



Firstgas

GAS DISTRIBUTION

Asset Management Plan 2020

Summary Document



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MESSAGE FROM THE CHIEF EXECUTIVE



Dear Stakeholders

Welcome to First Gas Limited's Gas Distribution Asset Management Plan (AMP) for 2020. This year, we have continued to focus on improving the performance of our network and managing risk, while also enabling system growth and increasing the number of customers connecting to our network.

2020 has been another busy year with our capital works programme. We have continued our programme replacing polyethylene pipes installed before 1985 across our network, have upgraded many District Regulating Stations to support system pressure, and have reinforced our network to meet future growth. We have also supported three large industrial customers – Innovation Food, Southern Fresh and APL Industrial – grow their businesses, by increasing capacity to meet their increased gas demand.

As I reflect on the year that has passed, it is hard not to comment on the impact that COVID 19 has had, and will continue to have, on New Zealand. I am proud that throughout the April and May lockdown Firstgas was able to continue 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.

We have proactively reviewed and adjusted our own capital works programme, as a number of our projects were delayed over the COVID-19 lockdown period. We also sought to assist customers, offering deferred payment support for the fixed component of our distribution fees. It is important for our business to remain proactive and ready to adapt to changes, as the impact of COVID-19 continues to be felt on our economy.

The energy sector has been a positive contributor to New Zealand's net-carbon future over the last twenty years and we expect that to continue. Our gas distribution and transmission networks support a diverse and resilient energy system, serving customers across the North Island.

Firstgas is working hard to understand how we can decarbonise our gas networks going forward. In March 2020, we launched our hydrogen pipeline network which is part funded through the Government's Provincial Growth Fund. We are also turning our mind to how we can support a viable biogas market within New Zealand. As a business, we have joined the Climate Leaders Coalition and committed to reducing our own emissions by 30% by 2030.

I hope you find the 2020 AMP 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.

A handwritten signature in blue ink that reads "Goodeve". The signature is fluid and cursive, written in a professional style.

Paul Goodeve
Chief Executive

GLOSSARY

TERM	DEFINITION
AMMAT	Asset Management Maturity Assessment Tool
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 3 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
CCC	Climate Change Commission
COO	Chief Operating Officer
DPP	Default Price – Quality Path
DRS	District Regulating Station
FSP	Field Service Provider
FY2019	Financial year ending 30 September 2019
GDB	Gas Distribution Business
GIS	Geographical Information System
GMS	Gas Measurement System – commonly referred to as a gas meter
HSEQ	Health, Safety, Environment and Quality
ICP	Installation Control Point – the connection point from a customer to the Firstgas network

TERM	DEFINITION
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
MP	Medium pressure
NZTA	New Zealand Transport Agency
NZUAG	New Zealand Utilities Access Group
Opex	Operational expenditure – the ongoing costs directly associated with running the Gas Distribution System. This includes costs both directly related to the network (e.g. routine and corrective maintenance, service interruptions/incidents, land management) and non-network related expenditure (e.g. network and business support)
PE	Polyethylene
PJ	Petajoule (unit of energy). 10^{15} joules = 1,000 TJ
RTE	Response time to emergencies
scm/h	Standard cubic meters per hour (unit of gas flow rate)
TJ	Terajoule (unit of energy) = 10^{12} Joules

A full glossary is also included in [Appendix A](#) of the supporting appendices for this 2020 Asset Management Plan.

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EXECUTIVE SUMMARY

This is First Gas Limited's (Firstgas) Gas Distribution Asset Management Plan (AMP) for 2020.

Firstgas owns and operates more than 4,800 kilometres of gas distribution pipelines servicing approximately 65,000 consumers across the regions of Northland, Waikato, Central Plateau, Bay of Plenty, Gisborne and Kapiti 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. 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 Rockgas, the LPG business and Flexgas, the Ahuroa gas storage facility. 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

For our gas distribution business, this means that we are 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.

Key drivers for our distribution business

Our AMP describes the asset management processes that we use to manage our gas distribution network and its assets. It focuses on how we intend to manage these assets over the next ten 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
- Compliance with our regulatory obligations.

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 ten year planning period. Firstgas is focused on:

- **Looking for performance improvements:** Firstgas is focused on the efficiency of our physical gas distribution assets, as well as the efficiency of our broader business activities. We upgrade a number of District Regulator Stations (DRS) each year to replace equipment that is not meeting our performance standards, or where the assets are now obsolete. Upgrades to DRS enable us to ensure adequate supply of pressure across our distribution networks, to meet our customers needs.

Our asset management improvement programme also covers a number of activities that will improve our asset management practices. Our Maximo asset health and insights (MAHI) project underway this year will see the development of new technology to provide real-time dashboards for asset health.

- **A strong culture around health and safety:** 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 are crucial in maintaining safe outcomes.
- **Mitigating and managing risk:** The consideration of risk plays a key role in our asset management decisions, and we take a systematic approach to ensure that risks can be controlled and mitigated to an appropriate level. Given the potentially severe nature of failures on the gas distribution network (particularly loss of containment), appropriate and effective risk management is integral to our day-to-day operations.

Firstgas is undertaking a significant programme of work to replace pre-1985 polyethylene (PE) pipeline that over time is susceptible to cracking and significant deformation. Third party damage to our assets is also a risk that we are actively managing and mitigating. We have a number of strategies in place to increase public and contractor awareness, to reduce the number of third-party incidents impacting supply.

– **Enabling system growth and customer connections:**

A large component (approximately 45%) of our annual Capex is allocated to system growth and connecting new customers to our network. We have completed work in the Waikato, Kapiti, Taupo and Tauranga to extend our existing networks to enable future customer connections. We are planning to continually increase our number of new customers, by connecting 1,800 new gas customers in FY2021.

– **Preparing for the future and addressing climate change:**

Our gas distribution and transmission systems support a secure and resilient energy system by providing diversity of our country's energy supply. We are focused on keeping the use of our distribution network affordable for customers, while also trying to shift businesses from coal to natural gas.

Firstgas is committed to supporting New Zealand's transition to a net zero carbon economy. We have work underway investigating how we can decarbonise the gas system, through the transportation of hydrogen and / or biogas through our networks.

- **Adaptability of our business:** The impact of the COVID-19 pandemic will continue to impact on our economy for many years to come. Firstgas was able to take a proactive approach to planning and reforecasting the work planned for FY2020 on our networks, as soon as lockdown came into effect. Going forward, we remain focused on adapting and managing our distribution business, within the evolving context.

Activities planned for the coming year

The focus for the coming year (FY2021) remains on providing our customers a safe, reliable and affordable gas distribution system, while maturing and optimising our approach to asset management. Our forecast capital expenditure (Capex) over the next ten years is set out in Figure 1.

The increased level of Capex relates to:

- The continued network growth and increase in customer connections we are planning to undertake throughout the 10 year planning period.
- An increase in capital spend for consumer connections, and adjustments to forecast costs to reflect the true cost of connection activity going forward.

The forecast Opex over the next planning period is set out in Figure 2.

The increase in costs¹ relate to business support costs increasing, and an increased focus on strategic research and development programmes.

Figure 1: Total Capex forecast for the planning period (all figures in FY2020 prices)

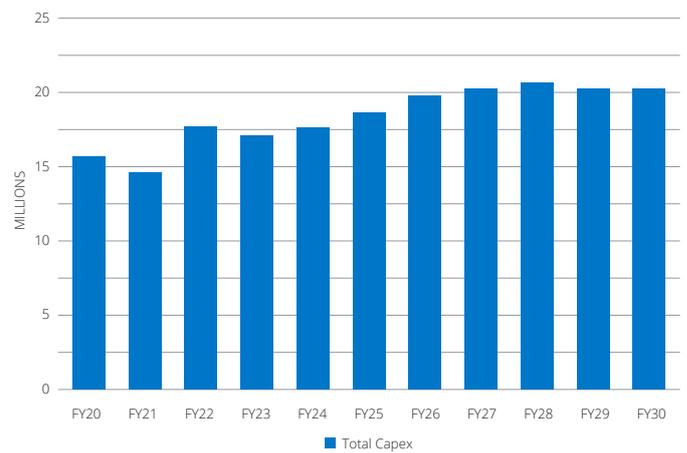
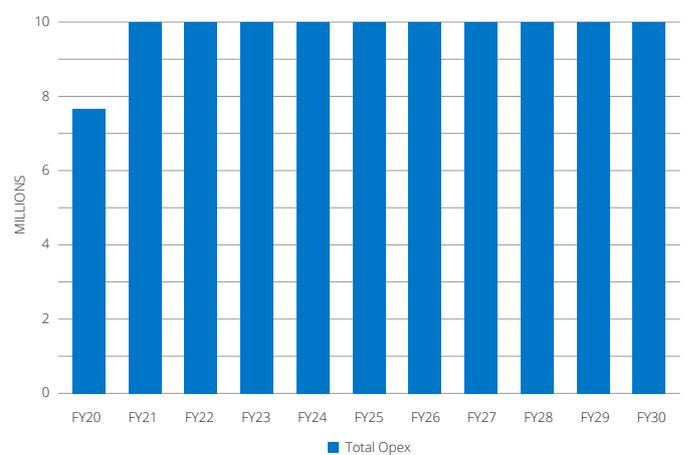


Figure 2: Forecast total Opex (all figures in FY2020 prices)



1. Increase relative to those detailed in the 2019 AMP Update.

Measuring our progress

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. Our performance against our KPIs for the year ending 30 September 2019 is set out in Table 1.

Table 1: KPI for gas distribution network

KEY PERFORMANCE INDICATORS	2019	2021 TARGET	CURRENT TREND
Safety: Lost time injuries	0	0	▶
Response time to emergencies (within one hour)	95%	80%*	▲
Response time to emergencies (within three hours)	100%	100%*	▶
Number of complaints per customers	0.0002	0.0005	▼
Publicly reported gas escapes	34	53	▼
Third party damage	25	67	▼
Asset Management Maturity Assessment	2.8	3.0	▲
System Average Interruption Duration Index (SAIDI)	727	1,300	▼
Customer Average Interruption Duration Index (CAIDI)	83	152	▼
Poor pressure due to network causes	6	3	▲
Number of non-compliant odour tests	4	3	▲

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

Poor pressure in the network relates to a number of unplanned incidents where delivery pressure drops due to some valve and service pipe defects such as corrosion on the aluminium riser, valve seizing, contamination inside the pipeline during construction and after repairs. An annual audit is being carried out to identify and correct these issues.

The number of non-compliant odour test relates to some sections of our piping when there is very little or no gas flowing especially during the summer period, which affects the odourant levels. We have identified an area in Waikato where it has been repeatedly non-compliant, and it is under investigation.

Performance against our budget

Each year, we review the actual expenditure on our distribution network against the forecast expenditure presented in the prior year's AMP. This provides our customers and stakeholders with visibility of how we are performing against our plans.

For the year ending 30 September 2020,² Firstgas has had a great result, delivering the full capital works programme. The increase in Capex relates to three additional significant customer connections that were delivered throughout FY2020 – Innovation Food, Southern Fresh and APL Industrial.

We are forecasting very little variance in the Opex level compared to what was published in our 2019 AMP Update.

Moving forward

As part of our continuous improvement work, Firstgas intends to undertake a formal review of our AMPs in late 2020. We are keen to engage with our stakeholders and customers to discuss the current format of our AMPs and understand if the information is appropriate for our readers needs and if there are further improvements that readers would like to see. We recognise that our readers want to better understand how our investments address risks on our network and we need to provide greater commentary on our environmental, social, and corporate governance (ESG) obligations. We are looking at how to best address this.

The 2021 AMPs will be a key input³ for the Commerce Commission's Default Price-Quality Path (DPP) reset for the next regulatory period (2022 – 2027), providing the Commerce Commission with both the forecast expenditure sought for the next regulatory control period and the project justifications.

2. All data from 1 May 2020 to 30 September 2020 has been forecasted, in order to provide a complete 12 months of data.

3. Alongside our annual Information Disclosures schedules setting out historic spend and results.

1. INTRODUCTION

This is First Gas Limited's (Firstgas) Gas Distribution Asset Management Plan (AMP) for 2020.

Firstgas owns and operates more than 4,800 kilometres of gas distribution pipelines that service approximately 65,000 consumers across the regions of Northland, Waikato, Central Plateau, Bay of Plenty, Gisborne and Kapiti 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 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 2020 AMP, and provides an overview of our overall business and the gas distribution network. We also set out the key regulatory and environment changes that are influencing our gas distribution business.

