



**Scotland Gas Networks and Southern Gas Networks  
Long Term Development Statement October 2013**

## Disclaimer

This statement is produced for the purpose of and in accordance with Scotland Gas Networks plc's and Southern Gas Networks plc's obligations in Standard Licence Condition 25 and Standard Special Condition D3 of their respective Gas Transporter Licence and Section O 4.1 of the Transportation Principal Document in the Uniform Network Code in reliance on information supplied pursuant to Section O of the Transportation Principal Document in the Uniform Network Code. Section O 1.3 of the Transportation Principal Document in the Uniform Network Code applies to any estimate, forecast or other information contained in this statement. This statement is not intended to have any legal force or to imply any legal obligations as regards capacity planning, future investment and the resulting capacity.

This document is intended be read in conjunction with the SGN Demand Forecasting Document 2013.

## Photographs

Front cover – Major pipeline construction project pipelaying in operation.

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## Introduction



Paul Denniff – Network Director

This 2013 Long Term Development Statement (LTDS) is the ninth produced by Scotia Gas Networks Limited in accordance with Standard Licence Condition 25 and Standard Special Condition D3 of Scotland Gas Networks plc's and Southern Gas Networks plc's respective Gas Transporter Licences. This requires that the LTDS, published annually, shall provide a ten-year forecast of transportation system usage and likely system developments that can be used by companies who are contemplating connecting to our networks or entering into transportation arrangements in order to identify and evaluate opportunities for doing so.

This year we have again chosen to present the information in two documents, which can be read separately or together. The first document is the LTDS, but without the tables and graphs representing the actual year on year predicted load growth of annual and daily demands. This data is presented in a separate Demand Forecasting Document (DFD). The LTDS contains essential information on the planned major reinforcement projects and associated investment, significant completed projects and other developments within our networks. This document also explains the processes that are now in place between the Networks and National Grid to exchange long-term planning information to facilitate the efficient and economic development of the overall transportation network.

I hope you will find both our 2013 LTDS and DFD informative. With a view to developing the document, we would welcome any comments on the style and content. You can leave comments using the stakeholder engagement form or you can contact me at [network.capacity@sgn.co.uk](mailto:network.capacity@sgn.co.uk), [paul.denniff@sgn.co.uk](mailto:paul.denniff@sgn.co.uk) or 01293 818 365.

Paul Denniff  
Network Director  
Scotia Gas Networks  
October 2013

## Chapter 1 – Executive Summary

The purpose of this document is to set out our assessment of the long-term development of our two gas transportation systems (Scotland Gas Networks and Southern Gas Networks) in terms of future demand and the considerations for investment in these networks.

### 1.1 Context

This is our ninth Long Term Development Statement (LTDS). It provides an overview of the ten-year forecast of annual and peak day demands used by the networks.

The Uniform Network Code Offtake Arrangements Document (UNC-OAD) sets out the framework for exchanging the necessary information to assist transporters to generate long term demand forecasts. The publication of this LTDS forms part of this process.

Development of our transportation networks is primarily demand driven. The overall UK supply position and security of supply assessment is covered in detail by National Grid in its Ten-Year Statement for the National Transmission System and in its publication UK Future Energy Scenarios: July 2013.

The data and assumptions used to develop the 2013 demand forecasts were collated and compiled in the first half of this year, and with the scale of the recession caused by the global economic crisis and the recovery to date having already had an impact on the overall demand levels. The timescales for the development of the Demand Forecasting Document are included in Chapter 2.2.

### 1.2 Demand Outlook

There has been a material reduction in the 2013 demand forecasts when compared to the 2012 forecast. This is due to the impact of the recession suffered over the last year and changes in gas consumption by end users.

There is, however, forecast to be recovery in the economy during late 2013<sup>1</sup> with some growth in specific areas. The primary drivers for changes in demand will be gas prices, levels of household growth, specific Government development initiatives and special events such as the 2012 Olympics and 2014 Commonwealth Games. There

is uncertainty over the predicted strength and speed of economic recovery which will need to be closely monitored as this will impact on future demand forecasts. In addition, the introduction of government targets for renewable energy, policies to decarbonise the energy economy, growing low-carbon economy and smart metering are expected to result in an overall loss of demand later in the forecast period. More specific figures relating to this are contained in the companion DFD but these are summarised in the table below.

Changes in overall forecast demand in period 2013-2022			
	Scotia	Scotland	Southern
Annual Demand	-2.80%	-2.39%	-3.02%
Peak Day Demand	-1.28%	-0.47%	-1.63%

**Table 1; Forecast changes in demand**

### 1.3 Investment Implications

We invest in our gas transportation infrastructure to provide sufficient system capacity and diurnal storage to meet the forecast levels of one in 20 peak day demand as required by our Licence. We have been very successful in meeting this stringent standard and our stakeholders are very clear that they expect us to continue to invest in our network to provide the capacity they require and to maintain security of supply. Investment during the current period will be significantly less than previous years due to slower growth in demand. It will cover a range of scenarios from reinforcement or removing a localised capacity constraint, to more strategic projects on the high pressure transmission system.

This LTDS identifies significant individual projects that are currently forecast to be required during the period covered by the LTDS and these are covered in Chapter 5. It should be noted that these projects do not represent the total capacity related investment in our networks, but are major projects that are likely to exceed a threshold of £1,000,000 on the Local Transmission System (LTS) or £500,000 on the below 7Barg system. We have not committed to undertake projects listed as potential investments and such decisions will follow our investment procedures.

<sup>1</sup> <http://www.britishchambers.org.uk/press-office/press-releases/bcc's-q3-qes-results-show-economy-remains-stagnant.html>



## Chapter 2 - Background

### 2.1 Overview

Scotia Gas Networks Limited (SGN) is the holding company of Scotland Gas Networks plc and Southern Gas Networks plc which were formed following the sale of four of the eight gas distribution networks in 2005. We are the UK's second-largest gas distribution company, operating two of the largest regional gas networks. With operational regions covering over 40% of the UK landmass, our first priority is to provide a safe and reliable supply of natural gas to all our 5.8 million customers.

Gas is distributed to:

- domestic, commercial and industrial customers via approximately 74,000 kilometres of gas mains;
- 1.8 million customers in Scotland from Inverness in the north to Dumfries in the south
- remote networks in Stornoway, Wick, Thurso, Oban and Campbeltown known as Scottish Independent Undertakings (SIU)
- 4 million customers in the south and south-east of England. This area extends from Dorset in the west to Dover in the east. Our network stretches as far north as Milton Keynes and Banbury and includes all London Boroughs south of the River Thames.

- November – National Grid provides specification
- February – DN provides pre-forecast information to NG
- Parties meet to discuss pre-forecast information
- March – DN provide forecast information to NGT
- April – Parties meet to discuss forecast information
- First week May – National Grid provides final forecast information
- First week July – National Grid provide calorific value (CV) data
- October – We publish our LTDS and DFD

### 2.2 Overview of the Demand Forecasting Process

The production of the LTDS and DFD is only one part of our annual planning cycle.

The key input to the planning process is the demand forecasts, produced by our service provider using data procured from recognised industry sources and by National Grid Transmission's consultation process – Future Energy Scenarios (previously called Transporting Britain's Energy). These demand forecasts are used to analyse the performance of our Local Transmission Systems (>7Barg) to predict flows, pressures and our offtake capacity and storage requirements. From this data, appropriate investment decisions can be made.

