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1. Introduction

This progress report identifies the sequence of events that occurred at St Fergus and Bacton in Summer and Autumn 1998, sets out initial conclusions and outlines how Ofgas' detailed investigation is being taken forward. Ofgas expects to issue the final report in July 1999.

1.1 Background

In Summer and Autumn 1998 shippers wanted to flow more gas onto Transco's National Transmission System (NTS) via the entry point at St Fergus than there was physical capacity available. As a result Transco had to undertake major balancing actions, through the flexibility mechanism, to reduce gas inputs at St Fergus and to increase gas inputs at Bacton (to compensate for the St Fergus reductions) and thereby maintain overall supply/demand balance on its system. The events at St Fergus and Bacton coincided with a significant NTS Capacity Expansion and Maintenance Programme (CE&MP) by Transco.

1.2 Process to Date

Over the course of Summer and Autumn 1998, Ofgas wrote several letters to shippers in an attempt to stem the problem. Copies of these letters are included in Appendix 1. On 19 June 1998, Ofgas warned shippers that nominations that were likely to give a false impression could involve a breach of Standard Condition 2(3) of the Gas Shipper's Licence. A second letter on 4 September 1998 requested information from shippers of their day-ahead nominations whilst a letter from the Director General on the 11 September repeated this request and asked for each company to explain its nomination and flexibility bidding policy as a matter of urgency. In October 1998, Ofgas warned shippers that, following the implementation of modification 271, where nominations were greater than the scaled back capacity this would be considered by Ofgas as a breach of the shipper's licence.

In September 1998, Ofgas initiated an investigation to ascertain the causes of these events, the subsequent impact on system users and the actions of Transco and individual shippers. Ofgas requested information from shippers for a specific number of gas days, being the 18 June, 1 July, 6 September, 14 September and 8 October 1998. Ofgas is investigating the events and actions in the context of both Transco's network code and the licence conditions applicable to Transco and the shippers. This report is intended to provide an update of the status of this investigation.

1.3 Outline of Document

a) Background

Chapter 2 - sets out the regulatory framework of the onshore gas regime.

Chapter 3 - describes the gas transportation system (both off and onshore).

Chapter 4 - outlines the balancing regime and the operation of Transco's flexibility mechanism.

Chapter 5 – explains the capacity regime that was in place last summer, the current regime and considers changes proposed as part of the Reform of Gas Trading Arrangements (RGTA).

b) Investigation to Date

Chapter 6 - summarises events at St Fergus during 1998 by considering Transco's 1998 CE&MP and the capacity booking regime in place at that time which allowed overbooking when nominations increased dramatically leading to an increase in constrained system sells and balancing costs.

Chapter 7 - summarises events at Bacton where the system was short of gas and there were a number of constrained system buys to correct this deficit.

c) Initial Conclusions

Chapter 8 - sets out our initial conclusions. In particular, Ofgas has found that:

- Transco failed to complete its CE&MP by 1 October 1998 and this resulted in additional transportation constraints;

- constraints gave rise to significant balancing actions through the flexibility mechanism that considerably increased balancing costs of some £21.3 million at St Fergus and £2.2 million at Bacton with a significant increase on day-ahead and month-ahead prices, with average increases around 1p/therm; and

- the current regime for balancing gas inputs to and offtakes from Transco's system does not always encourage the level of input shipper nominations to relate to the level of available entry capacity. This requires balancing actions to take place to bring the level of gas deliveries into line with the limits of the system.

1.4 Next Steps

Chapter 9 – sets out in some detail the work that is going on as part of this investigation. Ofgas is investigating shippers' nomination performance by undertaking:

- analysis of differences between AT-Link nominations and offshore nominations;
- analysis of AT-Link nominations compared to capacity bookings;
- analysis of AT-Link nominations compared to shippers' contractual nominations rights;
- analysis of nominations post-modification 271 compared to scaled back capacity entitlements;
- analysis of AT-Link nominations compared to shippers' contractual pricing levels; and
- analysis of Bacton nominations and allocations.

Transco' s conduct and performance as a gas transporter is also under scrutiny. Ofgas is considering:

- why the various constraints occurred and whether or not Transco made prudent allowance for the risks involved; and
- those factors that gave rise to the expansion of capacity at St Fergus and the information available to Transco for expected flows from the newly commissioned Britannia field.

In October 1998, a number of modification proposals were raised that would have had the effect of reimbursing shippers that had booked St Fergus capacity from Transco but who were unable to use that capacity because of the constraints. Modification 287, *'Transco entry capacity liability at St Fergus'*, would allow for reimbursement for St Fergus shippers from 9 October 1998 (when modification 271 was implemented) until 14 January 1999 (when Transco no longer needed to apply the scaling factor at that terminal). Ofgas has consulted on the appropriate method of calculating this liability and is in final discussions with Transco. For the period before 9 October 1998, all shippers were affected by the cost of constraints at St Fergus and the question of reimbursement will be considered as part of the final report.

Ofgas believes that a fundamental review of the capacity and balancing regimes is required. This is currently being undertaken through the RGTA process and Ofgas has recently published its proposals and consultation document.[1]

Ofgas welcomes comments on issues raised in this document. Responses should be addressed to:

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It is open to respondents to mark all or part of their response as confidential. However, we would prefer that, as far as possible, responses were provided in a form that can be placed in Ofgas' library. If you have any queries on this document, Mr Stephen Smith on 0171 932 5927 or Mr Tahir Majid on 0171 932 1669 would be pleased to help.

[1] 'Reform of Gas Trading Arrangements – Proposals and Consultation', Ofgas, February 1999.

Part 1: Background

2. The Regulatory Framework

2.1 The Gas Act 1986

The Gas Act 1986 (as amended by the Gas Act 1995) provides for the regulation of the onshore gas regime and for the separate licensing of gas transportation, gas shipping and gas supply.

The general duties of the Director General of Gas Supply (DGGS) are set out in sections 4 and 4A of the Gas Act 1986 (as amended by the Gas Act 1995). The DGGS must exercise his functions in a manner he considers is best calculated to secure that all reasonable demands for gas are met, that licence holders are able to finance their activities, and that there is effective competition in the shipping and supply of gas.

Subject to these primary duties, the DGGS also has a duty to exercise his functions in the manner he considers is best calculated to protect the interests of consumers, to promote efficient use of gas and economy by licensees and to secure effective competition in the carrying on of activities which are ancillary to shipping and supply (including storage). In doing so, he has to take into account the effect on the environment of activities connected with the conveyance of gas through pipes. In addition he has certain duties related to safety.

The Gas Act provides for the licensing of Public Gas Transporters (PGTs), gas shippers and gas suppliers. A PGT has a duty, under the Gas Act, to develop and maintain an efficient and economical pipeline system for the conveyance of gas and, so far as is it is economical to do so, to comply with any reasonable request to connect to that system and convey gas by means of that system to any premises. A PGT has a further duty, under the Act, to avoid any undue preference or discrimination in the connection of premises to any pipeline system operated by it or in the terms on which it undertakes the conveyance of gas by means of such a system. The largest PGT is Transco, a part of BG plc.

Section 31 of the Gas Act requires the DGGS to investigate any matter which appears to him to be a matter which is within the scope of his enforcement powers and which is the subject of a representation made to him by a person appearing to have an interest in the matter. Under the Act and under the conditions of licences, the DGGS may require licence holders to furnish him with information.

2.2 Competition Legislation

The DGGS has concurrent powers with the Director General of Fair Trading under the Fair Trading Act 1973 and the Competition Act 1980. In relation to these concurrent powers, Ofgas works in conjunction with the Office of Fair Trading (OFT) under the terms of an agreement between the DGGS and the OFT. In exercising his functions under the competition legislation, the DGGS must act in accordance with his section 4 duties under the Gas Act. The new Competition Act 1998, which will confer additional concurrent powers on the DGGS takes effect in March 2000.

2.3 Public Gas Transporters' (PGTs) Licence

The PGT licence puts further obligations upon PGTs. These include the following:

Standard Condition 11(1) of the PGT licence requires a PGT to conduct its transportation business in the manner best calculated to ensure that neither the PGT or any person related to it, nor any gas shipper, obtains any unfair commercial advantage.

Standard Condition 13(2) sets out certain gas security standards to which the licensee shall plan and develop its pipeline system. This standard is such that the pipeline system can meet the peak aggregate daily demand which is only likely to be exceeded in 1 in 20 years.

PGTs are required to introduce a network code. This sets out the arrangements between a PGT and shippers for the use of, and connection to, that PGT's pipeline system. All network codes are required to meet the following relevant objectives as set out in Standard Condition 7 of the PGT licence:

(a) the efficient and economic operation by the licensee of its pipeline system;

(b) so far as is consistent with sub-paragraph (a), the efficient discharge of its obligation under this licence;

(c) so far as is consistent with sub-paragraphs (a) and (b), the securing of effective competition between relevant shippers and between relevant suppliers, and

(d) so far as is so consistent, the provision of reasonable economic incentives for relevant suppliers to secure that the domestic supply security standards are satisfied as respects the availability of gas to their domestic customers.

2.4 Transco's Network Code

Transco's network code was put in place in March 1996. The mechanism for modifying the network code is set out in Standard Condition 7 of Transco's PGT licence and in the network code modification rules. Under the modification rules, only shippers and Transco are able to propose modifications to the network code. Ofgas is not itself able to propose modifications, although implementation of all modifications requires the consent of the DGGS.

The DGGS may only direct that the network code should be modified if, in his opinion, the proposed modification will, as compared to the existing provisions of the network code or any alternative proposal, better facilitate the achievement of the relevant objectives. In making such a direction, the DGGS is bound by his duties under sections 4 and 4A of the Gas Act.

2.5 Transco's Operational Guidelines (OGs)

The operational guidelines (OGs) are a set of rules that govern how Transco takes balancing actions including the use of the flexibility mechanism. The operational guidelines are not part of the network code but are established by a separate obligation under Transco's PGT licence (Special Condition 17).

The OGs are intended to ensure that Transco takes balancing actions that are consistent with the efficient and economical operation of the system. Only Transco is allowed to propose modifications to the OGs and these require the consent of the DGGS.

Under the OGs, Transco makes its balancing decisions based on forecasts of the volumes of gas delivered to, and taken off the system, during the course of each gas day. Transco uses its own total system demand forecast, plus nominations made by very large demand sites such as power stations, to estimate offtakes.

Transco has two primary sources for its forecast of deliveries. These are estimates of hourly flow rates from terminal operators known as Daily Flow Notifications (DFNs), and nominations from shippers on AT-Link (the information system for the network code).

