schedule 14a (Mandatory Explanatory Notes).

This information is not part of audited disclosure information.

sch ref			Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5	CY+6	CY+7	CY+8	CY+9	CY+10
8		for year ended	30 Sep 22	30 Sep 23	30 Sep 24	30 Sep 25	30 Sep 26	30 Sep 27	30 Sep 28	30 Sep 29	30 Sep 30	30 Sep 31	30 Sep 32
9	**11a(i): Expenditure on Assets Forecast**		**$000 (nominal dollars)**										
10		Consumer connection	7,539	7,681	8,380	8,705	8,983	9,198	9,351	9,608	9,836	10,110	10,371
11		System growth	1,634	1,527	1,371	1,307	1,372	1,590	1,175	703	649	667	866
12		Asset replacement and renewal	6,025	6,582	6,116	4,866	4,365	5,237	6,081	6,422	6,583	6,107	5,740
13		Asset relocations	144	129	133	136	139	141	143	147	151	155	159
14		Reliability, safety and environment:											
15		Quality of supply	898	216	0	0	0	285	358	139	142	146	150
16		Legislative and regulatory	0	0	0	0	0	0	0	0	0	0	0
17		Other reliability, safety and environment	1,655	761	751	1,865	2,383	1,512	1,450	1,258	952	803	719
18		**Total reliability, safety and environment**	2,553	977	751	1,865	2,383	1,797	1,809	1,397	1,094	949	869
19		**Expenditure on network assets**	17,895	16,896	16,751	16,879	17,242	17,962	18,559	18,278	18,314	17,988	18,005
20		Expenditure on non-network assets	2,640	2,882	2,939	2,474	2,841	3,385	3,352	2,768	2,546	2,419	2,468
21		**Expenditure on assets**	20,535	19,778	19,690	19,353	20,083	21,347	21,912	21,045	20,860	20,407	20,472
22													
23	*plus*	Cost of financing	58	89	85	86	88	101	115	113	113	112	112
24	*less*	Value of capital contributions	633	615	626	634	656	695	649	601	606	623	663
25	*plus*	Value of vested assets	0	0	0	0	0	0	0	0	0	0	0
26		**Capital expenditure forecast**	19,959	19,252	19,149	18,805	19,515	20,753	21,377	20,557	20,367	19,896	19,922
27													
28		Assets commissioned	19,917	19,358	19,165	18,857	19,408	20,567	21,283	20,680	20,396	19,966	19,918
29													
30			Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5	CY+6	CY+7	CY+8	CY+9	CY+10
31		for year ended	30 Sep 22	30 Sep 23	30 Sep 24	30 Sep 25	30 Sep 26	30 Sep 27	30 Sep 28	30 Sep 29	30 Sep 30	30 Sep 31	30 Sep 32
32			**$000 (in constant prices)**										
33		Consumer connection	7,540	7,509	8,029	8,167	8,263	8,294	8,267	8,328	8,359	8,423	8,470
34		System growth	1,634	1,493	1,313	1,226	1,262	1,433	1,039	610	551	556	708
35		Asset replacement and renewal	6,025	6,434	5,860	4,565	4,015	4,722	5,376	5,566	5,594	5,087	4,688
36		Asset relocations	144	126	127	128	128	127	127	128	128	129	130
37		Reliability, safety and environment:											

38	Quality of supply	898	211	0	0	0	257	317	120	121	122	122
39	Legislative and regulatory	0	0	0	0	0	0	0	0	0	0	0
40	Other reliability, safety and environment	1,655	744	720	1,750	2,192	1,364	1,282	1,091	809	669	587
41	**Total reliability, safety and environment**	2,553	955	720	1,750	2,192	1,620	1,599	1,211	930	791	710
42	**Expenditure on network assets**	17,896	16,518	16,049	15,835	15,859	16,197	16,408	15,842	15,562	14,985	14,705
43	Expenditure on non-network assets	2,640	2,817	2,815	2,322	2,613	3,052	2,964	2,399	2,163	2,015	2,015
44	**Expenditure on assets**	20,535	19,335	18,864	18,157	18,472	19,249	19,371	18,241	17,726	17,001	16,721
45	**Subcomponents of expenditure on assets (where known)**											
46	Research and development	0	0	0	0	0	0	0	0	0	0	0
47												

		Current Year CY	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*	*CY+6*	*CY+7*	*CY+8*	*CY+9*	*CY+10*
48												
49	for year ended	30 Sep 22	30 Sep 23	30 Sep 24	30 Sep 25	30 Sep 26	30 Sep 27	30 Sep 28	30 Sep 29	30 Sep 30	30 Sep 31	30 Sep 32
50	**Difference between nominal and constant price forecasts**	**$000**										
51	Consumer connection	0	172	351	538	721	904	1,084	1,280	1,478	1,688	1,900
52	System growth	0	34	57	81	110	156	136	94	98	111	159
53	Asset replacement and renewal	0	147	257	301	350	514	705	856	989	1,019	1,052
54	Asset relocations	0	3	6	8	11	14	17	20	23	26	29
55	Reliability, safety and environment:											
56	Quality of supply	0	5	0	0	0	28	42	19	21	24	27
57	Legislative and regulatory	0	0	0	0	0	0	0	0	0	0	0
58	Other reliability, safety and environment	0	17	32	115	191	149	168	168	143	134	132
59	**Total reliability, safety and environment**	0	22	32	115	191	177	210	186	164	158	159
60	**Expenditure on network assets**	0	378	703	1,043	1,383	1,765	2,151	2,436	2,752	3,002	3,299
61	Expenditure on non-network assets	0	65	123	153	228	333	389	369	383	404	452
62	**Expenditure on assets**	0	443	826	1,196	1,611	2,097	2,540	2,805	3,134	3,406	3,752
63												
64												

