Firstgas

A **Firstgas Group** company

GAS DISTRIBUTION BUSINESS

Asset Management Plan Update

Year commencing 1 October 2022

First Gas Limited
September 2022

Disclaimer: The information in this document has been prepared in good faith and represents Firstgas' intentions and opinions at the date of issue. However, Firstgas operates in a dynamic environment (for example, the changing requirements of customers, deteriorating asset condition and the impact of severe weather events) and plans are constantly evolving to reflect the most current information and circumstances.

Importantly, we note that how the Government choses to implement the actions specified in its first Emissions Reduction Plan (ERP) may have a material effect on our asset management strategy and the underlying assumptions we have applied to develop our AMP Update forecasts. Consequently, Firstgas does not give any express or implied assurance about the accuracy of the information or whether Firstgas will fully implement the plan or undertake the work mentioned in the 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 THE CHIEF EXECUTIVE OFFICER

Tēnā koutou katoa and welcome to First Gas Limited's (Firstgas) Gas Distribution Asset Management Plan Update (AMP Update) for 2022.

This year, we have continued to focus on improving the performance of our network and managing risk, while also enabling growth opportunities where economic.

As I reflect on the year that has passed, it is hard not to comment on the impact that COVID-19 continues to have on New Zealand. With COVID-19 still in our community, I am proud that Firstgas has continued to provide essential services, by transporting gas across both our distribution and transmission networks to all of our customers, including hospitals and other essential service providers.

Firstgas is part of Firstgas Group and is committed to ensuring that we can safely and reliably deliver energy that is affordable and acceptable to New Zealand's families and businesses, both now and into the future. We support the transition to a net zero-carbon future and in May 2022, welcomed the Government's first Emissions Reduction Plan (ERP). This first plan paves the way for renewable gas and Firstgas Group looks forward to engagement with the gas sector and Government on the development of both the Gas Transition Plan and National Energy Strategy.

Firstgas Group is committed to helping New Zealand reach its target of net zero emissions by 2050. We are a member of the Climate Leaders' Coalition and have spent close to four years investigating the prospects for introducing renewable gas into the New Zealand gas network.

This year we established our Future Fuels team as part of our commitment to the further development and delivery of our Renewable Fuels strategy. We are supporting the development of NZ's first large-scale biogas facility which will see the injection of biomethane, produced from food waste, into the gas network.

We have also undertaken significant work to establish how existing gas infrastructure can be used to transport green hydrogen, with the first blending trials currently being planned.

Over the last 12 months, Firstgas has carried out work to connect approximately 1,700 new residential and commercial gas customers despite the impact of COVID-19. The roll out of our Maximo Asset Health Insights (MAHI) application this year has been successful and allows us to better link asset health to risks and improve our asset management planning process. We will continue to develop and implement our asset strategies and explore the use of innovative tools and technology that will help drive our proactive approach to address and mitigate the risks, condition, and performance issues in our distribution network.

Looking ahead, we are focused on ensuring gas remains a competitive fuel choice for our customers, while operating within the regulated price-quality framework set by the Commerce Commission. It is important for our business to remain proactive and ready to adapt to change. Our customers come first, and we work as one dedicated team to create an industry leading operation. Integrity and respect are integral to our business, and we empower our team to do their jobs safely.

I hope you find the 2022 AMP Update for our gas distribution business both 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

Paul Goodeve
Chief Executive

GLOSSARY

TERM	DEFINITION
AMP	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 physical assets in the network and non-network assets
COO	Chief Operating Officer
Data accuracy	**Grade 1:** means that good quality data is not available for any of the assets in the category and estimates are likely to contain significant error **Grade 2:** means that good quality data is available for some assets but not for others and the data provided includes estimates of uncounted assets within the category **Grade 3:** means that data is available for all assets but includes a level of estimation where there is understood to be some poor quality data for some of the assets within the category **Grade 4:** means that good quality data is available for all so the assets in the category
DPP	Default Price – Quality Path
DRS	District Regulating Station
ERP	Emissions Reduction Plan
FSA	Formal Safety Assessment – risk management process in distribution networks
FSP	Field Service Provider
FY2022	Financial year ending 30 September 2022
GDB	Gas Distribution Business
GIS	Geographical Information System
GMS	Gas Measurement System – commonly referred to as a gas meter
GPB	Gas Pipeline Business
GTB	Gas Transmission Business
GTP	Gas Transition Plan
HSEQ	Health, Safety, Environment and Quality

TERM	DEFINITION
Incremental Cost	The cost to Firstgas that is incurred because of customer works, for example including new connections
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*
IP	Intermediate pressure
IT	Information Technology
kPa	Kilo-Pascal, a unit of pressure
KPI	Key Performance Indicators
MAHI	Maximo Asset Health Insights
Major Incident[1]	Means an uncontrolled event at a major hazard facility that— (a) involves, or potentially involves, specified hazardous substances; and (b) exposes multiple persons to a serious risk to their health or safety (including a risk of death) arising from an immediate or imminent exposure to— (i) 1 or more of those substances as a result of the event; or (ii) the direct or indirect effects of the event. (2) Without limiting subclause (1), an uncontrolled event includes any of the following: (a) escape, spillage, or leakage of a substance: (b) implosion, explosion, or fire
MHF[1]	Major Hazard Facilities – are facilities that store and process very large quantities of hazardous substances. These facilities have the potential to generate catastrophic events which could cause harm to people, the environment, and the wider economy
MP	Medium pressure
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). 10^15 joules = 1,000 TJ

1. Health and Safety at Work (Major Hazard Facilities) Regulations 2016

TERM	DEFINITION
Planning period	A projected period of 10 years commencing with the disclosure year following the date on which the AMP is disclosed
Regulatory control period (RCP)	Means the regulatory period for default / customised price-quality regulation applicable to a GDB as specified in a determination made under a S52P of the *Commerce Act 1986*
SELMA	Street Evaluation Laser Methane Assessment
SCE[1]	Safety Critical Element – means any part of a facility or its plant (including a computer program): a. that has the purpose of preventing, or limiting the effect of, a major incident, and b. the failure of which could cause or contribute substantially to a major incident
scm/h	Standard cubic meters per hour (unit of gas flow rate)

1. Health and Safety at Work (Major Hazard Facilities) Regulations 2016

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EXECUTIVE SUMMARY

This is Firstgas Gas Distribution Asset Management Plan Update (AMP Update) for 2022.

Firstgas owns and operates more than 4,900 kilometres of gas distribution pipelines that service approximately 66,000 consumers across the regions of Northland, Waikato, Central Plateau, Bay of Plenty, Gisborne and Kāpiti Coast. Firstgas also owns and operates 2,500 kilometres of gas transmission pipelines. These pipelines transport around 20 percent of New Zealand's primary energy supply from Taranaki across the North Island.

Firstgas is part of the wider Firstgas Group. Headquartered in New Plymouth, Firstgas Group is an umbrella brand consisting of Rockgas, Firstgas, Flexgas and Gas Services NZ. Firstgas and Rockgas deliver natural gas and supply LPG respectively to over 500,000 customers through their network of high-pressure gas transmission pipelines and distribution pipelines in the North Island, as well as through LPG distribution pipelines in the South Island, 36 local LPG suppliers, and over 180 Refill & Save locations across New Zealand.

Flexgas operates the Ahuroa gas storage facility in Central Taranaki. Gas Services NZ provides operational and maintenance support to all gas infrastructure owners, including other parts of Firstgas Group.

Activities across the Firstgas Group are driven by our vision and mission:

Vision	Proudly leading the delivery of New Zealand's energy needs in a changing world.
Mission	Safely and reliably delivering energy that is affordable and acceptable to New Zealand's families and businesses.

Our gas distribution business is focused on distributing gas across our networks to meet the diverse needs of our customers, be it industrial processes, commercial businesses, or residential customers using gas for their space heating, water heating and cooking needs. We are focused on ensuring gas is a competitive fuel choice for our customers, while operating within the regulated price-quality framework set by the Commerce Commission. We are also investigating how we can develop our network to be able to service the future demand for renewable gases by 2050.

KEY DRIVERS FOR OUR DISTRIBUTION BUSINESS

Our AMP Update describes the asset management processes that we use to manage our gas distribution network and its assets. It sets out how we intend to manage these assets over the next 10 years (the planning period) with a focus on:

- A commitment to safety, for our staff, customers and the general public.
- Being accountable for the performance of our gas distribution network.
- Providing visibility of our investment in the network and upcoming physical works.
- Ensuring ongoing engagement with our stakeholders, staff and contractors.
- Complying with our regulatory obligations.
- Preparing the business for future challenges and opportunities.

For a complete understanding of the basis for our asset management decisions over the planning period, read this AMP Update in conjunction with our 2020 AMP.

Our approach to asset management is guided by an asset management framework that provides a clear "line of sight" from Firstgas Group's direction and goals, down to our company objectives and day to day activities. This framework guides the optimal combination of life cycle activities to be applied across our distribution assets, based on their criticality, condition and performance.

There are a number of key drivers that influence our approach to asset management for our gas distribution business over the planning period. Firstgas is focused on:

- **Maintaining the safety, reliability, and supply quality levels across our distribution network:** Our District Regulating Stations (DRS) and pre-1985 polyethylene mains replacement strategies underpin our proactive approach to addressing and mitigating pipe and DRS failures / events and the associated potential impacts to properties and consumers.

  Utilising innovative approaches and technology such as a Street Evaluating Laser Methane Assessment (SELMA) and inline inspection camera to proactively identify and address pipeline defects adding real value to our inspection, monitoring, and maintenance of the network. We anticipate implementing the inline inspection camera next year.

  We support the Commerce Commission's DPP reset decision in May 2022 to continue with the existing quality standards for the upcoming regulatory period.

- **A strong culture around health and safety and environment:** Safety is at the forefront of how we approach managing and operating our distribution assets. Maintaining product containment is the primary control that minimises risk to all those who live and work on and around the distribution network. Asset integrity and our asset management practices outlined in this AMP Update are crucial to maintaining safe outcomes.

  As part of Firstgas Group's commitment to further reducing our carbon footprint, we have developed a Distribution Fugitive Emissions Strategy to define and estimate the methane emissions associated with our operations, incidents, and fugitive leaks. Part of this work has involved the development of an emissions estimate model alongside other gas distribution businesses (GDBs) in New Zealand, and the identification of actions to further reduce and detect these emissions over time.

- **Mitigating and managing risk:** Risk management plays a key role in our asset management decisions, and is integrated in everything we do, evolving over time to ensure that as a business we deliver our strategic objectives. We recognise there are areas of risk that relate specifically to particular assets in our network. The potential impact of a major incident on personnel and public safety remains a key focus for Firstgas.

  The identification and management of safety critical equipment in distribution pipeline networks will enable us to apply the appropriate controls, mitigation barriers, and governance processes to help reduce the risk of a major incident and its consequences.

- **Preparing the business for future challenges and opportunities.** The future of gas is uncertain, however Firstgas is committed to ensuring that we can safely and reliably deliver energy that is affordable and acceptable to New Zealand families and businesses, both now and into the future while making economic investments aligned with the expected decline in natural gas.

We support the transition to a net zero-carbon future and in May 2022, welcomed the publication of the Government's first Emissions Reduction Plan (ERP). It is encouraging to see the ERP's focus on hydrogen and biogas as enablers to reducing New Zealand's carbon emissions. Firstgas Group looks forward to engagement with the gas sector and Government on the development of both the Gas Transition Plan and National Energy Strategy, as identified in the ERP.

Firstgas Group is playing a leading role in both biogas and hydrogen development in NZ. We are supporting the development of NZ's first large-scale biogas facility which will see the injection of biomethane, produced from food waste, into the gas network. We have also undertaken significant work to establish how existing gas infrastructure can be used to transport green hydrogen, with the first blending trials currently being planned.

ACTIVITIES PLANNED FOR THE COMING YEAR

The focus for the coming year (FY2023) remains on providing our customers with a safe and resilient gas distribution system.

Our forecast expenditure over the next ten years is set out in the blue bars in Figure 1 (for Capex) and Figure 2 (for Opex), with the forecast from last year's AMP shown as the red line.

Figure 1 sets out our planned Capex for the planning period compared to the forecast Capex published in our 2021 AMP.

The Commerce Commissions final decision on our Default Price-Quality Path (DPP) for 2022 – 2026 (DPP3) has prompted us to refine our mid to long term planning forecasts across the planning period. This has resulted in a reduction in the Capex over the next two regulatory control periods.

Of note, the significant reduction in asset replacement and renewal expenditure presents a risk and challenge to our plan to accelerate the replacement of pre-1985 PE pipe and addressing some of our ageing assets in the network. We believe that applying innovative approaches and technologies such as investing on a second unit of Street Evaluation Laser Methane Assessment (SELMA) and utilising an inline inspection camera in the distribution pipelines will enable us to mitigate and address some of the pipeline integrity and environmental risks in our distribution network.

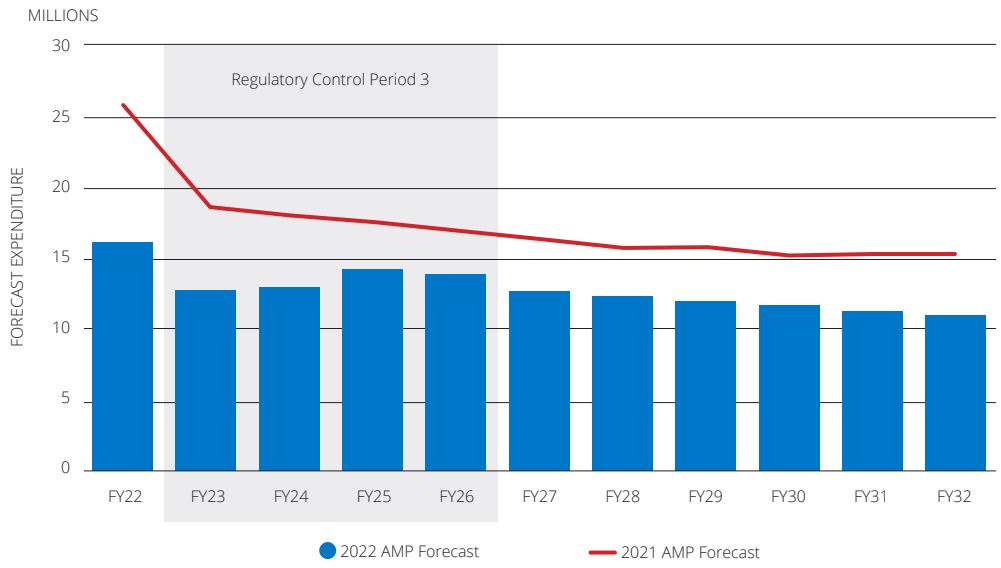
The changes within regulatory control period two (FY2017 – FY2022) relate to:

- Two customer driven connections were planned for FY2022, however, one has been delayed 12 months and the other has chosen an alternative fuel, no longer requiring this connection. This has resulted in a reduction in total combined spend of approximately $6.7 million.
- An increase in asset replacement and renewal expenditure in FY2022 of approximately $1 million to accelerate the replacement programme of pre-1985 polyethylene (PE) pipeline.

The changes within regulatory control period three (FY2023-FY2026)[3] relate to:

- A significant decrease in overall Capex of approximately $15.8 million (total).
- A decrease in asset replacement and renewal expenditure of approximately $7.2 million. This allowance was capped by the Commission in the DPP3 reset to reflect our historical average expenditure.
- A decrease in system growth expenditure of approximately $5.1 million. This was also capped by the Commission in the DPP3 reset to reflect our historical average expenditure.
- A decrease in consumer connection expenditure of approximately $1.8 million. This reflects a decrease in the forecast number of new connections.