The Uniform Network Code (UNC) provides for consultation between the Distribution Networks and National Grid Transmission in the demand forecasting process within the gas year which is outlined below:

## Chapter 3 - Demand

### 3.1 Overview

UK primary energy consumption has reflected the economic levels of growth and contraction of the UK economy over the last few years<sup>2</sup>. However, there have been significant changes in the energy mix. The gas share of primary energy demand has grown significantly over this period, mainly at the expense of coal, due to the rapid growth of gas-fired power generation. The economic recessions in 2007-08 and 2011-12, the ongoing eurozone crisis and Britain's economic stagnation have affected overall consumption of energy. 2012 saw a reduction in the use of gas-fired power stations due to the high price of gas as a fuel. This has led to an increase in the use of coal and other sources of energy.

The demand changes in response to price fluctuations which took place in 2007 and 2011 have highlighted how sensitive gas consumers are to fuel price and general economic conditions. The effects of climate change and customers' increasing awareness of their environmental impact may also alter annual growth.

However, it is predicted that climate change will continue to produce extreme weather patterns as seen in the last few years, and the behavioural changes may take several years before they have a significant or stabilised impact on the Peak Day demand.

Commercial and industrial demand drivers include the Climate Change Levy (CCL), Carbon Reduction Commitment (CRC), generation of electricity through renewable sources, combined heat and power capacity and the EU emissions trading scheme. Domestic energy efficiency and affordable warmth programmes contribute to a reduction in energy growth within the domestic sector, and this will be the case in future years as various Government schemes are introduced that are aimed at reducing carbon emissions.

The eradication of fuel poverty remains one of the UK Government's objectives, and is a measure linked to a household's ability to warm their home in proportion of household income which is spent on energy. The definition for fuel poverty is due to change to become a household with a low income and high energy costs. This is slightly different to the original definition of more than 10% of income spent on heating to specific limits. This redefinition was partly based on the Professor Hills

Independent review.<sup>3</sup> Statistics, based on the latest information available, indicate fuel poverty affects a projected 2.4 million<sup>4</sup> households in England alone. This is lower than in 1996, when data was first gathered indicating 2.7 million households were fuel poor. The UK Government has implemented initiatives such as the Energy Company Obligation aimed at helping to eradicate fuel poverty within the UK by 2018. Rising prices and the current economic outlook has put pressure on these targets, and as such fuel poverty continues to be a major influence on annual consumption in domestic housing. We are aware of this as a company and are working with local authorities, registered social landlords, private landlords and housing associations to connect fuel poor customers to the gas network. As of mid 2013, we have provided access to over 17,000 fuel poor connections and extended the gas network by 66km of mains and services. On 1 April 2013, we introduced a second phase where during the current PCR period we hope to connect at least 20,000 fuel poor consumers. However, we will undertake a review of this programme in conjunction with Ofgem in 2014.

### 3.2 Forecast Assumptions

#### 3.2.1 Planning Assumptions

Our 2013 long-term gas demand forecasts have been produced in co-operation with our service provider. The process employed to develop the annual gas demand forecasts is based upon a combination of different techniques, including econometric modelling, monitoring of information from the enquiries for new loads and analysis of the consumption history of existing large demands and the main load bands. Detailed analysis of specific sectors of the market, such as households, small/medium and large industrial and commercial customers, are also carried out.

Each forecast is developed from a set of planning assumptions which, if necessary, can be developed to create alternative scenarios. In the case of gas demand, these assumptions have considered economic and fuel price factors, environmental legislation and government energy policy, and take account of those elements where there is a clear driver of gas demand behaviour.

Some of the data used to support the forecasts is obtained from publically available data sources (e.g. national and local government statistics and

<sup>2</sup> Digest of UK Energy Stats (DUKES) 25 July 2013.

<sup>3</sup> <https://www.gov.uk/government/publications/fuel-poverty-a-framework-for-future-action>

<sup>4</sup> Annual DECC Fuel Poverty Statistics, 8 August 2013

forecasts). We have developed our own forecasts (e.g. energy prices), in conjunction with our service provider. The planning assumptions are subject to review and update in the period between each forecast.

The current retail gas price is forecast to rise in 2013 and is likely to continue to rise for the period of the plan. This reflects the current increases in forward prices for gas in the near term. It is assumed that the expected UK supply capacity surplus that is forecast to be sustained over the period of this LTDS will keep price increases close to the level of inflation. However, gas shippers and suppliers may not be able to sustain this and prices may escalate due to external factors such as Government measures. This is important as domestic gas price increases have had a major impact on actual annual consumption.

### 3.2.2 Economic Outlook and Market Drivers

#### Scotland

Scotland LDZ (Local Distribution Zone) possesses a strong service sector base, accounting for over 50% of the Scottish economy with financial and business services growth underpinned by the presence of many leading financial institutions in Edinburgh and Glasgow. However, the continuing economic downturn could have a negative effect as banks consolidate offices and functions in the future.

Offshore call centres in low-cost countries have previously constrained future employment prospects in Scotland, despite new initiatives such as the International Financial Services District in Glasgow. To date, this has attracted 15,500 jobs of which over 1,000 were newly created.

The Scottish manufacturing base is diverse with the engineering sector being most important, followed by the drinks sector and petrochemical products. In addition, the importance of the whisky industry should not be understated as an employer outside of the central belt between Glasgow and Edinburgh.

The latest population projections draw on the estimate of Scotland's population at 30 June 2006 and the 2011 UK census. These projections are based on existing trends and making no allowance for the future impact of government policies and other factors, show the total population of Scotland rising from 5.29 million in 2006, to 5.76 million in 2035<sup>5</sup>.

<sup>5</sup> Source; Scotland's population 2010; Registrar General Office for Scotland 5 August 2011 and 2011 Census.

Reliance on public services may also be problematic as the UK Government looks to cut its spending plans in order to meet borrowing targets and reduce the budget deficit. Weak employment growth continues to depress performance and significant job cuts in manufacturing, distribution and banking will leave the Scottish Economy more reliant on public services in the near future. Scottish Parliament reports have highlighted that the Scottish economy is probably over-reliant on a small number of traditional overseas markets and would be well advised to exploit opportunities in the BRIC (Brazil, Russia, India and China) countries.

In the medium term, the Scottish economy may have development opportunities in renewable technologies with the Scottish Parliament targeting a potential 40,000 new job opportunities in these emerging areas of employment<sup>6</sup>.

#### South East

In South East LDZ the strong representation in financial and business services and transport and communications, the best performing sectors of the national economy, are further encouraged by favourable demographics. However, the current economic downturn is a real threat to the banking industries. The pattern of growth and development remains unbalanced, with economic hot and cold spots in the region.

Strong expansion of tourism, both domestic and international, provides opportunities for the South-East region, given London's attraction as a tourist centre.

The hotel industry and associated services have suffered during the recession. Other businesses such as manufacturing and foods have suffered more steady erosion, but there are opportunities in the agriculture industry with efforts to buy local produce encouraging supermarkets to source high value fruit and vegetables in the UK. Of particular note for gas demand forecasting is a number of companies, which supply the construction sector, primarily brickworks, which are operating atypical working patterns to minimise costs but maintain their workforce. Some sites have shut down for periods of time and have now restarted as the owners are using short term manufacturing or transferring a cadre of staff between a number of sites.