		Current Year CY	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
65							
66	**11a(ii): Consumer Connection** for year ended	30 Sep 22	30 Sep 23	30 Sep 24	30 Sep 25	30 Sep 26	30 Sep 27
67	*Consumer types defined by GDB**	**$000 (in constant prices)**					
68	Residential / Small Commercial	7,436	7,244	7,765	7,902	7,998	8,031
69	Commercial / Industrial	104	265	264	265	265	264
70							
71							
72							
73	** include additional rows if needed*						
74	**Consumer connection expenditure**	7,540	7,509	8,029	8,167	8,263	8,294
75	*less* Capital contributions funding consumer connection	318	316	338	344	348	349
76	**Consumer connection less capital contributions**	7,222	7,193	7,691	7,823	7,915	7,945
77	**11a(iii): System Growth**						
78	**Intermediate pressure**						
79	Main pipe	0	0	0	0	0	433
80	Service pipe	0	0	0	0	0	0
81	Stations	325	0	0	0	0	0
82	Line valve	0	0	0	0	0	0
83	Special crossings	0	0	0	0	0	0
84	**Intermediate Pressure total**	325	0	0	0	0	433
85	**Medium pressure**						

86		Main pipe	1,200	1,490	1,313	1,226	1,262	1,000
87		Service pipe	103	3	0	0	0	0
88		Stations	0	0	0	0	0	0
89		Line valve	4	0	0	0	0	0
90		Special crossings	1	0	0	0	0	0
91		**Medium Pressure total**	1,308	1,493	1,313	1,226	1,262	1,000
92		**Low Pressure**						
93		Main pipe	1	0	0	0	0	0
94		Service pipe	0	0	0	0	0	0
95		Line valve	0	0	0	0	0	0
96		Special crossings	0	0	0	0	0	0
97		**Low Pressure total**	1	0	0	0	0	0
98		**Other network assets**						
99		Monitoring and control systems	0	0	0	0	0	0
100		Cathodic protection systems	0	0	0	0	0	0
101		Other assets (other than above)	0	0	0	0	0	0
102		**Other network assets total**	0	0	0	0	0	0
103								
104		**System growth expenditure**	1,634	1,493	1,313	1,226	1,262	1,433
105	*less*	Capital contributions funding system growth	213	195	172	160	165	187
106		**System growth less capital contributions**	1,421	1,298	1,142	1,066	1,097	1,246
107								
108								
109			*Current Year CY*	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
		for year ended						
110	**11a(iv): Asset Replacement and Renewal**		30 Sep 22	30 Sep 23	30 Sep 24	30 Sep 25	30 Sep 26	30 Sep 27
111		**Intermediate pressure**	**$000 (in constant prices)**					
112		Main pipe	33	28	32	36	36	36
113		Service pipe	16	13	16	17	17	17
114		Stations	907	1,606	1,742	1,386	903	899
115		Line valve	698	557	297	127	91	1
116		Special crossings	325	441	358	0	0	0
117		**Intermediate Pressure total**	1,980	2,646	2,445	1,566	1,047	953
118		**Medium pressure**						
119		Main pipe	2,364	2,267	1,975	1,754	1,920	2,522
120		Service pipe	1,177	1,099	957	850	931	1,223
121		Station	0	0	0	0	0	0
122		Line valve	11	12	14	16	16	16
123		Special crossings	60	2	3	3	3	3
124		**Medium Pressure total**	3,611	3,381	2,949	2,624	2,870	3,763
125		**Low Pressure**						
126		Main pipe	1	2	2	2	2	2
127		Service pipe	1	1	1	1	1	1
128		Line valve	0	0	0	0	0	0
129		Special crossings	0	0	0	0	0	0
130		**Low Pressure total**	2	2	3	3	3	3
131		**Other network assets**						
132		Monitoring and control systems	0	0	0	0	0	3
133		Cathodic protection systems	432	405	463	372	95	0
134		Other assets (other than above)	0	0	0	0	0	0
135		**Other network assets total**	432	405	463	372	95	3
136								

137		**Asset replacement and renewal expenditure**	6,025	6,434	5,860	4,565	4,015	4,722
138	*less*	Capital contributions funding asset replacement and renewal	0	0	0	0	0	0
139		**Asset replacement and renewal less capital contributions**	6,025	6,434	5,860	4,565	4,015	4,722
140								
141	**11a(v): Asset Relocations**							
142		*Project or programme**						
143		None	0	0	0	0	0	0
144								
145								
146								
147								
148		** include additional rows if needed*						
149		All other projects or programmes - asset relocations	144	126	127	128	128	127
150		**Asset relocations expenditure**	144	126	127	128	128	127
151	*less*	Capital contributions funding asset relocations	102	90	90	91	91	90
152		**Asset relocations less capital contributions**	42	37	37	37	37	37
153								