1.1 PURPOSE OF AMP

The purpose of our AMP is to describe the asset management processes that we use to manage our gas distribution network and its assets. The AMP focuses on how we intend to manage these assets over the next 10 years (the planning period) to both achieve our asset management objectives and meet stakeholder expectations. It also sets out sufficient information so that our customers and stakeholders can understand how we address key asset-related risks, the performance targets we set for our gas distribution network, and how efficiencies and improvements are being achieved across the business.⁴

We also take the opportunity to update our stakeholders on our progress against the 2019 AMP Update⁵ and outline our key priorities for the year ahead. This is an important part of our ongoing stakeholder engagement and enables our customers to evaluate the value being delivered through our capital programme.

Throughout this AMP, we want to communicate how we will achieve the following important objectives for our gas distribution network:

- **Safety commitment:** explain that the safety of our staff, service providers and the general public is paramount.
- **Engaged stakeholders:** consult with our stakeholders, particularly on our planned investments, and inform stakeholders about 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 ongoing performance of our network.
- **Investment planning:** provide visibility of forecasted system investment programmes and upcoming medium-term construction works, with a clear rationale as to why planned investments are the best way to meet service requirements.
- **Informed staff and contractors:** provide guidance and clarity on 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 obligations³ set by the Commerce Commission.

1.2 PERIOD COVERED BY THE AMP

The AMP covers a ten-year forecast period from 1 October 2020 through to 30 September 2030 (the planning period). This aligns with our 1 October to 30 September financial and pricing year. The expenditure forecasts presented in this AMP are expressed in constant 2020 prices (unless otherwise stated).

The 2020 AMP for Firstgas' gas distribution business was approved by our Board of Directors on 12 August 2020.

1.3 SCOPE OF THE AMP

The 2020 AMP sets out our planned investments in our gas distribution network during the planning period. It explains how we will develop our distribution network, renew our assets and undertake maintenance to provide a safe, reliable and valued service to customers.

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

The 2020 AMP complies with the requirements for a full Asset Management Plan, as specified in the Commerce Commission's Information Disclosure Determination.⁶ **Appendix M** provides a detailed reference table, detailing our compliance with each aspect of the Information Disclosure requirements.

1.4 STRUCTURE OF THE AMP

The 2020 AMP follows the same structure that Firstgas adopted in 2018 and is comprised of two parts:

- **AMP summary:** this standalone document provides an overview of the business, what we have achieved over the past 12 months, and the key activities for the coming year. It also provides a summary of our forecast expenditure over the next 10 years. We have designed this document for those customers and stakeholders who want a concise overview of our asset management plan over the planning period.
- **Supporting appendices:** the appendices support the information provided in the standalone summary and provide a much greater level of detail and commentary on our distribution network and our asset management practices. The appendices also include the regulatory schedules.

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

5. Gas distribution 2019 AMP update available here: <https://firstgas.co.nz/wp-content/uploads/First-Gas-Distribution-2019-AMP-Update.pdf>.

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

The full structure of our 2020 AMP is set out in Table 2 below.

Table 2: Structure of our 2020 AMP

AMP SUMMARY DOCUMENT	
Provides an overview and summary of the activities we have undertaken and are planning to undertake for the planning period.	
STANDALONE APPENDICES IN ONE CONSOLIDATED DOCUMENT	
Appendix A	Glossary
Appendix B	Information Disclosure schedules
Appendix C	Network overview
Appendix D	Network maps
Appendix E	Asset fleets
Appendix F	System development
Appendix G	Network development programme
Appendix H	Asset Management approach
Appendix I	Load forecasts
Appendix J	Expenditure overview
Appendix K	Maintenance schedules
Appendix L	Significant projects
Appendix M	Regulatory compliance report
Appendix N	Directors certificate

2. OVERVIEW OF FIRST GAS

This section introduces our business and provides an overview of how Firstgas is structured. It also provides key information on our gas distribution network, our approach to asset management and managing risk, the impact of COVID-19, and the key regulatory, policy and environmental factors influencing our business over the past year.

2.1 CORPORATE STRUCTURE OF FIRSTGAS

Firstgas is owned by funds associated with First Sentier Investors, part of the Mitsubishi UFJ Financial Group. 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.⁷

On 20 April 2016, Firstgas took control of Vector Limited's gas transmission assets along with Vector's gas distribution assets located outside of Auckland. In a separate transaction on 15 June 2016, Firstgas took ownership of Maui Development Limited's gas transmission assets (the Maui pipeline). The creation of Firstgas is the first time that gas transmission assets in New Zealand have had a common owner. 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.
- An opportunity to bring new capabilities to our team to drive growth in the use of the gas transmission system and gas distribution network.
- An ability to operate the gas transmission system and gas distribution network and manage our assets in ways that better serves the interests of our customers.

We recognise that for most customers, gas is an optional fuel. Unlike electricity, which is universally used by households and businesses, reticulated natural gas is not a necessity in New Zealand. This means that gas must be cost-effective and will often need to be actively marketed to compete with other energy options. We remain focused on actively promoting the use of gas and ensuring work signalled in our AMPs 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.

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 2020 AMP for our gas transmission business is available on our Firstgas website.⁸

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 Rockgas⁹ and the Ahuroa gas storage¹⁰ facility. Rockgas has over 80 years' experience and provides LPG to 100,000 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.

7. More information on First Sentier Investors is available on their website: <https://www.firstsentierinvestors.com.au/au/en/institutional/about-us/corporate-profile.html>

8. More information on our gas transmission business is available here: <https://firstgas.co.nz/about-us/regulatory/transmission/>

9. More information on Rockgas: <https://rockgas.co.nz>

10. More information on Flexgas Limited: <https://flexgas.co.nz/>

2.2 ORGANISATIONAL STRUCTURE

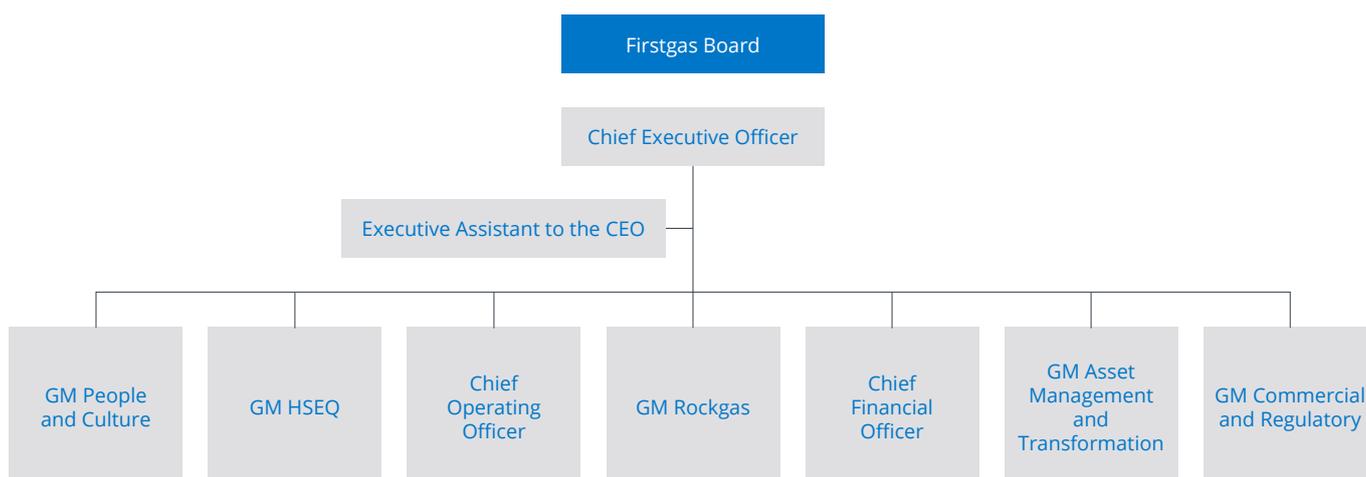
Firstgas employs approximately 222¹¹ staff. Most staff are based in our corporate headquarters in Bell Block, New Plymouth, with small teams located in Wellington, Tauranga, Palmerston North, Hamilton and Auckland. Our Executive team is headed by our Chief Executive Paul Goodeve, with seven direct reports: Chief Operating Officer (COO), Chief Financial Officer, General Manager Commercial and Regulation, General Manager People and Culture, General Manager Asset Management and Transformation, General Manager Health, Safety, Environment and Quality (HSEQ) and General Manager Rockgas.¹² Our organisational structure is illustrated in Figure 3 below.

Delivery model for gas distribution

Field maintenance 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 on the gas distribution network, and reports through to the Distribution Manager, who reports to the COO.

At the end of 2018, we re-negotiated our contract with Electrix from a traditional rates based structure to a more relationship-based model. This has delivered a much more integrated and aligned partnership and ensures that we can deliver an increasingly safe, reliable and cost effective gas distribution network for customers.

Figure 3: Organisation chart¹³



11. Excludes employees directly employed by Rockgas, but incorporates a number of business support staff that provide support across the Firstgas Group of businesses.

12. Biographies of our Executive Team are available on our website www.firstgas.co.nz.

13. GM means General Manager

2.3 CONTINUED PUSH TO MAXIMISE COMPETITIVENESS 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 that gas must be cost effective and we need to actively market natural gas to compete with other forms of energy available in New Zealand.

Our business' focus on gas directly influences our approach to asset management through our strong desire to investigate and convert growth opportunities across our gas distribution networks. We believe that having more customers, with more diverse needs, makes our business more resilient, and ultimately leads to more competitive prices for our customers when accessing and using the distribution network.

2.4 OUR GAS DISTRIBUTION NETWORK

The Firstgas distribution business incorporates gas distribution networks across the Northland, Waikato, the Central Plateau, Bay of Plenty, Gisborne and Kapiti Coast regions of the North Island, as highlighted in blue in Figure 4. We provide gas distribution services to retailers who sell gas to approximately 65,000 residential, commercial and industrial customers.

The key statistics for our gas distribution network, as at 30 June 2020, are set out in Table 3.

The key changes in our gas distribution network since the 2019 AMP Update are:

- Increase in the total number of District Regulating Stations. There are new District Regulating Stations installed at in Waikanae, Paraparaumu and Waitoa.
- We have commissioned a new distribution pipeline for Gourmet Waiuku, a capsicum growing operation in southwest Auckland.

Table 3: Key gas distribution statistics as at 30 June 2020

STATISTIC	VALUE	CHANGE FROM 2017
Consumers connected	65,027	1%
System length (km)	4,843	2%
Consumer density (consumer/km)	13.4	-1%
District regulating stations (DRS)	128	2%
DRS density (system km/DRS)	37.8	-1%
DRS utilisation (consumers/DRS)	508	-1%
Peak loads (scm/h)	52,275	5%
Gas conveyed (PJ per annum)	9.3	0%

Figure 4: Our gas distribution areas



Asset categories

Gas distribution networks are made up of a number of distinct asset types. We use a number of 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 polyethelene (PE) and steel.
- **Pressure stations:** are used to link two different pressure levels in the distribution network through pressure regulators. They are the points of input to a pressure level and are able to maintain a consistent inlet condition to that system.
- **Valves:** are used to isolate the flow of gas within the system when required or to vent gas in the event of an emergency.
- **Corrosion protection equipment:** steel or metallic pipes and equipment installed in the gas distribution system (either above or below ground) are susceptible to corrosion. Various measures must be employed to ensure the integrity of the asset is maintained.
- **Monitoring systems:** at various strategic locations throughout 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 [Appendix C](#).

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 that guides the subsequent development of our asset management system, asset management policy, objectives and ultimately this AMP.
- **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:** Performance documents set out the overall asset management performance objectives and the key performance indicators (KPIs) that Firstgas regularly monitors 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.
- **Asset Management Maturity Assessment Tool (AMMAT) and benchmarking:** This discusses the outcome of our AMMAT review and other benchmarking exercises.

Our AMP captures 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 [Appendix H](#) and the detailed AMMAT review is included in [Appendix B](#).

Key assumptions

This AMP is based on some fundamental assumptions that underpin our long-term strategic direction and operating environment. These key assumptions are:

- The present gas industry structure will broadly remain the same. For example, we have assumed that over the planning period gas will continue to flow from the Taranaki region to customers located in other parts of the North Island.
- Works will continue to be delivered through a mixture of insourced and outsourced activities. We make decisions on what work to outsource based on capability, cost and resource availability.

- There will be no major disruptive changes to the availability of service providers.
- Consumer demand and expectations will continue to follow long-term trends. While we aim to increase the use of our gas distribution network, we have adopted prudent growth forecasts that are tied to historic trends in the uptake and use of gas in New Zealand.
- There will be no major changes to the regulatory regime that governs our operational and investment decisions – for example, through structural changes to the regulatory institutions or the regulatory mechanisms currently in place that allow us to recover our efficient costs.

