Firstgas GAS DISTRIBUTION Asset Management Plan 2023 AMP Summary Document



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I OREA TE TUATARA KA PUTA KI WAHO

– Ta Hirini Moko Mead

Translation:

The Tuatara comes out before it is too late. A problem is solved by continuing to find solutions.

Message from our Chief Executive

Tēnā koutou katoa and welcome to First Gas Limited's (Firstgas) Gas Distribution Asset Management Plan 2023.

There is no doubt that we are in a critical period for our business, as New Zealand progresses towards achieving net-zero 2050. While opportunity is abundant, we are also faced with uncertainty within the energy sector. Ultimately, we all want a low carbon energy future that's affordable, reliable and meets the diverse needs of all New Zealanders. This is why Firstgas remains focused on investing in and maintaining a safe, reliable and resilient distribution network for its customers, and continues to develop and evolve our renewable gas plans, which is reflected in the work that has been achieved over the last 12 months.

The impacts of the severe weather and cyclones early in 2023 reminded us all of the importance of infrastructure resiliency. While there was no major damage to its distribution network and gas supply continued, we have been looking at how our assets can operate with the likely possibility of more severe weather events in the future.

We have continued to focus on the reliability of the distribution system and maintaining compliance to increase the resilience, security of supply and reduce the emissions of the network. This has been achieved this year with such projects as the Pre-85 Polyethylene Pipeline Replacement Programme, updates to our network monitoring and communications systems, maintenance inspections and valve replacements.

With a strong interest in the economic and technical regulation of the gas sector, and the wider energy sector, we have provided recommendations on the Climate Change Commission's Draft advice on the second emissions reduction plan, the Commerce Commission IM Review and DDP4 Review and continue to participate in the development of the Gas Transition Plan. It's no secret that we are a strong and vocal advocate about the future of renewable gas as part of a low carbon energy system. It provides kiwis with energy choice, a more diverse energy system and we can use and adapt the gas infrastructure we already have in place.

Substantial work has been done to progress our renewable gas projects this year. We are on track to deliver New Zealand's first, state-of-the-art biogas to biomethane upgrading facility, in Q2 next year. We have also made further progress on the development and planning of our first hydrogen blend trial – also a first for New Zealand.

Looking ahead to next year, we are accelerating into the opportunities that decarbonisation presents, and sharpening our focus. At the heart of our business are our people. We lead a safety-first culture and we work as one dedicated team. We are excited about the future. We have a clear strategy, and a host of opportunities in front of us to make sure New Zealanders are delivered natural gas safely and reliably, right now, while we plan for renewable gas in the future.

I hope you find the 2023 AMP Plan for our gas distribution business interesting and informative. We look forward to working with you in the coming year and welcome feedback on this year's AMP Update.

Ngā mihi nui

odeve

Paul Goodeve Chief Executive



Glossary

| TERM | DEFINITION | | |
|--------------|--|--|--|
| AMMAT | Asset Management Maturity Assessment Tool | | |
| АМР | Asset Management Plan | | |
| Asset grades | Grade 1: means end of service life, immediate intervention required. Grade 2: means material deterioration but asset condition still within serviceable life parameters. Intervention likely to be required within three years. Grade 3: means normal deterioration requiring regular monitoring. Grade 4: means good or as new condition. Grade unknown: means condition unknown or not yet assessed | | |
| Capex | Capital expenditure - The expenditure used to create new or upgrade existing physical assets in the network, as well as non-network assets, e.g. Capital expenditure - the expenditure used to create new or upgrade existing physical assets in the network, as well as non- network assets, e.g. IT or facilities | | |
| COO | Chief Operating Officer | | |
| DPP | Default Price Path | | |
| DRS | District Regulating Station | | |
| EDB | Electricity Distribution Business | | |
| FSP | Field Service Provider | | |
| FY2019 | Financial year ending 30 September 2019 | | |
| GDB | Gas Distribution Business | | |
| GIS | Geographical Information System | | |
| GMS | Gas Measurement System - commonly referred to as a gas meter | | |
| HSEQ | Health, Safety, Environment and Quality | | |
| ICP | Installation Control Point - the connection point from a customer to the Firstgas network | | |
| IMs | Input Methodologies - documents set by the Commerce Commission which promote certainty for suppliers and consumers in relation to the rules, requirements, and processes applying to the regulation under Part 4 of the Commerce Act 1986 | | |

| TERM | DEFINITION | | |
|-------|--|--|--|
| IP | Intermediate pressure | | |
| іт | Information Technology | | |
| kPa | Kilo-Pascal, a unit of pressure | | |
| КРІ | Key Performance Indicators | | |
| MP | Medium pressure | | |
| NZTA | New Zealand Transport Agency | | |
| NZUAG | New Zealand Utilities Access Group | | |
| Opex | Operational Expenditure - the ongoing costs directly associated with running the Gas Distribution System. This includes costs both directly related to the network (e.g. routine and corrective maintenance, service interruptions/incidents, land management) and non-network related expenditure (e.g. network and business support) | | |
| PE | Polyethylene | | |
| PJ | Petajoule (unit of energy) = 1*10^15 Joules | | |
| RTE | Response time to emergencies | | |
| scm/h | Standard cubic meters per hour (unit of gas flow rate) | | |
| TJ | Terajoule (unit of energy) = 1*10^12 Joules | | |

A full glossary is also included in Appendix A - Glossary of the supporting appendices for this Asset Management Plan.

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7.2

Managing Conflicting Interest

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1. Introduction

This is the Gas Distribution Asset Managment Plan (AMP) for Firstgas Group Limited, for 2023.

Firstgas owns and operates more than 4,800 kilometres of gas distribution pipelines that service approximately 65,000 consumers across the North Island.

As the sole provider of gas distribution services in the areas operated, Firstgas is regulated under Part 4 of the Commerce Act 1986 and subject to both price-quality path and information disclosure regulation. Producing an AMP each year is a regulatory requirement, as well as being a key document guiding the operations of the business and engagement with customers and stakeholders.

This section outlines the purpose, scope and structure of the 2023 AMP and provides an overview of the overall business and the gas distribution network. Key regulatory and environmental changes that are influencing the gas distribution business are also set out.



1.1 Purpose of the Gas Distribution AMP (GDB)

The purpose of the GDB AMP is to describe the asset management processes that are used to manage the gas distribution network and its assets. The AMP focuses on how Firstgas intends to manage these assets over the next 10 years (the planning period) to both achieve asset management objectives and meet stakeholder expectations. It also sets out sufficient information so that customers and stakeholders can understand how key asset-related risks are addressed, the performance targets set for the gas distribution network and how efficiencies and improvements are being achieved across the business ¹.

The AMP also provides the opportunity to update stakeholders on progress against the previous AMP update ², and outline the key priorities for the year ahead. This is an important part of ongoing stakeholder engagement and enables customers to evaluate the value being delivered through capital programme investment.

It will be communicated throughout this AMP, how the following important objectives for the gas distribution network will be achieved:

Safety commitment: the safety of staff, service providers and the general public is paramount.

Engaged stakeholders: consult with stakeholders, particularly on planned investments, and inform stakeholders about the intentions for managing the gas transmission system. This requires Firstgas to provide clear descriptions of all assets, key strategies and objectives.

Performance accountability: provide visibility to stakeholders on performance and information on the performance of the system.

Investment planning: provide visibility of forecasted system investment programmes and upcoming medium-term construction works, with a clear rationale as to why planned investments are the best way to meet service requirements. **Investment planning:** provide visibility of forecasted system investment programmes and upcoming medium-term construction works, with a clear rationale as to why planned investments are the best way to meet service requirements.