Figure 1: Forecast total Capex (all figures in FY2022 prices[2])



2. FY2022 prices include the respective weighted average Opex and Capex inflation adjustment (Year ending June) on FY2021 prices as stated in the Commerce Commission Expenditure model V1 published 31 May 2022. https://comcom.govt.nz/__data/assets/excel_doc/0024/284532/Expenditure-model.xlsx
3. The $ figures quoted are in FY2021 values to align with the Commerce Commissions commentary in the Gas Pipeline Businesses Final Reasons Paper for the DPP3 reset. https://comcom.govt.nz/__data/assets/pdf_file/0025/284524/DPPs-for-gas-pipeline-businesses-from-1-October-2022-Final-Reasons-Paper-31-May-2022.pdf

- A decrease in both non-network expenditure and asset relocations of approximately $0.5 million and $1.1 million, respectively. This was capped by the Commission in the DPP3 reset to reflect our historical average expenditure.
- Non-network Capex for the next regulatory control period has been reduced by $0.52 million due to Software as a Service (SaaS) re-categorisation[4] to Opex.

Figure 2 outlines our planned Opex for the planning period compared to the forecast Opex published in our 2021 AMP. There was minimal change in Opex spend over regulatory control period two (FY2017 – FY2022).

The changes within regulatory control period three (FY2023-FY2026)[6] forecasting relate to a request for an increase in network expenditure of approximately $2.16 million (total) for work in renewable gases. The Commission has allowed $0.54 million (total) for renewable gases work in the DPP3 reset. This has resulted in a reduction of $1.62 million (total) in Opex expenditure. Firstgas anticipate significantly higher spend will be required. Only the regulatory allowance is included in our AMP forecast.

Capex has been reduced as a result of the recategorisation of SaaS as Opex. There has been no uplift in Business support Opex for regulatory control period three. The costs ($0.16 million per annum) for SaaS have been added to our AMP forecast.

Risk and Performance of the Distribution System

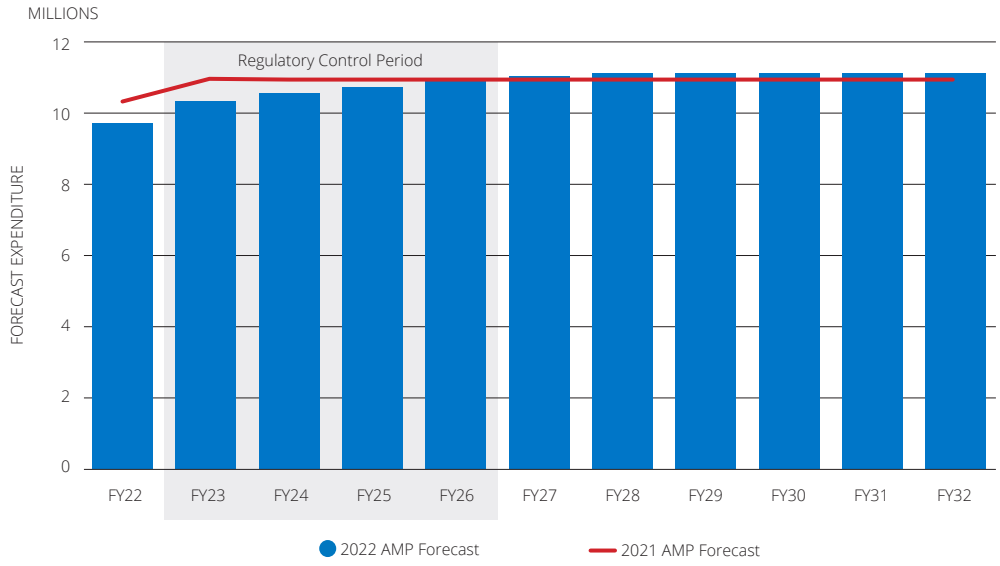
The reduction in asset replacement and renewal expenditure impacts our proactive response to address the risks with pre-1985 PE pipe and other ageing assets.

We will continue to develop and implement our asset strategies and explore the use of innovative tools and technology that will help drive our proactive approach to address and mitigate the risks, condition, and performance issues in our distribution network. Further development includes integration of Maximo Asset Health Insights (MAHI), identification of safety critical equipment and other reliability initiatives into our asset lifecycle activities to better support our decision making and meeting our quality standards.

To ensure that existing reliability, safety and supply quality levels will be maintained and improved across our distribution network, Firstgas has established a series of Key Performance Indicators (KPI) that we regularly monitor and annually report against. We are meeting the Commerce Commission's quality standards and will continue to investigate opportunities to improve our performance.

Our KPIs are discussed further in section 5.4.

Figure 2: Forecast total Opex (all figures in FY2022 prices[5])



4. SaaS recategorisation was due to a change in accounting rules
5. FY2022 prices include the respective weighted average Opex and Capex inflation adjustment (Year ending June) on FY2021 prices as stated in the Commerce Commission Expenditure model V1 published 31 May 2022. https://comcom.govt.nz/__data/assets/excel_doc/0024/284532/Expenditure-model.xlsx
6. The $ figures quoted are in FY2021 values to align with the Commerce Commissions commentary in the Gas Pipeline Businesses Final Reasons Paper for the DPP3 reset. https://comcom.govt.nz/__data/assets/pdf_file/0025/284524/DPPs-for-gas-pipeline-businesses-from-1-October-2022-Final-Reasons-Paper-31-May-2022.pdf

1. INTRODUCTION

This is the 2022 Asset Management Plan Update (AMP Update) for Firstgas gas distribution business.

Firstgas owns and operates more than 4,900 kilometres of gas distribution pipelines that service approximately 66,000 consumers across the regions of Northland, Waikato, Central Plateau, Bay of Plenty, Gisborne and Kāpiti Coast. As the sole provider of gas distribution services to those locations, we are regulated under Part 4 of the *Commerce Act 1986* and subject to both price-quality path and information disclosure regulation. Producing an AMP or AMP Update each year is one of these regulatory requirements, as well as being a key document guiding the operations of our business and our engagement with customers and stakeholders.

This section outlines the purpose, scope and structure of our 2022 AMP Update and provides an overview of both our business and our gas distribution network. We also set out the key regulatory and environment changes that are influencing our gas distribution business.

1.1 PURPOSE OF THE AMP UPDATE

This AMP Update focuses on the material changes from the 2021 AMP Update that influence our planned expenditure and the operation of our gas distribution business. We also see this AMP Update as an important planning tool for our operational (Opex) and capital expenditure (Capex) over the next ten years (the planning period). While priorities may change over this time, we consider that it essential that we clearly outline our plans for the distribution network, while maintaining flexibility to adapt and respond to customer requests as the year progresses.

In addition, we are using this opportunity to update all our stakeholders and customers on our progress against the plans described in the 2021 AMP Update, and to outline our focus areas for the year ahead. This document is one part of our ongoing engagement with our customers, and it provides an important way for our customers to evaluate the value being delivered by our capital programme.

1.2 ALIGNMENT WITH REGULATORY REQUIREMENTS

Our AMP Update aligns with regulatory requirements, as it:

1. Relates to the gas distribution services supplied by the GDB.
2. Identifies any material changes to the network development plans disclosed in the last AMP under clause 12 of Attachment A or in the last AMP Update disclosed under this clause.
3. Identifies any material changes to the lifecycle asset management (maintenance and renewal) plans disclosed in the last AMP pursuant to clause 13 of Attachment A or in the last AMP update disclosed under this clause.
4. Provides 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.
5. Identifies any changes to the asset management practice of the GDB that would affect a Schedule 13 Report on Asset Management Maturity disclosure.
6. Contains the information set out in the schedules described in *clause 2.6.6* (Schedules 11a, 11b, 12a, 12b, and 12c).[7]

For a complete understanding of the basis for our asset management decisions over the planning period, we recommend that this AMP Update is read in conjunction with our 2020 AMP summary document and appendices which are available on our website **here**.

1.3 OBJECTIVES FOR OUR GAS DISTRIBUTION NETWORK

Throughout this AMP Update, we describe how we will achieve the following important objectives for our gas distribution network:

- **Safety commitment:** The safety of our customers, staff, service providers and the general public is paramount.
- **Engaged stakeholders:** Consult with our stakeholders, particularly on our planned investments, and consult on how we intend to manage the gas distribution network. This requires us to provide clear descriptions of our assets, key strategies and objectives.
- **Performance accountability:** Provide visibility to stakeholders on how we are performing and provide information on the performance of our network.
- **Investment planning:** Provide visibility of forecast 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 our asset management approach to staff and service providers to ensure a common understanding and suitable resourcing.
- **Regulatory compliance:** Ensure we meet our Information Disclosure obligations set by the Commerce Commission.

1.4 PERIOD COVERED BY THE AMP UPDATE

The AMP Update covers the ten-year period from 1 October 2022 through to 30 September 2032 (the planning period). This aligns with our 1 October to 30 September financial and pricing year. The expenditure forecasts presented in this AMP Update are expressed in constant 2022 prices[8] (unless otherwise stated).

The 2022 Firstgas AMP Update was approved by our Board of Directors on 29 July 2022.

7. As set out in clause 2.6.5 of the Gas Distribution Information Disclosure Determination 2012, consolidating all amendments as of 3 April 2018, Commerce Commission
8. FY2022 prices include the respective weighted average Opex and Capex inflation adjustment (Year ending June) on FY2021 prices as stated in the Commerce Commission Expenditure model V1 published 31 May 2022. https://comcom.govt.nz/__data/assets/excel_doc/0024/284532/Expenditure-model.xlsx

Firstgas Group

Our broader business

Firstgas also owns and operates 2,500 kilometres of gas transmission pipelines. These pipelines transport around 20 percent of New Zealand's primary energy supply from Taranaki across the North Island. Our gas transmission business is also regulated under Part 4 of the *Commerce Act 1986* and the 2022 AMP Update for our gas transmission business is available on our Firstgas website.[9]

Firstgas is part of the wider Firstgas Group. The Firstgas Group owns energy infrastructure assets across New Zealand through our affiliate Gas Services NZ Limited (GSNZ), a separate business with common shareholders that owns the Rockgas[10] and the Ahuroa gas storage[11] facility. Rockgas Limited (Rockgas) has over 80 years' experience and provides LPG to 120,000 customers throughout New Zealand. It is New Zealand's largest LPG retail business and supplies its customers with both domestic and imported sources of LPG. The Ahuroa gas storage facility (trading as Flexgas Limited) is New Zealand's only open access gas storage facility.

1.5 STRUCTURE OF THE AMP UPDATE

The structure of the AMP Update is based on the full AMP summary and is a standalone document that provides a high-level overview of the material changes from the 2021 AMP Update. It outlines what we have achieved over the past 12 months, and the key activities in the coming year. It also provides a summary of our forecast expenditure over the next ten years.

We have designed this document for those customers and stakeholders who want a concise overview of our Asset Management Plan for the planning period.

Table 1: Structure of our 2022 AMP Update and the relevant 2020 AMP appendices

2022 AMP UPDATE	
A standalone document that provides an overview and summary of the activities we have undertaken over the past 12 months and includes any material changes to the 2021 AMP Update. The AMP Update incorporates – **Appendix A:** Summary of material changes and compliance – **Appendix B:** Information disclosure schedules – **Appendix C:** Director certificate	
RELEVANT 2020 AMP APPENDICES	
Standalone appendices in one consolidated document	
Appendix A	Glossary
Appendix C	Network overview
Appendix D	Network Maps
Appendix E	Asset Fleet
Appendix F	System development
Appendix G	Network Development Programme
Appendix H	Asset Management Approach

9. More information on our gas transmission business is available here: https://firstgas.co.nz/about-us/regulatory/transmission/
10. More information on Rockgas: https://rockgas.co.nz
11. More information on Flexgas Limited: https://flexgas.co.nz/

2. OVERVIEW OF FIRSTGAS

This section introduces our gas distribution business and provides:

- The corporate and organisational structure of Firstgas
- Continued push to maximise the competitiveness of gas
- An overview of our gas distribution network and assets
- Our approach to asset management and how we manage risk on our network
- The key regulatory and environmental factors influencing our business.

2.1 CORPORATE STRUCTURE OF FIRSTGAS

Firstgas 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.[12]

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. We believe 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 our team to capitalise on opportunities in the use of the gas transmission system and gas distribution network.
- An ability to operate the gas distribution network and the gas transmission system and manage our assets in ways that better serve the interests of our customers.

We remain focused on actively promoting the use of gas and ensuring work signalled in our AMP Update maximises the value obtained from our gas distribution system.

Firstgas Board

Firstgas 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 of our Board are available on our website **www.firstgas.co.nz**.

2.2 ORGANISATIONAL STRUCTURE

Firstgas employs approximately 282[13] staff. Most staff are based in our corporate headquarters in Bell Block, New Plymouth, with teams also located in Wellington, Tauranga, Palmerston North, Hamilton, and Auckland. Our Executive team is headed by our Chief Executive Paul Goodeve, with seven direct reports.[14] Our organisational structure is illustrated in Figure 3 below.[15]

Delivery model for gas distribution

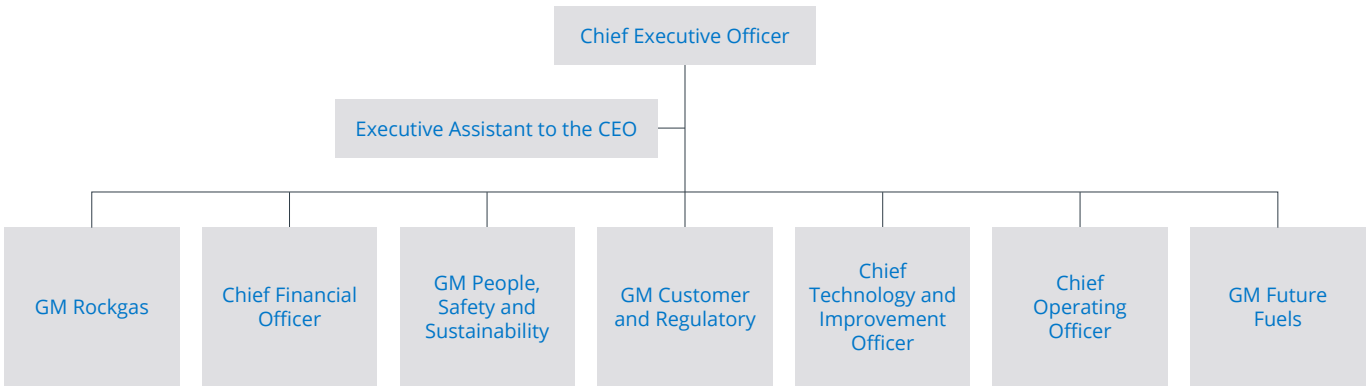
Field maintenance and installation for our gas distribution business is outsourced to a field service provider (FSP), Electrix Limited. Electrix is responsible for the preventive, corrective and reactive maintenance works and delivery of capital projects on the gas distribution network, and reports through to the Chief Operating Officer (COO).

2.3 MAXIMISING THE BENEFITS OF GAS

Since the establishment of Firstgas, we have put significant effort into promoting the benefits of natural gas to our customers and making it an attractive fuel source.

We acknowledge that for many of our customers, gas is a fuel of choice. Unlike electricity, which is universal across New Zealand households and businesses, reticulated natural gas is often considered an option, rather than a necessity. This means we need to actively market natural gas to compete with other forms of energy available in New Zealand.

Figure 3: Organisation chart



12. More information on First Sentier Investors is available on their website: https://www.firstsentierinvestors.com.au/au/en/institutional/about-us/corporate-profile.html
13. Excludes employees directly employed by Rockgas, but incorporates a number of business support staff that provide support across the Firstgas Group of businesses.
14. Biographies of our Executive Team are available on our website www.firstgas.co.nz.
15. Firstgas reviewed its organisation structure during July 2021.

Our business' focus on gas directly influences our approach to asset management through our strong desire to investigate and convert opportunities with current and renewable gases across our distribution network where economic. We believe that having more customers, with more diverse needs, makes our business more resilient in the near term and ultimately leads to more competitive prices for all customers accessing and using the distribution network.