The migration of labour within the UK, from other parts of the EU and internationally towards London

<sup>6</sup> Scottish Parliament Official Report 2 June 2011. Also 2020 Renewable Routemap for Scotland Update 30 October 2012



places stresses on the housing market and associated infrastructure. As a result of this, there is still scope for new housing on greenfield and brownfield sites in London and the South-East as there are ever increasing pressure on available housing stock. Regeneration of the Greenwich peninsular in South London is an example of this. In addition there are opportunities in the commercial market for fruit and vegetable produce from greenhouses to serve the London area and even the export market to mainland Europe. A recent example of this was a project which doubled the capacity of a greenhouse complex in Kent. We have as an example of an unusual enquiry provided a gas supply to HMS Belfast in London. This involved an interesting challenge to our design engineers as this is a site which moves with the tide, but which was overcome.



Image 2; HMS Belfast in London, South East England.

## South

In South LDZ, the rail, sea and airport links provide a favourable environment for investment opportunities and employment growth. This combined with a reasonably broad mix of commerce, industry, housing and tourism should create the ideal opportunity for sustained economic growth. The south coast and rural areas of South LDZ continue to attract visitors, boosting the local economies at a time when there has been some turndown in other areas. The recent downturn of a small economy car manufacturer has been reversed with worldwide sales rising in 2010 and 2011 and reaching plant capacity during 2012/13.

Recent announcements by the MoD (Ministry of Defence) regards defence cuts and the return of the British Army from Germany will have some effect on the local economies in the vicinity of the several MoD facilities in the South LDZ. While certain sites will face closure, other sites will change use or expand to accommodate service families. The impact of the cuts in public sector employment is not clear at this stage, but it is anticipated that it will have an impact on the South LDZ economy. Job losses for London-based public sector employees will have a knock on effect within South LDZ where

people living in the Thames Valley are within commuting distance of London.

Although the region has many pockets of thriving economic growth, there are some threats to certain areas as a result of changes in other parts of the country. An example of this is that cruise ships may soon be allowed to stay in port at Liverpool docks, which could reduce the numbers that use Southampton for this purpose. Many high-tech industries could face the threat from Silicon Valley in the United States, as it tries to pull itself out of recession, and the growing economies of India and China. Other factors that may constrain growth are the fact that there are many pockets within the area that are protected from development; witness the lack of onshore wind farms in the area. In addition the road infrastructure has already reached its capacity limits, particularly the M4.

## 3.3 Forecast Demands Overview

This section provides an overview of our latest annual and peak gas demand forecasts through to 2021/22. A more detailed view can be found in the Demand Forecasting Document which is the companion document to this LTDS and provides details of the forecasts for both annual and peak demand on a year-by-year and LDZ basis. These forecasts have been developed around the Uniform Network Code load band categories and relate only to gas that is transported through our systems.

## 3.4 Forecast Comparisons

The latest network annual demand forecasts are lower over the period of the plan than last year's. The lower forecasts are partly the result of higher gas price forecasts, slower economic recovery and the shutdown of some large customers. We believe there will be a very modest decline in demands throughout the forthcoming forecast period.

Greater consumer awareness on environmental issues and their carbon footprint will also have an effect on the annual gas demands during the forecast period. Typical measures for domestic consumers include double glazing, loft insulation, cavity wall insulation and energy efficient boilers. These are administered in the UK Government's domestic energy efficiency programme, Carbon Emissions Reductions Target (CERT), and Community Energy Saving Programme (CESP). The forecast rise in fuel prices will affect all markets along with national and local Government initiatives. Also of importance is the effect of UK and EU renewable energy targets. The UK Government has introduced legislation to reduce greenhouse gas emissions by 20% below 1990 levels, ensure 15% of energy is generated from renewable sources and

reduce primary energy use by 20% by improving energy efficiency. These initiatives could have an impact on both non-domestic and domestic demand as gas is used more efficiently and have a positive impact as new types of business are created to cope with emerging industrial opportunities. This could have a substantial impact on consumption year-to-year but may not materialise in the near or possibly even mid-term future.

### **3.5 Demand Sensitivities**

Demand sensitivities have been examined to identify where there may be a disproportionate impact on demand and the need for network investment. This is generally due to the magnitude of the load, but in some cases it may also be due to other factors such as location of the load within the network or atypical patterns of consumption. An example of such sensitivity may be the potential for the construction of gas-fired power generation. Should a project of this kind proceed, there would likely be a need for significant investment in the networks. This could take the form of reinforcement pipelines or PRI rebuild projects.

### **3.6 Impact of Climate Change**

The Uniform Network Code requires us to review and, if necessary, revise weather variables used for demand estimation purposes, at least every five years. There was a review undertaken and the new weather variables were implemented in October 2010.

These forecasts have been historically based on the revised seasonal normal basis that was implemented in Gemini for use within demand attribution. The revision looked at historic weather and demand to assess the optimum length of time to be used as the basis for assessing 'average' weather conditions. Following a period of industry review, in 2010, this new process from the Hadley Centre, part of the Met Office, EP2 is now in use and was adopted by transporters and shippers for use within the industry.

## Chapter 4 - Supply

### 4.1 Overview

Developments of our transportation networks are primarily demand driven. National Grid cover the overall UK supply position and security of supply assessment in detail for the NTS within its Ten Year Statement and in its publication Transporting Britain's Energy 2013; Future Energy Dynamics.

The vast majority of the gas entering the LDZs flows through offtakes from the NTS. There are currently five other locations where gas flows directly into the LDZs and these are detailed below in section 4.2. These facilities are governed by Network Entry Agreements and the amount of gas flowing into the network is currently increasing as viable alternatives to conventional gas are explored. Currently, there are no third party-owned storage installations connected to our Networks.

Until recent years, the source of gas supplies has predominantly been from the UK Continental Shelf (UKCS); however this has changed as the gas available from the UKCS diminishes. The last four years have seen a higher level of gas imports from Europe and Norway and while the dependency on these sources is expected to increase, there is also an increase in Liquefied Natural Gas (LNG) import capacity to meet the actual increase seen in importation, notably at Isle of Grain in Kent. The global demand for gas, due in part to emerging countries such as India and China, will ensure there is unlikely to be a reduction in the price of gas to the UK consumer. However, it should be noted that by its nature, as the main source of gas that can be sold to any market in the world, LNG is likely to remain susceptible to periods of short term price volatility.

Diurnal storage is currently provided by Local Transmission System (LTS) linepack, low and high-pressure holders, and storage taken from the NTS.

### 4.2. Gas Supply Facilities

#### 4.2.1 Isle of Grain Import Terminal (South East LDZ)

The Isle of Grain was formerly a LNG storage facility but has now been converted to an import terminal. The first shipment of imported LNG was unloaded in July 2005. Since then National Grid LNG have been steadily expanding the facilities.

The Isle of Grain facility has two network entry points, one into the LTS and the other into the <7Barg system.

#### 4.2.2 Wytch Farm (South LDZ)

The onshore oil and gas field at Wytch Farm in Dorset has been supplying gas into the Local Transmission System as a by product of oil extraction for over twenty years. While gas is still being supplied in small quantities, these are much lower than the original flow-rates due to the field depleting. In early 2012 the site was sold to a new owner who may alter the use of this field, which could result in a change in flows into the network.

#### 4.2.3 Biomethane

Biogas (a renewable source of gas) can currently be produced from a number of sources, the prevalent one being anaerobic digestion and, once cleaned and upgraded into biomethane, it can be injected in to the gas network.