For the system to be physically in balance, inputs and offtakes must match to within a certain tolerance. The tolerance is determined by the range of linepack volume that can be safely stored on the system. In other words, system over- or under- deliveries can, to some extent, be accommodated by use of the storage space within the pipeline system.

Should Transco's forecasts indicate that linepack will be outside a determined range, or 'bandwidth', at the end of the gas day, a balancing action will be taken by buying or selling gas through the flexibility mechanism. The OGs specify a constant bandwidth of ± 3 mcm for this purpose.

Transco may depart from the OGs in a limited number of circumstances. These circumstances are:

- where complying with the hierarchies established in the OGs would prejudice the interests of safety;

- where there is insufficient time to comply with the relevant hierarchy and achieve balancing; and

- where the OGs have been shown to be inappropriate and guideline modification procedures have been agreed but not completed.

Transco must inform shippers when it has departed from the hierarchies.

2.6 Gas Shippers' Licence

The Gas Shipper's Licence includes the following conditions:

Condition 2(1) requires the licensee to act in a reasonable and prudent manner in making use of the PGT's pipeline for the conveyance of gas.

Condition 2(2) requires that the licensee shall not knowingly or recklessly pursue any course of conduct which is likely to prejudice:

(a) the safe and efficient operation, from day to day, by a relevant transporter of its pipeline system;

(b) the efficient balancing by that transporter of its system; or

(c) the due functioning of the arrangements provided for in its network code.

Condition 2(3) requires that the licensee shall not knowingly or recklessly act in a manner likely to give a false impression to a relevant transporter as to the amount of gas to be delivered by the licensee on a particular day to that transporter's pipeline system.

Condition 3 relates to the policies of dominant shippers in flexibility markets. Condition 3(2) requires that a dominant shipper must, if requested by the DGGS, supply him with a statement of its policies as respects its participation in the flexibility market. Where that statement no longer adequately or accurately describes the policies to which it relates, the licensee shall as soon as is reasonably practicable give the DGGS a statement of any change in those policies or of any new policies.

Condition 8 also places certain obligations on a licensee to provide information to a relevant transporter to enable the transporter to make plans for the safe operation of its pipeline system.

2.7 Regulation of the Offshore Regime

The Department of Trade and Industry (DTI) provides the regulatory framework for the offshore regime.

3. The Offshore and Onshore Gas Transportation System

3.1 The Offshore System

3.1.1 Field Types

Gas was first discovered in the UK southern North Sea in 1965. Since then gas has been discovered and developed throughout the North Sea and also in the Irish Sea. The offshore gas fields discovered fall into two broad types: dry gas fields and associated gas fields.

The key difference between the two major types of gas fields is that the dry gas fields have no associated liquids. These fields differ from the associated gas fields where liquids are produced concurrently with the gas. In these cases, the gas must either be sold or re-injected if liquids are to be sold. In the situations where no (or limited) gas re-injection is available, liquids production is dependent on gas sales. Consequently, there tends to be a commercial incentive in these cases for gas sales to be maintained at capacity throughout the year.

Typically, associated gas fields are located in the northern and central North Sea whereas dry gas fields are located in the southern North Sea and the Irish Sea. Significant associated gas production is landed at St Fergus whilst Bacton production is dominated currently by dry gas fields.

3.1.2 Tax Regime

The offshore fields, pipelines and sub-terminals are subject to a separate fiscal regime from that applicable to standard corporate entities in the UK. The government uses three basic methods to raise tax revenues from the offshore industry. These are Royalty, Petroleum Revenue Tax (PRT) and Corporation Tax.

Royalty and PRT have been phased out for new fields over the years: Royalty was abolished in 1982 and PRT was abolished in 1993. Hence Corporation Tax is now the only method of raising revenue for new fields. A detailed analysis of the offshore tax regime is outside the remit of this report. Nevertheless, the tax regime can influence the production profiles of fields as the owners seek to maximise the tax allowances available.

3.1.3 Pipeline Infrastructure

To bring gas to the UK market a significant level of investment has been required both in offshore production facilities and in an offshore transportation system. In general, when each

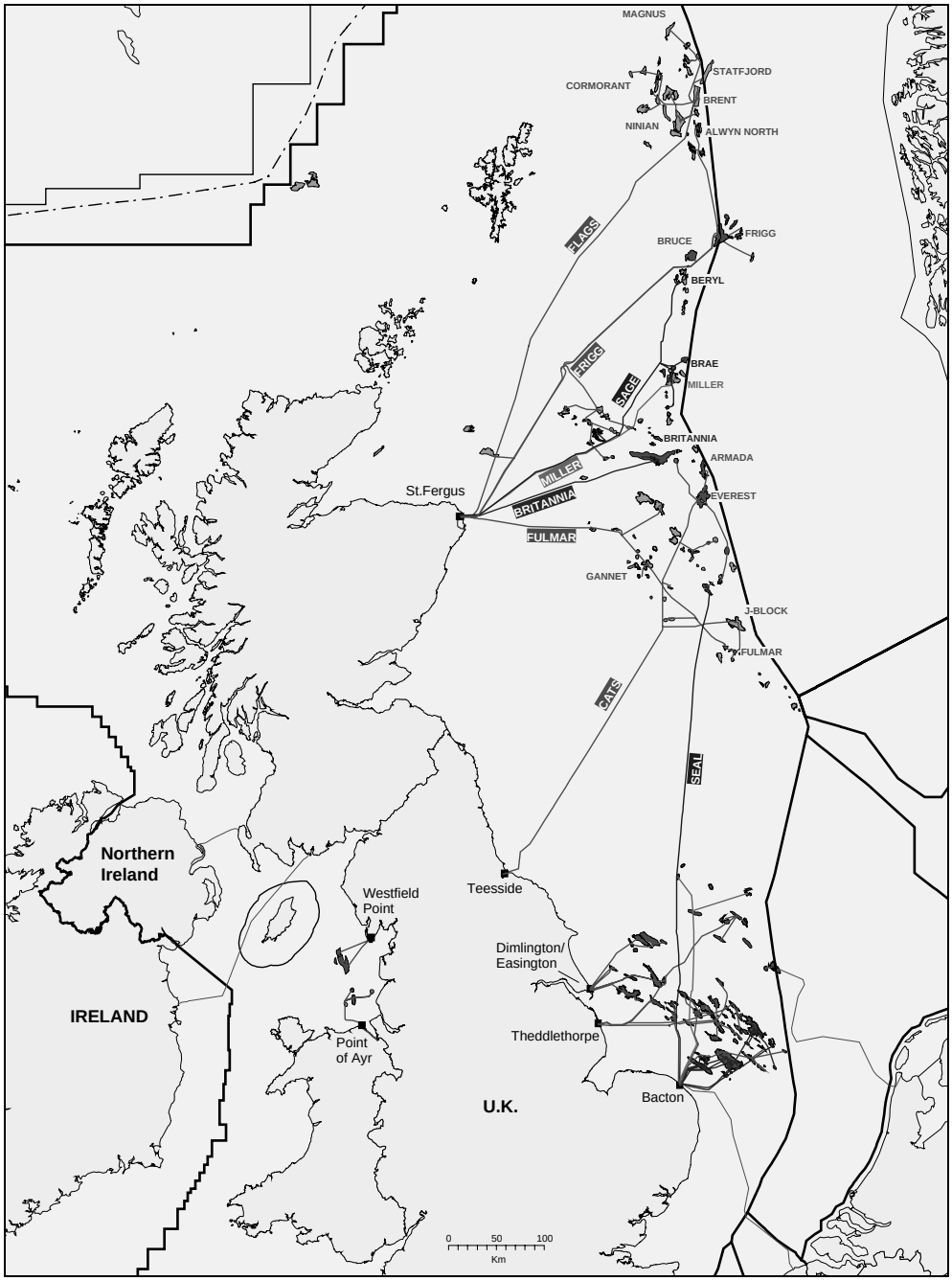
new pipeline has been built, it has been built specifically to allow a particular field (or in some cases a group of fields) to be developed. Thereafter, new fields may also use the pipeline on a third party basis.

A significant feature of the offshore pipeline system that has developed is that each field is only connected to a single pipeline and each pipeline system only delivers gas to a single receiving terminal (often referred to as sub-terminals). In some cases, a number of sub-terminals are grouped together to feed gas into Transco terminals at the entry points to the NTS, which allows some switching of gas between these sub-terminals. However, there is no ability physically to switch gas between Transco terminals at the current time. In the context of this report this means that gas could not be physically diverted on a short-term basis via offshore pipelines from St Fergus to other terminals in the event of a constraint.

This reflects the historical position. However, in the future, offshore links could be built reflecting onshore pricing signals, which may then make it possible to divert gas between different Transco terminals. For example, these links could be used to re-direct supplies in the event of changes in the relative prices of entry capacity at different terminals.

Over the years an extensive offshore pipeline infrastructure has developed with the latest addition being the new pipeline from the Britannia field to St Fergus. In figure 3.1 we have highlighted the key elements of the offshore gas system.

