



dti

**SECRETARY OF STATE'S FIRST
REPORT TO PARLIAMENT ON
SECURITY OF GAS AND
ELECTRICITY SUPPLY IN
GREAT BRITAIN**

July 2005



The DTI drives our ambition of 'prosperity for all' by working to create the best environment for business success in the UK. We help people and companies become more productive by promoting enterprise, innovation and creativity.

We champion UK business at home and abroad. We invest heavily in world-class science and technology. We protect the rights of working people and consumers. And we stand up for fair and open markets in the UK, Europe and the world.



Energy Act 2004

First Annual Report to Parliament on the Security
of Gas and Electricity Supply in Great Britain
by the Secretary of State for Trade and Industry

*Presented to Parliament pursuant to section 172
of the Energy Act 2004*

Ordered by The House of Commons to be printed on 21 July 2005

Introduction

This is the first annual report to Parliament on the security of gas and electricity supplies in Great Britain as required under section 172 of the Energy Act 2004.

The Government's goal is that people and businesses can rely on secure supplies of energy – gas, fuel and electricity. For markets to deliver this, Government and the regulator, Ofgem, must ensure that there is appropriate action to facilitate open, liberalised and competitive markets here and abroad. One of the most important ways Government does this is by providing good quality information on security of supply issues. This annual report to Parliament is an important part of this process.

The Government is concerned about all aspects of security of supply: immediate and longer term security, sources of energy and their reliability, generation capacity, storage and infrastructure, network resilience: they all contribute to the safe, secure energy that the country relies on.

Conscious of changes to the security of energy supplies in the UK, as the UK's own resources decline, the Government and Ofgem have established the **Joint Energy Security of Supply Group (JESS)**, which monitors developments in the gas and electricity market. JESS looks for ways of helping the market to work effectively to secure energy supplies by providing information to market participants to help them plan investment decisions. The most recent JESS report was published in November 2004 and, along with previous JESS reports, is available at www.dti.gov.uk/energy/jess. A JESS stakeholders' event is planned for Autumn 2005 to consider how JESS reporting in the future could most usefully supplement the section 172 report.

North Sea oil and gas will continue to play a key role in helping to meet the UK's energy needs well beyond the next decade. Around 34 billion barrels of oil equivalent (boe) have been produced so far, with potentially up to 22 billion boe still to be recovered. Government is working hard with the industry via a number of initiatives to realise this potential. We are taking steps to maximise domestic oil and gas production by promoting the UKCS as an attractive business environment with minimum regulatory uncertainty and by promoting the exploration and production opportunities to new entrants. In parallel with promoting the North Sea, the 'Fallow'

initiative has been introduced to prompt licensees with undeveloped discoveries or undrilled prospects to engage with other parties interested in taking those opportunities forward.

We will support the market delivery of **new infrastructure** to import oil and gas. For example, a deal between the UK and Norway that could secure up to 20 per cent of the UK's future gas demand was signed on 5 April 2005. The new Framework Treaty covers a wide range of potential cross-boundary oil and gas developments. In addition to the Langeled South pipeline project, the new Treaty will cover the development of future oil and gas fields that straddle the maritime boundary between the two States and the use of offshore infrastructure on one continental shelf to explore for and develop an oil and gas reservoir on the neighbouring shelf.

As we become a net importer of gas the energy market in **continental Europe** becomes increasingly important to us. Government and Ofgem have continued to work with the European Parliament, the Commission and other Member States to promote efficient and effective competitive markets across the EU, which will make a substantial contribution to secure and reliable energy supplies. Creating and sustaining open and competitive markets will be a key theme of our Presidency of the EU Council of Ministers, between July and December 2005. We are continuing to press for full and timely implementation of the existing directives and a thorough review of progress in 2005.

The international dimension is becoming more important to security of our energy supplies. The Government's **International Energy Strategy** sets out our international objectives. Priorities are:

- to work, multilaterally (through organisations such as the EU and International Energy Agency) and bilaterally to press for energy market reform and improved energy sector governance in major producing countries;
- to work, with others, for stable and competitive international oil and gas markets;
- to encourage political and economic stability in key producer countries;
- to improve take-up of renewable energy and a more efficient use of energy globally; and
- to enhance action to improve network resilience, mindful of the threat of terrorism.

This report sets out the Government and Ofgem's understanding of this year's winter outlook for security of energy supplies. This is based on NGT's Consultation on Winter 2005-06, published by Ofgem on 31 May. The report also considers the longer term outlook, based on the work of JESS.

This winter the gas market is likely to be tighter than in recent winters. In the longer-term, improvements in gas infrastructure that are already under construction will ease this situation. The market has already responded in anticipation of declining UK gas supplies with new import and storage infrastructure, some of which will be available for the coming winter. More is expected to be available next winter and thereafter. In the medium to longer term, proposals for the construction of new electricity generating capacity are also coming forward in anticipation of future developments in the electricity supply-demand balance. While in the immediate future such proposals mainly concern further gas-fired facilities, in the longer-term renewables, and other alternative technologies, such as low-emission coal generating capacity, are expected to add to the diversity of our generating fleet.

Even if supplies are available, network failures can still act to disrupt supplies to customers. For this reason, Ofgem has introduced measures to improve the incentives on companies both to reduce the incidence of network failures and, where they do occur, to restore supplies quickly and efficiently.

The Government, with Ofgem, will continue to monitor carefully developments in the energy market, both nationally and internationally. We will keep a careful watch for potential barriers preventing the market from functioning effectively and develop appropriate and timely policy responses. And we will ensure that the political and regulatory context succeeds in attracting needed investment for the continued security of our energy supplies.