We have, this year, completed a project that is supplying biomethane to the ecotown of Poundbury in the Duchy of Cornwall-owned estate near Dorchester in Dorset. Whereas our previous project used water wash technology to clean the biogas, this project's scale required an even more innovative approach with membrane separation being used for cleaning at Poundbury. The anaerobic digester takes 41,000 tonnes per annum of locally secured feedstock including 5,000 tonnes of potato food waste, 24,500 tonnes of maize, 10,000 tonnes of one-year grass and 2,000 tonnes of chicken manure.



**Image 5; SGN plant and anaerobic digesters at Poundbury**

As well as being innovative in its structure, the project at Poundbury has also used a variety of new techniques to reduce the costs and increase the

efficiency and ease of biogas clean-up and injection. The site will therefore act as a testbed for the development of new forms of clean-up and injection equipment and will continue to drive down costs of biomethane injection.

Partly as a result of the above successes, we have a number of enquiries from producers who are looking at where they can introduce biomethane into our networks.

Please see the Connections chapter 8 for more information about entry connections.

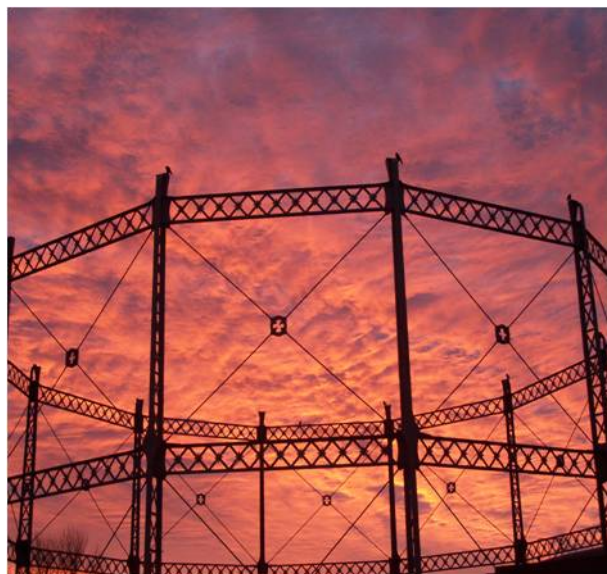
#### 4.2.4 Alternative Supply or Injection Methods.

We will also consider other methods of injection of gas supplies into the network. These can include landfill gas, coal bed methane, shale gas and synthetic gas. While UK Government incentives could make some of these appear financially lucrative we have specific quality thresholds such as Gas Safety (Management) Regulations (GS(M)R) to meet. Enquiries should be addressed to [bio.methane@sgn.co.uk](mailto:bio.methane@sgn.co.uk)

### 4.3 Storage Facilities

Neither Southern Gas Networks nor Scotland Gas Networks currently have any third party storage facilities or enquiries for sites which could be connected to the LTS.

#### 4.3.1 Low Pressure Storage



**Image 6; Dunfermline Holder at dusk**

In recent years much work has gone into examination of the role of low pressure storage more commonly known as gas holders. Historically these performed a role in gas storage since Victorian times. However over the next eight years of the RIIO period, we will be demolishing a number of these storage facilities across Southern and Scotland DNs.



## Chapter 5 – Investment in the Networks

### 5.1 Overview

We operate and maintain our LTS and distribution systems, which includes connecting new customers and undertaking investment to ensure a safe and reliable network is delivered for the benefit of our customers.

### 5.2 LTS Development Plan

The LTS is designed for transmission and storage on the basis of ensuring there is sufficient capacity to meet the one in 20 peak day demand criteria. The system is developed, based on demand forecasts, to ensure that this capability is maintained. Major LTS projects to provide additional capacity (greater than £1,000,000) that have been approved to date or may have an impact in the forthcoming period are shown in the following tables.

#### 5.2.1 2013 Approved Projects Greater than £1,000,000



Image 6; Pipelaying as part of a major project

### Scotia Gas Networks – Approved Projects 2013

Although Scotia Gas Networks has had no major projects that extend the network in 2013, which does not mean that no work has been undertaken. Replacement of obsolete preheating has been taking place and upgrades of less than £1,000,000 have been completed at a number of locations. In addition, design and feasibility studies for reinforcement projects will have been undertaken for future projects.

### 5.2.2 Projects under Consideration for the Ten Year Period

#### Scotland Gas Networks – Projects under Consideration

Project	Build Year	Scope
Pathhead	2020	6.3km x 300mm LTS Pipeline
Foudland	2016	4.9km x 300mm LTS Pipeline
Logierait (Phase 2)	2020	3.8km x 150mm LTS Pipeline

Table 3; Future major projects in Scotland

### 5.3 Below 7Barg Distribution System

Our below 7Barg networks operate at pressures guided by industry standards and safe working practices.

We also continue to invest in the risk management of our transportation network assets, primarily for the renewal of mains and services within distribution systems. This includes expenditure associated with the HSE’s Enforcement Policy for Iron Mains Risk. This policy has recently been updated by the HSE, moving to a three tier approach split by diameter band where iron mains within 30 metres of a building will be subject to a range of pipe risk management interventions, including decommissioning, depending upon the diameter of the pipe.

The distribution systems are designed and reinforced to meet a peak six-minute demand level, which is the maximum demand level (averaged over a six minute period) that can be experienced in a network under cold winter conditions. We will continue to invest for reinforcement and new connections consistent with the growth in peak day demand forecast in this document.

We pride ourselves in the work we do and will always strive to minimize the inconvenience caused by keeping our customers informed and by working closely with local authorities, police and transport companies when planning our projects. We also have a short video explaining the process which can be viewed on YouTube at; [Mains Replacement Video](http://www.youtube.com/watch?v=pNGwYO-chWU&feature=plcp)"

### 5.3.1 Approved Projects over £500,000

In addition to the projects below we have a number of mains replacement projects of values of greater than £500,000. However these projects do not extend the networks so are not covered here.

### 5.3.2 Scotland Gas Networks – <7Barg under Consideration for the Ten Year Period

Project	Build Year	Scope
Balgray TRS Outlet	2015/16	1.8km x 450mm PE
Culduthel Rd, Inverness Ph 1	2015/16	1.8km x 355mm PE
Glasgow MP	2016/17	1.5km x 500mm PE
West Mains Rd, Edinburgh MP	2017/18	1km x 500mm PE

**Table 5; Future <7 Barg projects in Scotland**

### 5.3.3 Southern Gas Networks – <7Barg under Consideration for the Ten Year Period

Project	Build Year	Scope
Cliffsend PRI	2015/16	PRI Re-build
Bicester MP	2015/16	1.7km x 315 PE

Project	Build Year	Scope
London IP	2015/16	0.5km x 24" ST
Dover/Deal	2016/17	5.2km x 630mm PE
Milton Keynes IP	2016/17	6.4km of 315mm HDPE
Bexhill-on-Sea	202/21	2km x 250mm PE
London IP	2020/21	8km x 450mm steel

**Table 6; Future <7 Barg projects in Southern**

### 5.4 Alternatives to Investment.

Currently we identify and examine all potential projects that involve investment in our networks. This can take the form of engagement of all interested parties to ensure that their requirements are met and that we have not over-invested in the networks. Under the new Price Control Review period of 2013-21, this becomes even more important in developing the gas network in a safe, prudent and responsible manner.

At the time of writing, we have the potential to enter into Interruptible contracts with end users as a main alternative to direct investment. Details of previous arrangements are covered in Chapter 7.3. We are also prepared to investigate other innovative alternatives to direct investment, so long as this will not detract from the primary safety responsibility we bear.

