GD17 Business Plan

October 2015

taking natural gas further

firmus energy

GD17 Business Plan

GD17 Business Plan

Part 1: Executive Summary

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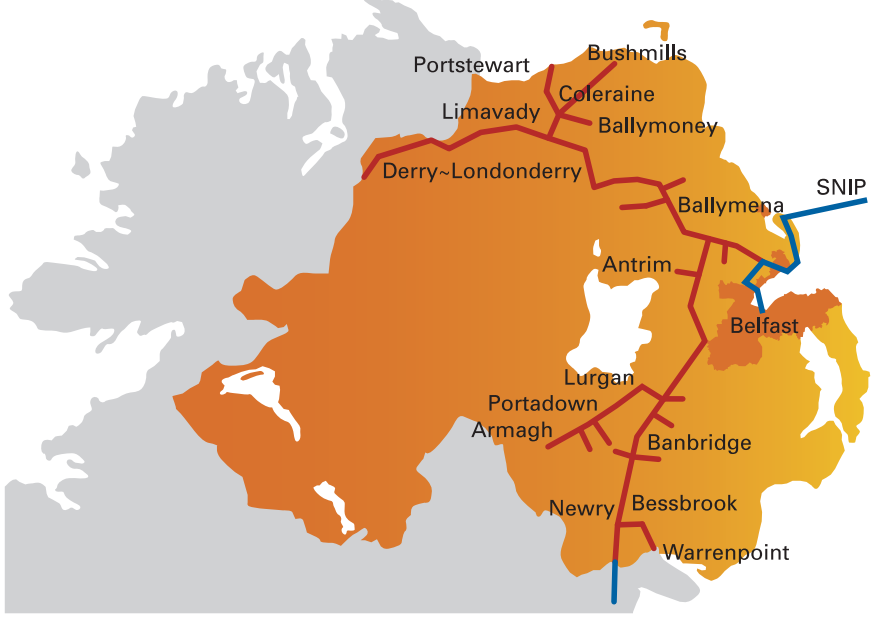
1.1 Introduction to firmus energy and our Plan for GD17

Firmus energy was established in March 2005 when it was awarded a licence to develop the natural gas distribution network in ten key towns and cities across Northern Ireland outside Greater Belfast (the 'Ten Towns'). The company has since been awarded extensions for nine additional areas. We have to date invested over £110 million in developing our network, which now comprises over 1,000km of pipeline and covers an area of 230 square kilometres. We currently serve over 25,000 customers and transport around 55 million therms of natural gas per year.

Figure 1.1 The firmus energy Distribution Network



Firmus energy is a regional employer with a highly skilled workforce of almost 100 staff and around 300 people employed indirectly by contractors. Our gas distribution business currently operates efficiently with 57 staff.

The company has delivered on its regulatory targets for customer connections and volumes and has comfortably surpassed its agreed overall standards for customer service. Independent research shows that we also deliver high levels of customer satisfaction. As a result of our strategic commitment to safety, the company also enjoys an excellent health and safety record in all its activities. Since its inception as a Bord Gais subsidiary in 2005 through to its sale to iCON Infrastructure in 2014, firmus energy has made significant efficiency and productivity gains and kept final gas prices to customers as low as possible.

This is an extremely important moment in our history. We have developed an ambitious but deliverable business and network development plan for the 2017-2022 'GD17' regulatory period. The Utility Regulator will examine our Business Plan and make an assessment that will determine how we are able to develop our network over that period.

What we do and what we hope to do

Our aim as a business is to bring the benefits of natural gas to as many households and businesses as possible within our licensed network area. To do this, we have to give prospective customers the opportunity to connect to the gas network by extending the network mains to 'pass' their property. To date we have laid c. 1000km of gas mains, passing 75,000 properties, and connecting around a third of these.

We now plan to lay a further 718km of gas mains with the aim of passing 72,000 additional properties and connecting 27,000 new customers to natural gas over the GD17 period. In order to deliver this plan to the communities we serve, we are asking the Utility Regulator to permit us to make the necessary investment in the network.

The Utility Regulator broadly shares our overall development objectives, but has to be satisfied that we have developed a sound plan and that it can be delivered efficiently in the best interests of customers. To do this, the Utility Regulator will review our planning assumptions and set cost 'allowances'; effectively maximum unit rates for different elements of work. In addition, the Utility Regulator will consider our request for overall allowances for operating costs (opex), which include staff costs, maintenance, and ensuring the system operates safely, and for capital investment (capex), which is effectively all the elements of building the network. Finally, the Utility Regulator will allow us to earn a reasonable return on our investment having regard for the economic and business risks we bear. All of these elements are included in the price paid by our customers, and we have strived to ensure that we are achieving the right balance of efficiency, safety, reliability and affordability in preparing our plan.

Ultimately our performance will be judged on how good a job we do in connecting more customers to the network. Yet the outcome on this is not entirely within our control and we will bear the risk of failing to achieve our connections targets. We are operating in an increasingly challenging energy marketplace in which we have to persuade more people to spend their own money to convert to natural gas. Our research shows that our target customers – i.e. those whose properties are 'passed' and who are interested in converting to gas – are price sensitive to the costs of conversion. We make use of a number of regulatory and government allowances to raise customer awareness of the benefits of gas and help our customers with the cost of conversion, and it is vital that these remain in place if we are to achieve our goals.

1.2 Key Features of our Plan for GD17

Our plan will make the benefits of natural gas available to more members of our community

- Increasing the number of properties with access to natural gas from 90,000 to c. 161,000
- Doubling the number of connections to our network from 32,000 to nearly 60,000
- Prioritising economically efficient growth
- Creating a greener, cleaner environment

Our plan will make gas cheaper for our customers

- A significant real reduction in customer tariffs for the entire GD17 period
- Ensuring that natural gas contributes to the fight against fuel poverty
- Bringing cheaper energy to more lower income households
- Helping businesses by lowering energy costs

Our plan will drive sustainable growth and employment in the Ten Towns

- Over £80 million to be invested in the network over the GD17 period
- c. 360 employees/contractors directly involved in the development of our network
- Competitiveness of local businesses and its ability to invest enhanced

Our plan has the support of our stakeholders

- Supporting the primary network development objective of the Utility Regulator
- Continuing to deliver high standards of customer service
- Social housing sector (NIHE) committed to the plan
- Favourable responses from other key stakeholders

Our plan is deliverable

- The plan is soundly based on high quality information and data
- Work has been carefully planned zone by zone and over time
- Contractors and agents are ready to gear up

1.3 Key Themes for GD17

Firmus energy's Approach

In all of its dealings, whether with internal or external stakeholders, firmus energy strives to adhere to the company's core values of **clarity, empathy, integrity and teamwork**.

We will demonstrate these values in practice in the course of the GD17 price control review process. In this respect, we will understand and deliver what the Utility Regulator is seeking and we intend that this Business Plan and related submissions will be clear. In addition, we will act with integrity in how we interact with others and in the information we supply. And, although our perspectives may be different in some respects, we will work in partnership with the Utility Regulator to achieve our shared goal to 'promote the development and maintenance of an efficient economic and coordinated gas industry in Northern Ireland.'

The GD17 Business Plan Document

The primary purpose of this document is to demonstrate to the Utility Regulator and firmus energy's wider stakeholders that the company has an effective and efficient Business Plan for the 6 years of the GD17 price control. The plan sets out how firmus energy will continue to develop the network, laying 120km per annum of new mains, bringing the benefits of natural gas to some 27,000 more customers. At the same time, the company will maintain its gas distribution network in optimal condition, invest wisely to ensure its continued safety, and strive to surpass customers' expectations by delivering excellent customer service and value for money. We will do this while passing on to our customers the benefits of significant efficiencies and productivity gains.

The plan is carefully structured to meet the requirements and specification of the Utility Regulator and to provide a high level of detailed information to support our business case. Although all of these matters are discussed in further detail elsewhere in the GD17 plan, there are a number of key features and issues which should be highlighted from the outset. These are set out below.

A More Challenging Marketplace

There is little doubt that market conditions for conversion to natural gas in the Ten Towns area have become more difficult in GD14 and as we face into GD17. First, oil prices have fallen dramatically and the significant cost advantage previously enjoyed by natural gas against oil in the domestic market has been substantially eroded. Also, our research indicates that potential convertors to gas are extremely sensitive to the cost of conversion. Those small businesses and householders minded to invest in energy efficiency or cutting their costs can also, in many cases, achieve a quicker payback on other energy investments such as solar panels than they can achieve from natural gas conversion. Last year more people in Northern Ireland invested in solar PV than connected to gas in the firmus energy licensed area.[1]

There is also uncertainty around the Northern Ireland energy marketplace. Northern Ireland has yet again entered another phase of political instability and alongside this there is little growth in the local economy. The current policies of the Westminster government will continue to impact Northern Ireland adversely in terms of cuts to the block grant and welfare reforms which will further reduce disposable incomes. Government support for fuel poverty and energy efficiency programmes in the Northern Ireland energy sector could well be reduced or even terminated in the challenging years ahead.

This challenging marketplace means that it is ever more important that we raise customer awareness of the benefits of gas and help our customers with the cost of conversion as much as possible. We rely on government programmes and regulatory mechanisms such as the 'connections incentive' to enable us to do this and it is critical that the connections incentive is maintained and indeed enhanced for the GD17 price control period.

[1] Source: Ofgem Renewables and CHP Register - solar PV installations with a capacity of 5kW or below

As a consequence of this more challenging marketplace, we need to apply greater effort, focus and resource to the implementation of our marketing strategy. We have set ambitious but achievable connections targets but it is our judgment that performance will be severely undermined if there is any diminution in the support framework. We acknowledge that each year there are always some customers who will seek gas conversion without having to be incentivised, although our research indicates that this number is relatively low. We therefore consider it necessary that the existing connections incentive should be applicable after the first 100 connections rather than after 567 (including licence extensions) and that the secondary incentive beyond the overall connections target should be retained in its current form, although we have not included the secondary incentive in our BPT opex forecasts.

Refocusing of Connections Growth

Given the nature of firmus energy's price regulation since 2005 and the desire to grow overall gas volumes in the licensed area, the focus in the early years of our development has been to prioritise large Industrial and Commercial (**'I&C'**) customers as early as possible. The next priorities have been Northern Ireland Housing Executive (**'NIHE'**) housing estates and new build housing. Our survey work shows us that there are large numbers of owner-occupiers who could easily be connected to the network if their properties were passed and who would have on average up to 50% more gas usage. As most of the large loads in our licensed area have already been connected, our focus in GD17 is increasingly on rolling out the network mains and targeting owner-occupier residential customers. Successful implementation will facilitate an effective doubling of firmus energy's customer base.

Critical Link Between Connections Target and Capex Allowance

Our GD17 Business Plan is driven by an increased level of connections (a doubling of the customer base) across the licensed area. Increasing customer connections is the ultimate goal in the natural gas industry as it brings indisputable benefits to more people. New connections to the gas network deliver lower cost energy to more households and businesses, making budgets stretch further and helping to reduce fuel poverty. Conversions to gas make the air cleaner and mitigate climate change. If they can be delivered in an economically efficient manner, new connections will also be good for customers already connected to our network, allowing costs to be spread over a larger customer base and reducing the cost for all. We want to set and achieve ambitious targets for connections because that is what is best for the market we serve.

But we cannot drive connections rapidly solely from the parts of the network already passed. We have achieved 33% penetration in these areas, which will continue to rise gradually towards our 65% target. In order to deliver the benefits of gas to more people we must bring the gas network to more places. We will only be able to do this if we are allowed to invest in the roll-out of our network, and those allowances reflect the geographic and demographic realities of our service area. Connections and capex are inextricably linked.

High Quality Data to Demonstrate the Economically Efficient Nature of Our Development Plan

We have invested considerable time and effort to obtain comprehensive survey data on the entire network in order to inform and optimise network development. This means that the work to be done in each zone to extend the network and to manage infill can be accurately quantified. This in turn has made it possible to package this work into projects in each zone and rank them by priority in terms of commercial attractiveness and practical work management. The compilation of high quality network details has direct implications for our GD17 network development plan and connections target and also for the allowances granted by the Utility Regulator for elements of the work.

Proposed Changes to the Form of Our Price Control

It is noted that the Utility Regulator intends that firmus energy should migrate from a volume-based to a revenue-cap type price control (in line with Phoenix Natural Gas Limited ('Phoenix') and has issued a decision paper to that effect, with a consultation on price control conditions to follow. Although the company has no objection in principle to making this change, the transition to a revenue cap has implications for the GD17 plan process because the price control conditions directly impact upon the modelling of our Business Plan, and, ultimately, the prices we charge.

At the Utility Regulator's request, we have prepared our GD17 Business Plan on the basis of a revenue cap form of control, although this is not technically consistent with the terms of our licence as it currently stands. In doing this, we have had to undertake analysis and then make a number of assumptions as to the precise form that the eventual changes to the price control conditions in our licence will take. These include making changes to the length of our profile adjustment period (increasing it from 30 to 40 years) and treatment of accumulated under-recoveries by their inclusion within the depreciated asset value. These changes reflect the alterations made to the Phoenix licence at the time that it was similarly adjusted to a revenue cap control. We have modelled current licence arrangements based on a 30 year recovery which has informed our decision to propose a 40 year recovery profile in the interests of delivering lowering prices over the long-term. (Discussed further in Part 4.)

We believe that this approach represents the most attractive possible outcome for our customers. Part 13 of this plan contains a detailed description of the assumptions that we have made regarding the transition to revenue cap and the rationale for them. In particular:

- An increase in the profile adjustment recovery period and incorporation of under-recoveries in the DAV will enable us to reduce prices to our customers further than would be possible under the counterfactual scenario. We estimate that our prices would be c. 8% higher than those presented in this plan if we did not make these changes
- Aligning our licence conditions with those of Phoenix will assist in improving comparability between networks in future price controls
- Alignment of price control conditions will carry the benefit of reducing arbitrary price differentials between service territories that arise out of differences in licence conditions – which could potentially be of great benefit to some of our industrial customers

Cost of Capital

As a regulated natural gas distribution network operator, we are allowed to earn a reasonable return on our investments having regard for the economic and business risks we face.

Our business is strongly oriented towards growth: We are investing heavily in developing our network, and we bear risk through regulatory allowances and incentive mechanisms on our ability to manage our business and our capex programme efficiently and to meet our connections targets in challenging market conditions. In this regard, we believe that our business faces significantly greater operational risks than gas distribution networks in Great Britain (**'GB GDNs**') and the more mature Phoenix in Northern Ireland. As illustrated in the following section, we are also far smaller in terms of customer numbers than any other regulated utility in the United Kingdom that we are aware of. This means that our fixed (non-controllable) costs are greater as a proportion of our revenues, and as a result our financial performance is more exposed to market shocks or underperformance against regulatory objectives.

As a small local utility, we are also unable to access the wide variety of financing sources that larger utilities are able to take advantage of, resulting in an overall higher cost of third party debt financing for firmus energy.

We have engaged Oxera to provide a detailed analysis of factors affecting our cost of capital, and have provided copies of their submissions alongside this plan. Our GD17 plan is based on a weighted average cost of capital (**'WACC'**) of 5.5%, which falls in the middle of the range of 5.0% to 6.0% proposed by Oxera.

Although WACC has certain dimensions which are debatable, as well as those that are directly measureable, we believe that not enough recognition has been given to Northern Ireland specific risk. Although we appreciate that the Utility Regulator has previously expressed a different view, there is no doubt that Northern Ireland utilities operate in a more risky physical environment than most of their comparators. Despite the progress made, there is significant on-going political instability in Northern Ireland with the possibility of communal strife erupting at any time. Firmus energy has also had 'suspect devices' attached to critical network infrastructure in the recent past.

Comparisons with GB GDNs and Phoenix (Benchmarking)

Although the Utility Regulator's approach to GD17 in terms of benchmarking firmus energy against the GB GDNs and Phoenix in Northern Ireland is understandable, we believe it is a potentially problematic approach in which the sheer number of adjustments required in order to compare the companies meaningfully could call into question its overall value. We welcome the idea of benchmarking for GD17 in principle as a qualitative check on whether there is a reason to doubt that a utility's costs are efficient and reasonable, but would caution against a purely quantitative process. Oxera have provided two papers on the Utility Regulator's benchmarking approach, which we have provided alongside this plan.

We are confident that our plan, built from the ground up, sets out a reasoned assessment for the allowances sought and that real efficiencies are included in our numbers.

At a fundamental level, there are some very significant differences between firmus energy and these 'comparators' which cannot be ignored. We are at the very early stages of our development compared to the GB GDNs, and to some extent Phoenix, who are 10 years ahead in time. Our emphasis is on new connections and network development whereas the GB GDNs have a major focus on maintenance and asset replacement. In addition the GB GDNs are vast in size compared to firmus energy – some over 100 times bigger. It is not possible for firmus energy to capture the economies of scale that should be available to businesses of this scale.

In addition firmus energy has a licensed area which is sparsely populated compared to the GB GDNs and Phoenix, which invariably impacts average costs per customer, both capex and opex.

Figure 1.2 below shows some of the differences between firmus energy and the Utility Regulator's preferred comparators.

Figure 1.2 firmus energy Compared with other GDNs*

Company	Gas Main	Customers	Staff
Scotia Gas Networks (GB)	74,000km	5.8m	1,400
Northern Gas Networks	37,000km	2.7m	1,300
National Grid	130,000km	10.9m	4,100
Wales and West Utilities	35,000km	2.5m	1,500
Phoenix	3,000km	180,000	125
firmus energy	1,000km	25,000	57

A further fundamental difference relates to the market firmus energy is serving. Northern Ireland is one of the least well-off regional economies in the UK and the firmus energy licensed area covers some of the least well-off parts of Northern Ireland. Household disposable income in Northern Ireland is only 83% of the UK average.[2]

Not only do households in firmus energy's licensed area have less disposable income in order to pay for gas conversion; they also have less of a history or experience of natural gas. Unlike in Great Britain where gas has been ever-present, or even in Greater Belfast, where Phoenix's name reflects the city's history of gas availability, firmus energy serves an area where there is quite limited familiarity with gas in the Ten Towns. This lack of history and lack of customer experience of gas makes natural gas a harder sell than in the other licensed area.

*All figures are approximate

[2] http://www.neighbourhood.statistics.gov.uk/HTMLDocs/dvc168/index.html

1.4 Summary of this Business Plan Document

This GD17 Business Plan represents the basis for the future growth and development of the Ten Towns natural gas network over the six year period from 2017 to 2022.

Part 1 of the plan has provided some basic introductory information about firmus energy as a gas distribution business. It has also set out a number of key features and issues that we believe represent the key themes and challenges surrounding our Business Plan.

Our performance in the current GD14 period is described in **Part 2** of the plan. This shows both historic performance in 2014, the first year of GD14, and projected performance for the current year 2015 and 2016. The projections for 2015 and 2016 show how the GD14 regulatory settlement has imposed a much more stringent regime on firmus energy than before. In particular, restrictions on our capital expenditure allowances have curtailed our ability to develop our network on an economically optimised basis. In an attempt to tailor our investment programme to meet reduced capex allowances while connecting as many customers as before, we have been forced to focus on the smaller domestic market with higher density housing where the allowance is adequate. This has reduced the potential domestic load throughput.

Firmus energy's strategic approach to GD17 is set out in **Part 3** of the plan. From the outset, our aim is to deliver on what the Utility Regulator has stated as its own principal aim 'to promote the development and maintenance of an efficient, economic and coordinated gas industry in Northern Ireland'. In order to do this, we plan to increase the customer connection base by around 27,000 over six years, ramping up to almost 5,000 connections per year by the end of the plan period. To achieve this ambitious outcome, the company has identified the need to make gas available to many more parts of the network and this requires the laying of 120kms of new network mains per annum.

A financial overview is set out in **Part 4** of the plan and includes profit and loss accounts, cash flow statements and a range of statements required by the Utility Regulator. It illustrates that we expect our profitability to fall from the outset of GD17, reflecting a reduced cost of capital and increasing efficiency. This in turn will lead to lower prices being paid by our customers.

Our financial outcomes for GD17 will be driven by robust growth in the network and customer connections and by increased business volumes. Attainment of new connections targets is wholly dependent on securing sufficient resources for the corresponding investment in the network. The detail of firmus energy's forecast growth in connections and volumes, and the methodology underpinning the forecast is set out in **Part 5** of the GD17 plan.

Firmus energy's GD17 operating costs (opex) are set out in detail in **Part 6** of the plan and capital investment costs (capex) are set out in **Part 7**. Overall there is tight control of operating costs over the plan period. There is an increase in staff costs over the period reflecting the need to increase headcount by around seven people to meet increased workload, but this is underpinned by very significant productivity improvement. Capex is set to be £81 million over the GD17 period as we continue to extend our network.

Part 8 of the plan meets the Utility Regulator's requirements in relation to network assets and shows the impact of the planned increase in the capital investment programme on the company's regulated asset base.

GD17 Business Plan

All of firmus energy's activities in delivering gas to more customers have a beneficial effect on the environment. **Part 9** of the GD17 Business Plan sets out an estimation of the quantum of that improvement and how substituting natural gas for oil or other fuel reduces the carbon footprints of customers and contributes to Northern Ireland's overall goals on greenhouse gas reduction and air quality. This section also sets out the company's proposals for reducing and managing gas escapes and other environmental impacts.

Although very extensive financial information is set out in the completed GD17 templates provided by the Utility Regulator, not all costs follow standard assumptions. There are real price effects (**'RPEs'**) where elements of costs within firmus energy's overall cost base are set to rise ahead of the assumed rate of inflation. Similarly, there are areas where efficiencies can arise which are not assumed in the template. In addition, there are special factors that impact firmus energy's cost profile as well as items of atypical expenditure or once-off spending requirements. These are discussed in **Part 10** and **Part 11** of the GD17 plan.

Organisational change and its implications for business performance is set out in **Part 12** of the Business Plan.

Part 13 contains detailed technical information relating to the operation of our price control formulae. This includes our assessment of the impact that adjustments under the 'uncertainty mechanisms' set out within our licence will have on our opening position for GD17. It also provides further information as to the assumptions we have made on the form of our price control going forward as we move from a price cap to a revenue cap form of control.

Other additional business information about firmus energy is set out in **Part 14** of the plan.

Part 2: GD14 Review

GD17 Business Plan

Part 2: GD14 Review

Utility Regulator Guidance

- Key overall messages on GD14 spend to date versus allowances with reference to workloads.
- Key outputs delivered during the GD14 price control period to date in the context of the overall price control period.
- Key overall messages on forecast delivery of outputs for the overall GD14 price control period with reference to forecast spend.
- Outlook on overall GD14 price control period.

2.1 Introduction

This section provides an analysis of our actual and projected performance against key allowances and outputs for GD14, including volumes, connections, opex, capex and customer service standards. We also identify and explain key areas in which we have out-performed or under-performed against the objectives set for us by the Utility Regulator.

Finally, we describe a number of key points of reference arising from our GD14 experience that we have used to inform our approach to GD17. In particular, we provide further detail on the following issues:

- How the capex allowance we were granted in GD14 has had the unfortunate consequence of constraining our ability to develop the network in an economically optimised way
- That our volume targets need to be set by reference to overall connections targets
- That the cost of making new connections is significantly greater than the opex allowance we have been granted through the connections incentive mechanism
- That the uncertainty mechanism will need to make adjustments to our GD17 opening position in respect of the change to our capex allowance, an extension to our licence area and a number of other retrospective adjustments which we describe in Part 13

2.2 Performance Against GD14 Objectives

2.2.1 Price Control Period

The following section provides analysis broken down by expenditure area. As the GD14 Price Control period began in January 2014 and runs until December 2016 the figures outlined in this section are based on actual results for 2014, further reflected in the 2014 RIGs data Template which will accompany this submission to the Utility Regulator. Numbers provided for 2015 are forecasts and longer-range forecasts are included for 2016. It is therefore likely that the outturn actuals for the remainder of the GD14 period may vary from these 2015 and 2016 forecasts. We anticipate that this will, in turn, affect our GD17 opening position.

2.2.2 The Challenges of a Short Price Control Period

We understand the rationale for the Utility Regulator's decision to reduce GD14 to a three year price control period. Bringing the price control for the two existing GDNs in Northern Ireland in line with the launch of the new Gas to the West Licence will, in due course, allow for meaningful comparison between licensees following adjustments for the relative sparsity, demographics and scale of the different networks.

However, the relatively brief three-year GD14 price control period has created a number of challenges, given the long-term nature of our investment in the Ten Towns Network and the growth and development focus of our capex programme. In particular, the reduced price control period has restricted our forward planning flexibility. The logistics of network design, including liaising with stakeholders, Department for Regional Development '**DRD**' Road Service, local businesses, co-ordination with the Period Contractor, arranging specialist construction equipment and ordering network materials will be better served by the six-year GD17 price control.

As we plan for GD17, we can already see the benefits that will be derived from the long-term prioritisation of work programmes and foresee the opportunity to, when necessary, accelerate projects to compensate for unforeseen circumstances or delays to ensure we meet our overall objectives by 2022.

2.2.3 GD14 Capex Performance

Retrospective Adjustment to GD14 Mains Allowance

In understanding actual performance to date and prospective performance to the end of the GD14 price control it is important to understand the chronology of the GD14 price control process.

In January 2015, the Utility Regulator determined that our GD14 mains capex allowance should be reduced by £2.7 million based on an assessment that firmus energy only required 6.93 metres of mains per property passed (as per original determination this equated to over 11 metres per property based on the same number of properties passed). A 6.93 metre per property passed allowance is consistent with the allowance granted to Phoenix. Given the significant differences in terms of population density between our respective licence areas, we disagreed with this approach.

This decision had retrospective effect. In other words, it acted to reduce our allowances in respect of the year already passed, as well as for the remainder of GD14. Despite the restriction in our ability to lay mains to meet new customers, our regulatory target for new connections remained unchanged.

Given the lead time around planning and logistics for network development planning and construction, the determination immediately created a number of challenges for our business. Capex in 2014 was carried out in line with the initial determination, and much of our 2015 capex programme had been scheduled in advance of the determination. We were obligated to continue laying mains necessary to honour connection agreements already in place at the time of receipt of the revised determination.

While honouring commitments already in place, we undertook a radical redesign of our construction schedule for the remainder of GD14 in order to identify locations in which we were able to keep within the much reduced mains meterage per properties passed. This forced us to focus on the smaller domestic market with higher density housing; properties with a naturally lower gas load than we had originally been targeting.

As the adjustment was confirmed in January 2015, the first full year of our GD14 Price Control capex had already been undertaken in line with the initial determination and therefore shows a material overspend against our adjusted GD17 capex allowance. Our refocused programme for 2015 and 2016 has enabled us to move back towards the overall 6.93 metre allowance over time, but at the expense of our ability to target higher burn domestic customers. This has had a knock-on effect on our gas volumes and marketing plans, as illustrated later in this section.

This experience serves to underline the critical link between capex allowances and other targets, described previously in Part 1.

On review of the actual versus determined unit costs for GD14 it is apparent that the determined allowances are too low for certain types of mains and meters.

We acknowledge that the intention of the 'basket of works' concept is to ensure company's allowances are balanced across the full range of capex costs and therefore reflective of total costs.

However, it is evident from our GD14 costs that, when the basket of works is applied to a small customer population, any customer outlier not predicted when the allowances were set has a major impact on the accuracy of the allowances.

Traffic Management Act (TMA)

As part of the GD14 process, in order to address the potential introduction of the TMA legislation during the period, an uplift of 10% was allowed for those capex cost items that would be impacted.

As TMA legislation has not yet come before the Northern Ireland Assembly, and in recognition of legislative timeframes, we do not anticipate the introduction of TMA by the end of 2016. Therefore, we acknowledge a retrospective adjustment will be required, which is discussed further in Part 13.

Licence Extension

As part of our load surveys we discovered an opportunity to connect a new I&C customer in conjunction with extending the benefits of natural gas to a number of towns within our development area including Loughgall, Richhill, the Moy and Charlemont. In addition, by working with the Utility Regulator, we have gained a licence extension to connect Blackwatertown and Benburb. This has resulted in additional capex allowed, including mains allowances in excess of 6.93 metres per property passed on a ring-fenced project basis. This will have the effect of increasing capex amount above the revised determination initially envisaged by the January 2015 redetermination.

2.2.4 GD14 Connections

Figure 2.3 GD14 Connections – Actual vs. Determined

	GD14 Determined*				GD14 Actual/Forecast			
	2014	2015	2016	Total	2014	2015	2016	Total
Owner occupied	2,000	2,000	2,000	6,000	1,580	2,000	2,000	5,580
New Build	800	800	800	2,400	777	800	800	2,377
NIHE	1,200	1,200	1,000	3,400	1,402	1,200	1,200	3,802
Commercial	152	102	52	306	260	150	150	560
Total	4,152	4,102	3,852	12,106	4,019	4,150	4,150	12,319

2014 Connections

Figure 2.3 above illustrates our actual connection numbers for 2014 that we will submit to the Utility Regulator as part of our annual reporting requirements alongside this document. The figures demonstrate that we fell marginally short of our overall connections target in 2014. That we failed to reach our target, despite planning our network build based on the original properties passed allowance, indicates that other factors, including the falling oil price and the continued impact of the economic downturn on Northern Ireland, are having a significant impact upon our ability to make connections.

This challenge demonstrates the necessity to retain and enhance the connections incentive mechanism to support customer connections and network development. This rationale is described in greater detail in Part 5 of this document.

2015 Connections

Figure 2.3 also demonstrates that we are on schedule to hit our 2,000 owner occupied connection target for 2015 and 2016. However, we may still fail to reach our owner occupied GD14 connection targets as a result of the difficulties experienced in 2014. The overall picture for 2015 and 2016 is complex and difficult to analyse given the retrospective adjustment to properties passed allowances, however, early indications demonstrate that:

- By revising our build plan in order to meet our properties passed targets within the restricted mains allowance, we have passed more lower demographic homes
- We initially anticipated that this would lead to a fall in connection numbers. However the 2015 mid-year acquisition of further NISEP funding is enabling a continuation of steady connection rates in that demographic
- While 2015 connection rates remain stable the connection of a greater than expected number of lower demographic homes that burn less gas has had a follow-on effect on volume growth (see Part 2.2.5 below)
- NISEP funding will return to 2014 levels in 2016 thereby creating a greater than ever challenge to meet connection targets (see Part 5)
- By the beginning of the GD17 period we will have passed the vast majority of all the properties which are on average less than 7 metres apart and will naturally require an increase to the metres per property passed allowance (see Part 5)

*Determined numbers do not include subsequent licence extensions

2.2.5 GD14 Volumes

Figure 2.4 GD14 Volumes – Actual compared to Determined

	GD14 Determined				GD14 Actual/Forecast			
	2014	2015	2016	Total	2014	2015	2016	Total
Domestic - P1	8,222,121	9,798,128	11,337,113	29,357,362	5,783,250	6,931,920	8,121,920	20,837,090
SME - P2 & P3	12,602,875	13,336,978	13,820,553	39,760,406	13,081,666	14,536,747	15,216,992	42,835,405
Contract - P4, P5 & P6	37,745,391	37,774,346	37,797,550	113,317,287	36,249,890	37,824,042	37,365,977	111,439,910
Total	58,570,387	60,909,453	62,955,215	182,435,054	55,114,807	59,292,709	60,704,890	175,112,405

In the first year of GD14, firmus energy has underperformed against the Utility Regulator's volume target. Although the biggest single factor was the lack of growth in the large user customer category, some of this underperformance is due to the difficulty securing connections from higher usage households because of the need to concentrate on the generally smaller properties that fit within the 6.93m per property passed regulatory allowance.