Informed staff and contractors: provide guidance and clarity on the asset management approach to our employees and service providers that ensures a common understanding and adequate resourcing.

Regulatory compliance: ensure Information Disclosure obligations ³ set by the Commerce Commission are met.

1.2 Period covered by the AMP

The AMP covers a ten-year forecast period from 1 October 2023 through to 30 September 2033 (the planning period). This aligns with the financial and pricing year for Firstgas - 1 October to 30 September. The expenditure forecasts presented in this AMP are expressed in constant 2023 prices (unless otherwise stated).

The 2023 AMP for the Firstgas distribution business was approved by the Board of Directors on 20 July 2023.

1 As specified in section 2.6.2 of the Gas Distribution Information Disclosure Determination 2012, consolidated as at 3 April 2018, Commerce Commission.

2 Gas distribution 2022 AMP Update, available here: https://firstgas.co.nz/wp-content/uploads/Firstgas-2022-Distribution-AMP-UpdateFinal.pdf

3 Gas Distribution Information Disclosure Amendments Determination 2012, consolidating all amendments as at 3 April 2018.

1.3 Scope of the 2023 AMP

The 2023 AMP sets out planned investments in the gas distribution network during the planning period. It explains how Firstgas will develop the distribution network, renew assets and undertake maintenance to provide a safe, reliable and valued service to customers.

Expenditure forecasts and planned projects over the 10-year planning period are based on analysis of customer, system and asset information, and reflect a relatively high degree of accuracy (to the extent reasonably possible) in the descriptions and forecasts. Capital expenditure (Capex) and operational expenditure (Opex) forecasts are set out in the AMP and provide important inputs to the Firstgas Group Annual Business Plan.

The 2023 AMP complies with the requirements for a full Asset Management Plan, as specified in the Commerce Commission's Information Disclosure Determination ³ *Appendix M - Regulatory Compliance Report* provides a detailed reference table, describing compliance with each aspect of the Information Disclosure requirements.

1.4 Structure of the AMP

The 2023 AMP follows the structure that Firstgas adopted in previous AMPs and is comprised of two parts:

AMP Summary: this standalone document provides an overview of the business, what has been achieved over the past 12 months, and the key activities for the coming year. It also provides a summary of the forecast expenditure over the next 10 years. This document has been designed for those customers and stakeholders who require a concise overview of the AMP over the planning period.

Supporting Appendices: the appendices support the information provided in the standalone summary and provide a much greater level of detail and commentary on the distribution network and asset management practices. The appendices also include the regulatory schedules.

The full structure of the 2023 AMP appendices is set out in Table 1 below.

Table 1: Structure of the 2023 Distribution AMP

Standalone appendices in one consolidated document

| AMP summary document | Provides an overview and summary of the activities Firstgas has undertaken and planning to undertake for the planning period. | | |
|----------------------------|--|--|--|
| Appendix A | Glossary | | |
| Appendix B | Information Disclosure Schedules | | |
| Appendix C | Network Overview | | |
| Appendix D | Network Maps | | |
| Appendix E | Asset Fleets | | |
| Appendix F | System Development | | |
| Appendix G | Network Development Programme | | |
| Appendix H | Asset Management Approach | | |
| Appendix I | Load Forecasts | | |
| Appendix J | Expenditure Overview | | |
| Appendix K | Asset Maintenance Schedules | | |
| Appendix L | Significant Projects | | |
| Appendix M | Regulatory Compliance Report | | |
| Appendix N | Director's Certificate | | |

2. Overview of Firstgas

This section introduces the Firstgas business and provides an overview of how the organisation is structured. It also provides key information on the gas distribution network, the approach to asset management and managing risk and the key regulatory, policy and environmental factors influencing the business over the past year and potential influences in the future.

2.1 Corporate Structure of Firstgas

Firstgas is part of Firstgas Group and is owned by funds associated with Igneo Infrastructure Partners, which is part of the First Sentier Investors group, who in turn is part of the Mitsubishi UFJ Financial Group (MUFG). First Sentier Investors is a long-term infrastructure investor with experience in the regulated utility sector with assets across Europe, the United Kingdom, Asia, and New Zealand ⁴.

The creation of Firstgas in 2016 is the first time that gas transmission assets in New Zealand have had a common owner, alongside an extensive distribution network. Firstgas believes that common ownership is delivering three distinct advantages for gas industry participants and consumers:

- A strong commercial interest in maximising the competitiveness of gas.
- To bring new capabilities to the team to capitalise on opportunities in the use of the gas transmission system and gas distribution network.
- An ability to operate the gas transmission system and the gas distribution network and manage assets in ways that better serve the interests of all customers.

Firstgas remains focused on actively promoting the use of gas and ensuring work signalled in the AMP maximises the value obtained from the gas networks.

2.1.1 Firstgas Group Board

Firstgas Group is governed by a Board of Directors, chaired by Mark Ratcliffe. The Board has a mixture of professional infrastructure experience from both sides of the Tasman. Biographies for the individual Board members are available here **www.firstgas.co.nz**

2.2 Organisational Structure

Firstgas has approximately 282 staff (excludes Rockgas staff), with most staff based in the corporate headquarters in Bell Block, New Plymouth, with small teams located in Wellington, Auckland, Palmerston North and Hamilton.

The Executive team is headed by Chief Executive Paul Goodeve, with eight direct reports ⁵. The organisational structure is illustrated in Figure 1 below.



4 More information on First Sentier Investors is available on their website:

https://www.firstsentierinvestors.com.au/au/en/institutional/about-us/corporate-profile.html

5 Firstgas reviewed its organisational structure July 21

6 GM means General Manager

2.3 Delivery Model for Gas Distribution

Field maintenance for the gas distribution business is outsourced to field service providers (FSP), Omexom. In April 2023 Electrix began its operations under its new name, Omexom. Omexom will continue to be responsible for the preventive, corrective and reactive maintenance works on the gas distribution network and reports through to the Distribution Manager, who reports to the COO.

2.4 The Gas Distribution Network

The Firstgas distribution business incorporates gas distribution networks across the Northland, Waikato, the Central Plateau, Bay of Plenty, Gisborne and Kapiti Coast regions of the North Island, as highlighted in blue in Figure 2. Gas distribution services are provided to retailers who sell gas to approximately 66,000 residential, commercial and industrial customers.

The key statistics for the gas distribution network, as at 1 October 2022, are set out in Table 2.

Table 2: Key Gas DistributionStatistics as at 1 October 2022

| Statistic | Value |
|------------------------------------|--------|
| Consumers connected | 66,883 |
| System length (km) | 4,843 |
| Consumer density (consumer/km) | 13.8 |
| District regulating stations (DRS) | 125 |
| DRS density (system km/DRS) | 38.7 |
| DRS utilisation (consumers/DRS) | 535 |
| Gas conveyed (PJ per annum) | 9.431 |



Figure 2: The gas distribution areas



2.5 Asset Categories

Gas distribution networks are made up of a number of distinct asset types. A number of categories are used to organise the asset base:

Distribution pipes: this covers the network of pipes used to transport gas from the outlet valve of the gas transmission system and terminates at the inlet valve on a consumer's gas measurement system (GMS), or gas meter. The pipes are constructed primarily from polyethylene (PE) and steel.

Pressure stations: are used to link two different pressure levels in the distribution network through pressure regulators. They are the points of input to a pressure level and are able to maintain a consistent inlet condition to that system.

Valves: are used to isolate the flow of gas within the system when required or to vent gas in the event of an emergency.