Figure 3.1 - UK Offshore Gas Pipeline Infrastructure

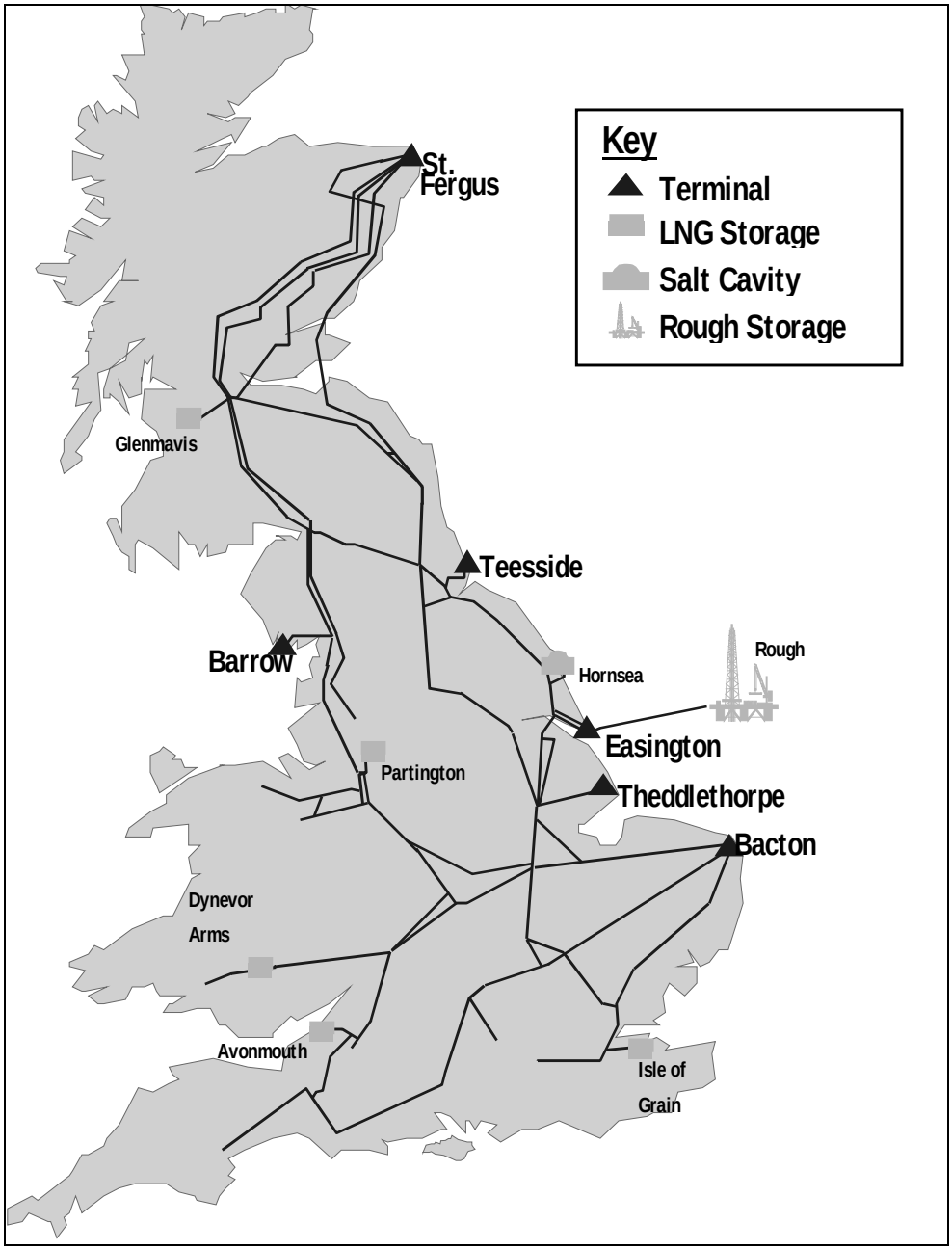


Source: Wood Mackenzie.

3.2 Transco's National Transmission System (NTS)

In contrast to the relatively rigid nature of the offshore system in the short term arising from the pipeline infrastructure as described above, there are often several routes to move gas within the onshore system. Hence there is an inherently greater level of flexibility built into the onshore system than the offshore system. In figure 3.2 we have illustrated the NTS system along with the position of BG Storage's facilities.

Figure 3.2 - Transco's NTS System and BG Storage Facilities



Source: BG Storage

3.3 Transco's Annual Planning Process

As outlined earlier in chapter 2, Transco has an obligation under the PGT licence to plan the system to transport a 1 in 20 peak day demand. To ensure the capacity is built to meet this requirement Transco follows an annual planning process, which leads to the identification of investments required.

On an aggregate basis Transco aims to build sufficient entry capacity across the terminals to allow enough gas to enter the system to meet a 1 in 20 peak day. This may lead to levels of offshore deliverability which are in excess of the entry capacity at a particular terminal. There is no obligation on Transco to guarantee system entry capacity over and above that required to meet a 1 in 20 peak day system demand.

Each year Transco publishes its Base Plan Assumptions document. This presents Transco's supply and demand forecasts. Following the publication of this document a consultation process involving shippers and producers is undertaken to gather views on Transco's forecasts.

Shippers are obliged under the shipper licence (implemented through the network code) to provide supply information related to gas supply availability by system entry point for the next three years. In contrast, producers are not obliged to provide information, but are nevertheless, active in this process and in practice many provide it.

The outcomes from the Base Plan Assumption consultation process are set out in Transco's Ten Year Statement published each Autumn.

Transco's Ten Year Statement highlights the required NTS investments. In figure 3.3 we have set out Transco's major reinforcement projects for 1998/1999. Although there is continuing gas demand growth in the UK which, in itself, necessitates continued expansion of the grid, the fundamental driver behind the 1998/99 NTS developments of the grid was to adapt the system to meet increased demands for gas in the south (including the Bacton interconnector) while new gas supplies were being delivered in the north. Moreover, the seasonal profile of gas deliveries in the north is less pronounced than at most other terminals due to the prevalence of associated gas fields. A table detailing the specific 1998 projects is provided in Appendix 2.

Figure 3.3 - Committed NTS Projects (1998)

Source: BG Transco – 1998 Ten Year Statement.

3.4 The Interface Between the Offshore and Onshore Regimes

As noted earlier, the Gas Act 1986 (as amended by the Gas Act 1995) provides for the regulation of the onshore gas regime and for the separate licensing of gas transportation, gas shipping and gas supply. This unbundling has led to a split in responsibilities. In particular, the responsibility for building and running the main pipeline system falls to Transco and the responsibility for the control of gas inputs and outputs from the system fall to shippers.

3.4.1 Claims Validation

A further role has evolved and that is the need for a party to reconcile the gas flows at the onshore/offshore interface. This is now carried out by a Claims Validation Agent (CVA) at each terminal. The CVA's main role is to match the claims of producers to the claims of shippers.

3.4.2 Information Flows

The availability and quality of information within the system is important, in particular, with respect to the information available to Transco to balance its pipeline system and for shippers to balance their inputs and outputs to Transco's system. These information flows are highlighted in figure 3.4.

The extent to which the extended chain within the upstream business leads to information flows which do not reflect the needs of the onshore balancing regime, especially with respect to the information required by Transco for balancing decisions, is of concern to Ofgas.

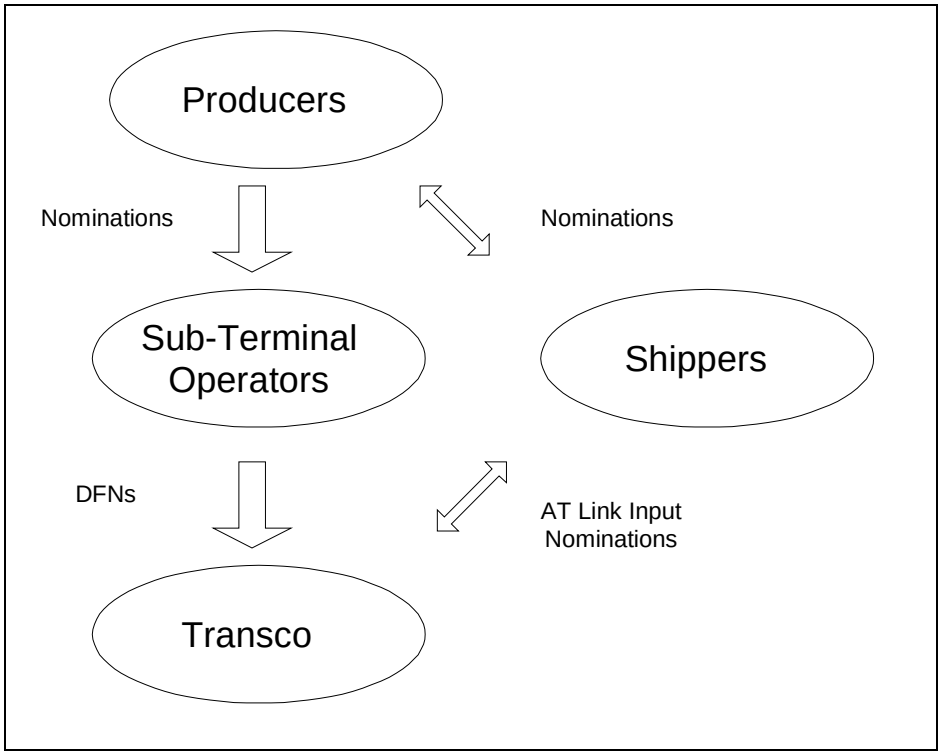
- ***Producers***

Based on the contracts that producers have with purchasers, the producers (field owners) make their nominations, which are aggregated by the operator of the field. The aggregate nomination is passed to the sub-terminal operators. (In figure 3.4, the operator of the pipeline and the sub-terminal are assumed to be the same.)

- ***Sub-Terminal Operators***

Before the gas day, the operators of the sub-terminals estimate the hourly flow rates from the sub-terminal to the Transco grid in the form of Daily Flow Nominations (DFNs). The DFNs are based on the field owner nominations. DFNs are updated throughout the gas day.

Figure 3.4 - Summary of Information Flows (Inputs Only)



- ***Shippers***

The shipper's relationship with the producers depends on the nature of the contracts between them. There are buyer and seller nominated contracts. In the case of a buyer nominated contract the gas purchaser nominates the gas it requires for delivery. In the case of a seller nominated contract the producer nominates the amount of gas for delivery and hence has more control over the gas production. Regardless of how the offshore nomination between the shipper and producer is derived, the shipper then makes a nomination to Transco via the AT-Link system (part of the information system that links Transco and the shippers).

- ***Transco***

Before the gas day Transco receives input nominations from two sources. These are the DFNs from sub-terminals and nominations from shippers on AT-Link. Both sources are updated throughout the gas day.

4. System Balancing in Transco's System

4.1 Daily Balancing and Cash-Out

Within the framework of its network code, Transco is responsible for maintaining an overall physical system balance. Individually, however, each shipper is responsible for controlling how much gas it inputs into the pipeline system to meet the needs of its customers' offtakes. These inputs and offtakes are accounted for on a daily basis. Any difference ('imbalance') between a shipper's daily input and offtake is bought or sold by Transco through a system known as 'cash-out'.

If there is a net difference between aggregate shipper inputs and offtakes from the system as a whole, it may be necessary for Transco to take action to maintain a physical balance. At present, Transco's primary balancing tool is the flexibility mechanism, a screen-based system on which shippers can place bids and offers to buy or sell gas from or to Transco. Transco takes balancing actions either to remedy an overall supply/demand imbalance or to resolve a locational constraint on its transmission system. In broad terms, only the prices generated by the first type of action (the correction of an overall supply/demand imbalance) are used for the calculation of shippers' imbalance charges.

Any net difference (positive or negative) in Transco's daily balancing revenues and costs, from both the cash-out process and the flexibility mechanism, is charged or rebated to the shippers in proportion to their throughput. This includes the costs of balancing actions to overcome a local transmission constraint. This charge is known as the neutrality charge.