To the extent possible, all relevant assumptions made in developing this AMP have been quantified and described in the relevant sections

2.6 OUR APPROACH TO HEALTH AND SAFETY

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 illustrate how we mitigate risks and maintain safe outcomes. From maintaining containment of our product through to the HS&E leadership and accountability that underpins our culture.

Firstgas has a strong culture for ensuring safety. It is at the core of everything we do and extends beyond ensuring our people are safe in the field. Consideration of safety is at the forefront whether we are designing new assets, developing maintenance plans, executing work in the field, operating the network or having the appropriate emergency response plans.

Maintaining product containment is the primary control that minimises risk to both workers and the public. Asset integrity and our asset management practices outlined in this AMP are, therefore, crucial in maintaining safe outcomes.

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. 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.

Figure 5: Firstgas' First Principles



2.7 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 ensures that we are prepared for and can respond quickly to a major incident that occurs or may occur on our gas distribution network.
- **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 on the gas distribution network (particularly loss of containment), appropriate and effective risk management is integral to our day-to-day operations. 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 asset 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 risks 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 risk management system that is outlined in *00083 Safety and Operating Plan*. This document outlines the minimum requirements and ensures consistency in risk management by our business.

Greater detail on our approach to risk management set out in [Appendix H](#).

AECOM review of risk management

AECOM¹⁴ was commissioned by the Commerce Commission in April 2019 to objectively assess the risk management practices within New Zealand's gas pipeline businesses. They reviewed existing information relevant to risk management processes, procedures and information, and supplemented these findings through a series of on-site meetings and discussions with relevant staff.

Firstgas welcomed the review as it provided an opportunity for us to demonstrate our risk management to the Commission and stakeholders. It was pleasing to see the hard work that Firstgas has put into managing both our gas distribution and transmission businesses over the last three years is reflected in the good reviews. In particular, the risk management review highlighted the strong continuous improvement culture that we have established across our businesses.

The reports provided us with an opportunity for improvement and we have developed an improvement plan to address the recommendations. Further information can be found in [Appendix H](#) and section 3.2 outlines the significant activities undertaken in FY2020.

14. AECOM is an infrastructure consulting firm.

2.8 IMPACT OF COVID-19

During March / April 2020, New Zealand moved to an Alert level 4 lockdown, in response to the corona virus pandemic (COVID-19). This saw a State of National Emergency declared, and all New Zealanders required to stay at home in their “bubbles” with the exception of essential services. This had, and continues to have, a significant impact on New Zealand’s economy.

During Level 4, Firstgas continued to provide essential services, by transporting gas across both our distribution and transmission networks to customers such as hospitals and public facilities who rely on us. Alert level 4 saw all new connections requests suspended and key contractors closed for all service request work, other than essential connections, faults and emergencies. Firstgas advised all new connections channels where a customer indicated an urgent request, they were to be referred to the Connections Manager who would assess the “essential” nature of the request. Firstgas did not encounter any such requests during level 4.

At level 3, the new connections crews resumed all work at a reduced capacity, adhering to strict safety guidelines. Any interregional crews remained withdrawn from the field until New Zealand reached a safer alert level and interregional rules were lifted. Like many businesses, the majority of Firstgas staff worked from home during the period.

Effect of COVID-19 on customer gas demand

Overall, the COVID-19 situation has had a negative impact on gas volume demand for the Firstgas distribution network. During levels two to four, distribution gas volumes were down by 10 – 15% compared to the previous year’s monthly average for the same period. Residential demand was similar to previous

years, if not slightly increased. However, a drop in commercial and industrial demand drove an overall decrease in gas demand during this time. Total distribution gate volume, as illustrated in Figure 6 below.

Following the move to level 1, overall gas demand appears to have returned to ‘normal’ levels based on historical averages. However, Firstgas is conscious that there may still be economic effects of the COVID-19 situation to come, that have not yet manifested themselves in terms of reduced gas demand.

Effect of COVID-19 on payment schedules

In response to the financial difficulties created by the COVID-19 situation, Firstgas joined with Vector and Powerco (also gas distribution businesses) to offer all gas retailers a payment deferral scheme for fixed charges, for those consumers that are financially affected. This joint offer effectively extended a cashflow relief plan to 96% of all reticulated natural gas consumers in New Zealand.

Effect of COVID-19 on Firstgas’ work programme

Firstgas has reviewed the forecast work programme and associated expenditure, in light of the pandemic in New Zealand and the impact on use of the gas distribution network. The planned expenditure for FY2020 adjusted for the impact of COVID-19 is set out in Table 4 on the following page.

Our gas distribution business showed a strong year to date performance prior to the Level 4 lockdown coming into effect on 26 March 2020. This strong performance can be attributed to the robust planning and Capex governance processes that have been put in place over the last two years. It has helped limit the negative impact of the COVID-19 lockdown on our remaining work programme for FY2020.

Figure 6: Total distribution gate volume

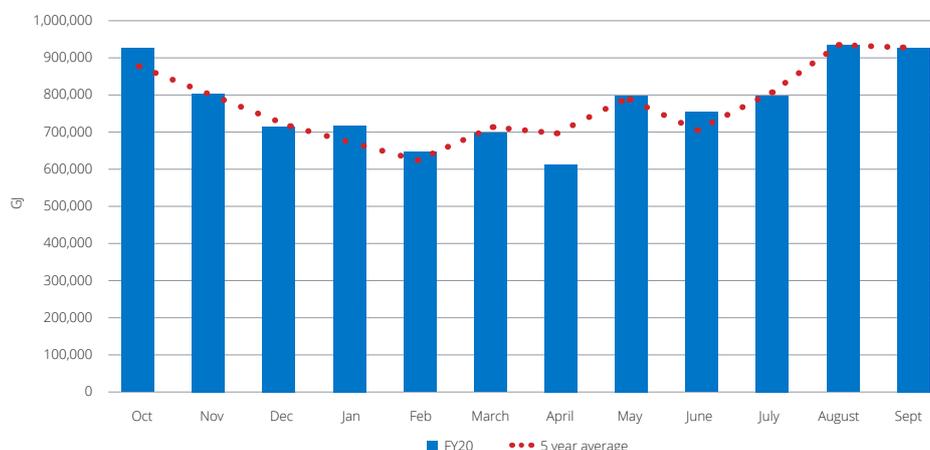


Table 4: Planned expenditure for FY2020 adjusted for impact of COVID-19

BUSINESS	2019 AMP FY2020 FORECAST (\$MILLION)	FULL YEAR FORECAST (\$MILLION)	% VARIANCE
Gas distribution	\$14.1	\$12.7	-2.8%

In order to ascertain the possible impacts to our planned expenditure, Firstgas drew on the McKinsey & Company COVID-19 briefing notes¹⁵ and the New Zealand Treasury report: economic scenarios¹⁶ resulting from the COVID-19 virus spread. These two reports provided recognised models that we utilised to consider the potential impacts on our gas distribution and transmission businesses. The trends developed by the McKinsey and Treasury reports have also been used as the basis for the ongoing Capex planning for the remainder of the regulatory period (FY2021 – FY2022).

2.9 REGULATORY AND POLICY ENVIRONMENT

This section provides an overview of the regulatory and policy environment that our gas distribution business operates within. We have seen a stable year for regulatory settings, with FY2020 focused on embedding new disclosure requirements for related party transactions. We also discuss the evolving policy environment in response to uncertainty in the energy sector and the growing reliance on gas to support electricity generation.

Stable regulatory environment for gas businesses

The regulatory environment for the gas distribution business has been relatively stable over the past year, with Firstgas now moving into the fourth year of the 2017 – 2022 regulatory period.

In March 2020, Firstgas published our first Information Disclosure schedules incorporating the new requirements for related party transactions (RPTs).¹⁷ These changes were driven by the decisions from the 2016 Input Methodologies (IMs)¹⁸ review for gas pipeline businesses and were introduced by the Commerce Commission in December 2017. The Commission introduced a “principles based” valuation approach for RPTs, replacing the prescriptive list of options previously set out in the regulatory rules. Regulated businesses are now required to demonstrate that the value of an RPT is not greater than an “arms length transaction” (purchase).

Our FY2019 Information Disclosure discusses each of the related party transactions and our approach to valuing these transactions for our gas distribution business. We have again elected to incorporate some of the information required under the new related party transaction rules into this year’s AMP,

in addition to our annual information disclosures at the end of the disclosure year. Sections 5.1 and 5.2 set out the maps of anticipated network expenditure.

Looking towards the next DPP reset and IM review

In 2022, the Commission will set the Default Price-Quality Path (DPP) for gas pipeline businesses for the next regulatory period, 1 October 2022 to 30 September 2027. The Commission must also complete the next review of the Input Methodologies that guide the sector by the end of 2023¹⁹. Firstgas looks forward to actively engaging in both these processes, as it will provide an opportunity for the industry, the Commission and all stakeholders to consider if the regulatory framework remains fit for purpose and supports an evolving energy sector transitioning to a low carbon future. It is also essential that gas pipeline businesses can continue to provide customers a safe, reliable and cost-effective service going forward.

Learnings from other regulated sectors

In FY2020, the Commerce Commission completed the five-yearly reset of Default Price Quality Paths for electricity distribution businesses (EDBs). Firstgas followed this process to identify any learnings that may apply to our next DPP reset for 2022 – 2027. Whilst the businesses are different, EDBs are struggling with similar issues as gas businesses around how the regulatory framework can support periods of change and uncertainty.

Of particular interest, was the introduction of an innovation fund and the ability to reopen a DPP Determination for unexpected growth on an EDB’s network. Like the electricity industry, we are experiencing unexpected growth as businesses convert from coal to gas to lower emissions. At the same time, Firstgas is working alongside Government to consider zero carbon energy options, such as the potential for our networks to convey hydrogen or biogas, or a blended option.

We look forward to working with the Commission and other stakeholders as we enter the next regulatory period to ensure that regulation supports both the current industry and the move to meet the future needs of New Zealanders.

15. McKinsey & Company Covid-19: Briefing note, April 13, 2020

16. Treasury Report: Economic scenarios report no. T2020/973, 13 April 2020

17. <https://firstgas.co.nz/wp-content/uploads/First-Gas-distribution-information-disclosure-2019-STAMPED.pdf>

18. The IMs are the rules, requirements and process that underpin regulations under Part 4 of the Commerce Act, as a regulated Business we are required to apply these input methodologies that cover, how assets are valued, depreciated and revalued, how to estimate cost of capital, and how tax should be treated and how common costs are allocated between the businesses. The IMs are required to be reviewed at least every 7 years.

19. The last main IM review was completed in 2016, with the review of the related party IM finalised in 2017. The IMs must be reviewed within 7 years.

Changes in the broader gas sector

There has also been increased work in the broader gas sector to review the overarching legislation and the information disclosed around the operation of the gas market.

Review of the Gas Act

In 2018, the Government announced it would be reviewing the *Gas Act 1992* focusing on three key areas²⁰:

- Emerging challenges for the Gas Act, with the expected introduction of alternative fuels (such as hydrogen and biogas)
- Potential changes to the penalty regime
- Information disclosure requirements (to enable regulated options to be introduced by the Gas Industry Company if required).

At the time of writing, the *Gas (Information Disclosure and Penalties) Amendment Bill* is before Parliament²¹. This Bill was introduced following consideration of the prolonged outages at the Pohokura production station, which combined with planned outages at other production stations and dry spring conditions, led to record gas spot market prices and high electricity wholesale prices. These outages highlighted a number of issues in relation to the transparency of information in the gas market, that can have a wide range of effects.

The Bill introduces provisions into the Gas Act that will enable the Gas Industry Company (GIC) to introduce a regulated information disclosure regime to address any issues with information in the gas market. Firstgas supports the introduction of regulated information disclosure requirements for the gas sector. We believe that the main information gaps relate to planned and unplanned outages at major gas production and user facilities and a regulated option will be the most effective

The options for amending the Gas Act originally considered whether the Gas Act remains fit for purpose in regulating the use of emerging technologies and alternative fuels in New Zealand. We consider this remains an important question that has yet to be resolved.

We have some concern that there may be an impression that meeting the definition of gas may be all that is required to allow emerging fuels to flow into our networks. In fact, we consider there is further work required around the Gas Act, industry regulations and standards to support the development of emerging fuels such as hydrogen and biogas. Any changes must ensure that gas remains of a specification that can be transported safely within New Zealand's gas infrastructure and safely and reliably used by consumers.²²

GIC work on information disclosure

Over the last year, the GIC has been consulting on options to increase the level of information disclosed on the gas market. This workstream was driven by a request by the Minister of Energy, following the outages at Pohokura in 2018, as discussed above. The workstream explored the potential information issues, the different approaches to information disclosure (from voluntary through to regulated options) and ways of publishing this information.