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Chapter 1: Background

- 1.1** Section 172 of the Energy Act 2004 requires the Secretary of State to publish and lay before Parliament a report dealing with the short and long term availability of electricity and gas for meeting the reasonable demands of consumers in Great Britain¹. This is the first such report. The second annual report on the Implementation of the Energy White Paper published on 21 July 2005 also reports separately on security of supply as well as on other aspects of energy policy².
- 1.2** Security of supply is fundamental to the Government's energy objectives. DTI and Ofgem have shared statutory duties towards security of supply and complementary roles in delivering it. The Government sets the overall policy direction and regulatory environment; the structure, performance and regulation of markets are matters for Ofgem, which also regulates monopoly businesses where necessary.
- 1.3** National Grid Transco (NGT) also has important responsibilities in the context of security of supply. As the primary transporter of gas and electricity it is responsible for ensuring there is adequate and reliable network capacity to meet anticipated energy transportation requirements. As system operator of the transmission networks it also has responsibility for the residual balancing of both gas and electricity.
- 1.4** The market framework creates strong incentives on participants to contribute to security of supply. The publication by NGT of an annual outlook for the winter ahead also plays a key role in providing information to market participants and enabling them to take informed actions in the light of this. Much of the factual information in this report about the outturn last winter and the prospects for the coming year is taken from NGT's Consultation on Winter 2005-06³, which was published by Ofgem on 31 May 2005.

1 <http://www.opsi.gov.uk/acts/acts2004/40020—o.htm#172>

2 www.dti.gov.uk/energy/

3 http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/11584_14405b.pdf

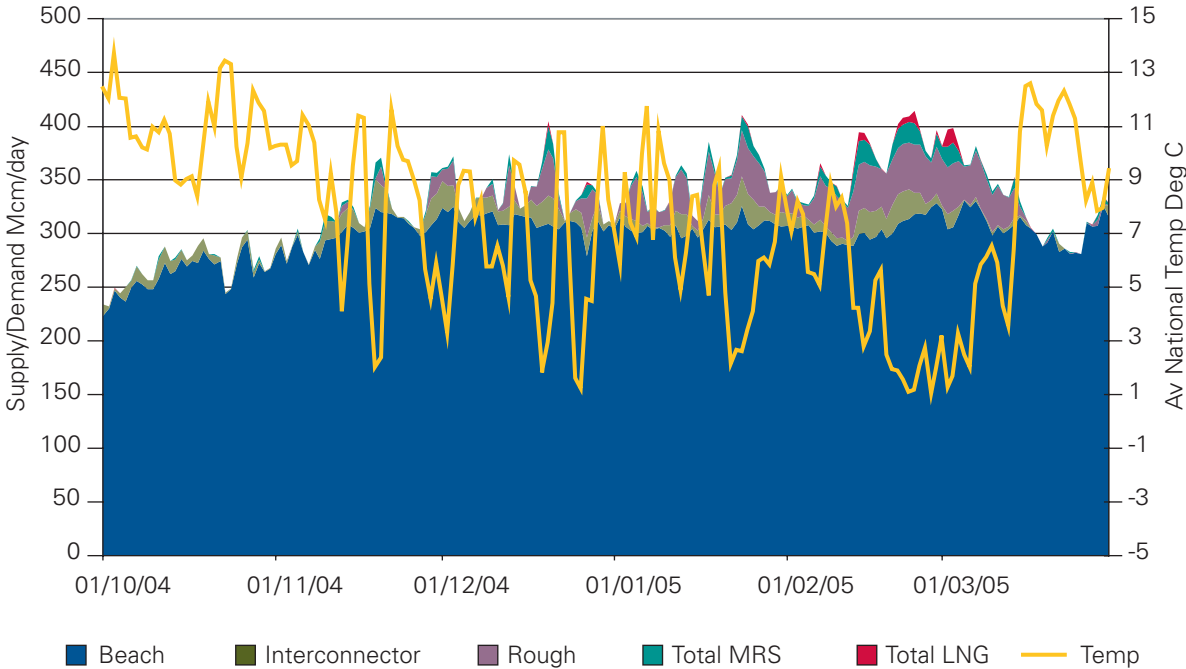
Chapter 2: Supply-demand balance for 2004-05

2.1 As reported in NGT’s Consultation on Winter 2005-06, the winter of 2004-05 was the sixth warmest experienced in Great Britain in the last 77 years and this was reflected in generally low levels of demand and few supply problems.

2.2 Gas

2.2.1 Gas demand over the winter, as shown in the chart below⁴, was met from UK Continental Shelf (UKCS) production, storage and imports from Norway and Belgium.

