Northern Gas Networks

03 October 2006

Long Term Development Statement 2006

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Foreword

The Long Term Development Statement, published annually, provides a ten-year forecast of transportation system usage and likely system developments, that can be used by companies contemplating connecting to our system or entering into transport arrangements, to identify and evaluate opportunities. It is produced in accordance with Standard Condition D3 of Northern Gas Networks Gas Transporters Licence.

The Statement explains our latest volume forecasts, system reinforcement projects and investment plans. It has been published at the end of the 2006 planning process following a re-appraisal of our analysis of the market.

Layout

The Statement contains essential information on actual volumes, and the process for planning the development of the system, including demand and supply forecasts, system reinforcement projects and associated investment. The main body of the document provides an overview of the key issues, with all details contained in the appendices.

Executive Summary

This is the second edition of this document to be published by Northern Gas Networks.
The document sets out our assessment of the future demand and supply position for natural gas in Northern Gas Networks and outlines the possible investment in the Local Transmission and Distribution Systems.

Northern Gas Networks manages the development, operation and maintenance of the High Pressure and below 7bar Distribution Networks. These extend from the Inlet Valves of the Pressure Regulating Installations at the National Transmission System interface, to the outlet of the consumers Emergency Control Valves in the North East of England, Cumbria and West, North and East Yorkshire.

The restructuring of the gas industry during 2005 has led to the formalisation of relationships between various parties, not least between the Distribution Networks and National Grid NTS. Network staff have been involved in the development of key documents which describe this relationship and the resulting processes. In order to fulfil it's Licence obligation as a Gas Transporter, Northern Gas Networks request an Offtake Daily Quantity (Baseline Capacity) and the amount of Storage required at each offtake. We also indicate the Peak Hourly Flow and associated Minimum Inlet pressure required for each point in the Network where gas is offtaken from the National Transmission System. After discussion between the two parties, UK Transmission (UKT) allocates these products in the Offtake Capacity Statements.

Context

This year's Long Term Development Plan has been developed using demand forecasts produced by UK Gas Transmission, supported by feedback from their industry wide consultation process – Transporting Britain's Energy (TBE). The demand forecasts were received under an enduring process of information exchange detailed in Section H, NTS Long Term Demand Forecasting, of the Uniform Network Code's Offtake Arrangements Document.

Demand Outlook

The 2006 forecasts are lower than last year's over the entire period. This is principally due to weaker economic growth and higher fuel prices.

However, our latest demand forecasts indicate a 22.7% increase in annual gas demand by 2015/16, with forecast peak demand growing slightly slower at 17.6% over the period.

During 2005, there was a significant reduction in demand prompted by the increases in gas prices in the UK during that time. Traded gas prices increased significantly when compared to 2004 with record highs being recorded in both the short term/spot markets and longer term forward markets. Retail prices responded to these general market movements, increasing by 15% over the same time period. The UK gas market exhibited a material response to these price increases and reduced consumption has been observed in all load categories.

Domestic gas prices have increased further in 2006 with price rises of around 30% so far. This has introduced a significant element of uncertainty into the demand forecasts from 2006 onwards. This uncertainty can be summarised into three categories:

- The response of customers to these price increases and whether any response can be categorised as short term in nature (demand reduction) or longer term (demand destruction).
- The extent to which these price increases are expected to endure across the forecast period and whether there is an expected reversion to trend

- The extent to which price increases in gas in the UK and the world price of oil, which has also seen record highs over the same period, have an impact upon general economic conditions in the UK and wider international economies and hence gas demand.

NGN are developing improved forecasting techniques to enable a better evaluation of the link between rising gas prices and demand next year and also to evaluate any implications of the energy saving proposals in the Government Energy Review.

Chapter One - Local Economic Strategy and Performance.

1.1 The North East

The Region has made significant progress in absolute terms over the past decade: For example, between 1996 and 2004, employment rates increased from 66.5% to 70%, equating to over 50,000 more people in employment. Significant progress has also been made in terms of physical regeneration, for example the Newcastle Gateshead Quayside. A new generation of creative professionals and knowledge workers is being drawn to live in the area, which is having a direct impact on the Region's economy.

As has been the case for a number of years, the North East's overall economic performance remains relatively weak. Although data for 2005 suggests growth of 0.9% in total employment, just above the UK rate of 0.8%, this comes following a 0.7% decline in employment in the previous year. The most recent Labour Market Trends data shows a year-on-year loss of 2,000 jobs up to September 2005 – only the East region also lost jobs over this period. This loss is predominantly a function of a surprising decline in public services employment of 5,000. However, the continued loss of jobs in manufacturing, which is currently running at around 7,000 a year, is a significant decline which the emerging financial and business services sectors is just about managing to offset. Many areas of the region are still beset with high unemployment, and although the region has only one of the UK's 20 highest unemployment local authorities (Middlesbrough) it has 4 of the twenty areas with the lowest levels of NVQ level 4 qualified residents (Easington, Hartlepool, Sunderland and Middlesbrough), suggesting ongoing structural weaknesses.

Despite the overall weakness of the economy, it is 10th or worse in 9 of the 13 regional performance indicators, there are signs of improvement. Financial services, which have been declining in other regions, have expanded by 6,000 jobs over the last 3 years, a 25% expansion. Expansions by Barclays, the intentions of GE Capital to set up a call centre in the region and Newcastle Building Society's plans to expand into a larger headquarters in the region are recent examples of this strength. Business services employment is also expanding in the region, and the example of SAGE the financial software house is perhaps the most striking example. With its new purpose built premises and a workforce of 1,200 based in Newcastle alone and a FTSE 100 listing, the company has come a long way since its founding in 1981, showing how high value-added service sector firms can perform strongly in a regional more famous for it manufacturing base. The job losses in InBiz, the business support agency, and Norwich Union provide some concern that many of the finance and business jobs located to the region are at the lower skilled end of the spectrum and at considerable risk of out-sourcing. This is a significant risk as a 'branch plant' structure in the finance and business services sectors will not provide a sustainable long-term economic base for the region.

The development agency, One North East, has traditionally placed considerable significance on supporting manufacturing in the region. Its most recent regional economic strategy 'Leading the Way' published in 2006 shows signs of a shift towards supporting service sector firms in conjunction with a more focused support on specific manufacturing sectors. Knowledge intensive business services, tourism and hospitality, commercial creative and health & social have been identified as priority areas for service sector growth. The agency is also supporting a major push to revitalize tourism in the region under the new North East England 'passionate people passionate places' brand.

Nevertheless, this forecast suggests that the region will continue to under-perform as manufacturing job losses continue to act as a drag on overall job creation levels. The region has not experienced the same extent of employment growth as the North West and Yorkshire & Humber regions and it is not forecast to reverse this trend. The economic strategy for the region aims to seek ways of collaboration with its neighbouring region for mutual benefit to support the Northern Way vision. Mirroring North West and Yorkshire labour market growth enjoyed over the first half of this decade would be a good first step for the region.

1.2 Yorkshire and Humber.

The region has achieved much and come a long way in the last five years. A diverse economy is being developed with more innovative, growing businesses. Pioneering 'renaissance programmes' have been set up that have captured the imagination of people in major towns and cities. Visions and plans for places as diverse as Bradford, Barnsley, Grimsby, Scarborough and the Upper Calder Valley have attracted private sector and international attention for the way they are sparking long term transformation.

Total employment is estimated to have risen by 0.9% in 2005, just slightly above the UK rate of 0.8%. This above UK growth in the labour market has been a feature of the region in every year since the turn of the century. This pattern, coupled with similar growth in the North West, has led to a favourable commentary on the North of England in a number of regional reports. However it is important to note that since 2005 the relative employment rate has risen by 3.5 percentage points whilst relative GVA per head has increased by a more modest 1.6 percentage points, suggesting much of the employment growth has not been in high value-added sectors and the government aim of closing the productivity gap remains largely unfulfilled.

The up-to-date quarterly data perhaps sounds a note of caution for the region, with growth slipping to 0.7% in the year to September 2005, half the rate in the North West and below the UK rate of 0.9%. However it is too early to confirm any slowdown in employee growth. The retail & distribution and health & education sectors have been key areas for growth, creating almost 90,000 jobs in the three years to 2005. Concerns over retail spending levels and contractions in public sector spending suggest this level of growth in these sectors is unlikely to continue unless significant numbers of people move to the region.

Traditionally Yorkshire & the Humber was a region, which experienced net out-migration. This was the case up to the turn of the century, but has shifted rapidly in the most recent data. In 2004 net immigration was recorded of almost 23,000 into the region, the highest on record and the third highest figure in the UK (after the South West and Scotland). Much of the migration is likely to have been Eastern Europeans arriving to work in the hotel, construction and retail sectors.

Yorkshire Forward, which claims to have created or safeguarded over 27,000 jobs in the year to February 2006 and attracted almost 1,200 new businesses, has provided funding to a number of unique schemes to help economic development in the region. In addition to the relatively mainstream regeneration initiatives (such as those underway at Bridlington and Wakefield) and sector support packages, the agency has helped fund the region's 14 Centres of Industrial Collaboration, supported the Skills for Key Cluster programme (which has already led to a partnership with Microsoft) and awarded £4.5 million pounds to major companies in the region to support innovation under its Industrial Research and Development scheme, the first of its kind in the country. Although the levels of funding involved are relatively small, the diverse range of packages and a move to focus on sectors outside traditional manufacturing such as ICT, tourism and environmental technology and healthcare are welcome signs that should assist the region's expansion in the service sectors.

Chapter Two - Demand

2.1 Overview

This Chapter describes the forecast for gas demand ten years ahead for each LDZ within Northern Gas Networks. It also includes discussion on how current forecasts relate to previously published forecasts. Further information is provided in Appendix 2.

Demand forecasts have been prepared as part of an exchange of information that is intended to inform respective capacity planning processes between the Independent Distribution Networks and UK Gas Transmission. These forecasts are prepared using existing UK Transmission methodology, and are compliant with the demand forecasting requirements of Section H of the UNC Offtake Arrangements document.

2.2 Demand Forecasts

Our demand forecasts are based upon an extensive range of planning assumptions and from our own market observations. This section provides an outline of our latest gas demand forecasts and the key underlying assumptions.

The demand forecasts are based on planning assumptions derived from market observations, the view of specialist consultancies and data collected from UK Transmission's TBE consultation process. The consultation involves a broad cross section of market participants including consumers and consumer groups, and provides important feedback on the impact of market developments, such as Climate Change Levy (CCL), and data relating to the consumption of new and existing loads.