In May 2020, the GIC confirmed its next steps would include progressing a Statement of Proposal (SOP) for information disclosure.²³ The SOP provided to the Government will include identifying and evaluating options to address information issues at gas production stations and the Ahuroa gas storage facility. This will include an evaluation of the industry-led Upstream Gas Outage Information Disclosure Code. Firstgas management participated in the development of the Disclosure Code, on behalf of Flexgas. We consider the development of the Disclosure Code a positive step. While it does not have the full force of regulation, it does have an appropriate level of prescription that defines what information should be disclosed. As participants to the Disclosure Code, Flexgas will disclose information on the operation of the Ahuroa gas storage facility and all such disclosures are available on the Gas Industry Company's website.²⁴

Government's climate change policy

New Zealand's Labour coalition Government has set a goal of achieving net-zero emissions by 2050, supported by a move towards 100% renewable electricity by 2035. A significant step was taken with the passing of the *Climate Change Response (Zero-Carbon) Amendment Act*, that received Royal Assent on 13 November 2019. This Act provides a framework by which New Zealand can develop and implement clear and stable climate change policies that:

- Contribute to the global effort under the Paris Agreement to limit the global average temperature increase to 1.5°C above pre-industrial levels.
- Allow New Zealand to prepare for and adapt to the effects of climate change.

Firstgas supports the Government's decision to make action on climate change a priority. We believe that the best approach to achieving net-zero emissions will involve the decarbonisation of multiple energy networks, including gas networks. This could be achieved through the production of hydrogen, the use of biofuels, carbon sequestration, or some combination of these technologies. We consider that our gas transmission and distribution networks can be part of the solution.

20. Ministry of business, innovation and employment: Options for amending the Gas Act 1992, consultation June 2019. Refer <https://www.mbie.govt.nz/have-your-say/amending-the-gas-act/>

21. Gas (Information Disclosure and Penalties) Amendment Bill

22. Further information on why we consider the Gas Act must remain fit for purpose to support New Zealand's changing needs in a low carbon economy, see our submission to MBIE.

23. <https://www.gasindustry.co.nz/work-programmes/gas-sector-information-disclosure/problem-assessment-october-2019/cross-submissions-on-problem-assessment/document/6963>

24. <https://www.gasindustry.co.nz/industry-notifications/>

These networks provide a flexible, resilient way to transport energy and already transmit and connect the major industrial facilities throughout the North Island and almost 300,000 homes and businesses.

Firstgas welcomed the creation of the Climate Change Commission, a Crown entity established under the *Climate Change Response (Zero Carbon) Amendment Act*. The Commission's role is to provide sound evidence-based advice to the Government on how to transition to a low emissions economy. The first three emissions budgets will be recommended by the Climate Change Commission and set by the Government by the end of 2021. Firstgas has engaged with the Commission in recent months to discuss existing opportunities to reduce emissions through the efficient use of natural gas and our investigations into the potential for transporting hydrogen and biogas in our pipelines.

The Government has also taken steps to reform the Emission Trading Scheme over the last 12 months. We believe that a comprehensive emissions trading scheme (ETS) is a useful tool to encourage the behavioural changes needed to lower New Zealand's carbon emissions. In June 2020, the Government passed the *Climate Change Response (Emissions Trading Reform) Amendment Bill* that included a limit on the total emissions allowed within the ETS, rules to ensure emission prices are more predictable, and a provisional emissions budget for the 2021-2025 period.

2.10 DECARBONISING OUR GAS NETWORKS

Over the last 12 months, Firstgas has increased our focus on how we can decarbonise our gas networks, to support New Zealand's move to a net-zero emissions economy. As our gas distribution and transmission networks cover much of the North Island, we believe we are ideally placed to support the development, transfer, and use of emerging fuels such as:

- **Hydrogen** which produces only heat and water vapour when it is burnt, making it a suitable choice for reducing carbon emissions
- **Biogas** which is made from decomposed organic material from the likes of landfills and wastewater treatment plants.

This section discusses the projects we have recently commenced to explore the use of low carbon fuels in our networks and the actions Firstgas is undertaking to understand our own carbon footprint.

Hydrogen pipeline network trial

Firstgas has commenced work on a desktop feasibility study for hydrogen this year that will define the trials required to transport hydrogen in our network. This study has been 50% funded by the Provincial Growth Fund and was launched publicly in Parliament in March 2020.

Hydrogen is emerging as a cost-effective way to decarbonise parts of our energy eco system, and a leading zero carbon energy solution for applications such as high temperature process heat and heavy transport, which are impracticable to electrify. Moreover, it provides similar storage benefits as natural gas which can allow hydrogen to address peaking and dry year cover in the electricity system. Costs to produce hydrogen from electricity using electrolysis are decreasing rapidly with advances in technology and the scale of production.

Work in the United Kingdom (UK) has shown that hydrogen can be blended with natural gas up to 20% without replacement of domestic appliances. It can therefore offer partial decarbonisation at low cost because it allows for the use of existing infrastructure.

Our hydrogen pipeline network trial consists of four phases, as illustrated in Figure 7 below.²⁵

The current study will conclude in September 2020 and has the following objectives:

- Assess the potential sources and uses for hydrogen/hydrogen blends.
- Consider the technical feasibility of converting the gas grid.
- Establish the economics of decarbonisation using hydrogen.
- Design the experiment(s) we need to do to safely convert the grid and select the location(s).

Figure 7: Firstgas' hydrogen pipeline trial



25. Phase 1 started in February of 2020.

This first phase has been 50% funded by the Provincial Growth Fund (up to \$260,000) and is being undertaken with the support of Aqua Consultants and Element Energy in the UK. Both these project partners have extensive experience in ongoing hydrogen trial work across UK and Europe. Through our membership of the Australian Gas Pipeline Association, we are also making connections with pipeline businesses in Australia undertaking hydrogen trials. These international connections allow Firstgas to leverage overseas research and target our trials on work absolutely necessary to ensure our networks can safely operate.

Additionally, we are engaging extensively with stakeholders in the potential hydrogen value chain. To launch the current project, we held workshop events in March of 2020 in Wellington and New Plymouth that were attended by over 150 representatives from across the energy, industrial, government and iwi sectors. This broad engagement has been tremendously valuable by ensuring our study canvases a wide range of possible hydrogen scenarios. We also have representatives from MBIE, the NZ Hydrogen Association and Venture Taranaki on our governance group for the project. We would like to thank our stakeholders for their support of our project.

Biogas Development

Biogas is a renewable natural gas produced through the decomposition of waste at landfills or the anaerobic digestion of wastewater at municipal or industrial wastewater treatment plants. In 2018, 3.66 PJ of biogas was produced at 20 sites across New Zealand – most of this was used for onsite electricity generation, with the remainder used for heating.

The technology for biogas production is mature and with treatment, biogas can be used as a direct replacement for methane in our gas pipeline. We observe that in 2018, 125 PJ of biogas was produced in the UK with 12 PJ injected into the national grid. Growth in this industry was achieved through UK government programmes to secure feed-in tariffs, in addition to an active market for certification of green gas.

Firstgas believes that potential biogas could be increased dramatically in New Zealand. In addition to producing a renewable gas, biogas production also reduces solids going to landfill, improves air quality and improves water quality. We think it's a win-win for our energy and waste sectors.

Biogas remains costly due to issues of scale and coordination of organic waste streams. Firstgas is looking at how to further enable biogas production. Our work programme will focus on:

- Understanding the potential biogas market
- Developing technical standards and guidance on the treatment and injection of biogas into our network (or a distribution network)
- Developing guidance on the commercial arrangements for shipping of biogas

- Working with wastewater and waste operators to understand biogas process and potential barriers to injection into the network
- Understanding the potential for certification and incentive schemes to increase biogas production.

Renewable gas certification

While we are preparing our networks for the introduction of these flexible green energy sources, successfully decarbonising our energy system will rely on creating strong markets for these gases. We think that setting up a certification scheme will be integral to building a strong market for renewable natural gas and hydrogen. This will allow a premium to be attributed to zero carbon gases and allow buyers to count renewable natural gases / hydrogen in their carbon reduction efforts.

Certification systems are currently used in New Zealand to demonstrate electricity is produced solely from renewable sources. Overseas, similar schemes exist for certification of biogas production. Allowing this exchange of value will be instrumental to incentivising the development of zero carbon gas projects. We understand that a certification scheme will be developed in consultation with our network users over the coming months. We will support the development of this scheme and ensure that the commercial arrangements on our pipeline facilitate the growth of the zero carbon gas market.

Membership of the Climate Leaders' Coalition

In 2019, Firstgas signed up to the Climate Leaders' Coalition. This group is committed to taking voluntary action on climate change and includes 118 organisations across New Zealand. The Coalition represents a unique opportunity for businesses to work together and learn from each other to reduce their emissions. Organisations from all sectors of the economy are represented in the Coalition and together the signatories make up 60% of New Zealand's gross emissions.²⁶

As part of this group, we have committed to measuring and publicly reporting our greenhouse gas emissions, setting a public emissions reduction target, and working with our suppliers to reduce their emissions.²⁷

Measuring our carbon footprint

Recently, Firstgas Group's carbon footprint was assessed by DETA Consulting. This gave us a deeper understanding of the quantity of greenhouse gas emissions that are produced through our production and distribution processes, as well as consumer emissions from consumption. The greenhouse gas-intensive areas of the process were identified and therefore, will allow for targeted emission reductions to be carried out in the most effective

There are also opportunities for us to improve the efficiency with which we use electricity, and in doing so, reduce our carbon footprint from electricity use further. Firstgas is planning to install solar photovoltaic (PV) generation on the main headquarters building's roofs to offset some of the electricity demand.

26. Information on the Climate Leaders Coalition is available here: <https://www.climateleaderscoalition.org.nz/>

27. Detail on our commitments is available on our website here: https://firstgas.co.nz/about-us/community-partnership/towards-a-net-zero-carbon-future/?fbclid=IwAR218GPzCIRx8xGNkQF8o_r94GvR4eWH7tR11YP4V2fsZml50MK7dxTQfFU

3. YEAR IN REVIEW

This section provides an overview of Firstgas' major projects and initiatives over the past year ending 30 September 2020, which was the third year of the 2017 – 2022 DPP period. We also review our forecast expenditure against the plans stated in our 2019 AMP Update, and discuss the variances in activities undertaken.

3.1 EXPENDITURE SUMMARY

Firstgas remains focused on building and maintaining a safe and resilient gas distribution network for our customers, whilst actively pursuing growth across our networks. This focus is reflected in the work programme that was undertaken over the last 12 months. Figures 8 and 9 outline our actual expenditure for the year ended 30 September 2020²⁸ and compares actual expenditures to the forecasts presented in our 2019 AMP Update.

Our distribution business showed a strong full-year forecast in spite of the impact of COVID-19. This strong performance can be attributed to the robust planning and CAPEX governance processes that have been put in place over the course of the last two years and the commitment to grow our distribution network.

The variance compared to the 2019 AMP Update forecast is in relation to three significant customer connections that were delivered throughout FY2020.

- **Innovation Food:** New Zealand's only open access to product development and manufacturing spray dryer. The new gas supply will support Melody Dairies new sheep milk dryer.
- **Southern Fresh:** It is a leading professional grower and processor of high-quality gourmet vegetables, salad lines and herbs. The new gas supply will allow them to heat its new glasshouse and achieve the benefits of CO₂ enrichment.
- **APL Industrial:** It is a network of companies that design, manufacture, and distributes aluminium windows and doors to the New Zealand building industry. The new gas supply will support its new plant operation.

Firstgas is committed to growing our distribution network, which has been highlighted with these connections, that are over and above our planned forecast.

There is a very little variance in the Opex level compared to what was published in our 2019 AMP Update.