Transco does not have a commercial incentive to minimise balancing costs, but passes the balancing costs it incurs through to shippers in cash-out charges or neutrality charges.

4.2 The Flexibility Mechanism

The flexibility mechanism allows shippers to place bids, either to provide gas to the system (a 'System Buy' bid) or to take gas off the system (a 'System Sell' bid). Bids are specific to a certain gas day, and may be placed or withdrawn at any time. If Transco takes a balancing action it will accept bids in price order (lowest price bids for a System Buy and highest price bids for a System Sell) up to the required volume. If a shipper has a bid accepted it will receive, or pay, the bid price for the gas.

Transco takes balancing actions in line with its OGs as described in chapter 2.

As well as price and volume, bids must specify the entry or exit point at which they will be delivered, the flow rate and a lead time. Sources for flexibility bids include deliveries at terminals, storage facilities and interruption of customers. Delivery of the bids is expected to commence within the specified lead time, and to be completed by the end of the gas day.

The prices of bids accepted through the flexibility mechanism are used to calculate cash-out prices for shippers' imbalances. On days when no balancing action is taken, all individual shipper imbalances are 'cashed out' at the System Average Price (SAP), being the volume-weighted average of gas bought or sold through the flexibility mechanism for each of the seven preceding days. If a System Buy action has been taken, then a shipper which has under-delivered will pay a higher price, the System Marginal Buy (SMP Buy) price for any part of its imbalance outside its tolerance level. Similarly, if a System Sell action has been taken, a shipper which has over-delivered will be paid the lower System Marginal Sell (SMP Sell) price for any imbalance outside of its tolerance. A shipper will pay SAP for any imbalance within its tolerance.

4.3 Nominations and Scheduling

Before the gas day, each shipper is required to inform Transco how much gas it will input to the pipeline system, and how much its customers will offtake. These 'nominations' are made electronically via AT-Link. Prior to the day, there is no requirement that inputs and offtakes should match. Nor is there a requirement in the network code for nominations to be in line with booked capacity.

Renominations can be made throughout the course of the gas day although the net difference between input and offtake nominations cannot be changed.[2] If actual inputs or offtakes differ from final nominations, a shipper may have to pay a 'scheduling' charge. This charge is typically small compared to imbalance charges. Where allocations exceed booked capacity the shipper will incur a capacity overrun charge.

[2] Since 15 March 1999, Modification 305 *'Removal of requirement to match input and output renominations for a trial period'* has allowed for a 30 day trial of the relaxation of this requirement.

4.4 Locational Constraints

As noted above, the flexibility mechanism can be used to help balance the system in the event of a constraint on Transco's transmission network. These constraints are alleviated by locational actions. A locational action can be required to alleviate either an excess or shortage of gas in specific locations. These locational actions can cause a system-wide imbalance requiring consequential actions elsewhere on the system.

4.4.1 Excess of Gas

Under Transco's network code, a constraint at an entry terminal can occur when shippers nominate to flow a volume of gas, which in aggregate exceeds the physical capacity of the pipeline system at that location. When such a situation arises Transco takes steps, as outlined in the OGs, to reduce nominated flows down to a level that can be physically delivered.

It is possible for nominated flows to exceed available capacity for two main reasons. First, there is currently no limit to the aggregate volume of entry capacity that shippers can book. Thus total booked capacity on any day may not match that physically available. This is discussed further in chapter 5. Further, under the network code shippers are able to nominate flows in excess of their booked capacity with no financial exposure. However, where the volume of gas finally allocated to the shipper for that gas day exceeds booked capacity, the shipper will incur a capacity overrun charge.

4.4.2 Shortage of Gas

A shortage of gas occurs for a number of reasons, one of which is that there is insufficient gas available in a region of the system compared to forecast demand in that region. If there is a shortage of gas on a national basis, additional gas would be bought via the flexibility mechanism from any terminal on the basis of the most competitive bid. However, in the case of a localised shortage of gas there is normally a transportation constraint at some point in the system that precludes the gas from being sourced at other terminals.

4.4.3 Procedures for Alleviating Constraints

At the day-ahead stage (D-1), Transco assesses the available physical capacity for the following day at each terminal, based on demand forecasts, system specifications, and anticipated flows at entry points. Initially, this assessment is based on the nominations of gas flows made by shippers to Transco.

Excess of Gas

At 16:00 D-1, if nominated flows exceed available capacity, Transco informs shippers of a constraint, and requests downward renominations on flows at that entry point. There is no obligation on shippers to respond to this request. By midnight, Transco receives information from terminal operators on aggregate flows (DFNs) anticipated for the following gas day. If, based on this information, forecast flows are still in excess of available capacity, Transco sells gas through the flexibility mechanism at the terminal to alleviate the constraint.[3] This is known as a constrained sell.

Within day, Transco monitors pressure at the constrained terminal. If this pressure exceeds a defined trigger level, Transco informs the terminal operator that flows need to be curtailed by issuing a Transportation Flow Advice (TFA). Where there is a resulting loss of end of day volume due to the TFA, Transco again sells gas at the constrained terminal through the flexibility mechanism.

Shortage of Gas

Before the gas day Transco determines the key NTS pressures which are to be maintained during the gas day. During the gas day Transco maintains the projection of the key NTS pressures based on programmed NTS input and forecast outputs. If required, Transco employs compression and also varies NTS offtake rates for limited periods to support NTS pressures. However, if key NTS pressures are projected to fall below pressure requirements due to a localised shortage of gas, Transco will use balancing measures. The first balancing measure used would be to buy gas though the flexibility mechanism at a specific location. This is referred to as a local buy action.

4.4.4 Cost Recovery

As noted earlier, revenues and costs are generated through acceptance of bids on the flexibility mechanism and the cash-out process. Any net difference is recovered or returned to shippers as a neutrality credit or charge.

Excess of Gas

When an entry constraint occurs, Transco will sell gas at the constrained terminal and buy gas at other locations.

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[3] Modification 271, *'Interim Revised Capacity Entitlement Arrangements at St Fergus'*, implemented on 9 October 1998 introduced an alternative method of alleviating the capacity constraint.

When the network code was formulated, it was considered inappropriate to allow actions to relieve constraints to affect cash-out because cash-out provides a commercial incentive for shippers to balance and this would have distorted its calculation and purpose. Thus, sales of gas to relieve the constraint do not affect the setting of cash-out (SAP, SMP buy or SMP sell). The cost of these sells can be approximated as the difference between SAP and the price of the constrained sells. These costs are recovered from all shippers through neutrality.

However, it is difficult to separate the buy actions as a consequence of the constraint from buy actions as a result of supply/demand mis-matches. The network code does not exclude these actions from the setting of cash-out.[4] Any buys at other locations as a consequence of the supply shortfall caused by the constraint sell do affect the setting of cash-out and hence these costs are directly recovered from out of balance shippers.

Shortage of Gas

A locational shortage of gas is not defined in the network code as a constraint. Instead it is referred to as a 'local buy action'. As noted above, these local buy actions and any consequential sells do affect cash-out and hence these constraint costs are inappropriately recovered from out of balance shippers rather than from all shippers through neutrality. This anomaly would be removed by the introduction of the term 'constrained buy' in the network code for any location specific buy.

4.5 Commercial Impact of Balancing Actions

4.5.1 For Shippers

When Transco takes a balancing action, it is taken to ensure the safe and efficient operation of the system. As a result, under the current regime, Transco remains revenue neutral. If Transco incurs a deficit or a surplus then this is shared across all shippers as a neutrality charge. Hence a shipper will receive a debit or credit in proportion to its system throughput.

However, shippers will also be paid for gas that they have sold to the system (and pay for gas they have bought from the system). If a shipper has received more money (say from bids accepted on the flexibility mechanism), than any imbalance charges or neutrality charges, then it will have made a financial gain from the system. In contrast, if the shipper receives less

[4] Modifications 265a and 277 introduced a change to the network code that removed buy actions made within 2 hours from the calculation of SAP and SMP.

money from the flexibility mechanism than its imbalance charges and neutrality charges, it will make a financial loss.

Consequently, depending on the circumstances of the shipper there could be a significant commercial benefit resulting from the balancing actions taken by Transco. Although these benefits could well be within the legal framework of the network code it may be that specific actions taken to induce these financial gains breach Conditions 2(2) and/or 2(3) of the Gas Shipper's Licence.

4.5.2 For Customers

An impact of balancing actions on customers could occur in one of two ways. First, any increased costs to shippers through imbalance and neutrality charges could be passed through to the customers in the form of higher end user gas prices.

Second, the increased prices seen in the flexibility mechanism as a result of the balancing actions can affect the forward spot price and hence can also impact on contract prices for customers. A spot price rise of 1 p/therm, if sustained for a year, could add around £250 million to customer bills.

5. Transco's Capacity Booking Regime

This chapter outlines the procedures for the booking of capacity through Transco's system. It differentiates between the regime in place in Summer 1998 and the present regime which reflects subsequent modifications to the network code. It also summarises further potential changes, which are the subject of a recent Ofgas consultation document.

The process for booking capacity is set out in Transco's network code. In the network code, transportation capacity is booked by shippers or assigned by Transco in three places:

- at entry to the NTS (entry capacity);
- at the NTS offtakes (exit capacity); and
- within the LDZ (LDZ capacity).

A shipper is responsible for obtaining its total NTS entry capacity and also exit capacity for directly connected NTS loads. Transco allocates all other exit capacity. There is no limit to the amount of capacity that can be booked through Transco by shippers. Total bookings can exceed physical capacity and are booked for a twelve month period. Hence, a shipper does not have firm rights to its booked capacity in the event that physical capacity on the day is less than the total capacity booked, even if they have booked and paid for a certain amount of capacity.

Capacity can also be obtained from other shippers in a secondary market through AT-Link. Capacity can be unbundled through the secondary market and can therefore be bought and sold for time periods of less than one year. The secondary market is a relatively illiquid, over-the-counter (OTC) market, with holders of unused booked capacity not always seeking to trade it, or seeking at times to trade it at prohibitively high prices. There is also some concern that the limited number of counter parties at some terminals has an adverse effect on market prices for capacity.

There is no restriction on a shipper nominating or flowing gas above its booked entry capacity, although a shipper would be subject to an overrun charge if its gas allocation exceeded its booked capacity. If shipper nominations at a certain entry or exit point require a level of capacity which exceeds the amount of capacity available, Transco may take action on the

flexibility mechanism to curtail flows in the vicinity of the constraint and possibly to increase flows elsewhere to compensate. However, it is possible that these shippers had not really intended to flow that amount of gas, and were just nominating in excess of booked capacity to force a 'virtual' constraint at a terminal.

