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FOREWORD

Dear Stakeholders

Welcome to the First Gas Limited Asset Management Plan (AMP) update for our gas distribution business for 2017.

This year we have elected to provide an update to our 2016 AMP, highlighting the material changes to our network since the publication of our full AMP. We have also taken the opportunity to reflect on our achievements over the last year and our priorities moving forward.

2016 was a significant year for First Gas, as we established our gas distribution business and began implementing our company's growth strategy – through both increased customer connections and expanding the reach of our networks. We have also focused on promoting the benefits of reticulated natural gas and making it a fuel of choice for our customers.

First Gas is proud of the achievements made over the last year – the successful completion of the Titanium Park development within a 12-month period, and the acquisition and commissioning of distribution assets in Papamoa. Like other gas distribution networks across the North Island, we have seen significant growth in new connections above historic levels. We believe that this demand for new connections reflects an increasing consumer awareness of the value that gas provides to households and businesses. We have also completed a considerable capital programme to reinforce our networks and ensure that we are well positioned to deliver future growth.

The year ahead will see further reinforcement work undertaken on our distribution networks and effort made to remove the barriers and streamline the process for customers connecting to our networks. It will also be the first year for First Gas under the recently reset Default Price-Quality Path (DPP) for 2017 – 2022. We have worked with the

Commerce Commission to discuss the rationale for our proposed expenditure and will now focus on working within the weighted average price cap set for the coming year. We have appreciated the positive interaction we have had with the Commerce Commission staff throughout the DPP consultation process.

We have taken on board your feedback about what you would like to see in our asset management plans and what information about our distribution networks is important to you. We have sought to simplify the information contained in this AMP update and highlight the material areas of interest, while also meeting our regulatory obligations.

We would welcome your feedback on this approach and intend to continue regular engagement with our customers and stakeholders throughout the year.

We look forward to continuing to work with you over the coming year.



Paul Goodeve
Chief Executive



GLOSSARY

TERM	DEFINITION
AMP	Asset Management Plan
Capex	Capital expenditure – expenditure used to create new assets or upgrade physical assets in the network
Commission	Commerce Commission
DMS	Document management system
DPP	Default Price-Quality Path
DRS	District regulating stations
FY18	Financial year ending 30 September 2018
GIS	Geographical information system
GM	General Manager
HSE	Health, Safety and Environment
ID	Information disclosure – requirements set by the Commerce Commission

TERM	DEFINITION
IP	Intermediate pressure
kPa	Kilo-Pascal, a unit of pressure
MAOP	Maximum Allowable Operating Pressure
MP	Medium pressure
NOP	Nominal Operating Pressure
Opex	Operational expenditure – the ongoing costs directly associated with running the gas transmission system.
PE	Polyethylene
PJ	Petajoule, a unit of energy
RTE	Response time to emergencies
scm/h	Standard cubic metres per hour
TJ	Terajoule, a unit of energy

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1. INTRODUCTION

This document updates the Gas Distribution Asset Management Plan (AMP)¹ released by First Gas Limited (First Gas) on 1 October 2016.

The 2016 AMP was our first formal asset management disclosure since we purchased the non-Auckland gas distribution assets of Vector Limited in April 2016. This AMP update supplements our first AMP and outlines the material changes that have been made to our asset management plans over the past 12 months.

This section outlines the purpose of First Gas' AMP update, provides an overview of our gas distribution networks, and outlines the key changes in the regulatory and external environment impacting on our gas distribution business.

1.1 PURPOSE OF THE AMP UPDATE

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

In addition, we are using this opportunity to update all our stakeholders and customers on our progress against the plans stated in the 2016 AMP, and to outline our focus areas for the year ahead. We see the release of this document as one part of our ongoing engagement with our customers, and it provides an important way for our customers to evaluate the value being delivered by our capital programme.

AMP update aligned with regulatory requirements

The material disclosed in this AMP update meets the requirements set out in the Commerce Commission's Gas Distribution Information Disclosure Determination 2012 (ID Determination).² As specified in clause 2.6.5, our AMP update must:

- 1) *"Relate to the gas distribution services supplied by the GDB;*
- 2) *Identify any material changes to the network development plans disclosed in the last AMP under clause 12 of Attachment A or in the last AMP update disclosed under this clause 2.6.5;*
- 3) *Identify any material changes to the lifecycle asset management (maintenance and renewal) plans disclosed in the last AMP pursuant to clause 13 of Attachment A or in the last AMP update disclosed under this clause;*
- 4) *Provide the reasons for any material changes to the previous disclosures in the Report on Forecast Capital Expenditure set out in Schedule 11a and Report on Forecast Operational Expenditure set out in Schedule 11b;*
- 5) *Identify any changes to the asset management practices of the GDB that would affect a Schedule 13 Report on Asset Management Maturity disclosure; and*
- 6) *Contain the information set out in the schedules described in 2.6.6 [Schedules 11a, 11b, 12a, 12b and 12c]".*

For a complete understanding of the basis for our asset management decisions over the planning period, we recommend that this AMP update be read in conjunction with our 2016 AMP.

Period covered by AMP update

First Gas' AMP update covers the ten-year period from 1 October 2017 through to 30 September 2027 (the planning period), and covers all of our distribution networks across Northland, Waikato, the Central Plateau, Bay of Plenty, Gisborne and Kapiti.

First Gas follows a 1 October to 30 September financial year and all regulatory, asset management and financial reporting is carried out on this basis. All First Gas' expenditure forecasts and planned projects over the ten-year planning period are based on analysis of our customer, system and asset information.

This AMP update was approved by our Board of Directors on 6 September 2017. First Gas will prepare a full AMP for both our gas distribution and transmission businesses next year, for publication in September 2018.

1. Gas Distribution Asset Management Plan 2016, First Gas Limited, http://firstgas.co.nz/wp-content/uploads/FGL_distribution_2016_asset_management_plan.pdf

2. Clauses 2.6.3 to 2.6.5, Gas Distribution Information Disclosure Determination 2012 (consolidated in 2015) – 24 March 2015, Commerce Commission, <http://www.comcom.govt.nz/regulated-industries/gas-pipelines/key-information-gas/>.

Structure of the AMP update

This AMP update includes the following information:

Section 1	Introduction <ul style="list-style-type: none">Update on the gas distribution networksChanges in regulatory and external factors
Section 2	The year in review (1 October 2016 to 30 September 2017) <ul style="list-style-type: none">Comparisons against plans set out in the 2016 AMPSignificant projects and achievements
Section 3	Year ahead for our gas distribution business <ul style="list-style-type: none">Significant projects and initiatives
Section 4	Engagement with stakeholders
Section 5	Updates to Capex and Opex forecasts
Appendices	<ul style="list-style-type: none">Summary table of material changesInformation disclosure schedulesDirector certificate

For all background information on our gas distribution business, please refer to our 2016 Gas Distribution AMP which can be accessed on our website [here](#).

For information on our gas transmission business, please refer to our 2017 Gas Transmission AMP Update and our 2016 Gas Transmission AMP which can be accessed on our website [here](#).

1.2 GAS DISTRIBUTION NETWORKS

The First Gas distribution business incorporates gas distribution networks across the Northland, Waikato, the Central Plateau, Bay of Plenty, Gisborne and Kapiti regions of the North Island, as highlighted in blue in Figure 1 below. We provide gas distribution services to retailers who sell gas to approximately 62,000 residential, commercial and industrial customers. We are the third largest gas distributor in New Zealand and supply one in five of the country's gas customers.

Figure 1: First Gas distribution networks



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

The key statistics for our gas distribution networks, as at 31 May 2017, are set out in Table 1.

Table 1: Key statistics for the distribution networks (as at 31 May 2017)

STATISTIC	VALUE	CHANGE FROM 2016
Consumers connected	62,305	+1.3%
System length (km)	4,575	+1.7%
Consumer density (consumer/km)	13.6	-0.7%
District regulating stations (DRS)	125	-3.1%
DRS density (system km/DRS)	36.6	+4.9%
DRS utilisation (consumers/DRS)	498	+4.4%
Peak loads (scm/h)	48,188	-2.5%
Gas conveyed (PJ pa)	9.0	-6.25%

The key changes in the gas distribution network since the 2016 AMP relate to:

- The acquisition of gas distribution pipelines in Papamoa, Bay of Plenty;
- The completion of the Titanium Park development in the Waikato; and
- Growth in customer connections.

For a full overview of the gas distribution networks, please refer to section 3 of our 2016 gas distribution AMP.

1.3 CHANGES IN REGULATORY SETTINGS AND EXTERNAL ENVIRONMENT

This section provides a brief overview of the changes in the regulatory environment resulting from the recent reset of the Default Price-Quality Path (DPP) for our gas distribution business. We also discuss the role of gas within government's climate change policy and the increased focus on reducing greenhouse gases.

Reset of Default Price-Quality Path

On 31 May 2017, the Commerce Commission published its final decision³ to reset the prices and quality standards for gas pipeline businesses for the period from 1 October 2017 to 30 September 2022.