Figure 8: Total Capex in FY2020 versus forecast Capex in 2019 AMP Update

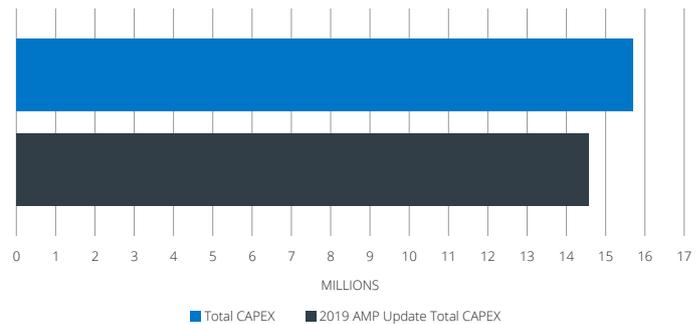
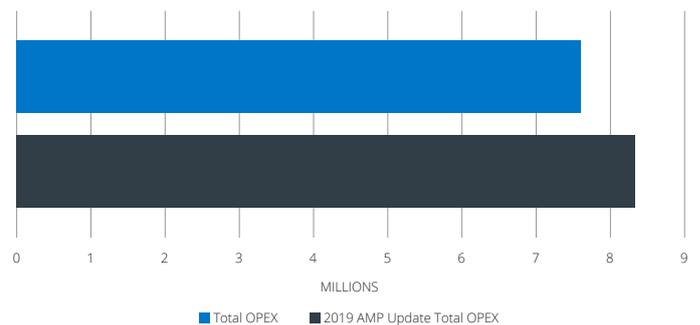


Figure 9: Total Opex in FY2020 versus forecast Opex in 2019 AMP Update



28. All data from 1 May 2020 to 30 September 2020 has been forecasted, in order to provide a complete 12 months of data.

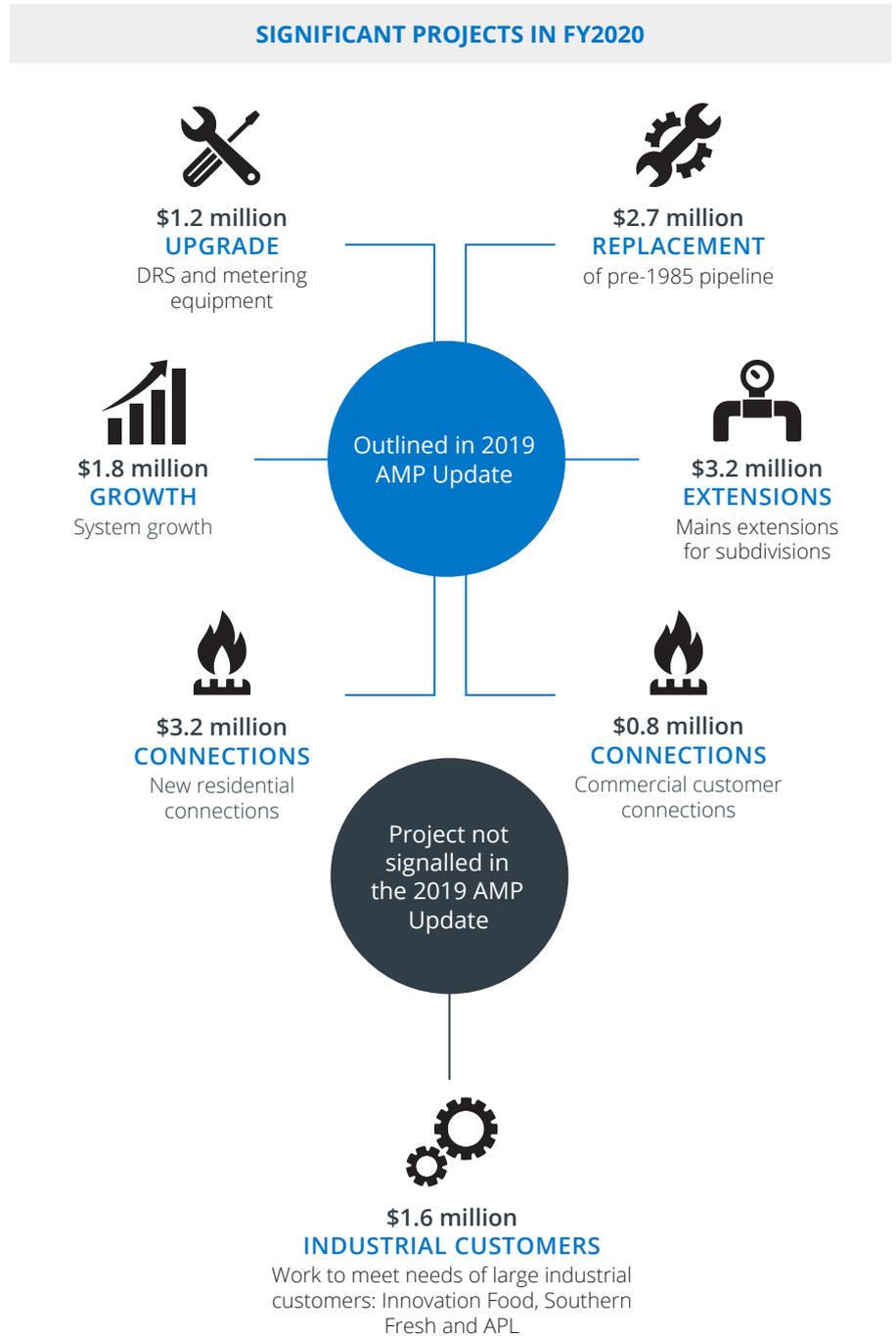
3.2 SIGNIFICANT ACTIVITIES UNDERTAKEN IN FY2020

The last year has been another busy year for Firstgas. Our improvements over the last few years in Capex management and control has mitigated the impact of COVID-19 which led us to a strong full-year forecast. Table 5 outlines the most significant projects that were delivered over the last 12 months.

Most of these projects were identified in our 2019 AMP Update, with the scope and justification provided for each project.

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

Table 5: Significant projects completed in FY2020



Replacement of pre-1985 polyethylene pipeline



Firstgas is continuing with our programme to replace pre-1985 polyethylene (PE) pipeline. This year, we have completed nine projects, replacing approximately eight kilometres of pre-1985 PE pipeline on our network.

PE pipe manufactured before 1985 was made with a polymer structure that over time is susceptible to cracking and significant deformation. Our distribution network includes approximately 396 kilometres of pre-1985 PE mains, of which 352 kilometres (89%) operate at MP4 and the balance at LP and MP1. The majority of these mains are located in the Waikato region in the Hamilton distribution system. Additionally, our network contains approximately 116 kilometres of pre-1985 service pipe, with the majority located within Hamilton.

As in previous years, the replacement programme of work for our aging PE pipe has been prioritised based on the asset condition information gathered by Firstgas and summarised in Schedule 12a (see [Appendix B](#)). Data shows that 3.3% of the total length of the medium pressure polyethylene pipe in our distribution system (approximately 101 kilometres of pre-1985 main pipes) have grade 2 rating. Assets with this rating have a material deterioration but the asset condition is still within the serviceable life parameters. Intervention is likely to be required within three years.²⁹

Firstgas continues to review and refine our understanding of risk factors for our pipe. Latest data indicates that the PE pipeline installed pre-1975 presents a more significant risk of failure in service. We discuss this in more detail in section 4.1 and [Appendix E](#), where we outline the focus for the coming year's programme of replacement.

29. Definition as set by the Commerce Commission.

Figure 10: New DRS 80281 unit



Upgrades to district regulator stations and metering equipment



Firstgas carries out a number of DRS upgrades each year to replace equipment that is not meeting our performance standards, or where the assets are now obsolete. Upgrades to DRS and metering equipment enable us to ensure adequate supply of pressure across our distribution networks. Over the last 12 months, we have carried out upgrades on the following assets:

Wairere Drive relocation and DRS 101 and 103 upgrade in Hamilton

The Hamilton City Council (HCC) Wairere Drive extension project required Firstgas distribution assets to be relocated to allow for the construction of a roading project. Relocation of distribution pipes and installation of the new DRS (80281) in Hamilton replacing both DRS101 and 103 is now complete.

DRS 80247 Waitoa

The DRS within the station was previously buried and was subject to flooding. Lifting of the existing equipment above flood level has been completed.

DRS 80210 Cambridge

Due to the growing demand for gas from commercial and industrial customers in Cambridge, the existing DRS located within the Cambridge compound has limited capacity and requires replacement. Work is underway to replace the unit, with work planned to be completed in FY2020.

For further information on DRS in our distribution system, refer to [Appendix E](#).

Figure 11: Relocated distribution steel and new PE pipes



Figure 12: DRS 80247 Waitoa submerged under water contrasted with DRS unit lifted above ground



Mains extensions for subdivisions and customer connections



A large component (approximately 45%) of our annual Capex is allocated to system growth and connecting new customers to our network. New connections usually involve scoping and pricing the work to be completed, engaging with the retailer and metering company, seeking the appropriate approvals from the local council, and undertaking the physical work on site. New connections are either drilled or thrust under ground, or open trenches are used, then the service is installed inside of a larger pipe acting as a conduit.

The typical nature of most of our asset base means that these new connections provide value for all users in ensuring greater asset use and cost recovery. Having more customer contributing towards shared costs ultimately means lower costs for all users, which is why growth and new connection expenditure is a priority for Firstgas.

Over the last 12 months, we have:

- Carried out work to connect a Firstgas record number of 1,550 new customers which is a significant increase in connections compared to a few years ago. The majority being residential homes. We have also connected several businesses and commercial operations ranging from cafes and laundromats through to large industrial users.
- Completed work in various locations to extend our existing networks to enable future customer connections. The most significant areas of work have been in Waikato, Kapiti, Taupo and Tauranga.

The level of connections undertaken over the past 12 months is consistent with the high level of new connections achieved during FY2019. We have also completed extensive works to meet the needs of three industrial customers:

- Innovation Food
- Southern Fresh
- APL Industrial.

We discuss the works completed for each of these industrial customers on the next page.



Tamahere Country Club³⁰

“The appliance options available to us with natural gas really compliment the luxury feel of our Village. It was great to partner with Firstgas to get the pipeline extended to site. Thanks, Firstgas for all your help”.

- Nathan Sanderson, Development Manager

30. <https://www.sandersongroup.co.nz/>

Innovation Food

Firstgas has extended a section (approximately 1,850 metres) of the Medium Pressure (MP4, 210 - 420KPa) distribution network along Ruakura Road to support a new customer load in the Waikato region. The project requires both the mains extension with multiple tie-ins in order to support the network and additional load for Melody Dairies GP Limited.

In December 2017, we received a new customer connection request for a new gas supply for Melody Dairies Ltd. Melody Dairies is owned by Nu-Mega Ingredients, Landcorp Farming, Dairy Nutraceuticals and New Zealand Food Innovation (Waikato). The new gas supply will service their additional boiler and air heater with approximate usage of 50 TJ per year. Their new dryer facility will have 2.4 times the capacity of the existing dryer and will manufacture sheep, goat, bovine and nutritional powders.

Southern Fresh

Firstgas has extended a section (approximately 2,805 metres) of the Medium Pressure (MP4, 210 - 420KPa) distribution network along Bruntwood Road, Hautapu to supply gas to a Southern Fresh site. This will service Southern Fresh's stage 1 development of two hectare glasshouse with a 2MW boiler and an expected initial load of 6 – 10 TJ.

In August 2019, we received a new customer connection request from Southern Fresh for a new gas supply. Southern Fresh are a leading professional grower and processor of high-quality gourmet vegetables, salad lines and herbs. Southern Fresh is a green field site and the addition of natural gas to their current operation will allow them to heat their new glasshouse and achieve the benefits of CO₂ enrichment.

APL Industrial

Firstgas has extended a section (approximately 2,500 metres) of the Medium Pressure (MP4, 210-420KPa) distribution network to supply gas to APL Industrial Limited in Cambridge. This will service APL's stage 1 campus requirement for gas of approximately 8 – 11 TJ. The requested gas demand for the operation of their new plant will progressively increase over the next two to three years.

In May 2019, we received a new customer connection request to provide reticulated gas supply to the proposed APL Industrial Campus on Victoria Road, Hautapu. This required an extension of the MP4 network from from DR-80210-CA that is located inside the Cambridge Gate Station, along Victoria Road to Collector Road.

APL is a network of companies that design, manufacture and distribute aluminium windows and doors to the New Zealand building industry, with INEX, Colourworks and FINEX being the major gas users within the group. The campus, to be built over a period of up to 10 years, is to be part of a larger development called the Bardowie Industrial Precinct.

Relocation projects



We relocate existing services or mains pipes when required as a result of the activities of other utilities, local councils or customers. Typically, asset relocation projects are predominantly funded through capital contributions by the third parties who request the relocation. Over the last 12 months, we have reviewed and assessed some of the relocation projects in our network including:

Relocation of IP20 pipeline at the Silver Ferns property, Waitoa

A 50 NB carbon steel IP20 pipeline in the Waitoa network was found to be running underneath one of the building facilities on the Silver Ferns property in Tatanui, Waitoa. This pipeline represents a safety risk to the people who are working in the area. Interim controls such as regular leak surveys have been put in place. Further, the requirements for working within the pipe easement have been clarified with the owners to ensure no future work over the pipe occurs without prior consultation with Firstgas. Engineering solutions are currently being reviewed to mitigate the risk.