2.2.1 Forecast Demands

This section provides an overview of our latest gas demand forecasts through to 2015/16. A more detailed view can be found in Appendix 2, which includes our forecasts for both annual and peak demand on a year-by-year basis. During the next ten years, gas demand is forecast to grow at approximately 2% per annum.

This projection of long term growth is higher than forecast last year even though rising fuel prices dampen demand in the short to medium-term.

Table A2.2.1 – Northern Gas Networks Forecast Annual Demand – By Load Category

Load Band	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
0-73 MWh	48.7	48.2	48.9	49.8	51.2	52.6	54.2	55.5	56.7	57.8
73-732 MWh	7.6	7.8	7.9	8.1	8.2	8.4	8.5	8.6	8.7	8.8
732-5860 MWh	5.6	5.5	5.6	5.7	5.9	6.1	6.4	6.7	6.9	7.0
Small User	61.9	61.4	62.5	63.6	65.3	67.1	69.2	70.7	72.3	73.7
Firm> 5860 MWh	10.0	10.0	10.5	10.8	11.2	11.8	12.4	12.9	13.5	13.8
Interruptible < 1465 GWh	12.4	12.3	12.7	13.3	14.0	14.6	15.2	15.6	16.0	16.3
Total Large / V. Large User	25.6	25.4	26.4	27.3	28.4	29.5	30.8	31.7	32.7	33.3
LDZ Consumption	87.5	86.9	88.9	91.0	93.8	96.6	100.0	102.4	105.0	107.0
LDZ Shrinkage	0.8	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3
LDZ Demand	88.3	88.1	90.1	92.2	95.0	97.9	101.3	103.7	106.3	108.4

Note

- Figures may not sum exactly due to rounding.
- All figures in TWh

2.2.1.1 Annual Flows

Annual forecasts are based on average weather conditions. Therefore, when comparing actual demand with forecasts, demand has been adjusted to take account of the difference between the actual weather and the seasonal normal weather.

The result of this calculation is the weather corrected demand.

The basis for any calculation of future demand is the accuracy of the previous forecast.

Table A.2.2.1.1 provides a comparison of actual and weather corrected demands during the 2005 calendar year with the forecasts presented in the 2005 Demand Statement. Annual demands are presented in the format of load bands/categories, consistent with the basis of system design and operation.

Table A2.2.1.1

Northern Gas Networks	Actual	Weather Corrected	Forecast	Corrected v Forecast(%)
0-73 MWh	47.74	49.75	50.75	2.01
73 – 732 MWh	7.17	7.49	7.49	0.00
>732 MWh	19.22	19.49	18.44	-5.39
Interruptible	13.59	13.66	14.27	4.47
LDZ Shrinkage	0.57	0.59	0.61	3.39
LDZ Total	88.3	90.98	91.56	0.64

Historical & Forecast Annual Gas Demand by Load Band.

Figure 2.2A

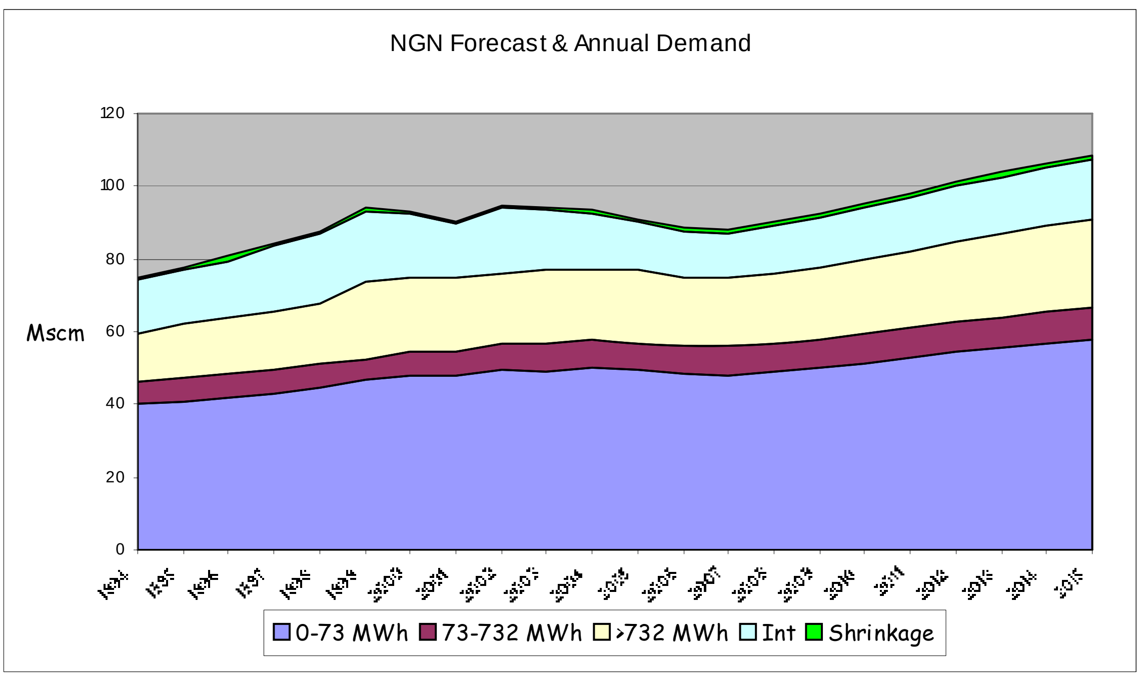


Figure 2.2B

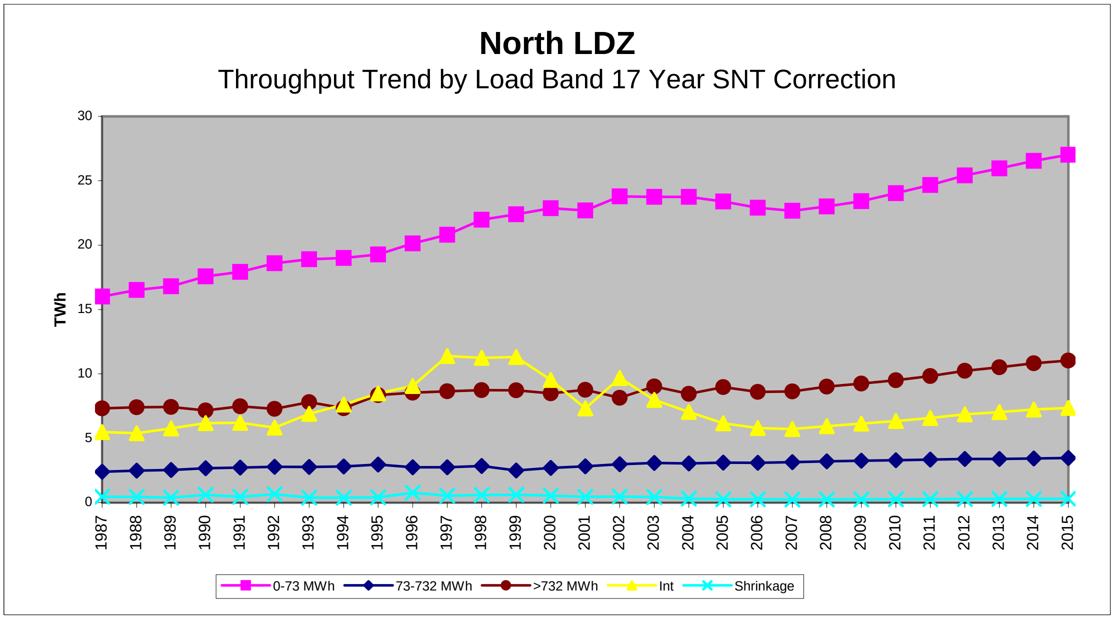
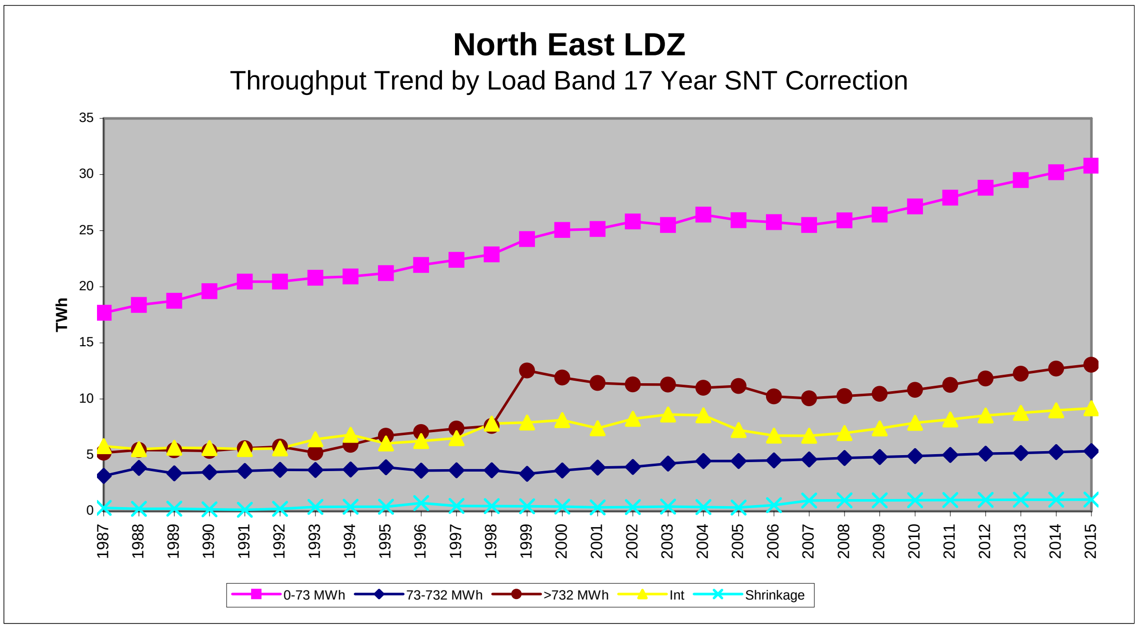


Figure 2.2C



The trend graphs above show Annual Demand in Energy by load band category for North and North East LDZ since 1994. The values from 1994 to 2005 are weather corrected throughput, and thereafter, the figures are taken from the 2006 Demand Statements.

Chapter Three - Supply and Storage

3.1 Supply

Gas is brought into the network through offtakes, above ground installations that are connected to the National Transmission System which typically operate with inlet pressures in the range 70 – 85bar. Gas then passes through the Local Transmission System, into the Distribution System, and onward to consumers.

The amount of gas NGN requires to satisfy it's 1 in 20 Peak Day Firm commitment is requested from UKT on an annual basis.