Another reason for the volume shortfall was that the bar was set high by the Utility Regulator, with the 2014 volume target representing a 38% increase on the regulatory target for 2013 and an 11% increase over what had been achieved by firmus energy in 2013. Although the total regulatory connections target was not missed by much in 2014, the company had not expected that, in the absence of any major new industrial load, it would deliver an 11% increase in volumes at the given level of connections. This implies that the Utility Regulator had assumed an overall increase in average burn rates across our customer base in setting our volume targets. This has not been borne out by our past experience, as illustrated by our underperformance in GD14.

2.2.6 GD14 Opex

Figure 2.5 GD14 Opex – Actual vs. Determined

	GD14 Determined				GD14 Actual/Forecast			
	2014	2015	2016	Total	2014	2015	2016	Total
Total (£'000)	5,651	5,818	6,042	17,511	6,977	6,426	6,331	19,734

As can be seen in figure 2.5 above, we have exceeded our opex allowances in the first year of GD14 and expect to continue to do so for the remainder of GD14.

There are three principal reasons for the difference between the GD14 determined spend and the firmus energy actuals for 2014 and forecast spend.

The first is the significant costs resultant from the IT transition described in Parts 6 and 12. The costs for this transition are being borne by our owners iCON Infrastructure.

The second are additional consultancy costs, primarily resultant from the additional support required as part of the GD17 Price Control submission.

The final area of significant cost overspend is for connections related activities. Due to the increased competition in the marketplace resultant from the drop in oil price, firmus energy has had to invest further in advertising and our salesforce in an attempt to meet our owner occupied connection targets. As is illustrated in Part 2.2.4, despite this additional investment we failed to meet our owner occupied connection targets in 2014.

Our detailed analysis in Part 5 outlines our plans for, and challenges we anticipate, in relation to connections during the GD17 period.

2.2.7 Other GD14 Outputs

Customer service metrics

In the first year of the GD14 Price Control period we have improved our high standards of customer service, including a reduction in the time we take to connect individual customers.

Given our focus on customer service, we have dedicated Part 14 of this document to detail our customer focused activities and current standards of performance.

Public Reported Gas Escapes ('PREs')

We have maintained consistently high standards, above the 90% Standards of Performance target, for responding to PREs. Our activities to further reduce PREs during the GD17 period are outlined in Part 9 of this document.

2.3 Key Messages for GD17

2.3.1 Capex Allowances

The capex allowance we were granted in GD14 has constrained our ability to develop the network in an economically optimised way.

We have submitted 621 detailed projects alongside this document to provide a firm evidence base for a more appropriate allowance for the distance between properties passed during the GD17 period.

We have invested significant time and resources into securing this robust data on all premises in the licensed area to show the average requirement to be nearly 10 metres per property passed. We will have passed the vast majority of properties which are an average of 6.93 m apart by the end of the GD14 period. We cannot roll-out the network to the extent desired by the Utility Regulator, policymakers and the company itself without a significant upward adjustment to the allowance for GD17.

2.3.2 Volume Targets

A move to a revenue cap model will require detailed consideration of volumes in relation to overall connection targets. As volume growth in GD17 will be solely dependent on growth in domestic connections (see Part 5 of this document for further detail), this intrinsic link must be adequately accounted for in the GD17 determination.

2.3.3 New Connections

It costs significantly more to make new connections than the opex allowance we have been granted through the connections incentive mechanism.

In the context of a price sensitive market where customers have more options and where natural gas has recently seen its competitive advantage diminishing it would be hugely damaging to achieving connections to reduce this incentive. Indeed it is the view of firmus energy based on all our evidence, that the incentive should be increased, and perhaps subject to review should market conditions at some point change back in favour of gas. This subject is explored in greater detail in Part 5 of this document.

2.3.4 Customer Contributions

The GD14 capex redetermination will result in a requirement to implement a practice of customer contributions towards connections where actual costs are in excess of regulatory allowances. In order to implement this change we submitted our updated Connection Policy to the Utility Regulator for approval in June 2015.

2.3.5 The Uncertainty Mechanism

The most recent modifications to the firmus energy Distribution Conveyance Licence were made on 4 August 2015. The updated Designated Parameters and Determination Values outlined in Licence Condition 4.9 are resultant from the GD14 Price Control for Gas Distribution Networks Final Determination of 20 December 2013.

The subsequent Utility Regulator update to the level of allowed capex for network mains construction during the GD14 price control and the additional allowed capex resultant from recent licence extension noted above are not reflected in the current Licence and will necessitate retrospective adjustments under the uncertainty mechanism when GD14 comes to an end.

We explore some further issues for consideration under the uncertainty mechanism in Part 13, including the Foyle River crossing security of supply project outlined in our GD17 Supplementary paper provided to the Utility Regulator in June 2015.

Part 3: Strategic Approach to GD17

GD17 Business Plan

Part 3: Strategic Approach to GD17

Utility Regulator Guidance

- Plans for the development and maintenance of the GDN's network, for the GD17 period and also, on a higher level, for the period up the end of the revenue recovery period specific to each GDN;
- Details on how the GDN intends to develop its business during the GD17 price control period, the key outputs and outcomes it intends to achieve, as well as the investment anticipated to be needed to do so.

3.1 Introduction

3.1.1 A Shared Goal to Continue the Development of the Ten Towns Network

The Northern Ireland Government, the Utility Regulator and firmus energy share a common goal to extend the reach of the gas network in the Ten Towns. From the outset, the Utility Regulator's stated primary objective for the GD17 Review, as set out in its GD17 Guidance, has been to **'promote the development and maintenance of an efficient, economic and coordinated gas industry in Northern Ireland'.**

There are good reasons for this desire. Natural gas helps to address the significant fuel poverty that exists today in Northern Ireland; it is more convenient and more environmentally friendly, and the supply of natural gas to Northern Ireland is significantly more secure than that of oil. New connections to the gas network deliver longer term lower cost energy to more households and businesses, making budgets stretch further and reducing fuel poverty. Conversions to gas make the air cleaner and mitigate climate change. If they can be delivered in an economically efficient manner, new connections will also be good for customers already connected to our network, allowing costs to be spread over a larger customer population and reducing the cost for all.

Our GD17 strategic plan reflects this shared goal. Ultimately, our vision is to extend the benefits of natural gas to as many people and premises as economically possible in the Ten Towns licensed area and beyond. We will aim to achieve this goal while maintaining the highest levels of safety, customer service and efficiency. We will strive to become more and more efficient as our company continues to grow.

The growth of our business will also help to sustain economic growth in the areas that our network serves. We are already a significant local employer, with approximately 100 direct employees and a further 300 people employed by our contractors and third parties. As we continue to grow, we expect to support the creation of new local jobs for local people, across our business and that of our contractors. Our growth will also create new opportunities for growth among associated local businesses in the industry, including installers, retailers, manufacturers, agents and gas suppliers.

3.1.2 Guiding Principles of our GD17 Strategic Plan

Our company is only 10 years old and is working to develop what is a relatively new industry for our service area. It is therefore unsurprising that our focus is very much on continuing the growth of our network rather than the consolidation and asset management that is often a feature of the plans of more mature utility businesses and networks.

However, we recognise that unconstrained growth may not be in the best interests of our stakeholders. We need to satisfy the Utility Regulator that our network development plan has been tailored to deliver outcomes that are in the best interests of our customers, both existing and new. With this need to balance growth with stakeholder interests in mind, we have adopted a number of guiding principles for the development of our GD17 strategic plan:

- Our network development plan must result in **lower prices** to the users of our network
- Our plan must be **deliverable** without compromising on our high levels of **safety and customer service**
- Our plan needs to be socialised with and have the support of key **stakeholders** in the communities we serve

We are proud to say that we believe our plan meets all of these guiding principles.

3.1.3 Our GD17 Strategic Plan at a Glance

Figure 3.1 below sets out the main business growth targets included in the GD17 plan along with their impact on the overall network and customer base.

Figure 3.1 High level view of firmus energy GD17 Business Plan

	2017	2018	2019	2020	2021	2022	Total
New Mains built (km)	123	120	118	117	119	120	718
Mains cumulative (km)	1,218	1,338	1,456	1,573	1,693	1,813	
New Connections	4,216	4,287	4,372	4,503	4,850	4,996	27,224
Total Connections	36,544	40,831	45,203	49,706	54,556	59,552	
Penetration rate %	35.9%	35.9%	35.9%	36.2%	36.7%	36.9%	
Gas Volume (mtherms)	61	63	65	67	70	72	
Operating Costs ('000)	7,171	7,410	7,562	7,914	8,461	9,000	47,518
Capex ('000)*	13,043	12,811	12,937	13,387	13,757	14,778	80,714
Total Employees	64	64	64	64	64	64	

*Excluding IT Transformation and TMA Costs

GD17 Business Plan

Within the GD17 period, our business and network development objectives are to:

- Extend the benefits of natural gas to as many domestic consumers as economically feasible, targeting **27,000 new connections** in GD17
- Achieve this growth in connections while maintaining conveyance charges below their current level and maintaining high standards of customer service. Our tariffs for GD17 will be **5% lower than current levels**, while our operating costs will fall per unit output in GD17 and our direct headcount will only grow by seven staff (as demonstrated in Part 6)
- Deliver connections growth by **investing c. £13.5m capex annually**, installing 120 km of infill mains per year from 2017 to 2022 - a total of 720 km over the six year price control period
- Reduce volume dependency on a small number of large I&C customers, and therefore reduce the risks faced by other users of the network caused by large business closures resulting in a redistribution of network costs. We will do this by:

  – Increasing our properties passed to c.12,000 each year from 2017 to 2022, **passing an additional 72,000 properties** during the six year price control period, taking total properties passed to c.161,000 by 2022

  – **Increasing our domestic connections** from over 4,000 to almost 5,000 each year from 2017 to 2022, concentrating the build in residential areas where gas burn will on average exceed 450 therms per property per annum

  – **Increasing our SME connections** from our GD14 target of 50 in 2016 to 150 per year from 2017 to 2022

In line with our current practice, we will also **seek further network extensions** from the Utility Regulator where economically viable to enable more customers to connect to natural gas.

3.1.4 Growth, Efficiency, Service and Safety

Our productivity continues to improve dramatically under standard measures such as customer connections per staff member (see figure 10.1). However, **efficiency** is not just a matter for regulators. We also share the Utility Regulator's ambition for efficiency improvement. We want to strive to do more and we want to be able to do more, with less, where possible. Our economic advisors Oxera have highlighted the very significant productivity gains already achieved by the company since 2005. We continue to be in a strong position to scale up connections activity rapidly from our existing cost structure, yielding further productivity gains.

Alongside efficient growth we want to give our customers excellent **service**. We want to have thousands of satisfied customers all over our licensed area recommending gas conversion to their neighbours. We have continuously outperformed the GD14 target measures for our customer service standards and it is our intention to achieve further improvements in GD17 and beyond. In each of the first four categories, firmus energy has consistently scored 98% or 100% since its first performance report in 2007. In the last area of New Connections, firmus energy has in 2013 scored 99% and in 2014 scored 98%.

It is essential that all of our business activities and customer interactions are **safe**. The company has had no Health and Safety Executive NI or DRD Road Authority fines in 10 years of operation. In addition there have been no instances of 'black dust' in the last 10 years, which has contributed to fewer call outs. The company has also achieved a 96% and 97% performance in attending to controlled and uncontrolled gas escapes within 1 or 2 hours respectively. We have a first-rate safety record, among the best achieved by any utility in Northern Ireland, and the maintenance and improvement of that record remains a strategic priority for GD17.

3.2 GD17 Business Plan Methodology

As noted above, we have based our network development strategy around an overall assumption of robust growth and stable customer tariffs over the long-term. We aim to nearly double connections and grow the network materially, leading to approximately 18% growth in volumes across the network by the end of GD17, despite the loss of a major industrial load before the price control period begins.

Our strategy is comprised of both a top-down approach (which sets goals and objectives based on what has been achieved by comparable gas distributors elsewhere), and a bottom-up analysis which measures the scale of the task in delivering specific numbers of new customer connections and infills.

The box below provides a summary of the methodology we adopted in putting our GD17 Business Plan together.

Figure 3.2 Business Plan Development Methodology

Step 1	**Investment in network information base**	We invested significant resources to develop a detailed and sophisticated bottom-up survey of our service area.
Step 2	**Network design**	We used the survey to build a full design of our completed network. We divided the remaining development into 621 packets of work and prioritised them according to survey data and other economic factors.
Step 3	**Properties passed**	We calculated the number of properties our network would be able to pass during GD17 based on the prioritised network development plan.
Step 4	**Connections**	We used our past experience, an assessment of current market conditions and Oxera analysis to assist us in estimating the maximum number of connections we would be able to achieve to our network on an annual basis given the number of existing properties and new properties our network would be passing.
Step 5	**Volumes**	To determine overall volume forecasts, we applied historical load factors to the assumed new connections, adjusting for factors such as size of property, location etc. compared to our existing customers.
Step 6	**Other Business Plan assumptions**	We overlaid other Business Plan assumptions such as our requests for opex and capex unit costs, cost of capital, licence conditions (including profile adjustment recovery period) and others in order to develop a full financial model for the GD17 period and beyond.
Step 7	**Deliverability**	We cross-checked the outcomes of our modelling against (1) impact on customer prices, (2) our ability to finance our activities on an on-going basis, and (3) our ability to deliver against our development objectives having regard for our technical, engineering and operational capabilities, and adjusted our plan accordingly.

The result of this exercise is a plan we believe meets the Utility Regulator's core objectives for the GD17 price control period. It is important to note that our plan is holistic and internally consistent in its approach. The new connections we are seeking to deliver can only be achieved if our regulatory allowances allow us to invest in the growth of our network in order to pass more properties. We will only be able to continue to invest if our regulatory allowances provide us with the ability to recover our investment costs, our operating costs and a reasonable return on our investment, having regard for the risks we face as a vitally important, growing business. In this regard, we hope to avoid a repeat of the experiences we described in Part 2, whereby our GD14 regulatory allowances for interrelated capex and targets for connections and volumes have fallen out of step with each other.

The remainder of this section contains a more detailed explanation of our Business Planning methodology. Subsequent parts of this Business Plan contain detail on the individual outputs produced by our Business Plan, including finance, volumes and customer numbers, opex and capex.

3.3 Business and Network Development in the GD17 Period

3.3.1 Development of Our Prioritised Investment Plan

For business reasons and with a view to ensuring that our network is developed on an economically optimised basis, we have invested significant time and resources in a highly sophisticated data collection and analysis exercise that allowed us to map and prioritise network development for the full GD17 period. Having this comprehensive survey data available to us has been of considerable assistance in the preparation of the detailed investment plan.

We have carried out an updated detailed analysis of all towns and settlements within our Development Area and have a detailed construction programme in place for 2017–2022. Alongside this, we have developed a high level programme for the post GD17. The plan combines details of projected new connections and network extension across the licensed area with associated costs and investment requirements. We now have a detailed and costed network design of 621 ranked projects which cover our entire licensed area. This includes a wealth of detailed quantitative and qualitative data to inform development planning and represents our ability to demonstrate, in detail, the metrics around growing connections and extending the network.

We have designed the mains infrastructure for all of the towns and have zoned the towns producing distinct infill projects which have been estimated for construction costs and have undertaken appropriate NPV analysis completed to guide prioritisation. We record customer interest and plot the addresses onto our Geographical Information System (**'GIS'**) and review areas of demand monthly via battlefield analysis. We can provide any caller with an address in our Development Area with an expected gas live date for all works planned for 2017 – 2022.

This has enabled us to prioritise our build programme through a series of analyses:

- NPV - financial viability/attractiveness of the project
- Customer interest/demand – following contact with potential customers, this is recorded onto our lead tracking system, mapped onto our GIS and reviewed monthly
- Proximity to existing network – existing gas network adjacent to the project or additional mains required to bring gas to the area
- Age of property types and when boiler replacement will be due (all zones)

Further analysis has been carried out using:

- MOSAIC (a dynamic customer classification based on demographics, lifestyles, and behaviours by postcode). This is mapped onto our GIS software to develop an analysis of the domestic load potential within our towns
- NIHE plans – we have on-going liaison with the NIHE and plans of when they propose to convert heating systems within their housing stock
- New build gas live dates – we have met with property developers and we now have a programme to identify when new developments will be ready for a gas connection
- DRD resurfacing scheme dates – we have on-going liaison with DRD section offices to plan our works prior to proposed resurfacing schemes
- Department for Social Development '**DSD**' Public Realm scheme dates – we have met and discussed any works well in advance of any town centre schemes to enable gas mains to be installed and services completed before DSD works

Having undertaken a comprehensive survey of our existing licensed area, we have identified connection prospects in the Contract, SME, NIHE, New build and Owner occupied sectors, with burn assumptions based on actual consumptions in similar property types. All of the projects have been zoned, designed and costed. They have also been ranked in order of likelihood to convert, in part based on market research carried out by Millward Brown. We have ranked these again in line with engineering network build requirements and developed a network build plan spread throughout our current licensed area.

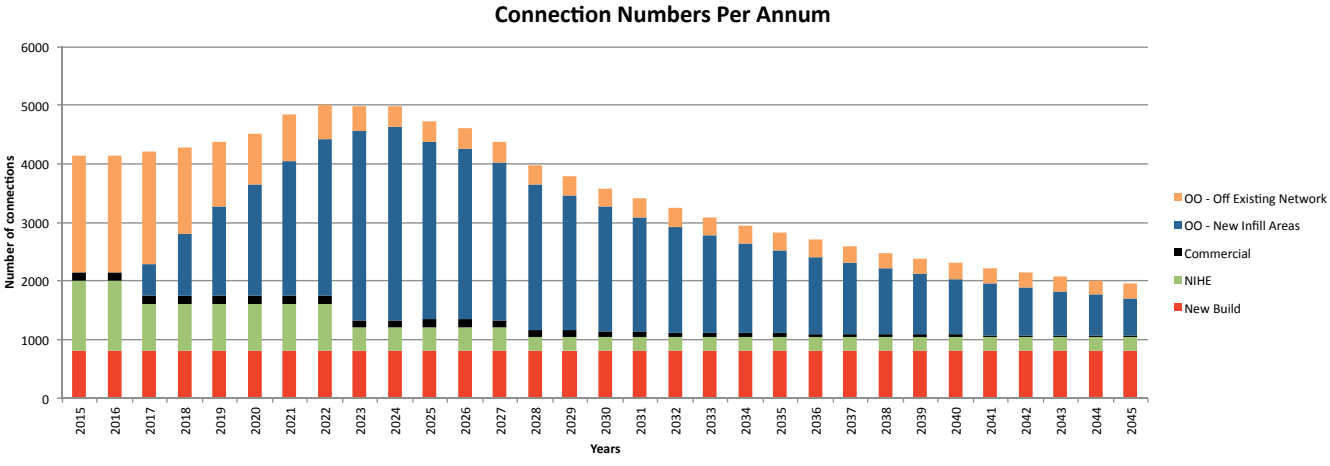
This plan will enable us to publicise and advise expected gas live dates to potential customers, prepare and undertake a focused local marketing plan and brief the installer network as we continue to make gas available to more areas within our service territory.

Further details on the capex allowances we will be seeking in order to implement our network development plan are provided in Part 7.

3.3.2 New Connections and Volumes

We have developed our GD17 new connections assumptions from the ground up, based on what is possible as a result of implementation of the network build programme described above. We have provided a detailed breakdown of how we have derived our connection assumptions in Part 5 of this Business Plan. The sections below provide a brief introduction to the methodology adopted and ultimate outcomes of the analysis. Figure 3.3 below sets out the long-term connections plan.

Figure 3.3 Long-term Connections



Market Penetration

We have set ourselves a target penetration rate for the total licensed area of 65% (expressed as connections as a proportion of total properties passed by the network) by the end of 2045. Firmus energy is committed to this target and will strive to meet it. The target was derived having assessed of the following:

- Analysis of historic firmus energy connection performance
- Infill area pilot studies
- Review of gas market penetration rates achieved in Northern Ireland and Great Britain
- Expert advice from our consultants Oxera

Invariably, penetration tends to follow the investment in network extension in the initial years, as premises must be passed before they can connect. The focus therefore is on building mains to new areas where more customers have the opportunity to connect and where costs can be spread across a wider customer base, keeping downward pressure on tariffs. Working to the assumption that we will convert 5% of customers per year, we forecast a steady rise in connections across the GD17 period and beyond.

As a cross-check, we asked Oxera to conduct a top-down peer review of the reasonableness of the ultimate penetration rate and intermediate growth profile implied by our connections targets.

I&C Customers

Our target for I&C connections is 150 per year over the GD17 period, in line with our experience in GD14.

All readily connectible potential Contract loads (>732,000 kWh /year) have been identified within our existing network licensed area (c.17.5 million kWh) and will be attended to by our Key Account Managers with the main aim of securing connection to our network. Many of these are government-owned premises and require significant assistance to pay for the conversion costs associated with connecting.

Other major user opportunities have been identified where the current low coal and/or oil prices do not currently indicate in favour of conversion to natural gas. We will continue to monitor this situation throughout the GD17 price control period. CHP plants are also being considered by a number of sizeable customers and new build/network extension opportunities are being monitored.

Residential Connections

Our target for domestic connections is an average of 4,387 per annum during the GD17 period.

This will not be easy to achieve in the current market and will require substantial marketing and incentivisation of potential customers. All of our customer experience and research, including recent Millward Brown research (see Part 14) indicates that customers are highly price sensitive to conversion costs even when they are interested in principle and understand the long-term benefits of conversion.

As part of our GD17 strategic plan, we have assessed the opportunity for connections both in total and by zone. We have used survey data and taken on the ground advice from the Installer network about boiler/specific sites, designed zones and identified the number and type of potential connectible properties in each zone.

With 75% of our existing network within lower socio-economic demographic areas, our experience tells us that customers will not convert unless substantial encouragement and financial support is offered. This is why existing incentive mechanisms and financial support must be protected and enhanced, as we describe further in Part 5. Funding can come from various sources including, importantly, the NISEP, Boiler Replacement Scheme, Affordable Warmth etc. and is used along with any firmus energy incentive available at that time. However, much of the Government funding is at risk given the Government's own budgetary difficulties and we cannot be certain of its availability in the GD17 period.

New Build

The target for new build connections is 800 per year over the plan period, in line with our GD14 target. New build schemes are identified via the published planning application and approval report.

Builders/architects and developers are then engaged with and the projects are designed and initiated. We work closely with local planners in Councils and have built up a contact list for builders.

NIHE-Owned Dwellings

Our GD17 connection target for the social housing sector is 4,800 properties over the lifetime of the price control period.

Key to success in this sector is the NIHE Heating Replacement Programme. Our ability to deliver gas to site to meet the project timescales is driven by NIHE and its appointed contractors. We already successfully work with NIHE-appointed contractors (H&A Mechanical and BC Energy) and NIHE Regional planners and have a good understanding of their requirements. We have met with NIHE district planners and have obtained details of the future Heating

Replacement Programme. We have advised them tentatively of possible gas live dates so that they develop their heating replacement programmes around the arrival of natural gas during GD17.

We undertake an education process with NIHE regional offices on an on-going basis so that Maintenance Officers and tenant-facing technical staff have all the necessary information to answer any concerns that their tenants may have.

Volume Forecasts

Overall gas volumes are projected to rise by over 18% by the end of the GD17 period. This follows a drop in volumes during GD14 due to the anticipated loss of a significant industrial customer in Ballymena. Volume growth is expected to be steady but substantially based on extra demand from new connections in the residential sector. Projected volume by market sector is set out in figure 3.4 below, and explained in detail in Part 5.

3.3.3 Developing the Network – Capital Investment

Growing the network significantly will require an increase in capital investment by the company. Figure 3.5 provides a summary of the capex allowance we will require in order to deliver on the growth in connections described above. Part 7 of this document contains a detailed explanation of how we have developed our request for capex allowances.

Figure 3.4 Firmus energy GD17 Gas Volume Growth by Market Sector

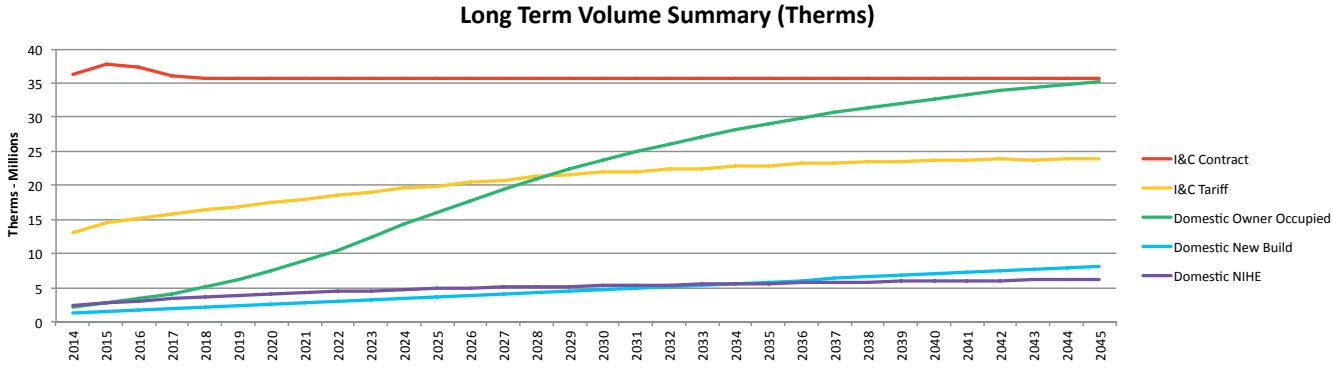


Figure 3.5 Network Development Capex Costs (December 2014 Prices)

	2017	2018	2019	2020	2021	2022	Total
	£'000	£'000	£'000	£'000	£'000	£'000	£'000
LP, 2Bar or 4Bar Mains	8,330	7,996	8,044	8,366	8,300	9,015	50,052
Pressure Reduction	19	37	42	47	44	134	323
Domestic Services	3,314	3,382	3,453	3,558	3,853	3,962	21,521
Domestic Meters	698	711	725	746	872	972	4,724
I&C Services	447	448	448	446	445	443	2,678
I&C Meters	235	237	225	224	243	252	1,416
Other Capex	564	114	114	114	114	114	1,133
TMA	1,211	1,186	1,198	1,241	1,264	1,355	7,455
Total	14,818	14,111	14,249	14,742	15,135	16,247	89,302

As might be expected the largest increase in intended capital spend is in the non-New build housing mains and domestic services, reflecting growth in overall domestic connections in the GD17 period as we continue to extend our network. As described in Part 5, to achieve this we also require some additional investment in marketing and customer incentivisation.

To facilitate the targeted level of connections it will be necessary to further extend the network mains. It is planned that on average 120 km of new mains will be laid each year in GD17, which will mean extending the total network by 720 km (66%) by 2022. This will account for well over half of the planned capital spend in the plan period.

3.3.4 Developing the Network – Operating Costs

Figure 3.6 below indicates the high level breakdown of operating costs across the GD17 regulatory period. Part 6 contains a detailed analysis of the operating cost allowances we will require in order to be able to deliver on our network development plan.

As a result of the growth in customer numbers and mains laid our opex costs will fall per unit output in GD17, this is despite the rise in real terms shown in figure 3.6. Further illustration of our productivity gains is provided in Part 10 (figures 10.3 – 10.5).

Figure 3.6 Firmus energy Projected GD17 Opex Costs (December 2014 Prices)

	2017	2018	2019	2020	2021	2022	Total
	£'000	£'000	£'000	£'000	£'000	£'000	£'000
Staff Costs	1,931	1,931	1,931	1,931	1,931	1,931	11,586
Agency Costs	65	65	65	65	65	65	390
Contractor Costs	1,730	1,893	2,001	2,245	2,560	2,939	13,367
Materials	184	188	169	163	151	180	1,035
Transport & Plant	20	20	20	20	20	20	121
Professional and Legal Fees	942	944	921	923	926	930	5,587
Rent & Rates	65	65	65	65	65	65	391
Network Rates	758	788	824	862	903	946	5,082
Stationary, Communications and Billing	45	45	45	45	45	45	269
MDR Allowance	1,431	1,472	1,520	1,595	1,794	1,878	9,691
Total	7,171	7,410	7,562	7,914	8,461	9,000	47,518

Whether it is an almost doubling of customers per member of staff or increasing connections by around 40% per salesperson, measures of output against opex in the firmus energy GD17 Business Plan envisages a significant gain in productivity and efficiency. (See Part 10.)

3.4 Deliverability

Firmus energy is confident that it can deliver on its ambitious network development targets. This is primarily due to the company having a strong understanding of the local gas market/customer demand as well as considerable technical expertise and experience. This section sets out our credentials in developing the business in the licensed area and getting the job done safely and efficiently, while maintaining our excellent customer service standards.

3.4.1 Customer Service Standards

We need to ensure that we are able to maintain our consistently high levels of customer service as we continue to grow our business. Providing first class customer service is at the heart of firmus energy. It is embedded in our culture through both our mission statement and our company values. It requires a clear understanding of customer expectations across all aspects of our business, measuring our performance against these expectations and continually driving improvements to ensure that expectations are surpassed.

Firmus energy is particularly proud of its customer service achievements, including:

- Maintaining the highest level of customer service of any regulated energy company in Northern Ireland
- Since 2005, receiving the lowest number of Stage 2 Consumer Council NI complaints of any regulated network company
- Consistently exceeding its regulatory Standards of Performance targets in customer service
- Part 14 contains further information on our customer service standards

3.4.2 Safety and Innovation

Safety is a fundamental focus for firmus energy and the company goes to considerable lengths to ensure very high standards of practice in all activities. For example, firmus energy is currently working to align current asset management practices with the international standard ISO 55001:2014.

As required by the Health and Safety at Work Order (NI), there are well-established regulations to ensure the safety of gas operations, which mirror the regulations applying to Network Operators in Great Britain. All policies and procedures are regularly reviewed for effectiveness and compliance with legislation. Our system is amended where there is a change in legislation, a change in technology, or where an incident identifies the need for improved procedures. In order to continue to ensure best practice, we are working on the implementation of an Occupational Health & Safety Management System, which meets the criteria of Occupational Health and Safety Advisory Services standard 18001.

We have developed a reputation for bringing innovation and technology transfer to natural gas network development in Northern Ireland. Our aim is to continuously improve our business, through both technical and commercial innovation. This will help us to develop our knowledge in order to provide a safe, efficient and reliable network, which will deliver value to our customers and safeguard our environment.