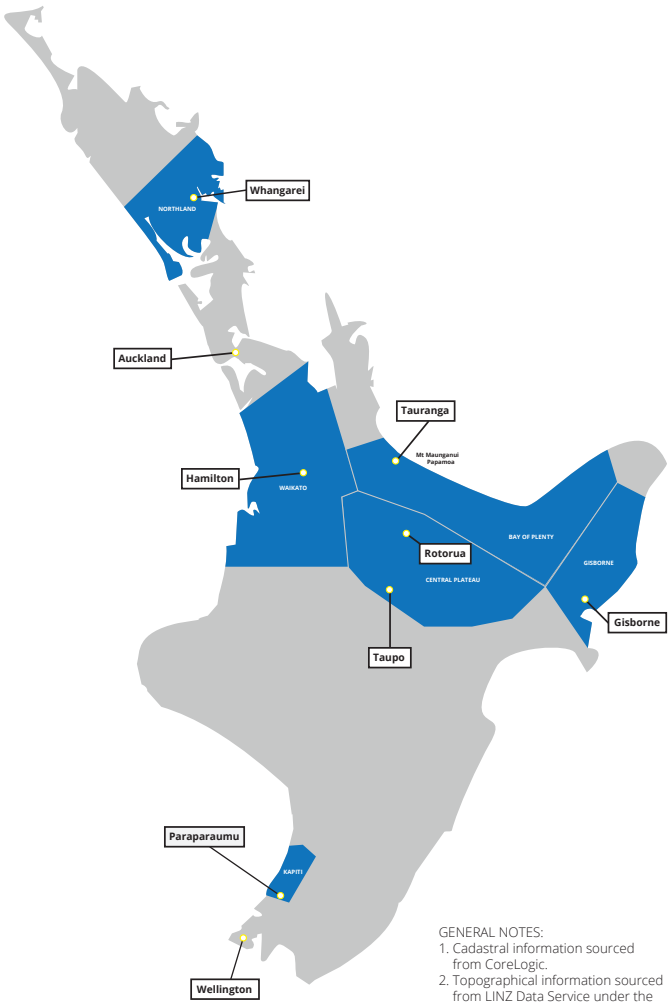
2.4 OUR GAS DISTRIBUTION NETWORK

The Firstgas distribution business incorporates gas distribution networks across Northland, Waikato, the Central Plateau, Bay of Plenty, Gisborne and Kāpiti regions of the North Island, as highlighted in blue in Figure 4. We provide gas distribution services to retailers who sell gas to approximately 66,000 residential, commercial and industrial customers.

The key statistics for our gas distribution network, as at 30 June 2022, are set out in Table 2.

The increase in peak load and gas conveyed relate to an increase in residential load during the winter period.

Figure 4: Our gas distribution areas



GENERAL NOTES:
1. Cadastral information sourced from CoreLogic.
2. Topographical information sourced from LINZ Data Service under the Creative Commons Attribution 3.0 New Zealand licence.

Table 2: Key gas distribution statistics as at 30 June 2022

STATISTIC	VALUE	CHANGE FROM 2021
Consumers connected	66,908	1%
System length (km)	4,940	1%
Consumer density (consumer/km)	13.5	0.6%
District regulating stations (DRS)	127	0%
DRS density (system km/DRS)	38.9	1%
DRS utilisation (consumers/DRS)	527	1%
Peak loads (scm/h)	52,366	3%
Gas conveyed (PJ per annum)	9.6	2%

Asset categories

Gas distribution networks are made up of several distinct asset types. We use several categories to organise our 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. Our pipes are constructed primarily from polyethylene (PE) and steel.
- **Pressure reducing stations:** 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 can maintain a consistent inlet condition to that system.
- **Valves:** 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 our gas distribution network, monitoring systems are installed to observe and record network data.
- **Special crossings:** 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.

Greater detail on our distribution assets is provided in the **2020 AMP** in **Appendix C**.

Pressures across the distribution system

Our gas distribution networks operate on a number of different pressure levels across the system. The standard pressure levels are set out in Table 3.

Table 3: Distribution Pressure Systems

PRESSURE LEVEL	RANGE
Intermediate Pressure 20 (IP20)	1,000-2,000 kPa
Intermediate Pressure 10 (IP10)	700-1,000 kPa
Medium Pressure 7 (MP7)	420-700 kPa
Medium Pressure 4 (MP4)	210-420 kPa
Medium Pressure 2 (MP2)	110-210 kPa
Medium Pressure 1 (MP1)	7-110 kPa
Low Pressure (LP)	2-7 kPa

The intermediate pressure (IP) systems generally form the "backbone"' of the distribution networks with laterals diverging from pipes to supply adjacent areas. The IP systems are all constructed to a high technical standard from welded steel, and they are protected against corrosion by a combination of coating and Cathodic Protection systems.

The medium pressure (MP system) makes up the majority of our distribution assets. The pipes in the MP system generally form the greater mesh network and are used to directly supply gas consumers. The MP systems are constructed mostly of polyethylene (PE) pipe and as such require no corrosion protection.

Low pressure (LP) systems typically represent the oldest part of the distribution network, supplying residential and commercial loads. LP systems typically consist of polyethylene main pipes.

2.5 OUR ASSET MANAGEMENT APPROACH

Firstgas' approach to asset management is guided by a suite of asset management documents and practices that ensure we are meeting our performance objectives and the expectations of our stakeholders. Our approach incorporates:

- **Asset Management framework:** This framework describes our approach to ensuring alignment between our corporate objectives and our day-to-day asset management activities. It covers our strategic plan, which guides the subsequent development of our asset management system, asset management policy, objectives and ultimately this AMP Update (and full AMPs).
- **Asset Management system:** This system links our corporate objectives and stakeholder needs to specific asset management approaches through our asset management policy. We are working to align with the requirements of ISO 55001, the international standard for asset management, and seeks to reflect good practice.
- **Performance measures:** These documents set out the overall asset management performance objectives and the key performance indicators (KPIs) that Firstgas regularly monitor to ensure we provide a safe and reliable gas distribution network. Where appropriate, the targets have been developed to align with the definitions developed by the Commerce Commission for Information Disclosure.

Our AMPs and AMP Updates capture the key elements of this asset management document suite in a summarised form and explains our asset management strategy and approach to both internal and external stakeholders. Greater detail on our approach to asset management and KPIs is set out in our **2020 AMP** in **Appendix H**.

Addressing risks on our distribution system

Risk management is a key component of good asset management. The consideration of risk plays a key role in our 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 in our investment choices.

Key risk and review elements for Firstgas include:

- **Risk management:** Our core processes are designed to manage existing risks, and to ensure emerging risks are identified, evaluated, and managed appropriately.
- **Contingency planning and response:** This work ensures we are prepared for and can respond quickly to a major incident that occurs or may occur on our gas distribution system.
- **Event management:** This provides clear definitions and guidance for all disciplines working for Firstgas to ensure a consistent approach in recognising and reporting events.

Given the potentially severe nature of failures in operation (particularly loss of containment), appropriate and effective risk management is integral to our day-to-day asset management approach. Our asset management information systems and our core processes are designed to manage existing risks, and to ensure emerging risks are identified, evaluated and managed appropriately.

Our approach is centred around:

- **Prioritising safety:** We prioritise those risks that may impact the safety of the public, our staff and service providers.
- **Ensuring security of supply:** Our works development and lifecycle management processes include formal evaluation of our assets against our security criteria.
- **Addressing poor condition / non-standard equipment:** Our 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:** Our 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 risk is recommended.
- **Use of structured risk management:** We use structured risk capture and management processes 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 our 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 our top operational priorities. The gas distribution business unit has a risk management system that is outlined in the *00083 Safety and Operating Plan*. This document outlines the minimum requirements and ensures consistency in risk management by our business.

Greater detail on our approach to risk management is set out in our **2020 AMP** in **Appendix H**.

Street Evaluating Laser Methane Assessment (SELMA)

The implementation of SELMA gas leak detection surveying to our distribution network has been a success in terms of improving our condition monitoring approach to detect gas leaks. SELMA (Street Evaluating Laser Methane Assessment), mounted on cars is gas leak detection equipment. Its main application is leak detection on natural gas distributions pipelines. The SELMA system is highly sensitive and able to detect very low concentrations of gas allowing us to pick up leaks early.

This year, we have integrated SELMA's data and information into our existing systems and tools such as Geographic Information System (GIS) and Maximo, providing better visibility and monitoring of the surveyed networks, leak locations and dynamic notification of leaks to Firstgas staff.

Satellite Survey

Firstgas is currently working with Satalytics in the USA on a satellite based methane detection trial of the Hamilton area. The satellite is timed to undertake a spectral image scan over the trial area and can identify potential natural gas leakage from distribution mains and services. The scan data is loaded into a geographic information system (GIS) such that we can identify the locations of each potential leak and send a team to investigate and if necessary, repair. This trial is ongoing throughout 2022, which will be followed by an evaluation of survey success, before recommending adoption across our other assets.

Identification of Safety Critical Equipment

Firstgas are developing the identification and management requirements of safety critical elements (SCEs) using Formal Safety Assessment (FSA), Major Hazard Facilities regulations (MHF regulations) and Good Practice Guidelines as a basis and guidance will enable us to identify and apply the appropriate controls and mitigation barriers, and governance process in place to help reduce the risk of major incident and its consequences.

The safety critical element development is underway, and we anticipate its completion by the end of the calendar year.

2.6 OUR APPROACH TO HEALTH AND SAFETY AND ENVIRONMENT

Safety is at the forefront of how we approach managing and operating our assets. There are hazards involved in the transmission and distribution of a flammable product such as natural gas. We take a systematic approach to ensure that the hazards and risk can be controlled and mitigated to an appropriate level. The asset integrity and our asset management practices outlined in this AMP Update illustrate how we mitigate risks and maintain safe outcomes. Consideration of safety is at the forefront whether we are designing new assets, operating and maintaining our assets, and having the appropriate emergency response plans. Health and Safety leadership and accountability underpins our culture.

Maintaining product containment is one of the primary controls that minimises risk to both workers and the public. Asset integrity and our asset management practices outlined in this AMP Update are, therefore, crucial in maintaining safe and positive environmental outcomes. Furthermore, strong asset integrity reduces the likelihood of emergency or reactive response that puts additional pressure on worker H&S.

Leadership

Firstgas understands that one of the key factors in HS&E excellence is leadership and accountability. Leadership is required from all layers across the organisation, but the expectation and drive around leadership starts at the top. We have developed a set of First Principles that outline our approach to achieving healthy and safe work within Firstgas.

Figure 5: Firstgas First Principles

First Principles

RESPECT THE RISK

We respect the risks of the work we do and commit to managing high risks with care and thoroughness. We keep the risk discussion alive – always vigilant.

We stop if we're not sure.

UNDERSTAND THE WORK

We take time to understand the reality of how work is done.

We understand that people are not perfect – we take ownership of our work and our mistakes and respond fairly to others'.

HARNESS KNOWLEDGE

We trust in the expertise of our team to deliver successful work.

We move decisions to where the expertise lies.

LISTEN, LEARN, IMPROVE

We look for improvement opportunities and take ownership to make them happen.

We are comfortable speaking up and do not judge issues raised by others.

WORK TOGETHER

We value the skills and experiences of different teams and work together to embed HSEQ into successful work.

The First Principles provide guidance on how we work rather than provide a prescriptive set of rules. Our First Principles are used as a basis for discussion when making decision about our work and ensuring that expectations are met.

Methane Emissions Reduction Plan

In October 2021, the New Zealand government announced that New Zealand would significantly increase its contribution to the global effort to tackle climate change by reducing net greenhouse emissions by 50 percent (below gross 2005 levels) by 2030.

In November 2021, the New Zealand Government attended the United Nations Climate Change Conference (COP26) in Glasgow UK, where they agreed to sign on to the "Global Methane Pledge".

Participants joining the Pledge agree to take voluntary actions to contribute to a collective effort to reduce global methane emissions at least 30 percent from 2020 levels by 2030, which could eliminate over 0.2 degrees C warming by 2050.

Methane is a powerful but short-lived climate pollutant that accounts for about half of the net rise in global average temperature since the pre-industrial era.

Rapidly reducing methane emissions from energy, agriculture and waste can achieve near term gains in our efforts in this decade for decisive action and is regarded as the single most effective strategy to keep the goal of limiting global warming to 1.5 degrees C within reach, while yielding co-benefits including improving public health and agricultural productivity.

We have developed an approach to estimate more accurately, the sources of methane emissions from all their assets with a view to identifying the major contributors and developing solutions to these issues. These solutions are currently being planned for delivery over the coming years and the impact of these improvements demonstrates that a 30% reduction target is achievable.

2.7 CHANGES IN THE REGULATORY AND POLICY ENVIRONMENT

This year, the Government released New Zealand's first Emissions Reduction Plan (ERP) and the first three supporting emissions budgets out to 2035. This plan is the culmination of the extensive work undertaken by the Climate Change Commission and numerous government departments, with input from businesses such as ourselves, stakeholders and the public. We support the direction signalled in the ERP, with the development of a specific Gas Transition Plan, and a broader National Energy Strategy. This approach will ensure that there is a considered transitional pathway for the natural gas industry, while supporting the development of alternative renewable gases such as green hydrogen and biogas. We look forward to continued engagement with Government officials and the energy sector, as we progress the first ERP and the supporting policies for the energy sector.

Alongside a rapidly changing policy environment, the Commerce Commission has completed its DPP reset for all gas pipeline businesses. To deal with the uncertainty, the Commission has set a four-year regulatory control period. It has also introduced an accelerated depreciation mechanism, to better reflect the expected remaining economic lives of the networks. The outcome of this DPP reset has been factored into the forecast expenditure that we have set out in this AMP Update.

The Commission is now commencing a review of the underlying Input Methodologies (IMs) for regulated energy businesses. This review is expected to canvass a wide range of issues, as the regulated energy sector deals with the uncertainty it faces through the energy transition. This review must be completed by December 2023 and will impact on future AMPs as we transition our business.

Release of first Emissions Reduction Plan (ERP)

In May 2022, the Government released its first Emissions Reduction Plan (ERP) and the first three carbon budgets (2022 – 2025, 2026 – 2030, 2031 – 2035). The plan sets out the policies and investments proposed to reduce emissions to align with the budgets– which call for a 10% reduction in emissions by 2025, a 25% reduction by 2030, and a 40% reduction by 2035. This plan is the Government's response to the Climate Change Commission's final report released in June 2021 and incorporates the extensive feedback that the Government received on its draft ERP consultation paper.

Firstgas supports the release of the ERP. Of particular interest to our business is the development of gas transition plan by the end of 2023. This will set out a transition pathway for the natural gas industry, explore opportunities for renewable gases, and ensure an equitable transition. This work is being led by the Gas Industry Company (GIC) and the Ministry of Business, Innovation and Employment (MBIE), with a terms of reference publicly released. This transition plan is intended to feed into the broader National Energy Strategy, which will address the strategic challenges in the energy sector.

The ERP also outlines actions to support the development of low-emissions fuels. We support the development of a hydrogen roadmap by 2023, investigations into bioenergy supply options, and the review of hydrogen regulatory settings to ensure they are fit for purpose. The ERP importantly does not contain a ban on new gas or LPG connections. The Minister of Energy and Energy Resources is quoted as saying "the preference now is to repurpose gas infrastructure for low-carbon gases rather than banning new connections". We welcome this statement and look forward to engaging with Government, stakeholders and the public on how we can plan for a smooth transition away from natural gas, while still providing a secure and safe service and exploring the opportunities for renewable gases.