## Chapter 6 – Sustainable Networks and Greening the Gas

### 6.1 Background

The UK has set a legally binding target to obtain 15% of its energy consumption from renewable sources by 2020 and the target for 2050 is to reduce greenhouse gas emissions by at least 80%, relative to 1990 levels. Biomethane is regarded as a low-cost and scalable form of renewable and low-carbon heat and can help the Government towards meeting its energy goals.

Aiding the delivery of biomethane into the gas distribution network is central to our long-term strategy of ‘greening the gas’. We believe the gas networks are a key resource and will perform a vital role in a low-carbon and sustainable energy system. We have been leading the way with regards to green gas and were the first gas company in UK to inject biomethane into a network at Didcot in Oxfordshire in 2010. We currently have a number of ongoing projects underway to increase the volume of green gas injected across our networks.

We believe there is significant potential benefit from the development of alternative sources of gas for example from biomethane, coal bed methane, syn-gas and shale gas into our networks.

We would be more than happy to discuss this further with any interested party. Please contact us at [unconventional.gas@sgn.co.uk](mailto:unconventional.gas@sgn.co.uk)

### 6.2 Poundbury Ecotown



Image 8; Anaerobic digester tanks at Poundbury

Building on our success at Didcot, we are involved in a another project to supply biomethane to the ecotown of Poundbury in the Duchy of Cornwall-owned estate near Dorchester in Dorset.

As well as being innovative in its structure, the project at Poundbury has also used a variety of new techniques to reduce the cost and increase the efficiency and ease of biogas clean-up and injection. The site can act as a testbed for the development of new forms of clean-up and injection equipment and will continue to drive down costs in the biomethane injection.

We have available a short video of the project available at:

<http://www.youtube.com/watch?v=oMbwIKIIsa-k>

### 6.3 Portsdown Hill Remote Injection

Our Portsdown Hill biomethane entry facility will take compressed biomethane from road tankers and inject into the LTS. This will allow anaerobic digester plants remote from the network to access the gas grid. In essence this will become an entry point for a number of partners who will clean up and compress their biomethane remotely and then transport their gas to Portsdown Hill. This will allow us to blend gas at this facility and then inject into the local grid. The benefits of this method are that gas quality can be better controlled and substantial cost savings can be made by all parties involved. These savings are achieved by reducing the use of propane blending and also by profiting from the level of experience we can bring to the table from previous projects.



# Chapter 7 – Regulatory, Innovation and Commercial Developments

## 7.1 Gas Distribution Price Control (RIIO-GD1)

As a monopoly service provider of gas distribution services in our networks, our activities and revenues are subject to economic regulation by Ofgem. Periodic reviews, known as Price Control Reviews (PCR), are conducted by Ofgem to determine the outputs required by our UK customers and an appropriate associated level of revenue to deliver these. In April 2013, we entered a new PCR period known as RIIO-GD1, which will run until March 2021. The acronym RIIO encapsulates the direct link between the revenue a Network Operator can expect and the level and quality of the Outputs provided to its customers.

$$Revenue = Incentives + Innovation + Outputs$$

The output targets we have committed to during RIIO-GD1 are the services that our customers and other stakeholders have told us they value and expect us to deliver. Our allowed revenue is proportionate to the output levels set and our performance is directly linked to their delivery. Incentives complement the output targets and encourage us to provide our services in an efficient way and deliver improving results in a number of key areas such as customer service and the environment.

Following the extensive business plan review process conducted by Ofgem, we received and then accepted the final proposals published by Ofgem in December 2012. We believe that the level of capital and operational expenditure allowed will be enough to maintain safe and reliable networks, serve our 5.8 million customers, and secure a fair return for doing so. We are currently undergoing a fundamental change programme within our company to meet the tough challenges set by this new price control while ensuring our preparations include retaining a strong focus on safety and cost efficiency.

More information on the RIIO-GD1 price control can be found on Ofgem’s website at – <https://www.ofgem.gov.uk/gas/distribution-networks/network-price-controls>

## 7.2 Innovation

In the last five years, through the Innovation Funding (IFI) mechanism, we have welcomed approaches from a diverse range of business to

partner with us in delivering innovation. As a result, we have built constructive relationships with key UK gas industry suppliers and companies across the energy sector. In total, we have commissioned 103 projects with 40% of the projects being commissioned via collaborative partnerships with the other Gas Distribution Networks (GDN). IFI has allowed us to build up a strong, well-balanced portfolio of projects that has allowed us to advance industry knowledge, technology, competition, products and services, and develop new ways of working.

We firmly believe this portfolio demonstrates learning that will provide positive contributions to the challenges faced by the UK energy sector as a whole both today and in the future.

Since IFI began in 2008/09 we have steadily increased our innovation activity year on year, as illustrated below:



**Image 9; SGN Biomethane Plant at Poundbury**

Overall, our portfolio of projects has resulted in significant learning. A number of projects are now being implemented throughout our business with the outputs shared across the industry.

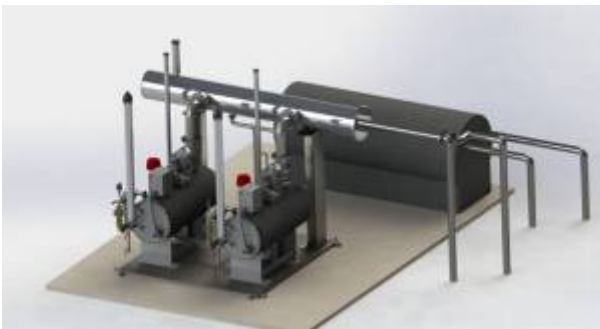
To meet the challenges placed upon us by RIIO we are continuing to rapidly expand our innovation programme. Using the opportunities afforded under GD1 we will maximise the benefits from ongoing innovation funding and are actively competing to secure large-scale investment through the Network Innovation Competition with programmes administered by Ofgem. Through this strategy we



are seeking to realise improved operating efficiency and ensure our business remains sustainable, meeting the needs of current and future customers.

Another project that is now being funded through the Network Innovation Allowance (NIA), our new stimulus package is the Immersion Tube Pre-Heating project. It looks to provide an innovative method of expanding our networks and supports the technical development of a new concept in gas pre-heating at pressure reduction sites.

The focus throughout 2012/13 was to design and build two preheat units that will be used to carry out field trials. Over the last year we have been working in close partnership with mechanical and electrical design consultants to ensure that the proposed design complies with all relevant specifications and is suitable for on-site installation. The design of the units is almost complete (see image 10), subject to a final mechanical and electrical design appraisal and construction and field trials are targeted for completion by the end of 2013/14.



**Image 10: Immersion Tube Pre-Heating Design**

Moving forward, we have designed our innovation strategy to be mindful of the challenges being faced by the industry not only across the RIIO-GD1 price control period but out over the medium to long-term (2020 to 2050) focusing on the key areas of facilitating the move to a low carbon economy whilst maintaining a secure, safe and reliable energy supply.

### 7.3 Enduring Offtake Arrangements

Ofgem approved the implementation of the UNC mod 0195AV - Enduring NTS Exit Capacity Arrangements in 2009. These new arrangements, took full effect in October 2012. They provide uniform Exit Flat Capacity services to DNs and shippers with supply points connected to the NTS. The arrangements require parties booking capacity to provide a financially backed User Commitment. Users who exceed their booked Flat Capacity face severe overrun charges.