NO LDZ

LDZ **2006/07**

STATEMENT OF CAPACITY ALLOCATED

i **Planning CV =** 40.35

All figures in mcm/d are at the above CV.

Volumetric (V) or Pressure Controlled (P)	Standard notice period & rate change (hours : %)	SOD time	EOD time	OFFTAKE Name	OFFTAKE NTS Group	Demand Range 1 (1:20 peak day) Demand mcm/d	Storage needed mcm/d (sec'dary)	Peak Rate mcm/h (primary)	SOD Pressures	EOD Pressures
P	2 : 5	6:00	22:00	COLD	5	0.148	0.023	0.009	53.00	51.00
P	2 : 5	6:00	22:00	HUMB	5	0.013	0.002	0.001	45.00	38.00
P	2 : 5	6:00	22:00	SALT	5	0.807	0.125	0.048	48.00	46.80
V	2 : 5	6:00	22:00	WETH	11	2.314	0.211	0.112	44.50	43.60
V	2 : 5	6:00	22:00	SLWK	5	5.533	0.129	0.240	48.00	46.80
V	2 : 5	6:00	22:00	BISH	10	5.533	0.129	0.240	41.00	38.00
P	2 : 5	6:00	22:00	LBUR	12	1.596	0.174	0.096	45.00	38.00
P	2 : 5	6:00	22:00	THRN	12	0.466	0.072	0.028	51.50	51.50
V	2 : 5	6:00	22:00	ELTN	15	3.037	0.230	0.143	53.10	53.10
V	2 : 5	6:00	22:00	COWP	10	3.876	-0.912	0.277	53.40	57.10
P	2 : 5	6:00	22:00	KELD	11	0.139	0.022	0.008	45.00	38.00
P	2 : 5	6:00	22:00	TOWL	8	0.042	0.006	0.003	45.00	38.00
P	2 : 5	6:00	22:00	CORG	3	0.005	0.001	0.000	45.00	38.00
P	2 : 5	6:00	22:00	MELK	11	0.029	0.004	0.002	45.00	38.00
P	2 : 5	6:00	22:00	GUYZ	3	0.198	0.031	0.012	45.00	38.00
				OFFTAKE TOTAL		**23.737**	**0.247**			

Format showing latest requests for the 2006 Plan to UKT.

This process involves the Network requesting an Offtake Daily Quantity (Baseline Capacity) and an amount of Storage for each offtake. We also indicate the Peak Hourly Flow and associated Minimum Inlet pressure required for each offtake. After discussion between the two parties, UKT will allocate these products in the Offtake Capacity Statement (OCS) with a firm commitment for three years and an indicative view for the next two years. The pressures quoted in the OCS are then modelled for each offtake to determine if any upgrade work is necessary.

An example of the Offtake Capacity Statement is shown below and the complete document can be viewed on the Joint Office Website at www.gasgovernance.com/unc_rel.asp

Units:			GWh/day	GWh/day	bar(gauge)	bar(gauge)	MJ/m3
LDZ	Gas Year commencing 1st October…	Offtake	NTS Offtake (Flat) Capacity	NTS Offtake (Flexibility) Capacity	06:00 Assured Offtake Pressure	22:00 Assured Offtake Pressure	Assumed Calorific Value, for information only
Northern	2006	Bishop Auckland	62.96	1.53	41	38	40.35
Northern	2006	Coldstream	1.77	0.27	53	51	40.35
Northern	2006	Corbridge	0.07	0.01	45	38	40.35
Northern	2006	Cowpen Bewley	49.55	-11.95	53.4	54.5	40.35
Northern	2006	Elton	38.34	2.87	53.1	53.1	40.35
Northern	2006	Guyzance	1.83	0.28	45	38	40.35
Northern	2006	Humbleton	0.14	0.02	45	38	40.35
Northern	2006	Keld	1.58	0.24	45	38	40.35
Northern	2006	Little Burdon	7.7	0.32	45	38	40.35
Northern	2006	Melkinthorpe	0.32	0.05	45	38	40.35
Northern	2006	Saltwick	8.45	1.31	48	46.8	40.35
Northern	2006	Saltwick	62.96	1.53	48	46.8	40.35
Northern	2006	Thrintoft	5.3	0.82	51.5	51.5	40.35
Northern	2006	Towlaw	0.51	0.08	45	38	40.35
Northern	2006	Wetheral	24.48	2.11	45	43.1	40.35

Appendix Four gives more information about the Network's offtakes.

3.2 Storage in the Network

Gas is stored at various facilities within the Network to be used on a daily basis.

The oldest form of storage is Low Pressure Gas Holders, which are normally situated nearest to the centre of demand in towns and cities. This type of storage is usually kept for times of peak daily demand i.e. early morning and early evening.

There are also various high pressure storage facilities in the Network.

We have a High Pressure below ground pipe array, which operates at pressures between 7 and 17bar. There are 28 storage vessels on this site, each 927 feet long of 42 inch diameter steel pipe with domed end caps. These are connected together by a manifold and give 68,000 scm of storage.

There are also three sites with above ground HP Bullet Storage. There are 12 storage vessels in total at these sites with a combined total volume of 103,000 scm.

The Salt Cavity Storage facility in North LDZ is filled during the night with gas direct from the NTS. Maximum storage pressure is 45bar and useable storage volume at present is 1.45 mscm rising to 1.7 mscm next year.

Chapter Four - Investment in the Distribution Networks

4.1 LTS Development Plan.

The LTS is designed for transmission and storage of gas on the basis of satisfying the forecast 1 in 20 peak day firm only capacity requirements. The system is developed, based on demand and supply forecasts, to ensure that this capability is maintained.

Major projects currently in the 2006 Plan are shown below.

LDZ	Project Name	Authorised/ Unauthorised	Year of Construction	Total Project Cost (£m)
North	Bluebell PRI Upgrade	A	2006	0.49
North East	Pannal Offtake Upgrade	U	2007	1.75
North	Naisberry PRI Upgrade	U	2010	0.75
North East	E.Bierley PRI Upgrade	U	2010	1.35
North East	Tyresal PRI	U	2010	2.70
North East	Whitehall Rd PRI	U	2010	1.35
North East	Catwick to Hornsea Pipeline	U	2013	2.97
North East	Calder Valley Pipeline	U	2015	24.00

4.2 Below 7barg Distribution System.

The NGN below 7barg system is designed to operate between levels of pressure defined by statute, regulation and safe working practices.

We continue to develop our below 7barg Distribution system, investing in mains, services and associated plant and machinery to meet both the needs of providing capacity to customers wishing to connect to our network and other Gas Transporters' requests for transportation services.

The Distribution systems are designed and reinforced to meet a peak six-minute (pk6) 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.

NGN continue to invest in capital for reinforcement and new connections consistent with the growth in peak day demand forecast in this document.

We also continue to invest in the replacement of our transportation network assets, primarily for the renewal of mains and services within Distribution systems. This includes expenditure associated with the Enforcement Policy initiated by the HSE for decommissioning all iron gas mains within 30 metres of buildings within a 30-year period. Ofgem has agreed funding arrangements for the first 5 years of the programme.

Chapter Five - Commercial Developments

The major areas of commercial development that are anticipated for the twelve months starting 1 October 2006 are expected to be:

- Reform of exit capacity regime, including interruption arrangements.
- NTS / DN operator arrangements.
- Adoption of revised credit arrangements to gas shippers

5.1 Exit Reform

The postponement of the introduction of new NTS exit capacity arrangements by a maximum of two years to 2010, will lead to an examination of the required commercial rules and procedures for the intervening two years. Within the scope of these rules will be an assessment of the required incentive arrangements, which will in part govern the way in which Distribution Networks decide to source their capacity requirements. The extent to which LDZ interruption arrangements are an integral part of this assessment will become clearer once Ofgem publishes its current thinking on Exit Reform (currently anticipated for release August 2006).

5.2 NTS / DN operator arrangements

The commercial and operational business rules governing the NTS/DN operator arrangements are contained within the Offtake Agreement document within the Uniform Network Code (UNC). Having been created in the run up to Network sales, little change has taken place in the early months of its operation, however as issues arise, appropriate revisions and additions are possible in the coming period. Specific issues likely to be addressed include

- Calorific Value data for Distribution Network planning
- Provision of Interruption information by Distribution Networks to National Grid NTS

5.3 Adoption of revised credit arrangements to gas shippers

During 2005, Ofgem's conclusions on 'Best practice guidelines for gas and electricity network operator credit cover' led to the development of ten separate UNC modification proposals seeking to adopt various elements contained within this publication. Any Ofgem ultimate decisions regarding implementation will be considered through existing industry reforms in which NGN has representation.

Appendix One - Process Methodology

A1.1 Demand

The purpose of this section is to give a brief overview of the methodology that is adopted to develop forecasts of annual and peak demand. The methodology can be categorized into three main modelling areas; annual demand, demand/weather and peak demand modelling.

A1.1.1 Annual Demand Modelling

The development of annual gas demand forecasts considers a wide range of factors, from complex econometrics to an assessment of individual load enquiries. For any forecasting process a set of planning assumptions is required, which if necessary can be flexed to create alternative scenarios. In the case of the forecasts presented in this document, assumptions include economic, fuel prices, environmental and tax policies. A number of these assumptions are based on data from independent organisations.
These forecasts are also benchmarked against the work of a number of recognised external sources, such as the DTI.

A1.1.1.1 LDZ Modelling

LDZ demand is split into four market sectors according to load size and supply type (i.e. firm or interruptible). For each sector models have been developed that make allowance for economic conditions, local demand intelligence, new large load enquiries, relative fuel prices, potential new markets and other factors, such as the Climate Change Levy, that could affect future growth in demand. By adopting this approach we are able to take account of varying economic conditions and specific large loads within different LDZs.

A1.1.1.2 Industrials

The production of forecasts within this sector is dependent on forecasts of individual new and existing loads based on recent demand trends, Transporting Britain's Energy feedback, load enquiries and commercial sources.

A1.1.2 Demand/Weather Modelling

Due to the temperature sensitivity of LDZ markets, forecasts of annual demand are based upon an assumed average weather condition to allow underlying year-on-year changes to be identified. The related demand models, developed for overall LDZ demand and a number sub-LDZ load categories, are based on factors known as Composite Weather Variables (CWVs). The CWVs are derived from temperature and wind speed data, defined and optimised for each LDZ, and give a straight-line relationship between demand and weather.

In recent years, in an attempt to account for the perceived influence of global warming, forecasts of annual gas demand have been corrected to Seasonal Normal CWV (SNCWV) conditions using a 35 year weather trend. The basis of this condition has been discussed in previous Transco Ten Year Statements.