11a(vi): Quality of Supply

	for year ended	Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5
		30 Sep 22	30 Sep 23	30 Sep 24	30 Sep 25	30 Sep 26	30 Sep 27
*Project or programme**		**$000 (in constant prices)**					
Palmerston North East rationalisation		179	163	0	0	0	0
Wellington LP upgrade Sector 4		55	0	0	0	0	0
* include additional rows if needed							
All other projects or programmes - quality of supply		664	48	0	0	0	257
Quality of supply expenditure		898	211	0	0	0	257
less Capital contributions funding quality of supply		0	0	0	0	0	0
Quality of supply less capital contributions		898	211	0	0	0	257

11a(vii): Legislative and Regulatory

Project or programme							
None		0	0	0	0	0	0
* include additional rows if needed							
All other projects or programmes - legislative and regulatory		0	0	0	0	0	0
Legislative and regulatory expenditure		0	0	0	0	0	0
less Capital contributions funding legislative and regulatory		0	0	0	0	0	0
Legislative and regulatory less capital contributions		0	0	0	0	0	0

11a(viii): Other Reliability, Safety and Environment

*Project or programme**							
Isolation plans and resilience		130	262	427	982	1,134	789
Station undergrounding		59	352	292	0	0	0
* include additional rows if needed							

190		All other projects or programmes - other reliability, safety and environment	1,465	130	0	767	1,057	575
191		**Other reliability, safety and environment expenditure**	1,655	744	720	1,750	2,192	1,364
192	*less*	Capital contributions funding other reliability, safety and environment	0	0	0	0	0	0
193		**Other reliability, safety and environment less capital contributions**	1,655	744	720	1,750	2,192	1,364
194								
195	**11a(ix): Non-Network Assets**							
196	**Routine expenditure**							
197		*Project or programme**						
198		ICT Capex	914	1,290	1,278	828	1,169	1,241
199		Facilities	251	109	46	156	209	175
200		Leases	367	228	228	228	228	228
201								
202								
203		** include additional rows if needed*						
204		All other projects or programmes - routine expenditure	0	0	0	0	0	0
205		**Routine expenditure**	1,531	1,627	1,552	1,212	1,606	1,644
206	**Atypical expenditure**							
207		*Project or programme**						
208		ICT Capex (new capability)	891	670	458	696	931	1,333
209		Facilities	217	521	805	414	76	76
210								
211								
212								
213		** include additional rows if needed*						
214		All other projects or programmes - atypical expenditure	0	0	0	0	0	0
215		**Atypical expenditure**	1,108	1,190	1,263	1,110	1,007	1,409
216								
217		**Expenditure on non-network assets**	2,640	2,817	2,815	2,322	2,613	3,052

Company Name	Powerco Limited
AMP Planning Period	1 October 2022 – 30 September 2032

SCHEDULE 11b: REPORT ON FORECAST OPERATIONAL EXPENDITURE

This schedule requires a breakdown of forecast operational expenditure for the disclosure year and a 10-year planning period. The forecasts should be consistent with the supporting information set out in the AMP. The forecast is to be expressed in both constant price and nominal dollar terms.
GDBs must provide explanatory comment on the difference between constant price and nominal dollar operational expenditure forecasts in Schedule 14a (Mandatory Explanatory Notes).
This information is not part of audited disclosure information.

sch ref

		Current year CY	CY+1	CY+2	CY+3	CY+4	CY+5	CY+6	CY+7	CY+8	CY+9	CY+10
	for year ended	30 Sep 22	30 Sep 23	30 Sep 24	30 Sep 25	30 Sep 26	30 Sep 27	30 Sep 28	30 Sep 29	30 Sep 30	30 Sep 31	30 Sep 32
9	Operational Expenditure Forecast	**$000 (in nominal dollars)**										
10	Service interruptions, incidents and emergencies	614	620	641	663	686	709	733	757	783	809	837
11	Routine and corrective maintenance and inspection	3,373	3,568	3,690	3,819	3,948	4,081	4,218	4,361	4,508	4,660	4,817
12	Asset replacement and renewal	2,650	2,595	2,609	2,647	2,736	2,828	2,924	3,022	3,124	3,230	3,339
13	**Network Opex**	6,637	6,783	6,939	7,129	7,369	7,618	7,875	8,140	8,415	8,699	8,992
14	System operations and network support	4,378	5,114	5,213	5,321	5,427	5,535	5,646	5,759	5,874	5,991	6,111
15	Business support	6,995	7,126	7,010	7,230	7,440	7,592	7,745	7,875	8,012	8,174	8,338
16	**Non-network Opex**	11,374	12,240	12,222	12,550	12,866	13,128	13,391	13,634	13,886	14,165	14,449
17	**Operational expenditure**	18,011	19,022	19,162	19,679	20,235	20,745	21,265	21,775	22,301	22,864	23,441