5.1 The Regime in Summer 1998

5.1.1 Capacity Booking

During the summer of 1998, the capacity booking regime allowed shippers to book as much capacity as they wanted, although there was a requirement to buy annual tranches of capacity. This meant that a shipper that wanted to flow gas for only two days had to book and pay for a whole year's worth of entry capacity.

5.1.2 Annual bookings and overrun charges

However, there was an incentive for shippers not to overbook capacity significantly above projected requirements as Transco levied charges irrespective of whether the capacity was used. There was also an incentive not to underbook capacity (versus final gas flows) in that where a shipper flowed gas in excess of booked capacity, it was liable for the capacity overrun charge. During the summer 1998, capacity overrun charges were significantly higher than flexibility overrun charges and this meant that it was more expensive for a shipper to flow gas in excess of their booked capacity than to offer that gas onto the flexibility mechanism. The capacity overrun charge was set at a summer rate of 73 times the daily rate and a winter rate of 183 times the daily rate, whilst the flexibility overrun charge varied by month[5] with the highest charge being 30 times the daily rate. In addition, any shipper that flowed gas in excess of booked capacity would, under the ratchet, see their annual bookings of capacity increase to the new higher level.

5.2 The Present Regime

5.2.1 Capacity Bookings

The capacity booking regime is, in many respects, unchanged since last summer. The primary method for obtaining entry capacity is by booking capacity through Transco for a twelve month period. Network code modification 273 (implemented on 17 November 1998) introduced day-

[5] December to March was 30, October, November, April May was 5, June to September was 2.

ahead auctions at terminals which allows unsold or unused physically available capacity to be made available to shippers by Transco, under the following services:

'Daily' Capacity Service

The daily capacity service is for physically available but unbooked entry capacity. The buyers of this daily capacity have the same rights as holders of annual entry capacity. The floor price for such capacity is four times the applicable entry point's daily rate. (The daily rate is simply the annual rate divided by 365.) This service removed the problem that gas available above forecast rates did not come onto the market, because of the expense of obtaining capacity for such periods (ie. having to pay for a year's worth of capacity when only wanting to flow gas on one day).

'Secondary' Capacity Service

The secondary capacity service deals in that capacity which has been booked by a shipper but which is not being used, ie. a shipper has not nominated to flow gas up to their booked capacity. This has led to the service being referred to as the 'use-it-or-lose-it' service. Should, however, the original holder's level of re-nominations mean that access to the capacity is required, it could be withdrawn from any secondary purchaser. There is no floor price for this service, which prevents hoarding of capacity at a system entry point.

5.2.2 Annual Bookings and Overrun Charges

Unused capacity must still be paid for regardless of whether or not it is being used. However the day-ahead auctions give shippers an incentive to sell unused capacity to other shippers in a secondary market, since under modification 273, when Transco sells the secondary service it receives the revenues. Network code modifications 244 and 247 aligned the capacity overrun and flexibility overrun multipliers to a number of 8 (implemented 1 October 1998). This removed the price differential that made it more expensive for a shipper to enter gas into the system (above its capacity holding) or to sell at the NBP, than it was for that shipper to offer that gas to the flexibility mechanism.

5.2.3 Changes to the Calculation of SAP

Through the summer of 1998, there was some concern that the cost of constraints at St Fergus was contributing to an increase in SAP and that this increase was reflected in the spot and

forward prices of gas. Network code modifications 265a[6] and 277[7] were implemented, in an attempt to correct this. Buys occurring within 2 hours following constraint sells are excluded from the SAP and SMP calculations, since buys within 2 hours are assumed to be a consequence of the constrained sell. These modifications better separate the costs of relieving constraints versus relieving a supply/demand imbalance and remove the inappropriate targeting of constraint costs to out of balance shippers.

5.2.4 Scaling Back

There was considerably concern about the ability of shippers to force a 'virtual' constraint irrespective of the capacity physically available, or the quantity of capacity booked. Network code modification 271 was implemented on 9 October 1998,[8] which allowed Transco to scale back bookings so that the booked capacity was equal to the amount of gas that could be physically evacuated from St Fergus. For St Fergus, this provided an alternative to the flexibility mechanism, which was previously the only way to deal with excess demand for entry capacity at that terminal.

Network code modification 307 would extend the scope of modifications 265a, 271 and 277 to all terminals where the day-ahead demand for capacity exceeds the available physical capacity. Ofgas is awaiting the final modification report on this proposal.

5.3 Reform of Gas Trading Arrangements

Whilst the modification process has been effective in addressing specific issues, the piecemeal nature of changes has meant that some of the more fundamental flaws associated with the network code have not been adequately tackled. In essence, Ofgas believes that the allocation of capacity and the balancing of the system could be conducted in a more efficient and economic manner. The present system results in unnecessary costs for gas customers.

5.3.1 Capacity Bookings

Through the series of meetings known as BC99 (Balancing and Capacity 1999), a number of key requirements for the capacity regime were identified. These include:

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[6] *'Short term measures to alleviate contraint issues'*, implemented 30 September 1998.
[7] *'Exclusion of constraint buy backs from SMP buy calculation'*, implemented 21 November 1998.
[8] This modification was implemented for 28 days; it was since extended by modification 288 until 25 December 1998 and modification 308 until 30 September 1999.

- defined service (certainty of availability);

- facilitate competition:

  - stable prices;
  - prevent abuse of market power;
  - low cost for administration; and
  - transparent pricing;

- maximise system usage;

- long term investment signals.

The present regime allows for overselling of capacity rights and Ofgas believes that capacity should instead be sold (preferably by auction) according to a Seasonal Normal Demand (SND) profile, and that Transco should be required to buy back capacity rights where the capacity is subsequently unavailable. This would ensure the provision of a single 'firm' service, which would facilitate the development of efficient secondary markets.

Transco is in the process of drafting a modification proposal that would allow it to scale back booked capacity to mirror the SND profile published in its Ten Year Statement and so avoid potential constraints at St Fergus and other terminals this coming summer.

5.3.2 Annual Bookings and Overrun Charges

Transco has expressed some concern that capacity could be sold via an auction. It advocates a fixed-price volume sale of capacity, particularly for the first year of the new regime. Ofgas believes that there should be an annual auction of capacity although the allocation of capacity could allow annual, quarterly or monthly blocks to be offered. Initially, longer term blocks are unlikely to be offered although, after the price control in 2002, it seems likely that much longer tranches of capacity will be available.

Where the terminal is unconstrained, it has been suggested that shippers pay a 'low-cost overrun' since they are effectively making use of additional capacity that has not otherwise been offered for sale. On the contrary, when a shipper exceeds its capacity booking at a constrained terminal, it has been suggested that shippers should pay a 'penal' overrun charge

(equal to the value of the energy of the gas flowed) which removes the incentive to flow gas without having booked capacity. This penal overrun charge would compensate shippers that had booked capacity but were unable to flow gas through the entry point.

5.3.3 Changes to the Balancing Regime

A number of key requirements for the balancing regime were also identified through the BC99 meetings. These include:

- more accurate cost targeting;
- information flows to support efficient balancing for Transco and shippers;
- cash-out prices reflective of underlying market prices;
- development of a liquid and transparent on-the-day commodity market; and
- protection against abuses of dominant position.

Ofgas is consulting on the form that cash-out prices should take in the new regime. Ofgas has suggested that shippers who provide more accurate within-day information that shows they have not contributed to system costs should be immune to shared costs; this would reward the provision of such information.

Ofgas and Transco are in the midst of a tender process that will allow for the appointment of an independent market operator to run an on-the-day commodity market (OCM) from 1 October 1999.

5.3.4 Incentives for Transco

Again, a number of requirements were identified as part of the BC99 process. These include:

- encourage changes in behaviour that will lead to more efficient balancing and investment decisions;
- provide performance objectives that reflect the extent to which Transco has control over the factors that influence costs;

- be simple; and

- be easy to monitor.

Ofgas is presently consulting on the form that such incentives for gas balancing and capacity should take.

5.4 Summer Constraints 1999

Transco has expressed concern that there is potential for constraints at St Fergus and other terminals during the forthcoming summer, although the CE&MP planned for this year is not as extensive as last year. Transco recently convened a meeting (23 February 1999) to explain its summer maintenance programme for 1999. Transco proposes to release a modification that is intended to pre-empt any constraints problems at St Fergus and other terminals by scaling back capacity. This will allow for full representation by interested parties followed by an Ofgas decision on this and any alternative modification proposals. Transco has also pledged to keep shippers better informed of its CE&MP over the summer through the Shipper Information System (SIS).

Part 2: Ofgas' Investigation to Date

6. Events at St Fergus During 1998

This chapter outlines the series of events through the second half of 1998 at St Fergus. In addition we highlight the impact these events have had on system users as well as the secondary impacts of the events at St Fergus.

6.1 Transco's 1998 Capacity Expansion and Maintenance Programme

During 1998 Transco embarked on a significant NTS Capacity Expansion & Maintenance Programme (CE&MP). This involved new pipelines, uprating of pipelines in the north and additional compressors or modifications to existing compressors. A number of these projects affected the entry capacity available at St Fergus, including:

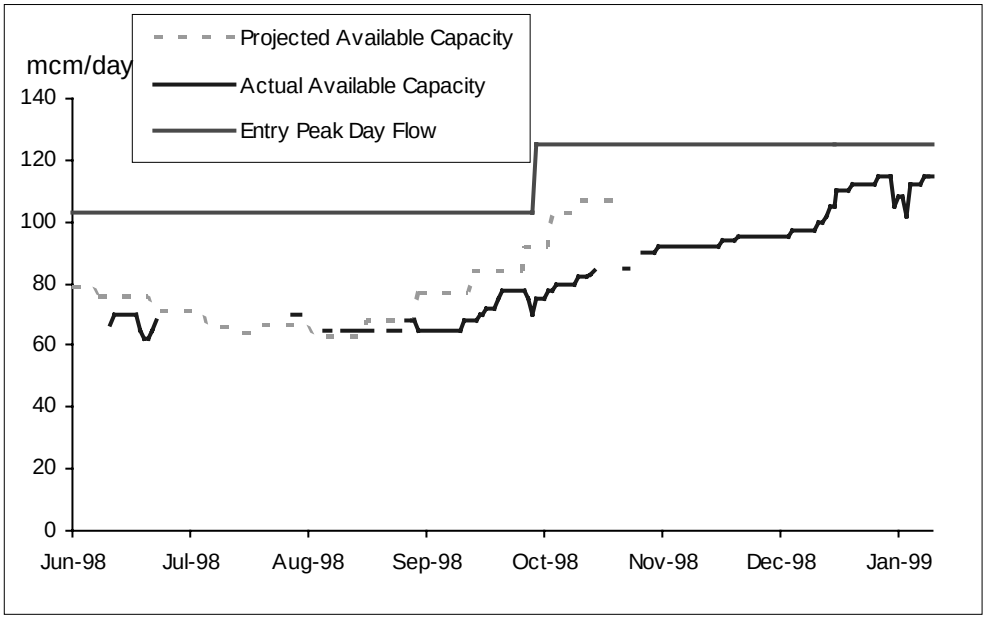
- the construction of a new compressor station at Aberdeen;
- the decommissioning and replacement of two compressors at Bishop Auckland;
- the construction of a new compressor station at Wooler; and
- the uprating of NTS feeders 10,11,12 and 13 from 70 to 75 bar.