There is an obligation to review, at least every 5 years, the definition and seasonal normal basis of all CWVs. To meet this obligation, a comprehensive review has recently been completed in consultation with the Network Code Demand Estimation Sub-Committee (DESC). As agreed by DESC, the CWV definition for each LDZ has been revised and includes a new seasonal profile that improves the seasonal shape of the CWV for demand modelling purposes. The SNCWV for LDZ demand has also been revised using 17 gas years of weather data (1987/88 to 2003/04) to take account of the effects of climate change on average demand. The annual demand forecasts produced since 2005 have been calculated using 17 year SNCWVs.

This change has had no impact on the 1 in 20 peak day demands or the 1 in 50 severe load duration curves which continue to be calculated, as per the relevant statutory and license obligations, from a longer period of weather data, in this case 1928/29 to 2003/04.

A1.1.3 Peak Day Demand Modelling

Once the annual demand forecasts and daily demand / weather models have been developed, a simulation methodology is employed, using historical weather data for each LDZ, to determine the peak day (in accordance with statutory/Licence obligations) and severe winter demand estimates.

A1.2 High Pressure Tier Planning

Although the development of DN's Local Transmission Systems (LTS) is largely demand led, LTS capacity planning processes are not dissimilar to those utilised for the development of the NTS. DNs use forecast demand to model system flow patterns and produce capacity plans that take account of anticipated changes in system load and within-day demand profiles.
The options available to relieve LTS capacity constraints include:

- Uprating pipeline operating pressures;
- Uprating offtakes from the NTS, regulators and control systems;
- Constructing new pipelines or storage;
- Constructing new supplies (offtakes from the NTS), regulators and control systems.

As well as planning to ensure that LTS pipelines are designed to the correct size to meet peak flows, there is a requirement to plan to meet the variation in demand over a 24-hour period. Diurnal storage is used to satisfy these variations and may consist of gas held in linepack, low-pressure gasholders, high-pressure vessels and salt cavities.

A1.3 Lower Pressure Tier Planning (<7 barg)

The lower pressure tier system (distribution system) is designed to meet expected gas flows in any six-minute period assuming reasonable diversity of demand. Lower tier reinforcement planning is based on LDZ peak demand forecasts, adjusted to take account of the characteristics of specific networks.

Network analysis is carried out using a suite of planning tools with the results being validated against a comprehensive set of actual pressure recordings. The planned networks are then used to assess future system performance to predict reinforcement requirements and the effects of additional loads. Reinforcement options are then identified, costed and programmed for completion before the constraint causes difficulties within the network. Reinforcement is usually carried out by installing a new main or by taking a new offtake point from a higher-pressure tier. In general, the reinforcement project is of such a size that the work can be completed and operational before the following winter.

A1.4 Investment Procedures and Project Management

All investment projects must comply with our Investment and Disposals Guidelines, which set out the broad principles that should be followed when evaluating high value investment or divestment projects.

The investment guidelines define the methodology to be followed for undertaking individual investments in a consistent and easy to understand manner. Together with the planning and budgeting methodology, they are used to ensure maximum value is obtained. For non-mandatory projects, the key investment focus in the majority of cases is to undertake only those projects that carry an economic benefit.

For mandatory projects, such as safety-related work, the focus is on minimising the net present cost whilst not undermining the project objectives or the safety or reliability of the network. The successful management of major investment projects is central to our business objectives.

Our project management strategy involves:

- Determining the level of financial commitment and appropriate method of funding for the project;
- Monitoring and controlling the progress of the project to ensure that financial and technical performance targets are achieved;
- Post project and post investment review to ensure compliance and capture lessons learnt.

When a Transmission project is approved, a multi-discipline team prepares an Invitation to Tender in accordance with the EC Utilities Directive. For major projects, specialist consultants with experience of preparing and evaluating tender documents are used.

Tenders are received and evaluated against previously agreed technical, quality, safety, financial and programme criteria. They are compared on a cost basis with a database of capital projects. An award is then made to the most economically advantageous tender consistent with these criteria.

The successful contractor completes the project in accordance with an agreed programme of works. It remains the contractor’s responsibility to manage and supervise the works. We monitor the work on a day-to-day basis and manage the funding of the project by careful cost control.

Following completion, a Post Completion Review is carried out to provide feedback to management on project performance and to improve future decision making processes.

Our project management of major investment projects is designed to ensure that they are delivered on time, to the appropriate quality standards at minimum cost. The project management process in particular makes use of professional consultants and specialist contractors, all of who are appointed subject to competitive tender.

Appendix Two - Gas Demand Forecasts

A2.1 Demand

During the next ten years annual gas demand is forecast to grow at an average of 2.14% per annum in North LDZ and 2.44% per annum in North East. These values are slightly up on the 2005 Demand Statements figures of 1.33% and 1.88% respectively.

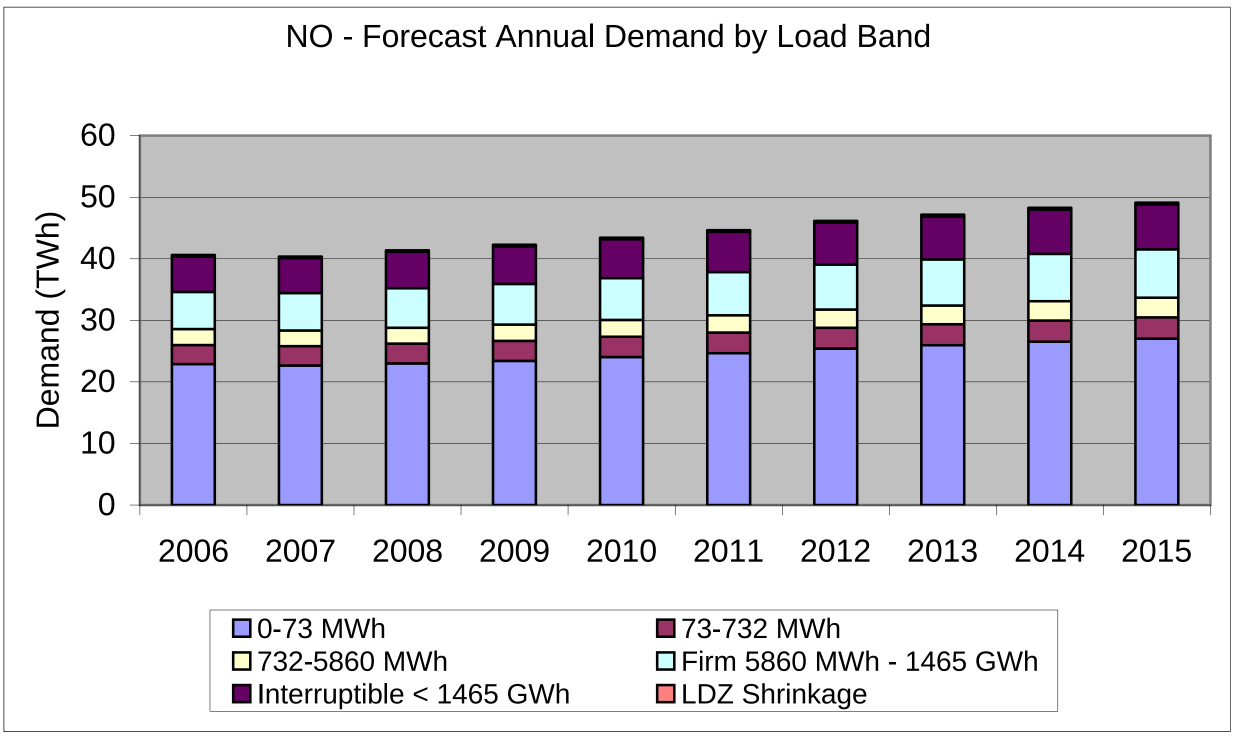
Table A2.1A
Forecast Annual Demand by Load Category by LDZ from 2006 Demand Statements. (TWh)

North.

LDZ	Load Band	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
NO	**0-73 MWh**	22.90	22.66	23.00	23.42	24.04	24.67	25.41	25.97	26.54	27.02
NO	**73-732 MWh**	3.09	3.15	3.21	3.25	3.30	3.34	3.39	3.40	3.43	3.47
NO	**732-5860 MWh**	2.60	2.55	2.59	2.64	2.72	2.82	2.95	3.03	3.13	3.19
NO	**Firm 5860 MWh - 1465 GWh**	6.01	6.08	6.42	6.61	6.79	7.01	7.30	7.49	7.69	7.84
NO	**Interruptible < 1465 GWh**	5.76	5.68	5.91	6.10	6.31	6.53	6.82	7.00	7.19	7.31
NO	**LDZ Shrinkage**	0.26	0.24	0.25	0.25	0.26	0.27	0.28	0.28	0.29	0.29
NO	**LDZ Demand**	40.61	40.36	41.37	42.27	43.41	44.64	46.14	47.16	48.27	49.13

Notes

- Figures may not sum exactly due to rounding.

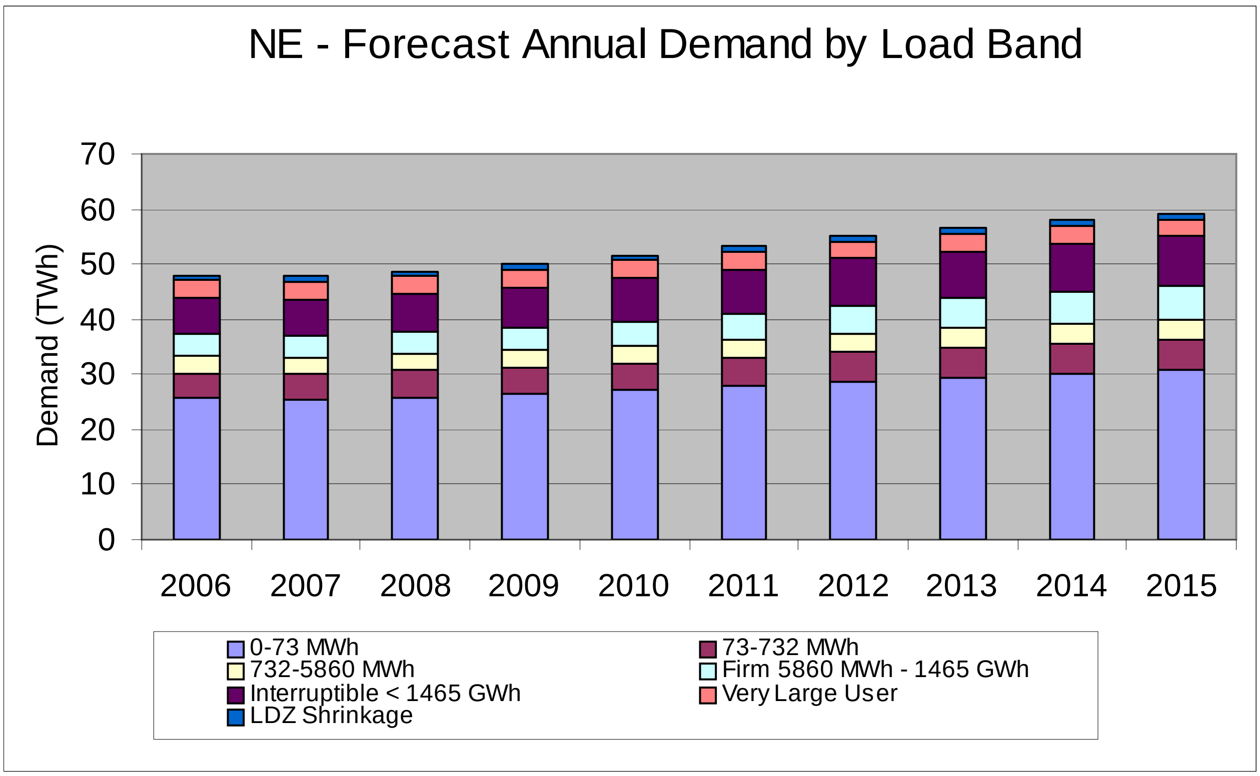


North East.