2004/5 Winter Build-up



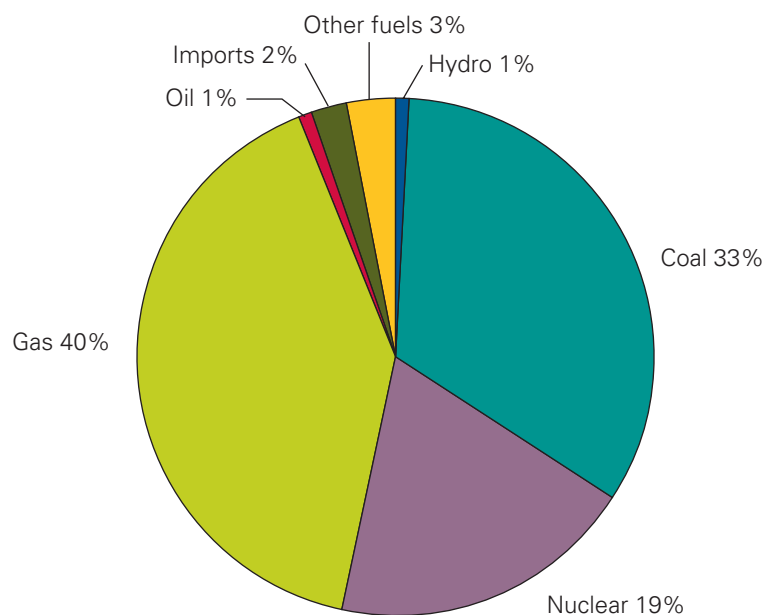
Source: National Grid Transco

4 Chart supplied by NGT

- 2.2.2** Demand was highest during the colder spell at the end of February and the beginning of March, the highest daily demand of 419 million cubic metres (mcm) being on 24 February 2005. This was 5.6% lower than the 2003-04 highest daily gas demand of 444 mcm, and 7% lower than the record demand of 450 mcm on 7 Jan 2003.
- 2.2.3** The forecast maximum *beach gas delivery* (which comprises UKCS production and Norwegian gas supplies via existing interconnecting pipelines) was 364 mcm per day for last winter; in fact the highest beach gas delivery actually recorded on any day was somewhat lower at 331 mcm. The major contributors to the difference between forecast and actual deliveries are thought to be plant availability and reservoir decline, which is corroborated by independent studies carried out by the DTI, although commercial factors may also have been relevant.
- 2.2.4** Deliveries of gas from storage and from the interconnector with Belgium contributed to the supply-demand balance. Long-, mid- and short-range storage facilities were all virtually full going into the winter and use of storage followed a similar pattern to that in earlier years with stocks maintained at near maximum capacity until around January, after which the rate of withdrawals increased. The interconnector with Belgium is capable both of importing and exporting gas. The direction of flow reflected differentials between the day-ahead prices in the UK and Zeebrugge (Belgium), and the interconnector was generally in import mode throughout the winter, although not always at full capacity.
- 2.2.5** As expected, there was some demand downturn on days when the supply-demand balance was tight. In particular in response to higher gas prices, some gas-fired electricity generators reduced their gas consumption at times of low electricity demand. On a smaller scale, demand-side response was also observed from other large industrial users. In addition shippers made commercially arranged gas interruptions on 69 days during the winter, in particular during late February and early March.

2.3 Electricity

- 2.3.1** Winter demand was met with a mix of generation, as shown in the chart below. This includes some 0.7 gigawatts (GW) of previously mothballed plant which was brought back into service for the winter.



Energy supplied in the UK in Winter 2004 by source (Dukes 2005, chart 5.3)⁵

- 2.3.2** The highest electricity demand last winter in England and Wales was 54.1 GW for the half-hour ending 17:30 on Monday 13 December 2004. This compares to the highest demand of 53.5 GW for a single half-hour in 2003-04.
- 2.3.3** NGT issued *Notices of Insufficient System Margin* (NISMs), signalling a need for more electricity generating capacity to be made available, on seven occasions over the winter. This is typical of recent winters and low by historic standards. On each occasion the market responded with the necessary additional capacity, which resulted in the cancellation of the NISM. No High Risk of Demand Reduction (HRDR) notices were issued.
- 2.3.4** The interconnector with France was generally in import mode during winter 2004-05, although not always at full capacity. On a typical day last winter, the UK imported electricity from France during the three periods of highest demand when spot wholesale electricity prices were higher in the UK than France. Equally, the UK tended to export electricity during the same three periods when wholesale prices were higher in France.
- 2.3.5** Around 0.8-1.3 GW of demand management occurred at the peak periods as large customers reduced demand to avoid Transmission Network Use of System Charges; these are calculated on the basis of usage during three peak half-hour periods over a winter.

5 <http://www.dti.gov.uk/energy/inform/dukes/index.shtml>

Chapter 3:

Supply-demand balance: Short-term outlook

3.1 NGT's Consultation on Winter 2005-06 analyses the supply-demand situation for the coming winter against two different supply scenarios and under a range of weather conditions.

3.2 Gas

3.2.1 Under average winter conditions, daily gas demand for January 2006 is currently expected to be around 370mcm. In a severe winter, daily demand might be expected to rise to over 500mcm.

3.2.2 New import and storage facilities currently in the final stages of development and commissioning will increase the UK's capacity to import and store gas during the coming winter. These include a new facility to import liquefied natural gas (LNG) at the Isle of Grain (which has just finished commissioning and is now in full operation); enhanced import capacity on the gas interconnector with Belgium; and a new storage facility at Humbly Grove.

3.2.3 Set against this, supplies from the UKCS are expected to continue to decline. Maximum UKCS deliverability for winter 2005-06 is expected to decline by about 8% on last winter and is forecast to be about 290 mcm/day, excluding Norwegian imports.

3.2.4 NGT's analysis points to an overall supply-demand situation somewhat tighter than for last winter, though as their scenarios indicate there is a range of outcomes depending on the underlying assumptions and in particular upon weather conditions. UKCS production availability will be critical, as will ensuring the market framework delivers appropriate price incentives to ensure adequate imports and demand side response at times when the UK market needs these.

3.2.5 Despite the anticipated tightness in gas supply this winter, gas will be available to most consumers under all reasonable scenarios. Any delivery shortfalls in normal weather can be resolved through gas from storage and

from a demand side response. In extreme weather conditions, greater user response would be needed. Available gas supplies for domestic consumers would not be affected even under the most extreme scenarios but some of this response might come from major industrial and commercial users willing to sell gas back into the market in response to high wholesale prices. Work commissioned by DTI and Ofgem suggests that a contribution of around 10 mcm/day might be anticipated from this source given sufficiently high prices⁶. In addition, NGT's analysis suggests that gas-fired power stations could contribute around 30mcm/day in gas demand, whilst still providing sufficient generation to meet daily peak demand. Many gas-fired power stations are capable of switching to distillate gas stocks and some substitution of gas-with coal and oil-fired generation is also likely under severe scenarios in particular.

3.3 Electricity

- 3.3.1** NGT's forecast winter peak demand for the coming winter is 62.0 GW, with a 1 in 20 peak forecast⁷ of 65.0 GW. This demand figure relates to GB demand only and does not include any flows to France or Northern Ireland (across the Moyle interconnector).
- 3.3.2** Some 75.7 GW of generating capacity is presently expected to be available this winter. In addition there is some 3.8GW of mothballed plant out of service, of which it is estimated 2.2GW may be capable of returning to service within six months or sooner. The interconnector with France is also capable of delivering 2GW of imported electricity at full capacity.
- 3.3.3** The headline *plant margin* (that is the amount by which total generating capacity exceeds peak demand) is currently around 22% (assuming full imports from France) but this could rise to 25% if 2.2GW of mothballed plant returns.
- 3.3.4** Key factors affecting resilience are plant reliability; the extent to which mothballed plant returns to the system; the flexibility to switch between gas-fired generation and coal- and oil-fired plant and to switch to back up fuels; the availability of electricity imports; and weather conditions. Because of the contribution of gas-fired power stations, a tight position in gas supplies could also have a knock on effect on electricity, although the impact is lessened by the availability of power stations using alternate fuels and gas-fired power stations capable of running distillate fuel. NGT's consultation

⁶ This is available at http://www.dti.gov.uk/energy/publications/policy/industrial_demand_response.pdf

⁷ Maximum demand that would be experienced in a severe winter such as would be expected only in one year in twenty.

explores the interplay between some of these factors under different scenarios and weather conditions.