		Current year CY	CY+1	CY+2	CY+3	CY+4	CY+5	CY+6	CY+7	CY+8	CY+9	CY+10
	for year ended	30 Sep 22	30 Sep 23	30 Sep 24	30 Sep 25	30 Sep 26	30 Sep 27	30 Sep 28	30 Sep 29	30 Sep 30	30 Sep 31	30 Sep 32
20		**$000 (in constant prices)**										
21	Service interruptions, incidents and emergencies	614	606	614	622	631	639	648	656	665	674	683
22	Routine and corrective maintenance and inspection	3,373	3,488	3,535	3,583	3,631	3,680	3,729	3,780	3,831	3,882	3,934
23	Asset replacement and renewal	2,650	2,537	2,499	2,483	2,517	2,550	2,585	2,620	2,655	2,691	2,727
24	**Network Opex**	6,637	6,631	6,648	6,688	6,778	6,869	6,962	7,056	7,151	7,247	7,345
25	System operations and network support	4,378	4,999	4,994	4,992	4,991	4,991	4,991	4,991	4,991	4,991	4,991
26	Business support	6,995	6,967	6,716	6,783	6,843	6,847	6,847	6,826	6,808	6,809	6,810
27	**Non-network Opex**	11,374	11,966	11,710	11,775	11,834	11,838	11,838	11,817	11,800	11,801	11,801
28	Operational expenditure	18,011	18,597	18,358	18,463	18,612	18,707	18,800	18,873	18,950	19,048	19,145
29	Subcomponents of operational expenditure (where known)											
30	Research and development	0	45	45	45	45	0	0	0	0	0	0
31	Insurance	76	78	80	82	84	86	88	90	92	94	96
32												

		Current year CY	CY+1	CY+2	CY+3	CY+4	CY+5	CY+6	CY+7	CY+8	CY+9	CY+10
	for year ended	30 Sep 22	30 Sep 23	30 Sep 24	30 Sep 25	30 Sep 26	30 Sep 27	30 Sep 28	30 Sep 29	30 Sep 30	30 Sep 31	30 Sep 32
35	**Difference between nominal and real forecasts**	**$000**										
36	Service interruptions, incidents and emergencies	0	14	27	41	55	70	85	101	118	135	153
37	Routine and corrective maintenance and inspection	0	80	155	236	317	401	489	581	677	778	883
38	Asset replacement and renewal	0	58	109	164	219	278	339	403	469	539	612
39	**Network Opex**	0	152	291	441	591	748	913	1,085	1,264	1,452	1,648
40	System operations and network support	0	115	219	329	435	544	655	767	883	1,000	1,120
41	Business support	0	160	294	447	597	746	898	1,049	1,204	1,364	1,528
42	**Non-network Opex**	0	274	513	776	1,032	1,290	1,552	1,817	2,086	2,364	2,648
43	**Operational expenditure**	0	426	804	1,216	1,623	2,038	2,465	2,902	3,351	3,816	4,296

Company Name	**Powerco Limited**
AMP Planning Period	**1 October 2022 – 30 September 2032**

SCHEDULE 12a: REPORT ON ASSET CONDITION

This schedule requires a breakdown of asset condition by asset class as at the start of the forecast year. The data accuracy assessment relates to the percentage values disclosed in the asset condition columns. Also required is a forecast of the percentage of units to be replaced in the next five years. All information should be consistent with the information provided in the AMP and the expenditure on assets forecast in Schedule 11a.