LDZ Load Band		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
NE	**0-73 MWh**	25.76	25.50	25.92	26.42	27.16	27.93	28.82	29.50	30.19	30.78
NE	**73-732 MWh**	4.52	4.61	4.74	4.82	4.92	5.02	5.13	5.19	5.28	5.36
NE	**732-5860 MWh**	3.03	2.97	3.03	3.09	3.20	3.33	3.49	3.62	3.75	3.86
NE	**Firm 5860 MWh - 1465 GWh**	4.02	3.90	4.03	4.19	4.43	4.75	5.14	5.45	5.77	6.01
NE	**Interruptible < 1465 GWh**	6.67	6.59	6.83	7.24	7.72	8.02	8.38	8.60	8.83	9.01
NE	**Very Large User**	3.18	3.18	3.19	3.18	3.18	3.18	3.19	3.18	3.18	3.18
NE	**LDZ Shrinkage**	0.54	0.96	0.97	0.97	0.99	1.00	1.01	1.02	1.03	1.04
NE	**LDZ Demand**	47.72	47.71	48.71	49.92	51.60	53.23	55.15	56.56	58.03	59.23

Notes

- Figures may not sum exactly due to rounding.



Forecast 1 in 20 Peak Day Firm Demands by LDZ from the 2006 Demand Statements

LDZ	**05/06**	**06/07**	**07/08**	**08/09**	**09/10**	**10/11**	**11/12**	**12/13**	**13/14**	**14/15**	**15/16**
North	264	266	269	274	278	282	285	290	294	298	302
North East	288	294	297	303	308	313	318	324	330	335	342
Total	**552**	**560**	**566**	**577**	**585**	**594**	**603**	**614**	**624**	**633**	**644**

Notes

- Figures may not sum exactly due to rounding.
- All figures in GWh.

2.2 Forecast Comparisons

The following charts provide a comparison of the current forecasts with those published in 2005 Demand Statements.

Figure 2.4A – North LDZ Total Annual Demand

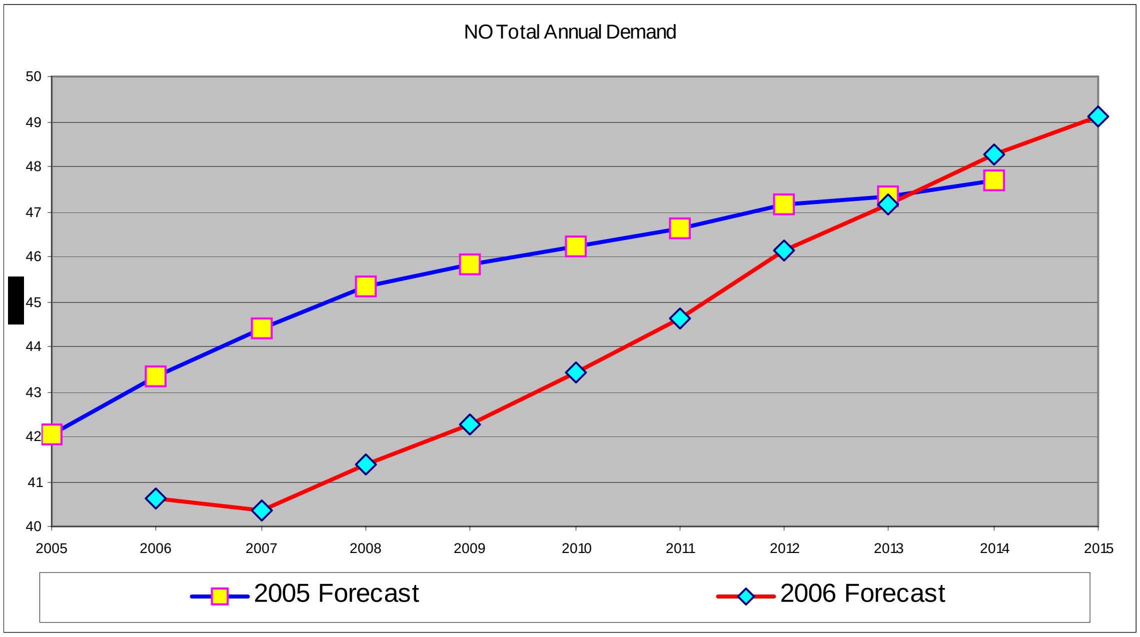
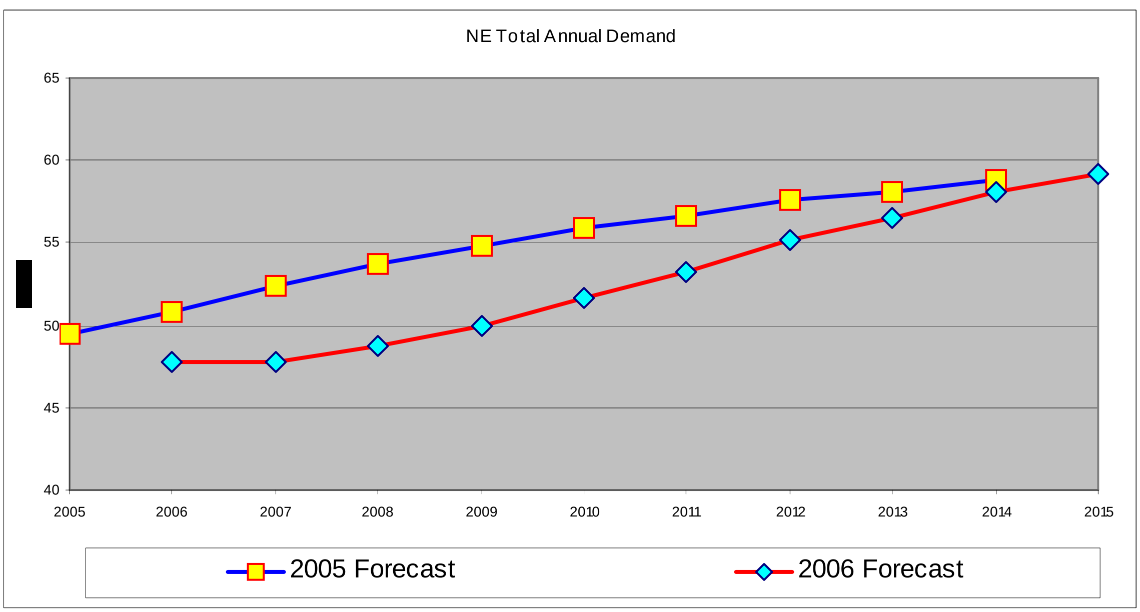


Figure 2.4B – North East LDZ Total Annual Demand



The 2006 DS forecasts of gas demand, produced by National Grid's UK Transmission business, are significantly influenced by an assumption that the recent trend of increasing end-user fuel prices will be continued over the short to mid-term. The UK gas market has experienced sizeable price movements in all sectors and a material response to this change, i.e. reduced consumption, has been observed in all load categories. Perhaps the most notable of market developments during 2005, the base year of the 2006 DS forecast, were the highly publicized price increases announced by all major domestic gas suppliers.

In supply point terms the 0 to 73.2MWh p.a. market sector consists of approximately 98% domestic end-users and therefore exhibits the characteristics of a predominantly space-heating type demand with a corresponding high degree of temperature sensitivity. In the past, there was a widely accepted view that domestic gas consumption possessed a considerable inertia to change and that there was very little that could occur in the UK gas market to make the sector deviate significantly away from historical growth trends.

However, in light of a near 2% reduction in the annual demand of the 0 to 73.2MWh sector during 2005, this view of a perceived resistance to change has altered and the 2006 DS forecast exhibits a continued reduction in domestic consumption in the short to mid-term. As end-user fuel increases moderate, and price subsequently begin to reduce in the mid to long-term, growth is expected to return.

It is believed that the recent change that has occurred in this sector can only be explained by a shift in consumer behaviour, driven by the high-profile coverage of energy prices in the media.

Work to validate throughput data from 2005 and the subsequent forecast has further supported these assumptions and reinforced the robustness of the latest projections of demand. The forecast of total LDZ demand for the five months ending May 2006 shows a small under-forecast of 0.7%.

Appendix Three - Actual Flows 2005

A3.1 Annual Flows

Annual forecasts are based on average weather conditions. Therefore, when comparing actual demand with forecasts, demand has been adjusted to take account of the difference between the actual weather and the seasonal normal weather.

The result of this calculation is the weather corrected demand.

The weather corrected actual and forecast demands are shown assuming a weather condition based on weather data from 17 years.

Actual demands have incorporated a reallocation between load bands based on reconciliation processed.

The basis for any calculation of future demand is the accuracy of the previous forecast.

Tables A.3.1.1 and A3.1.2 provide a comparison of actual and weather corrected demands during the 2005 calendar year with the forecasts presented in the 2005 Demand Statement. Annual demands are presented in the format of LDZ and NTS load bands/categories, consistent with the basis of system design and operation.