- 3.3.5** NGT consider that the levels of generation above will be sufficient to meet demands expected under *average cold spell* conditions. NGT also believes that the projected levels of generation will be adequate under severe winter conditions (-2C for 30 days, +2C for 60 days) on the assumption that we do not experience high levels of plant breakdown and that there is sufficient non-power gas demand response to enable adequate gas-fired generation to continue to run.

Chapter 4:

Supply-demand balance: Long-term outlook

4.1 This chapter focuses on a similar time period to the work of the Joint Energy Security of Supply group (JESS) and looks at the UK supply-demand balance in gas and electricity over the next seven to ten years.

4.2 Gas Demand

4.2.1 Forecasts of projected demand vary but the broad picture is for little if any growth in gas demand from 2005 to 2010. NGT forecasts indicate a total increase in annual gas demand of 24% by 2014, with peak demand growing at the marginally lower rate of 23%.

4.3 Gas supply

4.3.1 Declining production from the UKCS will be supplemented by growing imports. A number of major projects currently under development or construction will substantially increase the UK's capacity for import and storage of gas. In addition to the projects scheduled for commissioning in the shorter term (see Chapter 3), others include the Langeled pipeline to bring gas to Great Britain from Norway, two new Liquefied Natural Gas (LNG) import terminals at Milford Haven, and a new pipeline from the Netherlands. Further expansion to the Isle of Grain import facility and to the Belgium interconnector are also planned over the same period. Table 1 in the Annex provides a list of all the new import facilities that are either planned or under active construction and expected to be in place before 2010. These projects mean that by 2010-11, import projects should increase the capacity to import gas to GB by approximately 100bcm pa and the maximum daily deliverability is expected to be 308mcm/day.

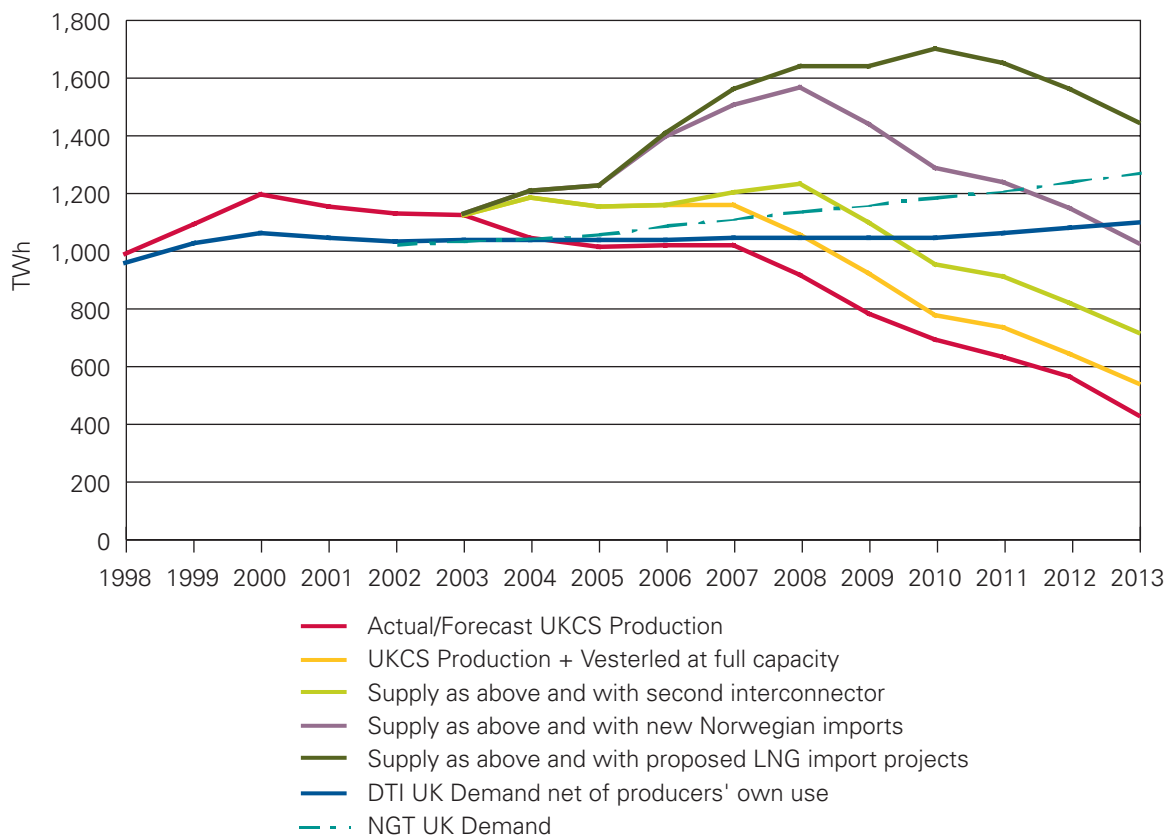
4.3.2 A number of new storage facilities are also under development (Table 1, Annex). These include two announced in the last 6 months, namely the projects being taken forward by Wingas and Warwick Energy. In total, new storage projects in the public domain are expected to increase the UK's

storage capacity by approximately 2.3bcm by 2008-09. These new projects will provide GB with important additional flexible sources of gas supply to meet winter peak demand; other sources of "swing capacity" include oversized import infrastructure.