sch ref

					Asset condition at start of planning period (percentage of units by grade)						
8	Operating Pressure	Asset category	Asset class	Units	Grade 1	Grade 2	Grade 3	Grade 4	Grade unknown	Data accuracy (1–4)	% of asset forecast to be replaced in next five years
9	Intermediate Pressure	Main pipe	IP PE main pipe	km	-	-	-	99.30%	0.70%	3	-
10	Intermediate Pressure	Main pipe	IP steel main pipe	km	-	-	79.67%	0.25%	20.08%	3	-
11	Intermediate Pressure	Main pipe	IP other main pipe	km	-	-	20.36%	-	79.64%	3	-
12	Intermediate Pressure	Service pipe	IP PE service pipe	km	-	-	66.40%	30.94%	2.66%	3	-
13	Intermediate Pressure	Service pipe	IP steel service pipe	km	-	-	23.48%	0.33%	76.18%	3	-
14	Intermediate Pressure	Service pipe	IP other service pipe	km	-	-	95.46%	-	4.54%	3	-
15	Intermediate Pressure	Stations	Intermediate pressure DRS	No.	3.03%	4.55%	65.91%	26.52%	-	3	7.58%
16	Intermediate Pressure	Line valve	IP line valves	No.	0.33%	0.03%	46.00%	10.56%	43.08%	3	0.35%
17	Intermediate Pressure	Special crossings	IP crossings	No.	-	0.30%	95.67%	4.03%	-	3	0.15%
18	Medium Pressure	Main pipe	MP PE main pipe	km	0.29%	0.03%	92.22%	6.44%	1.02%	3	0.32%
19	Medium Pressure	Main pipe	MP steel main pipe	km	3.83%	0.01%	76.02%	0.06%	20.08%	3	3.84%
20	Medium Pressure	Main pipe	MP other main pipe	km	-	-	20.33%	0.02%	79.65%	3	-
21	Medium Pressure	Service pipe	MP PE service pipe	km	0.47%	0.04%	86.04%	10.72%	2.74%	3	0.51%
22	Medium Pressure	Service pipe	MP steel service pipe	km	0.58%	0.01%	22.96%	0.07%	76.35%	3	0.60%
23	Medium Pressure	Service pipe	MP other service pipe	km	-	0.07%	94.76%	-	5.17%	3	0.70%
24	Medium Pressure	Stations	Medium pressure DRS	No.	7.69%	9.23%	67.69%	15.38%	-	3	16.92%
25	Medium Pressure	Line valve	MP line valves	No.	-	0.01%	41.29%	16.68%	42.02%	3	0.01%
26	Medium Pressure	Special crossings	MP special crossings	No.	0.38%	1.54%	96.17%	1.90%	-	3	1.15%
27	Low Pressure	Main pipe	LP PE main pipe	km	-	-	57.37%	41.93%	0.70%	3	-
28	Low Pressure	Main pipe	LP steel main pipe	km	-	-	79.92%	-	20.08%	3	-
29	Low Pressure	Main pipe	LP other main pipe	km	-	-	6.14%	14.22%	79.64%	3	-
30	Low Pressure	Service pipe	LP PE service pipe	km	-	-	87.55%	9.76%	2.69%	3	-
31	Low Pressure	Service pipe	LP steel service pipe	km	-	-	22.87%	97.00%	76.16%	3	-
32	Low Pressure	Service pipe	LP other service pipe	km	-	-	77.88%	17.58%	4.54%	3	-
33	Low Pressure	Line valve	LP line valves	No.	-	0.32%	30.96%	13.70%	55.02%	3	0.16%
34	Low Pressure	Special crossings	LP special crossings	No.	-	-	-	-	-	3	-
35	All	Monitoring and control systems	Remote terminal units	No.	0.72%	39.57%	41.01%	18.71%	-	4	2.70%
36	All	Cathodic protection systems	Cathodic protection	No.	-	35.38%	30.77%	23.08%	10.77%	3	8.85%

Company Name	**Powerco Limited**
AMP Planning Period	**1 October 2022 – 30 September 2032**

SCHEDULE 12b: REPORT ON FORECAST UTILISATION

This schedule requires a breakdown of current and forecast utilisation (for heavily utilised pipelines) consistent with the information provided in the AMP and the demand forecast in schedule S12c.

sch ref

Forecast Utilisation of Heavily Utilised Pipelines

Utilisation

Region	Network	Pressure system	Nominal operating pressure (NOP) (kPa)	Minimum operating pressure (MinOP) (kPa)	Total capacity at MinOP (scmh)	Remaining capacity at MinOP (scmh)	Unit	*Current Year CY* y/e 30 Sep 21	*CY+1* y/e 30 Sep 22	*CY+2* y/e 30 Sep 23	*CY+3* y/e 30 Sep 24	*CY+4* y/e 30 Sep 25	*CY+5* y/e 30 Sep 26	Comment
Hawke's Bay	Hastings	Hastings LMP	150	75	1,584	31	scmh	1,592	1,640	1,688	1,736	1,784	1,832	Design for a phased upgrade is under way. In FY23, the first phase of the upgrade is modelled as an additional MP main to improve supply into Havelock North. If strong growth continues, a second phase to upgrade the main to LIP with a new supply point into Havelock North is expected in RY27. This will be delivered once a droop >60% is recorded.
							kPa	70	85	76	66	55	72	
Hawke's Bay	Hastings	Taradale	150	75	1,003	48	scmh	957	987	1,017	1,047	1,077	1,077	Domestic growth is progressing, but at a slower rate than previously forecast. The reduced growth speed is attributed to delays in greenfields development completions. Droop is expected to reach approximately 50% by RY25. A pressure uplift is scheduled for FYE25. The desired NOP after uplift is at least 210kPa, potentially allowing merging with the adjacent Napier LMP subsystem. Strong growth in small commercial connections may move works forward by an additional year. Monitoring is ongoing.
							kPa	93	89	82	153	148	148	
Hutt Valley/Porirua	Belmont	Belmont LIP	860	430	16,080	126	scmh	16,067	16,168	16,261	16,373	16,424	16,451	The low pressure point resides at Norfolk DRS (Wainuiomata). With the renewal of the Avalon LIP DRS in RY22 (Avalon rationalisation), pressures have improved slightly at this point (because of the Avalon station delivering better pressures than the old station). Droop of 60% is forecast on the Belmont LIP at Norfolk DRS inlet in Wainuiomata in RY27 (was RY25 in the 2020 AMP and RY26 in 2021 AMP Update). With the renewal of the Norfolk DRS in RY22 (Wainuiomata rationalisation), we can allow pressure down to 300kPa before differential across this station is no longer acceptable. We no longer anticipate the need for the Wainuiomata IP reinforcement project over the planning period.
							kPa	454	434	413	391	367	342	
Hutt Valley/Porirua	Belmont	Lower Hutt LMP	125	63	7,028	42	scmh	7,024	7,024	7,024	7,024	7,024	7,024	The low pressure constraint on this subsystem is limited to a single branch of the Lower Hutt LMP subsystem. We permanently monitor the lowest point on the constrained branch. Strong infill residential growth in Lower Hutt central may cause a decline in pressure at this extremity. In the event of a decline in pressures, a new cocon in Lower Hutt Central will improve pressures.
							kPa	64	64	64	64	64	64	
Hutt Valley/Porirua	Belmont	Wainuiomata	104	52	1,147	9	scmh	1,132	1,144	1,156	1,168	1,180	1,192	Removal of The Strand DRS in RY22 (as part of the Wainuiomata rationalisation project) has seen this pressure system become highly utilised. However pressures are expected to remain within specification over the planning period. The low pressure point is in the south, away from the growth area.
							kPa	59	59	59	59	59	58	