Corrosion protection equipment: steel or metallic pipes and equipment installed in the gas distribution system (either above or below ground) are susceptible to corrosion. Various measures must be employed to ensure the integrity of the asset is maintained.

Monitoring systems: at various strategic locations throughout the gas distribution network, monitoring systems are installed to observe and record network data.

Special crossings: are locations where a section of pipe is installed either above or below ground in order to cross over a roadway, river, railway or any area of interest with a differing risk profile from a standard installation.

Further information on the distribution assets is provided in *Appendix C – Network Overview*.

2.6 Asset Management Approach

The Firstgas approach to asset management is guided by a suite of asset management documents and practices that ensure performance objectives and the expectations of stakeholders are met. The approach incorporates:

Asset Management Framework: ensures alignment between corporate objectives and day-to-day asset management activities. It covers the strategic plan that guides the subsequent development of the asset management system, asset management policy, objectives and ultimately, this AMP.

Asset Management System: links the corporate objectives and stakeholder needs to specific asset management approaches through the Asset Management Policy. It aligns with the requirements of ISO55001, the international standard for asset management, and seeks to reflect best practice.

Performance Measures: set out the overall asset management performance objectives and the key performance indicators (KPIs) that Firstgas regularly monitor to ensure a safe and reliable gas distribution system is provided. Where appropriate, the targets have been developed to align with the definitions developed by the Commerce Commission for information disclosure.

Asset Management Maturity Assessment Tool (AMMAT) and Benchmarking: this discusses the outcome of the AMMAT review and other benchmarking exercises.

The AMP captures the key elements of this asset management document suite in a summarised form and explains the asset management strategy and approach to both internal and external stakeholders. Greater detail on the approach to Asset Management and KPIs is set out in *Appendix H – Asset Management Approach* and the detailed AMMAT review is included in *Appendix B – Information Disclosure Schedules*.

2.6.1 Managing Firstgas Assets Through Uncertainty

Undoubtedly, as New Zealand progresses towards achieving net zero by 2050, there is significant uncertainty within the energy sector. Despite this uncertainty, well-defined programs and areas of focus have been identified that require continuous investment. It is crucial that the network maintains its reliability, sustainability and cost-effectiveness for all users while fully understanding the scope and consequences of the network's future.

With significant unknowns regarding the future it is no longer viable to manage assets in a businessas-usual manner. To gain a better understanding of how the assets will be affected during the transition, Firstgas is actively developing a range of scenarios that could potentially represent the future. The objective behind this effort is to formulate an asset management strategy that will safeguard the performance, safety and reliability of its networks well into the future.

The scenarios are not a forecast but a distinctly different view of possible futures which reflect a realistic range of potential outcomes. Under each of these scenarios, Firstgas will evaluate the commercial and technical implications and develop an overall roadmap which will identify key signposts, triggers and decision points providing guidance for decision making.

At the time of updating the AMP, Firstgas was in the early stages of finalising the different scenarios and will continue with analysis and impact assessments throughout the remainder of FY2023 and into FY2024. The outcome of this analysis will then enable Firstgas to develop an asset management strategy that will reflect the environment in which the business is operating.

2.6.2 Key Asset Focus Areas

In previous publications of the AMP the need to respond to pre85/75 Pipelines issues were highlighted and the focus on growth opportunities on the Distribution networks. This continues over the full planning period, in addition to the following asset focus areas:

Replacement of Network Monitoring Equipment Special Crossing Remediation.



2.6.3 Pre-85 Polyethylene Pipeline Replacement Programme

Research indicates that much of the PE pipes manufactured and used for gas service from the 1960's to the early 1980's are susceptible to premature brittle like failures when subjected to stress intensification.

Fault analysis data for the 2013 to 2015 period indicates that squeeze-off failures accounted for 44% of the Pre-85 PE mains pipe failures. When looking more closely at these squeeze-off failures, the pre-85 PE pipes and more significantly the Pre-75 PE pipes, have brittle-like crack characteristics that deteriorate over time, eventually leading to mains failure.

The key factors that accelerate the failures are:

- PE mains pipe squeeze-off, including age and process followed
- Occluded particles contacting the pipe surfaces
- Connections to PE or steel fittings (including butt welding)
- Sever Pipe bending
- Or any combination of the above.

To address these issues, Firstgas developed a strategy utilising a risk ranking matrix to prioritise each segment of Pre-85 for replacement. The strategy focuses on replacement of high and intermediate assessed pipeline risk. To support the delivery of the program, Firstgas has procured an in-line camera that will be used to assess the condition of the pipelines whilst in service. The benefits of using this technology will be:

- Accurate as found asset condition assessment whilst pipe in service
- Capability to pinpoint locations that require replacing
- Lower cost and reduce inconvenience to customers.

2.6.4 Network Monitoring and Communications Systems

Cello system communicates utilising 2/3G cellular technology. These networks are retiring, prompting the need to upgrade the fleet. In addition to the Cello units the server and platform to support the Cello units is obsolete and no longer supported.

The organisation is actively exploring options to update the data acquisition and analysis system for the Cello units promptly. The goal is to eliminate the need for purchasing the same type of Cellos and the associated monitoring and analysis systems in the future. The focus is on finding a more sustainable and modernised solution encompassing improved hardware and software design.



2.6.5 Special Crossings Risk Remediations

Ensuring adequate access to the special crossing to carry out maintenance inspections is an on-going challenge at some special crossing sites. This can be due to the physical design of the bridge structure (e.g. the carrier pipe is encased within the structure), or the need to obtain approval (i.e. from the structure owner or operator) to gain access to the bridge structure.

On review of the maintenance reports, it has been determined that the condition of the fleet has deteriorated worse than anticipated. The special crossing sites require various levels of upgrade work over the coming planning period. A number of sites have been identified for immediate remediation in FY2024. A programme will be developed for the remainder of the period for the on-going need to overhaul or upgrade the crossings where the condition does not meet the standard.

2.7 Impacts from recent Cyclone Gabrielle

New Zealand experienced two significant weather events in the first quarter of 2023. Cyclones Hale and Gabrielle. This has impacted on the pipelines with numerous washouts and slips across the network with each location requiring an assessment to determine the impact to the pipelines and to establish what long-term remediation plans are required.

Firstgas mobilised the emergency management teams to co-ordinate the responses to the weather events. Firstgas emergency management is aligned to the Coordinated Incident Management System that provides model structure for the command, control and coordination of an emergency response. This enables Firstgas to coordinate better with other emergency response agencies using common terminology, structure and processes.

The impacts from Cyclone Gabrielle were primarily felt across the Gas Transmission System. Although the Distribution Network was not directly affected, the cyclone limited visibility of the network, access to areas of the network and cellular communications were lost in Gisborne.

Following the passing of the storm, emergency response focused on surveillance and inspection for damage along the pipeline. Fortunately there were no reports of damage to the gas distribution networks owned by Firstgas, which highlighted the importance of having resilient energy networks.



2.8 Addressing Risks on the Distribution System

Risk management is a key component of good asset management. The consideration of risk plays a key role in asset management decisions - from network development planning, asset replacement decisions through to operational decisions. The assessment of risk and the effectiveness of options to minimise risk is one of the main factors of investment choices.

Key risk and review elements for Firstgas include:

Risk management: core processes are designed to manage existing risks and to ensure emerging risks are identified, evaluated and managed appropriately.

Contingency planning and response: this ensures that Firstgas is prepared for and can respond quickly to, a major incident that occurs or may occur on the gas distribution network.

Event management: this provides clear definitions and guidance for all disciplines to ensure a consistent approach in recognising and reporting events.