6.2 St Fergus Capacity Constraint

One of the objectives of Transco's CE&MP was to increase the declared Entry Peak Day Flow for St Fergus from some 103 million cubic metres (mcm) per day in the 1997/98 gas year to some 125 mcm for the 1998/99 gas year (the 12 months commencing on 1 October 1998). Transco's 1997/98 construction programme amounted in total to an investment of some £350 million.

While this work was underway it led to a reduction in available capacity at St Fergus. Transco notified the industry of its projections of anticipated capacity at St Fergus via its Shipper Information Service (SIS) in June 1998. However, partly as a result of poor weather, progress fell behind schedule with the CE&MP and the actual level of available capacity through the summer and autumn was less than that projected in June 1998. The capacity profiles are shown in figure 6.1.

Figure 6.1 - St Fergus 1998 Entry Capacity*



* Transco provided no Projected Capacity figures beyond the middle of October 1998. Actual capacity figures not available for those days where no constrained sells took place.

The difference between the projected capacity that would have been available and the actual capacity available peaked in early October at some 25 mcm/day. Later in this chapter we describe the relationship between the above capacity profiles and the amount of gas that shippers wanted to flow.

6.2.1 Peak Capacity versus Available Capacity

The available entry capacity is often less than the potential peak day flow (regardless of any ongoing maintenance), particularly at off peak times. As explained in chapter 5, this is because Transco sells entry capacity for a 1 in 20 peak day whilst the ability of the terminal to accommodate gas is dependent on a number of factors (including temperature, which affects the demand for gas, and flows of gas at other terminals).

In the case of complex pipeline systems (such as Transco's) the distribution of supply and demand within the system will influence individual terminal input capacities. For example, it is more difficult to accept high flows at St Fergus under conditions where there are also high input flows at other northern terminals and the demand is low in the north. These variations have typically been seasonal, with lower demands in summer leading to lower input capacities at the terminals.

Moreover, the maximum supply availability at St Fergus, for which entry capacity has been provided, exceeds the minimum demand for the system as a whole in mid summer so that, in theory, shippers could nominate to supply the entire market from St Fergus. However, the ability of the system to accommodate gas flows at St Fergus is reduced in mid summer. Hence, although the reduced capacity at St Fergus, resulting from the CE&MP programme in summer 1998 acted as a trigger for the subsequent problems, there is the potential for these types of problems to occur under normal operating conditions.

For the summer of 1999 the entry capacity regime is likely to be governed by a short term modification while from 1 October 1999 the RGTA will provide a new framework, as outlined briefly in the previous chapter.

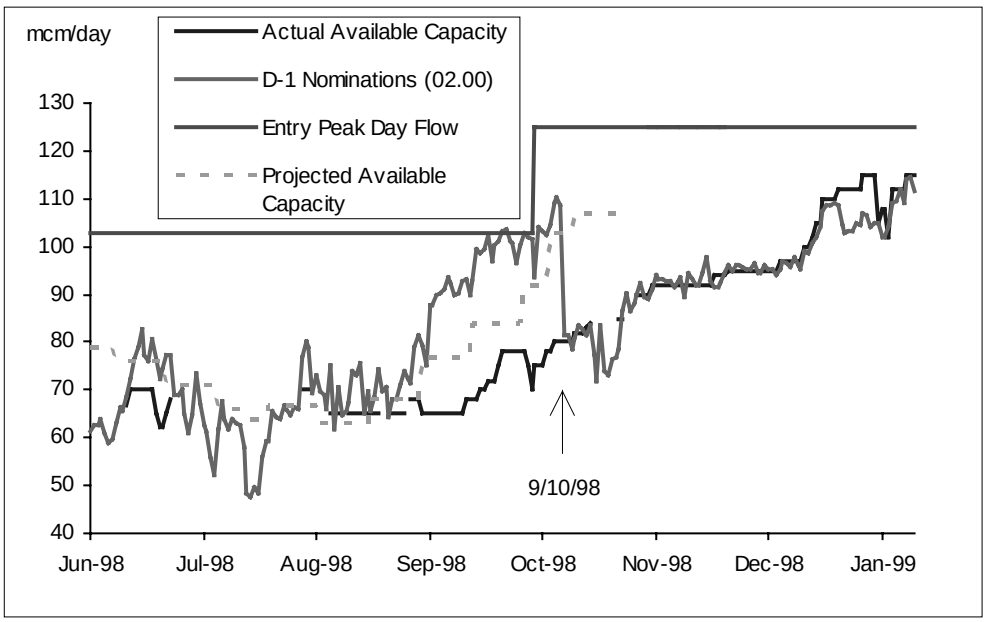
6.3 Level of Nominations

As explained above, before the gas day, each shipper is required to inform Transco how much gas it will input to the pipeline system, and how much customers will offtake. These 'nominations' are made electronically via AT-Link. Prior to the day, there is no requirement that inputs and offtakes should match. Moreover, there is no requirement in the network code for nominations to be in-line with booked capacity (although scheduling charges provide an incentive to encourage this).

In addition, the terminal operators provide Transco with forecast flow rate information under local operating agreements in the form of Daily Flow Nominations (DFNs). These reflect the aggregated nominations from each offshore field, which is delivered into each terminal. Although in principle there is a correlation between the AT-Link information and the DFNs from terminal operators there are certain reasons why they may differ. For example a shipper's imbalance may change, although this is not and cannot be reflected on AT-Link where the matching renominations rules in the network code limit the accuracy of information that can be provided to Transco.[9]

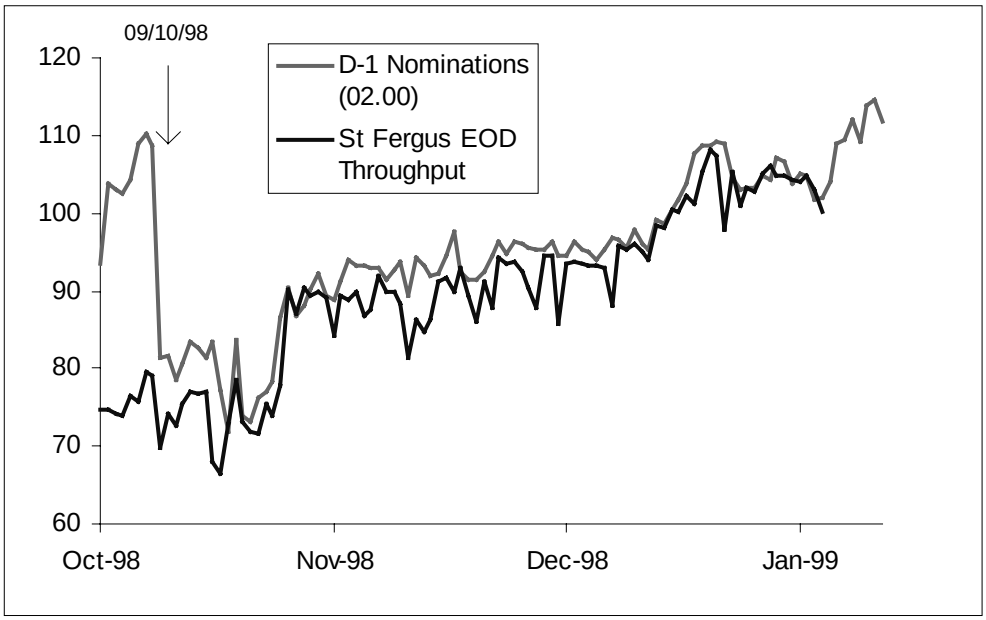
[9] Transco has recently implemented modification proposal 305, *'Removal of Requirement to Match Input and Output Renominations for a Trial Period'*, which allows for a trial from 15 March 1999 for a period of 30 days, wherein the matched renomination rule is significantly relaxed.

Figure 6.2 - St Fergus Nominations and Entry Capacity



It is clear from this figure that the level of nominations up until 9 October 1998 was far in excess of the available capacity and the projected capacity.

Figure 6.3 - St Fergus Nominations and EOD Throughput



In figure 6.3, we compare the D-1 nominations to the end of day (EOD) throughput at St Fergus. This highlights that nominations in early October 1998 were at similar levels to the EOD

throughput seen in late December 1998/early January 1999 when system demand was much higher.

As noted earlier, at the time of the constraints a major new associated gas field, Britannia, was being commissioned and started output in early August 1998. The Britannia field has been developed with a new dedicated pipeline to the SAGE terminal at St Fergus, with average daily output from Britannia in a peak year estimated at some 22 mcm/day. Liquids are transported via the Forties pipeline system.

However, the levels of nominations in early October 1998 appear to deviate from the level of system demand that might reasonably be expected at that time of the year. As part of the ongoing investigation Ofgas is assessing the extent to which the nomination trend seen during this period did reflect genuine factors, such as the Britannia field or changes in demand, or was the result of a change in shipper nomination behaviour. In this context, Ofgas is considering whether any such behaviour may have breached Condition 2(2) and 2(3) of the Gas Shippers Licence, which requires that the licensees shall not pursue any course of conduct which prejudices the safe and efficient operation of the pipeline system, the efficient balancing of the system or the due functioning of the network code.

6.4 Impact on System Users at St Fergus

The increased level of nominations versus available entry capacity had two effects, in terms of the balancing actions required, and hence the level of associated costs, and the potential impact on the offshore industry.

6.4.1 Balancing Actions

As a result of the high level of nominations at St Fergus, Transco took balancing actions in order to reduce the level of gas to be delivered at St Fergus.