The Commission's final DPP decision equates to a 20% reduction in revenue for our gas distribution business. The Commission approved most of our forecast Capex and Opex for our gas distribution business, with an agreed reduction in customer connection capex to align with the Commission's expectation of forecast customer growth.⁴

Table 2 summarises the key decisions from the DPP reset for 2017 – 2022.

Table 2: Key decisions from DPP reset

ITEM	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	TOTAL
Maximum allowable revenue for distribution (\$million)	22	23	23	24	25	117
Opex (\$million)	7.1	7.1	7.1	7.0	7.0	35.3
Capex (\$million)	11.3	8.7	10.0	10.0	10.5	50.5

Alongside the reset of prices, the Commission has confirmed that it will be maintaining the **existing quality standard** relating to Response Time to Emergencies (RTE). Gas distribution businesses must ensure that:

- At least 80% emergencies are responded to within 60 minutes; and
- The RTE to any emergency must not exceed 180 minutes.⁵

3. The Commerce Commission's final decision can be found on its website here: <http://www.comcom.govt.nz/regulated-industries/gas-pipelines/gas-default-price-quality-path/2017-2022-gas-dpp/>

4. First Gas proposed, and the Commission accepted, a reduction in our proposed customer connection capex to align with the Commission's Constant Price Revenue Growth (CPRG). Please see First Gas' 31 May 2017 submission to the Commission for further background information: <http://www.comcom.govt.nz/regulated-industries/gas-pipelines/gas-default-price-quality-path/2017-2022-gas-dpp/>

5. Clause 9.1, Gas distribution services default-price quality path determination 2017.

Impact of Commission's decisions

The final DPP reset decision provides First Gas with certainty of funding for our activities over the next five years, and the expenditure allowances will enable First Gas to plan and prioritise activities to ensure the level of service is maintained throughout the planning period. The continued application of a weighted average price cap for gas distribution businesses also provides a strong incentive for us to invest in meeting consumer demand for new connections.

It is important to note that the DPP reset decision does not dictate how regulated businesses will spend their revenue allowance. While the DPP is based on forecasts of category-level expenditure, First Gas can and will reallocate its resources to respond to changes within the regulatory period. These actual decisions around funding against forecast levels in the AMP will be disclosed to stakeholders via our annual information disclosures, AMPs, and other stakeholder communications.

Learnings from robust assessment process

The Commission's DPP reset decisions were informed by a robust assessment of the First Gas' 2016 AMP, supplemented by requests for additional information from First Gas during the consultation process. We consider that this process helped to test our areas of planned expenditure and improve how we explain our plans for the gas distributions networks. These learnings will be reflected in our future disclosures and stakeholder engagement.

Role of gas in climate change focused world

There has been increasing focus on climate change over the last decade, particularly with the recent signing of the Paris climate change agreement (COP21) by 195 countries across the world. Here in New Zealand, there is a continued commitment to reducing greenhouse gases, with the Government's Emissions Trading Scheme (NZ ETS) and the release of the updated New Zealand Energy Efficiency and Conservation Strategy.⁶

First Gas remains committed to promoting the benefits that reticulated natural gas can bring as a transitional fuel to a low carbon economy, and the benefits provided by the direct use of natural gas. While gas is a fossil fuel, we strongly believe that it has an important role to play in reducing emissions by substituting for higher emission fuels, such as coal and diesel.

We also support the energy efficiency benefits that are possible from coal to gas conversions for industrial processes, and consider that gas-fired generation plays a complementary role with New Zealand's predominantly renewable-sourced electricity system.



◀ *First Gas advertising material for gas connections in new subdivisions*

6. <http://www.mbie.govt.nz/info-services/sectors-industries/energy/energy-strategies/?searchterm=NZEECs%2A>

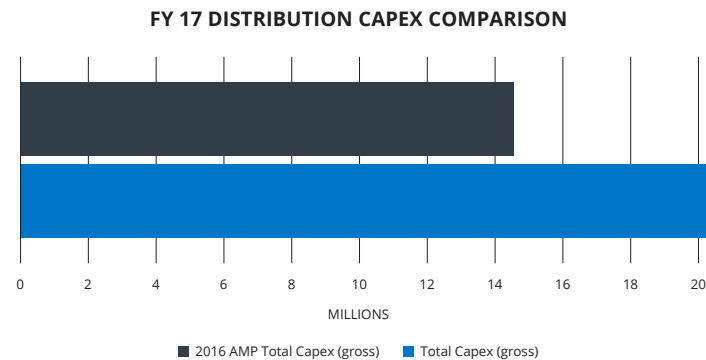
2. YEAR IN REVIEW

This section provides an overview of First Gas' major projects over the prior year ending 30 September 2017. We review our forecast expenditure against the plans stated in our 2016 AMP, and discuss the variances in activities undertaken.

2.1 EXPENDITURE SUMMARY

Figure 2 outlines our actual expenditure for the year ended 30 September 2017 and compares actual expenditures to the forecasts presented in our 2016 AMP. Not all project capex costs shown will be commissioned during FY17 and added to the regulatory asset base (RAB) in the current year.⁷

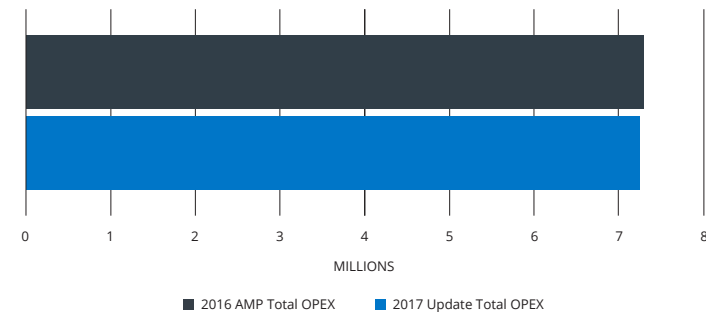
Figure 2: Expenditure in 2016/17 versus forecast expenditure in 2016 AMP



Major capex variances relate to:

- Titanium Park development in Waikato (\$3.5 million), which was not included within our 2016 AMP
- Acquisition of GasNet's Papamoa distribution assets

FY 17 TRANSMISSION OPEX COMPARISON



7. The expenditure in these graphs has not been audited. The final audited figures will be disclosed in our Information Disclosure.

2.2. SIGNIFICANT PROJECTS

The last year has been a significant year for the company as we have established the business and started deploying our strategy to expand our network and connect more customers to reticulated natural gas. Table 3 outlines the most significant projects that were delivered as part of the distribution capital works plan during the last year.

Most of these projects were identified in our 2016 AMP, with the scope and justification provided for each individual project. There were, however, two additional projects that were added to First Gas' work plan during the year to support growth in customer connections.

Table 3: Significant projects completed in 2017/18

SIGNIFICANT PROJECTS		
Construction of 14.6 km pipeline to support Titanium Park development (section 2.3 below)	\$3.5 million	Not listed in 2016 AMP
Acquisition and commissioning of GasNet's Papamoa distribution assets (section 2.4 below)	Commercially sensitive	
Reinforcement of our existing distribution networks (section 2.5 below)		
– Programme to replace pre-1985 PE pipes	\$1.0 million	Not signalled in 2016 AMP
– Reinforcement of Hamilton intermediate pressure network and upgrading DRS's	\$1.4 million	
– Reinforcement of the Paraparaumu network and replacement of the DRS	\$0.7 million	
– Extension of Waikanae pipeline	\$0.5 million	

We discuss these significant projects below, as well as the company's focus on network growth (section 2.6), and transitioning of our IT systems (section 2.7) to support our gas distribution business.

2.3. DELIVERY OF TITANIUM PARK

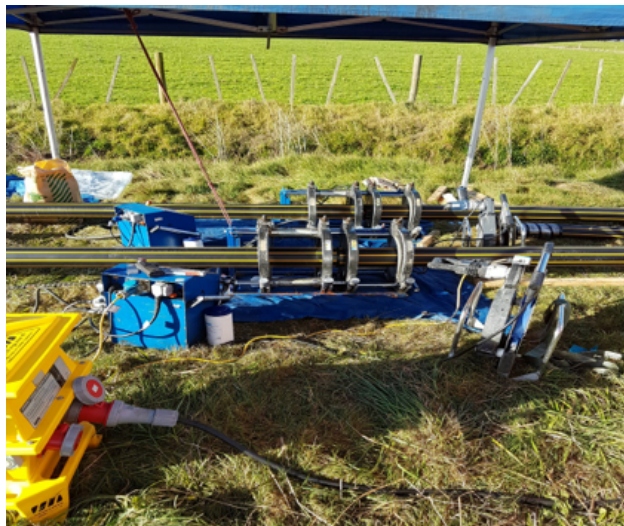
A key achievement last year was the delivery of gas infrastructure to Titanium Park, near Hamilton Airport. This required the construction of a 14.6 kilometre, 160 mm MP 700 kPa pipeline that will supply a substantial new industrial load (VISY Packaging). This pipeline was first conceived, designed and built all within the 2017 financial year, therefore was not mentioned in our 2016 gas distribution AMP:

- First Gas was first notified of a potential industrial load in 10 October 2016, with the developer seeking an indicative cost from First Gas;
- Preliminary network modelling was completed by First Gas' transmission and distribution teams in November and December 2016 to determine feasibility of supply options, in case the load progressed;
- On 16 December 2016, the Developer confirms that purchase of land likely to proceed, contingent on the delivery of natural gas by mid-September 2017;
- In January 2017, draft agreements were provided to VISY Packaging and Titanium Developments Limited to agree scope of the project and secure confirmation from both parties; and
- The First Gas Board approved the commencement of the project on 1 March 2017.