4.3.3 Beyond the winters of 2005-06 and 2006-07, the combined scale of the market's planned importation and storage projects indicates sufficient new infrastructure to create a margin of supply capability over demand in gas – although this clearly depends on the timely delivery of a sufficient proportion of these projects.

4.3.4 Looking further out, Britain's gas import dependency is forecast to grow to perhaps 40% on an annual basis by 2010/11 as UKCS production continues to decline.

Annual UK gas demand and supply infrastructure



4.4 Sources of imported gas

4.4.1 Russia holds around a third of the world's proven gas reserves (2004 estimate). Over 80% of the world's proven gas reserves, at end 2004, are located in the Middle East, Africa, Europe and Russia; many of these are

within potential pipeline distance. Within Europe, the Netherlands and Norway have around 4 trillion cubic metres of gas reserves (2004 estimate).

- 4.4.2** The UK is increasingly part of the integrated EU gas network, which draws gas from as far afield as Russia and North Africa and may soon do so from Central Asia and Iran. At present most of the EU's imported gas is supplied by pipeline, often over considerable distances, on long-term contracts. While this creates potential exposure to political threats to cut off the gas supply and to disruption of supply by political and economic instability, in practice such incidents have been extremely rare. Moreover the UK's chief supplier of piped gas for the foreseeable future will be Norway and the UK has much experience of importing Norwegian gas.
- 4.4.3** Access to LNG markets through facilities at Milford Haven and the Isle of Grain will also increase the diversity of available sources and import routes.
- 4.4.4** The sourcing of gas supplies from overseas is a matter for market participants. Commercial operators have every incentive to make their own assessment of the merits of supplies from different countries and thereby to ensure diverse sources of gas, supply routes and entry points so as to reduce the risks arising from supply interruption from any one source. Current UK gas market arrangements are already delivering a number of competing gas import projects, potentially delivering gas from such diverse sources as Norway, the Netherlands, Russia, Algeria, Qatar and other LNG exporters.

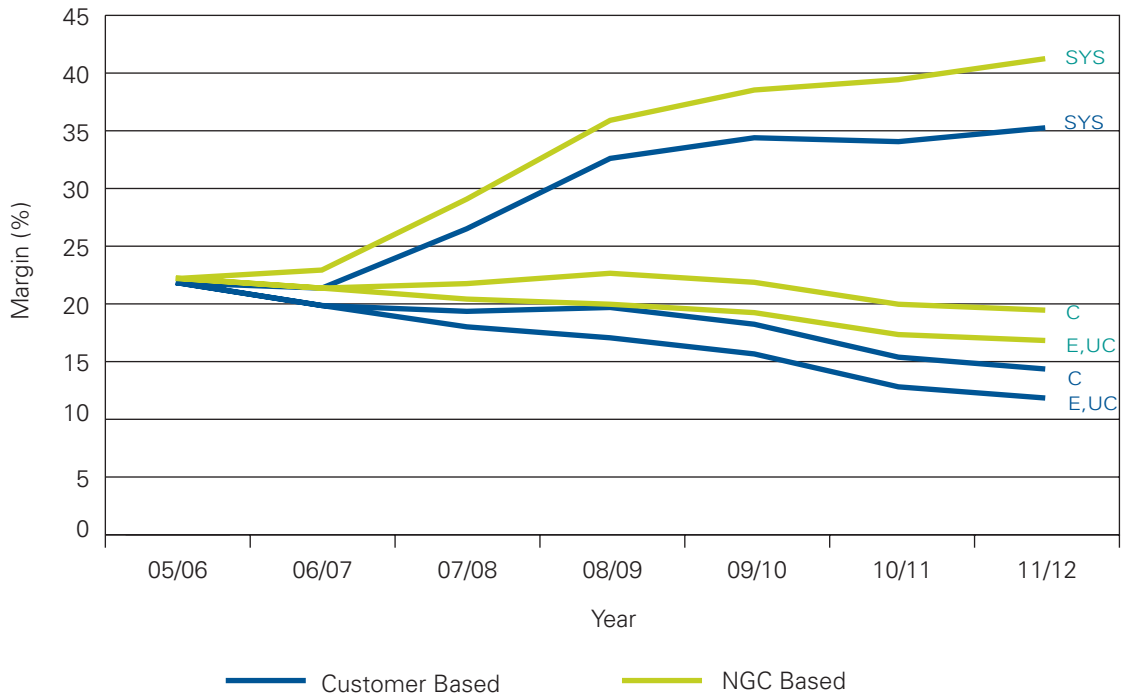
4.5 Gas Quality

- 4.5.1** On occasion, it is expected that certain of these imports may not comply with the UK's gas quality specifications. In June 2003 the then Energy Minister announced the launch of a gas quality exercise to examine interoperability issues arising. Work is currently underway to identify the scale of the issues involved. The Government has made it clear that there is no question of an early change in the UK's gas quality regulations and that there will be public consultation on any policy options for the longer term.
- 4.5.2** Completion of this exercise will also put the UK in a strong position to influence developing proposals at European level for harmonised cross-border gas quality specifications. This will offer the best opportunity of ensuring that any proposals are conducive to the efficient operation of a single EU gas market and are in the UK's best long-term interests.