DNs are able to book Flexible capacity (Flex - storage taken from the NTS) for up to six years via the Offtake Capacity Statement; other users who

use Flex will access it via the Offtake Profile Notice (OPN) process as set out in their existing agreements. There are no charges or penalties for Flex. However, details of Flex usage are published and Ofgem continues to monitor industry arrangements.

NTS will now also provide Assured Offtake Pressures to the DNs for six years.

For the avoidance of doubt, shipper users with supply points connected within the LDZ continue to book or request capacity through the existing registration and site works processes.

### 7.4 Distribution Network Interruption Arrangements

When investment can be avoided by securing interruption we will determine our interruptible capacity requirements within specific geographic zones. We will provide shippers with supply points whose annual consumption exceeds 5,860,000 kWh per annum with the opportunity to tender their preferred interruptible terms. This can enable us to offset immediate reinforcement as part of our capacity requirements. If tenders that are offered are both economic and efficient, we will contract with the consumer and payments will be made to sites selected based on the option and exercise price tendered by the shipper on the consumers' behalf. The option price is a flat payment paid monthly in arrears when the contract comes into effect while the exercise price will be paid each time the site is interrupted.

The sixth Annual Interruption tender process was completed in July 2013. As with previous years we contacted the relevant consumers and their shippers when our requirements were identified, and also as the tender window were opened, to ensure that they were fully engaged with and aware of the process. While a number of tenders were received, we were unable to accept them as insufficient capacity was realised from the tenders. We will continue to support and promote the Annual Interruption process and, where required, initiate an ad-hoc tender process. The 2014 Annual Interruption tender process will take place between April and July 2014.

One factor which has become obvious during the tender process is the desire for consumers to have reliable, dependable gas supplies. While a consumer can enter into an Interruptible contract they have to balance the compensation they receive against the cost of alternative fuels or disruption of production. A specific case in mind is that of industries who wish to decrease their dependence on heavy oil plant which is expensive

to run and maintain, and has the added risk of no guarantee of resupply in severe weather conditions. In addition, a gas supply will have a positive impact on their energy obligations.

We have published information concerning the tenders on our website under the Connections section: [www.sgn.co.uk](http://www.sgn.co.uk)

## 7.5 Agency Arrangements

Xoserve is jointly owned by the four major gas distribution network companies and National Grid's gas transmission business. Key services include supply point administration, gas nominations, settlement, recording and calculating transportation volumes and the production of transportation invoices. Xoserve is an integral part of the gas market in the UK and provides a single service point for the gas shipper companies. In this way a single system interface is maintained and a

seamless service is provided to shippers and other stakeholders.

Xoserve provides a range of centralised services to the gas industry in the UK. It manages all the key data associated with the majority of the 22 million gas meter points across the country and carries out the registration and customer switching services for the industry. Xoserve also manages the energy allocation and invoicing on behalf of the UK's gas transporters and it helps the industry manage change to the processes and systems which enable the country's commercial regime for gas to operate.

At the time of writing Ofgem is consulting for proposals on the services Xoserve provide to the industry and whether these services should become more closely governed by the industry parties who require them. The revised arrangements to implement these proposals should be further developed during 2014 with a view to be implemented in April 2015.

## Chapter 8 – Entry and Exit Connections to Our Networks

### 8.1 Introduction

The gas industry in the UK has evolved to a position where many connection services are now available on a competitive basis. We offer a number of connection services, although customers and developers may choose other parties to construct their facilities.

It should be noted that any person wishing to connect to our system, or requiring increased flow or pressure, should contact us as early as possible to ensure that requirements can be met on time; particularly if system reinforcement is identified. Indeed as a general point of interest it should be considered that the sooner the end user is able to liaise with us, either directly or through other parties, the sooner we are able to identify the most suitable connection to the gas network for all parties involved.

The following are the generic classes of connection:

- Embedded Entry Points or Distributed gas: connections to delivery facilities processing gas from gas producing fields or biomethane facilities for the purpose of delivering gas into our system and;
- Exit Connections: connections that allow gas to be taken from our system to premises (a 'Supply Point') or to Connected System Exit Points' (CSEPs). There are several types of connected system including:
  - a) A pipeline system operated by another gas transporter;
  - b) Any other non-SGN pipeline transporting gas to premises consuming more than 2,196 MWh per annum where the owner has an exemption from holding a Gas Transporters Licence;
  - c) Storage Connections: connections to storage facilities for the purpose of temporarily offtaking gas from our system and delivering it back at a later date; and
  - d) International Interconnector Connections: connections to pipelines connecting UK to other countries that may both offtake gas from and deliver gas to our system.

Please note that storage and international interconnector connections may both deliver gas to the system and offtake gas from the system and therefore specific arrangements pertaining to both entry and exit connections will apply. In addition to new pipes being termed connections, any requirement to increase the quantity of gas delivered or offtaken is also treated as a new connection.

### 8.2 General Information Regarding Connections

For an initial enquiry we have our connections charging policy for all categories of connection is available and can be downloaded from our website at [www.sgn.co.uk](http://www.sgn.co.uk)

Additional information relating to the connection process, including contact details, can also be found on our website. Note that even if the area you are in does not currently have gas supplies or infrastructure this should not be considered as a barrier to connecting to the network. This is also the first stop point for anyone wishing to connect to the gas network. If you are unsure about some aspects of getting a new gas supply our connections pages on the website are an invaluable reference.

### 8.3 Embedded Network Entry Points

The reader will have previously noted in Chapter 6 we discussed alternative methods of supplying gas to our networks. We will endeavour to help developers understand what opportunities are available to inject gas into the distribution system. If the project is sufficiently developed we can undertake an initial analysis of the capabilities of the network to accept gas from the entry point. If the developer is in the early stages of developing a site we can also work with you to establish the potential of a development for the injection of gas into our networks. This may take the shape of feasibility studies or even a simple exchange of phone calls. Further information relating to distributed gas connections can be found on our website under Environment and Greening the Gas at [www.sgn.co.uk](http://www.sgn.co.uk)

If you wish to make an enquiry about a Network Entry Point please refer to our website or contact us at [unconventional.gas@sgn.co.uk](mailto:unconventional.gas@sgn.co.uk) or [bio.methane@sgn.co.uk](mailto:bio.methane@sgn.co.uk).

Ultimately a Delivery Facility Operator (DFO)

requires a Network Entry Agreement with us before we can accept the delivery of gas. The Network Entry Agreement sets out the facilities to be provided and establishes, among other things, the gas quality specification and the standards to be used for both gas quality and the measurement of flow.

### 8.3.1 Requirements Specific to System Entry and Storage

We require a Network Entry Agreement or Storage Connection Agreement as appropriate with the respective operator of all delivery and storage facilities to establish, among other things, the gas quality specification, and the standards to be used for both gas quality and the measurement of flow. They may also be required to nominate daily flows to our control room to ensure efficient use of the gas network.

### 8.3.2 Network Entry Gas Quality Specification

For any new entry connection to our system, the connecting party should notify us as soon as possible as to the likely gas composition. We will then determine whether the gas can be accepted taking into account our existing statutory and contractual obligations. Our ability to accept gas supplies into the system is affected by, among other things, the composition of the new gas, demand levels, volumes entered and the quality and volumes of gas already being transported within the system. In assessing the acceptability of any proposed new gas supply, we will take account of:

- Our ability to continue to meet statutory obligations (including, but not limited to, the (GS(M)R));
- The implications of the proposed gas composition on system running costs; and
- Our ability to continue to meet our contractual obligations

For indicative purposes, the specification required encompasses but is not limited to the requirements above.