21		Hutt Valley/Porirua	Waitangirua/ Pāuatahanui	Elsdon LMP	104	52	420	4	scmh	414	414	435	455	474	480	Growth in the form of small subdivisions is expected, but the location of the growth is not expected to impact on the constrained area's performance. We continue to monitor performance on this system.
22									kPa	59	59	59	59	59	59	
23		Hutt Valley/Porirua	Waitangirua/ Pāuatahanui	Pāuatahanui IP	1,050	525	1,096	105	scmh	1,052	1,069	1,159	1,250	1,321	1,384	Expected residential growth in Plimmerton will be significant and will exceed the IP capacity if upgrades are not undertaken. A planned RY25 gas gate pressure uplift to 1500kPa will improve the pressures further as the large subdivision progresses.
24									kPa	609	597	451	1,134	1,049	953	
25		Manawatū	Palmerston North	Palmerston North LMP	100	50	5,839	25	scmh	5,882	5,932	5,972	5,984	6,004	6,016	To address a number of issues such as low extremity pressures, advanced age regulator stations and a large number of small stations, East and West (of State Highway 3) rationalisations have been scoped for FYE2023 and FYE2030, respectively.
26									kPa	40	54	53	53	53	53	
27		Manawatū	Palmerston North	Summerhill	100	50.0	526	17	scmh	433	472	530	572	622	652	As the biggest identified area for growth in Palmerston North, we will actively monitor demand and pressure levels. Droop of 60% and pressures approaching the capacity limit are forecast in RY26 if no action is taken and growth continues as projected. To prevent capacity limits being exceeded, it is proposed to raise the NOP to approximately 150kPa in FYE26. Growth has not been as large as anticipated in the 2020 AMP, and this has been deferred from RY24 to RY26.
28									kPa	70	65	51	44	109	103	

29	Manawatū	Oroua Downs	Oroua Downs MP	330	165	216	41	scmh	261	261	261	261	261	261	The system is at capacity because of an existing large commercial consumer. If local customers require more gas or greater pressures beyond what was delivered, further substantial upgrades will be required.
30								kPa	63	63	63	63	63	63	
31	Taranaki	New Plymouth	Bell Block North	225	112.5	915	42	scmh	868	925	964	1,003	1,042	1,081	Strong residential growth occurring in the east of this pressure system sees it become a HUP in RY25. By RY27 we are just above MinOP, with reinforcement expected in the second half of the planning period.
32								kPa	150	144	138	131	125	117	
33	Taranaki	New Plymouth	New Plymouth IP	1250	625	7,866	437	scmh	7,920	8,030	8,106	8,181	8,257	8,332	Pressures at the inlet to Tukapa St station are observed near 50% droop at peak. This is not forecast to have any quality of supply impact in the foreseeable future as the regulator station is adequately sized to perform under low inlet pressures. The station is permanently monitored via SCADA.
34								kPa	596	594	584	573	561	550	
35	Taranaki	New Plymouth	New Plymouth MP	245	122.5	5,560	61	scmh	5,545	5,364	5,400	5,437	5,473	5,510	There is a single branch of this network where low pressures have been detected. The localised constraint is because of a relatively long run of a relatively low diameter main supplying industrial customers near Breakwater Rd. This has been designed and is scheduled for upgrade in RY23 (Hutchen Place reinforcement project) to meet commercial growth needs which will see this localised area become isolated and operate as an independent pressure system within specification. The remainder of the network has pressures within specifications, even considering reasonable residential demand growth, and therefore will no longer remain a HUP following this project.
36								kPa	135	165	163	160	157	152	
37	Taranaki	Pātea	Pātea	350	175	357	56	scmh	355	355	355	355	355	355	Gas gate volumes through Pātea have been slowly trending down for the past five years, hence the improvement compared with historical AMP figures. Monitoring is ongoing.
38								kPa	178	178	178	178	178	178	
39	Taranaki	Waitara	Lepperton MP	350	175	374	36	scmh	401	401	401	401	401	401	This is a new pressure system that was created when Lepperton was uplifted and separated from Waitara. The network is constrained because of some larger demand chicken sheds at the extremity of the smaller diameter network. There have been no pressure issues and we don't anticipate any growth. There are no plans to upgrade capacity further unless demand increases.
40								kPa	85	85	85	85	85	85	
41	Taranaki	Waitara	Waitara MP	250	125	808	9	scmh	784	784	784	784	784	784	The supplies to Lepperton and Waitara have been separated. The supply pressure in Lepperton was increased to ease supply constraints in that network. The current Waitara network extremity of the droop is approximately 40%. Monitoring is ongoing. The droop is not projected to worsen significantly as modest rates of residential growth continues in Waitara.
42								kPa	137	137	137	137	137	137	
43	Wellington	Tawa A	Chartwell	70	45	239	0	scmh	189	207	225	235	235	235	The subdivision growth to the north is expected to be completed in RY25. Some infill growth may continue, but we no longer expect this system to require reinforcement over the planning period. We will monitor the pressure and demand on the network, and increase the NOP if needed.
44								kPa	61	58	50	45	45	45	
45	Wellington	Tawa A	Karori	135	67.5	1,766	16	scmh	1,770	1,770	1,770	1,770	1,770	1,770	Pressures are slightly below MinOP, however with minimal infill growth and no forecast subdivision growth, this is running at an acceptable level. We will look to reinforce the network if pressures drop below 54kPa.
46								kPa	64	64	64	64	64	64	
47	Wellington	Tawa A	Wellington 25 kPa	25	12.5	13,403	22	scmh	13,384	13,384	13,384	13,384	13,384	13,384	The low point is localised within the Thorndon, Wadestown and Northland area of the system. With the planned removal of the Butavas St PRS feeding in from the Wellington North pressure system, we may see pressures drop to about MinOP. Pressures will be confirmed over winter 2022. We don't expect any need to reinforce the network and will continue to actively monitor pressures across the system.
48								kPa	14	12	12	12	12	12	
49	Wellington	Tawa A	Wellington LIP	1200	600	23,663	242	scmh	23,865	24,036	24,139	24,242	24,338	24,387	The low point on this system is Karori. The Minimum Operating Pressure has been reviewed and set to 335kPa. With the cancellation of the Karori rationalisation, we do not expect an improvement on the MinOP, however we also do not expect it to breach MinOP over the planning period. We will continue to monitor through SCADA.
50								kPa	397	386	382	379	376	374	