We are regular participants at industry forums such as the Institute of Gas Engineers and Managers (**'IGEM'**), Pipeline Industries Guild and Northern Ireland Natural Gas Association to disseminate these innovations. Our achievements have been recognised in awards for work on asset protection strategies and innovation in the Ballyclare distribution

network. In network construction, firmus energy employs a number of innovative solutions to deliver natural gas to customers as efficiently as possible, including trenchless gas main-laying.

3.4.3 Stakeholder Engagement

Throughout the development of the Ten Towns network firmus energy's strategy has been to engage with stakeholders to create a positive image of both the company and natural gas.

Our stakeholder engagement mapping, ensures that key stakeholders are identified and engagement with them is managed at the most senior level in the organisation. Key stakeholders include Government and Local Government, regulatory organisations, energy organisations, industry organisations, business and consumer organisations, media and customers. We hold a series of regular structured briefings to ensure that these stakeholder groups are kept well informed of plans and progress. Separate Key Influencer Roadshows take place in each town. This ensures that all influencers in a town are kept abreast of network plans ahead of network build commencing.

A series of tactical PR campaigns promotes the specific benefits and features of natural gas on a regular basis to potential customers and help to stimulate demand from domestic households. PR activity is coordinated with engineering, advertising and sales activity ensuring an integrated and efficient approach is maintained.

3.4.4 Marketing Activity

Growing the Network and Gaining Connections

For each year, planned network build is fully aligned with planned marketing and sales activity to efficiently achieve both customer connection and volume targets. Our strategic approach is to educate customers to overcome our researched barriers to connection. Our plan is to maximise the impact of mass market channels (outdoor, press, radio, leafleting, social media, PR, sponsorship) in each town to educate as many customers about the key features and benefits of natural gas.

New Build

After analysing the potential market via town development plans and area familiarisation reports, all new build potential projects are clearly identified and planned. This process includes demonstration and presentation of all the benefits of natural gas along with the technical specification of preparation work required prior to gas being delivered to a new build site.

Residential marketing/NIHE

As part of our GD17 strategic plan we have assessed the opportunity for connections both in total and by zone. We have used survey data and taken on the ground advice from the installer network about boiler/specific sites, designed zones and identified the number and type of potential connectible properties in each zone. Energy Advisors conduct an Energy Audit at every dwelling. This audit identifies current energy usage and costs, allowing suitable efficiency and saving recommendations to be made. The Energy Advisors are local to the towns they are working in and are crucial in the development of a semi-rural network.

Our education process in NIHE estates includes local public representatives and community groups. We will run educational road-shows within community halls and use mobile display caravans. Once a heating scheme is finalised, our Energy Advisor along with the NIHE installer representative visit every house within that scheme and carry out a tailored sales presentation.

Marketing to Business Customers

Our experience to date demonstrates that maximising connections for the business sector is best achieved through face-to-face engagement with key personnel to clarify cost benefits, lead-times, schedules and budgets. Site plant is assessed via a detailed survey and quotations/offers prepared to detail conversion and running costs. Potential meter positions will be offered. Possible new technology will be identified and a proposal for project management discussed. Several site visits are required allowing the customer adequate time to make an informed decision.

Following physical surveys of all the business customers, we have devised a construction/connection programme to achieve connection and volume targets. Prior to customer approach and commitment to provide gas, we will have carefully selected them via a 'likely to convert' ranking system. We will continue to work closely with our engineers in designing/programming the network build in line with customers' commitment following receipt of 'letters of intent' to proceed. Customer presentations are tailored around environmental benefits, lower maintenance costs, conversion costs/specification and the offer to project manage the conversion process. We will continue to offer customers the total conversion package from start to finish.

Customer Research

Customer surveys track progress on key metrics such as brand awareness, brand reputation, price perception and future intentions. This research informs levels of marketing spend and messages required to grow demand.

Education Campaigns and Connection Campaigns

Firmus energy has a demand stimulated marketing programme focusing on each specific customer segment. This includes advertising and Direct Mail to specific households and SMEs.

Local Sponsorships/CSR projects

Firmus energy sponsors local events in towns to build brand awareness, engagement and goodwill with the local community. These are low cost sponsorships which deliver high yields. The company has an active CSR committee. Our staff are actively involved in our local communities through our 'Warming Communities' programme and other brand-building initiatives.

3.5 Maintenance of the Network in the GD17 Period

Currently, maintenance expenditure on the firmus energy network is comparatively low, as might be expected of a new network which has been constructed relatively recently and to a high standard. Many elements of the network have long asset lives and are many years away from replacement. This will change over time and maintenance costs can be expected to rise significantly in the post GD17 period.

However, there are areas of maintenance spending arising in the GD17 period where the company will have to devote additional resources in order to ensure continued provision of a high quality service to customers.

Also, there are regulatory requirements on the company to check and recalibrate meters and other equipment every 10 years - a cycle that begins to take effect in the current year and on into GD17.

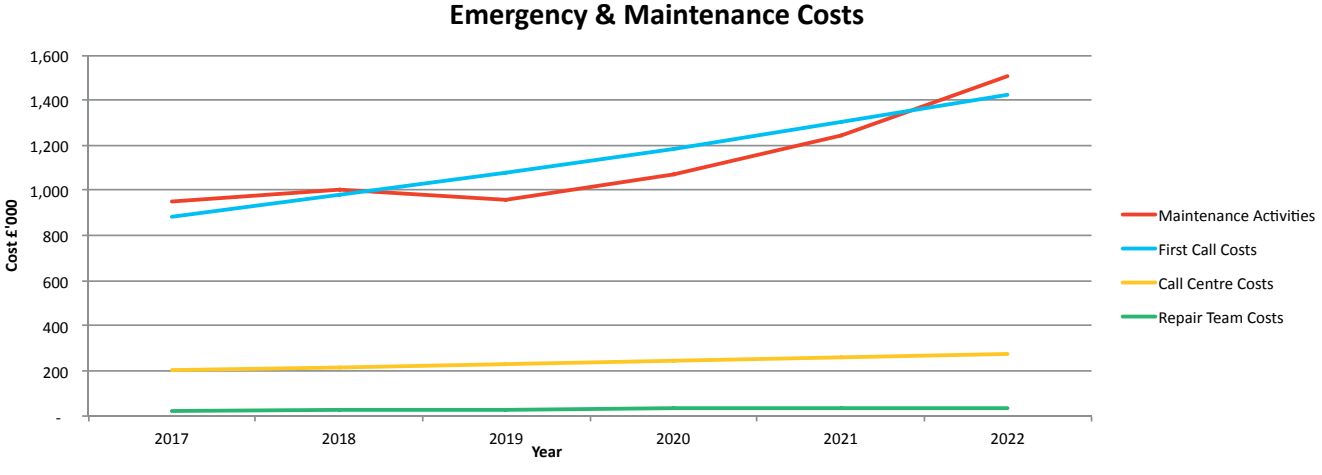
Overall, total maintenance costs are projected to reflect the following profile across the GD17 period. Further information on our maintenance cost requirements is provided in Part 6.

Figure 3.7 Emergency and Network Maintenance Costs (December 2014 Prices)

	2017	2018	2019	2020	2021	2022	Total
	£'000	£'000	£'000	£'000	£'000	£'000	£'000
Maintenance Activities	949	1,007	958	1,074	1,240	1,510	6,737
First Call Costs	883	978	1,077	1,183	1,303	1,426	6,850
Call Centre Costs	204	217	231	245	262	278	1,436
Repair Team Costs	22	25	28	31	35	39	181
Total	2,058	2,227	2,294	2,534	2,840	3,252	15,205

Firmus energy has submitted a separate paper to the Utility Regulator on plans for a best in class asset management system. When introduced, this system can be expected to deliver improvements in maintenance efficiency.

Figure 3.8 Emergency and Maintenance Graph



3.6 The Post-GD17 Period

3.6.1 Business and Network Development Post GD17

By the end of GD17, the network will have been extended to reach 80% of total potential connections. Nonetheless investment in the network is set to continue at a high level beyond the GD17 period.

3.6.2 Post GD17 Maintenance Activities

In the years beyond 2022 there will be a continuing rise in maintenance activities on firmus energy's network. By this time certain pieces of pressure reduction equipment in district and customer applications will have been in service for eighteen years, leading to a degree of expectancy that their condition will warrant replacement, rather than the alternative of increased frequency of maintenance visits and potentially breakdowns leading to customer service disruption and costly unplanned emergency response work. As we will have an asset management system in place, we will have the capability to analyse historic data on rates of failure enabling life-end replacements to be prioritised where the need is greatest. It is worth noting that we predict the potential to extend overall life cycles of equipment where on-going reliability can be proven.

Recalibration of I&C meters will continue at the same intervals, as some turbine meters (sealed units) will have their second calibration soon after 2022. It is a possibility that some will require increased component replacement at the time of the calibration along with a small percentage reaching the end of their life.

Smaller regulators on domestic and I&C customer equipment will also require replacement after twenty years in service. In addition we predict that diaphragm meters may reach this point after twenty years in service.

While network valves should not require intervention, the pressure points installed adjacent to these will start to need replacement after twenty years of use. This will be a costly project requiring full excavation to facilitate their replacement. At this point we will also replace any carriageway covers which have effectively worn out due to traffic loading.

Steel bridge crossings will need to be inspected with the same frequency. It is a prospect that some of these crossings may need complete replacement, potentially after twenty five years in use. Where replacement is not required there will definitely be a requirement for re-application of wrappings to offer continued protection. Similarly riser systems may need to be replaced, possibly after twenty years.

General wear and tear will increase replacements of smaller components such as Emergency Control Valves, impulse lines on large regulating equipment, small fittings on customer and district pressure reduction equipment and meter housings.

Part 4: Finance

GD17 Business Plan

Part 4: Finance

Utility Regulator Guidance

Any supplementary information that may help us to better understand the data provided in the reporting template. This will include, where relevant, but does not need to be limited to:

- explanation of accounting practice applied, changes to same compared to previous regulatory submissions for the 2013/2014 reporting years and for GD14 as well as effective date and impact of such changes;
- methodologies and rules used for allocations and estimation, changes to same compared to previous regulatory submissions for the 2013/2014 reporting years and for GD14 as well as effective date and impact of such changes;
- substantiation of significant changes from figures relating to GD14 forecasts and allowances previously set out;
- details on and substantiation of any cost categories for which the GDN believes separate RPEs should be considered as well as substantiation of and underlying source data for any RPE assumptions contained in the Business Plan data template;
- details on the relative efficiency assessment undertaken and the derivation of the proposed catch-up efficiency targets, together with an explanation of how these will be met; and
- details on studies undertaken and information considered when establishing the frontier shift assumptions.

4.1 Introduction

Outlined in this chapter are the key financial assumptions that underpin our business.

The key factors we will aim to highlight are:

- The impact of our GD17 Business Plan on conveyance charges
- Firmus energy's Allowed Rate of Return/WACC assumptions
- Price cap/revenue cap assumptions including extension of recovery period and treatment of under-recoveries
- Current financing and future proposed refinancing assumptions
- Current financial banking covenants and their relevance to our ability to finance our activities
- Accounting practices and policies employed
- Methodology and rules used for any allocations and estimations
- RPE assumptions, efficiency assessments and frontier shift assumptions

4.1.1 Financial Statements

In the GD17 Business Plan Data Template we have provided forecast Income Statements, Statements of Financial Position and Cash Flow Statements for the years 2015 to 2022. We have determined these using the forecast volumes, customer numbers, opex and capex numbers which are detailed in the GD17 BPT and outlined in the subsequent chapters. These are presented in nominal values using the RPE assumptions as outlined in and described in Part 10 of this document.

We have made a number of assumptions to arrive at these forecasts and these assumptions are described below.

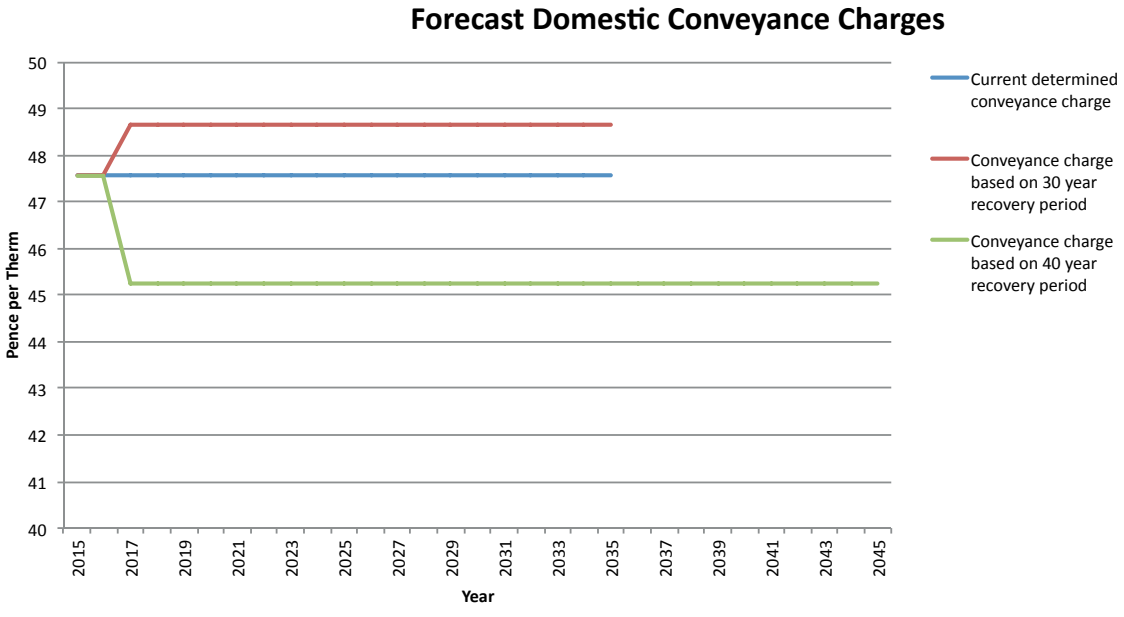
Conveyance Charges

Our GD17 modelling, incorporating the assumptions outlined in detail throughout this document results in a conveyance charge for domestic tariffs of 45.2 pence per therm in 2014 prices. This equates to a c. 5% reduction to our GD14 determined conveyance charges of 47.6 pence per therm in 2014 prices. This is shown in figure 4.4 below. These calculations have been made using the information provided in GD17 RIGs guidance and the mechanism in our licence, while using the Regulator's published model (7 July 2014) as a precedent.

Following analysis we have undertaken on the basis of a 30 year recovery period which demonstrated a c. 2% increase in conveyance charges we have proposed a 40 year recovery period on the basis that this provides benefits for customers and the wider Northern Ireland economy consistent with government policy.

Given that this decrease comes in conjunction with major network development in GD17 (increasing to approximately 120 km per year), this represents a considerable saving to customers.

Figure 4.4 Forecast Domestic Conveyance Charges



Cost of Capital

A detailed exploration of the issues relating to the cost of capital has been included previously in Part 1 of this document and elsewhere.

Given the importance of the WACC and the detailed analysis required to determine a suitable point estimate while accounting for company specific factors, region specific factors and regulatory precedent we engaged economic advisors Oxera to collect data on the components of the cost of capital and perform detailed analysis on our behalf.

In estimating an appropriate value for the WACC, Oxera considered the following factors:

- the appropriate level of gearing
- the cost of debt including company-specific factors such as a small company debt premium and the cost of raising debt, for a small company
- the market parameters for the cost of equity (risk-free rate and ERP)
- unique factors affecting our business including size, age, sparsity of our network and our ability to raise future financing

Oxera have proposed a final range of 5.0% to 6.0%. This range and calculations are shown in figure 4.5 below.

Figure 4.5 Oxera WACC Range

Parameter	Oxera estimate for GD17	
	Low	High
Real risk-free rate (%)	1.25	1.50
Real pre-tax cost of debt (%)	3.05	3.30
Regulatory risk-free rate (%)	1.25	1.50
Debt premium (%)	1.6	1.6
Regulatory transaction cost allowance (%)	0.2	0.2
Asset beta	0.40	0.50
Debt beta	0.1	0.1
Equity beta	0.8	1.0
Equity risk premium (%)	5.25	5.50
Real post-tax cost of equity (%)	5.3	6.9
Real pre-tax cost of equity (%)	7.3	9.4
Gearing	0.55	0.55
Real pre-tax WACC: range (%)	5.0	6.0

It is also worth noting that the risk differentials assessments undertaken by Oxera suggest that firmus energy is exposed to higher risk than GB GDNs and similar, more mature, networks in Northern Ireland.

Therefore, having also given consideration to our financeability obligations as demonstrated by the necessity to meet our financial covenants, we have submitted our GD17 plan based upon the mid-point of the Oxera range, a WACC of 5.5%.

This WACC reflects a higher cost of third party debt financing due to the size of our business which hinders us from accessing a wide variety of financing sources that larger utilities are able to take advantage of while also ensuring that we meet all financial covenants over the regulatory period. Any reduction in this rate would have a material impact on our financial covenants and ability to finance our activities.

Revenue Cap, Extension of Recovery Period and Treatment of Under-Recoveries

In line with the guidance received from the Utility Regulator we have completed the GD17 template and conducted our modelling on the basis of a revenue cap. A number of assumptions have been made on modifications to the licence, with the Phoenix licence used as a starting point.

We have assumed the following additional amendments to our licence:

- An increase of the revenue recovery period, licence parameter 'q', from 2035 to 2045. An extension in the licence ensures that the profile adjustment is unwound over a longer period of time, and over a greater amount of volumes
- This modification has the advantage of reducing tariffs for customers by 8% while also offering greater security around the long-term nature of our licence to business customers. Therefore we have used this assumption as the basis of our Business Plan submission
- We have also undertaken the same detailed modelling based on a revenue recovery period to 2035 and have made the results of these calculations available to the Utility Regulator
- Inclusion of our accumulated under-recoveries balance in a simplified RAB at start of GD17. It is unclear how any under-recoveries would be unwound under the mechanics of a revenue cap. By rolling the under-recoveries into an opening RAB, any uncertainty over how this would be achieved is eliminated while also leading to a reduction in actual tariffs and providing consistency with the Phoenix licence approach

Current Financing and Future Proposed Refinancing Assumptions

Our Business Plan submission and financing plan has been developed to ensure that we are able to obtain efficient funding through equity and debt to meet the expenditure required to expand our network.

Accounting Practices and Policies Employed

The sale of firmus energy in June 2014 resulted in changes to our group structure (see Part 12), however our accounting practices and policies remain unchanged and are the same as those used for our submission for GD14. The company prepares EU IFRS annual statutory accounts and regulatory accounts and these outline all of the accounting policies used by the company.

Methodology and Rules used for any Allocations and Estimations

The methodologies we have used on how costs are allocated from Opex to Capex, how costs are allocated within the group structure and how unregulated business activities impact on regulated activities are all detailed in the separate policy papers provided alongside this submission.

RPE Assumptions, Efficiency Assessment and Frontier Shift Assumptions

Part 10 of this document contains detailed information on our assumptions regarding RPEs and efficiencies.

Part 5: Volumes and Customer Numbers

GD17 Business Plan

Part 5: Volumes and Customer Numbers

Utility Regulator Guidance

Any supplementary information that may help us to better understand the data provided in the reporting template. This will include, where relevant, but does not need to be limited to:

- methodologies and rules used for allocations and estimation, changes to same compared to previous regulatory submissions for the 2013/2014 reporting years and for GD14 as well as effective date and impact of such changes; and
- substantiation of significant changes from figures relating to GD14 volume and customer number forecasts and allowances previously set out.

5.1 Introduction

Firmus energy's Business Plan is based upon business growth, continuing to deliver value for money for the network's customers whilst maintaining high standards of safety, customer service and environmental responsibility. Whilst this approach to business will certainly continue in the GD17 period, the size and composition of our customer base is set to change significantly. Our plan is to deliver rapid growth in customer connections driven by network investment.

So far in firmus energy's network development, the focus has been on securing early loading by prioritising the connection of large I&C customers. After this, the priority has been small businesses, social housing and other high density housing.

In GD17 the focus of our Business Plan switches from volume and large users, the vast majority of whom have now been connected in the Ten Towns area, to the owner-occupied sector where it is believed there is substantial scope to drive connections upwards. New customer connections now become the driver of volume growth and although we do not have direct control over connections, all our efforts must now go into bringing the benefits of natural gas to as many new customers as possible. This means that we must invest in extending the network in order to maximise the number of properties passed. We must also recognise that we are facing challenging conditions in the marketplace so we need to make good use of existing government energy efficiency support programmes and ensure that current connections incentives are retained and enhanced. It is also essential that firmus energy's own marketing resources are tightly focused on growing connections, which ultimately benefits everyone.

Our GD17 plan still aims for growth in the commercial customer category, but the main driver of growth both in volumes and connections is set to be the residential owner-occupied sector.

The plan highlights research and pilot study evidence that the marketing support mechanisms that have been available to date are absolutely needed as a minimum if connection numbers are to be achieved. These include the various NISEP schemes, the NIHE boiler replacement scheme, the Department for Social Development's Warm Homes scheme (now Affordable Warmth) and other support given to customers plus the connection incentive allowed to firmus energy which is entirely expended on attracting new customers and assisting them with their conversion costs.

5.2 Understanding firmus energy Volume Forecasts

Firmus energy builds up its gas volume forecasts by carefully assessing growth in the network's customer base across each customer sector and applying an average consumption to the updated connections. In the case of large users, site-specific usages based on individual assessments are factored into the total.

5.2.1 The firmus energy GD17 Volume Forecast

Figure 5.1 below shows the GD17 gas volume summary forecast in therms, analysed by customer category.

Figure 5.1 Annual Gas Volumes Forecast 2015-2022 by Customer Category

Type	GD14		GD17					
	2015	2016	2017	2018	2019	2020	2021	2022
	Therms ('000)	Therms ('000)	Therms ('000)	Therms ('000)	Therms ('000)	Therms ('000)	Therms ('000)	Therms ('000)
Owner Occupied	2,730	3,370	4,138	5,117	6,232	7,481	8,893	10,473
New Build	1,474	1,694	1,914	2,134	2,354	2,574	2,794	3,014
NIHE	2,728	3,058	3,336	3,556	3,776	3,996	4,216	4,436
Domestic Subtotal	6,932	8,122	9,389	10,807	12,363	14,052	15,904	17,924
Tariff	14,537	15,217	15,793	16,358	16,909	17,449	17,977	18,493
Contract	37,824	37,366	36,036	35,700	35,700	35,700	35,700	35,700
I&C Subtotal	52,361	52,583	51,829	52,058	52,609	53,149	53,677	54,193
Total Volumes	59,293	60,705	61,218	62,865	64,972	67,201	69,581	72,117

Figure 5.2 shows that over the GD17 period, total annual volume is expected to rise by over 18% from 60.7 million therms in 2016 to 72.1 million therms in 2022. This overall growth is spread fairly evenly over the six years of GD17, although the volume growth achieved in the different customer categories varies considerably. This growth is achieved notwithstanding the anticipated loss of a major industrial load at the beginning of the GD17 period.

With most of the large loads in the Ten Towns area already connected, growth in the I&C category is forecast to be just over 3% across the plan period. However, combined low oil, tallow and LPG prices together with market conditions faced by business customers may affect the potential growth in the I&C category and could possibly result in customers switching to other fuels or reducing consumption.

By contrast the owner-occupied sector is expected to increase from 3.4 million therms in 2016 to 10.5 million therms in 2022. In the NIHE/social housing sector volume growth across the GD17 plan period is forecast to be 45%.

The refocusing of the next phase of business development from the capture of large industrial loads to rapid connections growth in the domestic sector is reflected in the overall GD17 gas volume forecast. Over the six-year period of the price control the domestic sector will account for 86% of total forecast volume growth.

Figure 5.2 Volume Growth

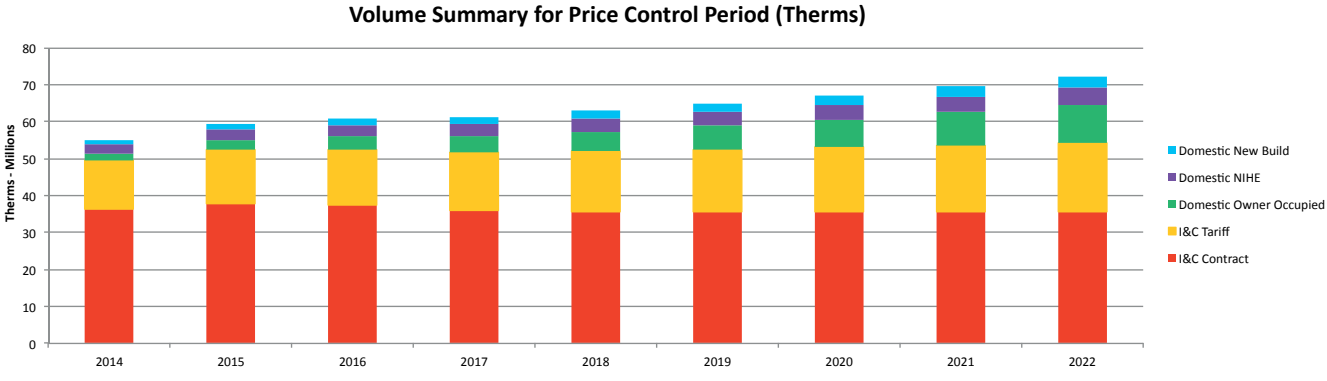


Figure 5.3 shows the average gas burn by customer category forecast in the GD17 Business Plan. Overall, the average yearly gas burn in the domestic sector rises by 15.6% from 276 therms to 319 therms, reflecting the increased contribution from the relatively larger domestic properties in the owner-occupied sector, where average consumption is substantially higher than in the NIHE/social housing and new build sectors.

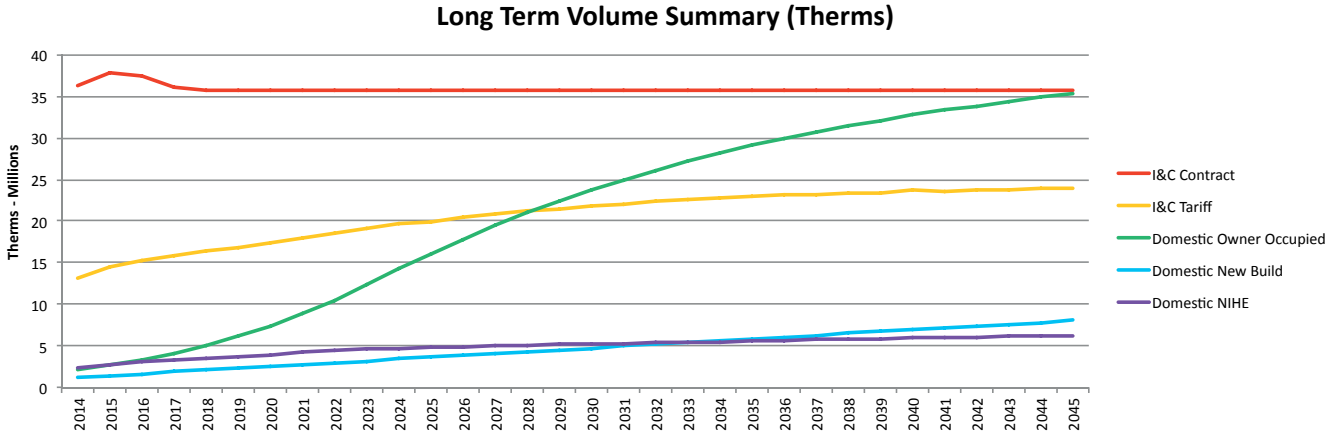
Figure 5.3 Annual Average Gas Burn by Customer Category 2015-2022

	GD14		GD17					
	2015	2016	2017	2018	2019	2020	2021	2022
Type	Therms	Therms	Therms	Therms	Therms	Therms	Therms	Therms
Owner Occupied	284	291	294	308	324	340	355	370
New Build	255	257	259	261	262	263	264	265
NIHE	258	260	266	266	267	267	268	268
Domestic Subtotal	267	271	276	283	292	301	309	319
Tariff	7,112	6,942	6,744	6,553	6,391	6,241	6,102	5,973
Contract	195,979	191,620	184,798	186,911	186,911	186,911	186,911	186,911
I&C Subtotal	23,407	22,029	20,429	19,374	18,544	17,793	17,111	16,487
Total	2,104	1,878	1,675	1,540	1,437	1,352	1,275	1,211

However, although the total volume rises over the plan period, the average annual gas burn in the I&C sector is forecast to fall by 19.4% over the GD17 plan period. This is primarily a reflection of greater numbers of smaller commercial connections being added, thus reducing the average size of customer, rather than any significant reduction in consumption by large users.

Figure 5.4 portrays the long-term volume forecast to 2045 by customer category.

Figure 5.4 Long-term Volumes Forecast to 2045

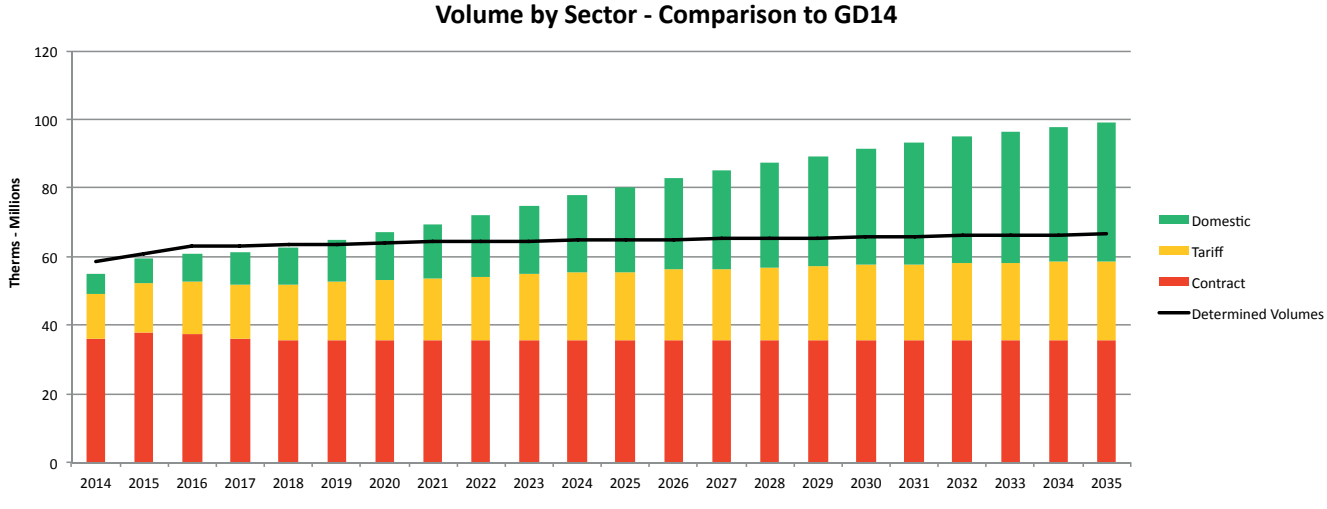


The GD17 Business Plan forecasts strong long-term growth in domestic and SME connections, resulting in substantially increased volumes from these sectors.