Relocation of IP10 pipeline in Foster Road, Hamilton

An existing 200 NB carbon steel distribution pipeline on Foster Road, Hamilton (running between number 55 Foster Road and an unnamed stream) is one of the two main distribution



Innovation Food³¹

“Reticulation and connection of the gas supply to our new Infant Formula plant has been an effortless process. With Firstgas taking care of this aspect of the project, it has allowed us the time to focus on getting the plant built, commissioning, and supplying product to our local and international customers”.

– Dave Shute, Operations Manager

31. <https://www.wipltd.co.nz/page/food-innovation/>

gas pipelines supplying Hamilton. This pipeline (approximately 30 metres) is to be re-routed due to the need to replace an existing corroded culvert. This project has been put on hold by Hamilton City Council during the COVID-19 lockdown and will be rescheduled sometime in the future.

Asset Management Improvement Programme

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

AECOM review

As mentioned in section 2.5, AECOM was commissioned by the Commerce Commission New Zealand in April 2019 to objectively assess the risk management practices. Figure 13 shows the gap analysis summary for Firstgas’ distribution business in terms of asset knowledge, strategic planning processes, asset management practices, information systems and organisational tactics. More detail information is provided in [Appendix H](#).

The review found the biggest gaps between our current approach and best appropriate approach are in our strategic planning processes and organisational tactics, and therefore we will be focusing our efforts in those categories. Asset knowledge and asset management practices are the best areas with less than four per cent of difference, however where possible we will look for improvement opportunities in all areas.

Maintenance optimisation

We have reviewed maintenance plans and developed maintenance strategies based on eliminating waste and

the use of technology to collect and collate information. Some of the achievements in the last year are the reflection of the maintenance strategy in our current state and the completion of the specification data project.

Upgrade of Maximo³² to latest version

Much work has been going on in the last few months preparing for the upgrades and identifying improvements that could be implemented in the post-upgrade drops. The Maximo improvements have been successful and seamless with no impact on the system. The improvements include:

- Hardware update with improved system reinforcement and security protocols.
- Better user experience with a single sign on process.
- Software update to the latest version.

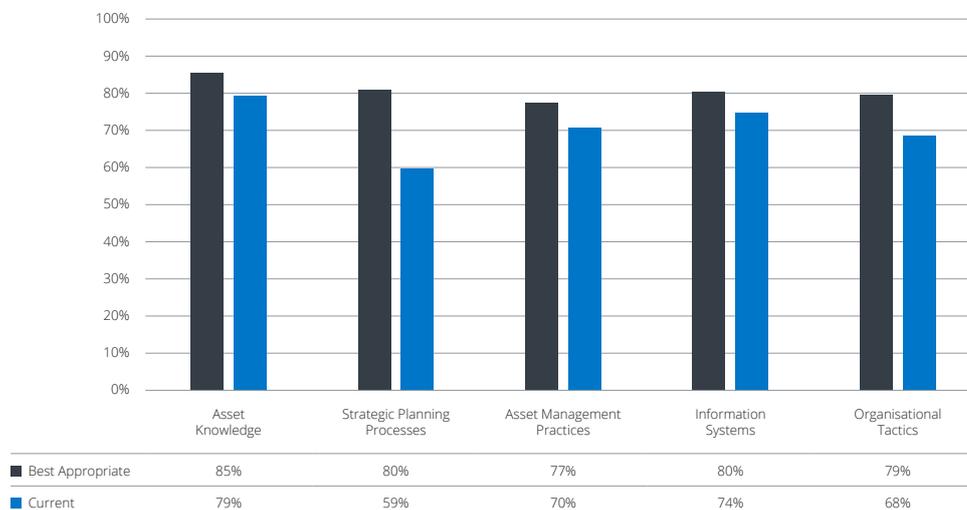
The Maximo Asset Health and Insights (MAHI)

The development of new technology to provide real-time dashboards for asset health is underway. The MAHI project was initiated in FY2020 with the implementation of a proof of concept (PoC). The PoC process created a trial environment based on selected assets. The MAHI dashboard tool will provide reports and visualisation of asset health scores based on Firstgas’ asset data and information.

Project Management Manual (PMM) upgrade

There was not a consistent and current project management framework for project managers to work to. The intention is that the PMM would set the overall project management approach for every project. The manual sets out the project management objectives, requirements and the business processes that are to be followed. A “how-to” for new employees or contractors and a quick reference for existing managers.

Figure 13: Gap analysis for Firstgas distribution



32. Maximo is Firstgas’ Enterprise Asset Management system.

3.3 PERFORMANCE OF THE DISTRIBUTION NETWORK

A key premise for the AMP is that existing reliability, safety and supply quality levels will be maintained and improved. We have set targets to help drive performance improvements and measure our progress in delivering reliable, safe and high-quality service (these targets are detailed in [Appendix H](#)). We have seen strong performance from the Distribution network for the last two years with meeting its key indicators, ensuring safe and reliable supply of gas.

To align with regulatory disclosures, the data presented below covers the year ending September 2019.

The table below refers to some of the key KPI's that we report on for Information Disclosure as part of the Commerce Commission requirements.

- Our KPI scores for FY2019 are reported in the first column of the table.
- The arrow direction compares data between FY2018 and FY2019, if there was an increase, decrease or steady trend. The arrow colour indicates how close is the KPI to the FY2021 target.

- The target column refers to the score we aim to achieve over the next 12 months.
- Poor pressure in the network relates to a number of unplanned incidents where delivery pressure drops due to some valve and service pipe defects such as corrosion on the aluminum sleeve of the service riser, valve seizing, contamination inside the pipeline during construction and after repairs. An annual audit is being carried out to identify and correct these issues.
- The number of non-compliant odour test relates to some sections of our piping when there is very little or no gas flowing especially during the summer period, which affects the odourant levels. We have identified an area in Waikato where it has been repeatedly non-compliant, and it is under investigation.

Additional information regarding our KPI's and targets is contained in [Appendix H](#).

Table 6: KPI for gas distribution network

KEY PERFORMANCE INDICATORS	2019	2021 TARGET	CURRENT TREND
Safety: Lost time injuries	0	0	▶
Response time to emergencies (within one hour)	95%	80%*	▲
Response time to emergencies (within three hours)	100%	100%*	▶
Number of complaints per customers	0.0002	0.0005	▼
Publicly reported gas escapes	34	53	▼
Third party damage	25	67	▼
Asset Management Maturity Assessment	2.8	3.0	▲
System Average Interruption Duration Index (SAIDI)	727	1,300	▼
Customer Average Interruption Duration Index (CAIDI)	83	152	▼
Poor pressure due to network causes	6	3	▲
Number of non-compliant odour tests	4	3	▲

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

4. YEAR AHEAD

This section sets out the areas of focus for Firstgas over the year commencing 1 October 2020, the fourth year of the 2017 – 2022 DPP period. We have three main focus areas:

- Replacing the remaining pre-1985 PE pipeline in our system.
- Continuing to implement growth projects to reinforce the network (adding capacity to meet customer growth)
- Meeting new connection requests from customers.

4.1 SIGNIFICANT ACTIVITIES FOR FY2021

Table 7 sets out the major activities we plan to undertake throughout FY2021.

The location of these significant projects is shown in Figure 14, and we outline each of these projects below. Greater detail on all significant projects can be found in [Appendix L](#).

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

Table 7: Significant projects for FY2021

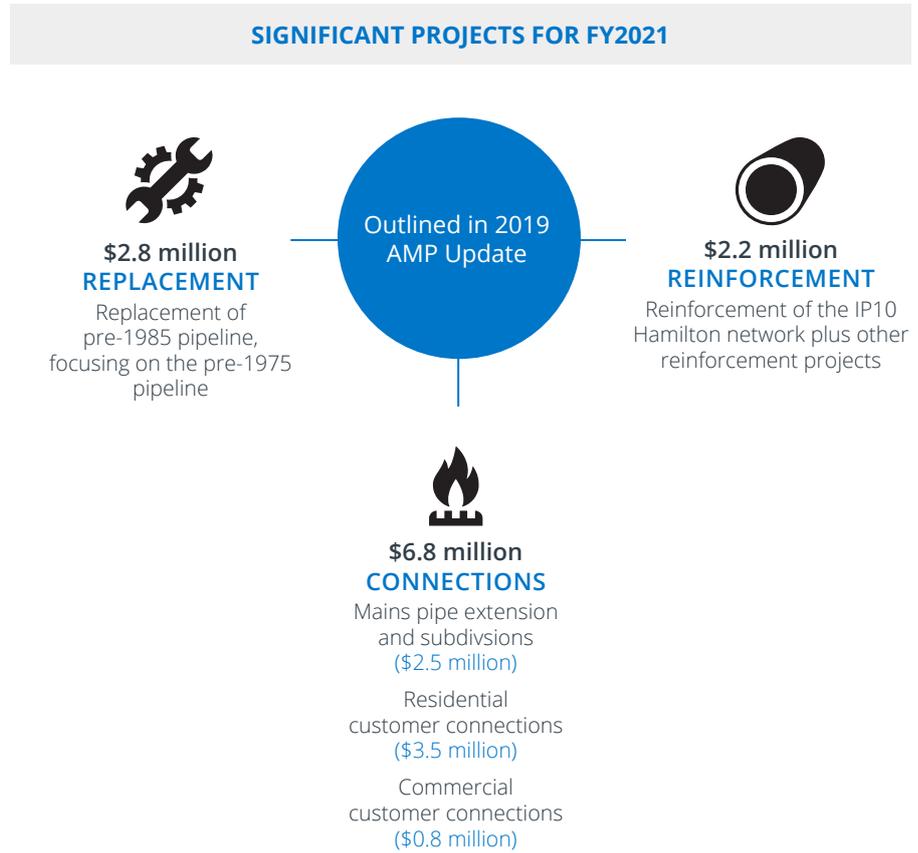
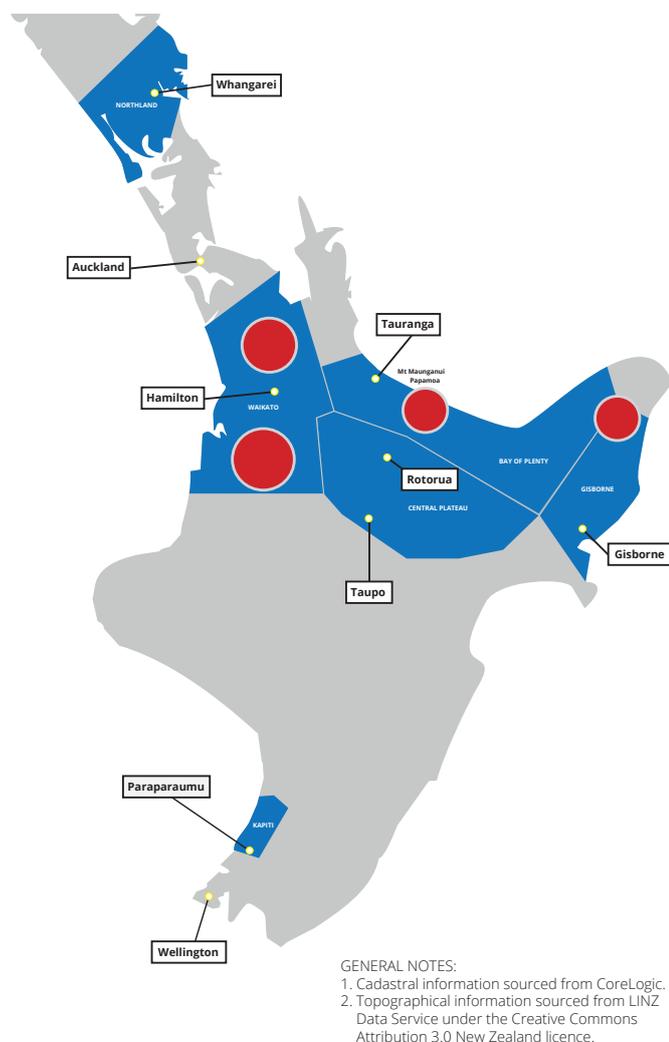


Figure 14: Location of significant projects for FY2021



Replacement of pre-1985 pipeline



As discussed above, Firstgas is continuing with our long-term programme of works to replace our pre-1985 polyethylene (PE) medium pressure mains pipe. In FY2021, we will be focusing works on the replacement of approximately two kilometres of pipe in Hamilton. This segment of pipeline was installed before 1975.