Firstgas has continued to engage on a broad range of Government consultation documents that directly impact on our businesses and the likely future demand for natural gas. For example:

- The GIC has continued its work on improving information disclosure within the gas sector, with a proposal to introduce new gas governance rules for the disclosure of gas production and gas storage facility outage information.
- The GIC has also published its final report on the Gas Market Settings Investigation, as requested by the Ministry of Energy & Resources. This report outlines two key actions areas, and several supporting workstreams, to ensure that the gas industry arrangements remain fit for purpose through the transition.
- Firstgas provided input into the Infrastructure Commission's Infrastructure Strategy, Rautaki Hanganaga o Aotearoa. We encourage the Commission to encourage the circular economy, including the option for biogas production from waste.
- MBIE has consulted on the definition of Energy Hardship, with Firstgas providing input on how this definition can best consider gas consumers.
- The Ministry for the Environment has consulted on numerous aspects of the Emissions Trading Scheme, as it refines the operation of the ETS to better support the transition to net zero.

Firstgas will continue to engage with government officials on these work streams to ensure that the role and benefits of natural gas in New Zealand's energy mix is reflected in the government's policies, as well as advocating for policy settings to support the opportunities for renewable gases.

DPP reset for 2022 – 2026

At the end of May 2022, the Commerce Commission announced its decisions for the DPP reset for gas pipeline businesses for the next regulatory control period (2022 – 2026). The DPP decision was informed by a series of consultations with the sector, where all parties could discuss the issues, and increasing uncertainty facing the gas sector. The key decisions made as part of DPP3[16] included:

- Setting the length of the regulatory period at four years to enable the Commission to review price-quality settings at the earliest opportunity after further government energy policy initiatives are scheduled to be announced.
- Shortening asset lives to better reflect the expected remaining economic lives of the networks.
- Smoothing price increases over the regulatory period to minimise the impact of price rises on consumers of gas pipeline services.
- Allowing some Opex for the investigation of blended gases in networks, recognising that this could benefit consumers of gas pipeline services.
- Providing expenditure reopeners for GPBs to seek additional funding for unforeseen growth or risks that affect safe and reliable gas supply.

We are aware of the potential impact of this decision on consumer gas prices and will be carefully considering how we balance the Commission's decision and the challenges being faced by New Zealanders. We are confident that gas still remains a cost-effective option for New Zealanders.

Upcoming IMs review

The Commerce Commission has commenced its review of the Input Methodologies 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.

To start the process, the Commission has released its first two consultation papers on the IMs review:

- Process and issues paper that sets out key topics for the IMs review, the issues the Commission have identified to date relating to those topics, and the details of the process by which it intends to complete the review.
- Draft framework paper that describes the framework the Commission intend to apply in reaching its decisions on the IMs review.

16. Commerce Commission final decision paper is available on their website: https://comcom.govt.nz/__data/assets/pdf_file/0025/284524/DPPs-for-gas-pipeline-businesses-from-1-October-2022-Final-Reasons-Paper-31-May-2022.pdf

We believe it is key for the Commission and the regulated sectors to properly canvass the issues it is facing, before considering what IMs amendments are required. We also believe that it will be important for the Commerce Commission to liaise closely with the Ministry of Business, Innovation and Employment (MBIE) and the Gas Industry Company (GIC) so that we develop a common understanding of the impact of the GTP and the Energy Strategy. As with the DPP reset, Firstgas remains focused on advocating for IMs settings that:

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

We look forward to engagement with the Commission and stakeholders throughout the IMs process, as we discuss how we can ensure a regulatory framework that supports New Zealand's transition to net zero emissions.

3. PREPARING THE BUSINESS FOR FUTURE OPPORTUNITIES AND CHALLENGES

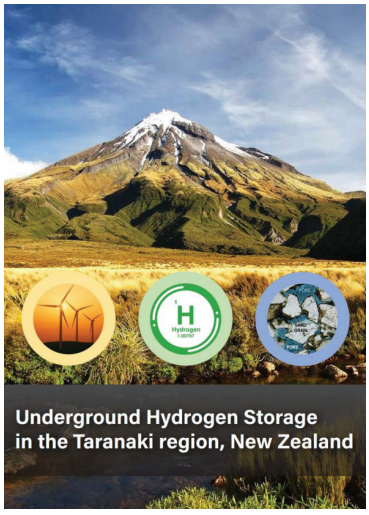
Firstgas is committed to ensuring that we can safely and reliably deliver energy that is affordable and acceptable to New Zealand's families and businesses, both now and into the future.

3.1 WORK PROGRAMME ESTABLISHED ON RENEWABLE GASES

Firstgas Group is playing a leading role in trialling hydrogen, biogas and other new fuels which are a necessary partner to the electricity grid in decarbonising New Zealand's energy supply. We are supporting the development of New Zealand's first large-scale biogas facility which will see the injection of biogas, produced from food waste, into the gas network. We have also undertaken significant work to establish how existing gas infrastructure can be used to transport green hydrogen, with the first blending trials currently being planned, including identification of the network location, working with appliance suppliers, retailers and installed appliance at premises.

We also appointed our Future Fuels General Manager, in April 2022 to lead the Company's new Future Fuels team, as part of our commitment to the further development and delivery of our Renewable Fuels strategy. With this team in place, Firstgas Group will work with the sector and Government on the Gas Transition Plan and National Energy Strategy identified in the ERP.

3.2 HYDROGEN



▲ *Green Hydrogen storage in Taranaki*[17]

Following the release of our hydrogen pipeline study in March last year, we are in the planning stages of our first hydrogen pipeline trial. Our plan is to decarbonise the gas pipeline network by blending up to 20% hydrogen into the natural gas network from 2030, with conversion to 100% hydrogen by 2050. This would provide emissions reductions for all gas users while continuing to use existing pipeline and gas infrastructure.

In early 2022, we commissioned research by the University of Canterbury, to investigate the potential of existing underground gas storage to store green hydrogen. This research has identified seven depleted oil and gas reservoirs in Taranaki that are potential candidates to store large volumes of clean energy underground in the form of green hydrogen.

▼ *Fortescue Future Industries and Firstgas to investigate*[18]

It means that hydrogen would not only be delivered to New Zealand users, but done so through existing infrastructure, making it an efficient way for New Zealand to achieve its wider zero emissions targets. We are considering the further testing and programmes of work recommended by this report to progress large-scale hydrogen storage in New Zealand. This will be a key enabler to unlock the full potential benefits that green hydrogen can offer.

This year Firstgas Group signed a non-binding Memorandum of Understanding with Fortescue Future Industries to identify opportunities to produce and distribute green hydrogen to tens of thousands of homes and businesses in New Zealand. Working with Fortescue marks an important step in Firstgas' development and scale-up of renewable fuels and we are excited about the opportunities this presents.

3.3 BIOMETHANE

▲ *Turning kerbside waste into renewable gas*[19]

In addition to hydrogen, we believe that biomethane will also 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 our gas pipeline. Collaboration is the key to successful uptake of Biomethane. It will require cooperation across industries, communities and both the private and public sector to reach its full potential.

Last year we announced our plans to upgrade and inject the biogas produced at Ecogas' first large-scale anaerobic digestion facility in Reporoa. A first for New Zealand, this plant will transform Auckland's kerbside food waste into a valuable source of renewable gas for homes and businesses, allowing gas users to enjoy the benefits of this renewable gas in their existing appliances while reducing emissions.

17. Research reveals hydrogen storage potential in Taranaki to support growth in renewable electricity | Gas is changing
18. Fortescue Future Industries and Firstgas to investigate green hydrogen | Gas is changing
19. Firstgas and Ecogas to turn kerbside waste into renewable gas for use in homes and businesses | Gas is changing

4. STAKEHOLDER ENGAGMENT

This section provides an overview of Firstgas' engagement with stakeholders over the past 12 months and how that engagement has shaped our decision making.

4.1 STAKEHOLDER ENGAGEMENT

Firstgas recognises the importance of engaging with businesses and customers who rely on the consistent and safe delivery of gas to maintain their ongoing productivity and household needs. Our focus is to engage with our stakeholders on the following topics:

- Understanding our customers' views and preferences for their energy supply and the transition to transporting renewable gases over our gas networks.
- Firstgas investment and asset maintenance strategies and commercial and pricing decisions.
- Issues for the 2023 Input Methodologies (IMs) review, future regulatory and government policy processes, and key operational decisions.

4.2 CONTINUED ENGAGEMENT AND RELATIONSHIP BUILDING

Firstgas engages with retailers, stakeholders, and customers to ensure that we can meet the needs of our customers. In the past year, we have undertaken the following activities:

- In June 2022, we consulted with retailers on the **proposed distribution prices for FY2023**. We received a small number of responses, and these were considered when setting final prices.
- We are in the process of producing a new retailer agreement for the use of our distribution networks, which is known as a **use-of system agreement (UoSA)**. We released the draft UoSA to retailers for feedback in May 2021 and held two workshops during June 2021. Following consideration of written feedback received from retailers, Firstgas is producing a redline version of the UoSA for further discussion with retailers. We intend to publish the final version of the UoSA on our website later in 2022.
- During 2022 much of the relationship effort with consumers and specifiers has focused on countering uncertainty and concern over the long-term legislative position of gas. In many instances, the initial suggestion of the Climate Change Commission in early 2021 to ban new connections as of 2025 has remained a focal point of consumers attitude and uncertainty towards gas. Firstgas Group has worked collaboratively with industry stakeholders to build confidence and provide clarity to the conversation.

4.3 MANAGING CONFLICTING INTERESTS

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.

From our perspective, situations of conflicting interests are best managed by:

- Clearly identifying and analysing stakeholder conflicts (existing or potential).
- Having a clear set of fundamental principles that help to guide a resolution. We are legally bound to make decisions that are consistent with the distribution operating codes (which include obligations relating to confidentiality) and we need to 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 effectively with stakeholders so that all parties know where they stand.

In all instances of conflicting interests, we will strive to engage with stakeholders in a transparent manner to explain our decisions.

Iwi and community key to successful pipeline project

Firstgas, in collaboration with specialised contractors, local Iwi Ngati Tama and local community achieved the first-ever replacement of a section of the Māui gas pipeline in January 2022. The successful completion of this significant piece of work, ensured the continued security of the natural gas supply to over a million Kiwis across the North Island.

Firstgas worked closely with Ngāti Tama and with the local community who were affected by the project. Firstgas worked hard to minimise the disruption to the residents and landowners living nearby the locations, holding community meetings and providing information about what to expect during the weekend, along with support over the weekend of the project.

Firstgas aimed to establish a more harmonious relationship with Ngāti Tama that would endure well beyond the scope of this project and achieved that and more. The people working for Firstgas gained knowledge that enables them to respond appropriately to Ngāti Tama (and indeed any iwi) from a cultural perspective.

Firstgas works in partnership with Ngati Tama to enable the Iwi to reconnect to their whenua (land).

From right to left: Toka Walden, Rae Hinerau Wetere, Nigel Maxwell (Firstgas) and Ivan Bruce Archaeologist in front of a kumera pit uncovered during excavation.

"The way we handle community relations has fundamentally changed. We're proactively rather than passively engaging with the community...", said Kevin Stretton, Engineering and Projects Manager for Firstgas.

"Some amazing things have developed from working with Firstgas," Rae-Hinerau Wetere, Cultural Monitor (Kaitiaki) on the realignment project for Ngāti Tama

5. YEAR IN REVIEW

This section provides an overview of Firstgas' major projects and initiatives over the past year ending 30 September 2022:

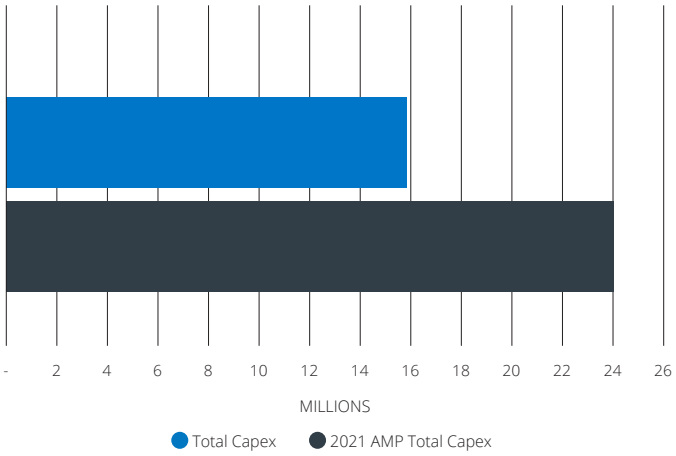
- We review our forecast expenditure against the plans stated in our 2021 AMP Update and discuss the variances in activities undertaken
- The major developments on our network undertaken since our 2021 AMP Update
- The performance of our network
- Our asset management improvements.

5.1 EXPENDITURE SUMMARY

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

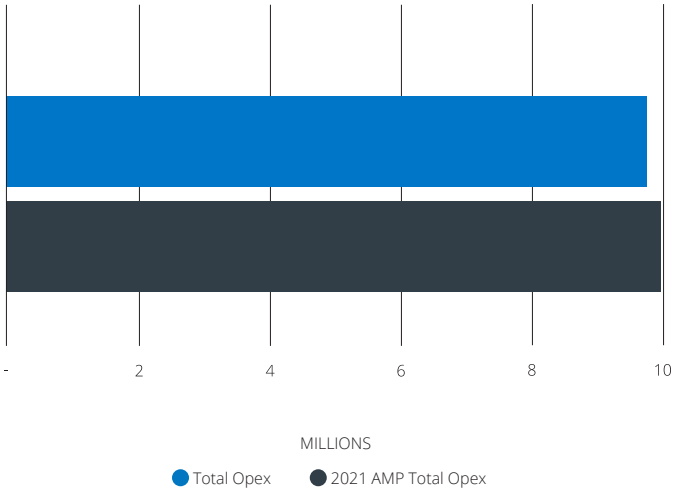
Figures 6 and 7 outline our actual expenditure for the year ended 30 September 2022[20], and compares actual expenditure to the forecasts presented in our 2021AMP.

Figure 6: Total Capex in FY2022 versus forecast Capex in 2021 AMP



Our distribution business showed a strong full-year forecast in spite of the wide impact of COVID-19. The only significant variance compared to the 2021 AMP Update forecast relates to two new industrial customers connections which did not eventuate this year, resulting in approximately $6.7 million underspend.

Figure 7: Total Opex in FY2022 versus forecast Opex in 2021 AMP

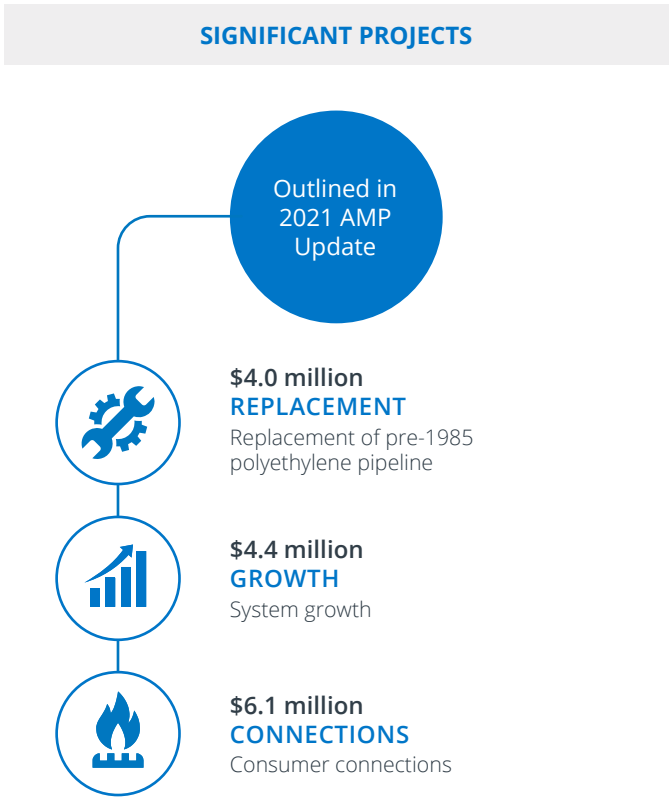


There is a little variance in the Opex level compared to what was published in our 2021 AMP Update.