There is slow if steady growth in the NIHE and New build sectors, although they contribute a relatively small proportion of overall volume growth. It is anticipated, broadly, that in relation to the large I&C sector, any downturns in volumes or plant closures will be offset by new connections or other existing load growth.

A significant change in the overall forecast is the fall in the share of volume accounted for by I&C customers over the longer term. This category currently accounts for around 88% of firmus energy's gas volume. This share is set to fall to 75% by the end of GD17 in 2022 and then to 55% by 2045. The fall in the relative share of the large industrial commercial customer category is resultant from the major increase in the volume share of the domestic sector, and in particular the owner-occupied sector, which increases its share of total volume from 5% in 2015 to 32% by 2045.

Figure 5.5 Volumes by Sector



5.3 Understanding firmus energy Customer Number Forecasts

5.3.1 A New Phase of Development Driven by Data

Firmus energy has transformed its ability to measure the scope of work required to deliver connections right across its licensed area. The company has further developed our comprehensive high quality data to support a new phase of development based on detailed infill plans to target residential developments.

The detailed planning work undertaken by firmus energy will ensure an efficient, co-ordinated and economically viable network development in the Ten Towns area, in line with the principal objective of the Utility Regulator.

Increased connection levels will in turn drive conveyance volumes and spread the costs of the network across more customers, resulting in lower tariffs.

Historically, growth in gas connections has been achieved by connecting large I&C premises, NIHE properties and New build developments. Going forward with this comprehensive survey data, it has been possible to make reliable forecasts for each property type based on measuring and costing the required work and having an understanding of each group's propensity to convert to gas. Furthermore, the company has been able to plan effectively to 2045 against an overall target for market penetration of 65% by that time.

This section outlines the customer growth forecasts for each sector while explaining our rationale for the potential growth in the development of residential connections.

Overall Methodology

Having surveyed and carried out detailed engineering design and costings in every part of the licensed area, firmus energy has been able to arrange the customer base by dividing it into 'projects' or parcels of customers. An assessment of each project in terms of premises passed, existing connections, socio-economic grouping, density/ mains length required and propensity to convert has allowed firmus energy to forecast the potential for connections and to rank each of the projects in terms of net present value (NPV) over 40 years. The analysis covers all categories of customer.

The 621 projects ranked by NPV have then been assessed and re-ranked again after taking into account engineering and practical work management considerations to ensure optimal efficiency in delivery. This process determines the timing of any individual project in firmus energy's overall build programme.

The analysis reveals also that higher NPV projects tend to correlate with parcels of larger domestic properties where there is also greater capacity among prospective customers in terms of absorbing the conversion costs of getting connected. Also for some potential customers in these areas, lifestyle factors can have a significant effect in arriving at a decision to connect to natural gas.

5.3.2 GD17 Customer Numbers Forecast

Figure 5.6 below shows how the connections projections for each sector are built up into the total connections plan for GD17. In the GD17 period, connections growth is driven substantially by owner occupier infill in existing gas areas, as well as increasingly by the owner-occupier sector in the new gas areas of an extended network.

There is a gradual decline in the contribution from the social housing/NIHE sector and the new build sector remains relatively flat.

The composition of the GD17 connections forecast is shown numerically in Figure 5.7 below. Apart from showing a steady increase in total connections over the six years, it shows an effective doubling of the 2014 level of annual connections in the residential owner-occupied sector by 2022.

This is the main driver of connections growth in the GD17 Plan and it has the dual impact of bringing the benefits of natural gas to many more people while benefitting existing customers through spreading costs across a much wider customer base.

Figure 5.6 Long-term Connections

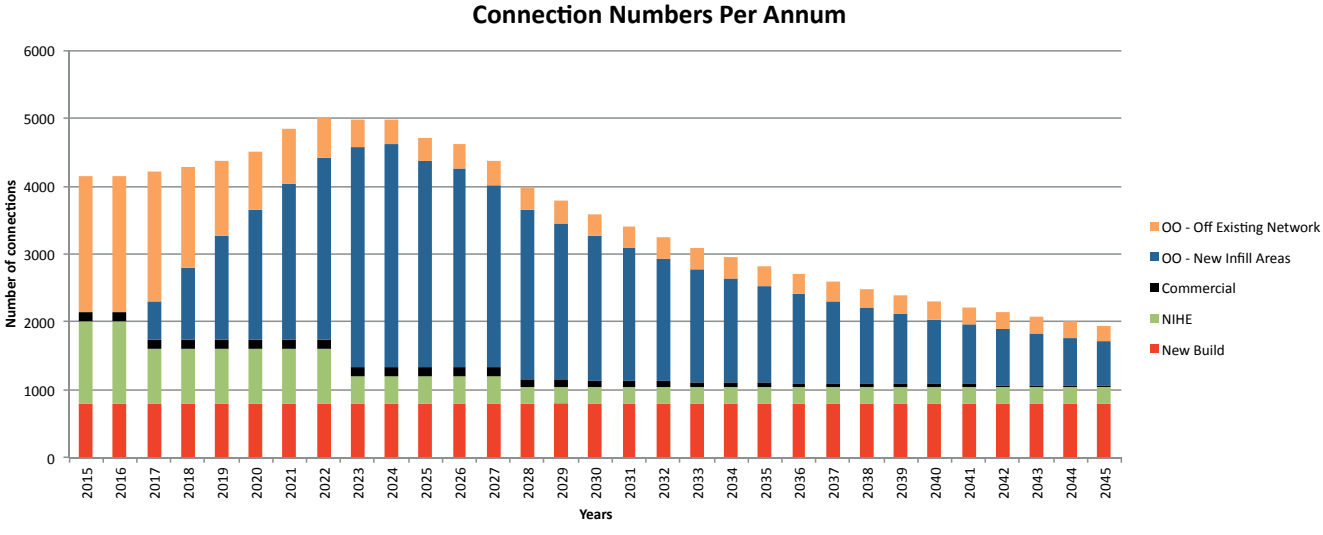


Figure 5.7 Firmus energy GD17 customer connections forecast

Type	GD14		GD17					
	2015	2016	2017	2018	2019	2020	2021	2022
	No's	No's	No's	No's	No's	No's	No's	No's
Owner Occupied	2,000	2,000	2,466	2,537	2,622	2,753	3,100	3,246
New Build	800	800	800	800	800	800	800	800
NIHE	1,200	1,200	800	800	800	800	800	800
Domestic Subtotal	4,000	4,000	4,066	4,137	4,222	4,353	4,700	4,846
Tariff	145	148	150	154	150	150	150	150
Contract	5	2	-	(4)	-	-	-	-
I&C Subtotal	150	150	150	150	150	150	150	150
Total	4,150	4,150	4,216	4,287	4,372	4,503	4,850	4,996

Figure 5.8 below indicates total customer numbers from the current year to the end of the GD17 period. The figure shows the rapid growth in the owner-occupier sector where customer numbers more than double by the end of the plan period. The large contract customers decline slightly although the I&C tariff customers grow by 41%.

Other customer growth occurs in the domestic sector where there are increases in the GD17 plan period for new build and NIHE/social housing customers.

Figure 5.8 Total customer numbers (cumulative) from 2015-2022

Type	GD14		GD17					
	2015	2016	2017	2018	2019	2020	2021	2022
	No's	No's	No's	No's	No's	No's	No's	No's
Owner Occupied	9,596	11,596	14,062	16,599	19,221	21,974	25,074	28,320
New Build	5,787	6,587	7,387	8,187	8,987	9,787	10,587	11,387
NIHE	10,558	11,758	12,558	13,358	14,158	14,958	15,758	16,558
Domestic Subtotal	25,941	29,941	34,007	38,144	42,366	46,719	51,419	56,265
Tariff	2,044	2,192	2,342	2,496	2,646	2,796	2,946	3,096
Contract	193	195	195	191	191	191	191	191
I&C Subtotal	2,237	2,387	2,537	2,687	2,837	2,987	3,137	3,287
Total	28,178	32,328	36,544	40,831	45,203	49,706	54,556	59,552

Overall, by the end of the GD17 Business Plan, firmus energy's customer base is forecast to be just under 60,000; an increase of 84% over the plan period and a more than doubling of the customer base as it stands in the current year.

5.3.3 I&C Contract Connection Forecast Assumptions

Since the distribution licence was awarded in 2005, the firmus energy network has been planned and developed to connect the key I&C sector anchor loads to the network. As this process will be 90% complete during GD14 (although efforts will continue to capture those that remain in the licensed area), there is little further upside in this sector forecast during the GD17 period.

This could change should a major energy-intensive FDI project come to Northern Ireland and locate in the Ten Towns area. Although this is possible it is not being relied on for planning purposes. Indeed the final GD17 projection identifies the loss of a significant large user, although there are some offsetting additional loads.

Smaller I&C/SME forecast

The forecast does, however, foresee more growth in the smaller tariff I&C sector where an average of 150 new connections per year have been assumed at the average loading for that category of customer.

This forecast is consistent with the on-going level of connections in the GD14 period, and there is no evidence to suggest anything beyond a continuation of the current trend and performance subject to capex allowances being in line with actual costs.

5.3.4 NIHE/Social Housing Connection Forecast Assumptions

For the purpose of this Business Plan submission all domestic premises which are owned by the Northern Ireland Housing Executive or a housing association in Northern Ireland (or will be when built) are classified as NIHE. In fact all future New build social housing will be delivered by housing associations, and there are proposals with Government which could eventually see more NIHE properties being transferred into housing associations.

At present, around 29,000 of total social housing properties in the Ten Towns area are dwellings owned and managed by NIHE. All of these are subject to the NIHE policy to convert existing 15-year-old heating systems to natural gas where it is available. Of these, just over 20,000 have heating systems other than gas. Although a significant proportion of these are rural and outside our proposed network plans. We believe this leaves c.14,000 to connect.

Of the NIHE stock in the Ten Towns area, the vast majority of dwellings have heating systems, most of which are fuelled by oil (62%) and gas (29%), or coal (5%) and Economy 7 electricity (4%).

However, firmus energy has moderated the NIHE connection forecast rates for the GD17 period due to the outlook for continued spending reductions in the public sector which may impact adversely on NIHE budgets. In addition, the Government's fundamental reform of NIHE could lead to the break-up of the body into a number of housing associations and result in lower new build and less certainty about the conversion of social housing properties to gas.

Therefore, during GD14 firmus energy plans to connect 1,200 NIHE properties per year, this forecast number has been moderated downward to 800 connections per year for the GD17 period reflecting the uncertainties outlined above.

Given the restrictions on funding for social housing construction and the moratorium on NIHE construction, we have also forecast a reducing number of NIHE properties in the post GD17 period.

5.3.5 New Build Connection Forecast

The rate of new build connections to the natural gas network is firstly dependent upon the level of house building on sites readily connectable to the network. Secondly it is then our task to sell the benefits of natural gas as an option for the developer constructing the houses. Firmus energy has a comprehensive strategy to encourage developers to install gas in their new developments.

In order to forecast new build development rates for the GD17 period, firmus energy has assessed recent trends and growth forecasts for the housing market. The National House Building Council's Annual New Home Statistics Review 2014 demonstrates that, although there is some recovery in the homebuilding market, the new build numbers for 2014 remain 68% lower than the number of new registrations of in 2007.

Further, the NIHE in its Northern Ireland Housing Market Review & Perspectives 2015-2018 stated, *"During the next three years the number of new homes being completed for the private sector is likely to remain well below the recent historic trend. House prices are likely to continue to gradually increase…However, the high levels of negative equity in Northern Ireland will continue to hamper the process of market recovery"*.

For this reason, firmus energy has retained the forecast rates for new build housing connections at the GD14 level of 800 properties per year. There is no demographic data which suggests the rate of new build is likely to change significantly in the period ahead.

Economic consultants Oxera have advised that the rate of growth of properties in the firmus energy licensed area has been estimated at around 0.5% per annum, a figure which is consistent with our plan forecasts.

5.3.6 Infill and Owner-Occupied Sector

Figure 5.9 below highlights the plan to invest in growing connections in the owner-occupier sector. This involves rolling out the infill network mains more quickly, increasing the number of properties passed from the current GD14 regulatory target of 7,326 properties per year to c. 12,000 properties passed per year during GD17.

In order to drive connections, it is imperative to pass more properties. In the early years of the long-term plan, the rate of properties passed therefore rises more rapidly than the rate of connections. However this gap narrows in the second half of the long-term plan period.

The forecast for connections is based on a 5% connection rate per year. This has been the experience of Phoenix in the Greater Belfast area, although the Ten Towns licensed area is different in terms of disposable incomes, experience of gas and propensity to convert.

Therefore the company considers the 5% rate to be appropriate for planning purposes. The forecast for owner occupied connections is further broken down in Figure 5.10 below. The figure shows not only how the total owner occupied connections rises, but also how the forecast connections in existing infill areas slow down over GD17 as connections in new infill areas rise sharply. By the end of GD17 in 2022, owner occupied connections in existing infill areas are down to 586, while connections from new infill areas total 2,660. Over the GD17 plan period there are 6,768 new owner occupied connections from the existing network and 9,956 from the new infill mains areas. Together new owner occupied connections account for 61% of all new connections.

Figure 5.9 Capex Plans

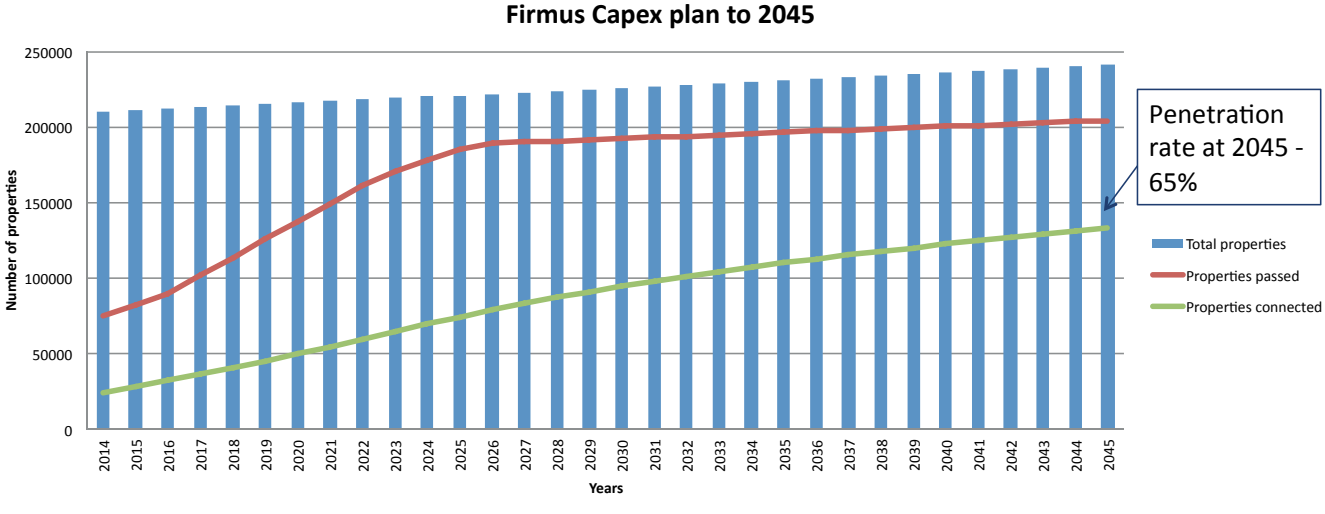


Figure 5.10 GD17 Forecast New Connections and Owner occupied Breakdown

Type	GD14		GD17					
	2015	2016	2017	2018	2019	2020	2021	2022
	No's	No's	No's	No's	No's	No's	No's	No's
Owner Occupied Connections *	2,000	2,000	2,466	2,537	2,622	2,753	3,100	3,246
New Build	800	800	800	800	800	800	800	800
NIHE	1,200	1,200	800	800	800	800	800	800
Tariff	150	150	150	150	150	150	150	150
Total	4,150	4,150	4,216	4,287	4,372	4,503	4,850	4,996

***Owner Occupied Connections**

Off Existing Network	2,000	2,000	1,923	1,491	1,107	847	814	586
New Infill Areas	-	-	543	1,046	1,515	1,906	2,286	2,660
Total OO Connections	2,000	2,000	2,466	2,537	2,622	2,753	3,100	3,246

Firmus energy - Network Penetration

Firmus energy's aim is to achieve a long-term penetration rate of 65% in the licensed area by 2045.

The penetration rate (the proportion of properties passed that are connected) is derived from the company's connections forecast, which in turn is dependent on achieving the planned properties passed target via further roll-out of the network.

The company's forecasts have been peer-reviewed by economic consultants Oxera who, in comparing them with penetrations achieved by other GDNs, and taking account of the distinct characteristics of the Ten Towns licensed area, have found them to be reasonable.

Importantly it is recognised that the key driver of connections is the ability to make gas available to a higher percentage of the network area.

Comparison with Phoenix

Gas penetration in the firmus energy area is currently around 33%. In 2014, gas penetration in the Phoenix area was 58%, reflecting the longer development period and maturity of the network. Firmus energy's expectation is that the Phoenix rate of penetration will be achieved in the Ten Towns by 2037, somewhat slower than Phoenix's development profile. However given that firmus energy's network area is larger than Phoenix's while population and connection density is considerably lower, Oxera have concluded that a slower rate of development, as forecast by firmus energy, is to be expected.

The Oxera connections/penetration paper is attached in **Part 14** of the plan.

5.4 Marketing Requirements

For firmus energy, achieving the connections targeted in GD17 will require increasing significantly the availability of gas throughout the network area. However, this investment will need to be supported by a strong and focused marketing effort. The marketing endeavour will need firstly to make potential customers aware of natural gas and its benefits, and then persuade them that it is worthwhile converting from their present fuel. This will require customer incentivisation and it will have to be done in a very challenging marketplace.

As outlined at the introduction to this plan, firmus energy faces into a difficult marketplace. The price advantage natural gas has traditionally enjoyed against oil has largely disappeared with the recent collapse of the oil price, and the general economic downturn has left consumers with less disposable income. Disposable incomes in Northern Ireland are lower than in the rest of the UK and at their lowest in parts of the firmus energy licensed area. The economic downturn has also forced Government to tighten budgets and this process is an ever present threat to the continuation of support programmes for energy consumers. Customers themselves now also have other choices with faster paybacks (such as solar PV) when investing in energy solutions.

In summary, gas has, in relative terms, become a harder sell and prospective customers have less capacity to spend. All of our research and information also points to the fact that customers are highly sensitive to the cost of gas conversion and to the availability of financial assistance of one kind or another.

Our company marketing strategy therefore has three key elements:

- Ensuring that firmus energy's own sales and marketing activity is focused and efficient
- Exploiting to the maximum extent, on behalf of customers, all Government support programmes aimed at boosting energy efficiency and countering fuel poverty
- Retaining and enhancing existing connection incentives mechanism

5.4.1 Firmus energy's Own Sales and Marketing

Firmus energy has a research-led approach to target connections, based on demographic segmentation, property type, density, age of boiler and including considerations such as lifestyle. Marketing activity is informed by this intelligence. It is also supplemented by up-to-date engineering data, ensuring that the push for new connections is focused where gas has arrived or is arriving soon.

The company is also in the process of integrating the sales and marketing functions of the business to ensure a more efficient approach to targeting connections. The GD17 marketing plan is based around raising the number of annual connections per sales person from the current level of 280 per annum to 400. Advertising and marketing support will be re-tendered in an effort to reduce overall account management and production costs as well as increased effectiveness of media spend.

Firmus energy has also had initial discussions with Phoenix about potential joint marketing of gas connections, which could reduce advertising agency and media costs in the longer term.

The company also manages a focused and adaptable gas installer network, to ensure customer downstream connections are delivered quickly and efficiently. Our period contractor McNicholas is also used to promote gas to prospective customers.

New Build

The rate of new build gas connections to the natural gas network depends on the level of house building on sites readily connectable to firmus energy's gas network. Builders tend to choose natural gas because it releases the space needed in back gardens for an oil tank as well as offering lower installation costs. The proposed network build in GD17 has included new build zones which have all been identified.

Future new build opportunities are identified via bi-weekly planning reports, council development plans, local builders, developers, architects, consultants, construction trade and the Installer network.

Facilitating NIHE Connections

To facilitate these connections, firmus energy has a dedicated Energy Advisor focused on Social Housing whose job is to identify where alternative heating is installed and where firmus energy's build programme can align to the NIHE conversion programme. All housing associations have been contacted within our network area and plans for their heating stock 15 year replacement programme are well developed. Social housing heating schemes are carried out by contractors with whom firmus energy has already established strong relationships.

5.5 Government Schemes to Support Gas Conversion

A number of Government schemes exist to promote energy efficiency or to counter fuel poverty, from which eligible customers can draw down financial support to assist with gas conversion costs. These include:

- The Warm Homes scheme (now called Affordable Warmth) which can provide up to £6,500 (100%) grant for the installation of new gas central heating. This scheme is targeted at the fuel poor
- Department for Social Development/NIHE Boiler Replacement Programme
- Various other schemes funded through the NISEP

Firmus energy's research has shown that up to 75% of the gas connections that had been completed up to June 2015 had been assisted by Government funding of some kind. We are convinced that maintaining this funding is essential if connections are to be achieved. Therefore an important part of our on-going stakeholder engagement programme is to focus the attention of Government policymakers and decision-makers on the need to retain if not expand this support if they want to maximise the benefits of natural gas to the community, and make a real impact on fuel poverty.

5.5.1 Firmus energy Pilot Studies

Recently the company carried out research into three pilot areas in the Ten Towns network where gas was being offered for the first time. The three case study areas were in Ballyclare, Lurgan and Derry/Londonderry and were chosen to represent 'middle of the road' residential areas in terms of relative affluence and economic conditions.

Domestic customers within the pilot schemes were able to benefit from a number of grants and incentives. These were as follows:

- firmus energy 2014/2015 £300 Cash back allowance – funded by the connections incentive
- firmus energy 2015 Summer £500 Cash back Offer (limited number only)
- firmus energy Home Comfort 1 Scheme - £1,000 NISEP Funding
- firmus energy Home Comfort 2 Scheme - £1,500 NISEP Funding
- firmus energy Home Comfort Plus Scheme - all boiler replacement costs covered
- NIHE boiler replacement scheme

In order to gauge the dependency of customer connections on the availability of financial support, 128 customers who had recently connected were asked whether they would have switched to natural gas if the NISEP Grant and firmus energy incentive had not been available. Across the three areas only 6% of respondents indicated that they would have gone ahead anyway – with or without funding. On the basis of this research, firmus energy would expect to lose 80% of the total NISEP – supported connections within the pilot schemes if the grant did not exist. (The full three areas pilot study is set out in detail in Part 14 of the Plan.)

In addition to the pilot studies, firmus energy recently commissioned market research consultants Millward Brown to look into the extent to which prospective customers were sensitive to the costs of gas conversion in deciding whether to connect or not.

Millward Brown interviewed 200 prospective natural gas customers who had registered an interest in connecting but had not proceeded. Almost two thirds (66%) identified the cost of conversion as the main barrier.

Encouragingly, 59% of respondents indicated that they intend to connect at some point in the future.

5.6 Retaining and Enhancing the Connections Incentive

The challenging environment in the marketplace means that it is ever more important that we raise customer awareness of the benefits of gas and help our customers with the cost of conversion as much as possible. We rely on Government programmes and regulatory mechanisms such as the 'connections incentive' to enable us to do this and it is critical that the connections incentive is maintained and indeed enhanced for the GD17 price control period.

Firmus energy believes that retention of a strong incentive package is essential to achieving connections targets and spreading the benefits of natural gas more widely.

At present the connections incentive provides an allowance of £540 (2012 prices) for each domestic connection beyond the first 567 connections (including licence extensions) achieved in a given year. The 567 connections threshold is designed to reflect the contention that the first 25% of customers will connect to gas without incentivisation, and therefore no allowance is needed.

While acknowledging that there are indeed some customers who will connect without incentivisation, we believe the 25% estimate is far too high. We believe it is closer to 5% and we therefore recommend that in GD17 the connection incentive threshold should be 100 instead of over 567. We also believe that the 'ratchet' should be retained whereby performance over and above the overall connections target attracts a 10% increase in the allowance. We are planning for GD17 on this basis, however we have not included the 'ratchet' in our BPT opex forecasts.

The connections incentive is intended to cover the cost of incentives, advertising, marketing, promotions, sales staff, and other operating costs required to turn domestic interest into a connection. In practice, firmus energy passes most of the allowance (£300 and increasingly £500) straight through to customers to assist with their conversion costs. The remainder of the allowance does not cover the company's overall marketing costs.

Without the firmus energy cash back incentive provided to each customer, we would not be able to avail of the NISEP scheme.

In our GD17 planning we have also removed the allocation to firmus energy Supply, as the market is now fully open and no Supply activities are covered by Distribution costs.

In summary therefore, firmus energy is seeking the retention of the connections incentive mechanism in line with the GD14 settlement, but with the enhancement proposed above.

Part 6: Opex

Part 6: Opex

Utility Regulator Guidance

Any supplementary information that may help us to better understand the data provided in the reporting template. This will include, where relevant, but does not need to be limited to:

- methodologies and rules used for allocations and estimation, changes to same compared to previous regulatory submissions for the 2013/2014 reporting years and for GD14 as well as effective date and impact of such changes;
- additional details on cost movements in the reporting period;
- additional details about changes in workload, their timing and impact of same on the business, now and in the future;
- details on any non-price controlled activities listed;
- details on economic tests and business cases relating to replacement expenditure; and
- business cases for feeder mains, reinforcement and security of supply projects.

6.1 Introduction

The firmus energy GD17 Business Plan presents a forecast of operating costs which is the result of a detailed bottom-up analysis of the resources needed to run the business as it grows, while maintaining an excellent standard of safety and customer service.

Over the GD17 plan period it is expected that specific additional resources will therefore be required. The increased opex planned comes primarily from a modest increase in manpower headcount at the start of GD17, from, increased maintenance costs and from an increase in the connection incentive mechanism where, in increasingly difficult market conditions, the company has proposed some changes.

With a doubling of firmus energy's customer base planned in GD17, a broadly proportionate increase in gas emergency calls and responses can be anticipated and this will have to be resourced. In addition, although the pipeline network itself requires little maintenance at this stage, a number of new mandatory cycles of maintenance activity will come on stream as certain assets pass the 10-year inspection/replacement mark.

Apart from these items, firmus energy's other operating costs remain flat in real terms over the GD17 Period despite the significant growth in the company's business activity.

In developing estimates of future operating expenditure we have based our costs, on our experience to date in the Ten Towns development area. All costs have been supplied on the basis of 2014 prices, and efficiency improvements have been built into the cost inputs.

In developing the operational Business Plan firmus energy must continue to deliver efficient operation of the gas network system in a manner that is compliant with all relevant safety, regulatory and statutory obligations.

Cost Management

Firmus energy has systems in place to manage and review operating costs through budgeting processes and coding structures. The objective of the firmus energy purchasing procedures is to ensure that resources are used effectively and cost efficiently. All expenditure requires an initial purchase order to ensure that expenditure is necessary, appropriately approved and coded correctly. Larger cost activities require tendering processes, including OJEU processes, and/or contracts to ensure value-for-money and to add a further level of control. The manager authorising the purchase is responsible for ensuring that the purchase itself is justified (including, without limitation):

- The provision of a business case where appropriate
- Confirmation of an approved budget
- Confirmation that the purchase is necessary business expenditure

Costs are reviewed on an on-going basis through the purchase order and contract management system. All payment runs and cheques also require approval from at least two members of senior management and these are reviewed on a weekly basis. Costs are also reviewed monthly by the senior management team. The company has well-developed information systems for managing costs and is in the process of upgrading its financial software.

Efficiency Improvement

Innovation and technology transfer will contribute to efficiency improvement and cost reduction. Two innovative measures in particular will assist with the reduction of costs in the GD17 period

- Smart meters – reducing the need for regular meter readings and ensuring customers are billed accurately based on usage
- Computer tablets – reducing manual data input, allowing decisions on connections on the doorstep, and reducing environmental impact with less use of hardcopy application forms

The company will continue to drive for internal efficiency savings through the regular review of internal processes and the identification of improvements.

6.2 Manpower Costs and Movements in the Reporting Period

Firmus energy currently has 57 full time equivalent (FTE) staff employed in the distribution business. It is projected that this will increase to 64 at the beginning of the GD17 plan period, primarily reflecting the significant increase in business activity anticipated from 2017 onwards. Headcount and associated staff costs are then projected to remain relatively flat throughout the remainder of the plan period.

6.2.1 Comparison to GD14 - Headcount

As can be seen from Figure 6.2, the determined headcount for 2015 and 2016 was 56. Actual headcount was 57 for both these years. The main reason for the increase in headcount is the inclusion of the newly appointed Non-Executive Directors (NEDs) who were appointed on 1 July 2014 as part of the purchase by iCON Infrastructure.

These costs would previously have been included in recharges from Bord Gaís. Three NEDs were appointed and we have included additional headcount of 1.5.

Figure 6.2 Firmus energy GD14 Allowed Headcount 2014-2016

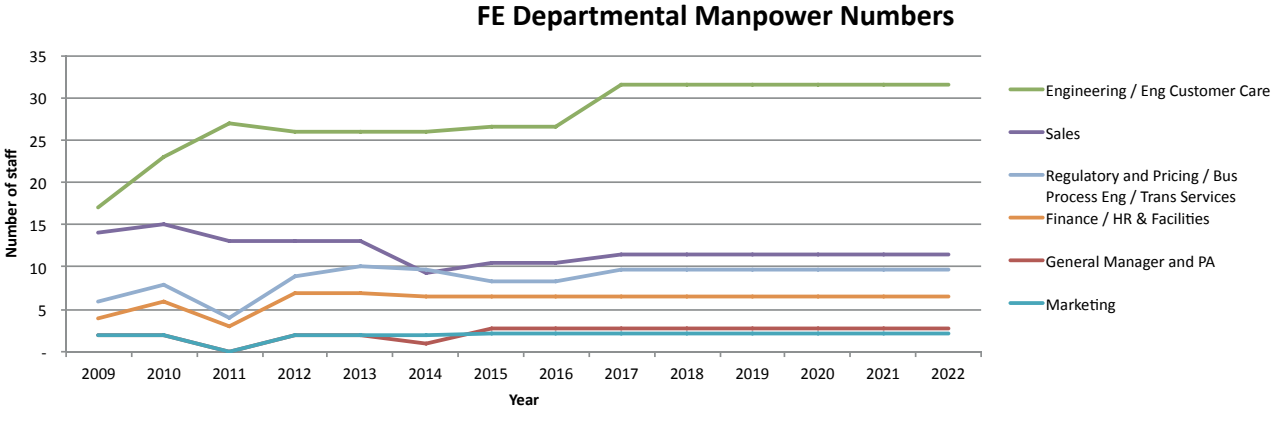
	2014	2015	2016
Opex Allocation	37.03	38.61	41.59
Capex Allocation	17.42	17.34	13.86
Total	54.45	55.95	55.45

The GD17 projection for staff headcount for the period from 2015 to 2022 is set out in Figure 6.3 below, also showing the split between operations and investment.