Firstgas continues to review and refine our understanding of risk factors for our pipe. Latest data indicates that the PE pipeline installed pre-1975 presents a more significant risk of failure in service. This is reflected in our fault analysis work, where pre-1975 pipe show a lower grade rating, as summarised below:

- Leakage trend analysis shows that this type of pipe causes up to five times more leakage from failed squeeze offs than post-1975 PE pipe. The high failure rate from the pre-1975 PE is likely because it is at the end of its useful life.
- The overall life estimate result from Oxidation Induction Time (OIT) shows our pre-1975 PE is 45.3 years old. The oldest pipe in the network was installed in 1973 and is approximately 46 years old.

Of the 101 kilometres of pre-1985 pipe identified on our distribution network as Grade 2, 38 kilometres is pre-1975 PE pipe. Our main programme of work over the next 5 years will focus on replacing pre-1975 pipeline. Between FY2020 and FY2021, we plan to replace about two kilometres of pipe in Hamilton that we have identified as presenting a potential safety risk to the public in the unlikely event of a gas leak.

Long-term, Firstgas will continue to monitor pipeline performance. Whilst our immediate focus is on the older pre-1975 pipe, we anticipate undertaking an ongoing replacement programme over the next 10 to 15 years to address the ageing pre 1975 – 1985 PE pipeline. Further detail on our pipeline assets is available in [Appendix E](#).

System growth



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

In FY2021, we have one major project around system growth. This project focuses on reinforcement work on the IP10 section of the Hamilton network. This work is required as customer growth in the area has meant there is no remaining capacity in the system.

The section of 100 NB IP10 pipeline located on the south eastern side of Hamilton can experience pressure drops potentially below the minimum operating pressure during the peak flow condition. This may occur more frequently as customer demand increases in the future. This limits capacity on the network and means that we are restricted to connect more customers in the south eastern side of Hamilton.

A number of options are currently being investigated to address this issue, in conjunction with other reinforcement work required in the Hamilton network.

New customer connections



We are committed to connecting as many customers to our network as possible. A large component (45%) of next year's Capex spend will continue to be allocated to connecting new customers and subdivision mains extensions. We are planning to continue to increase our number of new customers by connecting 1,800 new gas customers in FY2021.

Our work on extending our existing networks and/or constructing new networks to enable future connections will be determined by a scoping study. There are a number of large projects on the radar, located in Gisborne, Tauranga and Hamilton.

We are making several improvements for our customers to drive this expected increase:

- Firstgas is rolling out a geographical information system (GIS) tool. This tool speeds up the process of evaluating how easy it is to connect customers. We hope to take a week off the connection process by rolling out this tool.
- Firstgas has also expanded our marketing campaign. In FY2021, our priority will be to expand awareness of natural gas.
- During FY2021, we will also be focusing on engaging with existing customers, with the intention of decreasing the disconnection rate from our network. We hope to increase the net ICP gain per annum.

For further information on these sections please refer to section 6 on stakeholder engagement.

4.2 ASSET CONDITION (SCHEDULE 12A)

Schedule 12a (report on asset condition) that is included in [Appendix B](#) provides an overview of asset condition using the grading classifications prescribed by the Commerce Commission. Our asset management strategies and expenditure are targeted to addressing instances where the condition rating is falling below the required standard. Assessing asset condition is a dynamic process and gradings will change as the assets age or as specific issues are identified.

A summary of the work programmes where we have identified assets as being grade 2 (means material deterioration but asset condition still within serviceable life parameters. Intervention is likely required within 3 years) include:

- **Medium Pressure, PE mains** (3.3% classified as grade 2): Of the 101 kilometres of pre-1985 pipe identified on our distribution network as Grade 2, 38 kilometres is pre-1975 PE pipe. Our main programme of work over the next 5 years will focus on replacing pre-1975 pipeline.

- **Intermediate Pressure DRS** (4.9% classified as grade 2): Our DRS replacement/renewal programme targets the DRS that have technical or regulatory compliance issues. A programme is in place to replace/renew these assets over the next five years.
- **Medium Pressure, steel main** (7.3% classified as grade 2): This relates to our small carbon steel pipe that we intend to replace with PE pipes in locations where there is a high risk of delays in isolating the system for emergency situations, and the number of service connections that will be affected by the outage. A programme is in place to replace the steel pipe over the next five years.

Further detail on the condition, risks and issues, and planned activities can be found in [Appendix E](#).

4.3 ASSET MANAGEMENT IMPROVEMENT PROGRAMME

Our Asset Management Maturity Assessment Tool (AMMAT)³³ gap analysis and other external and internal reviews demonstrate that while Firstgas has improved in a number of areas since the last AMMAT in 2018, we still have opportunities for improvement. Our asset management improvement programme going forward includes a number of initiatives aimed at achieving these improvements and optimising the long-term performance of our assets. These initiatives include the following areas.

Maturing our risk management system and asset health

As part of our drive to improve the way we use and communicate asset health, Firstgas is developing a risk management system that evaluates and compares the different risks that the business is exposed to and translates them into a single risk profile that will provide an overall asset health index.

The Maximo Asset Health Insights (MAHI) will support the business in making an informed decision on where to spend its effort and investments to the areas where it is necessary to support the safe, reliable and efficient operation of plant and equipment. The business requires a method by which a centralised, transparent view of asset health to improve the way that asset health and criticality information is used and communicated.

Firstgas and Certus have worked collaboratively in developing a Proof of Concept, as mentioned above in section 3.2. This project aims to deliver benefits in the form of business improvements that are realisable and measurable.

Much work has been going on in the last few months completing MAHI, which covers establishing a Proof of Concept environment, build, test and audit of health rules on selected assets. Figure 15 shows a dashboard that demonstrated health insights at station level correlated to Maximo.

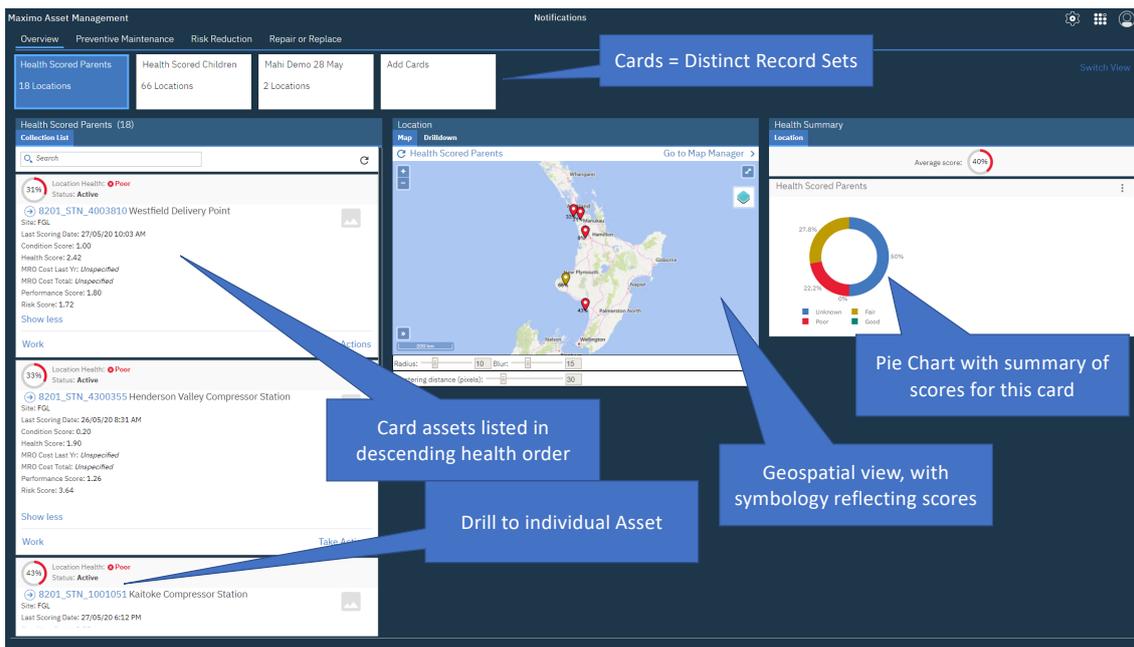
33. See [Appendix B](#) for further detail.

Embedding and evolving the Asset Management system

We intend to embed and further develop our overall asset management framework, asset management system elements, and ensure our documentation more closely aligns with ISO 55000 (International standard for Asset Management). Key elements of this system include:

- Asset Management plans
- Capital expenditure
- Maintenance optimisation
- Asset risk
- Planning and scheduling
- Project management.

Figure 15: Maximo Asset Health Insights (MAHI) dashboard



5. EXPENDITURE FORECASTS

As Firstgas is improving our asset management approaches and systems, we are gaining a greater understanding of our risk profile and where we need to allocate our funding. Over the last few months, we have also had a critical review of our expenditure and delivery forecasts of our capital works plan due to the longer-term effects of COVID-19 virus. Subsequently, we have made some adjustments to our planned expenditure profiles to create a more stable expenditure profile and allow for better resource planning over the remainder of this DPP period.

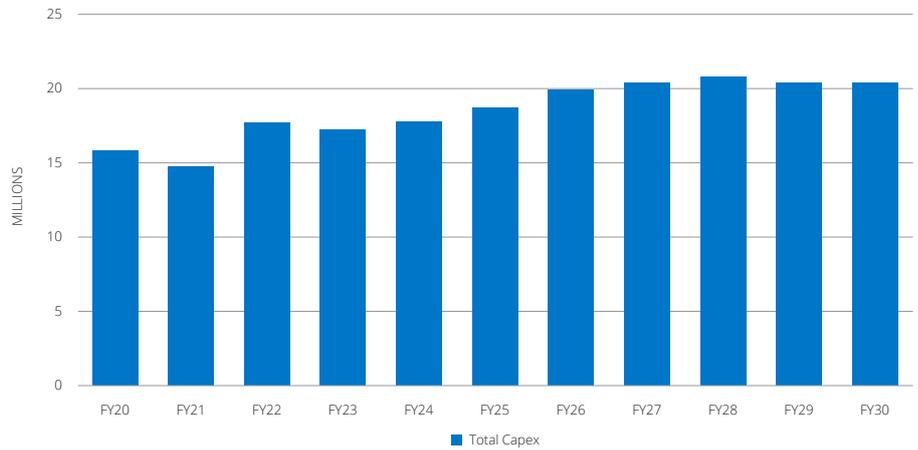
5.1 CAPEX FORECAST

Our forecast Capex spend over the next ten years is set out in Figure 16.

Within the current DPP period, the variance and lift in the Capex profile (relative to the 2019 AMP Update) relates to:

- A forecast of a \$24.2 million overspend of Capex against the allowable expenditure in the current regulatory period. This is attributed to an increase in capital spend for consumer connections, and adjustments to forecast costs to reflect the true cost of connection activity going forward.
- The reinforcement projects for the last 2 – 3 years on most of our heavy utilised networks have noticeably improved the quality of supply and flow capacity. This means these networks (e.g. Cambridge IP20, Waitoa MP4, Paraparaumu IP20) are no longer heavily utilised and reinforcement works are not currently required.
- The increase in expenditure trend relates to our continued network growth and customer connections we are planning to undertake throughout the 10 year planning period.

Figure 16: Total Capex forecast for the planning period (all figures in FY2020 prices)



Largest Capex projects going forward

This is the second year we have elected to include within our AMP the high-level heat map that shows the largest Capex projects planned for the next ten years (FY2021 to FY2030). This heat map is part of the related party transaction information disclosure requirements, that were announced by the Commission in December 2017 (see section 2.6). Figure 17 sets out the location of the largest projects, and these are summarised in Table 8. Further information on each of these projects is included in [Appendix J](#).

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 in 2016 and will be reviewed before September 2022.

The map to the right 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 to according to our processes to develop more accurate forecasts and delivery schedules. The activities will form part of the Information Disclosure requirements for March 2021.

All projects listed in Table 8 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.