Given the potentially severe nature of failures on the gas distribution network (particularly loss of containment), appropriate and effective risk management is integral to day-to-day operations. The asset management information systems and core processes are designed to manage existing risks and to ensure emerging risks are identified, evaluated and managed appropriately. The approach is centred around:

Prioritising safety: risks that may impact the safety of the public, staff and service providers are prioritised.

Ensuring security of supply: asset management processes include formal evaluation of assets against security criteria.

Addressing poor condition / non-standard equipment: the lifecycle management processes seek out critical items of equipment that are at a higher risk of failure or are non-standard.

Formal risk review and sign-off: processes include formal requirements to manage the risks identified, including mandatory treatment of high-risk items and formal management sign-off where acceptance of moderate risks is recommended.

Structured risk management: structured risk capture and management processes are used to ensure key residual risks are visible and signed off at an appropriate level.

Gas industry codes require risk management to be a continuous process at all stages throughout the lifecycle of the gas distribution network. The nature of the gas distribution business is such that there are many inherent risks. In addition, safety management is one of the top operational priorities. The gas distribution business unit has a risk management system that is outlined in 00083 Safety and Operating Plan. This document outlines the minimum requirements and ensures consistency in risk management by the Firstgas business.

Greater detail on the approach to risk management is set out in Appendix H – Asset Management Approach – H3.4.

2.9 Changes to the Regulatory Environment

This section provides an overview of the changes to the regulatory environment for the gas transmission business. Discussion on the refinements to the Part 4 regulatory regime overseen by the Commerce Commission, along with the Government's increased focus on climate change and the impact this will have on Firstgas' business.

2.10 Input Methodology (IM) Review

The Commerce Commission has commenced its review of the Input Methodologies (IM) for GPBs, electricity distribution businesses and airports. The IMs must be reviewed every seven years, with this review due to be completed by December 2023. All sectors are facing uncertainty and different challenges and opportunities that will influence the matters that should be considered through this review.

The Commerce Commission has issued a draft decision on the Input Methodologies for the gas pipeline businesses. Firstgas remains focussed on advocating for IMs settings that:

- Reduce the risk of future price escalation and economic asset stranding.
- Continue to provide sufficient incentives to invest to maintain reliable infrastructure.
- Preserve the option of using current gas infrastructure for renewable gasses in the future.

Firstgas looks forward to engagement with the Commerce Commission and stakeholders through the consultation process to ensure that the regulatory framework supports New Zealand's transition to net zero carbon emissions.

2.1.1 Gas Transition Plan

The Government is working to develop an equitable plan for the transition of the fossil gas sector and will be a key input into the National Energy Strategy. The intent of the Gas Transition Plan (GTP) is to articulate the transition pathway for the phase-out of fossil gas over time, including where and when renewable gases may be required to offset fossil gas use and associated emissions.

The GTP⁷ will outline steps required to decarbonise and reduce reliance on fossil gas while still providing for some fossil gas use to 2035. The work is being led by the Ministry of Business Innovation and Employment and is working with the Gas Industry Company (GIC) to develop the plan. The plan is expected to be completed by the end of 2023.

The desired outcomes from the overall transition for fossil gas out to 2035 is:

- Sustainability Aotearoa New Zealand avoids making decisions that further lock in reliance on fossil fuels.
- Energy Security Security of supply is maintained through the transition, as fossil gas continues to be progressively displaced by renewable, lower emission alternatives.
- Energy Equity Adverse and unexpected effects on fossil gas consumers are prevented or mitigated and consumers retain access to affordable, reliable, and abundant energy. This includes minimising the broader effects on prices paid by consumers, as well as pricing inputs for businesses through the transition.
- Emissions reductions Aotearoa New Zealand prioritises reducing emission in the most economically efficient way. The pace of emissions reductions will need to support Aotearoa New Zealand's emission budgets and 2050 emissions targets.
- Energy Conservation and efficiency Energy conservation and efficiency play a key role in the overall transition.



The Gas Transition Plan is framed around two pillars.

Pillar One Transition pathways for the fossil fuels gas sector, focusing on articulating transition pathways for the sector.

Pillar Two This is intended to develop a cohesive view on renewable gas market developments, including how Aotearoa New Zealand could effectively reduce emissions and lower transition costs for fossil gas consumers.

This focus will also include the role for renewable gases (including green hydrogen, biomethane and renewable Liquid Petroleum Gas (rLPG)) to help support the reduction in emissions from this sector.

7 Source: Terms of Reference for the GTP.

Link here: https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-strategies-for-new-zealand/gas-transition-plan/

3. Preparing the Business for the Future

Firstgas is committed to ensuring that energy can be delivered safely and reliably and is affordable and acceptable to New Zealand families and businesses, both now and into the future.

40.00



3.1 Renewable Gas Work Programmes Established

Firstgas is playing a leading role in the investigation and development of renewable gas – a necessary partner to the electricity grid in decarbonising New Zealand's energy supply.

Substantial work has been done to progress renewable gas projects this year. Firstgas are on track to deliver New Zealand's first, state-of-theart biogas to biomethane upgrading facility, in Q2 next year. Further progress has been made on the development and planning for the hydrogen blend trial – also a first for New Zealand.

Firstgas is continuing with its work on how hydrogen can be utilised as a way to decarbonise parts of the energy eco-system, suited to hard-to-treat emissions, and it provides similar storage benefits as natural gas. Blending hydrogen offers a lower cost energy transition as it allows for the use of existing infrastructure to benefit New Zealand and supports the Government's Renewable Energy Strategy.

3.2 Biomethane to Pipeline Facility

Firstgas believes that biomethane can form part of the transition to renewable gases. Production and utilisation of biomethane via digestion of organic wastes and processing the raw biogas creates benefits for gas users, waste generators, asset owners, their communities, and the environment. The technology for biomethane production is mature and with treatment, biomethane can be used as a direct replacement for methane in the gas pipeline.

A state-of-the-art facility has been built and officially opened in October 2022 and transformation of kerbside food waste collected, is now being processed into biogas. First Renewables Limited⁸ in partnership with Ecogas is building a state-of-the-art biogas to pipeline facility at Ecogas Organic's Processing Facility in Reporoa. The facility will start transforming kerbside food waste into biomethane, a valuable source of renewable gas, from the second quarter of 2024.



Australian company, Eneraque has been commissioned to supply the compressor, which forms an essential part of the facility, the compressor will take the biogas from the anaerobic digesters and send it through the upgrading process, turning it into biomethane, the low carbon equivalent to natural gas. The pressure generated by the compressor then allows the biomethane to be transported through the pipeline to customers on the network.

The equipment is due to arrive in the country by September 2023 and installed. The initial estimated production will supply enough renewable gas, equivalent to supplying 7200 homes and avoiding about 11,000 tonnes of CO2 per year.

In the future Firstgas Group would like to see the development of multiple renewable gas to pipeline facilities in New Zealand, that could produce enough renewable gas to supply all residential users and three quarters of commercial gas users with low carbon gas, equivalent to taking 415,000 petrol cars off the roads.



8 First Renewables is a Firstgas Group Company



3.3 Hydrogen Pipeline Network Trial

Firstgas believes that Hydrogen can play an important role in decarbonising the gas pipeline network. The conversion to hydrogen is complex and Firstgas has established several work programmes to understand how existing infrastructure can be used to transport green hydrogen.

3.3.1 Work Programmes

The following work programmes are currently underway:

- The technical feasibility of converting the gas grid
- Technical Trials the experiments needed to safely convert the grid to hydrogen.
- Assesses the potential sources and uses for hydrogen/hydrogen blends.
- Establish the economics of decarbonisation using hydrogen.