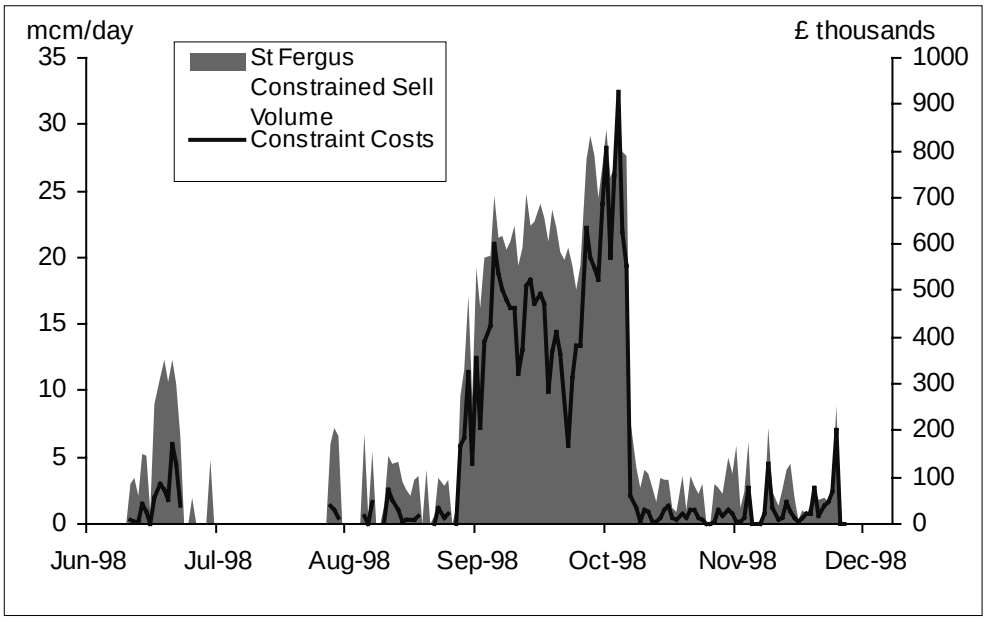
During a short period in June 1998 and throughout August 1998 the flexibility mechanism was used to alleviate locational constraints at St Fergus and sell relatively minor amounts of gas at that terminal (average sales 3 mcm/day). However, during September 1998 the level of nominations increased significantly and there was a corresponding increase in the amount of gas sold by Transco to alleviate the constrained situation (average sales 22 mcm/day). The volume of buys elsewhere on the system as a consequence of the sells also increased

significantly during September 1998. For example, on 4 October 1998, the volume of these buys was over 24 mcm.

It is difficult to separate the costs associated with constraints. However, one way to assess the cost of constraints is to compare the price at which Transco has sold gas against System Average Price (SAP). SAP is used here as a proxy for the average price at which Transco bought gas back on the other side of the constraint, either directly through the flexibility mechanism, or indirectly through shipper imbalances. However, in practice the buys may have cost more.

The level of flexibility mechanism sells (constrained) is highlighted in figure 6.4, along with the proxy for the costs of constraints at St Fergus, calculated as the differential between the average price of the constraint sell and SAP for each day.

Figure 6.4 - St Fergus System Sells and Estimated Constraint Costs



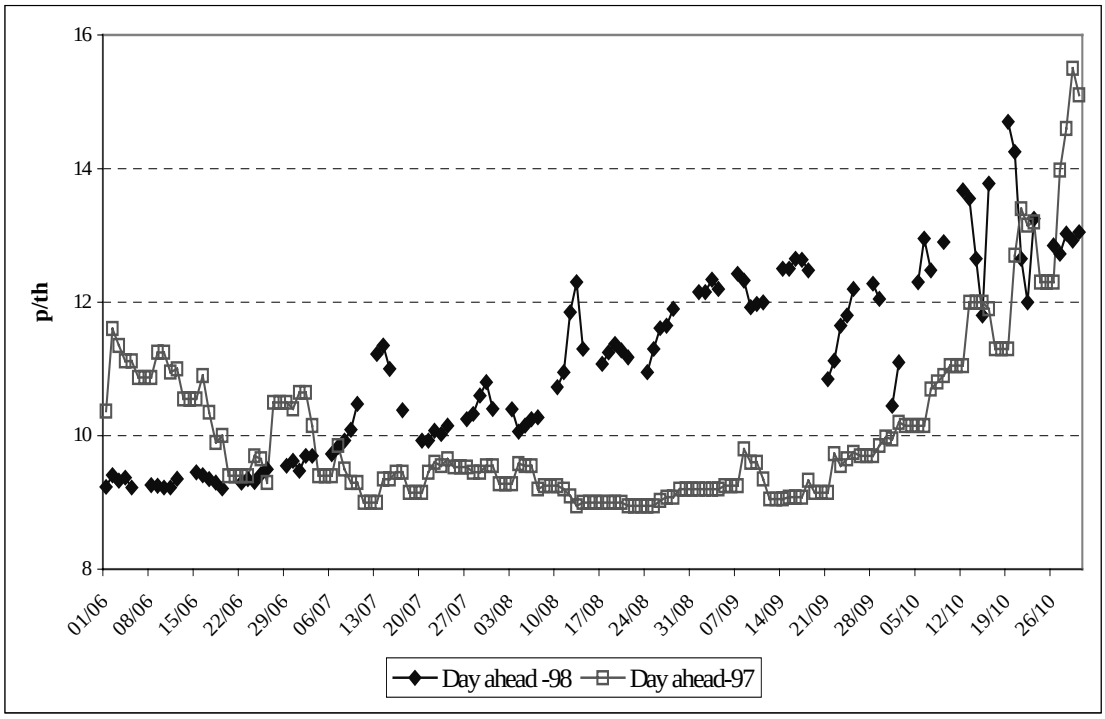
During September 1998 and early October 1998 the significant volumes of gas being sold at St Fergus resulted in estimated daily balancing costs typically in excess of £500,000 per day and approaching £1,000,000 in some cases. During the period from late August 1998 to 8 October 1998 the total estimated balancing costs associated with the constraint at St Fergus were £21.3 million. However, the consequential costs were much higher. To put this in context, the total estimated constraint costs at all terminals in the winter 1997/98 were some £2.1 million.

When Transco sells gas via the flexibility mechanism it will pay the bid price to the shipper that is withdrawing gas from the system. As explained earlier, Transco remains revenue neutral as a result of its actions through the flexibility mechanism. If in aggregate Transco pays out more in balancing charges than it receives (either through the flexibility mechanism or from the cash out of individual shipper imbalances) then the resultant deficit is shared across shippers in proportion to each individual shippers system throughput. This is the so-called neutrality (or smeared) charge. The neutrality charge was estimated to be around 0.7 p/therm during September 1998 and 0.37p/therm during October 1998.

In addition to raising prices in the flexibility mechanism, the constraints at St Fergus and Bacton may have had the effect of artificially increasing the price of gas in other markets, in particular, the spot market. This was due, in part, to system buy actions as a result of constrained system sells being included in the calculation of SAP. This caused high prompt gas prices with corresponding effects on forward curves. This may then lead to higher prices feeding through to customers.

Both day-ahead and month-ahead prices show increases during this period which are likely to be related to St Fergus constraints. Figure 6.5 depicts the day-ahead prices during summer and autumn 1998 compared to those in 1997.

Figure 6.5 - Comparison of Day Ahead Prices in 1997 and in 1998



The impact on month-ahead prices was relevant as well. Forward prices for August, September and October 1998, in May 1998 (when there were no signs of constraints) and month-ahead prices for the same three months during the constraint period show that the latter prices increased significantly, by around 1p/therm. Based on demand in the three months, this is equivalent to approximately £63 million of additional costs to the industry.

6.5 Network Code Modifications

Within the network code, the modification regime allows shippers and Transco to propose changes, although approval for any change is required from Ofgas. As the costs of the balancing actions at St Fergus were mounting, there was concern throughout the industry about the impact of these additional, unwarranted costs on shippers (which ultimately may have been passed on to the customer).

There was clearly a case for reducing the level of nominations at St Fergus to a level which reflected more closely the actual physical capacity that Transco could make available. If the difference between the nominations and the actual capacity was reduced then balancing actions would not be required and hence the shippers' (and the customers') exposure to the balancing charges and neutrality would be reduced.

As discussed in chapter 5, in order to reduce these balancing charges Transco proposed modification 271, *'Interim Capacity Entitlement Arrangements at St Fergus'*, which was received as urgent by Ofgas. A number of other network code modifications were also proposed both before and after modification 271, which would allow shippers to be reimbursed for that capacity that had been scaled back, as well as imposing liabilities on Transco. Ofgas has consulted on the method of calculating the appropriate liability for Transco as part of the consideration being given to modification proposal 287[10] and is in final discussions with Transco. Other modification proposals were considered as part of the Energy and Capacity Workstream although most of these proposals have since been withdrawn.

Ofgas is awaiting the final modification report for proposal 307,[11] which would extend the measures adopted in modifications 265a, 271 and 277 to all terminals.

[10] Modification 287, *'Transco Entry Capacity Liability at St Fergus'*, proposed October 1998.
[11] Modification 307, *'Additional Measures to Cater for Terminal Constraints'*, proposed December 1998.

The nature of modification 271 is that on D-1, Transco declares a capacity scaling factor based on the aggregate booked capacity and an estimate of physical capacity. Shippers are not able to nominate above their scaled back capacity entitlement. Any shippers' gas flows above this scaled capacity entitlement are subject to overrun charges. This modification was implemented on 9 October 1998 with an end date of 5 November 1998 although it has subsequently been extended by modifications 288 and 308 until October 1999.

In broad terms this modification had the desired effect by reducing the need for balancing actions. However, there have been continuing system sells at St Fergus following the implementation of modification 271. There are a number of reasons for these continuing actions including errors in forecasts of capacity availability, errors in demand forecasts, within day equipment failures and offshore problems. In addition, some shippers overran their scaled back capacity entitlement and paid the capacity overrun charges (as set out in modification 271). These overrun charges may have significantly reduced the cost to other shippers of the St Fergus constraint actions since 9 October 1998.

6.6 Secondary Impacts of St Fergus Constraint

There were two main secondary impacts that occurred. The first relates to the value and distribution of capacity at St Fergus after the implementation of modification 271 and the second relates to impacts seen elsewhere on the system which occurred as a consequence of the St Fergus system sells.