Table A3.1.1

NORTH 2005	**Actual**	**Weather Corrected**	**Forecast**	**Corrected v Forecast(%)**
0-73 MWh	22.52	23.51	24.02	-2.12
73 – 732 MWh	2.92	3.04	3.03	0.33
>732 MWh	8.59	8.72	7.93	9.96
Interruptible	6.35	6.38	6.81	-6.31
LDZ Shrinkage	0.25	0.26	0.26	0.00
LDZ Total	40.63	41.91	42.06	-0.36

Table A3.1.2

N.EAST 2005	**Actual**	**Weather Corrected**	**Forecast**	**Corrected v Forecast(%)**
0-73 MWh	25.22	26.24	26.73	-1.83
73 – 732 MWh	4.25	4.45	4.46	-0.22
>732 MWh	10.63	10.77	10.51	2.47
Interruptible	7.24	7.28	7.46	-2.41
LDZ Shrinkage	0.32	0.33	0.35	-5.71
LDZ Total	47.67	49.07	49.5	-0.87

As has been the case for recent years 2005 was warmer than seasonal normal reducing total throughput by 1.3 TWh (3.2%) in North and 1.4TWh (2.9%) in North East.

LDZ forecast demand was overstated in both the small supply point market and the interruptible market within both LDZs as can be seen by the reduction across the load bands from the 2005 ten-year statement forecast demand.

This has lead to an overstatement of total LDZ demand of some 0.6% between 2005 ten-year statement and the weather corrected throughput across the Network.

A3.2 Peak Flows

The day of highest demand in the Network was 1st February 2006 (39.56mscm) and was also the day of highest demand in North East LDZ (21.75mscm). The day of highest demand in North LDZ was 31st January 2006 with 18.35mscm.

1st February 2006 equated to a 84.8% of peak day firm only demand for North East LDZ and 31st January was a 78.5% of peak day firm only demand in North LDZ.

Record demand in North LDZ is 20.1mscm on 30/01/2003 and in North East LDZ the record stands at 24.4mscm on 28/01/04.

During the next ten years, average peak demand growth is 1.52% in North and 1.99% in North East.

Figure 3.2a – <u>Historical & Forecast Peak Day Firm Demand for North LDZ.</u>

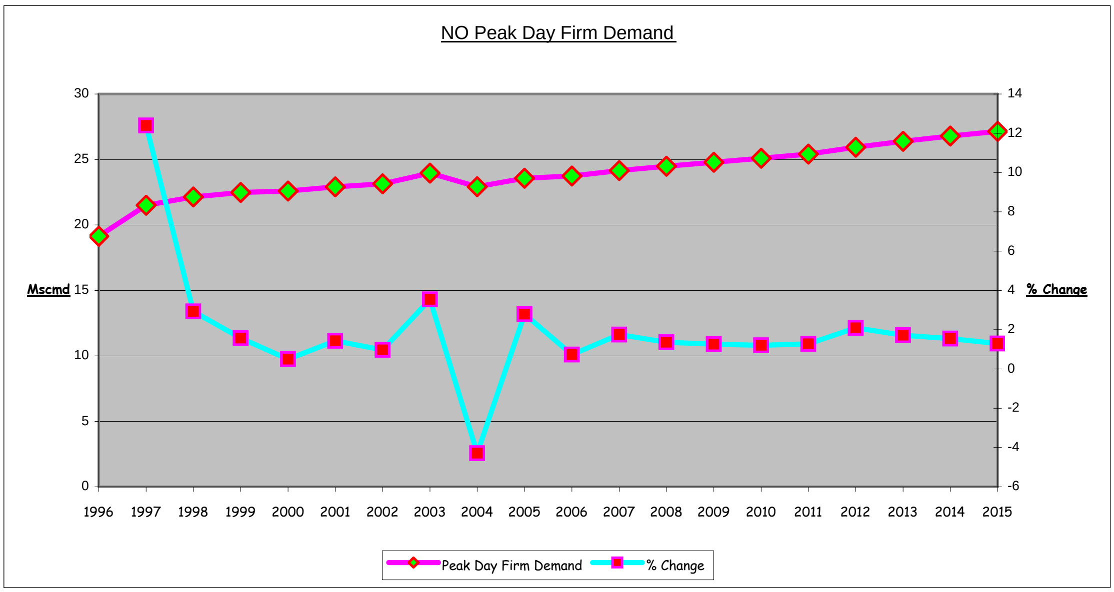
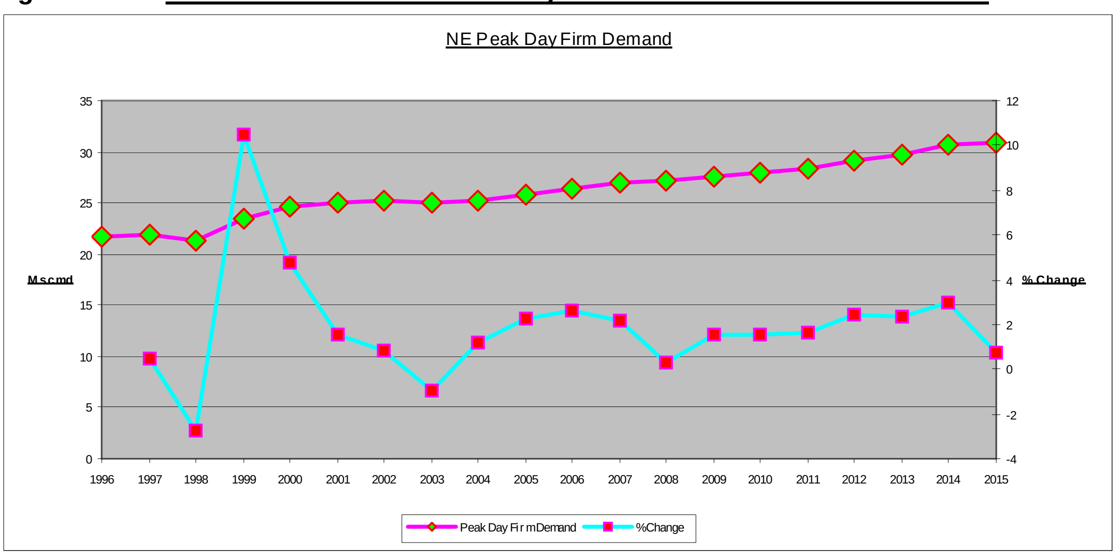


Figure 3.2b – <u>Historical & Forecast Peak Day Firm Demand for North East LDZ.</u>



Appendix Four - Offtakes

As an indication of available capacity at the Network's offtakes the 2010 requested Peak Flow from NTS have been plotted against the Maximum Offtake Capacity in 2006.