3.3.2 Technical Feasibility

The following two studies were identified as key next steps resulting from the NZ Hydrogen Feasibility study (2021 by Element Energy). The study outlined the requirement to identify the materials and appliances used in New Zealand and assess their compatibility for service.

3.3.3 Network material compatibility study

A key area identified but not fully understood, is a detailed material list of all items used on the transmission and distribution networks and whether these are compatible with hydrogen blends of up to 20% (by volume). This information is required to ensure that sufficient knowledge is available to confirm all equipment will operate as intended and identify any knowledge gaps that may currently exist or areas of significant concern.

Undertaking this study will help identify network segments which can be used in a blended hydrogen service, identify areas where hydrogen repurposing is not possible or will require additional expenditure or operational constraints to be realised. The outputs of this study are intended to provide strategic guidance on the future use of the network in a blended hydrogen service.

3.3.4 Network Appliance Compatibility Study

Another key area identified and not fully understood at this time, is the specific type of appliances used on the network and their compatibility with hydrogen blends.

This study will help identify the population of appliances installed on the gas network and whether appliances which are certified for use in New Zealand for natural gas, are also suitable for use with hydrogen blends. The outputs of this study are intended to provide guidance for future stages of trialling hydrogen blending.

Firstgas has received the reports and is currently reviewing the content that will inform the next actions required.

3.3.5 Technical Trial - Hydrogen Blending Project

The hydrogen blend trial will include all aspects of designing, constructing, and testing the gas delivery pipeline assets. As well as the collation and documenting evidence and subsequent engagement necessary to obtain an exemption from Worksafe to the requirements defined in the Gas (Safety and Measurement) Regulations 2010, which will allow the trial to commence.

The trial will commence with a low level of hydrogen and incrementally increase towards a nominal 10%, ensuring the Wobbe Index is at or above the minimum legal requirement.

Key aspects of phase one of the trial development are as follows:

- Study to determine whether the current network can deliver enough energy to meet projected demand and the modifications required.
- Stakeholder engagement confirming the partners involved in and affected by the trial
- Consumer equipment assessment
- Define the scope and duration of the trial including Worksafe testing requirements
- Technical evidencing
- Design and installation of the hydrogen blending facility.

A section of the network has been selected to undertake the trial, with the project now moving into the final stages of planning prior to execution.

3.4 Partnering with Powering Change - for the Future of Aotearoa

The energy sector will play a key role in helping to reduce emissions and that is why New Zealand's energy companies, including Firstgas Group, have teamed up to create Powering Change, a collective commitment to a more sustainable future for Aotearoa New Zealand.

Powering Change means continuing to make existing energy systems smarter and transforming them to be built around all customers. It means finding better ways to generate, store and use energy, and unlock the potential of technology to get more out of the current energy infrastructure.

Firstgas Group has been involved from the initial planning stages of Powering Change with team members included on the steering group and communications working group. Phase one of the Powering Change campaign saw the launch of its website in 2022 and phase two of the campaign was initiated in August 2023 to create greater awareness and profile of the renewable energy activities Powering Change members are involved in.



Powering Change is not just a name; it's a pledge to Aotearoa New Zealand and it embodies the belief that we can and will meet goals and it is the guiding light that will influence actions on the journey to a more sustainable future. To help us all get there, six key principles have been defined to help steer that journey:

POWERING CHOICE

New Zealand energy users are at the heart of this journey as energy systems become smarter and are transformed around customers' needs; and as new ways of producing, storing, supplying electricity and gas are developed, customers should be able to choose the products they need and how they use their energy.

POWERING INNOVATION

The energy systems are already changing rapidly and as the need for renewable energy grows, the ways to meet that demand will innovate and evolve change to accommodate the needs of all customer types. Innovation, fostering creativity and improving customer choices to reduce emissions is encouraged. Developing new products and finding better ways to do things will play a big part in helping to achieve that and all while ensuring power remains firmly in the hands of the customers.

POWERING AFFORDABILITY

Affordable energy for all New Zealand families and businesses is paramount. The scale of investment required over the coming decades is significant – but the Power Change collaboration is committed to ensuring this investment will not create new problems for households already struggling to meet their energy needs. Conversion to renewable energy has the potential to improve affordability for customers, and we are committed to making this happen.

POWERING RELIABILITY

As a growing proportion of the system will be running on renewable electricity, this heightens the need for a secure reliable service that is critical for all customers. A diverse range of energy sources will be needed to power New Zealand, including natural gas as a transition fuel, so that when the lakes are low and wind and solar are in short supply, power can continue to be supplied to New Zealanders as and when needed.

POWERING COLLABORATION

Moving towards a more renewable energy system will involve all New Zealand families, businesses, and communities. Everyone must have the opportunity to have a say as we work effectively with businesses, government, community, and iwi, to ensure decisions and choices benefit the future of Aotearoa as a whole. This will require collaboration across both the gas sector and the broader energy system.

POWERING CARE FOR THE ENVIRONMENT

The existing renewable energy system relies on the natural environment, it also has the potential to impact the environment, therefore as the system evolves, local guidance will be sought to ensure the natural resources we all rely on are always valued and respected.

To find out more, visit **poweringchange.nz**



3.5 Emissions Reduction

In support of the New Zealand Government's commitments to reach net zero carbon by 2050, Firstgas aims to reduce methane leakage emissions associated with its gas transmission, gas distribution, and Flexgas storage assets by at least 30% percent by 2030, compared to the 2020 levels. It will further aim to reduce emissions towards a net zero methane leakage emissions level by 2050.

The following areas have been identified as opportunities for improvement in relation to emission reductions:

- System pressure management
- Leak detection
- Replacement of network assets as appropriate to reduce emissions.

Firstgas is currently evaluating the opportunities for emissions reductions to prioritise activities that will bring the most value to the organisation.

3.5.1 Emissions Reductions Initiative

Firstgas has purchased a Zero Emissions Vacuum Compressor (ZEVAC) for its network. The unit will primarily be used during maintenance work when there is a need to capture gas that would otherwise have been vented. Instead it compresses the gas and reinjects it back into the network. It is expected to save up to 35 tonnes of carbon emissions a year from planned maintenance work.

4. Year in review

This section provides an overview of the major projects and initiatives undertaken by Firstgas over the past year ending 30 September 2023, which was the first year of the 2023- 2026 DPP period.

4.1 Expenditure Summary

Firstgas remains focused on building and maintaining a safe and resilient gas distribution network for customers, whilst actively pursuing growth across the networks. This focus is reflected in the work programme that was undertaken over the last 12 months



The reduction in spend is attributed to:

• Forecast expenditure under customer connections (\$1.7m) was not achieved. This reflects the current economic outlook in New Zealand



The savings in Opex are in relation to:

- Savings under service interruption incident and emergency expenditure (\$660k)
- Savings under system operations and Network support expenditure (\$300k)

4.2 Significant Activities Undertaken in FY2023

Note: Some activities undertaken in the FY2023 may carry over into the FY2024 year ahead

4.2.1 Pre85 Replacement Program

Research indicates that much of the PE pipes manufactured and used for gas service from the 1960's to the early 1980's are susceptible to premature brittle like failures when subjected to stress intensification.

To address the issues Firstgas developed a strategy utilising a risk ranking matrix to prioritise each segment of Pre-85 for replacement. Below is a summary of the sections of PE Pipe that were initiated in FY2023.