Due to continuous changes being made to the system, any undertaking made by us on gas quality prior to signing an agreement is indicative.

## 8.4 System Exit Connections

Any person can contact us to request a connection, whether a shipper, operator, developer or

consumer. However, gas can only be taken where the supply point so created has been confirmed by a shipper, in accordance with the Uniform Network Code. Should the consumer have a high enough demand, such as a gas-fired power station, they would be required to enter into a Network Exit Agreement (NExA).

## 8.5 Offtake Pressures

Gas will normally be made available for offtake to consumers at a pressure that is compatible with a regulated metering pressure, under normal conditions, of 19mBarg. Information on the design and operating pressures of distribution pipes can be obtained by contacting your shipper, the network office or by sending a request to [GT1.GT2@sgn.co.uk](mailto:GT1.GT2@sgn.co.uk)

## 8.6 Self Lay Pipes or Systems

In accordance with Section 10(6) of the Gas Act, and subject to the principles set out in the published Licence Condition 4B Statement and the terms and conditions of the contract between us and the customer in respect of the proposed connection, where a party wishes to lay their its service pipe to premises expected to consume 2,196MWh per annum or less, ownership of the pipe will vest in us once the connection to the our system has been made.

Where the connection is for a pipe laid to premises expected to consume more than 2,196MWh per annum or the connection is to a pipe in our system which is not a relevant main, self-laid pipes do not automatically vest in us. However, subject to the principles set out in the published Licence Condition 4B Statement and the relevant contractual terms and conditions, we may take ownership of pipes to such premises.

Parties considering laying a pipe that will either vest in us or is intended to come into our ownership should refer to the published Licence Condition 4B Statement and make contact with the network office prior to the planning phase of any project.

## 8.7 Reasonable Demands for Capacity

Operating under the Gas Act 1986 (as amended in 1995), we have an obligation to develop and maintain an efficient and economical pipeline system and, subject to that, to comply with any reasonable request to connect premises, provided that it is economic to do so. In certain instances, specific system reinforcement may be required to maintain system pressures for the winter period after connecting a new supply or demand. Details of how we charge for reinforcement and the basis on which contributions may be required can be



found in the published Licence Condition 4B Statement. Please note that, dependent on scale, reinforcement projects may have significant planning, resource and construction lead-times and therefore as much notice as possible should be

given. In particular, we will typically require four years' notice of any project requiring the construction of high pressure pipelines or plant, although in certain circumstances, project lead-times may exceed this period.

## **Appendix 1 – Network Schematics**

### **The Gas Transportation System; Scotland LDZ Schematic**

**IMAGE REDACTED - PLEASE REFER TO  
<https://www.linesearchbeforeudig.co.uk>  
FOR ANY PLANT LOCATION INFORMATION**

**South East LDZ Schematic**

IMAGE REDACTED - PLEASE REFER TO  
<https://www.linesearchbeforeudig.co.uk>  
FOR ANY PLANT LOCATION INFORMATION

## South LDZ Schematic

IMAGE REDACTED - PLEASE REFER TO  
<https://www.linesearchbeforeudig.co.uk>  
FOR ANY PLANT LOCATION INFORMATION



## Appendix 2 – Glossary

### Annual Quantity (AQ)

The AQ of a supply point is its annual consumption over a 365 or 366-day year, under conditions of average weather.

### Bar

The unit of pressure that is approximately equal to atmospheric pressure (0.987 standard atmospheres). Where bar is suffixed with the letter g, such as in barg or mbarg, the pressure being referred to is gauge pressure, i.e. relative to atmospheric pressure. One-millibar (mbarg) equals 0.001 bar.

### Biomethane

Biogas that has been cleaned in order to meet GSMR requirements.

### Bioplant

Plant that will process biogas or gas produced by any alternative methods in biomethane. This can involve removal of sulphur content, reduction in oxygen or any other content which will otherwise make the gas unsuitable for injection into the gas networks owned by us.

### BRIC

Brazil, Russia, India and China. Generic term for major emerging economies especially these four countries.

### Calorific Value (CV)

The ratio of energy to volume measured in Mega joules per cubic meter (MJ/m<sup>3</sup>), which for a gas is measured and expressed under standard conditions of temperature and pressure.

### Climate Change Levy (CCL)

Government tax on the use of energy within industry, commerce and the public sector in order to encourage energy efficient schemes and use of renewable energy sources. CCL is part of the UK Government's Climate Change Programme (CCP).

### Connected System Exit Point (CSEP)

A connection to a more complex facility than a single supply point. For example a connection to a pipeline system operated by another Gas Transporter.

### Cubic Metre (m<sup>3</sup>)

The unit of volume, expressed under standard conditions of temperature and pressure, approximately equal to 35.37 cubic feet. One million cubic metres (mcm) are equal to 10<sup>6</sup> cubic metres, one billion cubic metres (bcm) equals 10<sup>9</sup> cubic metres.

### Daily Metered Supply Point

A supply point fitted with equipment, for example a data-logger, which enables meter readings to be taken on a daily basis. These are further classified as SDMC, DMA, DMC or VLDMC according to annual consumption. Of these the most relevant is VLDMC which is defined further on.

### Distribution Network (DN)

An administrative unit responsible for the operation and maintenance of the local transmission system (LTS) and <7barg distribution network's within a defined geographical boundary, supported by a National Emergency Services organisation.

### Distribution System

A network of mains operating at three pressure tiers: intermediate (7 to 2barg), medium (2barg to 75mbarg) and low (less than 75mbarg).

### Diurnal Storage

Gas stored for the purpose of meeting within day variations in demand. Gas can be stored in special installations, such as gasholders, or in the form of linepack within transmission, i.e. >7barg pipeline systems.

### DECC

Department of Energy and Climate Change

### Embedded Entry Points

Entry point which is not an offtake from NTS. Can be a biomethane or other unconventional source of gas.

### Exit Zone

A geographical area within an LDZ, that consists of a group of supply points, that on a peak day, receive gas from the same NTS Offtake.

### Formula Year

A twelve-month period commencing 1 April predominantly used for regulatory and financial purposes.

### Future Energy Scenarios (FES)

National Grid's annual industry-wide consultation process encompassing the Ten Year Statement, targeted questionnaires, individual company and industry meetings, feedback on responses and investment scenarios. Previously called Transporting Britain's Energy.

### Gas Transporter (GT)

Formerly Public Gas Transporter (PGT). GTs such as SGN, are licensed by the Gas and Electricity Markets Authority to transport gas to consumers.

**Gasholder**

A vessel used to store gas for the purposes of providing diurnal storage.

**Gas Supply Year**

A twelve-month period commencing 1 October also referred to as a Gas Year.

**Gemini**

A computer system which supports Uniform Network Code operations, including energy balancing.

**Interconnector**

This is a pipeline transporting gas from or to another country.

**Interruptible Supply Point**

A supply point that offers lower transportation charges where SGN can interrupt the flow of gas to the supply point and that is prepared to be interrupted if the Transporter needs it to.

**Kilowatt hour (kWh)**

A unit of energy used by the gas industry. Approximately equal to 0.0341 therms. One Megawatt hour (MWh) equals  $10^3$  kWh, one Gigawatt hour (GWh) equals  $10^6$  kWh and one Terawatt hour (TWh) equals  $10^9$  kWh.

**Linepack**

The usable volume of compressed gas within the National or Local Transmission System at any time.