Wellington	Tawa A	Wellington North	185	92.5	5,151	88	scmh	5,181	5,115	5,196	5,283	5,370	5,424	Pressures recorded at the lowest pressure point on the network, the inlet to a small regulating station (Butavas St) feeding into the 25kPa network, in winter 2021 were lower than ever recorded. In winter 2022, we will perform a feasibility study to remove this station. Modelling indicates this will be feasible and will remove the pressure constraint at this point on the network. If the trial is successful, we will keep the station offline and remove it in RY23, seeing an improvement in pressures immediately.
							kPa	75	104	99	90	79	113	Subdivision activity in the northern part of the region will increase demand, however growth has been slower than expected. We expect constraints in Churton Park by RY25 and designed an overlay on Lakewood Ave (previously Westchester Drive) to be constructed by FYE27. Subdivision growth in Grenada Village has slowed and we do not expect the need to reinforce the area (Mark Avenue overlay) in the next five years. This system is being continuously monitored.

** Current year utilisation figures may be estimates. Year 1–5 figures show the utilisation forecast to occur given the expected system configuration for each year, including the effect of any new investment in the pressure system.*

Disclaimer for supply enquiries

The information in this table contains modelled estimates of utilisation and capacity. Any interested party seeking to invest in supply from Powerco's distribution networks should contact Powerco or their retailer and confirm availability of capacity.

Notes and assumptions

Growth patterns used reflect our knowledge at the time of writing.
If the growth is expected to spread over multiple years, it is uniformly spread over that period.
The number of lots identified is multiplied by 0.6scm/h to calculate a diversified load per connection. This is summed and placed at a single point in the model where the load is expected to occur.
If the growth specified is inferior to our other supply forecasts, we reconcile these by adding the load at one extremity of the network.

Company Name	**Powerco Limited**
AMP Planning Period	**1 October 2022 – 30 September 2032**

SCHEDULE 12c: REPORT ON FORECAST DEMAND

This schedule requires a forecast of new connections (by consumer type), peak demand and energy volumes for the disclosure year and a five-year planning period. The forecasts should be consistent with the supporting information set out in the AMP, as well as the assumptions used in developing the expenditure forecasts in Schedule 11a and Schedule 11b, and the capacity and utilisation forecasts in Schedule 12b.

sch ref

12c(i) Consumer Connections

Number of ICPs connected in year by consumer type

Consumer types defined by GDB	*Current year CY* **30 Sep 21**	*CY+1* **30 Sep 22**	*CY+2* **30 Sep 23**	*CY+3* **30 Sep 24**	*CY+4* **30 Sep 25**	*CY+5* **30 Sep 26**
Residential	1,915	1,968	2,009	2,040	2,064	2,082
Commercial / Industrial	103	106	106	106	106	106
Total	2,018	2,074	2,115	2,146	2,170	2,188