Figure 6.3 Firmus energy Staff Headcount Forecast GD17

	2015	2016	2017	2018	2019	2020	2021	2022
Opex Allocation	42.37	42.37	45.87	45.87	45.87	45.87	45.87	45.87
Capex Allocation	14.65	14.65	18.40	18.40	18.40	18.40	18.40	18.40
Total	57.02	57.02	64.27	64.27	64.27	64.27	64.27	64.27

Figure 6.5 Historic and Forecast Manpower



6.2.2 GD17 movement in Planned Staff Headcount

Due to the very substantial planned increase in infill and connection activities and other additional business development, the company is forecasting a headcount requirement of 64.27 for all years from 2017 to 2022. The 64.27 headcount represents an increase of 7.25 staff from the 2016 headcount. The increase in staffing is analysed in terms of additions to departments below.

Figure 6.6 Additional Headcount Roles

Role	Headcount
Network Construction Engineers	3.00
Network Maintenance Engineer	1.00
ISO Asset Management Engineer	1.00
Energy Advisor	1.00
IT Systems Development	0.75
Regulatory Analyst	0.50
Total	7.25

Business Rationale for Additional Staff Headcount

Firmus energy is forecasting a substantial increase in network build for the period from 2017 to 2022 (a mains build programme of approximately 120km per annum). With this increase in mains build, we have forecasted a need for three extra network construction engineers to help with planning and supervising delivery of the work activities of the network (i.e. the day to day planning and supervision of the operatives and contractors working within the work execution processes).

By 2017, the network will be 12 years old and hence we should start to see an increase in maintenance/replacement activities. We have forecasted one extra staff member in our Operations and Maintenance Team throughout GD17 to cope with the additional maintenance workload.

The existing firmus energy asset maintenance programme is sufficiently robust for the current stage of the Ten Towns Network age and development. However, firmus energy recognises that network growth will lead to the requirement to implement a more sophisticated asset management system and process to monitor the network and prioritise maintenance activities on a cost efficient basis.

For this reason firmus energy is seeking to implement ISO 55001, the international standard for optimised management of physical assets. It is our intention to have this accreditation in place prior to the commencement of GD17. In order to monitor our asset management policies going forward and to ensure ease of future compliance and sustainability, we have forecast one extra staff member to manage this process.

We currently have the appropriate number of sales staff to deliver approximately 4,000 domestic connections per annum. We are forecasting a rise in annual domestic connections to approximately 4,800 by 2022, and to cope with this additional number of connections we have included one additional domestic sales representative throughout the period.

Having been sold in June 2014, firmus energy is currently in an IT transition to separate our systems away from the legacy Bord Gaís infrastructure. This should be completed by the end of 2015. Following completion of the transition our next target will be the replacement of older IT systems (hardware and software) to ensure records are accurately maintained and allow for growth of connection numbers and asset management. We have included one additional IT Systems Development Co-ordinator to manage this transformation and monitor our IT systems going forward.

We have allocated 75% of their time to our Distribution business, as a large proportion of their time will be spent on the asset management system/work-scheduling system.

With the growth of the business and increased regulatory reporting requirements, we have included an extra head to assist with the collation of information. We have allocated 50% of their time to our Distribution business, as half their time will be spent on Distribution reporting.

6.2.3 Manpower Costs

All manpower costs have been presented at December 2014 prices, the numbers in the BPT do not include projections for any RPEs in the local labour market. The impact of RPEs on manpower costs during GD17 is discussed separately in Part 10 of the plan.

With the increased staff numbers in 2017 (7.25 additional headcount as outlined above), the forecast costs for 2017 have risen correspondingly. However the average basic salary per head has marginally decreased as a result of additional staff at more junior grades.

Costs remain flat in real terms during the GD17 period.

Other elements of manpower costs, bonus payments, national insurance and employer's pension contributions are set to follow the same pattern as basic pay in that they increase in 2017 to reflect the additional staff headcount and stay flat thereafter in the GD17 plan period.

The same is true of other staff-related costs and allowances, such as car allowances and standby and call out payments.

6.3 Connection Incentive Mechanism

Our GD17 Business Plan makes the case for retention and enhancement of the existing connections incentive mechanism. As a result, there is a significant increase in the cost at the beginning of the GD17 period and a steady increase thereafter. The proposed changes are discussed in Part 5 of the plan.

6.4 Maintenance Costs and Movements in the Reporting Period

6.4.1 Network Maintenance Costs Management

Using our 'felive' system (used by both ourselves and our period contractor), each item of network maintenance is given an individual code (a 'tracksheet') and the contractor charges time and materials to this tracksheet. Tracksheets (and the associated maintenance works) are regularly monitored by firmus energy engineers to check progress and delivery.

Tracksheet costs are included in the firmus energy financial accounting system as work-in-progress is also monitored on a monthly basis as part of the month-end management accounts review.

Once a tracksheet has been certified as complete by a firmus energy engineer, the costs are uploaded to our financial accounting package and then expensed as an operating cost which will form part of the monthly invoice from the contractor for all works certified in that period. These invoices are reviewed in detail to ensure all work included has been appropriately approved, and when satisfied, the invoice is approved for payment by both the Construction Manager and the Director of Engineering.

As Figure 6.9 shows below, firmus energy maintenance costs are projected to rise steadily throughout the GD17 period. This is not a reflection of current activities costing more, but primarily a result of new maintenance activities being added as the network grows and as certain assets age to the point where they necessitate inspection and in some cases replacement.

Figure 6.9 Emergency and Maintenance Cost Forecast

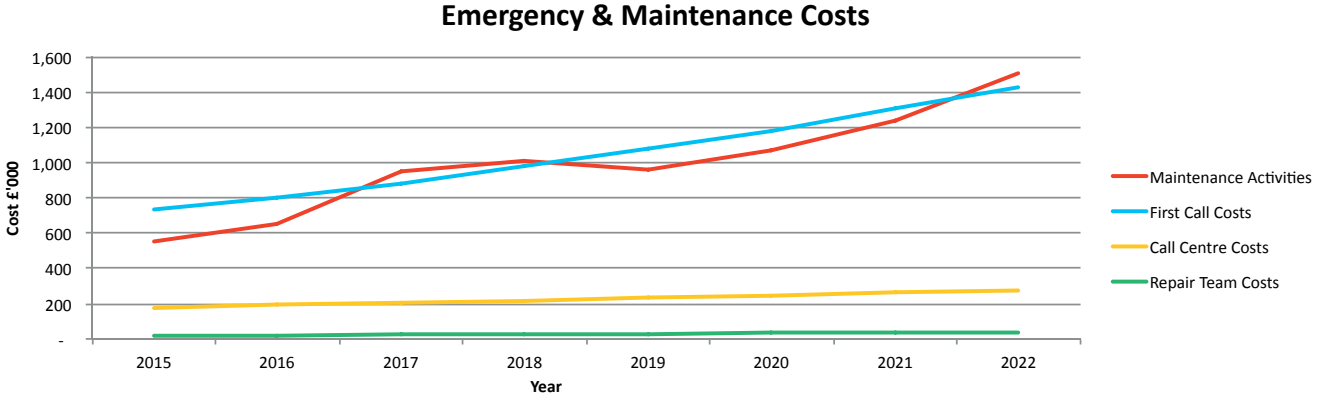


Figure 6.10 Emergency and Network Maintenance Costs (Dec 2014 Prices)

	2015	2016	2017	2018	2019	2020	2021	2022	Total
	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000
Maintenance Activities	548	657	949	1,007	958	1,074	1,240	1,510	7,942
First Call Costs	734	798	883	978	1,077	1,183	1,303	1,426	8,382
Call Centre Costs	175	192	204	217	231	245	262	278	1,803
Repair Team Costs	18	20	22	25	28	31	35	39	219
Total	1,475	1,666	2,058	2,227	2,294	2,534	2,840	3,252	18,346

The two main drivers of rising maintenance costs are new maintenance activities based around inspection and, where necessary, refurbishment/replacement of certain equipment, and an increase in the costs of handling emergency calls and responding on the ground to emergency call-outs. All of the emergency related activity is anticipated to rise in line with network and customer growth in the GD17 period. PREs are also discussed in Part 9.

6.4.2 Maintenance Activities

In addition to the on-going 2015 level of annual maintenance, firmus energy has identified a number of areas where new and additional work will be required from next year onwards. These are set out below.

Medium Pressure Regulator Testing and Replacement

Firmus energy installed its first medium pressure (MP) regulators in 2006 and they require to be tested after 10 years of operation. This requires an engineer to visit each property and isolate the gas supply and then test the regulator and replace it or certify for re-use as necessary. This programme, covering both domestic and I&C sites, rises in cost from c. £37,000 in 2016 to £280,000 in 2022.

Libra Meter Battery Replacement

Landis and Gyr meter lithium batteries have a 10-year life and require to be replaced on-site with minimal interruption to the meter. Costs for the replacement programme rise from £23,000 in 2016 to £245,000 in 2022.

Governor and Customer Rig Component Replacement

Firmus energy has already experienced failure of equipment at some of the large user sites due to the sheer volume of gas passing through the meters. We have estimated that, notwithstanding our inspection regime, we forecast there will be four failures per annum and an increasing need to replace metering equipment. The cost is forecast to rise from around £10,000 in 2017 to £45,000, in 2022.

Meter Calibrations and Repair

Rotary meters require testing for accuracy and recalibration every 10 years and turbine meters approximately every 6 years. The cost of this programme spread across the six years of the GD17 plan period is estimated at £350,000.

Inspection and Overhaul of Customer and District Pressure Reduction Modules (CPRMs and DPRMs)

In order to comply with the Pressure Systems Safety Regulations ('PSSR') customer and district regulating equipment requires annual inspection and function checking. Although this work is already built into firmus energy's annual maintenance costs, it is expected to lead to major overhaul requirements in the years ahead. The cost of overhauls in the GD17 period is forecast at £194,000. Replacement of small capacity DPRMs over the GD17 period is forecast to be £138,000.

Network Valves

Firmus energy intends to implement a programme of network valve inspections to ensure that valves and associated pressure points are fit for purpose in stopping gas flow where required. Valves most critical to the integrity of the network have been identified. As the network grows, the volume of valve inspections will increase. The cost of the valve inspection programme is forecast to rise from £80,000 in 2017 to £88,000 in 2022. Replacement of life end and defective valve and pressure point covers is estimated to be £197,000 over the GD17 period.

Steel Riser Inspection and Maintenance Programme

Firmus energy has been supplying gas to multi-occupancy buildings since 2007 using external steel risers. They require inspection and assessment and any remedial work carried out after 10 years. The cost of the inspections and maintenance of risers is estimated to rise from £4,000 in 2017 to £79,000 in 2022.

Bridge Inspections

Firmus energy has 8 steel mains attached to bridge structures and as these are designated critical assets, an annual inspection should be carried out. It is envisaged that inspections over the period will highlight the requirement for remedial works. Costs for inspections and remedial works in 2017/2018 will amount to £82,000 with a further £62,000 in 2022.

Engineers Equipment

Firmus energy engineers will require to be fully equipped as they carry out routine and emergency operations on a rapidly growing network. This includes provision and annual calibration of equipment such as gascoseekers, pressure gauges, personal monitors, personal protective equipment and toolkits. This cost is c. £23,000 per year.

Land and Property Services – Mapping

Firmus energy operates a GIS system for network mapping derived from licensed Ordnance Survey data. This data is often sub-optimal in terms of accurately locating pipes and services and requires improvement using Global Navigation Satellite Systems a Positional Improvement project is underway which will continue through GD17 and which is forecast to cost c. £30,000 per year for years 2017 & 2018.

Telemetry Expenditure and Maintenance

Forecast telemetry maintenance costs will rise from around £15,000 in 2017 to £26,000 in 2022.

Meterbox Repairs

After 10 years in operation a growing number of meterboxes will require maintenance, including, in some cases, the replacement of doors and hinges. The cost in GD17 is forecast to increase from around £6,000 in 2017 to £23,000 in 2022.

6.4.3 Emergency Related Operating Costs

Firmus energy has a full suite of emergency procedures in place for the safe conveyance of gas in the Ten Towns, and these will extend to the new extended areas. Firmus energy engineers provide supervision at gas escapes, while our period contractor provides the first response service and excavation teams. PREs account for a large proportion of firmus energy's engineering operating costs. PREs and emergency calls are generally expected to rise steadily in the GD17 period as more customers are added to the network.

Call Centre costs

Firmus energy, similar to Phoenix, has a contract with National Grid for processing emergency calls through the national emergency centre at Hinckley. The cost of the contract is based largely on the volume of calls handled. Call centre costs are forecast to rise from £204,000 in 2017 to £278,000 in 2022; an increase that is less than half of the increase in total customer numbers over the same period.

Call centre costs comprise emergency reports that require investigation by a first call operative and calls which can be categorised as general enquiries, where no further action is required.

Firmus energy is also working with other Network Operators in Northern Ireland to minimise these calls.

The driver for call centre activity is the total number of customer connections. In the contract there is a fixed cost of c. £94,000 and a variable cost per call. Figure 6.11 below sets out the forecast call volumes relating to emergencies.

Figure 6.11 Forecast Emergency Calls in the GD17 Period

	2015	2016	2017	2018	2019	2020	2021	2022
Enquiry calls (no.)	3,425	3,524	3,816	4,125	4,427	4,725	5,053	5,356
Calls resulting in call outs (no.)	3,460	3,818	4,303	4,843	5,410	6,014	6,698	7,396
Total emergency calls (no.) (including enquiry calls)	6,885	7,342	8,119	8,968	9,837	10,740	11,750	12,752

Figure 6.12 Emergency Calls and Callouts

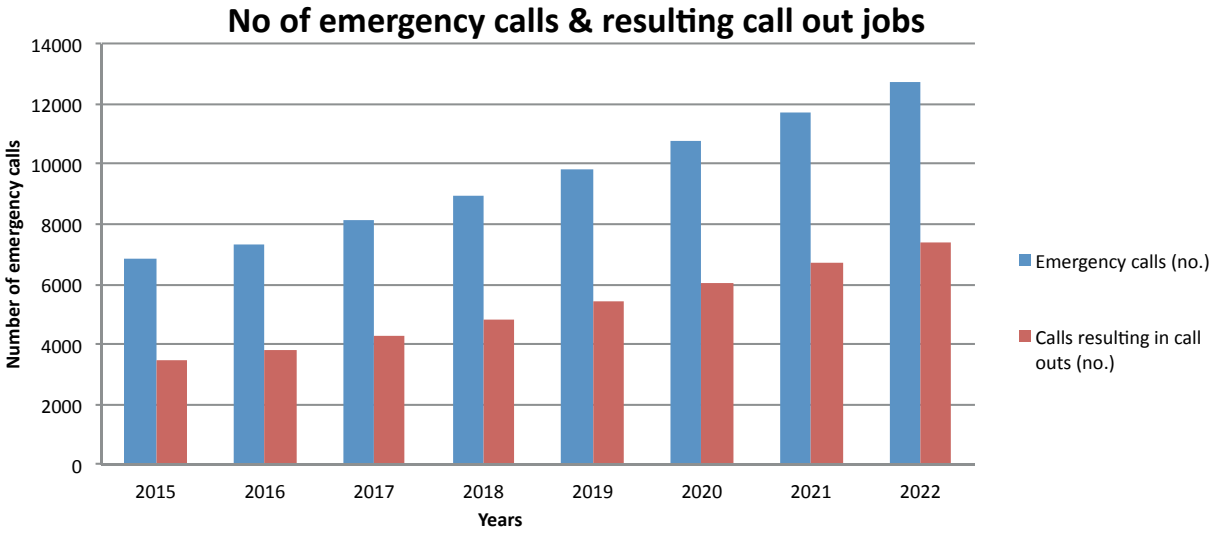


Figure 6.11 and the associated graph 6.12 show the rise in the volume of calls split between those calls which can be dealt within and by the call centre and those which necessitate an emergency call-out and site visit. Firmus energy has put considerable effort into educating customers about not calling the emergency number for customer service queries that are non-urgent, and as a result, the proportion of emergency calls deemed as an enquiry is projected to fall steadily over the GD17 period.

Although the total volume of calls is rising, costs per call are projected to fall and costs per call-out are expected to also fall. Figure 6.13 below shows the trend in calls and call-out costs over the regulatory period.

Figure 6.13 Emergency Call Trends

	2015	2016	2017	2018	2019	2020	2021	2022
Total emergency calls (no.) (including enquiry calls)	6,885	7,342	8,119	8,968	9,837	10,740	11,750	12,752
Cumulative customer numbers (no.)	28,178	32,328	36,544	40,831	45,203	49,706	54,556	59,552
Calls (no.) per customer (no.)	0.24	0.23	0.22	0.22	0.22	0.22	0.22	0.21
Call cost (£) per customer (no.)	6.20	5.94	5.58	5.31	5.10	4.93	4.79	4.67

	2015	2016	2017	2018	2019	2020	2021	2022
Calls resulting in call outs (no.)	3,460	3,818	4,303	4,843	5,410	6,014	6,698	7,396
Cumulative customer numbers (no.)	28,178	32,328	36,544	40,831	45,203	49,706	54,556	59,552
Emergency calls (no.) per customer (no.)	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Emergency cost (£) per customer (no.)	26.06	24.67	24.16	23.94	23.83	23.81	23.89	23.94

Figure 6.14 illustrates how call costs per customer fall over the GD17 period. Figure 6.15 depicts the reduction in emergency call costs per customer.

6.4.4 Replacement Costs

Firmus energy has reached the stage where, after 10 years of continuous use, some network elements and items of equipment are due for replacement, others are due for inspection but only to be replaced if found defective.

The main headings under which replacement expenditure is envisaged during the GD17 regulatory period are set out in Part 6.3.1 above and the business cases and other analysis is presented in further detail at Part 14 of the plan.

6.4.5 Business Cases for Feeder Mains, Reinforcement and Security of Supply Projects

The preparation of investment appraisals and business cases for feeder mains, reinforcement and security of supply projects is carried out in-house from existing resources.

There is no separate cover or allowance being sought to address these costs in the GD17 period. The projects themselves are discussed further under Part 7 capex.

6.5 Rates

The breakdown of firmus energy's projected rates costs shown by Figure 6.14. (Both network and buildings) rates increase with the forecast growth in the network although buildings rates are flat in real terms.

Figure 6.14 Network and Building Rates

	2015	2016	2017	2018	2019	2020	2021	2022
	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000
Network rates	933	971	758	788	824	862	903	946
Office rates	14	14	14	14	14	14	14	14
Total rates cost	947	985	772	802	838	876	916	960

6.6 Non-Price Controlled Activities

Firmus energy's only non-price controlled activity is its supply business in the Greater Belfast area which serves 50,000 customers. This business activity has no impact on the company's distribution business in the Ten Towns licensed area.

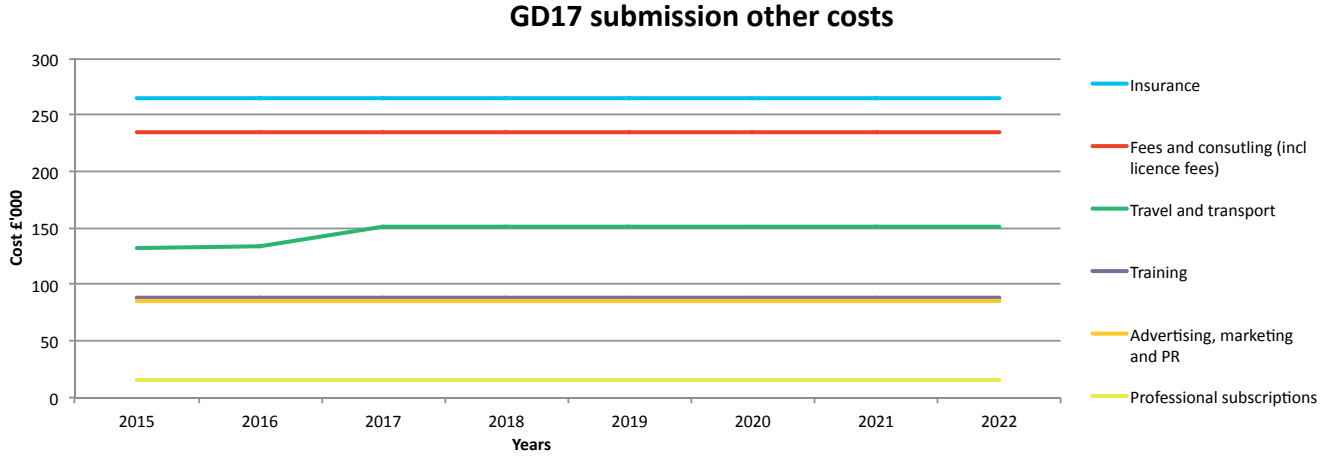
6.7 Other Operating Costs

Overall, 'other' costs, including office costs, remain flat over the entire GD17 period. The various cost headings are analysed briefly below. The overall picture is of flat costs throughout the GD17 period.

Figure 6.15 'Other' Costs in GD17

	2015	2016	2017	2018	2019	2020	2021	2022
	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000
Insurance	265	265	265	265	265	265	265	265
Fees and consulting (incl licence fees)	235	235	235	235	235	235	235	235
Travel and transport	132	134	151	151	151	151	151	151
Training	88	88	88	88	88	88	88	88
Advertising, marketing and PR	86	86	86	86	86	86	86	86
Professional subscriptions	15	15	15	15	15	15	15	15
Total	821	823	839	839	839	839	839	839

Figure 6.16 'Other' Costs Trends



Buildings

Firmus energy operates out of 'business park' type office accommodation which is the correct size and is economically attractive compared to 'Class A' office accommodation elsewhere. The company is ideally placed within its existing offices at Kilbegs Business Park, Antrim, to reach each town within the current network. We have performed in-house test trials to verify that additional decentralised office locations are not required and note that we are currently servicing towns from Warrenpoint to Derry/Londonderry within the Ten Towns network from this centralised location.

Information Technology

Forecast IT opex costs primarily reflect incremental customer and staffing requirements and have been modelled based on our new managed service contract for IT and telecoms.

A major IT improvement project is underway in the GD14 period which will add a new asset management system while retaining the existing system architecture which primarily consists of; financial softwares, 'felive', GIS and other desktop systems. Otherwise, IT costs remain flat during GD17.

Telephone, Postage and Stationery

Telephone, postage and stationery costs include both a fixed cost and variable cost component. We have modelled a fixed cost per annum representing the telephone line rental cost which is based on and proportionate to our existing Ten Towns service arrangements. Meanwhile, the variable cost element is driven by GD14 determined costs uplifted to 2014 prices.

Insurance

Forecast insurance costs are based upon 2015 actual policy prices. Costs are forecast to remain constant over the GD17 period despite the company's increasing staff numbers and network kilometres (reflecting anticipated savings through insurance procurement).

Professional and Legal Fees

Forecast professional and legal fees are based on the predicted outturn for 2015 and include IT and telecoms, insurance, legal and consultancy fees relating to regulatory submissions, customer management and human resources, audit fees and other costs. Other costs include subscriptions and maintenance related costs. Excluding the IT & telecom costs resulting from the IT transition and transformation in 2015 and 2017, professional and legal fees are forecast to remain relatively constant from 2015 to 2022.

Part 7: Capex

GD17 Business Plan

Part 7: Capex

Utility Regulator Guidance

Any supplementary information that may help us to better understand the data provided in the reporting template. This will include, where relevant, but does not need to be limited to:

- methodologies and rules used for allocations and estimation, changes to same compared to previous regulatory submissions for the 2013/2014 reporting years and for GD14 as well as effective date and impact of such changes;
- additional details on cost movements in the year;
- additional details about changes in workload, their timing and impact of same on the business, now and in the future;
- justification for proposed diversion, feeder mains, reinforcement and security of supply projects as well as for capex replacement;
- details on any capex classified as other capex, amounting to >£5k and not falling into any of the following expenditure categories: system operations; IT and telecoms; commercial gas trading IT; plant, tools and equipment, land, buildings, furniture and fittings, security, vehicles & wheeled plant.
- an explanatory on the GDN's view on the implementation of the TMA legislation in Northern Ireland, including expected timelines, expected impact on the GDN cost base during the GD17 price control period and proposed methodology for determination of TMA allowances.

7.1 Introduction

Since 2005, firmus energy has invested progressively in the Ten Towns natural gas network. Figure 7.1 below sets out the company's historic investment alongside the regulatory determined capex.

In total between 2005 and 2014 firmus energy has invested more than £110 million (2014 prices) in the licensed area.

Figure 7.1 Firmus energy Network Investment 2005-2014

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000
Total Capex (Dec 2014 Prices)	2,302	13,947	14,226	12,401	11,020	10,059	12,790	11,588	11,092	11,060	110,485

Firmus energy is committed to achieving an increase in customer connections of over 27,000 in the GD17 regulatory period, effectively doubling the number of customers in the licensed area in a six year period. Our proposed capital expenditure programme is essential to delivering on this ambitious objective. Firmus energy capex investment is the critical enabler of broader consumer access to the benefits of natural gas.

The challenging connection numbers proposed will require us to make a significant investment in infill mains across the licensed area.

The cumulative outputs of our GD17 capex programme are shown in figure 7.2 below.

Figure 7.2 Capex Programme Outputs

Metric	Units	2017	2018	2019	2020	2021	2022
Cumulative customer numbers	No.	36,544	40,831	45,203	49,706	54,556	59,552
Cumulative properties passed	No.	101,818	113,689	126,017	137,231	148,796	161,269
Cumulative capex	£'000	13,607	26,532	39,583	53,084	66,955	81,846
Cumulative mains laid	Km	123	243	361	478	598	718

Effectively firmus energy's capex plan in the GD17 period invests £81million in the network, extending the mains by 718 km making gas available to 72,000 more properties and increasing the customer base to nearly 60,000 households and businesses.

7.1.1 Data-driven Planning

Firmus energy has carried out a detailed physical survey of our Ten Towns licensed area and has identified where household connections can best be realised. The work required has been quantified, prioritised and scheduled. We have detailed information on proposed large I&C connections, as well as NIHE conversion programmes and proposed new build areas. The investment plan has identified areas of existing housing where potential demand for conversion to natural gas is envisaged to be high. This has necessarily resulted in a focusing of planned household connections increasingly to the higher usage owner-occupied sector. To do so while capturing economies of scale and maximising productivity we have batched the work into 621 specific project areas which we plan to roll out in turn.

7.2 GD17 Capex Overview

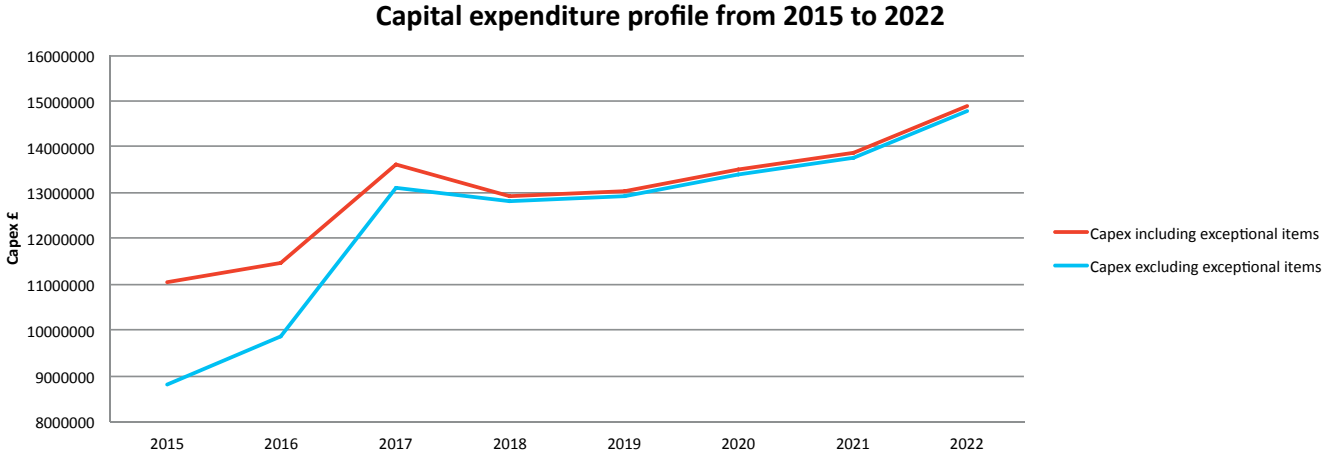
Firmus energy's planned capex for GD17 (along with forecast outturns for GD14) is shown in figure 7.3 below. Overall proposed capex averages around £13.5m per annum during GD17.

Figure 7.3 Firmus energy Forecast Capex GD14 and GD17

	GD14		GD17					
	2015	2016	2017	2018	2019	2020	2021	2022
LP, 2Bar or 4Bar Mains	6,054,660	6,716,060	8,330,468	7,996,478	8,044,074	8,365,940	8,300,134	9,014,829
Pressure Reduction	64,001	21,156	18,992	36,897	42,043	46,927	43,965	133,791
Domestic Services	3,309,074	3,273,384	3,314,061	3,381,620	3,453,177	3,557,524	3,853,194	3,961,686
Domestic Meters	727,641	719,793	697,841	711,187	725,183	746,296	871,578	971,830
I&C Services	466,550	452,493	447,159	447,897	447,537	446,268	445,496	443,425
I&C Meters	423,930	272,034	234,713	237,286	224,870	224,232	242,538	252,407
Other Capex	-	-	563,804	113,804	113,804	113,804	113,804	113,804
Totals	11,045,855	11,454,921	13,607,037	12,925,170	13,050,689	13,500,992	13,870,709	14,891,772
Less exceptional expenditure:								
Mackles and associated zones	2,234,776	1,588,544						
IT transition	-	-	513,804	113,804	113,804	113,804	113,804	113,804
Total exceptional	2,234,776	1,588,544	513,804	113,804	113,804	113,804	113,804	113,804
Adjusted total capex	8,811,080	9,866,377	13,093,233	12,811,366	12,936,885	13,387,187	13,756,905	14,777,967

Overall there is a planned increase in capital investment at the commencement of the GD17 period over GD14 levels, reflecting the proposed stepping up of new network mains toward 120 km per annum which will ensure economies of scale as properties are passed. Thereafter, total capex rises very gradually toward the end of the plan period. This is depicted in Figure 7.4 below.

Figure 7.4 Capital Expenditure Profile



By far the biggest element in the capital programme is the investment in the low pressure and 4Bar mains. This is the key enabler of increased connections across the network and the investment of £50 million in new gas mains over GD17 accounts for over 60% of total capex in the period.

After new mains, the next largest area of investment is domestic services and meters, which rise steadily across the GD17 plan period although more steeply in the last two years of the plan. This reflects the targeted growth in new customer connections in the period.

Capital expenditure on I&C customers remains flat over the Business Plan period reflecting a relatively small but continuous level of new customer connections in that sector.

'Other' capex remains consistently low and flat across the GD17 plan period.