Figure 4.0a – NO Small Offtakes 2010 Flow Vs Maximum

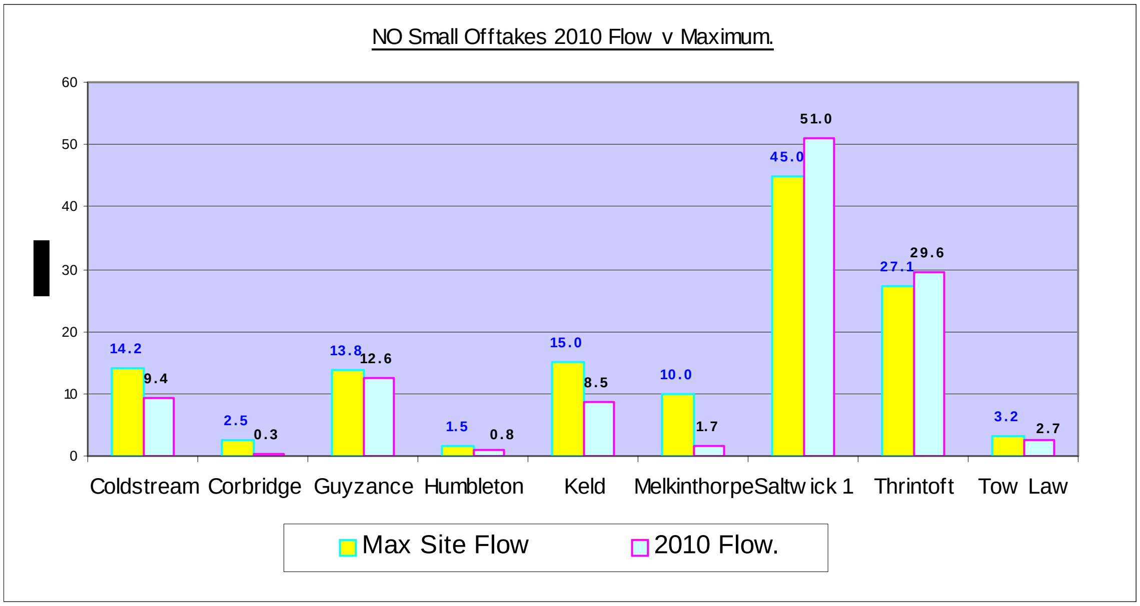


Figure 4.0b – NO Large Offtakes 2010 Flow Vs Maximum

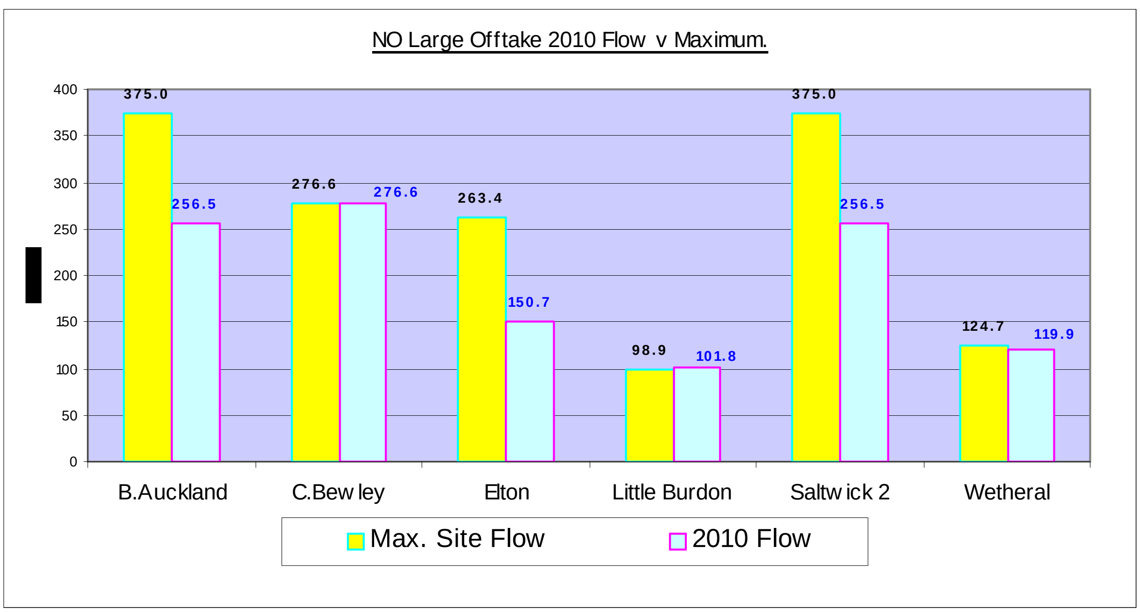


Figure 4.0c – NE Small Offtakes 2010 Flow Vs Maximum

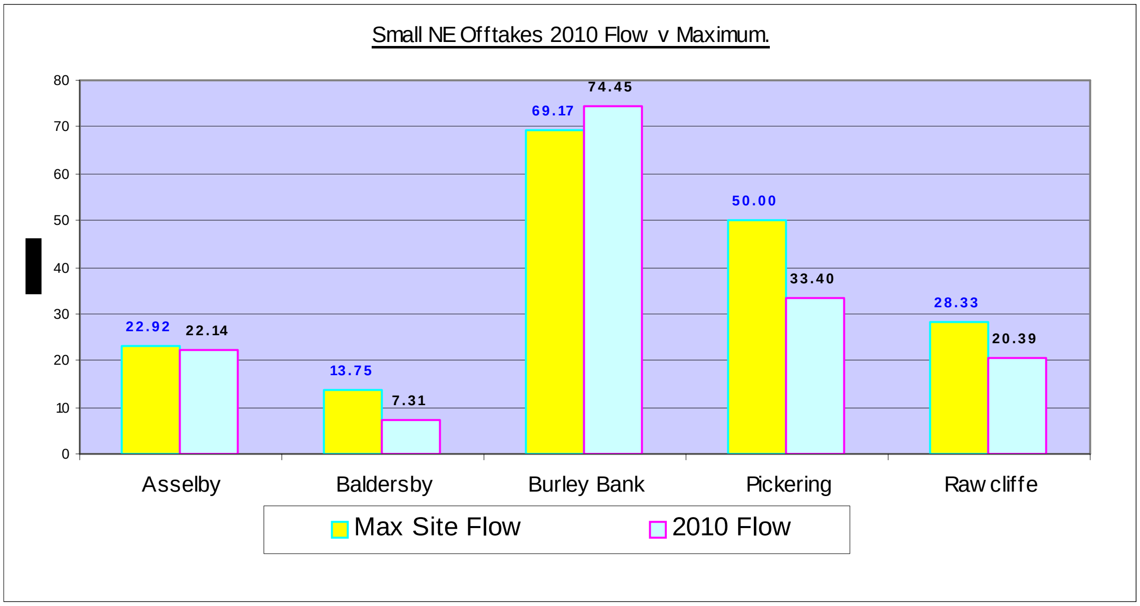
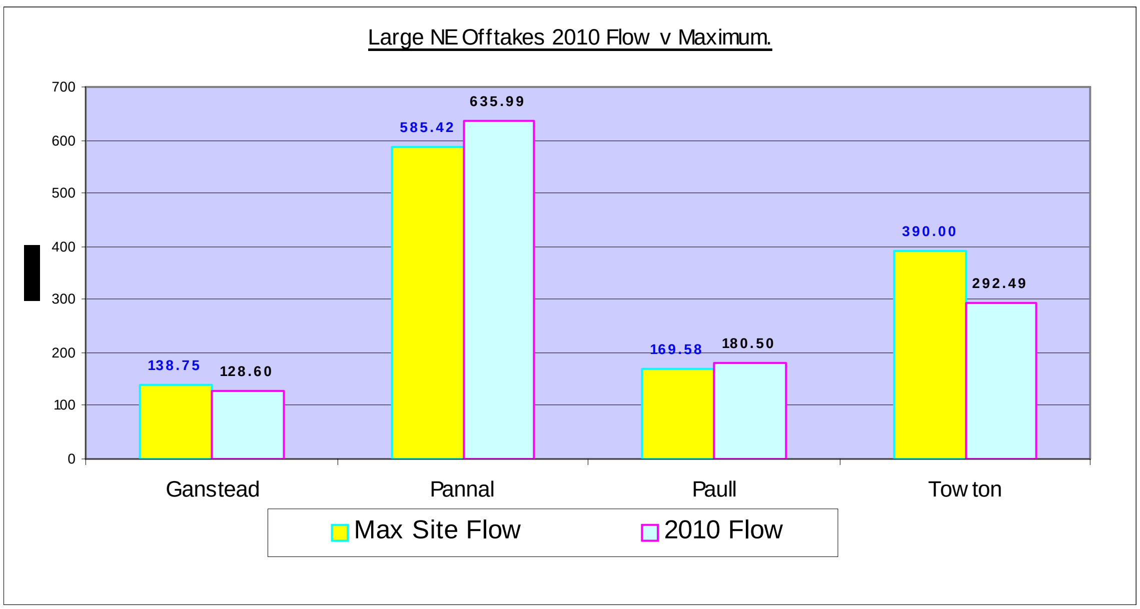
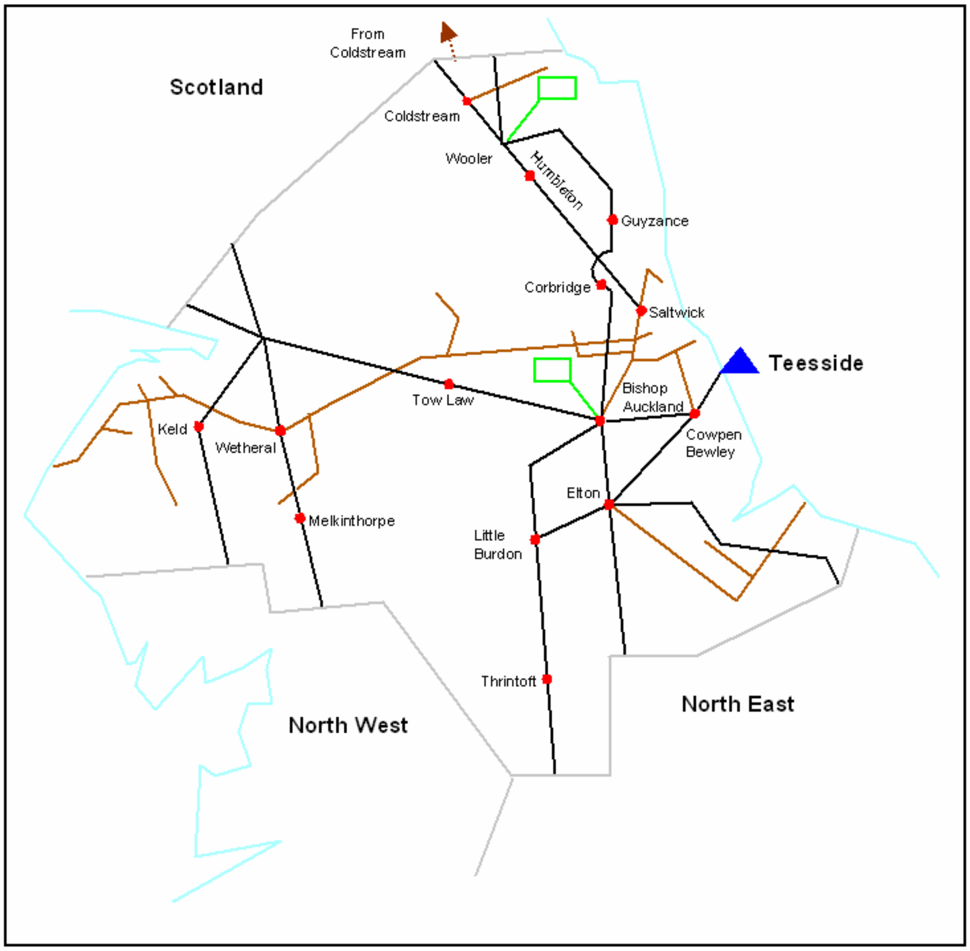