5.2 SIGNIFICANT ACTIVITIES UNDERTAKEN IN FY2022

The last year has been another busy year for Firstgas. Our improvements and efforts in recent years in Capex management and control have enabled us to deliver another strong full-year forecast result. Figure 8 outlines the most significant projects that were delivered over the last 12 months.

Figure 8: Significant projects completed in FY2022



We discuss these projects over, as well as the significant work we have undertaken through our asset management improvement programme.

20. All data from 30 May 2022 to 30 September 2022 has been forecasted, in order to provide a complete 12 months of data.

Replacement of pre-1985 polyethylene (PE) pipeline

Firstgas has continued with our programme of work to replace pre-1985 polyethylene (PE) pipeline. As outlined in the 2020 AMP, PE pipe manufactured before 1985 was made with a polymer structure that over time is susceptible to crack growth, following significant deformation. These issues typically occur following:

- A squeeze off,
- A stress concentration i.e. rock in trench base.

Where the pipe has been squeezed off, this type of material allowed microcracks to form that develop over time and allows the pipe to lose integrity and leak.

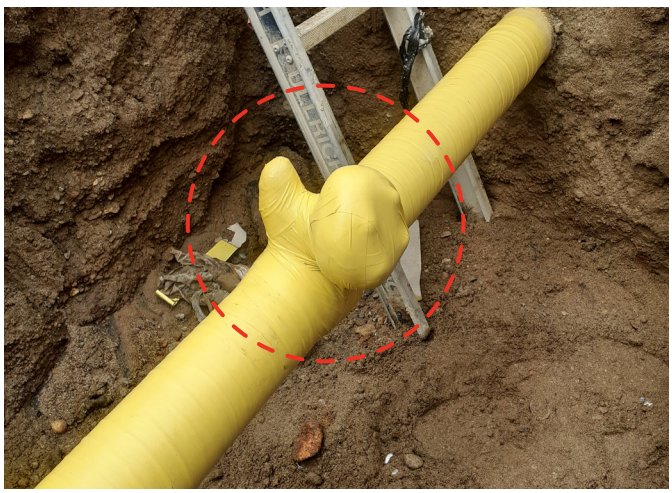
Our distribution network includes approximately 396 kilometres of pre-1985 PE mains and approximately 116 kilometres of pre-1985 service pipelines, with the majority located within the Waikato.

We have identified that PE pipe from pre-1975 has a higher failure risk than pre-1985 and therefore the focus has been on addressing pre-1975 assets.

This year, we have completed eleven projects, replacing approximately 8 kilometres of pre 1975 PE pipeline on our network in Waikato. These projects included remediation works, where we applied repair clamps onto the squeeze-off sections of pre-1975 PE pipeline in Hamilton. These sections of pipe were identified as potential risk to public safety.

Our replacement programme of work has been prioritised based on risk ranking and used as the basis for the asset grade condition information which is summarised in Schedule 12a (see **Appendix B**). Data shows that 1% of the total length of the medium pressure polyethylene pipe in our distribution system (approximately 30 kilometres of pre 1975 PE pipeline) with intermediate risk have grade 2 rating. Assets with this rating have a material deterioration but the asset condition is still within the serviceable life parameters. Our focus will be on replacing and repairing pre-1975 PE pipeline in the next planning period.[21]

Figure 9: Pre-1975 pipeline remediation, Hamilton (Pre-1975 off take section was removed and decommissioned)



21. Definition as set by the Commerce Commission.

System growth

Firstgas is committed to developing our network to meet customer needs and ensuring we can continue to meet customer demand. Often this means we have to do work on our existing network to reinforce or add capacity to meet this growing demand.

- Mains extension / subdivision projects: Over the last 12 months, we have completed over 30 projects across the greater Waikato region as well as Taupō, Tauranga and the Kāpiti Coast.
- A new DRS has been installed to replace the existing Whakatane DRS (DRS-80251). This will now both support the increased customer load requirement and comply with Firstgas standards.

Customer connections

A large component of our annual Capex is allocated to connecting new customers to our network. Over the last 12 months, we have carried out work to connect approximately 1,700 new gas customers. This connection number is down by 15% against our target connection of 2,000. The contributing factors to this are workforce shortages due to Covid-19 both internally and externally, building material delays extending timelines for builders, supply, and logistics delays globally. Overall, the number of connections achieved is still positive despite the Covid-19 impact.

Most of these new connections are for residential homes. However, we have also connected several businesses and commercial operations ranging from cafes and laundromats through to large industrial users. The two new industrial plant customer projects previously forecast did not eventuate this year. The cancellation of one and delay of the other project in FY2022 is approximately $6.7million (total) underspend.

Figure 10: New (PE) Polyethylene pipe on the truck heading out to subdivision sites

5.3 ASSET MANAGEMENT IMPROVEMENT PROGRAMME

Over the last year, several activities have been initiated to improve our asset management practices and to ensure we continue to meet our asset management objectives. This improvement programme is aligned with our strategic focus on asset management and included work on the following areas.

Asset Management gap analysis and maturity assessment

Firstgas engaged a third-party consultant to objectively assess our asset management practices based on the international Asset Management Standard, ISO55001. The consultant reviewed existing information relevant to the asset management framework and processes, procedures, and information, and supplemented these findings with a series of on-site meetings and discussions with relevant staff. Firstgas is awaiting the final report and will put a plan in place to address recommendations that increase the maturity of our Asset Management System.

Our goal is to improve and develop a high-quality Asset Management system which will enable us to demonstrate that risks and costs associated with the management of assets are fully and properly considered and optimised.

Optimising the SELMA Leakage Survey

The SELMA vehicle gas leak detection survey is now integrated in GIS providing better visibility and monitoring of the surveyed networks, leak locations and providing dynamic notification of leaks to Firstgas staff.

The leak survey routine has been improved to enable better interface to SELMA, therefore surveying staff can directly access the work order, detailing the required area for surveying. This has been developed utilising existing systems and tools to enable better monitoring and reporting of leakage survey.

Configuring Distribution Asset Register and Hierarchy

Work is underway on reviewing and proposing a configuration change of our Maximo asset register and hierarchy to improve its interface and usability with other systems, mainly ArcGIS, Maximo Asset Health Insights (MAHI) and Finance. This will enable us to take advantage of the ease of use and functionality of our existing systems. A correct and structured asset hierarchy is one of the many foundations of good asset management to help us monitor and maintain our assets safely, efficiently, and reliably.

Learning Management System (LMS)

A Learning Management System (LMS) has been selected as a solution to consolidate training requirements, delivery and tracking within the Firstgas Group and major contractors. This will ensure that Firstgas Group meets its statutory obligations around training and competency in an efficient and effective manner, as well as provides a suitable central platform to deliver training to staff which is currently occurring in multiple systems. A market evaluation was conducted to select a suitable provider for a solution and implementation is underway.

Implementation will continue into next year with system launch to the business anticipated by Q2 of FY2023.

Figure 11: The picture on the left shows SELMA mounted in front of the vehicle. The picture on the right shows a snapshot of the surveyed network in GIS.

5.4 PERFORMANCE OF THE DISTRIBUTION NETWORK

A key premise for the AMP Update is that existing reliability, safety and supply quality levels will be maintained and improved. We have set targets to help drive performance improvements and to measure our progress in delivering reliable, safe, and high-quality service (these targets are detailed in our **2020 AMP** in **Appendix H**). To align with regulatory disclosures, the data presented below covers the year ending 30 September 2021.

- Our KPI scores for FY2021 are reported in the first column of the table.
- The target column refers to the score we aim to achieve over the next 12 months.
- The arrow direction compares data between FY2020 and FY2021, if there was an increase, decrease or steady trend. The arrow colour indicates how close the KPI is to the FY2022 target.

Our KPI table (4) incorporates the two quality standards (response time to emergency) for our distribution set by the Commerce Commission in its price-quality determination. We continue to meet both of these quality standards. There are three areas where performance has not improved:

- The increase in SAIDI and CAIDI numbers relate to a **third-party event** in Te Awamutu in July 2021. A gas main had to be isolated when a civil contractor installing sheet piles for a bridge cut into the gas line with one of the piles. Firstgas arrived at the site within 30 minutes of receiving the call. The damaged pipe lay under a creek and difficulties with access prevented immediate repair. The solution was to install a temporary bypass. The gas main was isolated for 1,303 minutes and 40 customers lost gas supply during that time.
- **Poor pressure due to network causes:** This KPI records the number of unplanned incidents where delivery pressure drops due to a network cause. The definition of 'network causes' includes valve and service pipe defects such as corrosion on the aluminum riser, valve seizing, contamination inside the pipeline caused during construction or following repairs. An annual audit is being carried out to identify and correct these issues.
- **Leaks identified:** The increase in the number of leaks detected during a survey coincides with an increase in the frequency of leakage surveys, which are now being performed annually (previously bi-annually). Detection sensitivity has also increased because of the new Street Evaluating Laser Methane Assessment (SELMA) gas leak detector which is highly sensitive to very small amounts of gas.

Table 4: KPIs for gas distribution network for FY2021

KEY PERFORMANCE INDICATORS	FY2021	FY2022 TARGET	CURRENT TREND
Safety: Lost time injuries	0	**0**	▶
Response time to emergencies (within one hour)	90%	**80%***	▲
Response time to emergencies (within three hours)	100%	**100%***	▶
Number of complaints per customers	0.0003	**0.0005**	▼
Publicly reported gas escapes	30	**53**	▼
Third party damage	38	**67**	▼
System Average Interruption Duration Index (SAIDI)	1,426	**1,300**	▲
Customer Average Interruption Duration Index (CAIDI)	168	**152**	▲
Poor pressure due to network causes	8	**3**	▶
Leaks identified	11	**1.4**	▲

**Quality measure under Default Price-quality Path (DPP) 2017 – 2022*

6. YEAR AHEAD

This section sets out the areas of focus for Firstgas over the year commencing 1 October 2022, the first year of DPP3 (2022 – 2026):

- Continuation of our pre-1985 PE pipeline replacement project
- Upgrading and growing our network to meet the present and future needs of customers
- Connections to meet customer demand
- Embedding of our asset management improvement programme and practices

6.1 SIGNIFICANT ACTIVITIES FOR FY2023

Figure 12 sets out the major activities we plan to undertake on our gas distribution network throughout FY2023. The location of these significant projects is shown in Figure 13, with a description of each of these projects below. These projects represent approximately 90% of the overall Capex program for our gas distribution business for the coming year.

We also provide details on the next steps for our asset management improvement programme.

Figure 12: Significant projects for FY2023

SIGNIFICANT PROJECTS

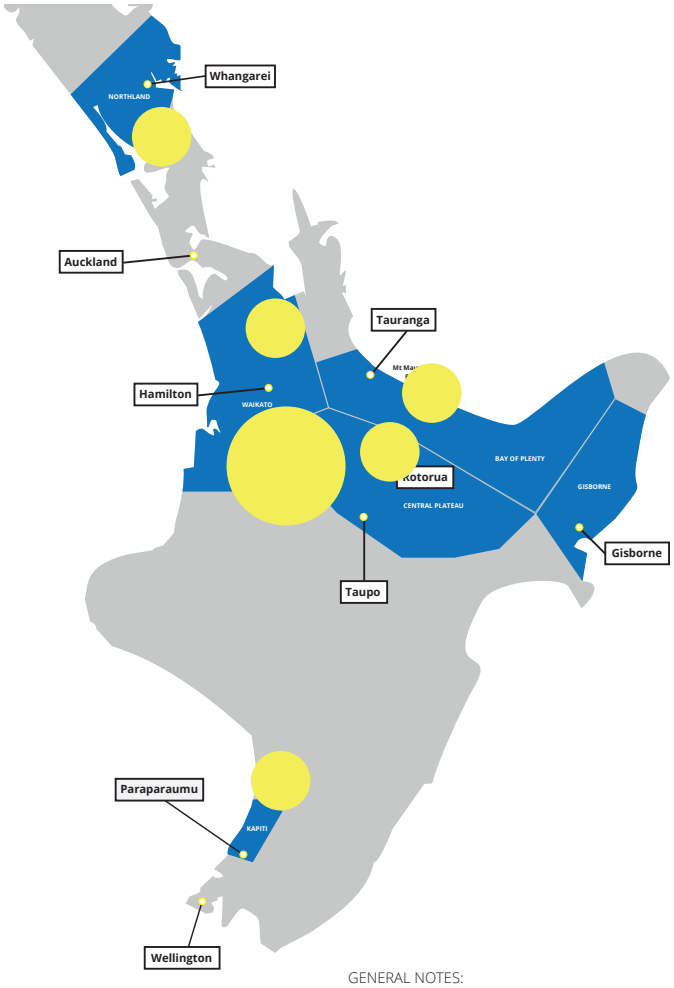
Outlined in 2021 AMP Update

$6.1 million
CONNECTIONS
Residential customer connections

$2.7 million
SYSTEM GROWTH
Network enhancements and reinforcements

$2.0 million
REPLACEMENT OF PRE-1985 PIPELINE
Replacement is focused on pre-1975 pipe

Figure 13: Location of significant projects for FY2023



GENERAL NOTES:
1. Cadastral information sourced from CoreLogic.
2. Topographical information sourced from LINZ Data Service under the Creative Commons Attribution 3.0 New Zealand licence.

Replacement of pre-1985 pipeline

Replacement of pre-1975 PE remains a focus for FY2023, with our programme of work over the next five years prioritising the replacement of approximately 30 kilometres of pre-1975 mains pipe. Pre-1975 PE mains with an intermediate-risk rating has been given priority over mains installed between 1975 – 1985, as there is a higher rate of failures in mains installed before 1975.

Our approach continues to be guided by our asset strategy and risk rankings, as outlined in the year in review section. Next year, we have scoped and planned for approximately five projects to replace pre-1975 pipelines, all with intermediate-risk scores. These projects are mostly in the Hamilton area, replacing approximately 4 kilometres of pipe.

We have planned to utilise an inline inspection camera to survey internally and identify sections of pipe with squeeze-off points or other pipeline defects in our network next year. This has resulted in deferring some of our pre-1985 replacement projects to allow us to explore new technology and methods in addressing the pre-1985 risks.

System growth

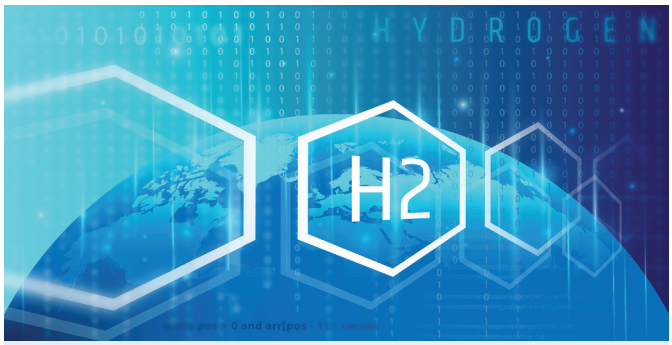
Our system growth activity for FY2023 will cover two key areas:

- **Reinforcement of the Hamilton IP DRS:** We will design and install a new IP20/IP10 DRS and interconnecting pipelines west of Te Rapa Road and Wairere Drive Junction in Hamilton. This will provide assurance around the network operating pressure, by increasing the quality of supply and flow capacity. The new DRS is expected to arrive in the country at the end of the calendar year and the installation of the unit will likely commence next year.
- **Mains / subdivision extension projects:** Firstgas remains committed to developing and enhancing our network to meet the present and future needs of our customers, whether this be through the existing supply of natural gas or the potential distribution of renewable gases in the future. We have over 30 projects planned, predominantly in the greater Waikato region but also in Taupō, Tauranga and the Kāpiti Coast.