12c(ii): Gas Delivered

	Current year CY **30 Sep 21**	*CY+1* **30 Sep 22**	*CY+2* **30 Sep 23**	*CY+3* **30 Sep 24**	*CY+4* **30 Sep 25**	*CY+5* **30 Sep 26**
Number of ICPs at year end (at year end)	113,742	115,343	116,939	118,543	120,144	121,733
Maximum daily load (GJ per day)	45,831	46,203	45,958	45,712	45,467	45,221
Maximum monthly load (GJ per month)	990,338	998,389	993,081	987,773	982,464	977,156
Number of directly billed ICPs (at year end)	-	-	-	-	-	-
Total gas conveyed (GJ per annum)	8,696,972	8,881,488	8,898,200	8,914,911	8,931,622	8,948,334
Average daily delivery (GJ per day)	23,827	24,333	24,379	24,358	24,470	24,516
Load factor	73.18%	74.13%	74.67%	75.21%	75.76%	76.31%

Company Name	Powerco Limited
For Year Ended	30 September 2022

Schedule 14a: Mandatory Explanatory Notes on Forecast Information

1. This schedule requires GDB's to provide explanatory notes to reports prepared in accordance with clause 2.6.6.
2. This schedule is mandatory – GDB's must provide the explanatory comment specified below, in accordance with clause 2.7.2. This information is not part of the audited disclosure information, and so is not subject to the assurance requirements specified in section 2.8.

Commentary on difference between nominal and constant price capital expenditure forecasts (Schedule 11a)

3. In the box below, comment on the difference between nominal and constant price capital expenditure for the current disclosure year and the 10-year planning period, as disclosed in Schedule 11a.

Box 1: Commentary on difference between nominal and constant price capital expenditure forecasts
The index used to translate nominal $ forecasts into constant $ forecasts is the Statistics NZ CPI (All Groups). The CPI index applied is the annual average rate of increase based on the CPI index predictions included in the NZIER Quarterly Predictions from March 2022. For example, the index used for the year ending 30 September 2023 is based on the annual average movement using CPI predictions (actuals were available) as follows: (Q1 RY23 + Q2 RY23 + Q3 RY23 + Q4 RY23) / (Q1 RY22 + Q2 RY22 + Q3 RY22 + Q4 RY22).

1.

Commentary on difference between nominal and constant price operational expenditure forecasts (Schedule 11b)

4. In the box below, comment on the difference between nominal and constant price operational expenditure for the current disclosure year and the 10-year planning period, as disclosed in Schedule 11b.

Box 2: Commentary on difference between nominal and constant price operational expenditure forecasts
The index used to translate nominal $ forecasts into constant $ forecasts is the Statistics NZ CPI (All Groups). The CPI index applied is the annual average rate of increase based on the CPI index predictions included in the NZIER Quarterly Predictions from March 2022. For example, the index used for the year ending 30 September 2023 is based on the annual average movement using CPI predictions (actuals were available) as follows: (Q1 RY23 + Q2 RY23 + Q3 RY23 + Q4 RY23) / (Q1 RY22 + Q2 RY22 + Q3 RY22 + Q4 RY22).

CERTIFICATE FOR YEAR-BEGINNING DISCLOSURES

Pursuant to clause 2.9.1 of Section 2.9

We, PAUL CALLOW and John Loughlin, being Directors of Powerco Limited certify that, having made all reasonable enquiry, to the best of our knowledge:

a) the following attached information of Powerco Limited prepared for the purposes of clauses 2.6.1, 2.6.6 and 2.7.2 of the Gas Distribution Information Disclosure Determination 2012 in all material respects complies with that determination.

b) The prospective financial or non-financial information included in the attached information has been measured on a basis consistent with regulatory requirements or recognised industry standards.

c) The forecasts in Schedules 11a, 11b, 12a, 12b and 12c are based on objective and reasonable assumptions which both align with Powerco Limited's corporate vision and strategy and are documented in retained records.

Director

Director

19/09/2022
Date

19/09/2022
Date

8. Glossary of terms

AMP means Asset Management Plan.

ARR means asset replacement and renewal network development plans.

Capital Expenditure (capex) means the expenditure used to create new assets or increase the service performance or service potential of existing assets beyond the original design service performance or service potential. Capex increases the value of the asset stock, and is capitalised in accounting terms.

CBD means Central Business District.

CP means Cathodic Protection.

DPP means Default Price-quality Path.

DRS means District Regulator Station.

ERP means Emissions Reduction Plan.

FY means Financial Year ending 31 March of the year in question.

GDB means Gas Distribution Business.

GFSA means Gas Field Service Agreement.

GRO means growth network development plans.

ID means Information Disclosure.

IP means Intermediate Pressure (700-2000kPa).

ISO 55000 refers to the International Standard Organization publication 55 000. It is a suite of three documents

KPI means Key Performance Indicator.

LP means Low Pressure (0-7kPa).

MBIE means Ministry of Business, Innovation and Employment.

MP means Medium Pressure (7-700kPa).

NPS means Net Promoter Score.

Operational Expenditure (opex) Operating expenditure (opex) is expenditure directly associated with running the gas distribution network, and ensures it is operating safely at any time. Operating expenditures include maintenance and inspection expenditures required to survey and maintain the assets to achieve their original design lives and service potentials. It also includes the expenses related to our third-party prevention programme.

PE means Polyethylene, which is the material plastic gas pipes are made from.

QOS means quality of supply network development plans.

RY means Regulatory Year ending 30 September of the year in question.


POWERCO