The pipeline feeds the industrial facility from the existing MP 700 kPa pipeline on Collins Road in Hamilton, with the pipeline becoming part of the Greater Hamilton network. We have built the pipeline with sufficient capacity to serve approximately double the load of the industrial facility. This will provide First Gas with network options for servicing additional loads in the area, as well as potential reinforcement considerations for the southern suburbs of Hamilton. To date, we have an additional business load signed up to connect to the pipeline, and a number of residential customers within proximity to the pipe have expressed interest in connecting.

First Gas considers it prudent to install a pipeline with additional capacity, due to the minimal incremental cost of an increased pipe size compared with the substantial costs that would be involved if a second pipeline was required to be run parallel to satisfy future loads south of Hamilton City. As additional connections are made to this pipeline it will drive economies of scale and reduce the cost to serve customers in this area.

The Titanium Park project was a key achievement for First Gas, and demonstrates our commitment to respond and deliver on customer requests within tight timeframes.



◀ This picture shows a polyethylene butt fusion piece of equipment commonly used for joining sections of PE pipe together.

2.4. ACQUISITION OF PAPAMOA NETWORK

In February 2017, First Gas took ownership of gas distribution assets in Papamoa that had been constructed by GasNet Limited (the gas distributor in Whanganui). Figure 3 below provides a schematic of the Papamoa network.

The purchase incorporated a District Regulator Station (DRS), 450 metres of steel distribution pipe and 9 kilometres of PE pipes servicing new housing developments in Papamoa (near Tauranga). None of the assets had been commissioned at time of purchase. First Gas has subsequently commissioned the assets and further developed gas infrastructure in the Papamoa area to keep pace with housing and commercial developments in the area.⁸ The purchase was not identified in the 2016 AMP, but was considered by the Commerce Commission in its final DPP determination.

8. Further housing developments are planned for this area over the next 10 years.

Figure 3: Papamoa gas distribution network



▲ Location of First Gas' existing distribution network and recently acquired GasNet distribution assets.

This acquisition is consistent with our desire to give consumers the choice of reticulated natural gas in the areas that we serve. Other initiatives that we have implemented that are consistent with this strategy include offering free household connections (for households within 20 metres of our networks) and not requiring capital contributions from developers in certain circumstances.



◀ The picture shows gas distribution mains construction at new Papamoa development sites.

2.5. REINFORCING OUR DISTRIBUTION NETWORKS

First Gas has focused on several reinforcement projects that improve the security and reliability of our gas distribution networks and improve the quality of the gas service to customers.

Replacement of pre-1985 PE pipes⁹

Over the last year, First Gas has undertaken a programme of work to replace pre-1985 pipe across its distribution networks to reduce the risk of gas escapes and potential interruption for customers.

As outlined in our 2016 AMP,¹⁰ Polyethylene (PE) pipe manufactured up to the mid-1980s is known to be susceptible to premature brittle-like fractures, particularly in locations where the pipe has been squeezed off to undertake repairs or commission mains extensions.¹¹

9. See section 6.5.1 of 2016 gas distribution AMP for further details.

10. Page 76 – 77, 2016 Gas Distribution Asset Management Plan, First Gas Limited, http://firstgas.co.nz/wp-content/uploads/FGL_distribution_2016_asset_management_plan.pdf

11. PE pipe manufactured after the mid 1980's does not exhibit the same failure characteristics.

The majority of this pre-1985 PE pipe is located within our Hamilton distribution network.

First Gas has undertaken an initial risk assessment that has identified a prioritised list of replacement sections, where the potential for harm is the greatest. This has informed the programme of work undertaken during the last year, which has seen the replacement of 1.86 kilometre of pre-1985 PE pipe during 2016/17. We have also modified our “squeeze off” procedures for pipes to reduce the risk of failures.

Reinforcement of the Hamilton IP network¹²

The first phase of a two-phase work programme was completed on the Hamilton intermediate pressure (IP) network last year, to ensure that the system can meet future forecast demand¹³ without breaching our published system security criteria.

This first phase involved:

- Hydrostatically testing the section of IP 1,000 kPa distribution main between Te Kowhai gate station and Wairere Drive to confirm if it is suitable to be operated at a pressure of 1,960 kPa; and
- Upgrading two associated DRS's to enable them to operate at the increased pressure reliably. Phase 2 of this programme will be completed during FY18.



◀ The picture shows a typical district regulator station in an above ground enclosure.

12. See section 5.8.3 of 2016 gas distribution AMP for further details.

13. As determined through network modelling analysis undertaken by First Gas.

Once the second phase of work is completed, this work will increase the system available capacity and ensure that the minimum operating pressure is maintained at an acceptable level for consumers.

Reinforcement of Paraparaumu network¹⁴

Reinforcement work has been undertaken on the Paraparaumu network and a DRS replaced, to ensure that First Gas can safely operate the pipeline and station at a pressure of 1,350 KPa and that the equipment is compliant with nationally recognised standards.

The IP pipeline at Paraparaumu had been operating at a pressure exceeding the original MAOP, on the basis that the pipeline had been pneumatically tested to allow this. However, due to standard revisions this practice is no longer supported, and First Gas completed additional testing to ensure full compliance against the revised standards.

During the year, First Gas tested the pipeline appropriately and the operating pressure of 1,350 kPa was confirmed by hydrostatic pressure testing. Additionally, the DRS inside the Paraparaumu gate station was replaced.



◀ The picture shows a planned hydrotest of the distribution system to confirm the allowed operating pressure.

14. See section F.39 of 2016 gas distribution AMP for further details.

Waikanae pipeline extension¹⁵

The extension of the Waikanae pipeline is a three-phase project required to mitigate a breach of the system security minimum pressure limit.

During a severely cold winter period, the system pressure at Waikanae reduced to 35% of the nominal operating pressure (NOP). First Gas distribution network standards state that a minimum of 50% of the NOP must be maintained. Population in the Waikanae area is also expected to see strong continued growth for the foreseeable future, which will increase demand and further reduce NOP.

Network analysis modelling of the distribution system has indicated that to support this observed growth and maintain the security of supply, a new 2.6 kilometre reinforcement pipeline needs to be installed between Waikanae and Paraparaumu. Phase 1 of this work was completed over the last year. We are now planning the execution of the two later phases, which will involve:

- Two new DRS's installed during phase two in FY18; and
- Phase three completing the work with a new MP 400 kPa pipeline in FY19.

2.6. SIGNIFICANT GROWTH IN NEW CONNECTIONS

As a solely gas-focused infrastructure company, First Gas has a strong interest in increasing connections to our gas distribution networks. We have networks across some of the fastest growing areas of New Zealand such as Tauranga, and are committed to ensuring customer in our network areas have a cost-effective gas option to meet their energy needs. We are looking for opportunities to both expand our reticulated networks and increase customer connections in existing reticulated areas.

In 2016 – 2017, execution of this strategy has involved much higher levels of capex than previously spent on system growth and customer connections. It has also challenged our business to respond to an increasing demand for residential, commercial and industrial gas connections. As outlined in Figure 4, we have seen a considerable lift in connections above the level forecast in the 2016 AMP.

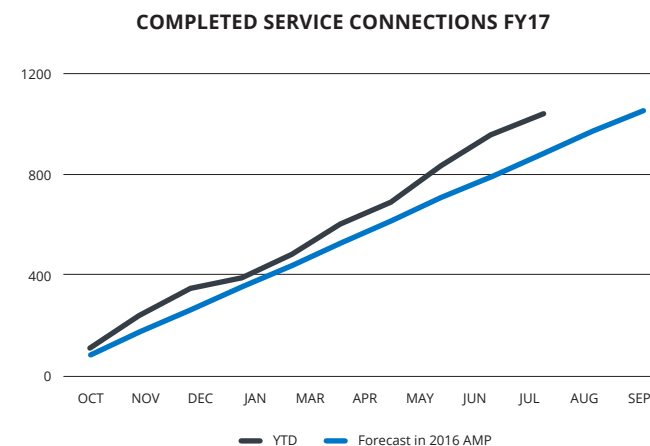
This increased investment in our gas distribution networks has benefits for our customers. Growing customers on our network provides economies of scale and reduces the cost to serve each customer. For customers, it unlocks the benefits of having natural gas available, for use in applications such as space heating, cooking and hot water.

New distribution pricing methodology and capital contributions policy

To support First Gas' growth strategy, we have realigned our pricing methodology and capital contributions policy that apply across our distribution networks.

Our distribution **pricing methodology** sets out how we determine the prices that we charge each consumer group, within the target revenue set by the Commerce Commission. For the 1 October 2017 pricing year, we have conducted a bottom-up cost allocation exercise, looking at how costs are allocated across standard and non-standard contracts, and have discussed our proposed approach with retailers. This has led to a change in allocation of revenue recovery across the consumer types and the introduction of a new variable tariff for residential customers.