4.6 Electricity Supply

- 4.6.1** Generating capacity directly connected to the Great Britain transmission system is expected to total about 75.7 GW in 2005/06. Development over the following years will depend on the amount of new generating capacity that is added, offset by any closures. Taking into account, as a base case, only existing power stations and those for which consent has been obtained under both section 36 of the Electricity Act 1989 and section 14 of the Energy Act 1976 where necessary, and notified reductions in capacity from plant closures or plant being mothballed, the level of contracted generation capacity would increase to 77.0 GW by 2011/12. This should not be taken as a forecast of total additional generating capacity, because of the timing and other uncertainties around both new build and closures. Furthermore, significant new generation that is only indirectly connected to the transmission system is expected.
- 4.6.2** A list of new electricity projects with consent under section 36 and under section 14 is at table 2 in the Annex. The Government is also aware of proposals for investment in additional generating capacity which have been announced but for which no formal application for consent has yet been made; and applications which have been made but not yet granted.
- 4.6.3** Additional factors which may affect future generating capacity totals include the return to service of plant currently held in mothball (see Chapter 3); and the retirement of existing plant, which may not have been formally notified as yet. These are basically matters for the owners of such plant and will depend on their own view of many factors including likely future developments in the electricity market and their own requirements within it. Key issues which might affect those decisions include environmental legislation, in particular the Large Combustion Plants Directive and the lifetimes of existing nuclear plant, as well as wider commercial considerations.
- 4.6.4** The *plant margin* (see Chapter 3) is widely used as a broad indicator of security of energy supply and although it does not capture fully all the factors which may have an impact on the reliability of energy supply, it is nonetheless an indicator.
- 4.6.5** Projections obviously depend on which assumptions of supply and demand are used. The chart below, taken from NGT's Seven Year Statement, illustrates the range of possible outturns for the plant margin when calculated on the basis of different assumptions about future demand and supply.

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The blue lines are based on NGT’s customers’ views of future demand mapped against three possible supply scenarios⁸; while the green lines match the same three supply scenarios with NGT’s own assessment of likely future demand.

⁸ SYS: In addition to all existing plant: plant where an appropriate contract is in place for connection to and use of the transmission system, less notified reductions in capacity from plant closures or plant being mothballed
 C: In addition to all existing plant: plant that has obtained consent under section 36 of the Electricity Act and section 14 of the Energy Act 1976, less notified reductions in capacity from plant closures or plant being mothballed
 E, UC: In addition to all existing plant: plant which is actually under construction, less notified reductions in capacity from plant closures or plant being mothballed

Chapter 5:

Delivery Networks – security of supply outlook

- 5.1** Ofgem in its role as regulator for the energy networks continues to monitor the reliability of networks and to ensure that companies have the right incentives to ensure that investment occurs when and where it is needed, and that network development, maintenance and operation occurs in an efficient manner that provides the maximum benefit to consumers.
- 5.2** The legal and regulatory framework is geared towards ensuring that transmission and distribution systems provide efficient and timely investment to ensure sufficient network capacity and reliability so that available supplies of gas and electricity can be transported to energy consumers. With the price control allowances, licence obligations and incentives, overall decisions on investment into their networks are determined by the transmission and distribution companies themselves.
- 5.3** Following the 2003 blackouts experienced in London and the West Midlands, Ofgem introduced a new electricity transmission network reliability incentive scheme for NGT, reinforcing the existing obligations regarding network security. The incentive scheme came into effect in January 2005. These incentive arrangements utilise an annual baseline for the amount of energy, measured in megawatt hours (MWh), unsupplied by the transmission network each year. If NGT is unable to supply available energy due to infrastructure failure and the level of energy unsupplied exceeds the baseline, it can be penalised by up to 1.5 percent of its revenue. Where the level of energy unsupplied falls below the baseline, NGT will be rewarded by up to 1.0 per cent of its revenue.

5.4 Network reliability

Ofgem monitors closely the performance of electricity and gas networks.

5.4.1 Electricity: transmission

For electricity, NGT's figures in relation to the electricity national grid show that it is around 99.9997-99.9999 per cent reliable and that distribution networks have seen improvements in service with power cuts down by 11 per cent since privatisation.

On the England and Wales electricity transmission system there were 3 interruptions in the last six months from October 2004 to March 2005. This resulted in approximately 23 MWh of energy being unsupplied, which is equivalent to 0.000014 % of the total 167 TWh supplied during the same period. This table also shows that the number of supply interruptions fell between October and March 2004-05 when compared to the same period in 2003-04. The unsupplied energy between October and March 2004-05 was 92% lower than for October to March 2003-04.

There were two incidents on the Scottish Power transmission system in the last six months which resulted in a minimal loss of supply to customers. The total unsupplied energy was around 0.5 MWh, which equates to 0.0000039% of total supplied energy. There were eight supply interruptions on the Scottish Hydro transmission system over the six month period from October 2004 to March 2005. This amounts to five more incidents last winter than the previous winter of 2003-04. The total supplied energy has remained relatively constant over the two winter periods at around 5.5 TWh.

5.4.2 Electricity: Distribution

Electricity distributors face certain quality of service standards aimed at guaranteed standards of performance. These standards set service levels that must be met in specific individual cases and incidents. If the electricity distributor fails to provide the level of service required, it must make a payment to the customer affected, subject to certain exemptions and, in certain cases, taking account of weather conditions prevailing at that time. This includes among others, measuring response times to certain network failures; restoration of supplies; and the number of interruptions experienced by a particular customer each year.

Over the year April 2004 to March 2005, the total number of customer interruptions was around 22 million. The total number of customer minutes lost was 2,668.5 million. To put this in perspective, the previous year (April 2003 to March 2004) there were around 23 million customer interruptions and the total number of customer minutes lost was 2,272.9 million. Although the total of customer interruptions was smaller for the winter 2004-05 the total customer minutes lost was greater. This increase was mainly due to severe weather in January 2005. It should be noted that the total number of

customer interruptions has been falling steadily. The number of interruptions in 2004-05 was around 7% lower than 2002-03.

5.4.3 Gas

There were four days last winter where NGT interrupted supplies on the National Transmission System (NTS), under contractual arrangements, the total volume lost was 193 GWh (equivalent on average to around 4.5 mcm each day). As a comparison the previous winter October 2003 to March 2004 there were no minutes lost and no gas unsupplied.

Due to availability of data, domestic and Industrial and Commercial interruptions to supply (some of which will be voluntary) are reported where the time taken to restore supplies is greater than 24 hours. On this measure there were 4,395 interruptions to supplies on NGT's distribution networks between April and September 2004, whereas there were 2,377 interruptions to supplies between October 2004 and March 2005.

5.5 Winter Outlook

5.5.1 For the coming winter, NGT have assessed that both the gas and electricity networks have the physical capacity to meet the published transportation requirements of cold winters, due to its assessment of:

- High network availability.
- Outage programme due to be completed.
- High availability of gas compressor stations.
- The benefit of continued high levels of investment in its networks.