Pre75 - Galloway Street Hamilton

The Galloway Street Block includes 1600m of sections that had been identified as having intermediate risks. The work scope carried out included replacing 1600m of 50NB PE pipe, replace approximately 40 services and transfer LP PE service to the new PE mains for 37 services.

Pre75 - Amanda Ave - Hamilton

Key work scopes on Amanda Ave included:

- Directional drilling of approximately 950m of 50nbpe MP
- Directional drilling of approximately of 900m of 25mm service.
- Installation of 5 x 50mm Poly valve.
- Decommission redundant mains. Approximately: 38 x relays.5 x test & transfers.
- Excavate and expose the existing 50nbpe on Amanda Ave and connect with a socket,
- Excavate and expose the existing 50nbCS on Poaka Ave in two locations and connect with Williamson tees,
- Excavate and expose MV-HM-00397 and decommission by installing a blank flange and 2 x stopples on the existing 50nbCS. Mains isolated by using the stopples and squeezing/purging on the existing 50nbpe.

Pre75 - Dalton Crescent

Key work scopes on Dalton Crescent included:

- Directional drilling of approximately 600m of 50nbpe MP
- Directional drilling of approximately 330m of 25mm service
- Install 2 x 50mm polyvalve
- Decommission redundant mains. Approximately: 18 x relays. 4 x test & transfers
- Excavate and expose the existing 40nbpe and 50nbpe in two locations and connect with sockets.

Pre75 - Replacement McKay Ave -Hamilton

Key work scopes on McKay Avenue included:

- Directional drilling of approximately 950m of 50nbpe from the existing 40nbCS outside #1 Cowley Drive to the locations shown
- Relay up to 20 services, test and transfer up to 40 services.
- Install up to 4 x 50mm Poly valves.
- Excavate and expose the existing 40nbCS and connect with a transition.
- Excavate and expose 3 x PE mains and connect with sockets.
- Decommission redundant mains and services.



Pre75 - High Risk Remediation -Hamilton

This project covered the remediation of Pre-75 high risk pipeline, consists of six locations with addresses for the pipeline as follows:

| No | Address | | |
|----|---------------------|--|--|
| 1 | Te Rapa Road | | |
| 2 | Tawa Street | | |
| 3 | Rostrevor Street | | |
| 4 | Willoughby Street | | |
| 5 | Mansel Avenue | | |
| 6 | 230 Peachgrove Road | | |

These six locations were assessed as having "High 19" risk rankings. All the pipes to be corrected are pre-75 have been identified as having squeezed-off, located under hard-paved surfaces and close to a building.

4.2.2 DR80123 Replacement

DR-80123-HM regulates the reticulated gas flow into the suburb of Frankton in Hamilton. It is one of seven district regulating stations (DRS) supplying the Hamilton West MP4 network.

The DRS is located on the corner of Rifle Range Road and Massey Street (State Highway 23). The DRS is also located on the boundary of Frankton Primary School.

The existing DRS houses a pair of Fisher 289P – 6358B series relief valves on each branch of the DRS. The relief valves vent to atmosphere and are considered a risk to public safety. Firstgas has completed a risk assessment yielding a risk score of "Intermediate 14".

Scope included the rebuilding of the DRS with new regulators and meters, upgrade of the earthing and bonding of the DRS and build a new enclosure.

4.2.3 Taupo Upso Valve Replacement

An Under-Pressure Shut Off (UPSO) valve is located near the Tongariro Street bridge (Waikato River), below ground level on the MP4 PE line feeding Taupo, west of the river. The below ground layout of this valve means that access for maintenance or operation of the valve is considered a confined space entry.

Entering confined spaces exposes personnel to several risks due to the potentially dangerous atmospheric conditions. This is particularly risky when operating and maintaining gas equipment which may develop a leak. CSE (Confined Space Entry) requires extra personnel and controls to reduce the risks; this increases the costs, time to work and complexity of any maintenance or operation of the valve. The proposed solution follows:

- Relocate valve above ground inside a block building and add a Cello unit on Tongariro Street, Taupo, on the bridge over the Waikato River
- Install a cello unit to allow remote valve monitoring.

4.2.4 Temple View Damaged Valve Replacement

Firstgas currently operates Hamilton MP7 pipeline that supplies gas from Temple View DP to Hamilton. In 2019 a 160mm PE ball valve, MV-HM-01132, was damaged by a digger resulting in a class 3 leak.

The primary issue identified was a damaged valve MV-HM-01132. However, in 2020 there was a leak at the MP7 DN250 pipeline on Collins Road that, at the time, was complicated to isolate. Instead of just replacing MV-HM-01132, the plan is now to install two DN250 valves on the upstream and downstream of the DN250 and DN160 intersection to provide much better resilience and safety in the future if there is a leak or repair. To remove this risk in the network for the future, the following scope is required:

- Remove MV-HM-01132
- Install two 250mm PE ball valves on Collins Road.

4.2.5 Whangarei Bridge Pipe Support Replacement

The pipeline crossing for the IP10 100mm carbon steel line at the Port Road bridge in Whangarei has been identified as having supports and coating which are in poor condition. The IP10 100mm Carbon Steel pipeline feeds gas to Whangarei from the Whangarei Delivery Point. The pipeline crossing at the Port Road bridge in Whangarei was identified as having corroded supports and poor coating that presents a risk to Firstgas operations. A risk assessment was completed resulting in a risk score of Intermediate.

The scope of works was for the section of pipeline to be recoated and replacement of the support brackets.

4.2.6 Whangarei Bridge Pipe Support Replacement – Okara Drive

The pipeline crossing at the Okara Drive bridge in Whangarei has been identified as having corroded supports and poor coating that presents a risk to Firstgas operations. A risk assessment has been completed resulting in a risk score of Intermediate.

Works are required to mitigate this risk.

4.2.7 IP10 Remediation -Mangaharakeke Dr, Hamilton

In March a 3-metre section of carbon steel pipe was damaged by a 3rd party HDD drill that resulted in gouges and weld defects in the pipeline. The areas were excavated, and a detailed technical assessment was undertaken on the affected area, to understand the risks and extent of the damage. The likely remediation will require the section of pipe to be cut out and replaced. The work is currently being scoped and prepared for execution.

4.2.8 Faulty Valve Remediation, Whangarei

Replacement of valve due to a leak found on the flange connection of a valve located on the IP10 network in Walton Street, Whangarei, in road berm adjoining 95 Walton Street.

Key work scopes on Walton Street included:

- Earthworks
- Construction activity/noise
- Dewatering of trench where necessary
- Coal Tar Enamel (CTE) coating which contains asbestos.

4.2.9 Gibson Road, Hamilton Steel Service Replacement

There are small sections of stranded steel pipes operating in Gibson Road, Hamilton which have no CP. Lack of CP means that the steel pipes are prone to corrosion and subsequent leaking. Installation of a new CP system is not practical as a CP system has never been applied. Therefore, the pipelines should be replaced with PE. The steel pipe to be replaced is connected to a pre75 PE pipe. To replace the steel pipe, the pre75 PE pipe should be squeezed-off to isolate the line. Unfortunately, this will introduce stress intensification to the pre75 pipe that will highly likely crack over time.