Figure 4: Growth in customer connections



15. See section 5.8.3 of 2016 gas distribution AMP for further details.

Our **capital contributions policy** sets out the costs for customers and businesses looking to connect to our gas distribution networks. Historically, this policy has sought up-front cash outlays from customers, which has been a disincentive for many looking to connect to reticulated natural gas. In line with our growth strategy, First Gas has taken a different approach. We have developed a new capital contribution models utilising our learnings over the last year and the costs associated with new connections. We are now moving to reduce customer connection contributions to the economic minimum.

Our new distribution pricing methodology and capital contributions policy can be accessed on our website [here](#).

2.7. TRANSITIONING OUR IT SYSTEMS

Over the last 12 months, First Gas has focused on embedding our new Information Technology (IT) systems, that enabled us to physically separate from our previous owner. These new systems, along with new business processes, have helped us better understand the performance of our distribution assets, optimise maintenance to maximise asset life and improve our overall management of risk. The work on the GIS platform in particular, has been beneficial in enabling us to develop more customer-focused information on our First Gas website (see section 3.4).

The key IT-related milestones are outlined in Table 4, covering a total investment of \$0.7 million.

Table 4: IT achievements during 2016/17

Kapua data centre commissioned	The First Gas infrastructure has been successfully migrated from the temporary cloud service onto our own hardware.
Main office infrastructure	The infrastructure at our main office in Bell Block has been upgraded to support our gas transmission systems, incorporating increased storage, new switches and an upgrade to a virtual environment platform.

Telephony	Skype for Business has been installed as a cost effective telephony solution for all First Gas offices. We have implemented inter-site resiliency measures to ensure call and instant messaging functionality can be delivered during a Wireless Area Network (WAN) failure.
Single platform for GIS	First Gas has migrated all transmission and distribution GIS information onto a single platform, ESRI ArcGIS.
Desktop hardware lifecycle	We have implemented a desktop hardware lifecycle of 3 years to keep all desktop hardware under a current warranty. We have replaced 70 desktops this year, including an upgrade to the Windows 10 operating system.
Data warehouse and business intelligence	First Gas is consolidating its two existing data warehouse environments (inherited from previous owners) into a single data warehouse. This is in line with industry best practice and will deliver a scalable and maintainable data warehouse, with a single source of truth for business intelligence and reporting.
Risk review of information systems	Following a security and risk review of our information services, First Gas has made improvements to internet access, removable media control, system updates and patching, mobile device management, administrative accounts, quality of the server and network rooms, and data recovery.
Land management information	First Gas is implementing a new database product for all its Land Management information. The new product selected is used by most high-pressure pipeline owners and utility businesses in Australia, and includes a range of improved features such as a core database, customisable map viewer and field-based data capture.

3. YEAR AHEAD FOR DISTRIBUTION

First Gas has established a good understanding of our gas distribution networks over our first year of operation. We are now embarking on several significant projects in the year commencing 1 October 2017 to support our growth strategy. Table 5 lists the key projects.

Table 5: Significant projects for year commencing 1 October 2017

SIGNIFICANT PROJECTS FOR OUR GAS DISTRIBUTION BUSINESS		
Reinforcement of existing distribution networks (section 3.1 below)		
– Continuation of programme to replacement pre-1985 PE pipes	\$1.7 million	
– Second phase of project to reinforce Hamilton intermediate pressure network	\$0.4 million	Listed in 2016 AMP
– Upgrade of Whangarei DRS to meet request for new customer load	\$0.4 million	
– Reinforcement work on Waitoa medium pressure pipeline	\$1.2 million	
Material change – Cambridge reinforcement project (section 3.2)	\$1.7 million	Listed in 2016 AMP but brought forward

Expenditure for these projects was included within the Commission’s recent decisions on DPP reset for FY18 – FY22. We outline each of these projects below and the work we plan to do around further removing barriers to connection (section 3.3) and establishing user-friendly IT systems (section 3.4). We intend to commence all projects early in the 2017/18 year.

3.1. REINFORCEMENT OF OUR EXISTING NETWORKS

First Gas is committed to re-enforcing our existing distribution networks to have the capability to deliver on our distribution growth strategy and provide a quality gas distribution service.

Replacement of pre-1985 PE pipes¹⁶

This is the continuation of the replacement programme outlined in section 2.5 above, which reduces the risk of pipeline failure and the loss of supply to customers. First Gas has identified and prioritised the replacement projects by likelihood of failure, and will see many of these projects completed in 2017/18.

Reinforcement of Hamilton IP network¹⁷

First Gas intends to proceed with the second phase of the Hamilton IP network reinforcement programme that was also outlined in section 2.5. The next phase of work will include the installation of a new DRS, followed by an increase in the gas transmission networks supplied delivery pressure from 1,050Kpa to 1,750Kpa. This reinforcement will improve the available system capacity and raises the minimum NOP above the published standard level.



◀ The picture shows the construction of a new district regulator station

16. See section 6.5.1 of 2016 gas distribution AMP for further details.
17. See section 5.8.3 of 2016 gas distribution AMP for further details.

Upgrade of the Whangarei DRS

First Gas is preparing plans to upgrade the Whangarei DRS, following a request for a significant new customer load in the area. We are currently planning the work for the FY18, pending the customer's approval of the proposal.

Waitoa reinforcement¹⁸

First Gas will be undertaking reinforcement work on the Waitoa MP4 pressure system to ensure the system returns to normal minimum pressure, therefore preventing potential gas supply failure during peak demand periods.

The Waitoa MP4 pressure system currently operates at a NOP of 400Kpa and supplies gas to four large industrial consumers. The total forecast demand during the planning period was predicted to result in a minimum NOP of 152Kpa, which is only 38% of the NOP, well below the system security minimum pressure criteria. We have now observed this minimum pressure, so it is critical that this reinforcement project is planned and delivered over the next year.

The project will involve the installation of approximately 5 kilometres of 160mm MP7 PE pipe, that will return the pipe system to a normal minimum pressure of 260Kpa. This level is well above the 50% minimum pressure criteria and will prevent gas supply failure during peak demand periods. It will also provide additional system capacity for future customer load growth enquiries.

A further system reinforcement may be required in another five years. However, First Gas will monitor demand growth over this period and plan any future work based on the observed demand growth and timeframes necessary to implement the necessary reinforcements.

18. See section 5.8.1 of 2016 gas distribution AMP for further details.

3.2. MATERIAL CHANGE IN CAMBRIDGE REINFORCEMENT PROJECT

First Gas has made material changes to our approach to the Cambridge reinforcement work, from that disclosed in the 2016 gas distribution AMP.¹⁹

In the 2016 AMP, we identified that the IP20 pipeline system pressure was forecast to fall below the minimum pressure criteria during the immediate planning period, due to observed development activity around the Cambridge area. We identified several phases of reinforcement work that would address the issue and enable future new connections, and would be undertaken over the next five years.

However, since the release of our 2016 AMP, we have used network analysis modelling to compare and consider several of the reinforcement options to optimise the investment efficiency. This modelling determined that the phased scheme of work is better refined into a single phase of work that will commence in FY18. This approach will increase system capacity in the Cambridge area and reduce overall system security risk.

3.3. REMOVING BARRIERS TO CONNECTION

To support our growth strategy, First Gas will be focusing on reviewing its interactions with customers and seeking to remove any unnecessary barriers to the connection process. Over the coming year, we will be focused on:

- Streamlining and upskilling our connections call centre;
- Streamlining the connection process by removing any redundant steps;
- Optimising our First Gas business processes and systems; and
- Building a gasfitter and building company portal to enable these parties to easily track gas jobs.

We are also increasing our marketing efforts across our distribution networks.

19. See section 5.8.2 of 2016 gas distribution AMP for further details.

3.4. ESTABLISHING USER-FRIENDLY IT SYSTEMS

First Gas will be continuing its work programme to establish user-friendly IT systems to support our business and achieve our growth strategy. Work on our IT systems will ensure that customers and developers can quickly access information on whether gas is available at their home, and ensure that we can connect customers as efficiently as possible.

The key IT programmes for the FY18 year are outlined in Table 6.

Table 6: Key IT initiatives for FY2018

GIS marketing and website development	This project will provide an enhanced experience for potential customers using the First Gas website. Customers will be able to identify the availability of gas supply at their location, utilising a GIS-based spatial view before they initiate the connection process.
Documents and records management	First Gas has created a new Document Management System (DMS) and will transferring all control documents from the legacy Vector systems and First Gas File Server over to this new DMS.
System integration	Work will be undertaken on First Gas’ systems to ensure that all of our systems can integrate, automatically share data and operate as one large system. First Gas uses a modular approach to its system architecture, which means the establishing a robust system integration process is an important element in keeping a common data format. We also want to reduce the need to manually transfer data between systems.



4. ENGAGING WITH STAKEHOLDERS

First Gas recognises the importance of regular engagement with our gas customers who rely on the consistent delivery gas for home, business and industrial energy needs. We are focused on establishing regular dialogue with our stakeholders throughout the year, in addition to established consultation through set workshops and our regulatory obligations. We believe it is important that we get timely feedback to assist us to improve our gas distribution service and achieve our strategy for growth.