7.3 Analysis of Proposed Network Investment

7.3.1 Rationale for Investment

The rationale for the investment activities planned is based on our comprehensive survey of the licensed area and our experience in rolling out the network build across the Ten Towns network in the past ten years.

Over this time we have sought to optimise network design and to drive cost efficiencies through innovation, without compromising either safety or the quality of the network build. In addition to this we have staff and contractors with extensive experience within the gas industry, allowing us to put in place efficient plans and processes, choice of materials, construction methods and new technology to deliver benefits for customers and other stakeholders.

Cost Management

Firmus energy is committed to tight control of capital expenditure and has a robust system to deliver this. For the majority of capital expenditure requirements (the contracted–out activities), firmus energy engineering staff will agree a work schedule with the Period Contractor for the forthcoming months.

Each item of capital work is given an individual code (a 'tracksheet'). The contractor charges time and materials to this. Tracksheets (and the associated capital works) are regularly monitored by firmus energy engineers to review progress and costs. Costs are included in our financial accounting system as work-in-progress which are monitored on a monthly basis.

Once a tracksheet has been certified as complete by a firmus energy engineer, the costs are then capitalised and will form part of the monthly invoice from the Period Contractor for all works certified in that period. These invoices are reviewed in detail to ensure all work included has been appropriately checked and approved and when satisfied. The invoice is approved for payment by both the Construction Manager and the Director of Engineering. All capitalised salaries follow the normal salary approval process.

Other external third party payments for capital expenditure will flow through the firmus energy contract management and invoice systems, whereby purchase orders are raised and approved before any work commences or materials/services are purchased. Invoices are checked and reconciled to these purchase orders and approved where appropriate.

New Network Mains

The quantity of new mains to be laid is set out in figure 7.5 below, analysed between new build properties and 'other' for which the two different per metre allowed construction rates apply. 'Other' is also shown adjusted for the removal of the anomaly projects. There is a substantial increase in network metres to be laid in GD17 over the levels forecast in the current regulatory period.

Figure 7.5 Forecast of new mains laid and properties passed

New build mains	2017	2018	2019	2020	2021	2022	Total
Mains laid new build (m)	9,689	8,160	8,160	8,160	8,160	8,160	50,489
Properties passed NB (no)	896	797	800	800	800	800	4,893
Metres per property passed	10.81	10.24	10.20	10.20	10.20	10.20	10.32

All mains excluding new build	2017	2018	2019	2020	2021	2022	Total
Mains laid other (m)	113,119	111,715	110,309	108,727	111,307	111,901	667,078
Properties passed other (no)	11,397	11,120	11,645	10,573	10,882	11,687	67,304
Metres per property passed	9.93	10.05	9.47	10.28	10.23	9.57	9.91

As a result of this increased level of investment, an additional 72,000 properties will be afforded the opportunity to access natural gas including almost 5,000 new build residential properties.

The majority of the proposed network build will be made up of 4 bar mains. Due to the makeup of proposed connection numbers, the majority of the mains will be small diameter 90mm and 63mm infill mains. Associated costs will cover pipe, installation method (open cut or directional drill), inclusion of valve and connection to parent main (branch saddle, top tee or squeeze-off), dust surround to pipe, backfill material and reinstatement to Northern Ireland Road Authority and Utilities Committee (NIRAUC) specification.

The installation of low pressure mains will be confined to town centres where the gas meter needs to be sited internally due to type of property frontage and areas where the required clearance from the medium pressure gas main with existing properties cannot be achieved.

In areas of multiple occupancy building, such as apartments and flats, it is often necessary to install low pressure mains. Associated costs will cover cost of pipe, installation method (open cut or directional drill), dust surround to pipe, backfill material and reinstatement to NIRAUC specification.

It is our intention to maximise the medium pressure network and to minimise the low pressure network within the Ten Towns development area, thus saving on the costs associated with pressure reduction equipment and resultant maintenance costs.

We also plan to install pressure reduction equipment above ground rather than below ground (which has historically been the case in Northern Ireland), thus reducing manufacturing, installation and resultant maintenance costs.

It is our intention to utilise directional drilling where ground conditions permit to minimise the installation costs and to maximise productivity. Firmus energy has already used this technique successfully during the roll-out of parts of the gas network already laid within the Ten Towns area.

Gas main installation using the directional drilling technique is more efficient than an open cut method and this, coupled with lower amounts of excavated material being transferred to landfill, lower reinstatement costs and lower disruption to the public, make this the optimal installation method.

We will install mains within grass verge areas, where possible, in order to facilitate directional drilling and to reduce costs. Effective planning and traffic management will ensure that out of hours costs are kept to a minimum.

Conversely, it is not possible to use this technique in hard or very soft ground conditions and in areas where there is a multitude of other utility assets, including town centres. Mains laying is extremely expensive where public realm paving exists and has to be fully reinstated. Firmus energy therefore has regular discussions with public authorities and other utility operators with the intention of coordinating work where possible to reduce costs.

We have held discussions with DSD and DRD Roads Service with regard to public realm schemes within the town centres, and it is our intention to trench share with other utility providers, to minimise installation costs and disruption.

Steel Mains

Steel mains are used where there is no other engineering option and the gas main is exposed – such as river crossings where the gas main is most often attached to a bridge. There are a small number of these on the firmus energy Ten Towns network, and it would be the intention of firmus energy to minimise the number of steel crossings by using good engineering design.

We will also be working in tandem with the Structures Division of the DRD to find alternative lower cost solutions to river crossings, including directional drilling or the installation of the gas mains within the structure of the bridge itself.

Network Mains – Costs

Network mains costs for GD14 and GD17 are analysed in figure 7.6 below, following the same format of new build, other, and other adjusted, for the removal of the anomaly projects.

Figure 7.6 Network Mains Costs and Costs per Metre in GD14 and GD17

New build	2015	2016	2017	2018	2019	2020	2021	2022
Mains cost new build (£)	361,130	290,805	526,159	416,532	416,185	415,015	414,297	412,361
Mains laid new build (m)	8,545	7,217	9,689	8,160	8,160	8,160	8,160	8,160
Cost per m new build	42.26	40.29	54.30	51.05	51.00	50.86	50.77	50.54

Other	2015	2016	2017	2018	2019	2020	2021	2022
Mains cost other (£)	5,693,530	6,425,255	7,804,309	7,579,946	7,627,889	7,950,926	7,885,837	8,602,468
Mains laid other (m)	76,278	92,029	113,119	111,715	110,309	108,727	111,307	111,901
Cost per m other	74.64	69.82	68.99	67.85	69.15	73.13	70.85	76.88

Other less exceptional items	2015	2016	2017	2018	2019	2020	2021	2022
Mains cost other (£)	3,458,755	4,836,711	7,804,309	7,579,946	7,627,889	7,950,926	7,885,837	8,602,468
Mains laid other (m)	51,295	71,520	113,119	111,715	110,309	108,727	111,307	111,901
Cost per m other	67.43	67.63	68.99	67.85	69.15	73.13	70.85	76.88

Overall, costs rise in line with the increased output in GD17, although unit costs remain relatively flat over the plan period as a result of the assumption that we will again be tied to fixed prices within a single contract on renewal.

Pressure reduction stations (PRS)

Pressure reduction stations will be installed to reduce pressure in the mains network from medium to low pressure to facilitate the placing of gas meters internally where no garden frontage is available at the property or in town centre locations where properties are terraced. The associated costs cover the cost of the pressure reduction unit, suitable drainage and concrete support, glass reinforced plastic ('GRP') chamber sections and road/footway cover. The number of these units to be used will be minimised through good engineering network design and hence will keep construction and installation costs low and will minimise future maintenance costs.

Services

Planned investment in domestic as well as I&C services over the GD14 and GD17 periods is outlined in figure 7.7 below.

Domestic services can be 20mm or 32mm low pressure or medium pressure PE pipes installed by either open cut or impact moling technique. Associated costs include connection to parent main, pipe cost and the connection at the Meter Control Valve. Included is a flow limitor device that automatically cuts off the flow of gas should the service pipe be damaged between the connection to the main and the customer's meter.

I&C services will vary in diameter from a small 32 mm I&C service to a 125 mm/180 mm service for I&C customers. Dependant on ground conditions and length, the service may be installed by a variety of methods; open-cut trench, directional drilling or impact moling. It is firmus energy's intention to utilise directional drilling and impact moling as much as possible. The associated costs include the connection to the main, the PE pipe, dust surround and termination at the meter control valve. It is our intention to install services to all classes of I&C at the same time as the mains in the roadway to minimise connection costs and live gas connections. On small I&C services (up to u65 meter), a flow limitor device is fitted. Firmus energy uses flow limiters on all small I&C services on the network as they are less expensive than service isolation valves, are easier to install and require limited maintenance.

Service valves are installed on all I&C services that do not have a flow limitor device fitted and are used to shut off the flow of gas in an emergency, should the service pipe be damaged or the building is at risk from fire. The associated costs include the valve costs, GRP chamber and road/footway cover.

Figure 7.7 Capex Spend on Services in GD14 and GD17

Services

Domestic	2015	2016	2017	2018	2019	2020	2021	2022
Number of domestic services	4,000	4,000	4,066	4,137	4,222	4,353	4,700	4,846
Cost of domestic services £	3,122,687	3,089,007	3,130,638	3,197,895	3,269,600	3,374,467	3,670,454	3,779,795
Average cost per domestic service £	781	772	770	773	774	775	781	780

I&C	2015	2016	2017	2018	2019	2020	2021	2022
Number of I&C services	150	150	150	150	150	150	150	150
Cost of I&C services £	402,441	389,077	384,070	384,704	384,395	383,305	382,642	380,863
Average cost per I&C service £	2,683	2,594	2,560	2,565	2,563	2,555	2,551	2,539

Overall, investment in domestic services rises throughout GD17 in line with the increasing number of connections that are being targeted. Capex on I&C services remains constant throughout the period, reflecting the forecasted 150 connections per year in the sector.

Unit costs for both domestic and I&C connections remain relatively flat over the life of the GD17 period however it is important that allowances adequately reflect these costs to achieve these connection targets.

Meters

Domestic meters – there are two types of meter in use across the Ten Towns network; credit and prepay. In a drive to reduce costs resultant from erroneous reports of gas escapes, we are intending to increase the proportion of credit meters used across our network. The reason behind this is further outlined in Part 9 of this document.

As we noted in our GD17 Supplementary Paper regarding smart meters submitted in June 2015, our Business Plan submission does not include costs associated with the roll-out of smart meters. Any such roll-out would require significant planning by both GDNs and the Utility Regulator to ensure value for money for customers, alongside consideration of best practice from Great Britain and evaluation of the factors, notably rurality and network quality, which differentiates Northern Ireland.

While we will continue to monitor developments in smart metering technology and usage in Great Britain, we expect that further in-depth discussion with the Utility Regulator would take place ahead of any smart meter rollout in Northern Ireland and such engagement would result in an allowance for retrospective costs.

I&C meters – all I&C meters are sized by our sales team and ordered through our contractor who has the supply chain in place. The units are delivered to site pre-assembled to minimise connection time on site.

The larger meter rigs have lifting eyes in place to crane into position onto a pre prepared concrete base. There is a number of differing meter rig configurations depending on the size of the meter rig and flows to be managed but a simple meter unit contains an emergency control valve, inlet filter, regulator, over pressurisation protection and the meter itself.

All parts are housed within a meter enclosure that offers the meter protection from weather, vandalism and fire. In conjunction with our contractor, we have dual sourced the meter range and spare parts required for maintenance purposes thus ensuring lower costs.

The investment in meters is detailed in figure 7.8 below.

Figure 7.8 GD17 Capex on meters (domestic, I&C)

Meters

Domestic	2015	2016	2017	2018	2019	2020	2021	2022
Number of domestic meters	4,000	4,000	4,066	4,137	4,222	4,353	4,700	4,846
Cost of domestic meters £	727,641	719,793	697,841	711,187	725,183	746,296	805,087	827,000
Average cost per domestic meter £	182	180	172	172	172	171	171	171

I&C	2015	2016	2017	2018	2019	2020	2021	2022
Number of I&C meters	150	150	150	150	150	150	150	150
Cost of I&C meters £	423,930	272,034	234,713	237,286	224,870	224,232	223,845	222,804
Average cost per I&C meter £	2,826	1,814	1,565	1,582	1,499	1,495	1,492	1,485

Investment in meters rises over the plan period in line with targeted connections. Unit costs of meters falls slightly during GD17 with the reduction in the unit cost of I&C customers reflecting the expectation that the average size of new I&C customers is likely to be smaller over time.

7.4 Justification for Diversion, Feeder Mains and Security of Supply Projects

Diversionary/abandonment works

Firmus energy has no plans to divert or abandon any mains or associated plant during the GD17 period. In line with the Code of Practice (Measures necessary where apparatus is affected by major works – Diversionary Works 2nd Edition), there is a general presumption against moving apparatus unduly. Additional plant protection measures can be introduced to mitigate the need to carry out expensive diversionary works and firmus energy will only move/divert apparatus where there is no engineering solution to leaving the gas apparatus in situ.

Abandonment of assets may be required during diversionary works when road re-alignment schemes or footway works are being undertaken and where there in a significant reduction in the depth of cover to the gas apparatus. In this case, new mains would be installed alongside the existing apparatus at a greater depth of cover and the shallow main abandoned. Diversion works are predominantly carried out at the request of DRD Roads Service and are invoiced and paid for prior to the commencement of works.

In conjunction with the relative Code of Practice, there are several detailed planning stages during diversion works associated with major road works, although this is not always adhered to, and firmus energy receives little or no prior indication that road works are to take place in the vicinity of our apparatus and that gas plant will be affected. Individual customer requests for smaller diversionary works are also sporadic with little or no prior notification. We invoice all customers for the full costs of requested diversionary works and all works are paid prior to commencement.

All diversionary works are undertaken in line with the Safe Control of Operations (SCO) requirements, with qualified and competent personnel and in conjunction with live gas operations procedures. Details of diverted or abandoned mains left in-situ are captured on our GIS and are identified on maps and plans issued to contractors digging in the vicinity of our plant.

Network Reinforcement/Security of Supply

The firmus energy gas networks have been constructed in line with the IGEM suite of procedures and recommendations which reflect industry best practice and take into account the 1 in 20 peak six minute demand criterion for network analysis when designing and planning the gas network roll-out. It also requires the consideration of specific network reinforcement/security of supply investments in circumstances in which large numbers of customers (and in particular vulnerable categories of customer) are unusually exposed to the risk of failure of a single piece of equipment.

The firmus energy gas network is made up of eight separate pressure systems supplied from Above Ground Installations (‘**AGIs’**) off the North-West and South-North Transmission Pipelines. Apart from the Craigavon pressure system all other systems are supplied via a single feeder main from the AGI to the town boundary which increases the risk of loss of supply should there be a third party damage to the feeder main. The highest density of customers in Ten Towns network are in Derry/Londonderry which has in excess of 5,000 customers supplied from a single steel main attached to Craigavon Bridge. As the number of customers increase throughout our towns the requirement for network reinforcement will be continually assessed through the use of network analysis to identify the area affected by a potential loss of infrastructure and the numbers of domestic, commercial and industrial customers affected. Where possible network reinforcement will be included within our on-going mains programme aimed at passing properties and connecting customers.

We have not included network reinforcement or security of supply projects as it was outlined by Utility Regulator in 2014 that we should not submit these schemes as they would not be considered until the lough crossing in Derry/Londonderry was completed. Details of this project have since been submitted as a supplementary paper to the Utility Regulator on 30th June 2015. We await a response from the Utility Regulator on the allowances to be provided in this regard. It is envisaged that this project will commence in 2016.

Feeder mains – these are typically larger diameter low pressure or medium pressure mains that convey gas between towns or throughout the towns to enable infill mains to be installed providing gas to I&C, SME and domestic customers. We have highlighted a number of feeder mains within our capex plan for 2017-2022 that are required to deliver sufficient volumes of gas throughout the towns to facilitate proposed connection numbers and associated gas volumes.

Line valves – these will be installed on any feeder/spine mains in accordance with IGEM recommendations at intervals of between 800 m and 1,000 m for urban and rural areas, and at main road junctions. Dependant on size of main these valves may be of a metallic or PE construction. Pupped valves are used where possible to reduce construction times and future maintenance requirements. Associated costs to cover cost of valve, suitable concrete base to support valve, GRP chamber and road/footway cover. Suitable wrapping will also be used on metallic valves. Valves will be sited where they can be operated safely and, if possible, in grass verges to minimise installation costs.

7.5 Other Capex

Steel/PE Risers – these are installed to make gas available to multi-storey properties, apartments, and offices. They can be of screwed steel, welded steel or PE construction. Experience has shown that steel risers of a welded construction offer the optimal solution with regard to installation, safety and maintenance costs.

Telemetry – firmus energy is currently investigating new technology options with regard to telemetry proposals. To reduce costs it is proposed to use I&C customers (where they are in close proximity to network extremities) for the location to monitor pressures within towns.

The installation of new telemetry across the network is forecast to cost c. £191,000 over the GD17 period. These costs were outlined in our 30 June GD17 Supplementary Paper submitted to the Utility Regulator, however pending the outcome of discussions with the Utility Regulator on this issue we have not included these costs in the BPT.

IT and Office (including Network Code) – significant spend is planned on IT infrastructure. However any such costs will be capitalised as part of plant and machinery costs in the month that the expenditure is incurred.

Capitalised Salaries (in relation to the above activities) – firmus energy staff whose activities and hence salary costs are directly attributable to the construction of the network are capitalised on a monthly basis as a cost of the network.

7.6 TMA

Given our excellent working relationship with the DRD Roads Service and extensive experience rolling out the gas network through small towns across Northern Ireland we recognise the need for close co-ordination with respect to working hours, traffic control, potential disruption and the need to interact with all stakeholders prior to carrying out major construction works. That said, we understand the rationale for the implementation of the TMA in Great Britain in April 2008.

The TMA makes provisions for the designation of traffic officers and their duties, the management of road networks and regulating the carrying out of works and other activities in the street. The Act has seven parts of which parts 3 and 5 would have a significant impact upon Network Development activities.

Part 3: Permit schemes. This would mean work in certain areas requiring permits in advance and limiting the duration and time at which these works could be carried out; such as night time works or bank holidays.

Part 5: Highways and Roads. This most notably provides for regulations to apply a 'lane rental' charge to building materials, skips and temporary excavations. A Transport for London document on the TMA estimates that at almost £800 per day for a lane rental, these costs will add almost £12m per year to utility company costs which in turn will add approximately £3 per year average increase onto utility bills.

We have included the 10% uplift for TMA in the BPT, however as the TMA has not come into force during the GD14 period and no draft legislation has been brought before the Northern Ireland Assembly since the GD14 determination firmus energy has not modelled for TMA costs in GD17.

If the Utility Regulator deems it appropriate to account for TMA in the GD17 determination we would support the reapplication of the precedent used in GD14.

Part 8: Network Assets

Part 8: Network Assets

Utility Regulator Guidance

Any supplementary information that may help us to better understand the data provided in the reporting template. This will include, where relevant, but does not need to be limited to methodologies and rules used for allocations and estimation, changes to same compared to previous regulatory submissions for the 2013/2014 reporting years and for GD14 as well as effective date and impact of such changes.

8.1 Introduction

This chapter outlines the network assets that will be in place across firmus energy's development area following the construction and operations activities proposed for 2017-2022. The asset categories comprise distribution mains, governors, services domestic, services - I&C, service risers and service laterals.

The firmus energy network has been designed and installed to meet the requirements of the IGEM and Irish Standards.

Some of the pipe sizes listed in the Utility Regulator's worksheet are not utilised on the firmus energy contract – namely, 50mm, 75mm, 200mm and 600mm. Firmus energy do not utilise Intermediate Pressure (**'IP'**) so no cells have been completed relating to IP mains.

There is no separate section to record the number of valves across the network but following guidance received from the Utility Regulator valves are included with mains. Polyethylene ('PE') pipe has been the predominant material used on mains and services due to its long life expectancy (>40 years), low cost compared to steel, low maintenance requirements, impact resistance, ease of handling and installation. It is anticipated this we will continue to use PE throughout the GD17 period and that there will be no replacement (due to wear and tear) expenditure for the existing PE gas mains or services during GD17.

There is a marked increase in the amount of smaller diameter mains to be installed over the GD17 period due to the planned infill roll-out programme. At the commencement of the initial network roll-out in 2005, firmus energy's development plan centred around a 'thin' network model laying larger diameter feeder mains throughout the towns to connect large I&C customers and to take gas to NIHE areas and New build sites. We are now entering a new phase of our development plan which involves significant infill of the network, and will result in predominantly 63mm & 90mm medium pressure mains being installed. These mains will make gas available to domestic customers and will see an 8% reduction in the average cost per metre of infill mains during the GD17 period (as compared to the GD14 mains allowance).

Similarly, the quantities of larger diameter mains are reducing due to the majority of these mains now having been laid, apart from limited numbers of medium pressure feeder mains and larger diameter low pressure mains to make gas available to town centres.

Figure 8.1 Network Assets – Length of Mains

Pipe Size	Start 2015	Abandon Pre- GD17	Start GD17	Abandon During GD17	End GD17
	Km	Km	Km	Km	Km
32mm	-	-	-	-	-
50mm	-	-	-	-	-
63mm	344	2	449	-	1,053
75mm	-	-	-	-	-
90mm	136	1	183	-	251
125mm	119	0	135	-	166
180mm	162	1	175	-	184
200mm	0	-	0	-	0
250mm	76	2	74	-	76
315mm	39	-	39	-	41
355mm	27	0	27	-	27
400mm	-	-	-	-	-
450mm	9	-	9	-	9
600mm	-	-	-	-	-
Total	911	6	1,090	-	1,807

The basis of design for the firmus energy gas network is to operate the network at 4bar pressure except for densely populated areas where the operating pressure is reduced to 75mbar so as to allow pipes to be laid closer to buildings than otherwise would be permitted at 4bar pressure. The higher operating pressure (4bar) allows costs to be optimised by installing smaller diameter pipes than otherwise would be necessary if 75mbar was used. 4 bar mains will facilitate customer gas demand.

Pressure control is provided by pre-assembled governor modules located below ground. Firmus energy is currently reviewing its design of below ground modules which may eventually lead to a policy of installing modules above ground to more easily facilitate maintenance and compliance with PSSR and Dangerous Substances and Explosive Atmosphere Regulations. We expect to install six units per year during 2017-2022 to reduce pressure for infill mains within town centres.

Figure 8.2 Network Assets – Number of Meters

	Start 2015	Abandon Pre-GD17	Start GD17	Abandon During GD17	End GD17
Domestic Credit (U6)	2,015	-	3,003	-	8,681
Domestic Credit (U16)	35	-	47	-	113
Domestic Prepayment	19,930	-	26,930	-	47,510
Smart Meter	-	-	-	-	-
I&C U6	540	-	645	-	975
I&C U16	480	-	552	-	768
I&C U25	303	-	341	-	455
I&C U40	216	-	254	-	368
I&C U65	184	-	208	-	280
I&C U100	115	-	125	-	155
I&C U160	72	-	74	-	80
I&C U250	59	-	63	-	79
I&C U400	31	-	31	-	32
I&C U650	18	-	20	-	21
I&C U1000	17	-	19	-	19
I&C U1600	10	-	10	-	10
I&C U2500	3	-	6	-	6
Total	24,028	-	32,328	-	59,552

On all 4bar domestic and small I&C services firmus energy installs a safety flow limiter device which automatically cuts off the flow of gas in the event of interference damage to the service. These flow limiter devices reduce the risk associated with uncontrolled releases of gas, the jointing system employed by firmus energy comprises modern butt and electro-fusion with effective quality control comprising daily inspections of weld records and testing sign-off by firmus energy's engineers. The use of steel has been restricted to bridge crossings where there has been no possibility of utilising PE pipe, and the use of steel has been minimised across the network due to maintenance requirements and expensive installation costs.

Any abandonment of assets is carried out at the request of the DRD Roads Service when undertaking road schemes or footway works and due to DRD budgetary constraints, there is often limited visibility of these works. We have a number of small diversionary works planned and completed in 2015 and 2016 and these are accounted for within the worksheet. Any abandonment of assets is charged to the relevant authority requesting the works. Any abandonment of services, either Domestic or I&C, is extremely rare and we do not foresee a sizeable number of these during GD17. We receive small numbers of requests to divert gas services to facilitate building works, but these are generally temporary in nature and the gas supply is usually reinstated soon after. We charge the relevant persons for all diversionary works and payment is required prior to commencement of works.

Part 9: Outputs and Environment

Part 9: Outputs and Environment

Utility Regulator Guidance

Any supplementary information that may help us to better understand the data provided in the reporting template. This will include, where relevant, but does not need to be limited to:

- details on events and occurrences that have impacted or are expected to impact significantly on the PRE reports and repairs numbers and performance indicators, including timing of such events and occurrences;
- methodologies and rules used for allocations and estimation, changes to same compared to previous regulatory submissions for the 2013/2014 reporting years and for GD14 as well as effective date and impact of such changes;
- details on reporting boundaries for business carbon footprint reporting; and
- details on relevant fuel-types over and above those pre-listed in the Business Plan data template.

9.1 Public Reported Gas Escapes

Firmus energy has a robust system in place to manage public reported escapes (PREs). We operate an emergency service 24 hours a day/365 days a year through our Emergency Control Centre at Hinckley in Great Britain. We have a full suite of procedures in place for the safe conveyance of gas in our development area, including Leak Management, Major Incident and Loss of Supply.

We have an average response time of 37 minutes to all PREs, both controlled and uncontrolled and do not defer any gas escapes on the network.

Our engineers are on call 24 hours a day/365 days a year for any emergencies which may arise across the firmus energy network. They provide a 1 hour response to smells of gas. In 2014, 97% of uncontrolled gas escapes were attended within one hour against a target of 90%, 96% of controlled gas escapes were attended within two hours against a target of 90%.

9.1.1 Experience of Natural Gas

There is less history or experience of natural gas in the firmus energy Licence Area, which impacts upon the number of PREs. Unlike Great Britain where gas has been an ever present or even in Greater Belfast where Phoenix has been operating the gas network for almost 20 years, firmus energy serves an area where there is limited familiarity with natural gas. A lack of history and lack of customer experience of natural gas means that firmus energy needs to manage customer misconceptions with regard to possible safety implications around the use of gas. Consequently, our customers and the general public within our development area will tend to call our emergency number and customer service teams for guidance and reassurance and are more likely to report a gas escape, if they have any uncertainty, whatsoever. While many of these PREs result in 'No Trace', each report must be treated as a potential escape of gas.

9.1.2 Forecasting PREs

As firmus energy develops, a number of factors will impact upon the number of PREs received, most notably, customer numbers and customer awareness and understanding of natural gas. Weather conditions can also have a significant short term affect during harsh winter conditions such as those experienced in 2010/2011. Extending the gas network into new areas such as Loughgall, Richhill, the Moy, Benburb and Blackwatertown will see a rise in the number of calls due to the high visibility of our works in these areas. Meanwhile, the customers on our existing network will gradually gain more experience of using gas and the likelihood is that the number of reports will decrease in established gas areas.

The firmus energy gas network is up to ten years old (in Ballymena) and as the network ages more PREs will occur due to the degradation of assets. Having balanced all these factors as part of our assumptions for GD17 our forecasts support the forecast PRE numbers outlined by the Utility Regulator in the GD14 Determination. As such we have modelled our GD17 submission in line with the Utility Regulator's PRE forecast.

9.1.3 Costs Associated with PREs

Costs associated with PREs are outlined in Part 6 of this document.

9.1.4 Reducing PREs

Given the cost implications outlined above, firmus energy works tirelessly to reduce the number of PREs in the following ways.

Public Education

We have introduced a number of initiatives to educate our customers and the wider general public about natural gas, how to use the gas meter and what to do should someone smell gas. We have updated and expanded the information available on our website and now direct our customers to the website through direct marketing and through our call centre operatives. We have added short videos to help customers diagnose issues with their meter (or prepayment card) and how to use them correctly in order to mitigate a general enquiry call to our emergency line and therefore stem further costs associated with the call out of an engineer. We review each PRE call received and send out letters to the customers where it has been confirmed that the issue relates to their installation - such as low water pressure on boiler, boiler fault, carbon monoxide alarm or thermostat and remind the customers that they are responsible for the installation downstream of the meter and of the criteria that should be met before a call is made to our emergency centre.

Working with Call Handlers

Our call handlers are provided with scripts for use with customers and the general public to help reduce the number of calls received and to provide clear advice to customers and to direct customers to our website for further information should they experience similar problems in the future which are not directly related to an emergency situation.

Additionally, the team is trained to help educate customers with best practice for use of their pay as you go meters. They work on talking customers (with pay as you go meters) through the steps they can take when they receive an error message on their meter, how to release the valve on their meter, the benefits of keeping their meters above 20m3 and keeping 'top up' cards in a safe location avoiding scratches to or dirt on the chip.

We also will send pay as you go customers information leaflets on top tips on how to use their meter.

Installation of Credit Meters

The use of PAYG meters allows the gas customer to have control of their gas usage and to budget effectively, adding small amounts of credit to their meter without the need for a one-off expense as seen with oil deliveries. Firmus energy has a high proportion of customers that would be classified as having a lower income and possibly living in fuel poverty. This is supported by the average domestic gas burn across the Ten Towns which is c.<300 therms. The issue around using PAYG meters is that they are liable to faults, through improper use of the pre-payment card or the customer operating the meter incorrectly.

We will continue to work with customers in this regard and are cognisant that this is a very sensitive issue when dealing with customers who are living in fuel poverty and who simply do not have the requisite disposable income to stay warm in the colder months.

The roll-out of our planned extensive infill network will make gas available to considerable numbers of owner occupier homes and it is envisaged that a higher number of new customers will take the opportunity to have a credit meter fitted, thus reducing the percentage of call-outs associated with PAYG meters. It is envisaged that the resultant cost savings will be realised in the post-GD17 period.

9.1.5 Environmental sustainability

The rollout of the gas network is making a significant contribution to the Northern Ireland environment. It is closely aligned with the Department of Enterprise, Trade and Investment's Strategic Energy Framework commitment to:

"Contribute to the 1% year on year energy saving targets identified in the United Kingdom's National Energy Efficiency Action Plan by working with other Departments who have responsibility for energy efficiency activities, and other key stakeholders such as the Consumer Council and Northern Ireland Energy Agency".

By facilitating customers switching from oil to natural gas, firmus energy is helping protect the local Northern Ireland environment, primarily by reduced CO2 emissions and improving energy efficiency.

Natural gas, the cleanest fossil fuel (30% less C02 than heating oil, and 45% C02 less than coal) is a highly efficient form of energy. Natural gas' advantages over other fuels include the following: it has fewer impurities; it is less chemically complex and its combustion results in less pollution.