New customer connections

We are planning to connect approximately 1,800 new customers throughout FY2023. Our decisions to extend the network or to construct new networks to enable future connections are subject to our Capital Contributions Policy and Distribution Pricing Methodology, which are available on our website **here**.

To mitigate the economic stranding risk for new investments, we have increased the forecast proportion of Incremental Cost that is to be met by capital contributions. This proportion has moved from 7% to 16% in FY2023, growing up to 20% in FY2031. Work is underway to update the capital contributions policy to this effect and the new version will be released for application from 1 October 2022.



Our Hydrogen Trials

Transitioning our networks to transport renewable gases is a core objective for Firstgas. The release of our hydrogen pipeline trial study set the foundation for our ongoing work on hydrogen. Work is underway to prepare small sections of our network for limited trials of hydrogen blends, before we move to larger parts of our network.

We are closely coordinating with industry stakeholders and will release further information on our trials as we progress.

6.2 CONTINUING OUR ASSET MANAGEMENT IMPROVEMENT PROGRAMME

We will continue developing our overall asset management framework, asset management system elements and documentation, while also looking at improving the way we use our existing IT systems and technology. The key asset management improvement activities for FY2023 include:

- Development of an **improvement plan to address the recommendations of our ISO 55001 gap assessment**, with the assessment report providing us with a number of opportunities for improvement.
- **Embedding of Maximo Asset Health Insights (MAHI)** into our asset management planning process. We intend to improve Distribution asset hierarchy and register in Maximo to enable us to utilise MAHI's functionality in calculating asset health. Improving the asset hierarchy also improves the interface to other systems and tools such as GIS and others.
- **Implementation of Learning Management Solution (LMS)** continuing into next year with system launch to the business anticipated by Q2 of FY2023.

Asset condition (Schedule 12A)

Schedule 12A (report on asset condition set out in **Appendix B**) provides an overview of the asset condition using the grading classifications prescribed by the Commerce Commission.[22] Our asset management strategies and expenditure are targeted to address 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 of the 2020 AMP**.

22. When Firstgas assesses asset condition, we consider a number of factors. This includes, but is not limited to, criticality, risk and our condition monitoring strategy for that asset or fleet. This information informs our replacement and refurbishment programmes. This means there is not an exact relationship between our view of asset condition and the Commerce Commission's grading categories which results in some variations between grading and replacement strategies.

7. EXPENDITURE FORECASTS

This section lays out the Opex and Capex forecasts and how these forecasts have changed from what was signalled in the 2021 AMP Update.

7.1 CAPEX FORECAST

Our forecast Capex spend over the next ten years is set out in the blue bars in Figure 14, with forecast from last year's AMP Update shown in red line. There are changes to the profile and the total Capex within the current DPP period from that set out in our 2021 AMP Update.

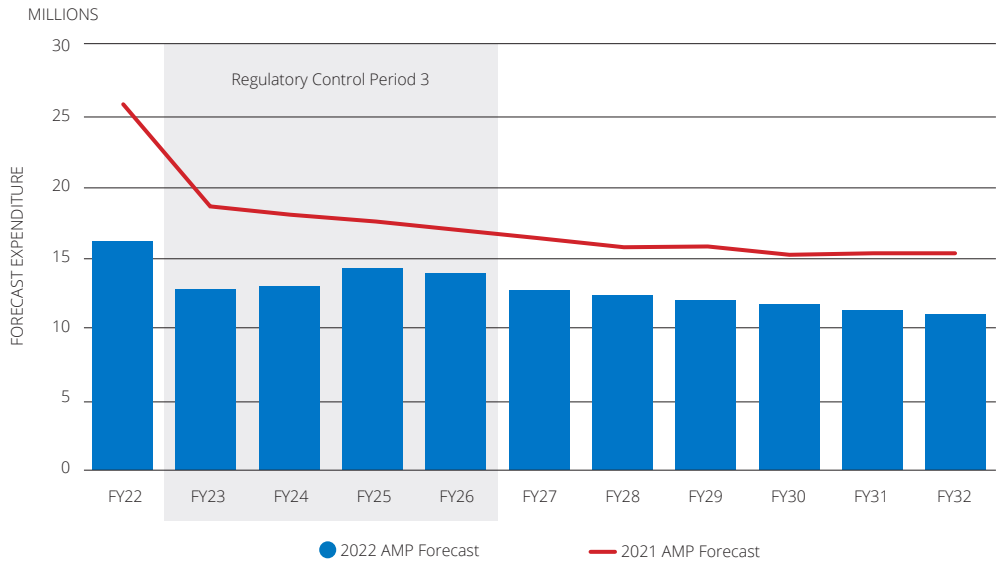
The changes within regulatory control period two (FY2017 –FY2022) relate to:

- Two customer driven connections were indicated for FY2022 – however, one has been delayed 12 months and the other has chosen an alternative fuel, no longer requiring these connections. This is has resulted in a reduction in total combined spend of approximately $6.7 million.
- An increase in asset replacement and renewal expenditure in FY2022 of approximately $1 million to accelerate the replacement programme of pre-1985 polyethylene (PE) pipeline.

The changes within regulatory control periods three (FY2023 – FY2026)[23] relate to:

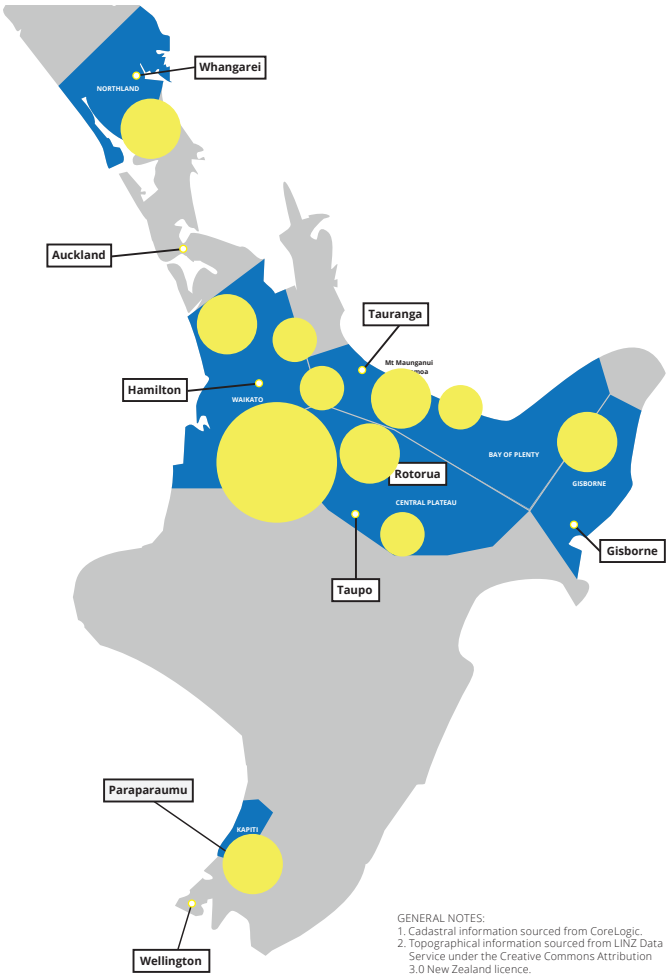
- A significant decrease in overall Capex of approximately $15.8 million (total).
- A decrease in asset replacement and renewal expenditure of approximately $7.2 million. This expenditure allowance category was capped by the Commission in the DPP reset to reflect our historical average expenditure.
- A decrease in system growth expenditure of approximately $5.1 million. This allowance was also capped by the Commission in the DPP reset to reflect our historical average expenditure.
- A decrease in consumer connection expenditure of approximately $1.8 million. This reflects a decrease in the forecast number of new connections.
- A decrease in both non-network expenditure and asset relocations of approximately $0.5 million and $1.1 million, respectively. This allowance was capped by the Commission during the DPP reset to reflect our historical average expenditure.
- Non-network Capex for the next regulator control period has been reduced by $0.52 million due to Software as a Service (SaaS) re-categorisation[24] to Opex.

Figure 14: Forecast total Capex (all figures in FY2022 prices)



23. The $ figures quoted are in FY2021 values to align with the Commerce Commissions commentary in the Gas Pipeline Businesses Final Reasons Paper for the DPP3 reset. https://comcom.govt.nz/__data/assets/pdf_file/0025/284524/DPPs-for-gas-pipeline-businesses-from-1-October-2022-Final-Reasons-Paper-31-May-2022.pdf
24. SaaS recategorisation was due to a change in accounting rules

Figure 15: Largest Capex projects



Largest Capex projects going forward

We have continued to incorporate the high-level heat map that shows the largest Capex projects planned for the next ten years (FY2023 to FY2032) in our AMP Update. This heat map is part of the related party transaction information disclosure requirements. Figure 15 sets out the location of the largest ten projects, with greater detail in Table 5.

All network Capex is forecast to be completed by our related party, Gas Services New Zealand Limited (GSNZ) under an operations and management agreement (O&M) between Firstgas and GSNZ. This O&M agreement was entered into with the change in ownership of the distribution business in 2016 and will be reviewed before September 2022.

The map on the left depicts our anticipated significant planned expenditure during the planning period. It is a snapshot in time, with the information we have available, and may change. As we progress into the 10-year plan, we will develop the activities according to our processes to develop more accurate forecasts and delivery schedules. The activities will form part of the Information Disclosure requirements for March 2023.

A description of the largest Capex projects identified in Table 5 is provided below and more detail can be found in the 2020 AMP. All projects are network projects. Where the identified projects include some reinforcement work, there may be possible future network or equipment constraints. Currently no such constraints have been identified.

Table 5: Description of largest Capex projects

PROJECT	DESCRIPTION	REGION	COST (CONSTANT FY2022 $)	PERIOD
Pre-1985 replacement programme	As discussed in section 7, replacement of pre-1985 PE pipe will occur throughout the planning period.	Waikato, Hamilton ($12.6 million) Bay of Plenty ($2.2 million) Kāpiti ($2.1 million) Central Plateau ($2.1 million)	$19 million	Across the period
Mains and subdivision urban growth	To meet the anticipated customer demand in the regions in the near term.	Waikato, Taupō, Tauranga, Kāpiti	$31 million	Across the period
Consumer connections	To meet the short-term growth and customer connections in the regions in the near term.	Waikato, Taupō, Tauranga, Kāpiti	$44 million	Across the period

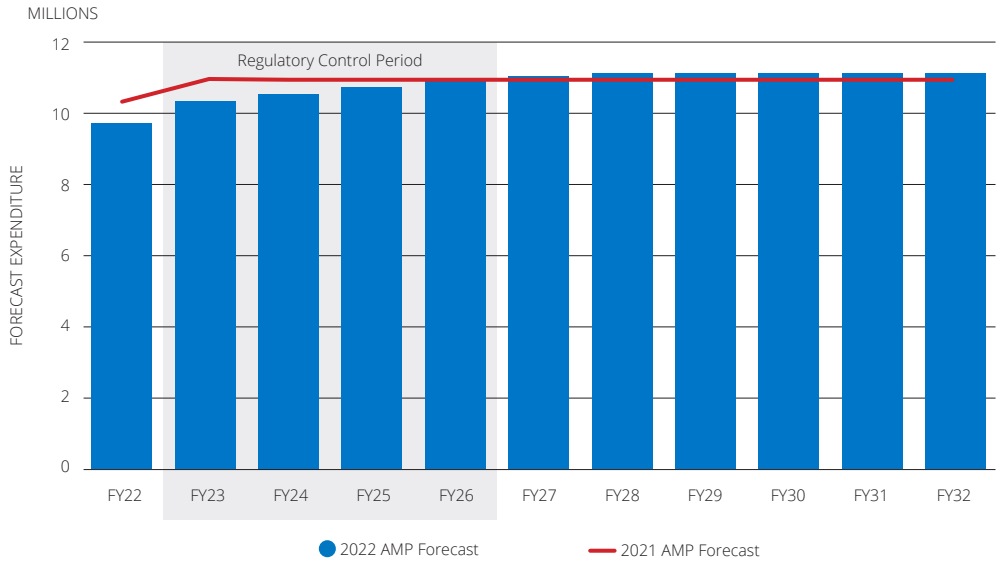
7.2 OPEX FORECAST

The forecast Opex over the planning period is set out in the blue bars in Figure 16, with forecast from last year's AMP Update shown in red line. There was minimal change in Opex spend in regulatory control period two (FY2017 – FY2022).

The changes within regulatory control period three (FY2023-FY2026)[25] forecasting relate to a request for an increase in network expenditure of approximately $2.16 million (total) for work in renewable gases. The Commission has allowed $0.54 million (total) for renewable gases work in the DPP3 reset. This has resulted in a reduction of $1.62 million (total) in Opex expenditure. Firstgas anticipate significantly higher spend will be required. Only the regulatory allowance is included in our AMP forecast.

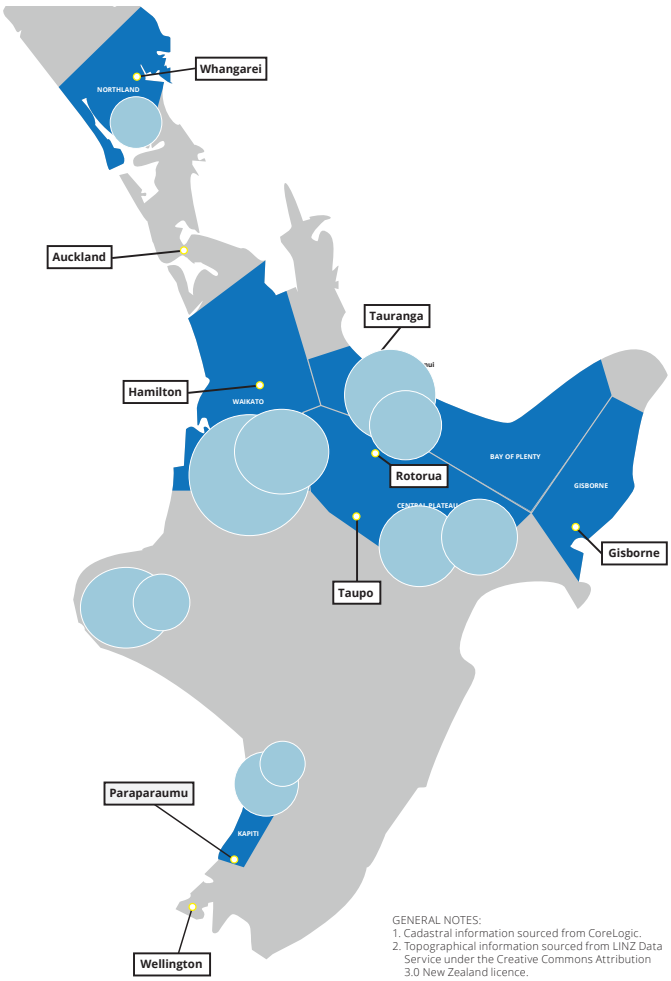
Capex has been reduced as a result of the recategorisation of SaaS as Opex. There has been no uplift in Business support Opex for regulatory control period three. The costs ($0.16 million per annum) for SaaS have been added to our AMP forecast.

Figure 16: Forecast total Opex (all figures in FY2022 prices)



25. The $ figures quoted are in FY2021 values to align with the Commerce Commissions commentary in the Gas Pipeline Businesses Final Reasons Paper for the DPP3 reset. https://comcom.govt.nz/__data/assets/pdf_file/0025/284524/DPPs-for-gas-pipeline-businesses-from-1-October-2022-Final-Reasons-Paper-31-May-2022.pdf

Figure 17: Largest Opex spend



Largest Opex projects going forward

We have also continued to incorporate the high-level heat map that shows the largest Opex projects planned for the next ten years (FY2023 to FY2032) in our AMP Update. This heat map is part of the related party transaction information disclosure requirements.