4.3 Performance of the Distribution Network

A key premise for the AMP is that existing reliability, safety and supply quality levels will be maintained and improved. Targets are set to help drive performance improvements and measure progress in delivering reliable, safe and high-quality service (these targets are detailed in Appendix H – Asset Management Approach – H.5). There has been strong performance from the Distribution network for the last two years on meeting its key indicators ensuring safe and reliable supply of gas.

| Table 5 KPI for gas distribution network | | | |
|---|--------|-----------------------|----------------------------|
| Key performance Indicators | 2021 | 2022 | Current Trend ⁹ |
| Safety: Lost time injuries | 0 | 0 | Consistently achieved |
| Response time to emergencies (within one hour) * | 90% | 89.86% | Minor Decrease |
| Response time to emergencies (within three hours) * | 100% | 100% | Consistently achieved |
| Number of complaints per customers* | 0.0003 | 0.000359 | Increasing |
| Publicly reported gas escapes* | 30 | 27.9 | Improving |
| Third party damage* | 38 | 34.7 | Increasing |
| System Average Interruption Duration Index (SAIDI)* | 1426.0 | 3583.89 ¹⁰ | Increasing |
| Customer Average Interruption Duration Index (CAIDI)* | 168.96 | 398.19 ¹¹ | Steady |
| Poor pressure due to network causes* | 8 | 18 | Increasing |
| Number of non-compliant odour tests | 3 | 0 | Improving |

* Quality measure under Default Price-quality Path (DPP) 2023 - 2026

Additional information regarding KPI's and targets is contained in Appendix H – Asset Management Approach – H.S.

9 The trend has been evaluated over the last 3 years.

10 The increase in FY2022 was in response to a single event in Kawerau, where a gas main was damaged due to a contractor drilling.

11 The increase in FY2022 was in response to a single event in Kawerau, where a gas main was damaged due to a contractor drilling.

5. Year Ahead

This section sets out the areas of focus for Firstgas over the year commencing 1 October 2023, the second year of the 2023- 2026 DPP period. There are three main focus areas.

5.1 Significant Activities for FY2024

Table 6 sets out the major activities planned throughout FY2024.

| Significant Projects | | | |
|---|-------------------|--|--|
| Replacement of pre-1985 pipeline | \$2.25 million | Replacement is focused on pre-1985 pipe. Utilising camera technology for a more targeted approach to replacements. | |
| Replacement of Cello pressure monitoring equipment | \$500k | Retirement of the 2/3G communications system, requires Firstgas to replace network monitoring equipment that utilise 2/3G communications systems. | |
| Installation of Fire Safety Isolation valves | \$500k | Upgrading of DRS to meet current standards and improve safety. | |
| New customer connections | \$6.4 million | Mains pipe extension and subdivisions (\$2.4 million). | |
| Special Crossings | \$500k | (\$4 million) Expenditure to address condition of | |

Greater detail on all significant projects can be found in Appendix L – Significant Projects.



5.1.1 Continuation of the Pre85/75 Replacement Programme

Firstgas has developed a strategy to respond to the Pre-85 and 75 pipeline issues that outlines the replacement programme. The strategy provides the methodology to prioritise the pipeline sections that are required to be replaced. In FY2024 Firstgas will introduce the use of in-line camera technology, which will allow crews to inspect areas that have been identified for replacement and refine the replacement programme. This technology will allow for an accurate condition assessment to be completed and pin-points locations that need replacement, reducing the costs associated with replacing larger sections. By utilising such technology, Firstgas can continue reducing the risk associated with pre-1985 assets while managing the cost escalations that are currently being experienced.

Augmenting the strategy with the introduction of camera technology will bring significant benefits to Firstgas. For example:

- Reduced inconvenience to customers and road users
- Reduced impact to the environment
- Cost reductions

5.1.2 Special Crossings

A review of maintenance inspection reports has indicated that the condition of some of the special crossings is worse than anticipated. This has prompted a programme to prioritise the overhaul of the affected special crossing.

Huntly Bridge Crossing

A Medium Pressure MP7 100mm NB CS line was installed at the Huntly bridge hanger in 1980. Based on site and drone surveys it was observed that 100MM MP7 CS line's current condition highlights the following issues:

- Corrosion damage to the pipe and support system
- Paint coating deterioration on pipe and roller support system
- Metal to metal contact between Pipe and support structures. One section of the pipe at the eastern side had shifted from its original position.
- Deterioration of the CP system performance.
- To eliminate the risk of improper support, ineffective CP system and damaged coating, the following scope of works are proposed:
- Installation of new supports and bellows to cantilever pipeline as per the observation made during the pipeline survey.
- Installation of new sacrificial anodes and test point at both sides of the bridge
- Coating of effected area of the pipe to be carried out.

Gladstone Rd and Peel Street Bridge Crossing, Gisborne

Field inspections have identified some localised corrosion on the pipeline on the bridge crossing. Due to access complexities on bridge crossings, it is more cost effective to recoat the entire length of the pipeline on the crossing. Rather than carrying out multiple minor repairs over subsequent years.

Together with other minor improvements to keep the pipeline a small distance off the bridge structure will ensure that the coating will adequately protect the pipeline for a considerable amount of time.

5.1.3 Monitoring and Communications

Cello units are remote data loggers that allow for multiple parameters to be monitored, recorded and transmitted to the Firstgas control room. These units rely on 2/3G communications. The 2/3G communications networks are being decommissioned by the providers which has resulted in the need to replace all the Cello units.



5.2 Customer Connections

Customer connection forecasts consider the current market environment, cost to connect customers and the desire for customers to continue to connect to natural gas as a cost-effective energy resource. Firstgas is planning to connect approximately 1100 customers in FY2024. These forecasts are less than previously forecast in previous submissions but reflects the market in which Firstgas is operating. The decision to extend the network or to construct new networks to enable future connections are subject to the Company's Capital Contribution Policy and Distribution Pricing Methodology, which is available on the Firstgas website:

firstgas.co.nz/about-us/regulatory/distribution/

5.3 System Growth

Firstgas remains committed to developing and enhancing its networks to meet the present and future needs of customers. Enabling customers to connect to the network has always been a keen driver for the business. The gas sector is changing and in response, Firstgas has adapted its approach to focusing on areas of growth that are seen as having a long-term economic viability and reduces the risk of customer asset stranding.



5.4 Fire Safety Valve Installation

The NZ Standard 4645 requires there should be readily accessible isolation valves located on the inlet and outlet of District Regulator Stations (DRS) to enable an emergency shutdown. The location of the DRS is one of the key factors in prioritising which DRS' are planned to be upgraded to meet the requirement of the standard.

In FY2024 the following locations will have the isolation valves installed.

- DR-80043, Gisborne
- DR-80039, Gisborne
- DR-80045, Gisborne
- DR-80132, Hamilton

5.5 Asset Condition (Schedule 12a)

Schedule 12a (report on asset condition) that is included in Appendix B – Information Disclosure Schedules provides an overview of asset condition using the grading classifications prescribed by the Commerce Commission. The asset management strategies and expenditure are targeted to addressing instances where the condition rating is falling below the required standard. Assessing asset condition is a dynamic process and gradings will change as the assets age or as specific issues are identified. Further detail on the condition, risks and issues and planned activities can be found in Appendix E – Asset Fleets.

5.6 Asset Management Improvement Programme

Firstgas has engaged with external consultants (Assetivity¹²) to provide independent advice on the maturity of asset management with two key objectives:

- To identify any gaps between current state and the state required to achieve alignment to ISO 55001: 2014
- From that gap analysis, develop recommendations and a roadmap that would establish a clear path to improvement against ISO 55001: 2014, for the Company's regulated businesses.

This outcome from the assessment will set out the improvement plan for FY2024.

These have been shaped into a roadmap for achieving full compliance that comprises the following steps:

- Improve internal stakeholder communication
- Review asset management system performance
- Review asset management information capture and management
- · Ensure contractor management is holistic
- Ensure competence management accounts for asset management competence
- Review stores and inventory management processes and impact on asset management system risk
- Consider a combined business strategic asset management plan.