Using natural gas produces less of the following than oil or coal:

- Carbon Dioxide (CO2), which is the primary greenhouse gas
- Sulphur Dioxide, which is the primary precursor of acid rain
- Nitrogen Oxides, which is the primary precursor of smog
- Particulate matter, which can affect health and visibility
- Polycyclic Aromatic Hydrocarbons[3]

9.1.6 Reduction in Greenhouse Gas Emissions

By providing customers with the option of natural gas over competing fuels, firmus energy has removed c. 550,000 tonnes[4] of carbon dioxide from the atmosphere over the period 2006-2014. By committing to grow our network and connect, where economically viable, as many customers as possible to the network, firmus energy expects to increase this figure to 1.5 million tonnes by 2022.

Firmus energy carbon footprint

We actively measure, monitor and manage our carbon footprint which in 2013 was estimated to be the equivalent of 1,700 tonnes of CO2. This is the amount of carbon which we emit to the atmosphere through the operation of our vehicle fleet, the energy we use in our offices and depots and in the day-to-day operations of our business. Whilst our business is growing, we are committed to improving our energy efficiency in the future in order to minimise our business carbon footprint.

Positive Network Survey Results

Firmus energy is committed to protecting the environment by minimising leakage from its network. This leakage could occur through pipeline joints, seams and other assets as gas is transported through the gas distribution network.

Having carried out a leak survey of the entire gas network in 2014 no leaks were detected. This exercise was also undertaken in 2009, when again no leaks were found.

This is testament to our robust safety, design, audit and construction procedures.

ISO 14001 Environmental Management System Accreditation

Our BPT reflects expenditure to enable the company to achieve its environmental management system accreditation through ISO14001. As noted above, firmus energy is aware that our activities are not mutually exclusive from the environment we work in. This training and accreditation will enable firmus energy to continue to improve upon the already significant contribution we make to the Northern Ireland environment.

[3] http://www.airqualityni.co.uk/assets/documents/504120308_pah_in_ni_report_final_published_version_v2.pdf
[4] Based on 300 million therms supplied to end 2014 and an average 24% saving compared with displaced fuels.

Part 10: Real Price Effects and Efficiencies

GD17 Business Plan

Part 10: Real Price Effects and Efficiencies

Utility Regulator Guidance

- Company view of real price effects that it the GDN expects to be faced with until the end of the GD17 price control period;
- Details of what the GDN has undertaken during the GD14 price control period to date or proposes for the future with respect to benchmarking/performance/efficiency improvements as well as the actual/ expected findings of these actions and how they will be use;
- Details of any capex/opex trade-offs and their effects on the results and forecasts for the future.

10.1 Benchmarking, Performance and Efficiency Improvements

Firmus energy submitted a paper regarding benchmarking, RPEs and frontier shift to the Utility Regulator as part of the initial GD17 submission. The report provided an overview of approaches that could be used to provide an indication of firmus energy's cost efficiency for GD17: cost benchmarking and price benchmarking.

In addition to this report, we outline below three key areas that will be affected by RPEs during the GD17 period.

10.1.1 RPEs

RPEs refer to changes in the cost of inputs, for example labour and materials over and above changes in the RPI. RPEs are usually sector-specific both in terms of composition of the workforce and key inputs for the industry. The three areas firmus energy has highlighted that will be affected by RPEs during the GD17 period are network rates, manpower costs and the firmus energy period contract.

10.1.2 Network Rates

In its GD14 Final Determination paragraph 6.122 the Utility Regulator stated that:

"For the final determination, we have continued using the formula approach to set allowances for network rates. Rates will be treated as a cost pass-through, subject to FE demonstrating that it has taken appropriate actions to minimise the valuations. The allowances will therefore be modified to reflect actual costs incurred via the retrospective mechanism".

During 2014, firmus energy negotiated with Land and Property Service (LPS) to gain the following reduction in our valuation:

- Network rates would only be applied from 1st April 2010
- At 5.8% of distribution income (compared with the standard rate of 6.8% for network rates)

LPS has informed firmus energy that our network rates will be re-rated in 2015 to the standard network rate. We are currently working with GVA NI (property and business rates consultants) to ensure our rates liability is kept to an absolute minimum.

In view of the uncertainty concerning Government spending and taxation over the GD17 period, we ask that network rates continue to be treated as a pass through cost as in the GD14 determination.

Figure 10.1 GD17 Productivity Metrics

		2015	2016	2017	2018	2019	2020	2021	2022
Cumulative connections	No.	28,178	32,328	36,544	40,831	45,203	49,706	54,556	59,552
Staff headcount	No.	57	57	64	64	64	64	64	64
Cumulative connections per staff member	No.	494	567	571	638	706	777	852	931
Connections per annum	No.	4,150	4,150	4,216	4,287	4,372	4,503	4,850	4,996
Staff head count	No.	57	57	64	64	64	64	64	64
Connections per annum per staff member	No.	73	73	66	67	68	70	76	78
Mains laid per annum	Km	85	99	123	120	118	117	119	120
Staff headcount	No.	57	57	64	64	64	64	64	64
Mains per staff member	Km	1.49	1.74	1.92	1.88	1.84	1.83	1.86	1.88
Opex	£'000	6,366	6,271	7,171	7,410	7,562	7,914	8,461	9,000
Cumulative connections	No.	28,178	32,328	36,544	40,831	45,203	49,706	54,556	59,552
Opex per customer connected	£'000	0.23	0.19	0.20	0.18	0.17	0.16	0.16	0.15

10.1.3 Manpower

Firmus energy has carried out a benchmarking exercise which was reviewed by PwC to confirm that manpower costs are broadly in line with the Northern Ireland market. General indicators suggest, in terms of base pay levels (which excludes variable pay and bonus), firmus energy is in line, apart from specialist Engineering, specialist Sales and qualified Finance staff. These roles are currently approximately 5% behind market rates as a result of a shortage of supply for Specialist Finance staff and an increase in competition from new gas network operators for Specialist Engineering staff within the small skill pool in Northern Ireland. Together, these activities make up 30% of the manpower costs included herein, and as a result, the overall salary costs show an increase of 1.5% in real terms (5% x 30%) from current levels.

Thereafter, considering RPEs on these base salary costs, Northern Ireland average whole economy salary inflation is anticipated to be in the range of 1.0 to 2.0% above RPI for 2015 and 2016. This is based in part on overall UK payroll inflation forecasts (see figure 10.2) as adjusted for relevant NI economic factors. Given the adjustments discussed above we anticipate that manpower costs will increase with inflation thereafter.

Figure 10.2 Office of Budget Responsibility RPI Forecasts[5]

Year	Average earnings growth (per cent)	RPI year on year	Earnings relative to RPI
2014	2.6	2.4	0.2
2015	2.2	0.9	1.3
2016	3.6	2.1	1.5
2017	3.9	2.8	1.1
2018	3.9	3.1	0.8
2019	4.1	3.1	1.0
2020	4.4	3.2	1.2

Whilst we anticipate Northern Ireland's average whole economy wage inflation would lag behind the UK average due to a lower rate of economic growth and productivity growth, this would be partly counterbalanced by labour shortage pressures particular to firmus energy which could push the company's own wage inflation above the average for the whole Northern Ireland economy.

Additionally, due to a smaller labour pool within Northern Ireland, we are required to attract talent from Great Britain, which due to higher salaries in Great Britain, necessitates offering salaries above the Northern Ireland benchmarked average to fill positions.

10.1.4 The firmus energy Period Contract

The prices in our current period contract are linked to the Retail Prices Index. When the contract is renewed later in the GD17 period, prices will be influenced by labour rates at the time and the price of oil which has a significant effect on the cost of operating plant and of the PE pipe which is manufactured from oil.

10.2 GD17 Productivity Metrics

The following three graphs outline the significant productivity gains firmus energy will make during the GD17 period when assessed against stable employee numbers. These productivity gains highlight that we have encompassed productivity improvement within our business plan and explain why no additional efficiency or productivity figures have been included in the BPT.

[5] Office for Budget Responsibility Economic and fiscal outlook supplementary economy tables - July 2015 Table 1.6 Labour market and Table 1.7 Inflation

Figure 10.3 Connection Growth per Employee

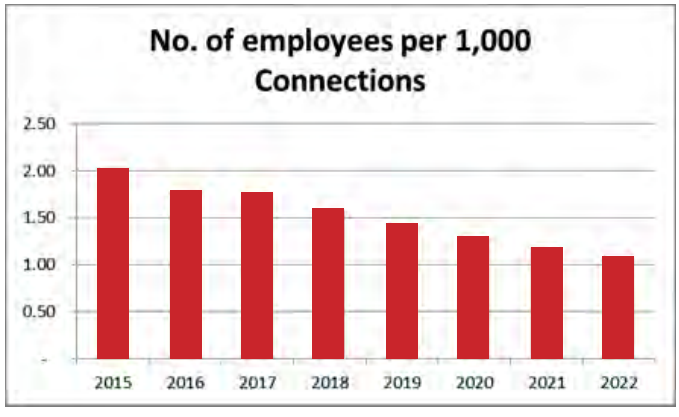


Figure 10.4 Mains Growth per Employee

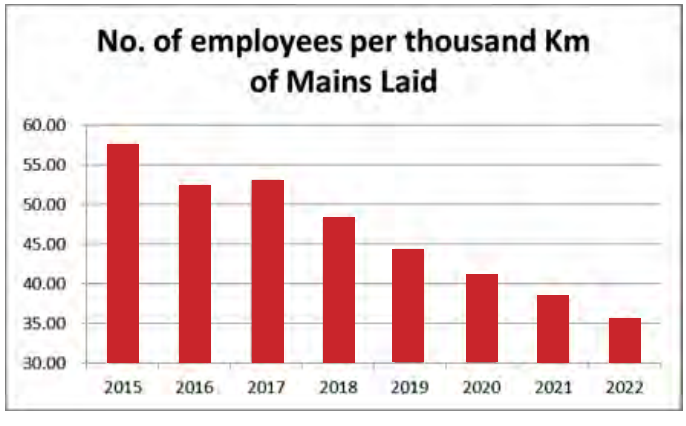
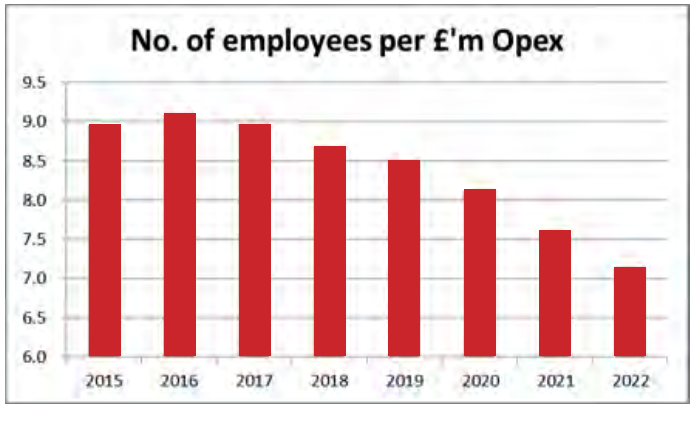


Figure 10.5 Opex Productivity Gains per Employee



Part 11: Special Factors and Atypical Expenditure

GD17 Business Plan

Part 11: Special Factors and Atypical Expenditure

Utility Regulator Guidance

Any supplementary information that may help us to better understand the data provided in the Business Plan data template, in particular with respect to comparability across time and/or, where relevant and appropriate, against similar data from other NI and GB GDNs. This information is needed to inform any adjustment to our efficiency analysis for the following:

Special factors, i.e. variables typically outside of management control which result in either higher or lower costs than comparators. In order to be awarded a special factor, the GDN must adequately demonstrate the following:

What is different about the circumstances that cause materially higher costs ('material' claims have previously been agreed by company and Regulator as those individual claims which amount to greater than 1% of total opex)?

Why do these differences result in higher costs?

What is the net impact of these costs on prices over and above that which would be incurred without these factors? What has been done to manage the additional costs arising from the different circumstances and to limit their impact?

Are there any other different circumstances that reduce the company's costs relative to the industry norms? If so, have these been quantified and offset against the upward cost pressures?

Atypical expenditure, i.e. costs (or reductions) which are not repeatable and are exceptional in nature ('one-off' costs). In order to be considered as an atypical expenditure, the GDN must adequately demonstrate the following:

What is different about the circumstance which causes it to be exceptional or 'one-off'?

Why does it result in cost variances?

Which data sources has the GDN used to assess the impact of the atypical expenditure and what results have been established?

When was the atypical expenditure incurred?

11.1 Introduction

The following section provides supplementary information regarding the special factors and atypical expenditure which impact firmus energy as we strive to grow the Ten Towns network and continue to provide high-levels of customer service.

From the outset this Business Plan has highlighted the many difficulties associated with attempting to benchmark firmus energy with the GB GDNs and Phoenix.

At the beginning of the GD17 Business Planning process, firmus energy engaged economic consultants Oxera to undertake an assessment of the company in comparison with GB GDNs and with Phoenix. The paper, titled 'Benchmarking and Efficiency Assessment' was submitted to the Utility Regulator in June 2015. It highlighted a number of major factors which differentiate the Ten Towns network area from the networks of the GB GDNs and the Greater Belfast network area. It argued that so many adjustments would be required to be made to the GB GDN metrics in order to make them reasonably comparable with firmus energy that it tended to call into question the value of the entire exercise.

At that time (and since), the company and its advisors have made strenuous efforts to obtain relevant GB GDN performance data that would enable us to quantify the financial headroom that should be allowed to firmus energy as a result of special factors. Unfortunately, we have not been able to acquire that data.

In addition, firmus energy submitted an overview of our Period Contract to the Utility Regulator in June 2015, again highlighting the significant differences between firmus energy and Phoenix.

In assessing special factors, firmus energy has highlighted a number of high-level issues which clearly differentiate our business and the Ten Towns network from the GB GDNs and Phoenix.

As regards atypical expenditure, we highlight once-off IT costs (which are not part of the ownership transition) relating to a necessary replacement of systems which are no longer fit for purpose. These systems will sustain customer service quality and establish for the first time a high quality asset management system. There are further once-off costs associated with establishing new business systems which ensure compliance with changes to market rules at the European Union level.

Firmus energy will also incur atypical costs during GD17 associated with supporting a retail market procedure (RMP) relating to Supplier of Last Resort (SoLR).

11.2 Special Factors

11.2.1 Comparison Between firmus energy and the GB GDNs

Figure 11.1 below, first shared with the Utility Regulator on 10 February 2015, demonstrates that firmus energy is substantially smaller than any of the GB GDNs. It provides an indication of the sheer scale of the GDN businesses compared to firmus energy.

The vast disparity in size of firmus energy compared with GB GDNs creates costs for firmus energy which should be considered as special factors.

Figure 11.1 firmus energy Compared with other GDNs*

Company	Gas Main	Customers	Staff
Scotia Gas Networks (GB)	74,000km	5.8m	1400
Northern Gas Networks	37,000km	2.7m	1300
National Grid	130,000km	10.9m	4100
Wales and West Utilities	35,000km	2.5m	1500
Phoenix	3,000km	180,000	125
firmus energy	**1,000km**	**25,000**	**57**

*All figures are approximate

11.2.2 Network Scale

The difference in scale is striking. Compared to firmus energy, National Grid's network is 130 times the size and it has over 430 times the total number of firmus energy customers. Even the smallest of the GB GDNs, Wales and West has 100 times more customers than firmus energy.

At this size it can be expected that the GB GDNs have some very significant cost advantages based on economies of scale. This must certainly apply in the case of general procurement of goods and services as well as to network operations carried out by contractors. Also, corporate overhead costs are spread across a large organisation and vast network whereas in the case of firmus energy with 57 staffing its distribution business, central costs necessarily account for a much greater proportion of administrative costs and opex.

It would not be reasonable therefore, on the basis of economies of scale alone, to expect firmus energy to achieve the same basic costs profile as those experienced by the GB GDNs.

11.2.3 Network Density

The fundamental differences between firmus energy and the GB GDNs go beyond considerations of scale. The GB GDNs are also mature businesses with well-developed networks and higher customer densities. Inevitably this lower density implies higher costs for both investment and network operations.

11.2.4 Other Differences Between firmus energy and the GB GDNs

In the June 2015 paper prepared by firmus energy in conjunction with Oxera a number of significant differences with GB GDNs in relation to work obligations were identified. These included metering obligations, Pressure Systems Safety Regulations, treatment of controlled/uncontrolled gas escapes and facilitation of customer switching and relationships with shippers/suppliers and our new build capex programme compared to the replacement expenditiure undertaken by GB GDNs.

Contractor Costs

As the GB GDNs benefit from economies of scale and higher network and customer density, their contractors can offer lower rates based on the large quantum of work available and their ability to carry it out more efficiently in a more densely populated network.

These same benefits are not available to firmus energy in dealing with its Period Contractor who is being offered a much lower volume of work, spread out more awkwardly on a more dispersed network.

Due to the relatively small scale of our business and network, firmus energy has a single contract for all major network construction activities. As noted in the Oxera 'Basket of Works' paper also submitted to the Utility Regulator, this restricts our ability to reduce costs.

This is especially of note as the rates for work charged by our contractor are fixed on a five-year basis, with an RPI adjustment. This disadvantages firmus energy in comparison to other GDNs because as a result of having a single construction contract we have limited ability to reduce construction costs, even marginally, during the time the contract is in place.

Firmus energy has been highly professional in the development of these contractual arrangements. The tender for the firmus energy engineering contract was advertised through the Official Journal of the European Union (**"OJEU"**) and attracted a number of companies from UK and Europe.

Firmus energy awarded the Period Contract to McNicholas Construction after undertaking a robust tender evaluation process. This process was monitored by the procurement department of our then parent company BGE Supply and used the services and expertise of procurement consultants, Long O'Donnell Associates to provide guidance through the process and A&L Goodbody solicitors to ensure robust legal support. The resultant combined rate approach currently used by firmus energy is prudent, as it de-risks the company from construction works and allows for more detailed planning and estimation of actual costs for the Period Contract term.

In order to tackle the limitations of having a single contract firmus energy has developed large scale, long-term network rollout plans. These plans combined with certainty about the type of price control the company is to work to during GD17 will allow us to negotiate the next period contract with greater confidence and commercial advantage for consumers.

We can expect to achieve lower rates as a result of offering a greater volume of work overall and more accurate quantifications of the different work elements. With greater certainty about the work to be carried out it should be possible to build in an appropriate 'pain/gain' efficiency mechanism which should result in cost reductions.

Nonetheless, the reality is that it will be many years before firmus energy network costs can be compared meaningfully with the GB GDNs.

11.2.5 Comparison between firmus energy, Phoenix and Scotia Gas Networks (Northern Ireland) ('SGN NI')

Figure 11.2 below highlights some of the current differences between the three gas distribution companies in Northern Ireland firmus energy, Phoenix and SGN NI with regard to the current regulatory landscape and structural differences between the company's networks.

We understand the Utility Regulator's desire to undertake a parallel benchmarked price control process with firmus energy, Phoenix and SGN NI. We accept that this is not only administratively efficient but also that it can facilitate future comparability. However, it is important to note that there are significant structural differences between the companies and between their current licences.

Figure 11.2 Key Differences Between firmus energy, Phoenix and SGN

	firmus energy	Phoenix	SGN NI
Licence Award	2005	1996	2014
Type of Regulation	Price Cap	Revenue Cap	Price Cap
Licence Recovery Period	30 years	50 years	40 years
Connection Model	Thin model – i.e. primarily targeted with connecting I&C customers	Fat model – i.e. connecting all types of consumers including by laying pipelines to domestic properties in the network area	Thin model – i.e. primarily targeted with connecting I&C customers
Properties Passed	c.75,000	c.300,000	0
I&C vs. Domestic Volumes	10% I&C vs. 90% Domestic	2% I&C vs. 98% Domestic	0
Treatment of Under-recoveries	Standalone	Within the TRV	Standalone
Risk	Volume	Connections	Volume
Network Distance	c.270km	c.75km	0
Nature of Network	Rural	Urban Conurbation	Rural
Customers	c.26,000	c.180,000	0
Network Length	c.1000km	c.3,000km	0
Gas in Licence Area	c. 8 years	c.18 years	0 years

11.2.6 Network Geography

Of primary concern are the differences between firmus energy, SGN NI and Phoenix where the latter is at a much more mature stage of development and has its operations concentrated in a densely populated urban area.

Average population densities in the firmus energy network towns are significantly lower than that of the Phoenix network area. Given the fact that housing in the Ten Towns area is less dense, there is a strong argument for ensuring that allowances for such network investment elements such as metres of mains per property passed should be significantly different between the two distributors.

In terms of customer and network density, at 57 customers per network kilometre Phoenix is closer to Wales and West GDN than it is to firmus energy in Northern Ireland. Apart from these basic differences between their licensed areas, there is also a fundamental difference in how the two companies carry out network operations.

Whereas firmus energy is rolling out a totally new network in many areas that have never had gas before, Phoenix has laid out its network for the most part within the pre-existing pipeline network of the former Belfast town gas.

From an engineering point of view Phoenix has been able to insert PE pipes within the existing underground network (sleeving), a process involving a much lower cost per network kilometre. Indeed Phoenix has been able to sleeve a pipe many tens of meters through one ground opening in one 'push'.

Phoenix is not an ideal comparator in terms of market development and the ability to achieve connections and increase penetration. When Phoenix commenced operations in Belfast in 1996 customers in the city had already long experience of a gas utility operating in their area and the Phoenix offering was for many customers effectively an upgrade rather than a completely new and unprecedented service. There is much less experience of gas in the Ten Towns area and this ultimately makes it more challenging to entice consumers to convert to gas.

The contractor bidding for the firmus energy Ten Towns construction contract confirmed during the tender process that the geography of the Ten Towns had a material impact upon their rates.

11.2.7 Access to Comparative Data

From the outset firmus energy's intention was to further explore these differences through detailed benchmarking undertaken in conjunction with our consultants Oxera. From there it would have been our aim to analyse and calculate, as far as possible, the cost implications of special factors. Unfortunately, however we have been unable to gain access, either via the Utility Regulator or by independent request, to the necessary comparator GB GDN/ Phoenix data required to undertake such benchmarking.

Firmus energy has been proactive in attempting to acquire this benchmarking information. We tasked our consultants Oxera with requesting the information directly from Ofgem but at the time of writing Ofgem has been unable to fulfil to this request.

Similarly, we first asked the Utility Regulator to request the data required for comprehensive benchmarking information from Ofgem on 26 February 2015. Unfortunately, at the time of writing this data request has also not been met.

Firmus energy would greatly welcome access to the requested data regarding GB GDNs and the opportunity to demonstrate in detail the materiality of our cost differences.

11.2.8 Contractor Costs

There is no doubt that due to special factors, and unrelated to efficiency, firmus energy has a different cost profile from Phoenix. This needs to be recognised by appropriate differences in regulatory allowances for network investment and operations. Even though the two companies use the same contractor it is important to note that there is a difference in contract activities and rates and therefore costs between firmus energy and Phoenix.

These differences are a consequence of different work profiles and different basis to each contract and result from the factors outlined in the Oxera paper of June 2015.

11.3 Atypical Expenditure

Firmus energy wishes to draw attention to atypical (once-off) expenditure which it expects to be faced with in GD17 and which it is in the interests of stakeholders to carry out. The headings are:

- Replacement and enhancement of IT systems (IT transformation) which are at the end of their useful life
- Northern Ireland European Development Project
- Retail Market Mechanism – Supplier of Last Resort (SoLR)

11.3.1 IT Transformation

What is different about the circumstance which causes it to be exceptional or 'once-off'?

As outlined elsewhere in this document firmus energy has a strong customer service record and is keen to ensure continued high standards. The IT systems currently used by the company have become outdated and are having an adverse impact on the service we can provide to Ten Towns customers.

Consequently, firmus energy is planning the transformation of the outdated systems currently used for core activities including customer record keeping, connection management, distribution billing functions and network asset management.

As part of this IT transformation firmus energy will be able to introduce, for the first time, bespoke IT systems which will help to continue to improve the services provided to Ten Towns customers.

The IT systems replacement is necessary because the systems that have been used to date are reaching the end of their useful lives and do not have the capability to meet future business needs. This investment is once-off and is not associated with IT transition costs that have arisen in the context of company change of ownership.

Why does it result in cost variances?

This transformation will result in some unavoidable capital expenditure costs. These include the transformation of our main business support system to use a new hardware platform. This move will also ensure that the current outdated business support system remains fully functional until firmus energy puts in place an entirely new business support system. This new hardware platform will cost in the region of £1.5 million. In addition, this legacy system requires significant development work to maintain fitness for purpose.

Additionally, a new platform for the outdated firmus energy asset management system will only provide a short term fix. This system is built in an old Progress database, an outdated programming language, now rarely used and not adaptable to meet future business needs. As a result this application which covers all asset management, project and job flow activities for firmus energy (Distribution) has been prioritised for replacement. As part of this transformation activity new applications will be sourced and deployed that are fit for purpose. These new systems will also be required to support firmus energy's ISO 55000 asset management accreditation objective. It is expected that a replacement for the existing system will cost in the region of £1.5m but will also have annual support, maintenance and hosting costs once deployed estimated to be significantly lower. Implementation is anticipated in 2017 to 2018. The full costs have been outlined in detail in the BPT.

11.3.2 Operational Regulatory Projects

Firmus energy is currently engaged with the Utility Regulator and others in the industry in the development of two significant operational regulatory projects outside the normal regulatory and operational functions.

Both projects, the Northern Ireland European Development Project (**"NIED"**) and Supplier of Last Resort (**"SoLR"**) will require additional resource, capital and operational expenditure. Firmus energy will develop GD17 related business cases, outlining the expenditure required for each project, when interaction with the Utility Regulator produces confirmation of final project requirements. Based on initial understanding of the project requirements firmus energy anticipates project costs greater than £100,000. Further detail relating to each project is outlined below.

NIED

Firmus energy has been actively engaged in the industry wide NIED project. Regulation (EC) 715/2009 requires the development of European network codes (EUNCs) to improve access arrangements in the European gas market. The implementation of these European codes in Northern Ireland has required significant changes to the current transmission network codes as well as to systems and procedures.

The NIED project also includes the development of a single Transmission System Operator (**"TSO"**). Although the project is primarily focused on the changes required for the Northern Ireland transmission networks, the Distribution Network Operators (**"DNOs"**) are an integral element to the changes required and, as such, the company will be required to implement system and process changes to support the changes to the transmission regime. Firmus energy therefore request that the anticipated cost of the additional resources and other capital and operational expenditure required are considered in the GD17 price control.

SoLR

Firmus energy continues to be actively engaged with the Utility Regulator and others in the industry to develop a Retail Market Procedure (**"RMP"**) that would support a SoLR event in the Northern Ireland gas industry. The RMP outlines the processes that will be followed if the Utility Regulator intends to revoke a gas supply licence and initiate a SoLR event. The aim of the project is to ensure that arrangements are in place so that the supply of gas to customers can continue in such an event.

In order to fulfil the requirements of the SoLR RMP, firmus energy is developing an internal response plan. The SoLR project continues to develop and evolve and therefore the company's internal response plan cannot be finalised until completion of the RMP. In order to facilitate the internal response plan firmus energy will be required to develop the IT systems and models to support the processes. It should also be highlighted that, should a SoLR event occur, firmus energy will incur additional charges from the systems provider to implement elements of the process. The mechanism for the recovery of such costs at the time of the event has yet to be agreed with the Utility Regulator.

11.4 Conclusion

It is difficult at this stage to allocate precise amounts of Opex and Capex against these once-off expenditures. However, when the cost crystallises, the Utility Regulator will be provided with full details. It is important that the costs are recognised as recoverable in the context of the GD17 price control settlement.

Part 12: Organisational Changes

Part 12: Organisational changes

Utility Regulator Guidance

Details of any changes in the company's structure, timing of such changes and the effect this may have on the future performance.

12.1 iCON Infrastructure

In 2014 the ownership of firmus energy changed. Our new owners are iCON Infrastructure, a company with significant experience owning and managing core infrastructure businesses, including regulated utilities in the United Kingdom and overseas. iCON Infrastructure's current portfolio includes Mountaineer Gas Company, the largest gas distribution network and supply company in West Virginia, USA.

12.2 Efficiency and Productivity

Firmus energy began life in 2005 as a subsidiary of semi-state utility company Bord Gais, established to develop the gas network in the Ten Towns and to supply customers. Firmus energy made significant **efficiency** and **productivity** gains between 2005 and 2014 which kept final gas prices to customers as low as possible and connected over 25,000 customers to the gas network, demonstrating that gas network development in Northern Ireland has been a regulatory success story.

In order to continue this success we have developed an ambitious business and network development plan for the GD17 period. This GD17 Business Plan relates to firmus energy Distribution, responsible for the distribution of gas within the Ten Towns.

12.3 Firmus energy Structure

The change of ownership has not impacted upon staff numbers or the allocation of staff between the Distribution and Supply businesses. However, the GD17 Business Plan will result in some uplift to the distribution company's manpower numbers.

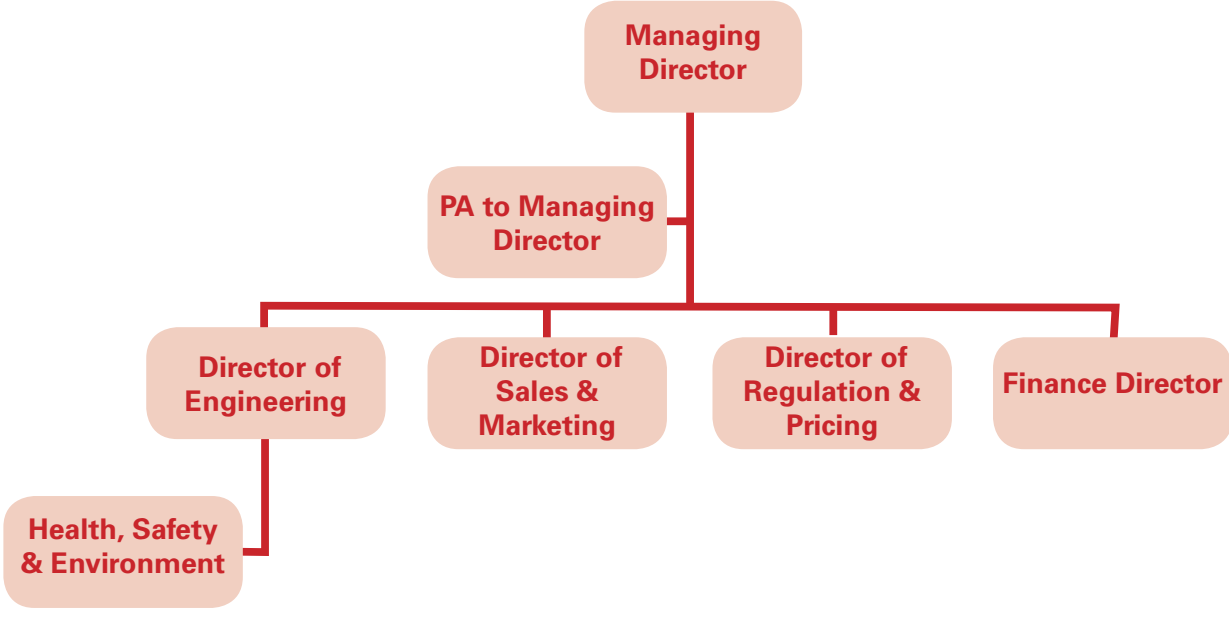
Our manpower calculation considers the incremental staff increase required to resource the business growth during the GD17 period. Firmus energy Distribution's manpower allocation currently comprises 57 full time equivalents. With the close alignment of Ten Towns firmus energy believes that additional staff requirement can be limited to less than eight during the GD17 period. The detail of the manpower changes for GD17 is explained in more detail in Part 6 of this document.