Over the past year, we have focused on meeting and working with building companies, developers and gas-fitters to understand their drivers around the deployment of reticulated natural gas and how we can better promote this as an attractive option during the development phase. We have also worked alongside gas retailers, to review and revise our pricing and capital contribution policies, and to discuss the IT systems we collectively use to connect customers to our distribution networks. Through all our interactions with stakeholders, we have also placed priority on safety and ensuring that our safety practices are well understood across our networks.

As a company solely focused on gas infrastructure, First Gas has also stepped up its role in promoting the benefits of reticulated natural gas. We believe gas has a positive role to play over coming years, and we are actively promoting the gas sector. We have increased our involvement in the Gas Association of New Zealand (GANZ). We believe there is benefits from getting gas retailers re-engaged and the sector players working together for common approaches and protocols.

In the coming year, we intend to survey our gas distribution customers about their recent interactions with First Gas (i.e. requesting a new connection, modifying their existing connection, or billing queries). By understanding customer's current experiences and what they value, we can improve our processes.

We are interested in playing a strong role in the sector, and welcome discussions with our stakeholders on the role of gas within New Zealand.



5. UPDATES TO CAPEX AND OPEX EXPENDITURE FORECASTS

This section describes the Capex and Opex forecasts for the gas distribution networks for the next 10 year period (FY17 – FY27). These forecasts provide a comparison with the forecast disclosed in the 2016 AMP and are presented in FY17 dollars.

5.1. CAPEX

The next DPP period FY18 – FY22 is highlighted in bold.

Table 7: 2016 AMP Capex forecasts (\$000's)

2016 AMP CAPEX FORECAST	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26
Consumer Connection	4,767	3,783	3,801	4,047	4,298	4,570	4,866	5,075	5,132	5,167
System Growth	3,957	3,723	1,756	4,096	2,795	4,040	1,825	1,770	1,770	1,860
Asset Replacement & Renewal	4,105	3,380	3,680	3,660	3,660	3,650	3,650	3,650	3,650	3,650
Asset Relocations	971	875	765	765	765	765	765	765	765	765
Non-Network Assets	745	595	338	262	610	248	262	247	248	262
Total Capex (gross)	14,545	12,356	10,341	12,830	12,127	13,274	11,367	11,507	11,566	11,703

Table 8: 2017 AMP Update Capex forecast (\$000's)

2017 AMP UPDATE FORECAST	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27
Consumer Connection	10,687	4,294	4,657	5,154	5,924	6,237	4,866	5,075	5,132	5,167	5,167
System Growth	3,791	5,590	3,175	2,885	2,890	2,340	2,256	1,900	2,080	2,245	1,524
Asset Replacement & Renewal	4,178	3,570	3,630	3,710	3,710	3,700	3,700	3,700	3,600	3,600	3,933
Asset Relocations	846	2,265	765	765	765	765	765	765	765	765	765
Non-Network Assets	829	448	610	262	610	248	262	247	248	262	762
Total Capex (gross)	20,331	16,167	12,837	12,775	13,899	13,291	11,848	11,687	11,826	12,038	12,150

Table 9: Variance between 2017 AMP Update and 2016 AMP forecasts (\$000's)

AMP VARIANCE	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26
Consumer Connection	5,920	511	856	1,107	1,627	1,667	(0)	-	-	-
System Growth	(166)	1,867	1,419	(1,211)	95	(1,700)	431	130	310	385
Asset Replacement & Renewal	73	190	(50)	50	50	50	50	50	(50)	(50)
Asset Relocations	(125)	1,390	-	-	-	-	-	-	-	-
Non-Network Assets	84	(146)	272	-	-	-	-	-	-	-
Total Capex variance	5,786	3,811	2,496	(54)	1,772	17	481	180	260	335

Explanation of major Capex variances

The major variances in forecast expenditure are explained as follows:

Consumer Connections

- The acquisition of the GasNet Papamoa distribution assets and construction of the Titanium Park development accounts for the variance from the 2016 AMP;
- First Gas's growth strategy under consumer connections has resulted in increased forecast expenditure \$5.4 million over DPP period.

System Growth

- Expenditure has been brought forward within the DPP regulatory period, following modelling analysis on the system, to ensure that system reinforcement is completed prior to load demand increases; and
- Reinforcement projects for Papamoa network are no longer required following the acquisition of GasNet's distribution assets.

Asset Relocations

- Third party-driven relocations, \$1.7 million to be spent in FY18 for Baypark to Bayfair (B2B) roading project.

Note: gross figures are reflected for Asset Relocations category, a 90% recovery is assumed for a net relocation forecast.

The next DPP period FY18 – FY22 is highlighted in bold.

2016 AMP CAPEX FORECAST	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26
Service Interruptions	2271	2271	2271	2271	2271	2271	2271	2271	2271	2271
RCMI	1841	1843	1844	1845	1847	1848	1850	1851	1853	1854
System Operations and Network support	1339	1339	1339	1339	1236	1236	1236	1236	1236	1236
Business Support	1840	1640	1640	1640	1640	1640	1640	1640	1640	1640
Total Opex	7,291	7,092	7,093	7,095	6,993	6,995	6,996	6,997	6,999	7,000

[illegible]

Table 12: Variance between 2017 AMP Update and 2016 AMP forecasts (\$000's)

VARIANCE	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27
Service Interruptions	315	650	650	650	650	650	650	650	650	650	2921
RCMI	(153)	2	1	(0)	(2)	(3)	(5)	(6)	(8)	(9)	1845
System Operations and Network support	120	219	219	219	322	322	322	322	322	322	1558
Business Support	(318)	60	60	60	60	60	60	60	60	60	1700
Total Opex variance	(36)	932	930	929	1,031	1,029	1,028	1,026	1,025	1,023	8,024

Explanation of major Opex variances

The major variances in forecast expenditure are explained as follows:

Service Interruption incidents and Emergencies

- Revised bottom-up build of forecast based on actual expenditure in FY17 has resulted in an increased forecast across all categories due to contract costs.

Business Support

- Additional funding required for IT support within the organisation; and
- Organisational re-structuring to better align with business strategies.

APPENDIX A: SUMMARY OF MATERIAL CHANGES

The table below:

- summarises the material changes in our asset management plan, as compared with our 2016 gas distribution AMP; and
- Demonstrates our compliance with the requirements for an AMP update, as set out in the Gas Distribution Information Disclosure Determination 2012 (ID Determination).

We have no material changes to disclosure for clause 2.6.5(5) of the ID Determination.

ID REQUIREMENT	DISCUSSION
Clause 2.6.5 For the purposes of clause 2.6.3, the AMP update must:	
Clause 2.6.5 (1) Relate to the gas distribution services supplied by the GDB	This AMP update relates to First Gas's distribution business. Information on the First Gas' transmission business (GTB) can be found in the separate transmission AMP update.
Clause 2.6.5 (2) Identify any material changes to the network development plans disclosed in the last AMP under clause 12 of Attachment A or in the last AMP update disclosed under this clause 2.6.5	Assets purchased from GasNet in Papamoa have increased the DRS number and the pipe length owned by First Gas significantly. 5 identified projects to support growth in Papamoa will now not be required due to the GasNet assets purchased. These have been removed from the expenditure profile. The Cambridge network reinforcement project addressing customer growth has been brought forward from FY21 to FY18 and the IP20 scheme identified has changed to incorporate known demand changes.

ID REQUIREMENT	DISCUSSION
Clause 2.6.5 (3) Identify any material changes to the lifecycle asset management (maintenance and renewal) plans disclosed in the last AMP pursuant to clause 13 of Attachment A or in the last AMP update disclosed under this clause;	The Asset Management Strategy was planned to be defined during FY17. This will now be defined over FY18. Fleet plans were planned to be delivered during FY17. This will now be delivered over FY18. The previous AMP describes the use of the Non-Routine Activity Management System (NRAMS) for managing operational risks and prioritising work. Work has commenced to migrate risks to Maximo to achieve the same objective. This will allow NRAMS to be decommissioned during FY18. Electrical Hazard Management Plans (EHMP) were planned to be developed by the end of FY16 and implemented by FY19. This work has commenced, but the plan development will not be completed until the end of FY18. The trigger for DRS replacement was previously stated as all DRS's with a condition rating of four or less or which have a relatively high number of technical or regulatory compliance issues. First Gas uses a condition assessment process which identifies the replacement DRS's, but not the same assessment that produces the AMP appendix B3, schedule 12a – Asset Condition. There is an overall increase in distribution opex forecasts across all 5 years due to increases in overall contract costs for service provision. Contract renegotiation is planned to address this increase.
Clause 2.6.5 (4) Provide the reasons for any material changes to the previous disclosures in the Report on Forecast Capital Expenditure set out in Schedule 11a and Report on Forecast Operational Expenditure set out in Schedule 11b;	Consumer connection growth expenditure has been increased since the FY16 AMP in line with the number of domestic connections experienced over the last 10 months.