Figure 17: Largest Capex projects

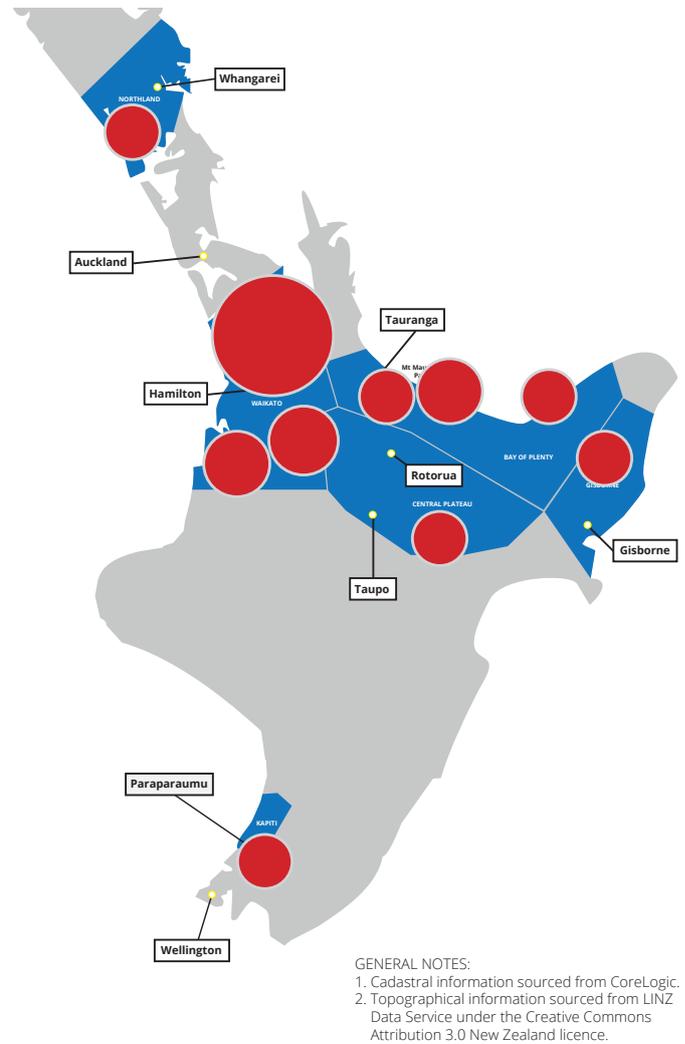


Table 8: Description of largest Capex projects

PROJECT	DESCRIPTION	REGION	COST (CONSTANT \$)	PERIOD
Pre-1985 replacement programme	As discussed in section 4.1, replacement of pre-1985 PE pipe will occur throughout the planning period	Waikato, Hamilton (\$25 million) Bay of Plenty (\$2 million) Kapiti Coast (\$2 million) Central Plateau (\$1 million)	\$30 million	Across the period
Hamilton network reinforcement	To address growth in demand in the area, we are currently reviewing the proposed load growth scenarios through modelling of the Hamilton network to determine the ideal options and timing	Hamilton	\$1.5 million	FY2021 – FY2022
Mt. Maunganui IP reinforcement	To enhance network security, we are planning to create IP20 pipeline loops in this area	Bay of Plenty	\$2.5 million	FY2024 – FY2026
Mains and subdivision urban growth	To address anticipated urban growth development plan for Hamilton, Tauranga and other areas	Hamilton, Tauranga	\$35 million	Across the period
Industrial / commercial connections	There are a number of large projects on the radar in our network.	Gisborne, Tauranga	\$1.5 million	FY2021-FY2023

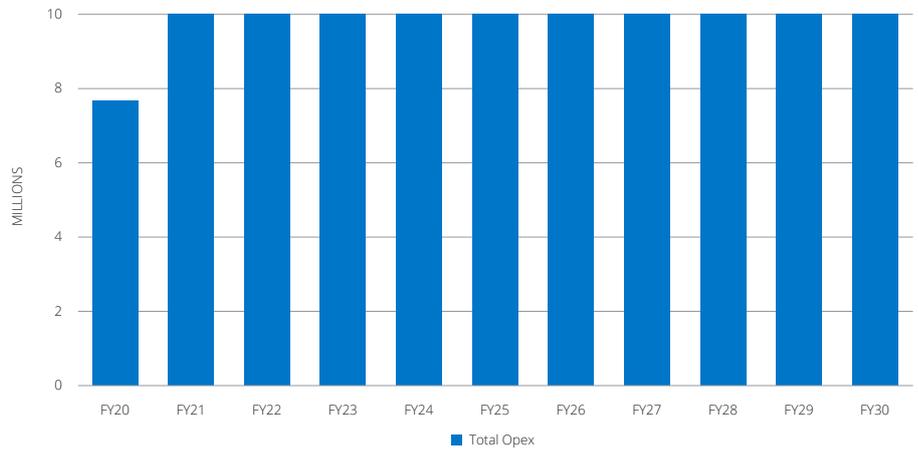
5.2 OPEX FORECAST

The forecast Opex over the planning period is set out in Figure 18.

The increase in costs from those detailed in the 2019 AMP relate to:

- Higher premiums following the latest annual insurance renewal process.
- Increased communication and data line charges, as we move the core IS systems to the cloud data centres.
- A lift in marketing programmes to drive new customer connections.
- Costs associated with strategic R&D programmes.

Figure 18: Total operational expenditure



Largest Opex spend categories going forward

This is the second year we have elected to include within our AMP the high-level heat map that shows the largest Opex projects planned for the next ten years (FY2021 to FY2030). This heat map is part of the related party transaction information disclosure requirements, that were announced by the Commission in December 2017.

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 19 sets out the location of the planned Opex spend, with greater detail in Table 9.

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 (O&M) agreement between Firstgas and GSNZ. This O&M agreement was entered into in 2016 and will be reviewed before September 2022.

A breakdown of the Opex by region is provided in in Table 9 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.

Figure 19: Largest Opex spend

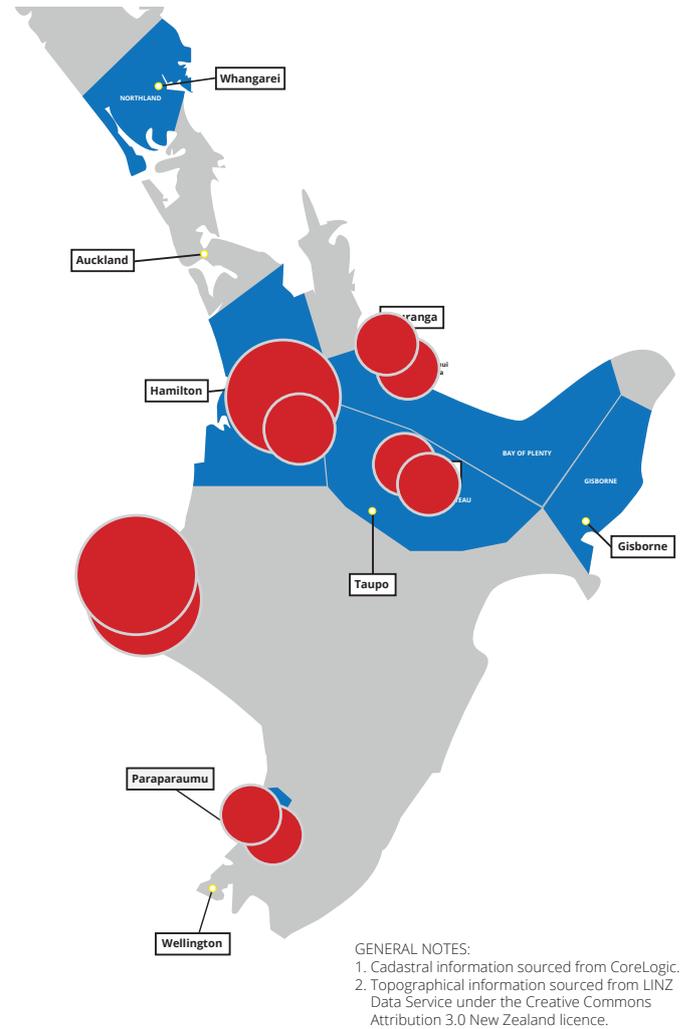


Table 9: Description of largest Opex spend categories

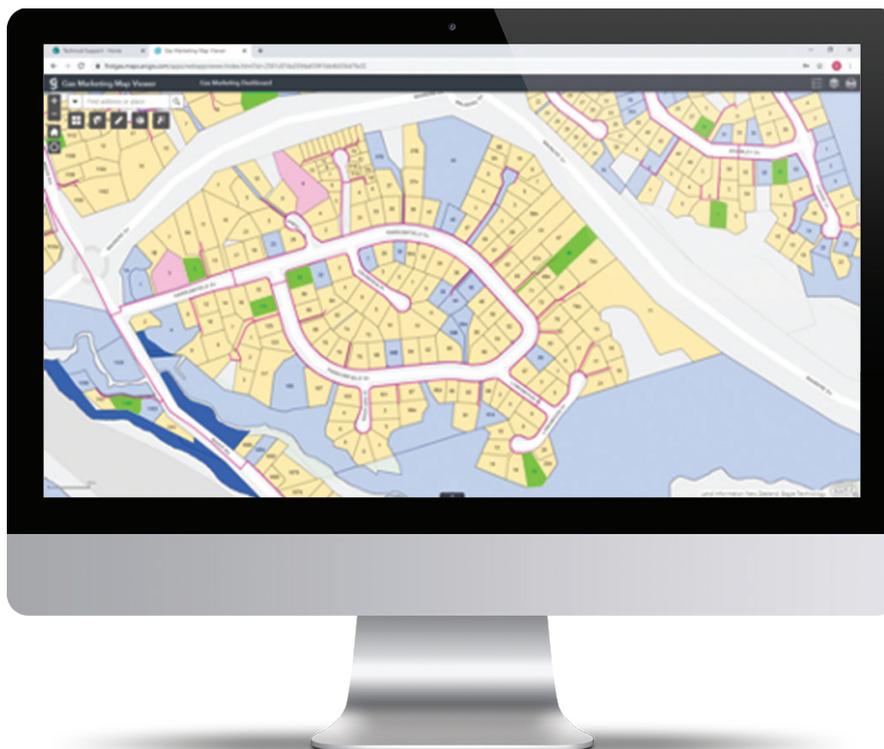
PROJECT	DESCRIPTION	REGION	COST (CONSTANT \$)	PERIOD
Service interruptions, incidents and emergencies	Ongoing costs to support reactive activities in terms of safety response and repair of any part of asset damaged from environmental factors or third-party interference, response to any fault at a station where safety or supply integrity could be compromised, and remediation or isolation works of unsafe network situations.	Waikato (\$12 million) Bay of Plenty (\$5 million) Central Plateau (\$5 million) Kapiti Coast (\$5 million) Northland (\$1.5 million) Gisborne (\$1.5 million)	\$31 million	Across the period
Routine and corrective maintenance and inspection	Ongoing costs directly associated with operating and maintaining the Gas Distribution System.	Waikato (\$8 million) Bay of Plenty (\$3 million) Central Plateau (\$3 million) Kapiti Coast (\$3 million) Northland (\$1.5 million) Gisborne (\$1.5 million)	\$20 million	Across the period
System operations and network support	Ongoing costs to support the management and operation of the network.	New Plymouth	\$16 million	Across the period
Business support	Ongoing costs to support distribution operations.	New Plymouth	\$18 million	Across the period

6. STAKEHOLDER ENGAGEMENT

Firstgas continues to engage with retailers, industry stakeholders and end users to ensure we maintain positive and productive relationships. Over the past year we have undertaken several stakeholder engagement activities, including:

- Work continues on updating our **use of system agreement** (UoSA) with retailers. To date, a draft has been distributed to retailers and we are working through feedback. Significant work was done on the draft prior to releasing it to retailers, to create a template agreement that was well aligned with industry standards. Retailer feedback has been in line with expectations.
- As recognition of a more difficult market environment due to COVID-19 impacts, Firstgas offered retailers **deferred payment support** for the fixed component of distribution fees for three invoice months (April – June 2020) to be paid back over the successive nine months (July 2020 through to March 2021). This was offered directly to assist retailer cashflows.
- We are also working with our customers to understand and **reduce disconnections** from our network. For example, we are currently in discussions with Kainga Ora to look at how we can support continued gas use in the social housing sector. All other disconnections are assessed on a case by case basis to verify if a new connection will follow. These are identified between both Firstgas and Electrix.
- We have made a **GIS-based marketing tool** available for external use. Prior to this launch, external parties were limited to a more basic offering available on the Firstgas website. To date, this marketing tool has predominantly been offered to gasfitters and builders to assist with frequent location queries. The web based tool assists with identifying the location of the distribution network relative to a property and highlights the gas status of properties assisting with future marketing campaigns.
- The last 12 months has seen a significant increase in the level of Firstgas **marketing activity** undertaken, much of which has been actioned online. This marketing was focused on increasing awareness and connection interest within the residential mains fronted market.
- Such online activity included using mains fronted information in conjunction with the property-based website www.homes.co.nz. When an end user performs an individual address search via the property website, if the queried property is fronting a gas main but not connected, then a prompt appears on the screen highlighting a possible free connection and encouraging an online application.
- We continue to participate within industry forums such as the New Zealand Utilities Access Group, Gas Association of New Zealand (GANZ) and Motor Industry Training Organisation (MITO) Industry Training. Firstgas sees significant benefits from this contribution and working collectively with industry partners.

Figure 20: GIS Marketing Viewer



Note: colour coding highlights gas status of property

6.1 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.