Firstgas does not have specific Opex projects planned for the period. Instead, we have provided the total Opex expenditure. Where it has been possible, we have specified the level of Opex allocated to each region within our network. Figure 17 sets out the location of the planned Opex spend, with greater detail in Table 6.

All network Opex and system operations and network support Opex is forecast to be completed by our related party, GSNZ under an operations and management agreement between Firstgas and GSNZ. This O&M agreement was entered into with the change in ownership of the distribution business in 2016 and will be reviewed before September 2022.

A breakdown of the Opex by region is provided in Table 6 below and more detail can be found in the 2020 AMP. Currently no network constraints have been identified that will result in Opex during this planning period.

Table 6: Description of largest Opex spend categories

PROJECT	DESCRIPTION	REGION	COST (CONSTANT FY2022 $)	PERIOD
Service interruptions, incidents, and emergencies	Ongoing costs to support reactive activities in terms of safety response and repair of any part of asset damaged from environmental factors or third-party interference, response to any fault at a station where safety or supply integrity could be compromised, and remediation or isolation works of unsafe network situations.	Waikato ($12 million) Bay of Plenty ($2 million) Central Plateau ($2 million) Kāpiti ($2million) Northland ($2million) Gisborne ($2million)	$23 million	Across the period
Routine and corrective maintenance and inspection	Ongoing costs directly associated with operating and maintaining the gas distribution system.	Waikato ($12 million) Bay of Plenty ($2 million) Central Plateau ($2 million) Kāpiti ($2 million) Northland ($2 million) Gisborne ($2 million)	$23 million	Across the period
System operations and network support	Ongoing costs to support the management and operation of the network.	New Plymouth	$31 million	Across the period
Business support	Ongoing costs to support distribution operations.	New Plymouth	$30 million	Across the period

APPENDICES

This section sets out the required information disclosure schedules that must be completed each disclosure year. It also summarises the material changes made since the 2020 AMP and includes our signed director certificate.

APPENDIX A: SUMMARY OF MATERIAL CHANGES AND COMPLIANCE

The table below:

- Summarises the material changes in our asset management plan, as compared with our 2021 AMP Update.
- Demonstrates our compliance with the requirements for an AMP Update, as set out in the *Gas Distribution Information Disclosure Determination 2012* (ID Determination).

Table 7: Summary of material changes and compliance

ID REQUIREMENT	DISCUSSION
Clause 2.6.5 For the purposes of clause 2.6.3, the AMP update must::	
Clause 2.6.5 (1) Relate to the gas distribution services supplied by the GDB.	This AMP Update relates to Firstgas' distribution business. Information on Firstgas' gas transmission business (GTB) can be found in the separate transmission 2022 AMP Update.[26]
Clause 2.6.5 (2) Identify any material changes to the network development plans disclosed in the last AMP under clause 12 of Attachment A or in the last AMP update disclosed under this clause 2.6.5.	Two industrial customer connections were included in the FY2022 budget that did not go ahead:. – One connection was cancelled ($5.0 million) – One connection is delayed ($1.7 million)
Clause 2.6.5 (3) Identify any material changes to the lifecycle asset management (maintenance and renewal) plans disclosed in the last AMP pursuant to clause 13 of Attachment A or in the last AMP update disclosed under this clause.	There is a material change in our asset replacement and renewable expenditure, with a decrease of approximately $7.2 million in total over the next regulatory control period (FY2023 – FY026)[27]. This expenditure allowance category was capped by the Commerce Commission in the DPP3 reset to reflect our historical average expenditure. This is explained in Section 7 Expenditure Forecasts.
Clause 2.6.5 (4) 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.	There is an overall decrease in the total capital expenditure of approximately $15.8 million over the next regulatory control period (FY2023 – FY026)[27]. This can be attributed to: – An increase in expenditure of $6.7 million relating to consumer connections for FY2022 for two new industrial dairy plant customers that did not eventuate. – A decrease in system growth expenditure of approximately $5.1 million in the next regulatory control period (FY2023 – FY026). This expenditure allowance category was capped by the Commerce Commission in the DPP3 reset to reflect our historical expenditure. – A decrease in consumer connection expenditure of approximately $1.8 million in the next regulatory control period (FY2023 – FY026). This reflects a decrease in the forecast number of new connections. – A decrease in asset replacement and renewal expenditure of approximately $7.2 million in total over the next regulatory control period (FY2023 – FY026). This expenditure allowance category was capped by the Commerce Commission in the DPP3 reset to reflect our historical expenditure. This impacts the forecasted programme to accelerate the replacement of pre-1985 polyethylene pipe.

26. Information on Firstgas' transmission business is available here: https://firstgas.co.nz/about-us/regulatory/transmission/
27. The $ figures quoted are in FY2021 values to align with the Commerce Commissions commentary in the Gas Pipeline Businesses Final Reasons Paper for the DPP3 reset. https://comcom.govt.nz/__data/assets/pdf_file/0025/284524/DPPs-for-gas-pipeline-businesses-from-1-October-2022-Final-Reasons-Paper-31-May-2022.pdf

ID REQUIREMENT	DISCUSSION
Clause 2.6.5 (4) continued... 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.	– A decrease in both non-network expenditure and asset relocations of approximately $0.5 million and $1.1 million, respectively. This expenditure allowance category was capped by the Commerce Commission in the DPP3 reset to reflect our historical expenditure. – A reduced forecast for non-network assets of $0.52 million over DPP3 for SaaS re-categorisation from Capex to Opex. There is an overall decrease in the total Opex of approximately $2 million over the next regulatory control period (FY2023 – FY026)[28]. The material change is: – A decrease in the DPP3 period (FY2023-FY2026) from that disclosed in the 2021 AMP update for expenditure to support renewable gases work. $2.16 million was forecast for this work and $0.54 million was allocated in the DDP3 reset. – There has been no uplift in Business support Opex as a result of the reduction in Capex for SaaS re-categorisation. The costs ($0.16 million per annum) for SaaS have been added to our AMP forecast. Further information is available in section 7 Expenditure Forecast.
Clause 2.6.5 (5) Identify any changes to the asset management practices of the GDB that would affect a Schedule 13 Report on Asset Management Maturity disclosure.	There are no material changes that would affect Schedule 13 Report on Asset Management Maturity disclosure.
Clause 2.6.5 (6) Contain the information set out in the schedules described in 2.6.6.	Information Disclosure Templates are included in the AMP updates as **Appendix B**.
Clause 2.6.6 Subject to clause 2.13.2, before the start of each disclosure year, each GDB must complete and publicly disclose each of the following reports by inserting all information relating to the gas distribution services supplied by the GDB for the disclosure years provided for in the following reports: 1. the Report on Forecast Capital Expenditure in Schedule 11a. 2. the Report on Forecast Operational Expenditure in Schedule 11b. 3. the Report on Asset Condition in Schedule 12a. 4. the Report on Forecast Demand in Schedule 12b. 5. the Report on Forecast Demand in Schedule 12c.	Information Disclosure Templates are included in the AMP updates as **Appendix B**.
Clause 2.7.2 Before the start of each disclosure year, every GDB must complete and publicly disclose the Mandatory Explanatory Notes on Forecast Information in Schedule 14a by inserting all relevant information relating to information disclosed in accordance with clause 2.6.6.	Information Disclosure Templates are included in the AMP updates as **Appendix B**.

28. The $ figures quoted are in FY2021 values to align with the Commerce Commissions commentary in the Gas Pipeline Businesses Final Reasons Paper for the DPP3 reset. https://comcom.govt.nz/__data/assets/pdf_file/0025/284524/DPPs-for-gas-pipeline-businesses-from-1-October-2022-Final-Reasons-Paper-31-May-2022.pdf

APPENDIX B: INFORMATION DISCLOSURE SCHEDULES

Schedule 11a: Report on forecast capital expenditure

Company Name	First Gas Limited (Distribution)
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 (i.e., 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		5,512	6,279	6,048	5,806	5,552	5,286	5,006	4,714	4,407	4,087	3,752
11	System growth		4,020	2,797	3,057	3,847	3,924	3,569	3,685	3,759	3,834	3,911	3,989
12	Asset replacement and renewal		5,462	2,900	3,166	3,975	4,055	3,693	3,766	3,842	3,919	3,997	4,077
13	Asset relocations		768	530	579	727	742	675	689	703	717	731	746
14	Reliability, safety and environment:												
15	Quality of supply		-	53	58	73	74	68	69	70	72	73	75
16	Legislative and regulatory		-	-	-	-	-	-	-	-	-	-	-
17	Other reliability, safety and environment		72	53	58	73	74	68	69	70	72	73	75
18	**Total reliability, safety and environment**		72	106	116	145	148	135	138	141	143	146	149
19	**Expenditure on network assets**		15,835	12,612	12,967	14,501	14,421	13,358	13,285	13,158	13,020	12,872	12,713
20	Non-network assets		206	391	432	540	508	558	536	546	557	568	580
21	**Expenditure on assets**		16,041	13,002	13,399	15,041	14,929	13,917	13,820	13,704	13,577	13,440	13,292
22													
	plus Cost of financing		63	49	50	56	56	52	51	50	50	49	48
24	*less* Value of capital contributions		1,103	1,472	1,533	1,675	1,709	1,677	1,710	1,744	1,779	1,815	1,851
25	*plus* Value of vested assets		-	-	-	-	-	-	-	-	-	-	-
26	**Capital expenditure forecast**		15,000	11,579	11,916	13,422	13,276	12,292	12,161	12,010	11,848	11,675	11,489
27													
28	Value of commissioned assets		14,605	12,172	11,731	12,973	13,154	12,351	12,047	11,898	11,735	11,561	11,375

for year ended	Current Year CY 30 Sep 22	CY+1 30 Sep 23	CY+2 30 Sep 24	CY+3 30 Sep 25	CY+4 30 Sep 26	CY+5 30 Sep 27	CY+6 30 Sep 28	CY+7 30 Sep 29	CY+8 30 Sep 30	CY+9 30 Sep 31	CY+10 30 Sep 32
$000 (in constant prices)											
Consumer connection	5,512	6,155	5,814	5,472	5,130	4,788	4,446	4,104	3,762	3,420	3,078
System growth	4,020	2,742	2,938	3,626	3,626	3,233	3,272	3,272	3,272	3,272	3,272
Asset replacement and renewal	5,462	2,843	3,043	3,746	3,746	3,344	3,344	3,344	3,344	3,344	3,344
Asset relocations	768	520	557	685	685	612	612	612	612	612	612
Reliability, safety and environment:											
Quality of supply	-	52	56	69	69	61	61	61	61	61	61
Legislative and regulatory	-	-	-	-	-	-	-	-	-	-	-
Other reliability, safety and environment	72	52	56	69	69	61	61	61	61	61	61
Total reliability, safety and environment	72	104	111	137	137	122	122	122	122	122	122
Expenditure on network assets	15,835	12,364	12,463	13,665	13,323	12,099	11,797	11,455	11,113	10,771	10,429
Non-network assets	206	383	415	509	469	506	476	476	476	476	476
Expenditure on assets	16,041	12,748	12,879	14,174	13,792	12,605	12,272	11,930	11,588	11,246	10,904

Subcomponents of expenditure on assets (where known)

Research and development	-	-	-	-	-	-	-	-	-	-	-

for year ended	Current Year CY 30 Sep 22	CY+1 30 Sep 23	CY+2 30 Sep 24	CY+3 30 Sep 25	CY+4 30 Sep 26	CY+5 30 Sep 27	CY+6 30 Sep 28	CY+7 30 Sep 29	CY+8 30 Sep 30	CY+9 30 Sep 31	CY+10 30 Sep 32
Difference between nominal and constant price forecasts	$000										
Consumer connection	-	123	235	335	423	498	561	610	646	667	674
System growth	-	55	119	222	299	336	413	487	562	638	717
Asset replacement and renewal	-	57	123	229	309	348	422	497	574	652	732
Asset relocations	-	10	22	42	56	64	77	91	105	119	134
Reliability, safety and environment:											
Quality of supply	-	1	2	4	6	6	8	9	11	12	13
Legislative and regulatory	-	-	-	-	-	-	-	-	-	-	-
Other reliability, safety and environment	-	1	2	4	6	6	8	9	11	12	13
Total reliability, safety and environment	-	2	4	8	11	13	15	18	21	24	27
Expenditure on network assets	-	247	504	836	1,098	1,259	1,488	1,703	1,908	2,101	2,284
Non-network assets	-	8	17	31	39	53	60	71	82	93	104
Expenditure on assets	-	255	520	868	1,137	1,312	1,548	1,774	1,989	2,194	2,388

11a(ii): Consumer Connection

	for year ended	Current Year CY 30 Sep 22	CY+1 30 Sep 23	CY+2 30 Sep 24	CY+3 30 Sep 25	CY+4 30 Sep 26	CY+5 30 Sep 27
*Consumer types defined by GDB**		$000 (in constant prices)					
Service Connection-Residential		4,936	5,601	5,290	4,979	4,668	4,357
Service Connection-Commercial		574	523	494	465	436	407
Customer Easements		2	31	29	27	26	24	
		-	-	-	-	-	-
		-	-	-	-	-	-
** include additional rows if needed*							
Consumer connection expenditure		5,512	6,155	5,814	5,472	5,130	4,788
less Capital contributions funding consumer connection		1,103	1,443	1,473	1,579	1,579	1,519
Consumer connection less capital contributions		4,409	4,712	4,340	3,893	3,551	3,269

11a(iii): System Growth

Intermediate pressure							
Main pipe		-	215	215	215	215	215
Service pipe		-	-	-	-	-	-
Stations		751	322	322	322	322	322
Line valve		-	-	-	-	-	-
Special crossings		-	-	-	-	-	-
Intermediate Pressure total		751	537	537	537	537	537
Medium pressure							
Main pipe		3,269	2,205	2,402	3,089	3,089	2,696
Service pipe		-	-	-	-	-	-
Stations		-	-	-	-	-	-
Line valve		-	-	-	-	-	-
Special crossings		-	-	-	-	-	-
Medium Pressure total		3,269	2,205	2,402	3,089	3,089	2,696
Low Pressure							
Main pipe		-	-	-	-	-	-
Service pipe		-	-	-	-	-	-
Line valve		-	-	-	-	-	-
Special crossings		-	-	-	-	-	-
Low Pressure total		-	-	-	-	-	-
Other assets							
Monitoring and control systems		-	-	-	-	-	-
Cathodic protection systems		-	-	-	-	-	-
Other assets (other than above)		-	-	-	-	-	-
Other total		-	-	-	-	-	-
System growth expenditure		4,020	2,742	2,938	3,626	3,626	3,233
less Capital contributions funding system growth							
System growth less capital contributions		4,020	2,742	2,938	3,626	3,626	3,233

11a(iv): Asset Replacement and Renewal

for year ended	Current Year CY 30 Sep 22	CY+1 30 Sep 23	CY+2 30 Sep 24	CY+3 30 Sep 25	CY+4 30 Sep 26	CY+5 30 Sep 27
Intermediate pressure	$000 (in constant prices)					
Main pipe	-	21	21	21	21	21
Service pipe	-	-	-	-	-	-
Stations	333	284	304	375	375	334
Line valve	-	114	122	150	150	134
Special crossings	-	-	-	-	-	-
Intermediate Pressure total	333	419	448	546	546	490
Medium pressure						
Main pipe	5,010	2,082	2,231	2,750	2,750	2,453
Service pipe	-	-	-	-	-	-
Station	-	-	-	-	-	-
Line valve	-	-	-	-	-	-
Special crossings	-	-	-	-	-	-
Medium Pressure total	5,010	2,082	2,231	2,750	2,750	2,453
Low Pressure						
Main pipe	-	-	-	-	-	-
Service pipe	-	-	-	-	-	-
Line valve	-	-	-	-	-	-
Special crossings	-	-	-	-	-	-
Low Pressure total	-	-	-	-	-	-
Other assets						
Monitoring and control systems	27	114	122	150	150	134
Cathodic protection systems	46	114	122	150	150	134
Other assets (other than above)	46	114	122	150	150	134
Other total	119	341	365	449	449	401
Asset replacement and renewal expenditure	5,462	2,843	3,043	3,746	3,746	3,344
less Capital contributions funding asset replacement and renewal	-	-	-	-	-	-
Asset replacement and renewal less capital contributions	5,462	2,843	3,043	3,746	3,746	3,344