Distribution companies are incentivised to develop, maintain and operate their networks in an efficient manner and combined with incentives, to respond to and resolve network outages for example those related to storm damage to local networks.

5.5.2 Over a **longer-term** time frame, NGT's planning statements provide associated outlook for network investment needs. Market participants are able to participate in these processes and also more directly can provide signals, for example via the long-term entry auctions in gas. Therefore, both the national grid and local distribution networks face incentives to ensure that available electricity and gas supplies can be delivered in an efficient manner.

Chapter 6:

Emergency Preparedness

- 6.1** No system can guarantee that there will be no disruption to electricity. Our energy generation and distribution companies have very good systems for restoring power where necessary, and these systems are the bed-rock of our emergency response structures. There are, however, scenarios where energy failures are so severe and wide-spread as to constitute a national emergency requiring the involvement of Government and joint national action. The Government, Ofgem and the industry are working together to ensure that we have robust and appropriate mechanisms to cope with any such emergencies.
- 6.2** We have established the Energy Emergencies Executive to oversee the structures and practices of our energy emergency planning. It is chaired by DTI and includes Ofgem and National Grid Transco. The Executive provides a high level link between government and industry. Beneath it we have established the Energy Executive Committee to develop a wide ranging cross industry workplan aimed at improving the preparedness of the sector for any form of severe disruption.
- 6.3** The most extreme scenario for electricity disruption is when electrical power is lost across the whole of Great Britain. We judge the likelihood of this to be very low indeed, but nevertheless we need to prepare for such an event. Termed “Black Start”, the process for getting the country re-connected is complex and challenging. A number of power stations are equipped with “Black Start capability” which is essentially the ability to restart electricity generation without using external energy supplies. Government is working closely with the industry to ensure that procedures and practices are in place for an effective response to such an extreme emergency.
- 6.4** Energy is fundamental to the workings of our economy and society. We are working closely with all the emergency services and local authorities within Whitehall’s wider emergency planning structures to ensure a coherent and efficient response to any future emergency.

Annex

Table 1: Planned Major new gas projects (as at June 2005)

Context:

The following table provides an indication of potential major new investments in gas infrastructure.

The following projects have been publicly announced or acknowledged. The information in the table represents that in the public domain. There are a number of other projects that are under consideration, but for commercial reasons have yet to be announced. These projects are included in aggregated terms in the preceding indicators, but cannot be separately listed because of commercial considerations.

Gas Import Infrastructure

Project	Owner/Proposer	Size	Date	Status	Under Construction
Langeled South pipeline supplying gas from the Ormen Lange gas field development and other Norwegian fields	Norsk Hydro Shell Norge	Pipeline capacity about 70 mcm/day	First gas planned 2006/7	Pipeline construction has commenced	Yes
Statfjord Later Life Project: Delivery via FLAGS pipeline	Statoil	17 mcm/day at plateau	First gas planned 2007/08	Under consideration by UK and Norwegian Governments. Decision mid June 2005	...

SECRETARY OF STATE'S FIRST REPORT TO PARLIAMENT ON SECURITY OF GAS AND ELECTRICITY SUPPLY IN GREAT BRITAIN

Project	Owner/Proposer	Size	Date	Status	Under Construction
Compressors at Zeebrugge to increase import capacity into UK at Bacton	Interconnector UK	Increase from 25 mcm/day to 47 mcm/day, then further increase to 66mcm/day	First phase due for completion December 2005; second phase by December 2006	Construction on schedule for Phase 1 and Phase 2	Yes
Interconnector from Balgzand to Bacton (the "BBL" pipeline)	BBL	Potential capacity up to 44 mcm/day	First gas planned December 2006	Under construction	Yes
Isle of Grain LNG import and storage facility; redevelopment of existing site	National Grid Transco	Phase 1 13 mcm/day; Phase 2 expansion additional 25 mcm/day	First gas 2005. Phase 2 due for completion Q4 2008	Phase 1 construction complete and awaiting first cargo. Contracts awarded for Phase 2	Yes
South Hook LNG terminal at Milford Haven	Qatar Gas/Exxon Mobil	Phase 1 up to 33 mcm/day; Phase 2 additional 26 mcm/day	First gas Phase 1 Q4 2007; Phase 2 2009	Under construction. Contracts awarded for Phase 2	Yes
Dragon LNG terminal at Milford Haven	Petroplus/BG/Petronas	First train up to 16.5 mcm/day to a maximum of 27mcm/day during peak periods	First Gas Q4 2007	Under construction. Planning. Permission facing legal challenge	Yes

Gas Storage Infrastructure

Project	Owner/Proposer	Size	Date	Status	Under Construction
Aldbrough Storage	Joint development between Statoil and Scottish and Southern Energy	4420 mcm storage capacity	Commissioning Q3 2007	Under construction	Yes
Byley Storage, Cheshire	Scottish Power	170 mcm storage capacity	Commissioning Q1 2008	Public Inquiry complete; planning approved	Construction planned late 2005
Humbly Grove Storage facility	Star Energy Ltd	280 mcm storage capacity	2005	Under construction	Yes
Welton Storage facility	Star Energy Ltd	435 mcm storage capacity	2008	Planning application submitted	...
Preesall Storage facility	Canatxx	Total capacity 1.7 bcm	2009/2010	Planning permission subject to Public Inquiry	...
Albury Phase 1	Star Energy Ltd	160 mcm capacity	2007/2008	Pre planning	
Bletchingly storage facility	Star Energy Ltd	900 mcm capacity	2009	Pre planning. Drilling required	...
Albury Phase 2	Star Energy Ltd	UP to 715 mcm capacity	2010	Pre planning. Drilling required	...
Saltfleetby Gas Storage	Wingas	600 mcm storage capacity	Commissioning planned for 2008	Pre-planning	...
Caythorpe Gas storage	Warwick Energy	210 mcm storage capacity	Commissioning Q2 2007	Pre-planning	...

Table 2: Planned major new electricity projects (as at June 2005)

Context:

The following table provides an indication of potential major new investments in electricity generation.