ID REQUIREMENT	DISCUSSION
Clause 2.6.5 (6) Contain the information set out in the schedules described in 2.6.6;	See Appendix B.
Clause 2.6.6 Subject to clause 2.13.2, before the start of each disclosure year, each GDB must complete and publicly disclose each of the following reports by inserting all information relating to the gas distribution services supplied by the GDB for the disclosure years provided for in the following reports – <ol style="list-style-type: none"> 1) the Report on Forecast Capital Expenditure in Schedule 11a; 2) the Report on Forecast Operational Expenditure in Schedule 11b; 3) the Report on Asset Condition in Schedule 12a; 4) the Report on Forecast Demand in Schedule 12b; (5) the Report on Forecast Demand in Schedule 12c. 	See Appendix B.

APPENDIX B: INFORMATION DISCLOSURE SCHEDULES

Schedule 11a: Report on forecast capital expenditure

Schedule 11b: Report on forecast operational expenditure

Schedule 12a: Report on asset condition

Schedule 12b: Report on forecast utilisation

Schedule 12c: Report on forecast demand

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

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

This information is not part of audited disclosure information.

[illegible]

92	Low Pressure						
93	Main pipe	79					
94	Service pipe						
95	Line valve						
96	Special crossings						
97	Low Pressure total	79					
98	Other network assets						
99	Monitoring and control systems						
100	Cathodic protection systems						
101	Other assets (other than above)						
102	Other network assets total						
103							
104	System growth expenditure	3,791	5,590	3,175	2,885	2,890	2,340
105	less Capital contributions funding system growth						
106	System growth less capital contributions	3,791	5,590	3,175	2,885	2,890	2,340
107							
108							
109							
110	11a(iv): Asset Replacement and Renewal						
111	Intermediate pressure						
112	Main pipe	20	20	20	20	20	20
113	Service pipe						
114	Stations	1,141	755	500	220	220	220
115	Line valve	50	100	100	100	100	100
116	Special crossings	230		60	60	60	50
117	Intermediate Pressure total	1,441	875	680	400	400	390
118	Medium pressure						
119	Main pipe	1,628	1,930	2,700	3,060	3,060	3,060
120	Service pipe						
121	Station	369					
122	Line valve						
123	Special crossings						
124	Medium Pressure total	1,997	1,930	2,700	3,060	3,060	3,060
125	Low Pressure						
126	Main pipe	-	-	-	-	-	-
127	Service pipe	-	-	-	-	-	-
128	Line valve	-	-	-	-	-	-
129	Special crossings	-	-	-	-	-	-
130	Low Pressure total						

for year ended

Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5
30 Sep 17	30 Sep 18	30 Sep 19	30 Sep 20	30 Sep 21	30 Sep 22

\$000 (in constant prices)

131	Other network assets						
	Monitoring and control systems	100	100	100	100	100	100
133	Cathodic protection systems	495	565	50	50	50	50
134	Other assets (other than above)	145	100	100	100	100	100
135	Other network assets total	740	765	250	250	250	250
136							
137	Asset replacement and renewal expenditure	4,178	3,570	3,630	3,710	3,710	3,700
138	less Capital contributions funding asset replacement and renewal						
139	Asset replacement and renewal less capital contributions	4,178	3,570	3,630	3,710	3,710	3,700
140							
141	11a(v): Asset Relocations						
142	Project or programme*						
143	Hamilton Waikato Expressway	211	231	231	231		
144	Wellington-MacKays to Peka Peka Expressway	17					
145	Whangarei SH1 Tarewa Road Intersection		175	175	175		
146	Mt Maunganui B2B road Project relocation	264					
	Mt Maunganui B2B Rail Relocation	141					
	Mt Maunganui Maunganui, Girven, Te Maunga Flyover		1,700	120	120		
	Peka Peka to Otaki Expressway		55	55	55	55	
	Rotorua SH5/Hemo Road Intersection	121	104				
	Tauranga Tauriko SH29/36 Slip Lane	39					
147							
148	* include additional rows if needed						
149	All other projects or programmes - asset relocations	52		184	184	710	765
150	Asset relocations expenditure	845	2,265	765	765	765	765
151	less Capital contributions funding asset relocations	636	1,857	627	627	627	627
152	Asset relocations less capital contributions	209	408	137	137	138	138
153							
154							
155	11a(vi): Quality of Supply						
156							
157	Project or programme*						
158	[Description of material project or programme]						
159	[Description of material project or programme]						
160	[Description of material project or programme]						
161	[Description of material project or programme]						
162	[Description of material project or programme]						
163	* include additional rows if needed						
164	All other projects or programmes - quality of supply						
165	Quality of supply expenditure	-	-	-	-	-	-
166	less Capital contributions funding quality of supply						
167	Quality of supply less capital contributions	-	-	-	-	-	-
168							

for year ended Current Year CY CY+1 CY+2 CY+3 CY+4 CY+5
 30 Sep 17 30 Sep 18 30 Sep 19 30 Sep 20 30 Sep 21 30 Sep 22

\$000 (in constant prices)

169	11a(vii): Legislative and Regulatory						
170	<i>Project or programme</i>						
171	[Description of material project or programme]						
172	[Description of material project or programme]						
173	[Description of material project or programme]						
174	[Description of material project or programme]						
175	[Description of material project or programme]						
176	<i>* Include additional rows if needed</i>						
177	All other projects or programmes - legislative and regulatory						
178	Legislative and regulatory expenditure	-	-	-	-	-	-
179	less Capital contributions funding legislative and regulatory						
180	Legislative and regulatory less capital contributions	-	-	-	-	-	-
181	11a(viii): Other Reliability, Safety and Environment						
182	<i>Project or programme*</i>						
183	[Description of material project or programme]						
184	[Description of material project or programme]						
185	[Description of material project or programme]						
186	[Description of material project or programme]						
187	[Description of material project or programme]						
188	<i>* Include additional rows if needed</i>						
189	All other projects or programmes - other reliability, safety and environment						
190	Other reliability, safety and environment expenditure	-	-	-	-	-	-
191	less Capital contributions funding other reliability, safety and environment						
192	Other Reliability, safety and environment less capital contributions	-	-	-	-	-	-
193							
194	11a(ix): Non-Network Assets						
195	Routine expenditure						
196	<i>Project or programme*</i>						
197	ICT		308	232	580	218	
198	Building refurbishment		302	30	30	30	
199							
200							
201							
202	<i>* Include additional rows if needed</i>						
203	All other projects or programmes - routine expenditure						
204	Routine expenditure		610	262	610	248	
205	Atypical expenditure						
206	<i>Project or programme*</i>						
207	ICT	700	418				
208	Building refurbishment	130	30				
209							
210							
211							
212	<i>* Include additional rows if needed</i>						
213	All other projects or programmes - atypical expenditure						
214	Atypical expenditure	829	448				
215							
216	Expenditure on non-network assets	829	448	610	262	610	248

Company Name

First Gas Ltd

AMP Planning Period

1 October 2017 – 30 September 2027

SCHEDULE 11b: REPORT ON FORECAST OPERATIONAL EXPENDITURE

This schedule requires a breakdown of forecast operational expenditure for the disclosure year and a 10 year planning period. The forecasts should be consistent with the supporting information set out in the AMP. The forecast is to be expressed in both constant price and nominal dollar terms. GDBs must provide explanatory comment on the difference between constant price and nominal dollar operational expenditure forecasts in Schedule 14a (Mandatory Explanatory Notes).

This information is not part of audited disclosure information.

sch ref		for year ended	Current year CY	CY+1	CY+2	CY+3	CY+4	CY+5	CY+6	CY+7	CY+8	CY+9	CY+10
			30 Sep 17	30 Sep 18	30 Sep 19	30 Sep 20	30 Sep 21	30 Sep 22	30 Sep 23	30 Sep 24	30 Sep 25	30 Sep 26	30 Sep 27
7	Operational Expenditure Forecast		\$000 (in nominal dollars)										
8			2,586	2,972	3,032	3,093	3,155	3,218	3,283	3,348	3,415	3,484	3,553
9	Service interruptions, incidents and emergencies		1,688	1,877	1,915	1,954	1,993	2,033	2,073	2,115	2,157	2,200	2,244
10	Routine and corrective maintenance and inspection												
11	Asset replacement and renewal		4,274	4,849	4,947	5,047	5,148	5,251	5,356	5,463	5,573	5,684	5,798
12	Network opex		1,459	1,585	1,617	1,649	1,682	1,716	1,750	1,785	1,821	1,858	1,895
13	System operations and network support		1,522	1,730	1,765	1,800	1,837	1,873	1,911	1,949	1,988	2,028	2,068
14	Business support		2,981	3,314	3,382	3,450	3,519	3,589	3,661	3,734	3,809	3,885	3,963
15	Non-network opex		7,255	8,163	8,329	8,496	8,667	8,841	9,017	9,198	9,382	9,569	9,761
16	Operational expenditure												
17			\$000 (in constant prices)										
18			2,586	2,921	2,921	2,921	2,921	2,921	2,921	2,921	2,921	2,921	2,921
19	Service interruptions, incidents and emergencies		1,688	1,845	1,845	1,845	1,845	1,845	1,845	1,845	1,845	1,845	1,845
20	Routine and corrective maintenance and inspection												
21	Asset replacement and renewal		4,274	4,766	4,766	4,766	4,766	4,766	4,766	4,766	4,766	4,766	4,766
22	Network opex		1,459	1,558	1,558	1,558	1,558	1,558	1,558	1,558	1,558	1,558	1,558
23	System operations and network support		1,522	1,700	1,700	1,700	1,700	1,700	1,700	1,700	1,700	1,700	1,700
24	Business support		2,981	3,258	3,258	3,258	3,258	3,258	3,258	3,258	3,258	3,258	3,258
25	Non-network opex		7,255	8,024	8,024	8,024	8,024	8,024	8,024	8,024	8,024	8,024	8,024
26	Operational expenditure												
27													
28	Subcomponents of operational expenditure (where known)												
29	Research and development												
30	Insurance												
31													
32			Current year CY	CY+1	CY+2	CY+3	CY+4	CY+5	CY+6	CY+7	CY+8	CY+9	CY+10
33			30 Sep 17	30 Sep 18	30 Sep 19	30 Sep 20	30 Sep 21	30 Sep 22	30 Sep 23	30 Sep 24	30 Sep 25	30 Sep 26	30 Sep 27
34	Difference between nominal and real forecasts		\$000										
35				51	111	172	234	297	362	427	494	563	632
36	Service interruptions, incidents and emergencies			32	70	109	148	188	228	270	312	355	399
37	Routine and corrective maintenance and inspection												
38	Asset replacement and renewal												
39	Network opex			83	181	281	382	485	590	697	807	918	1,032
40	System operations and network support			27	59	92	125	159	193	228	264	300	337
41	Business support			30	65	100	136	173	211	249	288	328	368
42	Non-network opex			57	124	192	261	332	403	477	551	628	705
43	Operational expenditure			140	305	473	644	817	994	1,174	1,358	1,546	1,737