Details on the allocation of staff between the firmus energy Distribution and Supply businesses is provided in the policy paper on how costs are allocated within a group structure submitted to the Utility Regulator alongside this Business Plan.

12.3.1 Corporate Governance

Firmus energy's Corporate Governance is provided via firmus energy's Board structure that follows best practice in corporate governance strategy for the utility industry. This structure comprises separate Boards of Directors for firmus energy Distribution and firmus energy Supply. The firmus energy Distribution Board has a Chairman, Executive Directors and two Non-Executive Directors.

12.3.2 Our Organisation



12.3.3 Business Financing

The change in firmus energy's ownership has resulted in the business now being independently financed with debt capital sourced from the open market.

12.3.4 Parental Recharges

The change in firmus energy's ownership has had an impact on key business functions considered as parental recharges in GD14. There are now no parental recharges. Paragraph 6.111 of the GD14 final determination noted that parental recharges were incurred by firmus energy in relation to the following:

- Central corporate services covering matters such as Human Resources support, training, procurement services (including tendering for the period contract and downstream installers), legal services, treasury/corporate finance and audit functions, maintenance and development of an IT platform, engineering project planning, payments/invoicing, tariff maintenance and billing, customer relationship management, secretariat services and costs associated with establishing and running the Board of Directors
- Grid control and transportation services, including engineering maintenance activities and network pressure monitoring
- GIS support
- Health and safety support including technical and safety training; and
- Meter Reading

The change in company ownership now enables us to manage these services directly. All these services are now either internalised or provided by third parties under arms-length contracts. As such, the costs for these items are detailed as individual items in the BPT and are described in further detail Part 6 of this document.

12.3.5 IT Transition

The most significant single cost previously defined as a parental recharges is that of IT. As part of the BGE group firmus energy benefited from economies of scale which led to low costs for the provision of IT services crucial to our business activities. As a result of firmus energy's separation from BGE significantly higher opex costs will be incurred in the form of service payments to BGE if firmus energy do not also transition away from the BGE systems. This is because the main application used for the firmus energy business activities is a legacy application and requires maintenance by BGE.

However the transition comes at an opportune time in this regard as the legacy BGE systems which firmus energy is currently using have become significantly outdated in the ten years since installation.

Therefore the transition has provided firmus energy the opportunity to begin to transform our IT systems and to develop bespoke IT systems which will help us to continue to hone the services we provide to Ten Towns customers, while achieving a higher service level to customers at similar cost.

In order to continue our high levels of customer service firmus energy is planning to transform the outdated systems currently used to store customer records, plan connections, manage network assets and undertake billing functions. The benefits of a move to a new system are outlined in more detail in Part 11.

Part 13: Price Control Performance

GD17 Business Plan

Part 13: Price Control Performance

Utility Regulator Guidance

Any supplementary information that may help us to better understand the data provided in the Business Plan data template as well as the overall perspective of the GDN with respect to its performance against the GD14 price control targets with consideration of outputs, costs and workload. This will include, where relevant, but not be limited to:

- explanation of changes in financial and non-financial forecasts; and
- impact of uncertainties over the full period up to the end of GD14, including both uncertainties that have been triggered and those yet to be triggered; and
- methodologies and rules used for allocations, estimation and forecasts, changes to same compared to previous regulatory submissions for the 2013/2014 reporting years and for GD14 as well as effective date and impact of such changes.

13.1 Impact of Uncertainties Over the Full Period to End GD14

The wholesale price of oil is the major uncertainty over this period. It has significant effects both on the cost of constructing the network and on the propensity of prospective customers to switch to natural gas.

We have built out the gas network in line with the allowances and targets contained within the GD14 Final Determination Document (January 2015) but performance has been impacted by the revised determination. This effectively reduced available Capex and mains per property passed to 6.93m yet the Utility Regulator targets were not reduced. This has had a detrimental effect on firmus energy attempting to meet its regulatory targets, with regard to properties passed and connection targets, and has resulted in firmus energy having significant stranded Capex from 2014.

New I&C customer connections have been buoyant with some 250 new connections made to our gas network last year. This was against a GD14 target of 150. These new connections resulted from focused marketing and sales delivery. We will meet our target of 100 I&C connections for this year within the next few months but still have a number of high profile prospective customers that wish to connect to natural gas.

The new build sector has shown strong signs of recovery during the second quarter of 2015 and as such we have a number of developers requesting connection to the firmus energy network. There is a requirement for off-site mains to be installed to make gas available to a number of these sites yet the Capex allowance has not been sufficient to connect these sites.

NIHE continues to be a challenge but the NIHE has released a number of properties that are within close proximity to the natural gas network and require infill mains to connect these properties. We plan to bring forward our build programme to facilitate conversion. NIHE has confirmed that should we not be in a position to facilitate their request, they will have no alternative but to replace with new oil boilers.

We have engaged with executives and elected members of the six relevant new Super Councils who have detailed their plans for public realm works within a number of towns across our Licensed Area. We would need to install a significant amount of apparatus throughout these towns prior to the public realm works being carried out to ensure that we can provide a gas supply to these customers in the future. If we miss this window of opportunity then a number of town centres may not ever have gas availability as these projects will be unlikely to be economically viable as reinstatement costs are in excess of £1,000 per square metre.

13.2 Price Cap v Revenue Cap

The Utility Regulator's published outcome of the Consultation Paper on moving to revenue cap regime concluded that:

'Following due consideration of the responses the Utility Regulator has decided that it approves the principle of changing firmus from a price cap to a revenue cap form of control. This will be the basis on which we progress GD17.'

While we have previously communicated a number of issues regarding the timing and mechanics for this switch, we intend to work in partnership with the Regulator to ensure this move becomes part of a successful GD17 process.

The Utility Regulator's proposed approach to the transition will dovetail with the Licence modification process required to implement GD17 as outlined in the decision paper:

'The section within the firmus licence that will require most of the changes will be Part 4: The Price Control Conditions and we will use the Phoenix Licence as a starting point. Marked-up extracts detailing the proposed changes to the firmus energy (Distribution) Limited licence will be consulted on in September 2016 as part of the GD17 Final Determination.'

Clear communication between the Utility Regulator and firmus energy during this modification process will alleviate our previous concerns and enable the exploration in detail of the technical issues and resultant licence changes required to implement a revenue cap for firmus energy.

These technical challenges include:

- How best to correct for the inevitable differences between expected and actual volumes with respect to both determined revenue and accumulated under-recoveries
- Adoption into the terms of our Licence mechanisms that allow for the anticipated growth in connections (and therefore volumes) not usually experienced by steady state GDNs subject to revenue cap regulation
- Consideration of how to mitigate against any increase in the risk of unintended, adverse consequences for customers due to underdevelopment of firmus energy's network where it would otherwise have been economically beneficial to do so

For example, the current calculation of movements in the value of under-recoveries depends on the difference between determined and actual prices multiplied by actual volumes. The Utility Regulator also considers firmus energy's accumulated under-recovery balance before giving approval to the content of our annual conveyance charge statement under condition 2.2.3 of our licence.

- The necessity to develop a separate mechanism to adjust determined prices in future control periods to comply with the revenue cap (i.e. a 'true-up' mechanism). However, if the true-up adjustment were to be based on actual revenues as opposed to 'counterfactual' revenues (i.e. to account for the fact that actual prices are greater than determined prices to remunerate past under-recoveries) then this could result in systematic under-recovery of firmus energy's economic costs
- The potential requirement for a separate adjustment to determined prices in a future control period if the movement in under-recoveries is lower than planned. This would be necessary if restricted volume growth created an increased risk that under-recoveries could not be recovered within the time frame established by firmus energy's licence
- The prospect that volume and connection growth could make counterfactual revenues more difficult to determine, particularly if the Utility Regulator were to attempt to determine whether any element of volume underperformance is 'inefficient'
- Consideration regarding how quickly and frequently prices could be adjusted in response to volumes deviating from forecast, and over what time period any shortfalls would be recovered. As correcting for volume variances over too short a time period could lead to unstable prices

We suggest that the most straightforward way to remove the complexity associated with the move to a revenue cap may be to include accumulated under-recoveries in a simplified RAB. As discussed below, this would also have the benefit of greater comparability between firmus energy's and Phoenix's licences and transparency for consumers.

We firmly believe that good communication between the Utility Regulator and firmus energy during the modification process will enable all these technical challenges to be adequately addressed.

13.2.1 Comparability with Phoenix and SGN Licences

We welcome the Regulator's proposals to increase comparability between the Northern Ireland GDN's licences, as this would further improve transparency for the consumer, the Regulator and the GDNs themselves.

While we acknowledge this process will take some time given the significant differences between the network areas and levels of network maturity we are aware of the potential to increase comparability between the firmus energy and Phoenix Licences.

Our move to a revenue cap will of course go some way to aligning the regulation of firmus energy and Phoenix. However, the objective true comparability will not be met unless a number of other differences in the way in which Phoenix and firmus energy are regulated are also eliminated.

13.3 Proposed Licence Parameter Changes Resultant from GD17

This Business Plan provides detailed proposals for growth in the Ten Towns network during the GD17 period. Our ability to achieve this growth is wholly dependent on securing sufficient resources for the corresponding investment in the network. The company plan for GD17 is therefore seeking some enhancement of regulatory allowances. The following paragraphs outline how the assumptions we have made could be reflected in the licence to affect our proposals for growth.

In the run-up to the GD17 submission deadline we have communicated our proposed approach with the Utility Regulator and have based our BPT inputs on that approach. The key assumptions are noted in figure 13.1 below.

Figure 13.1 GD17 Parameter Assumptions

Designated parameter	Description	Current value	Limitation to the application of redesignated values	Firmus energy proposed value	Rationale for firmus energy change
rt	Rate of return	0.075	Shall be 0.075 until the end of Formula Year 2016, after which time it may be any number between 0 and 1	0.055	To reflect our proposed rate of return of 5.5%. For further commentary please refer to Part 4 of this document
n	Trigger for Price Control Reviews (as defined in Condition 4.4.2)	2016	A formula year	2022 (on completion of the GD17 process)	This designation would provide Licence clarity regarding the length of the GD17 Price Control
ft	Averaging factor to reflect in year cashflow (as defined in Condition 4.6.5)	0.5	A number between 0 and 1	0.5	The current value reflects the cashflow profile over the reporting year
q	The forecasting horizon for review calculations (as defined in Condition 4.4.2)	2035	Shall be the Formula Year 2035 until 2028, after which time it may be the Formula Year 2035 or any Formula Year after 2035	2045	The firmus energy submission is based upon a profile adjustment to 2045 for further commentary please refer to Part 4 of this document

Designated parameter	Description	Current value	Limitation to the application of redesignated values	Firmus energy proposed value	Rationale for firmus energy change
RPI	The indexation base *	242.7		257.5	Firmus energy agrees with the basis upon which RPI has been calculated for GD17
w	Incentive period (as defined in Condition 4.6.10)	2016	A formula year	6	Firmus energy believes this period should align with the length of the price control
g	A switch for the Operating Rolling Incentive	0	Either 0 or 1	0	Firmus energy accepts that the incentive is not currently required
h	A switch for the Capital Rolling Incentive	1	Either 0 or 1	1	Firmus energy accepts the continuation of the incentive in its current form
d	A switch for the depreciation component	1	Either 0 or 1	1	Firmus energy accepts the continuation of the incentive in its current form
l	Deemed asset life	33	None	33	Firmus energy accepts the depreciation assumptions made by the Utility Regulator
$\square_t$	A weighting factor to be used in the Primary Constraint	0	Between 1 and 0	0	Firmus energy supports the retention of the ability to offset over- and under-recoveries between customer categories
$X_{O,t}$	A rate of return adjustment which may be used to encourage or discourage accumulated over-recoveries (as defined in Condition 4.2.6)	0	None	0	For further commentary regarding the proposed treatment of under-recoveries please refer to Parts 4 and 13 of this document
$X_{U,t}$	A rate of return adjustment which may be used to encourage or discourage accumulated under-recoveries (as defined in Condition 4.2.6)	0	Shall be zero until Formula Year 2034, when it shall be $(r_{t=2033}+1)$	0	For further commentary regarding the proposed treatment of under-recoveries please refer to Parts 4 and 13 of this document
$_t$	A weighting factor used in the Supplemental Constraint	0.4	Greater than or equal to 0	0.4	Firmus energy recognises the rate is set at the current level in order to permit the reduction in under-recoveries. For further commentary regarding the proposed treatment of under-recoveries please refer to Parts 4 and 13 of this document

13.4 Retrospective Adjustments Resultant from GD17

As part of the GD14 process the Utility Regulator included a number of Uncertainty Mechanisms. This section outlines the approach taken to the Uncertainty.

13.4.1 Traffic Management Act (TMA)

As part of the GD14 determination firmus energy was allowed £2.4 million (2012 prices) of capex for the TMA. This amount was ring fenced due to the uncertainty of timing of implementation of the legislation. As discussed in Part 7 the legislation has yet to be implemented. As such this capex was excluded from the allowed regulatory capex on an on-going basis and is therefore excluded from the opening TRV position for GD17.

Excluding this capex allowance on an on-going basis rather than implementing it through the retrospective adjustment has better enabled firmus energy to comply with financial covenants calculations and should ultimately lead to the same opening position in GD17.

13.4.2 All Mains

As part of the GD14 determination the infill mains allowance was ring fenced pending further information requirements. In the letter from the Utility Regulator dated 30th January 2015, a final determined infill allowance of 6.93m per property passed for all property types was granted for a total allowed capex of £10.6 million (2012 prices) excluding the £1.2 million (2012 prices) ring fenced allowance in relation to the Ulster Farm By-Products and the £0.9 million (2012 prices) ring fenced allowance in relation to the Foyle River Crossing.

This allowance is subject to an output based retrospective mechanism to adjust for the actual number of properties passed compared to the properties passed target of 6,526 properties per year. We are forecasting we will meet and exceed the targets in 2015 and 2016 resulting in a retrospective adjustment (pre rate of return) of £2.0 million (2014 prices).

The properties passed have been adjusted to exclude the properties passed as a result of the Mackles Petfood licence extension as per the letter dated the 6th March 2015.

13.4.3 Domestic/I&C Meters and Services

As per the GD14 determination domestic and I&C meters and services are subject to an output based uncertainty mechanism to adjust for the actual number of connections made utilising the determined unit rates from GD14. These calculations have been included in the retrospective adjustments within the BPT.

13.4.4 Pressure Reduction Station

Pressure reduction stations are subject to an output based retrospective adjustment to adjust for the actual number of pressure reductions stations connected. In the GD14 determination it was forecast that 55 pressure reduction stations would be connected. It is currently forecast that a total of 30 pressure reduction stations will be connected resulting in a negative adjustment of £261,000 (2014 prices pre rate of return).

13.5 Capex Over/Under Spend

As part of the GD14 determination it was stipulated that both Additional Development Area (ADA) projects submitted by firmus energy and approved by the Utility Regulator and projects dealing with energy efficiency would be added to cost base through the retrospective adjustments. One energy efficiency project and two ADA projects have been discussed since the final determinations:

13.5.1 Foyle River Crossing

Both the Utility Regulator and firmus energy recognise the importance of this security of supply project and for that reason we submitted an outline of the project as part of our GD17 supplementary papers in June, in the shared knowledge that this project is intended to proceed during GD14. The Utility Regulator has proposed a ring fenced capex allowance of £0.9 million for the river crossing itself. However, the wider project is likely to result in significantly higher costs of c. £2 million. Given the utmost importance of the project, dialogue with the Utility Regulator has been ongoing. However due to the discrepancy in the ring fenced cost allowance and the current best estimate for the overall project cost, we have not included the allowed ring fenced amount of £0.9 million in our GD14 forecasts or in the retrospective adjustment. We hope that following the submission of this Business Plan, discussions will continue in earnest on the project in order to confirm an allowable amount for the full project, with work expected to commence early in 2016 and completed by the end of GD14.

13.6 Volumes in Relation to Additional Development Areas ('ADAs')

The Additional Development project for Mackle Petfoods and surrounding areas is the only ADA approved by the Utility Regulator during GD14 and firmus energy received forecast allowed volumes in March 2015. These allowed revenues and our current determined tariffs have been used to determine the disallowable revenue arising from the additional revenues.

13.7 Rates/Licence Fees

Rates and licence fees are subject to a pass through retrospective adjustment and have been adjusted for actual 2014 and current forecast figures for 2015 and 2016.

13.8 Connections Incentive Mechanism

In GD14 an output based mechanism was put in place for the Connections Incentive Mechanism based on Owner occupied connections excluding non-additional properties and an allowance of £540 (2012 prices) allowance per connection adjusting for and over/under performance with respect to Owner occupied connections. The Owner occupied connections target was set at 2,000 connections a year with 25% of the targeted connections (500 connections) excluded from the targeted connections on the basis that they are 'non-additional'. As per the letter dated the 6th March 2015 relating to the licence extension for Mackle Petfoods the non-additional target set in the GD14 Final Determination to reflect an additional 67 non-additional Owner occupied connections gained from the project increasing the non-additional connections from 500 to 567 for the uncertainty mechanism allowance adjustments.
A sum of £100,000 is subtracted for recharges to firmus energy Supply.

13.9 Overall Retrospective Adjustment Position

Based on the assessments outlined above, the total forecast adjustment, which encompasses each of the above mentioned retrospectively adjusted items, produces a DAV increase of £1.2 million at the end of GD14.

Part 14: Other (where relevant)

GD17 Business Plan

Part 14: Other (where relevant)

Utility Regulator Guidance

Any other information the GDN considers relevant and which is not covered under any of the other commentary headings.

14.1 Introduction

Outlined in some detail is additional information regarding customer service, as delivering customer service is a key tenet of our business.

14.2 Customer Service

At firmus energy we strive to give our customers excellent service and providing first class customer service is at the heart of our business. It is embedded in our culture through both our mission statement and our company values.

It requires a clear understanding of customer expectations across all aspects of our business, measuring our performance against these expectations and continually driving improvements to ensure that expectations are surpassed.

Part of our customer service offering is our clear, welcoming customer charter which provides a firm commitment to customers.

14.2.1 Firmus energy Customer Charter

We like to do things differently. We put our customers first. That's why we've created this customer charter. It sets out, in clear language, exactly what you can expect from us. It gives us a set of standards not just to meet, but to exceed. So you are able to relax knowing you're in good hands and will be looked after by a team of people who really care.

What you can expect from us:
• We will use clear and understandable language. We may offer a connection if there is an available natural gas supply
• If we cannot provide a natural gas supply, we will explain the reasons why
• We will install all pipework and fit the gas meter according to our connection policy
• Our fully trained staff will explain the connection process and any associated costs
• We will offer a range of payment options to make paying for your natural gas easy and we won't hit you with any unexpected costs
• We will send you clear bills in plenty of time for you to pay
• All roads and properties that we work on will be restored within five working days
• We will take responsibility for any issues you raise about our service, our contractors or associates
• We will sort out any complaints quickly and efficiently

What we expect from our customers:
• You must sign all relevant documents, such as natural gas application forms, as soon as you receive them so we can process your application to supply or connect you to natural gas
• You must tell us about any way-leaves we may need and make sure that they have been signed
• You must use a Gas Safe Registered Installer for all gas installations and servicing
• You will tell us about any problems you have with our services, our contractors or associates so that we can continue to improve
• You must pay for the natural gas you use in line with our credit and payment policies
• You must tell us if you have not received a bill for a significant period of time or if your payments have not been processed correctly
• You must keep to any safety guidelines we have given you on using gas; including reporting gas leaks to the 24 hour Northern Ireland Gas Emergency service on **0800 002 001**

14.2.2 Firmus energy Standards of Performance

We are proud of our high standard of customer service. Our customer service achievements include:

- Maintaining the highest level of customer service of any regulated energy company in Northern Ireland
- Since 2005, receiving the lowest number of Stage 2 Consumer Council NI complaints of any regulated network company
- Consistently exceeding its regulatory Standards of Performance targets in customer service

GD17 Business Plan

In 2014 we surpassed each performance target, as demonstrated by the standards of performance outlined below.

Figure 14.1 Standards of Performance – 2014 Results

	Measured Standards*:	Target	Actual
	Special Services		
1.	Firmus energy will develop and promote a vulnerable customer service. Customers, who are chronically sick, disabled or of pensionable age may register for this service.	-	-
2.	firmuscare customers, whose gas is interrupted for safety reasons, will be offered alternative heating or cooking facilities, within a reasonable period of time.	90%	100%
3.	A free annual boiler service will be offered to firmuscare customers, each year.	90%	100%
4.	When requested, facilities will be provided to blind customers to enable them to read their bill. Deaf customers or those with partial hearing will be offered services that will enable them to contact us.	-	-
New Connection			
5.	Where a privately owned domestic property is readily connectable to firmus energy's gas network, a connection will be offered within 30 working days. This can be offered once you have accepted our terms and conditions and any associated connection quote.	85%	98%
Correspondence			
6.	All correspondence will be recorded, and where requested, will be responded to within 10 working days.	90%	100%
7.	All complaints will be recorded and responded to within 10 working days.	90%	100%
Public Reported Escapes			
8.	Uncontrolled gas escapes, where gas is escaping freely, will be attended to within 1 hour.	90%	97%
9.	Controlled gas escapes, where gas is not escaping freely, will be attended to within 2 hours.	90%	96%
10	Pensioners in default, living alone, or with another pensioner or else a minor, will not have their supply disconnected between 1st October and 31st March.	100%	100%
11.	Standard credit and direct debit customers will receive 4 bills per year, based on at least one actual meter read.	90%	99%

*As firmus energy is an integrated business some of these standards also relate to firmus energy Supply activities

In each of the first four areas, firmus energy has consistently scored 98% or 100% since its first performance report in 2007. In the last area of New Connections, firmus energy has in 2013 scored 99% and in 2014 scored 98%.

14.2.3 Customer Service Improvements

While firmus energy has excellent track record services for special customers and customer service responses to correspondence and complaints within 10 days, meaning we have continuously outperformed the target measures in our customer service standards. It is our intention to achieve further improvements.

We know that in order to grow our business, alongside offering competitive prices and promoting the lifestyle benefits of gas we must ensure good customer service. Thousands of satisfied customers all over our licensed area will result in customers recommending gas conversion to their neighbours and friends.

We will continue to strive to improve upon the performance standards reported above and to work with the Utility Regulator and the Consumer Council to do so.

As we move forward into GD17 part of this continued improvement and interaction with the Utility Regulator will include improved standards of performance and service reporting as part of the Utility Regulator's REMM framework. Firmus energy welcomes this new performance framework which will improve licence compliance reporting and protect and inform consumers by promoting consumer engagement through increased transparency.

14.2.4 Consumer Research

Firmus energy recognises the opportunity for greater alignment of consumer research to improve customer service standards and to help with network growth planning.

We routinely undertake consumer research to gain an assessment of our performance, areas for improvement and identify opportunities to connect more customers to the benefits of natural gas.

As part of this work we routinely undertake tracking research with oil users living in gas supplied streets. A common finding of this research, and one echoed by the Consumer Council for Northern Ireland ("CCNI") research findings, is that the majority of customers state that the availability of grants to help them with conversion costs is the biggest factor in the overall likelihood of them switching to gas.

For example, we carried out analysis of our 2014 Owner occupied connections. Given that our current network build is skewed towards less affluent households, typically these connections have come from less affluent households.

The research showed that:

- Sales lead conversion rate is c. 50%
- c. 75% of completed connections have required government funding, on top of firmus energy's grant assistance (Boiler Replacement Scheme, NISEP)
- c. 75% of those customers who cancelled their conversion to natural gas 'could not afford the installation cost'

The data shows that our ability to financially support connections is critical to converting lower income households. Even with the current connections incentive coupled with government-funded grant aid, significant numbers of connections are cancelled due to unaffordability of the conversion costs.

At the outset of the GD17 process firmus energy had hoped that the Northern Ireland GDNs could with the help of the Utility Regulator and CCNI, develop and undertake collective research that further explored the needs of urban and rural consumers, existing customers, potential customers and the large number of off-grid consumers in the Ten Towns and Gas to the West Network areas. Unfortunately, the regulatory timescales involved meant this research was not undertaken.

Firmus energy's commitment to work together with other Network Operators is motivated by a drive to serve Northern Ireland's consumers, the wider Northern Ireland economy and to pursue best practice in development of the Ten Towns Network. As such, firmus energy will seek to return to this idea of collaborative research during the GD17 period, perhaps building upon the model CCNI has developed with electricity network companies.

14.2.5 Firmus energy Customer Interaction

The firmus energy Customer Care Team provide integration and co-ordination of all engineering activities between the various business functions within firmus energy and as such undertake much of firmus energy's customer interaction. They are responsible for all customer interaction during the connection process, processing Gas Application Forms (GAFs), advising customers over the phone, managing complaints to resolution, arranging customer appointments in relation to maintenance works at I&C premises. The team liaise closely with third party contractors who undertake annual boiler servicing for vulnerable customers.

However, it is not just the Customer Care Team who undertake customer interaction which is why we work to ensure a strong, dedicated and professional team in all aspects of customer interaction. For example, firmus energy is the only utility company to ensure all staff are trained to City and Guilds Level to provide energy efficiency advice.

14.2.6 Firmuscare and Other Activities to Support Vulnerable Customers

One major function of the Customer Care Team is to manage the firmuscare scheme. This is a bespoke scheme that provides additional protection to vulnerable customers. This confidential scheme can be availed of by those customers who are older (60+), have a disability or are chronically ill. It provides a range of services including free and impartial energy advice, free boiler service, benefit entitlement check and practical assistance in reading their meter and understanding their bills.

We have also successfully run 2 schemes with Bryson Energy for our vulnerable customers. These schemes involved home visits from Bryson Energy representatives offering energy advice and a Benefit Entitlement check.

Additionally, we offer potential new customers a free energy audit in their own homes. This is carried out by trained firmus energy staff prior to connecting to natural gas (the audit is not dependent upon connection).

14.2.7 24/7 Personal Customer Service

There are many published research reports that identify that many customers prefer to be able to talk to a person when they have an enquiry or an issue. We employ the services of an external contact centre to ensure that this basic customer preference is met. During normal working hours all customer calls are directed to our internal customer operations team. Any calls in excess to our internal handling capacity 'over flow' to our external contact centre (MessagePad) who are based locally in Holywood. This ensures that customer call queue times are minimal and that calls are answered by 'a person' rather than a voice mail system.

During 2014 the following inbound call performance statistics were recorded:

Calls answered on first presentation	>95%
Abandoned calls	<1%
Average call queue time	<7 seconds

Feefo – Online customer feedback

With so many more customers keen to engage with firmus energy via online platforms, firmus energy now uses Feefo for customer feedback.

Feefo is a cost effective, automated customer feedback system for businesses with an online presence. Members use it to grow their businesses and consumers use it to gain confidence and trust. What makes Feefo a viable customer service tool is that only genuine customers are invited to leave feedback, thus guaranteeing the responses are honest. By integrating Feefo ratings and reviews into the firmus energy website, it can have a powerful effect; helping to increase conversion rate by aiding customers in their decision making process.

Once firmus energy supplies a service, we periodically provide certain customer contact data to Feefo which enables Feefo to contact the customer by email and invite them to leave a review about their experience. After Feefo emails the customer, the review is supplied by the customer direct to Feefo who publish it on the Feefo domain so the review is therefore not under the control of firmus energy.

The benefits of this service are:

- Conversion rates. Trust, or lack of it, is one of the biggest obstacles to overcome in converting a potential customer and the presence of independent, trusted reviews can increase conversion rates enormously
- Reputation management and brand protection. Providing a mechanism for our customers to leave reviews means that we can respond, address any valid concerns that a particular customer has whilst in addition accumulating, from all reviews, invaluable feedback about how we can improve our business
- Better AdWords. After a certain number of reviews have been acquired, we can have gold stars displayed by Google as part of our AdWords advertising and this can improve click through rates, improve ad positions, reduce costs and therefore increase return on investment of AdWords campaigns
- SEO. With google changing their search formula, content has become king in the world of search engine optimisation (SEO). The challenge for those sites was how to create content for all those product pages without employing an army of content writers. User generated content such as reviews provide the perfect solution and this is why Feefo will provide an invaluable addition to our ability to review and refine our relationship with customers

In a very short space of time, firmus energy, has now achieved a Feefo Gold Trusted Merchant status.

14.2.8 Customer Satisfaction Surveys

Firmus energy conducts regular customer satisfaction surveys. These surveys capture our customers' views on what is important to them, how they rate our performance and how we can improve our service to them in the future.

14.3 Stakeholder Engagement

We undertake routine stakeholder engagement regarding our operational activities and major projects such as GD17. In the months preceding submission of our GD17 plan we have undertaken significant engagement with the officials and Councillors of the Councils within the Ten Towns area and with Members of the Legislative Assembly. During this engagement our GD17 Business Plan and proposals to bring the benefits of natural gas to more consumers within our network have received widespread support from public representatives.

14.4 Outline Additional Information Submitted:

To underpin the GD17 submission we carried out a detailed analysis of all towns within our Development Area and have a detailed construction programme in place for 2017–2022 with a high level programme for 2022–2045.

We completed load surveys, network analysis, and designed the mains infrastructure for all of our towns. We zoned the towns to produce distinct infill projects which we subjected to NPV analysis and assessed to produce forecast construction costs. The full assessment process for the projects to be constructed is outlined in Part 3.3.1 of this document. Firmus energy has submitted this analysis to the Utility Regulator in conjunction with the BPT. This submission takes the form of:

- 29 A4 ring binder files with 621 colour plans to detail our proposed network roll-out
- An overall colour plan for each town and individual colour plans for zone/project which relate to the BPT
- A list of each zone/project within each town file with total length of mains and total cost of project
- A colour coded legend indicating proposed year of build
- A polygon defining town limits and potential properties passed and connection numbers

Also submitted to the Utility Regulator were the following documents:

1. Calculation of Conveyance Charges with q=40
2. Years Calculation of Conveyance Charges with q=30 Years
3. Firmus energy Retrospective Adjustments for GD14
4. Millward Brown Research regarding Customer Connections
5. A Report on firmus energy GD17 Stakeholder Consultation Activity
6. The firmus energy Marketing Plan
7. Update on Asset Maintenance – ISO 55001
8. An Oxera Update Paper on WACC
9. An Oxera Review of the Utility Regulator's Approach to 'Basket of Works' Benchmarking
10. An Oxera Peer Review of firmus energy Connection Rates and Penetration Profile
11. Infill Plans Case Study (research)
12. GD17 Proposed Maintenance Activities

taking natural gas further

firmus energy

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