The outcome of the report will be used to develop asset management improvement plans for the upcoming years.

12 Assetivity is a member of the Endorsed Assessor Scheme (EAS) with the Institute of Asset Management (IAM), Assetivity is authorised to conduct assessments and issue certificates of compliance with the requirements of ISO 55001: 2014

6. Expenditure Forecasts

Expenditure Forecasts

Short-term cost increases have been observed over the past two years, with inflation exceeding the CPI forecasts. This has led to significant cost escalation throughout the entire supply chain for planned maintenance and capital expenditure. Several factors have contributed to these increases, including supply and demand imbalances, production downturns, fuel price hikes, container shortages and port congestions.

Firstgas will not compromise on safety and the impacts of the cost increases has resulted in the need to consider alternative strategies when planning to invest in the network.

Consideration may be given to smaller multiple investments over a number of years rather than single investments to manage the risk appropriately. This will enable us to better manage the cost escalations whilst managing risk appropriately. Alternately, Opex funds may be utilised to provide short term monitoring or corrective solutions in the interim, whilst the work can be planned for later in the planning period. To maintain an appropriate risk level, Firstgas has implemented several strategies.

For example, under the replacement program for pre-1985 pipelines, Firstgas has procured an in-line camera that allows Firstgas to inspect areas that require replacement and reprioritise sections accordingly. This technology provides an accurate measure of the condition and pin-points locations that need replacement, reducing the costs associated with replacing larger sections. By utilising such technology, Firstgas can continue reducing the risk associated with pre-1985 assets while managing the cost escalation.

Regarding long-term investment needs, the Gas IM amendment and the shortened asset lives in the DPP3 outcome provided a solution to mitigate economic network stranding risks. However, there is still a need to invest in the remaining life of the assets. Although forecast demand is expected to decrease as New Zealand transitions to net zero, the investment requirement on the network will not directly correlate with demand. The Pre-85 issues with PE pipelines, for example, will continue to pose a risk to the distribution network throughout the asset's remaining life, necessitating on-going investment to manage the risk appropriately. Aging assets require investment to maintain them at an appropriate level for expected service levels. As demonstrated by the typical bathtub curve (figure 13 below), as the assets age, there can be an expected increase in the failure rate, to mitigate this risk, increased levels of capital investment or operational expenditure is required.

Figure 13 Asset Management Bathtub curve

While technology and alternative methods can help manage risk and monitor issues to some extent, there will come a point where asset replacement becomes the most effective solution. In the case of linear assets like pipelines, wholesale replacement is usually not feasible due to cost constraints and instead, affected sections are typically replaced.

Taking the opportunity to replace aging assets brings additional benefits of installing more efficient or better performing assets, reduces Opex costs and delivers more reliable assets for the remainder of the network's life.



6.1 Capex Forecast

The Capex Forecast spend over the next ten years is set out in Figure 14.



Key drivers associated with the Capex profile.

- Asset Replacement and renewal: The profiles are driven by the need to address key assets areas:
 - Continue with the Pre-85 pipe replacement
 - Replacement of network monitoring equipment due to retirement of the 2/3G cellular networks
 - Remediation of special crossings following review of maintenance condition reports.
- Opportunities for growth and customer connections are anticipated to rebound in FY2024. However the forecasts have been reduced from what was presented in FY2022 and anticipated to further reduce in the latter part of the AMP planning period.

6.2 Opex forecast

The forecast Opex over the planning period is set out in Figure 16.



The forecasts through the planning period have been escalated to reflect the cost increases that are being experienced on the network.

Where possible Firstgas will look for savings, which has been experienced in FY2023, where there was reduced spend under the following areas:

- Savings under service interruption incidents and emergency expenditure (\$660k)
- Savings under system operations and network support expenditure (\$300k)

7. Stakeholder Engagement

Firstgas recognises the importance of engaging with businesses and customers. They are reliant on the consistent and safe delivery of gas to maintain their on-going productivity and household needs. The objective is to engage with all stakeholders on the following topics:

- Understanding customer's views and preferences for their energy supply and their confidence in the transition to transporting renewable gases over the gas networks
- Investment and asset maintenance strategies and commercial and pricing decisions
- Issues relating to future regulatory and government policy processes and key operational decisions.

7.1 Continued Engagement and Relationship Building

Firstgas engages with stakeholders to ensure that the needs of all customers are met. The following activities have either occurred during 2023 or are scheduled for 2024.

- In June 2023 consultation with gas retailers on proposed distribution prices for FY2024 was undertaken with consideration given to responses and feedback prior to pricing being confirmed to market.
- During 2024, engagement with a third party will be undertaken to perform a distribution pricing review to capture retailer and customer sentiment and identify potential refinement of Firstgas pricing methodology.
- Consultation with retailers on the use of system agreement (UoSA) continued during 2023. This work was reinitiated after a first round of consultation in 2021. The subsequent 2023 consultation process was well represented by retailers and enabled the publication of a document to establish an effective and up-to-date set of commercial terms between Firstgas and retailers.
- Firstgas, in collaboration with New Zealand's natural gas distributors (Vector, Powerco, Gasnet and Nova), is coordinating a programme of work to jointly explore the potential trial of a lowlevel blending of hydrogen into an existing small network. During 2022, Firstgas engaged with retailers and customers to understand load and appliance characteristics of each ICP. In 2023 consultation with all retailers was carried out to enable a collaborative approach to establishing a commercial supply framework to support the hydrogen trial. The Gas Industry Company was involved and provided regulatory guidance throughout this process. Planning continues with the expectation of a short-term trial occurring during 2024.
- During 2023 Firstgas participated in a subgroup of the Gas Infrastructure Futures Working Group to complete a network resizing study. The study, involving other gas distributors, was a desktoponly exercise and reviewed the potential process for decommissioning parts of existing networks that are no longer economic. The study aligns with good asset management by exploring opportunities to minimise network costs for remaining gas customers.



- During the 2022-23 year, multiple submissions were made in response to consultations by the Environment Select Committee, the Ministry of Business, Innovation and Employment, the Ministry for the Environment, the Commerce Commission, the Gas Industry Company and the Electricity Authority. One submission was also made to each of the Climate Change Commission and Certified Energy. Through these various submissions, Firstgas has advocated for the role that renewable gases can play in the trend away from fossil fuels.
- Firstgas has and will continue to appropriately respond to important upcoming consultations on the topics of the Gas Transition Plan, the National Energy Strategy, and seven-yearly review of inputs to price-quality regulation of natural monopolies.
- Firstgas is a member of the following New Zealand organisations: GasNZ, Business Energy Council, Climate Leaders' Coalition, Powering Change, Aotearoa Circle, and Gas Infrastructure Futures Working Group and members of the Australianbased Future Fuels Cooperative Research Centre and the Australian Pipelines and Gas Association.

7.2 Managing Conflicting Interest

In the operation of any large organisation with numerous stakeholders and diverse interests, situations will inevitably arise where not all interests can be accommodated, or where conflicting interests exist. For example, different customers may place greater or lesser emphasis on price or quality.

Firstgas manages situations of conflicting interests by:

- Clearly identifying and analysing stakeholder conflicts (existing or potential).
- Having clear principles that guide a resolution. Firstgas are legally bound to make decisions that are consistent with the distribution operating codes (which include obligations relating to confidentiality) and must comply with the Gas Act 1992 and other relevant legislation.
- Seeking solutions that are consistent with the principles found in the codes and in relevant legislation or regulation.
- Communicating transparently and effectively with stakeholders so that all parties know where they stand.
- Clarifying decisions where appropriate.