Background:

Approvals for major energy projects are generally sought from national government. Small-scale investments (eg below 50 MW generating schemes) typically receive planning approval from local councils and therefore do not feature in the tables below.

As a consequence of the Secretary of State's powers under section 36 of the Electricity Act 1989 and section 14 of the Energy Act 1976 the DTI gains an appreciation of the potential significant new electricity capacity planned to be built in England and Wales. In Scotland significant new electricity generating stations are authorised by Scottish Ministers and DTI are formally only involved if it is oil or gas-fired capacity where clearance is also required from the Secretary of State for Trade and Industry under section 14 of the Electricity Act 1989.

Source:

DTI.

**SECRETARY OF STATE'S FIRST REPORT TO PARLIAMENT ON SECURITY OF GAS AND ELECTRICITY
SUPPLY IN GREAT BRITAIN**

Station	Owner	Size (MW)	Type	Distillate back-up	Status	Under Construction
CCGTs						
Staythorpe	Innogy	1,630	CCGT	Yes	Approved	Preliminary ground work begun
Partington, Greater Manchester	AES now TXU	380	CCGT	No	Approved November 2000	No
Fleetwood, North West Lancashire	Fleetwood Power (GE)	1,000	CCGT	No	Approved November 2000	No
Raventhorpe,	(now sold to a private consortium)	450	CCGT	No	Approved November 2000	No
Isle of Grain, Thames Estuary	Enron (in administration)	1,200	CCGT	No	Approved November 2000	No
Langage, South Devon	Wainstones (Carlton Power) Option acquired by Centrica	1,010	CCGT		Approved November 2000; going through due diligence	No Expected to start 2005
Marchwood, Hampshire	ESBI (Republic of Ireland Electricity Board)	800	CCGT	No	Approved November 2002	No Expected to start 2005
New Pembroke Power Station	RWE npower	2000	CCGT		Being processed	
Isle of Grain	E.On	2,400	Re-powering with CCGTs		Being processed	
Total CCGTs		11,670 MW				

SECRETARY OF STATE'S FIRST REPORT TO PARLIAMENT ON SECURITY OF GAS AND ELECTRICITY SUPPLY IN GREAT BRITAIN

Station	Owner	Size (MW)	Type	Distillate back-up	Status	Under Construction
CHPs						
St Regis Paper, South Wales	St Regis Paper	115	Gas CHP		Has energy policy clearance – application for development consent awaited	..
Corus, Port Talbot, South Wales	Sun Coke Company	130	Coke fired CHP		Being processed	..
Other CHPs	Various	447	Gas CHP		Approved since November 2000	Varies
West Thamesmead		140	Gas CHP		Being processed	..
Total CHPs		832 MW				

Station	Owner	Size (MW)	Type	Status	Under Construction
Integrated coal gasification combined cycles ICGCC					
Hatfield Colliery	Coalpower	430	ICGCC	Approved August 2003	No
Onllwyn, Port Talbot	Progressive Energy Ltd	480	ICGCC	Being Processed	..
Total ICGCCs		910 MW			
Dual-firing					
Indian Queens	AES		Dual oil/gas capability	Approved September 2001	No
Littlebrook	Innogy		Dual oil/gas capability	Approved August 2002	No
Renewables and energy from waste					
Peterborough	Peterborough Renewable	174	Energy from waste	Being processed	
Belvedere, London	Riverside Resources	70	Energy from waste	Awaiting decision	..
Little Cheyne Court, Walland Marsh, Kent	National Wind Power	78	Onshore windfarm	Awaiting decision	..
Scout Moor, nr Rochdale, Lancashire	United Utilities & Peel Holdings	65	Onshore windfarm	Approved May 2005	..
Whinash, Tebay, Cumbria	West Coast Energy	67	Onshore windfarm	At public inquiry	..

**SECRETARY OF STATE'S FIRST REPORT TO PARLIAMENT ON SECURITY OF GAS AND ELECTRICITY
SUPPLY IN GREAT BRITAIN**

Station	Owner	Size (MW)	Type	Status	Under Construction
Keadby North Lincolnshire	RES Ltd	78	Onshore Windfarm	To go to public enquiry	..
Tween Bridge, Thorne Lincolnshire	United Utilities	84	Onshore windfarm	To go to public enquiry	..
Fullbrook Down, North Devon	Devon Wind Ltd	66	Onshore windfarm	Being processed	..
Rhyl Flats, off Rhyl, North Wales	NWP Offshore (Innogy)	100	Offshore windfarm	Approved December 2002	No
Barrow, off Walney Island, Cumbria	DONG	108	Offshore windfarm	Approved March 2003	No
Kentish Flats, off Whitstable, Kent	GREP	129	Offshore windfarm	Approved July 2003	No
Burbo Bank, off Wirral/Crosby	Seascope Energy	90	Offshore windfarm	Approved July 2003	Yes
Inner Dowsing, off Skegness, Lincolnshire	OWP	120	Offshore windfarm	Transport and Works Act Order approved 21/10/03	..
Lynn, off Skegness, Lincolnshire	AMEC Offshore	108	Offshore windfarm	TWA Order approved 21/10/03	..
Cromer, off Cromer, Norfolk	Norfolk Offshore Wind Limited	108	Offshore windfarm	TWA Order approved 21/10/03	..
Gunfleet Sands, off Clacton, Essex	GE Wind Energy	108	Offshore windfarm	TWA Order approved 21/10/03	..
Shell Flat, off Cleveleys, Blackpool, Lancashire	Cirrus Energy	324	Offshore wind farm	Application for TWA Order being considered	..
Teesside, off Redcar	EDF (Northern Offshore) Ltd	90	Offshore windfarm	Being processed	..
London Array	E.On	1,000	Offshore windfarm	Being processed	..
Total Renewables and energy from waste		3,103 MW			

The table shows approvals from November 2000 (when the stricter consents policy was lifted) and state of play on applications for stations over 50 MW.

Key: .. indicates that the project has yet to reach the stage where construction can begin.

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