Company Name

First Gas Limited

AMP Planning Period

1 October 2017 – 30 September 2027

SCHEDULE 12a: REPORT ON ASSET CONDITION

This schedule requires a breakdown of asset condition by asset class as at the start of the forecast year. The data accuracy assessment relates to the percentage values disclosed in the asset condition columns. Also required is a forecast of the percentage of units to be replaced in the next 5 years. All information should be consistent with the information provided in the AMP and the expenditure on assets forecast in Schedule 11a.

sch ref

					Asset condition at start of planning period (percentage of units by grade)					% of asset forecast to be replaced in next 5 years	
					Grade 1	Grade 2	Grade 3	Grade 4	Grade unknown	Data accuracy (1-4)	
7											
8	Operating Pressure	Asset category	Asset class	Units							
9	Intermediate Pressure	Main pipe	IP PE main pipe	km	-	-	-	-	-	N/A	-
10	Intermediate Pressure	Main pipe	IP steel main pipe	km	-	-	-	100.00%	-	3	-
11	Intermediate Pressure	Main pipe	IP other main pipe	km	-	-	-	-	-	N/A	-
12	Intermediate Pressure	Service pipe	IP PE service pipe	km	-	-	-	-	-	N/A	-
13	Intermediate Pressure	Service pipe	IP steel service pipe	km	-	-	-	100.00%	-	3	-
14	Intermediate Pressure	Service pipe	IP other service pipe	km	-	-	-	-	-	N/A	-
15	Intermediate Pressure	Stations	Intermediate pressure DRS	No.	-	4.81%	46.15%	49.04%	-	4	7.90
16	Intermediate Pressure	Line valve	IP line valves	No.	-	6.67%	65.83%	9.58%	17.92%	3	-
17	Intermediate Pressure	Special crossings	IP crossings	No.	-	8.70%	86.96%	4.35%	-	3	7.30
18	Medium Pressure	Main pipe	MP PE main pipe	km	-	-	-	100.00%	-	3	0.70
19	Medium Pressure	Main pipe	MP steel main pipe	km	-	-	100.00%	-	-	3	-
20	Medium Pressure	Main pipe	MP other main pipe	km	-	-	-	-	-	N/A	-
21	Medium Pressure	Service pipe	MP PE service pipe	km	-	-	100.00%	-	-	3	0.50
22	Medium Pressure	Service pipe	MP steel service pipe	km	-	100.00%	-	-	-	3	-
23	Medium Pressure	Service pipe	MP other service pipe	km	-	-	-	-	-	N/A	-
24	Medium Pressure	Stations	Medium pressure DRS	No.	-	-	41.67%	58.33%	-	4	-
25	Medium Pressure	Line valve	MP line valves	No.	0.10%	6.55%	76.30%	7.90%	9.15%	3	0.10
26	Medium Pressure	Special crossings	MP special crossings	No.	-	-	93.22%	5.08%	1.69%	3	7.30
27	Low Pressure	Main pipe	LP PE main pipe	km	-	-	-	100.00%	-	3	-
28	Low Pressure	Main pipe	LP steel main pipe	km	-	-	-	-	-	N/A	-
29	Low Pressure	Main pipe	LP other main pipe	km	-	-	-	-	-	N/A	-
30	Low Pressure	Service pipe	LP PE service pipe	km	-	-	100.00%	-	-	3	-
31	Low Pressure	Service pipe	LP steel service pipe	km	-	-	100.00%	-	-	3	-
32	Low Pressure	Service pipe	LP other service pipe	km	-	-	-	-	-	N/A	-
33	Low Pressure	Line valve	LP line valves	No.	-	-	100.00%	-	-	3	-
34	Low Pressure	Special crossings	LP special crossings	No.	-	-	-	-	-	N/A	-
35	All	Monitoring and control systems	Remote terminal units	No.	-	-	-	100.00%	-	3	-
36	All	Cathodic protection systems	Cathodic protection	No.	2.94%	5.88%	85.29%	5.88%	-	4	8.40

Company Name **First Gas Limited**
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SCHEDULE 12b: REPORT ON FORECAST UTILISATION

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

sch ref

Forecast Utilisation of Heavily Utilised Pipelines

Utilisation

Region	Network	Pressure system	Nominal operating pressure (NOP) (kPa)	Minimum operating pressure (MinOP) (kPa)	Total capacity at MinOP (scmh)	Remaining capacity at MinOP (scmh)	Unit	Current Year CY y/e 30 Sep 17	CY+1 y/e 30 Sep 18	CY+2 y/e 30 Sep 19	CY+3 y/e 30 Sep 20	CY+4 y/e 30 Sep 21	CY+5 y/e 30 Sep 22	Comment
Kapiti	Paraparaumu	PR Paraparaumu IP20	1,900	950	1,512		scmh	1,512	1,536	1,560	1,585	1,611	1,636	No remaining capacity at MinOP is available in the system. System reinforcement is planned in FY18.
							kPa	917	1,423	1,416	1,410	1,403	1,395	
Waikato	Waitoa	WT Waitoa MP4	400	200	598		scmh	598	614	630	646	663	680	No remaining capacity at MinOP is available in the system. System reinforcement is planned in FY18.
							kPa	178	260	253	246	238	230	
Waikato	Cambridge	Cambridge IP20	1,900	950	1,349	179	scmh	1,170	1,590	1,720	1,720	1,720	1,720	Remaining capacity at MinOP is available in the vicinity of Cambridge CBD area. Analysis includes known and committed
							kPa	1,190	1,099	959	959	959	959	
Waikato	Hamilton	Hamilton IP10	1,000	500	16,033	408	scmh	15,625	15,687	16,236	16,299	16,363	16,426	Remaining capacity at MinOP is available in the vicinity of Hamilton Southeast area. Analysis includes known and
							kPa	632	667	541	536	530	525	
Waikato	Hamilton	Hamilton MP4	400	200	11,405	20	scmh	11,385	11,431	11,963	12,009	12,055	12,101	Remaining capacity at MinOP is available in the vicinity of Hamilton Central East and Ruakura areas. Analysis includes
							kPa	230	229	205	204	203	202	
							scmh							
							kPa							
							scmh							
							kPa							
							scmh							
							kPa							
							scmh							
							kPa							