Figure 4.0d – NE Large Offtakes 2010 Flow Vs Maximum

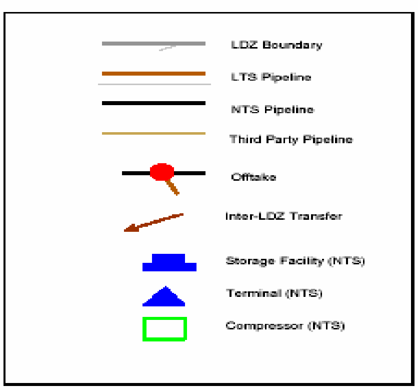


Appendix Five - The Gas Transportation System

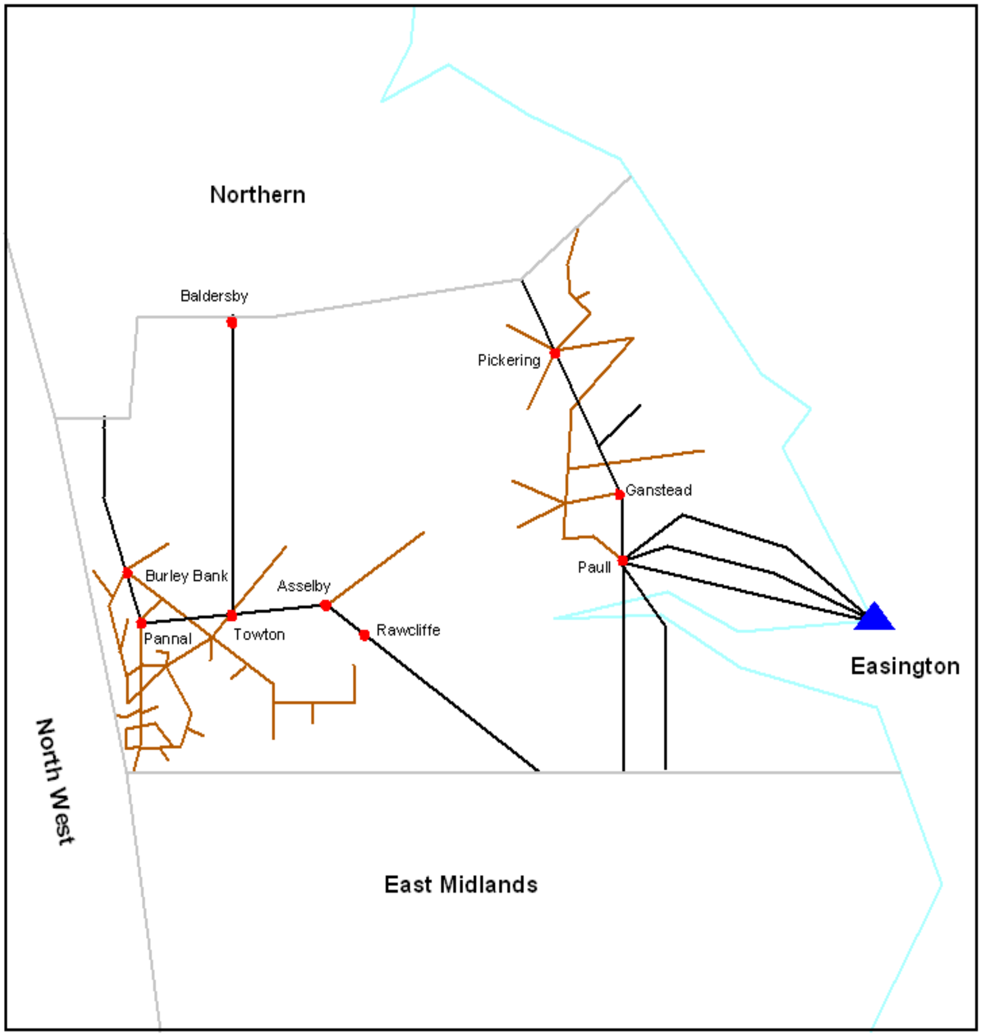
North LDZ



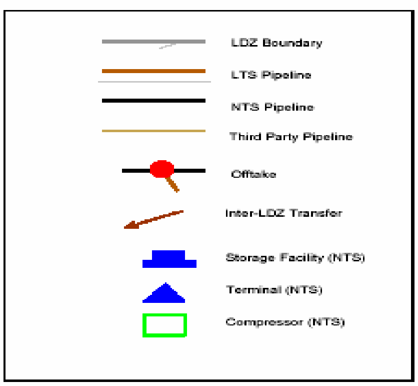
Key - Network Code LDZ Map



North East LDZ



Key - Network Code LDZ Map



Appendix Six - Connections to our System

A6.1 Introduction

Within the space of a few years, the gas industry in Britain has evolved from a situation where NGN provided all new connections, to one where many alternative connection services are now available on a competitive basis.
Indeed, whilst NGN continue to offer connection services in line with our Gas Act obligations, customers and developers now have the option to choose other parties to build their facilities, have the connection vested in or adopted by the host gas transporter (depending upon circumstances), pass assets to a chosen system operator, transporter, or retain ownership of them.

The following are the generic classes of connection:

- Entry Connections: connections to delivery facilities processing gas from gas producing fields or, potentially in the future, LNG vaporisation (i.e. importation) facilities, for the purpose of delivering gas into the NGN system;
- Exit Connections: connections that allow gas to be offtaken from our system to premises (a 'Supply Point') or to Connected System Exit Points' (CSEPs). There are several types of connected system including:
    - A pipeline system operated by another gas transporter;
    - Any other non-NGN pipeline transporting gas to premises consuming more than 2,196MWh per annum.
    - Storage Connections: connections to storage facilities for the purpose of temporarily offtaking gas from our system and delivering it back at a later date;

Please note that storage 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.

It should be noted that any person wishing to connect to our system, or requiring increased flow should contact us as early as possible to ensure that requirements can be met on time, particularly if system reinforcement is required as outlined in A6.7.

A6.2 Additional Information Specific to System Entry and Storage Connections

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, the physical location of the delivery point and the standards to be used for both gas quality and the measurement of flow.

A6.2.1 Network Entry 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.
NGN's ability to accept gas supplies into the system is affected by, among other things, the composition of the new gas, the location of the system entry point, 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:

a) Our ability to continue to meet statutory obligations (including, but not limited to, the Gas Safety (Management) Regulations 1996 (GS(M)R));

b) The implications of the proposed gas composition on system running costs; and

c) Our ability to continue to meet our contractual obligations.

For indicative purposes, the specification set out below is usually acceptable for most locations and encompasses but is not limited to the statutory requirements set out in the GS(M)R.

1. Hydrogen Sulphide
   - Not more than 5mg/m3

2. Total Sulphur
   - Not more than 50mg/m3

3. Hydrogen
   - Not more than 0.1% (molar)

4. Oxygen
   - Not more than 0.001% (molar)

5. Hydrocarbon Dewpoint
   - Not more than -2°C at any pressure up to 85barg

6. Water Dewpoint
   - Not more than -10°C at 85barg

7. Wobbe Number (real gross dry)
   - The Wobbe Number shall be in the range 47.20 to 51.41MJ/m3

8. Incomplete Combustion Factor (ICF)
   - Not more than 0.48

9. Soot Index (SI)
   - Not more than 0.60

10. Gross Calorific Value (real gross dry)
    - The Gross Calorific Value (real gross dry) shall be in the range 36.9 to 42.3MJ/m3, in compliance with the Wobbe Number, ICF and SI limits described above. Subject to gas entry location and volumes, we may set a target for the Calorific Value within this range.

11. Inerts
    - Not more than 7.0% (molar) subject to Carbon Dioxide: not more than 2.0% (molar)

12. Contaminants
    - The gas shall not contain solid, liquid or gaseous material that may interfere with the integrity or operation of pipes or any gas appliance within the meaning of regulation 2(1) of the Gas Safety (Installation and Use) Regulations 1998 that a consumer could reasonably be expected to operate.

13. Organo Halides
    - Not more than 1.5 mg/m3

14. Radioactivity
Not more than 5 Becquerel/g

15. Odour
    - Gas delivered shall have no odour that might contravene the statutory obligation not to transmit or distribute any gas at a pressure below 7 barg, which does not possess a distinctive and characteristic odour.

16. Pressure
    - The delivery pressure shall be the pressure required to deliver natural gas at the Delivery Point into our Entry Facility at any time taking into account the back pressure of our System at the Delivery Point as the same shall vary from time to time.
    - The entry pressure shall not exceed the Maximum Operating Pressure at the Delivery Point.

17. Delivery Temperature
    - Between 1°C and 38°C

Note that the Incomplete Combustion Factor (ICF) and Soot Index (SI) have the meanings assigned to them in Schedule 3 of the GS(M)R.
In addition, where limits on gas quality parameters are equal to those stated in GS(M)R (Hydrogen Sulphide, Total Sulphur, Hydrogen, Wobbe Number, Soot Index and Incomplete Combustion Factor), we may require an operational tolerance to be included within an agreement to ensure compliance with the GS(M)R.
Due to continuous changes being made to the system, any undertaking made by us on gas quality prior to signing an agreement will normally only be indicative. We are working with the DTI and Ofgem in assessing the compatibility of existing specifications (both statutory and contractual) with the longer term needs of the UK in respect of additional gas supplies, and the European Association for the Streamlining of Energy Exchange (EASEE-gas) in the development of a Gas Quality harmonisation Common Business Practice. The outcomes of these projects could ultimately result in changes to our network entry quality specifications in the future.

A6.3 Additional Information Specific to System Exit Connections

Any person can contact us to request a connection, whether a shipper, operator, developer or consumer. However, gas can only be offtaken where the Supply Point so created has been confirmed by a shipper, in accordance with the Network Code.

A6.4 National Transmission System (NTS) Connections

The Applicable Offtake Pressure for the NTS, as referred to in UNC Section J2.1 is normally 25barg. Although system pressure is typically higher, it will be subject to variation over time and location on the network. We currently plan normal NTS operations with start of day pressures no lower than 33barg, but such pressure cannot be guaranteed as pressure management is a fundamental aspect of operation of an economic and efficient system.
NTS offtake pressures at any location will vary due to:

- gas demand
- gas supply pressures at entry points
- compressor operation
- pipeline sizes and maximum operating pressures
- special operations such as maintenance and system development works

Offtake pressure also varies within day, from day to day, season to season and year to year. As a general rule, NTS offtake pressures tend to be higher at pressure sources such as entry points and outlets of operating compressors, and lower at the system extremities and inlets to operating compressors.

A6.5 Distribution Network Connections

Gas will normally be made available for offtake to consumers at a pressure that is compatible with a regulated metering pressure of 21mbarg. Information on the design and operating pressures of distribution pipes can be obtained by contacting the appropriate office.

A6.6 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 own 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 appropriate office prior to the planning phase of any project.

A6.7 Reasonable Demands for Capacity

Operating under the Gas Act 1986 (as amended 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.

However, in many 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 that as much notice as possible should be given. In particular, we will typically require three to 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.

Glossary

Calorific Value (CV)
The ratio of energy to volume measured in mega Joules per cubic meter (MJ/m3), which for a gas is measured and expressed under standard conditions of temperature and pressure.

Composite Weather Variable (CWV)
A single measure of weather for each LDZ, incorporating the effects of both temperature and wind speed. A separate composite weather variable is defined for each LDZ.

Distribution Network (DN)
An administrative unit responsible for the operation and maintenance of the local transmission system (LTS) and <7barg distribution networks within a defined geographical boundary.

Diurnal Storage
Gas stored for the purpose of meeting, among other things, 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.

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

Gas Transporter (GT)
Formerly Public Gas Transporter (PGT). GTs, such as Northern Gas Networks, 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 1st October also referred to as a Gas Year.

Interruptible Service
A service that offers lower transportation charges but where we can interrupt the flow of gas to the supply point.

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

Load Duration Curve (1 in 50 Severe)
The 1 in 50, or severe, load duration curve is that curve which, in a long series of years, with connected load held at the levels appropriate to the year in question, would be such that the volume of demand above any given demand threshold (represented by the area under the curve and above the threshold) would be exceeded in one out of fifty years.

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 offtakes. Consists of LTS and distribution system pipelines.

Local Transmission System (LTS)
A pipeline system operating at >7barg that transports gas from one or more offtakes to distribution systems. Some large users may take their gas direct from the LTS.

National Transmission System (NTS)
A high-pressure system consisting of terminals, compressor stations and pipeline systems. Designed to operate at pressures up to 85 bar. NTS pipelines transport gas from terminals to LTS offtakes.

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.

Odorisation
The process by which the distinctive odour is added to gas supplies to make it easier to detect leaks. We provide odorisation at our offtakes.

Own Use Gas (OUG)
Gas used by us to operate the transportation system. Includes gas used for compressor fuel, heating and venting.

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.

Seasonal Normal Composite Weather Variable (SNCWV)
The seasonal normal value of the CWV for a LDZ on a day is the smoothed average of the values of the applicable CWV for that day in a significant number of previous years.

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.

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

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
The document that defines the contractual relationship between System Users.
The Uniform Network Code has replaced the Network Code and, as well as existing arrangements, cover the arrangements between all gas transporters.