11a(v): Asset Relocations

*Project or programme**						
Asset Relocations	768	520	557	685	685	612
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-

** include additional rows if needed*

All other asset relocations projects or programmes						
Asset relocations expenditure	768	520	557	685	685	612
less Capital contributions funding asset relocations	643	426	457	562	562	502
Asset relocations less capital contributions	126	94	100	123	123	110

11a(vi): Quality of Supply

for year ended	Current Year CY 30 Sep 22	CY+1 30 Sep 23	CY+2 30 Sep 24	CY+3 30 Sep 25	CY+4 30 Sep 26	CY+5 30 Sep 27
*Project or programme**	$000 (in constant prices)					
Quality of supply	-	52	56	69	69	61
*include additional rows if needed						
All other quality of supply projects or programmes						
Quality of supply expenditure	-	52	56	69	69	61
less Capital contributions funding quality of supply						
Quality of supply less capital contributions	-	52	56	69	69	61

11a(vii): Legislative and Regulatory

Project or programme						
*include additional rows if needed						
All other legislative and regulatory projects or programmes						
Legislative and regulatory expenditure	-	-	-	-	-	-
less Capital contributions funding legislative and regulatory						
Legislative and regulatory less capital contributions	-	-	-	-	-	-

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

*Project or programme**						
Other reliability, safety and environment	72	52	56	69	69	61
*include additional rows if needed						
All other reliability, safety and environment projects or programmes						
Other reliability, safety and environment expenditure	72	52	56	69	69	61
less Capital contributions funding other reliability, safety and environment	-	-	-	-	-	-
Other Reliability, safety and environment less capital contributions	72	52	56	69	69	61

11a(ix): Non-Network Assets

Routine expenditure

*Project or programme**						
ICT	-	291	315	386	356	384
Building Refurbishment	-	10	11	13	12	13
All other projects or programmes - routine expenditure	205	19	20	25	23	25
Plant and equipment	1	64	69	85	78	84
	-	-	-	-	-	-
** include additional rows if needed*						
All other routine expenditure projects or programmes	-	-	-	-	-	-
Routine expenditure	206	383	415	509	469	506

Atypical expenditure

*Project or programme**						
** include additional rows if needed*						
All other atypical expenditure projects or programmes						
Atypical expenditure	-	-	-	-	-	-
Non-network assets expenditure	206	383	415	509	469	506

Schedule 11b: Report on forecast operational expenditure

Company Name	First Gas Limited (Distribution)
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**
Operational Expenditure Forecast	**$000 (in nominal dollars)**										
Service interruptions, incidents and emergencies	3,599	2,477	2,266	2,351	2,436	2,522	2,596	2,648	2,701	2,755	2,810
Routine and corrective maintenance and inspection	1,263	2,774	2,266	2,351	2,436	2,522	2,596	2,648	2,701	2,755	2,810
Asset replacement and renewal	-	-	-	-	-	-	-	-	-	-	-
Network opex	4,862	5,251	4,531	4,703	4,872	5,043	5,192	5,296	5,402	5,510	5,620
System operations and network support	2,357	2,562	3,129	3,247	3,364	3,482	3,585	3,657	3,730	3,804	3,880
Business support	2,519	2,739	3,307	3,429	3,550	3,672	3,778	3,854	3,931	4,009	4,089
Non-network opex	4,877	5,301	6,436	6,676	6,914	7,154	7,363	7,510	7,660	7,814	7,970
Operational expenditure	9,739	10,552	10,968	11,379	11,787	12,197	12,555	12,806	13,062	13,323	13,590

	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**
	$000 (in constant prices)										
Service interruptions, incidents and emergencies	3,599	2,428	2,178	2,216	2,251	2,284	2,305	2,305	2,305	2,305	2,305
Routine and corrective maintenance and inspection	1,263	2,720	2,178	2,216	2,251	2,284	2,305	2,305	2,305	2,305	2,305
Asset replacement and renewal	-	-	-	-	-	-	-	-	-	-	-
Network opex	4,862	5,148	4,355	4,432	4,501	4,568	4,610	4,610	4,610	4,610	4,610
System operations and network support	2,357	2,512	3,007	3,060	3,108	3,154	3,183	3,183	3,183	3,183	3,183
Business support	2,519	2,685	3,179	3,231	3,280	3,326	3,355	3,355	3,355	3,355	3,355
Non-network opex	4,877	5,197	6,186	6,291	6,388	6,480	6,538	6,538	6,538	6,538	6,538
Operational expenditure	9,739	10,345	10,542	10,723	10,889	11,047	11,148	11,148	11,148	11,148	11,148
Subcomponents of operational expenditure (where known)											
Research and development	-	-	-	-	-	-	-	-	-	-	-
Insurance	-	-	-	-	-	-	-	-	-	-	-

	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**
Difference between nominal and real forecasts	**$000**										
Service interruptions, incidents and emergencies	-	49	88	136	186	238	291	343	396	450	505
Routine and corrective maintenance and inspection	-	54	88	136	186	238	291	343	396	450	505
Asset replacement and renewal	-	-	-	-	-	-	-	-	-	-	-
Network opex	-	103	176	271	371	475	582	685	791	899	1,010
System operations and network support	-	50	121	187	256	328	402	473	546	621	697
Business support	-	54	128	198	270	346	423	499	576	654	735
Non-network opex	-	104	250	385	527	674	825	972	1,122	1,276	1,432
Operational expenditure	-	207	426	656	898	1,150	1,406	1,658	1,914	2,175	2,441

Schedule 12a: Report on asset condition

Company Name	**First Gas Limited (Distribution)**
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 5 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 5 years
9	Intermediate Pressure	Main pipe	IP PE main pipe	km	-	-	-	-	-	N/A	-
10	Intermediate Pressure	Main pipe	IP steel main pipe	km	-	-	100.00%		-	3	-
11	Intermediate Pressure	Main pipe	IP other main pipe	km	-	-	-	-	-	N/A	-
12	Intermediate Pressure	Service pipe	IP PE service pipe	km	-	-	-	-	-	N/A	-
13	Intermediate Pressure	Service pipe	IP steel service pipe	km	-		100.00%		-	3	-
14	Intermediate Pressure	Service pipe	IP other service pipe	km	-	-	-	-	-	N/A	-
15	Intermediate Pressure	Stations	Intermediate pressure DRS	No.	-	5.4%	38.0%	56.5%	-	3	5.0%
16	Intermediate Pressure	Line valve	IP line valves	No.	1.20%	5.4%	64.0%	9.9%	19.5%	3	6.2%
17	Intermediate Pressure	Special crossings	IP crossings	No.	-	1.0%	98.0%	1.0%	-	3	-
18	Medium Pressure	Main pipe	MP PE main pipe	km	-	1.0%	11.2%	87.8%		3	0.5%
19	Medium Pressure	Main pipe	MP steel main pipe	km	-	-	100.0%	-	-	3	2.0%
20	Medium Pressure	Main pipe	MP other main pipe	km	-	-	-	-	-	N/A	-
21	Medium Pressure	Service pipe	MP PE service pipe	km	-		15.0%	85.0%		3	0.5%
22	Medium Pressure	Service pipe	MP steel service pipe	km	-	-	100.0%	-	-	3	-
23	Medium Pressure	Service pipe	MP other service pipe	km	-	-	-	-	-	N/A	-
24	Medium Pressure	Stations	Medium pressure DRS	No.	-	-	42.9%	57.1%	-	4	-
25	Medium Pressure	Line valve	MP line valves	No.		3.3%	79.7%	7.9%	9.1%	3	3.3%
26	Medium Pressure	Special crossings	MP special crossings	No.	-	-	93.2%	5.1%	1.7%	3	3.8%
27	Low Pressure	Main pipe	LP PE main pipe	km	-	-	57.1%	42.9%	-	3	-
28	Low Pressure	Main pipe	LP steel main pipe	km	-	-	-	-	-	N/A	-
29	Low Pressure	Main pipe	LP other main pipe	km	-	-	-	-	-	N/A	-
30	Low Pressure	Service pipe	LP PE service pipe	km	-	-	100.0%	-	-	3	-
31	Low Pressure	Service pipe	LP steel service pipe	km	-	-	100.0%	-	-	3	-
32	Low Pressure	Service pipe	LP other service pipe	km	-	-	-	-	-	N/A	-
33	Low Pressure	Line valve	LP line valves	No.	-	-	100.0%	-	-	3	-
34	Low Pressure	Special crossings	LP special crossings	No.	-	-	-	-	-	N/A	-
35	All	Monitoring & control systems	Remote terminal units	No.	-	-	-	-	-	N/A	-
36	All	Cathodic protection systems	Cathodic protection	No.		6.9%	84.1%	9.0%	-	2	7.0%

Schedule 12b: Report on forecast utilisation

Company Name	First Gas Limited (Distribution)
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* g/e 30 Sep	*CY+1* g/e 30 Sep	*CY+2* g/e 30 Sep	*CY+3* g/e 30 Sep	*CY+4* g/e 30 Sep	*CY+5* g/e 30 Sep	Comment
17	Waikato	Hamilton	MP4 East	400	200	14,990	694	scmh	14,296	14,296	14,296	14,296	14,296	14,296	Hamilton MP4 MinOP of 220 kPa would be considered heavilty utilised. Network modelling indicates some flow restrictions are occuring somewhere in the North East section of the network. Data loggers have been put in place to help pinpoint the location of the suspected flow restrictions. Modelling indicates several corrections to network pressure can be achieved with reinforcements which will be investigated.
18															
19								kPa	220	220	220	220	220	220	
	Waikato	Hamilton	IP10												The system is no longer heavily utilised. Based on projected growth due to new housing development, a plan is in place to increase the pressure rating in the upstream section of the IP10 to IP20 pressure rating in FY2024.
	Waikato	Hamilton	Hamilton LP (Fairfield)	5	2.5	218	12	scmh	206	206	206	206	206	206	Fairfield LP system has been investigated and there are no unaccounted for restrictions in the system. The system minimum pressure has been conisistent year to year in the range of 2.6 to 3.0 kPa. The allowable MinOP (2.5 kPa) has never been breached. No significant growth in demand is projected. Some modifications to the system piping and supply regulators could be made to increase the minimum pressure and this could be implemented if the system minimum pressure decreases below MinOP.
								kPa	2.85	2.85	2.85	2.85	2.85	2.85	
23	Central Plateau	Reporoa	IP20	1,900	950			scmh							A minimum pressure spike of 1000 kPa occurred in the IP20 Firstgas Transmission was adjusting their gate station regulator due to the dairy factory being shut down. No futher investigation is needed.
24								kPa							
25	Kapiti	Paraparaumu	IP20	1,900	950			scmh							Momentary pressure dips appear coincident with gate station supply pressure dips or infield testing of datalogger. No further investigation required.
26								kPa							

31 * *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.*

32

33 **Disclaimer for supply**

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

35

36 **Notes and assumptions**

37 1. A 'heavily utilised' pressure system is a pressure system where the modelled flow rate, at system peak during the gas year, is greater than or equal to 500 scmh, and its utilisation (pressure drop) is greater than or equal to 40% from the nominal operating pressure (NOP). The utilisation of a pressure
38 system is calculated using the formula: [1 – (system minimum pressure / nominal operating pressure)] *100%.
39 2. The remaining capacity of a 'heavily utilised' pressure system is obtained by examining the modelled flows at various extremity points in each pressure system, and the level at which the minimum operating pressure (MinOP) is reached. First Gas Limited's security standards set the MinOP at 50% of
40 the rated pressure (which equates to approximately 82% of the pipeline capacity) for a pressure system (based on standard operating pressures). The minimum modelled flow rate, analysed at one extremity point, is used to calculate the remaining capacity of the entire pressure system being studied.
41 3. A forecast model of a pressure system is obtained by applying either its forecast flow rate or an annual growth rate in each forecast year; and scaling its loads evenly to give the system total flow. The resulting minimum system pressure is simulated on this basis.
4. The forecast system flow is populated using the respective network system as tabulated in Appendix I of the First Gas Distribution Asset Management Plan.
5. Stated annual growth rates are averaged across a 5-year planning period.
42 6. Schedule 12b provides a snapshot in time of the pressure system capacity, at the date of its preparation, and it should be noted that the figures will change over time. Schedule 12b is provided on the basis that it be used for consumer guidance only.

Schedule 12c: Report on forecast demand

Company Name	**First Gas Limited (Distribution)**
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 5 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

	Current year CY 30 Sep 22	*CY+1* 30 Sep 23	*CY+2* 30 Sep 24	*CY+3* 30 Sep 25	*CY+4* 30 Sep 26	*CY+5* 30 Sep 27
Consumer types defined by GDB						
Residential	1,568	1,651	1,559	1,468	1,376	1,284
Commercial	129	145	137	129	121	113
Industrial	3	4	4	3	3	3
Total	1,700	1,800	1,700	1,600	1,500	1,400

12c(ii): Gas Delivered

	Current year CY 30 Sep 22	*CY+1* 30 Sep 23	*CY+2* 30 Sep 24	*CY+3* 30 Sep 25	*CY+4* 30 Sep 26	*CY+5* 30 Sep 27
Number of ICPs at year end	66,889	67,645	68,410	69,184	69,968	70,761
Maximum daily load (GJ/day)	37,231	37,578	37,928	38,281	38,637	38,997
Maximum monthly load (GJ/month)	1,009,597	1,019,197	1,028,887	1,038,670	1,048,545	1,058,515
Number of directly billed ICPs (at year end)	-	-	-	-	-	-
Total gas conveyed (GJ/annum)	9,951,456	10,044,110	10,137,626	10,232,014	10,327,280	10,423,433
Average daily delivery (GJ/day)	27,264	27,518	27,698	28,033	28,294	28,557
Load factor	82.14%	82.12%	82.11%	82.09%	82.08%	82.06%

Schedule 14a: Explanatory notes on forecast information

Forecasts in this AMP Update are in constant (real) value terms. In preparing Schedules 11a and 11b, we have escalated our real forecasts to produce nominal forecasts for Information Disclosure.

While we expect to face a range of input price pressures over the planning period, we have based our escalation approach on the Consumer Price Index (CPI). This has been done to align forecast inflation with the initial 'exposure' financial model prepared for the 2017 gas DPP reset. Therefore, for the purposes of this AMP Update we have assumed changes are limited to CPI rather than adopting more specific indices or modelling trends in network components or commodity indices. Similarly, we have not sought to reflect trends in the labour market.

FOR YEAR ENDED	CPI
FY2022	0.00%
FY2023	2.00%
FY2024	2.00%
FY2025	2.00%
FY2026	2.00%
FY2027	2.00%
FY2028	2.00%
FY2029	2.00%
FY2030	2.00%
FY2031	2.00%
FY2032	2.00%

APPENDIX C: DIRECTOR CERTIFICATE

Certification for Year beginning Disclosures

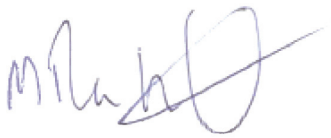
Clause 2.9.1

We, Mark Adrian Ratcliffe and Fiona Ann Oliver, being directors of Firstgas Limited, certify that, having made all reasonable enquiry, to the best of our knowledge:

a) e following attached information of Firstgas Limited prepared for the purposes of clauses 2.6.1, 2.6.3, 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 Firstgas' corporate vision and strategy and are documented in retained records.



Director: Mark Adrian Ratcliffe

Date: 29 July 2022

Director: Fiona Ann Oliver

Date: 29 July 2022