**Liquefied Natural Gas (LNG)**

Gas stored in liquid form. Can be firm or constrained (CLNG). Shippers who book a constrained service agree to allow us to use some of their gas to balance the system.

**Load Duration Curve (Average)**

The average load duration curve is that curve which, in a long series of winters, with connected load held at the levels appropriate to the year in question, the average volume of demand above any given threshold, is represented by the area under the curve and above the threshold.

**Local Distribution Zone (LDZ)**

A geographic area supplied by one or more NTS offtakes. Consists of High Pressure (>7 barg) and lower pressure distribution system pipelines.

**Local Transmission System (LTS)**

A pipeline system operating at >7barg, that transports gas from NTS offtakes to distribution systems. Some large users may take their gas direct from the LTS.

**National Balancing Point (NBP)**

An imaginary point on the UK gas supply system

through which all gas passes for accounting and balancing purposes

**National Transmission System (NTS)**

A high-pressure system consisting of terminals, compressor stations, pipeline systems and offtakes. Designed to operate at pressures up to 85barg. NTS pipelines transport gas from terminals to NTS offtakes.

**National Transmission System Offtake**

An installation defining the boundary between NTS and LTS or a very large consumer. The offtake installation includes equipment for metering, pressure regulation, etc.

**Non-Daily Metered (NDM)**

A meter that is read monthly or at longer intervals. For the purposes of daily balancing, the consumption is apportioned using an agreed formula, and for supply points consuming more than 73.2MWh pa reconciled individually when the meter is read.

**Odourisation**

The process by which the distinctive odour is added to gas supplies to make it easier to detect leaks. Odourisation is provided at all Network Entry points.

**Office of Gas and Electricity Markets (Ofgem)**

The regulatory agency responsible for regulating the UK's gas and electricity markets.

**Offtake**

An installation defining the boundary between NTS and LTS or a very large consumer. The offtake installation includes equipment for metering, pressure regulation, etc.

**ONS**

Office for National Statistics

**Operating Margins**

Gas used to maintain system pressures under certain circumstances, including periods immediately after a supply loss or demand forecast change, before other measures become effective and in the event of plant failure, such as pipe breaks and compressor trips.

**OPN**

Offtake Profile Notice. Method of notifying National Grid of the next day or future demand for gas at offtakes.

**Peak Day Demand (1 in 20 Peak Demand)**

The 1 in 20 peak day demand is the level of demand that, in a long series of winters, with connected load held at the levels appropriate to the winter in question, would be exceeded in one out of 20 winters, with each winter counted only once.

**Price Control Review**

Ofgem's periodic review of Transporter allowed returns; the most recent set returns for the period April 2008 to March 2013. The next period has been called RIIO and will cover April 2013 to March 2021.

**PRI**

Pressure Regulating Installation. The replacement term for PRS, district governor and all other local terms (such as STRS or TRS) when IGEM standard TD13 was introduced.

**PRS**

Pressure Regulating Station. an installation which reduces the supply pressure as gas passes either between different pressure rated tiers of the LTS or from the LTS to the below 7barg network or between different pressure tiers of the <7barg network.

**Seasonal Normal Temperature (SNT)**

Seasonal Normal Temperature is the average temperature that might be expected on any particular day, based on historical data.

**Shipper or Network Code Registered User (System User)**

A company with a Shipper Licence that is able to buy gas from a producer, sell it to a supplier and employ a GT to transport gas to consumers.

**Shrinkage**

Gas that is input to the system but is not delivered to consumers or injected into storage. It is either Own Use Gas or Unaccounted for Gas.

**Supplier**

A company with a Supplier's Licence contracts with a shipper to buy gas, which is then sold to consumers. A supplier may also be licensed as a shipper.

**Supply Hourly Quantity (SHQ)**

The maximum hourly consumption at a supply point.

**Supply Offtake Quantity (SOQ)**

The maximum daily consumption at a supply point.

**Supply Point**

A group of one or more meters at a site.

**Therm**

An imperial unit of energy. Largely replaced by the metric equivalent: the kilowatt hour (kWh). 1 therm equals 29.3071 kWh.

**Transporting Britain's Energy (TBE)**

National Grid's annual industry-wide consultation process encompassing the Ten Year Statement, targeted questionnaires, individual company and

industry meetings, feedback on responses and investment scenarios. In 2013 rebranded as Future Energy Scenarios

**Unaccounted for Gas (UAG)**

Gas lost during transportation. Includes leakage, theft and losses due to the method of calculating the Calorific Value.

**Uniform Network Code (UNC)**

The Uniform Network Code covers the arrangements between National Grid, shippers and the DNs following the selling off of four of the Networks.

**UKCS**

United Kingdom Continental Shelf.

**UK-Link**

A suite of computer systems that supports Uniform Network Code operations. Includes Supply Point Administration; Invoicing, and the Sites and Meters database.

**VLDMC**

Very Large Daily Metered Site. A site which uses greater than 50,000,000 therms per annum.

## Appendix 3 – Links and Contacts

While we endeavour in the LTDS to provide points of contact for all related enquiries you have there is always potential to have omitted the one you, the reader, may have wanted. With this in mind we have listed a few key industry contacts.

SGN – <http://www.sgn.co.uk/>

Website of Scotia Gas Networks. Larger versions of the schematics drawings can be found in the website here. This also links to our Connections and Metering business companies. In addition we have a series of useful internal contacts such as major projects which may affect your locality or how to apply for fuel poverty gas connections.

[network.capacity@sgn.co.uk](mailto:network.capacity@sgn.co.uk)

Mailbox for any questions regards the Long Term Development Statement which you have been reading.

[bio.methane@sgn.co.uk](mailto:bio.methane@sgn.co.uk)

[unconventional.gas@sgn.co.uk](mailto:unconventional.gas@sgn.co.uk)

Mailboxes for any embedded entry point requests. This is also the mailbox for any connection enquiry which may be involve currently non conventional methods such as shale gas.

[GT1.GT2@sgn.co.uk](mailto:GT1.GT2@sgn.co.uk)

Mailbox for requests for increased loads at existing sites where meter capacity may be an issue

[&Box\\_SOE\\_qtuip\\_SGN@sgn.co.uk](mailto:&Box_SOE_qtuip_SGN@sgn.co.uk)

Mailbox for developer enquires for connections for new sites or housing estates

[plantlocation@sgn.co.uk](mailto:plantlocation@sgn.co.uk)

Safety is the core responsibility of SGN. Always dial before you dig and as such this is the mailbox to use should you wish to locate our pipework.

[customer@sgn.co.uk](mailto:customer@sgn.co.uk)

Mailbox for general enquiries. Not every topic has been covered in this document. If you wish to contact SGN about some other matter our customer Call Centre is the initial point of contact

SGN can also be followed on Twitter:

[@SGNScotland](https://twitter.com/SGNScotland)

[@SGNSouthern](https://twitter.com/SGNSouthern)

Ofgem – <http://www.ofgem.gov.uk>

Office of Gas and Electricity Markets. Regulating authority for Gas industry and markets

Joint Office of Gas Transporters -

<http://www.gasgovernance.co.uk/>

The Joint Office is where the UNC can be found. There are also details of live modifications to the document and the various working bodies relating to the gas industry.

DECC – <http://www.decc.gov.uk/>

Department of Energy and Climate Change. Government Department with responsibilities for gas industry with respect to carbon emissions and energy policy.

Xoserve – <http://www.xoserve.com/>

One of several service providers to the Gas Industry.

Lastly, if there is a Gas Emergency dial -

**0800 111 999**