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

Disclaimer for supply enquiries

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

Notes and assumptions

1. A 'heavily utilised' pressure system is a pressure system where the modelled flow rate, at system peak during 2016, is greater than or equal to 500 scmh, and its utilisation (pressure drop) is greater than or equal to 40% from the nominal operating pressure (NOP). The utilisation of a pressure system is calculated using the formula: $[1 - (\text{system minimum pressure} / \text{nominal operating pressure})] \times 100\%$.
2. The remaining capacity of a 'heavily utilised' pressure system is obtained by examining the modelled flows at various extremity points in each pressure system, and the level at which the minimum operating pressure (MinOP) is reached. First Gas Limited's security standards set the MinOP at 50% of the rated pressure (which equates to approximately 82% of the pipeline capacity) for a pressure system based on standard operating pressures. The minimum modelled flow rate, analysed at one extremity point, is used to calculate the remaining capacity of the entire pressure system being studied.
3. A forecast model of a pressure system is obtained by applying either its forecast flow rate or an annual growth rate in each forecast year, and scaling its loads evenly to give the system total flow. The resulting minimum system pressure is simulated on this basis.
4. The forecast system flow is populated using the respective network system as tabulated in Appendix E of the First Gas Distribution Asset Management Plan 2016 - 2026.
5. The forecast system flow for the Paraparaumu network system is based on an annual growth rate of 1.6%, as tabulated in Appendix E of the First Gas Distribution Asset Management Plan 2016 - 2026.
6. The forecast system flow for the Waitoa network system is based on an annual growth rate of 2.6%, as tabulated in Appendix E of the First Gas Distribution Asset Management Plan 2016 - 2026.
7. The forecast system flow for the Cambridge network system is based on an annual growth rate of 0% i.e., zero growth, as tabulated in Appendix E of the First Gas Distribution Asset Management Plan 2016 - 2026 plus the known and committed loads of future gas end users.
8. The forecast system flow for the Hamilton network system is based on an annual growth rate of 0.4%, as tabulated in Appendix E of the First Gas Distribution Asset Management Plan 2016 - 2026 plus the known and committed loads of future gas end users.
9. Stated annual growth rates are averaged across a 10-year planning period. Owing to seasonality factors influencing the forecasting model the discrete forecast system flows may not mirror the 10-year averaged growth rate incrementally.
10. Details of performance, capacity and system reinforcement are described in Chapter 5 - System Development of the First Gas Distribution Asset Management Plan 2016 - 2026 and the update Asset Management Plan 2017 - 2027.
11. Schedule 12b provides a snapshot in time of the pressure system capacity, at the date of its preparation, and it should be noted that the figures will change over time. Schedule 12b is provided on the basis that it be used for consumer guidance only.
12. The capacity limits specified in Schedule 12b for each 'heavily utilised' pressure system highlight only the most constrained part of the pressure system. At that specific location the MinOP is lowest; in reality more capacity may be available at other locations within the pressure or network system.
13. Consumers considering using gas or wanting more capacity should always contact First Gas Limited to confirm availability. In these cases, First Gas Limited will prepare a dedicated model that will provide an accurate assessment of available gas capacity at the specified location.
14. Due to resource constraints, the network models used to compile Schedule 12b are updated on a 3 year rolling cycle, meaning that the model update, forecast and validation of some models may not have been updated since 2014.
15. It has been assumed that the load forecasting documented in the AMP is correct, and that all assumptions and risks associated with this forecasting have been reviewed and approved as part of a separate exercise associated with signing off the AMP.

Company Name

First Gas Limited

AMP Planning Period

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SCHEDULE 12c: REPORT ON FORECAST DEMAND

This schedule requires a forecast of new connections (by consumer type), peak demand and energy volumes for the disclosure year and a 5 year planning period. The forecasts should be consistent with the supporting information set out in the AMP as well as the assumptions used in developing the expenditure forecasts in Schedule 11a and Schedule 11b and the capacity and utilisation forecasts in Schedule 12b.

sch ref

12c(i) Consumer Connections

Number of ICPs connected in year by consumer type

	Current year CY 30 Sep 17	CY+1 30 Sep 18	CY+2 30 Sep 19	CY+3 30 Sep 20	CY+4 30 Sep 21	CY+5 30 Sep 22
<i>Consumer types defined by GDB</i>						
Residential	1,167	1,370	1,826	2,009	2,283	2,511
Commercial	108	127	169	186	211	232
Industrial	3	3	4	4	5	5
Total	1,278	1,500	1,999	2,199	2,499	2,748

12c(ii): Gas Delivered

	Current year CY 30 Sep 17	CY+1 30 Sep 18	CY+2 30 Sep 19	CY+3 30 Sep 20	CY+4 30 Sep 21	CY+5 30 Sep 22
Number of ICPs at year end (at year end)	62,305	63,310	64,649	66,123	67,797	69,638
Maximum daily load (GJ per day)	35,897	36,242	36,590	36,941	37,295	37,653
Maximum monthly load (GJ per month)	930,866	939,802	948,824	957,933	967,129	976,414
Number of directly billed ICPs (at year end)	-	-	-	-	-	-
Total gas conveyed (GJ per annum)	8,976,851	9,066,620	9,157,286	9,248,859	9,341,347	9,434,761
Average daily delivery (GJ per day)	24,594	24,840	25,088	25,270	25,593	25,849
Load factor	80.36%	80.39%	80.43%	80.46%	80.49%	80.52%

APPENDIX C: SYSTEM ANALYSIS UPDATE

We outline below two distribution networks where there have been material changes since the release of the 2016 AMP.

1. CAMBRIDGE

The Cambridge network is supplied from the transmission system from a single gate station and consists of one IP20 pressure system, two MP4 pressure systems and three DRSs. There are approximately 1,900 consumers connected to the Cambridge network system. They are predominantly residential consumers with around 5% commercial/industrial gas users, including two large industrial consumers.

Cambridge IP20

Recent requests from subdivision developers and industrial operators indicate that the demand in the area will increase significantly, resulting in the Cambridge IP20 network falling below the minimum pressure criteria over the next couple of years.

The following reinforcement projects were listed in the previous asset management plan and planned to commence in FY21 and run through to FY22.

- Elevate the Cambridge gate station outlet pressure to 1,800kPa;
- Construct approximately 3,400 metres of 80mm IP20 steel pipe from the Cambridge gate station along Zig Zag Road into Swayne Road; and
- Install a new DRS (IP20/MP4) at Swayne Road.

To make provision of supply to the new commercial/industrial gas users and to support the future growth in Cambridge, IP20 system reinforcement will be brought forward and completed in FY18 instead of the above planned construction programme.

Furthermore, recent network modelling and analysis indicates that an alternative solution to the IP20 system reinforcement has been identified as follows.

- Construct and loop a section of approximately 1,450 metres of 100 mm NB IP20 steel gas main from the Cambridge gate station along Victoria Road/Laurent Road to Waikato Expressway (Cambridge section) (FY18).

This reinforcement project has been evaluated to be far more effective in alignment with the significant load requirements that have been committed in the Leamington industrial area over the next couple of years.

Cambridge MP4

In the Cambridge MP4 pressure system, the system pressure is forecast to fall below the minimum pressure criteria in the very short term. To reinforce the supply to the Cambridge MP4 system and to enhance network security, the following reinforcements are planned to commence in FY18 (the same as previous asset management plan).

- Construct 1,100 metres of 100mm PE pipe from DR-80244-CA Queen St to the bridge crossing in Queen Street; and
- Link approximately 450 metres of 50mm PE pipes in Thompson Street.

2. MT MAUNGANUI

The Mt Maunganui network is supplied from the transmission system by two gate stations at Mt Maunganui and Papamoa. It consists of two IP20 pressure systems, two MP4 pressure systems and seven DRSs.

Approximately 4,300 consumers are connected to the Mt Maunganui network system. They are predominately residential consumers, with around 5% commercial/industrial users. However, major industrial and commercial activities are expected in the northern part of Mt Maunganui. Growth and change in gas demand will be dependent on the business development in this area.

The Papamoa East area provides an important opportunity for Tauranga City Council and forms an important part of the Tauranga City Council's SmartGrowth, providing significant green field urban development. Multiple commercial/industrial and residential development projects have already commenced.

In order to cater for the anticipated growth, and enhance security in the network, the following reinforcements are planned to the Mt Maunganui system.

Mt Maunganui IP20

Create IP20 pipe loops by constructing approximately 2,400 metres of 80mm IP20 steel pipe along Newton Street, Hull Road into Totara Road Mt Maunganui (FY24 – FY26).

Papamoa MP7

To support continued growth to Papamoa East, a new MP7 network has been planned since the release of the 2016 AMP. The following projects were identified in the development of a new MP7 pressure system:

- Construct approximately 800m of 225mm MP7 PE pipe in Domain Road (FY18)
- Construct approximately 1,000m of 180mm MP7 PE pipe in Parton Road (FY20)
- Construct approximately 1,700m of 225mm MP7 PE pipe in Tara Road (FY19)
- Install a DRS (MP7/MP4) at the junction of Parton Road and Papamoa Beach Road (FY21)
- Install a DRS (IP20/MP7) adjacent to Papamoa gate station (FY20)

Following the acquisition of new distribution gas assets from GasNet Limited early this year, it has been reviewed that the above MP7 PE pipeline extension and DRS installation projects will no longer be required within the planning period.

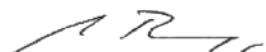
APPENDIX D: DIRECTOR CERTIFICATE – DISTRIBUTION

Certification for Year-beginning Disclosures

Clause 2.9.1

We, Philippa Dunphy and Richard Krogh, being directors of First Gas Limited, certify that, having made all reasonable enquiry, to the best of our knowledge:

- a) the following attached information of First Gas Limited prepared for the purposes of clauses 2.6.1, 2.6.3, 2.6.6 and 2.7.2 of the *Gas Distribution Information Disclosure Determination 2012* in all material respects complies with that determination.
- b) The prospective financial or non-financial information included in the attached information has been measured on a basis consistent with regulatory requirements or recognised industry standards.
- c) The forecasts in Schedules 11a, 11b, 12a, 12b and 12c are based on objective and reasonable assumptions which both align with First Gas' corporate vision and strategy and are documented in retained records.



Philippa Dunphy
Director



Richard Krogh
Director

06 September 2017

Date

06 September 2017

Date