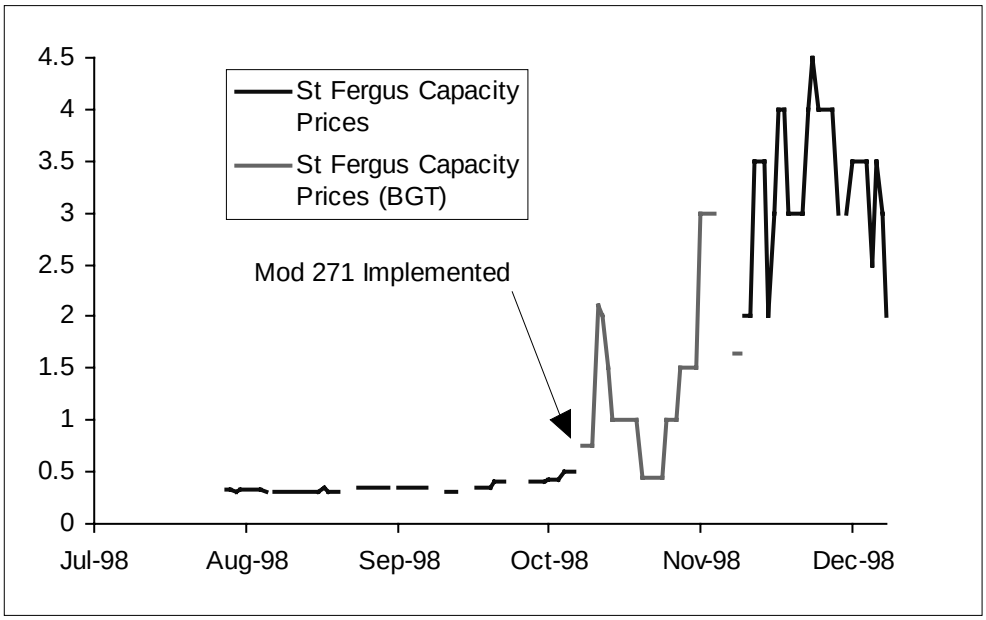
6.6.1 St Fergus Capacity

Where the aggregate requirement for capacity at St Fergus was greater than the scaled back capacity, this would have the effect of increasing the marginal value of St Fergus capacity. Modification 271 scaled back the St Fergus capacity to the physical level available and placed incentives on shippers not to nominate above their scaled back capacity rights.

As the basis of the modification was a common scaling factor based on booked capacity versus the overall level of capacity available, it did not necessarily correspond to the actual level of gas flows that individual shippers wanted. For example, some shippers were still left with an excess of scaled back capacity whilst others had a deficit. British Gas Trading (BGT) in particular was the main player with an excess of scaled back capacity. In order to make this available to the market, BGT conducted a day ahead auction of its spare capacity from 9 October 1998 to 11 November 1998.

Prices through the BGT auction process peaked at 3.3 p/therm per day on 5 November 1998. This compares to standard annual prices for entry capacity at St Fergus of 0.665 p/therm per day. Figure 6.6 shows the prices reported by BGT and Transco for the period before and after the implementation of modification 271.

Figure 6.6 - St Fergus Capacity Prices*: August 1998 to December 1998



* On some days capacity prices were unavailable.

From 17 November 1998 modification 273 allowed Transco to auction daily and secondary capacity on a day ahead basis. This additional capacity is available for short periods and allows shippers to avoid the cost of buying additional tranches of annual capacity.

6.6.2 Subsequent Impact on Bacton and the System

Assuming that on an aggregate level, nominations by shippers into the Transco system are equal to their required customer offtakes, any system sell actions at a terminal will reduce the amount of gas entering the system. Additional gas is therefore required at an alternative terminal to balance the system overall.

Given the significant number of system sell actions at St Fergus during September 1998 and October 1998 there was a need for a considerable number of system buys to ensure overall system balance. The location of these actions was dependent on a number of factors including the expected regional demand profile and other system factors such as the presence of constraints elsewhere. There was some concern that the increase in system buys was affecting

the cash-out price and the spot price of gas. Modifications 265a and 277 were implemented to minimise this effect and to reduce the cost of constraints on shipper's imbalances. In the case of the St Fergus system sells there was a considerable number of accompanying system buys at Bacton.

7. Events at Bacton During September/October 1998

This chapter outlines the events at Bacton during September/October 1988. In some cases these were a reaction to the St Fergus events. In addition, other events, such as maintenance on other parts of the Transco system may have impacted on Bacton. It is one of the main aims of this investigation to explore the drivers for these events and to understand the likelihood of such a situation occurring at any terminal in the future.

7.1 System Requirements

As a result of the system sells at St Fergus during this period, there was a need for Transco to purchase via the flexibility mechanism a matching level of gas elsewhere to keep the system balanced. However, there were a number of projects that precluded gas being bought by Transco at a number of terminals. These projects were:

- a new pipeline from Hatton to Silk Willoughby; and

- a new pipeline from Peterborough to Lutton.

The net effect of these projects was that Transco could only purchase gas from the Bacton terminal in order to meet the overall supply/demand shortfall. Given the commercial framework of the current balancing regime these physical factors provided a commercial opportunity for shippers to benefit. Any shipper with gas both at St Fergus and Bacton would potentially be able to be involved in both sides of Transco's flexibility mechanism balancing actions (ie. in both buying gas from Transco at St Fergus and selling gas to Transco at Bacton). In contrast, other shippers who did not have such flexibility with Transco were still exposed to the charge shared by shippers (the 'neutrality charge') which was required to keep Transco in a revenue neutral position.

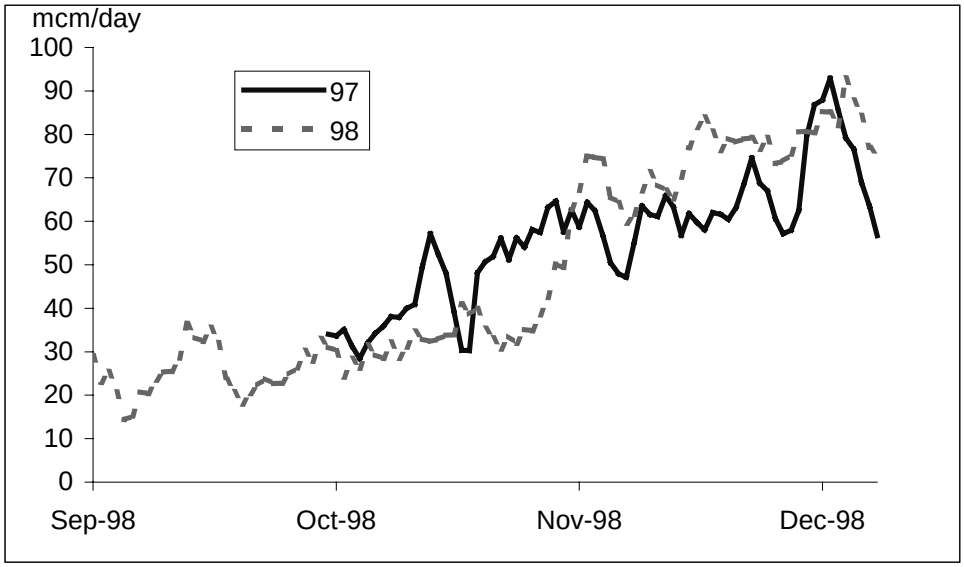
7.2 Bacton Nominations

In contrast to the nomination trend seen at St Fergus during the latter part of September 1998 and all through October 1998 the level of nominations at Bacton was much lower than anticipated, based on evidence from the previous year. Moreover, the lower level of nominations continued beyond 9 October 1998 when modification 271 was implemented at St Fergus. It is not yet clear what factors lay behind this trend at Bacton but there is a clear increase in the level of nominations at the end of October 1998. As part of the ongoing

investigation Ofgas is assessing the reasons for this behaviour. Ofgas is analysing operations data for Bacton (made available by Transco) to see whether the low level of nominations seen was reasonable and therefore in compliance with the Gas Shipper's Licence.

Figure 7.1 highlights the level of nominations from 1 October 1998 compared to the corresponding period in the previous year.

Figure 7.1 - Bacton Nominations (D-1, 02.00) 1997 and 1998



7.3 Impact on System Users at Bacton

7.3.1 Balancing Actions

As a result of the need for gas following the constrained sells at St Fergus and the low level of nominations at Bacton, Transco took balancing actions in order to increase the level of gas to be delivered at Bacton.

During early October 1998, system buys were required at Bacton (which peaked at 27.5 mcm/day, the average buy for the first ten days of October 1998 was 22 mcm/day). This decreased through the month but still averaged between 10-15 mcm/day over the entire course of October 1998 (even after the implementation of modification of 271 at St Fergus). The level of flexibility mechanism system buys is highlighted in figure 7.2 along with the system sells at St Fergus.

Figure 7.2 - Bacton and St Fergus Flexibility Mechanism Actions

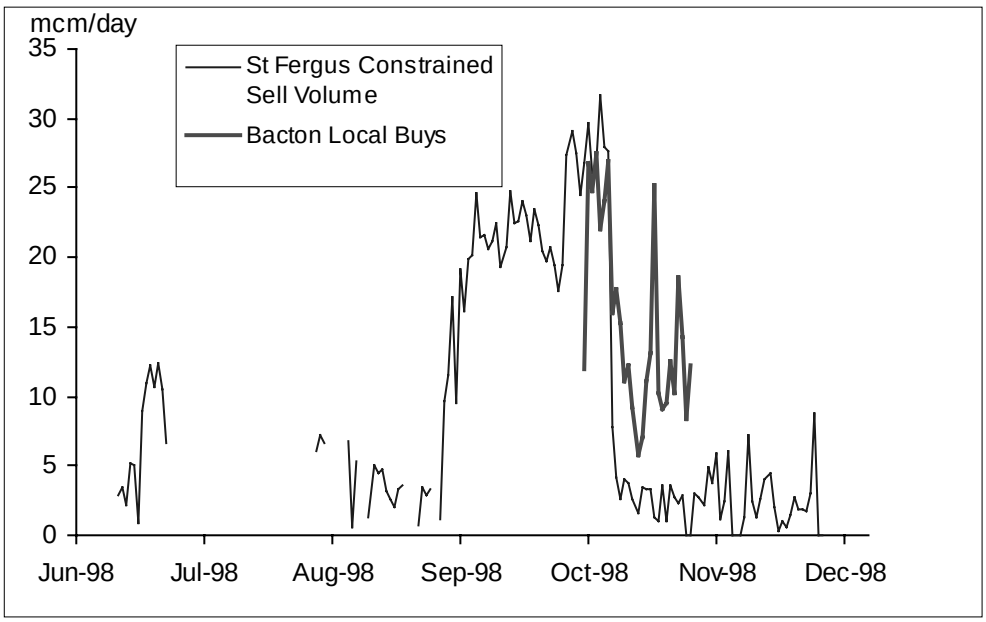


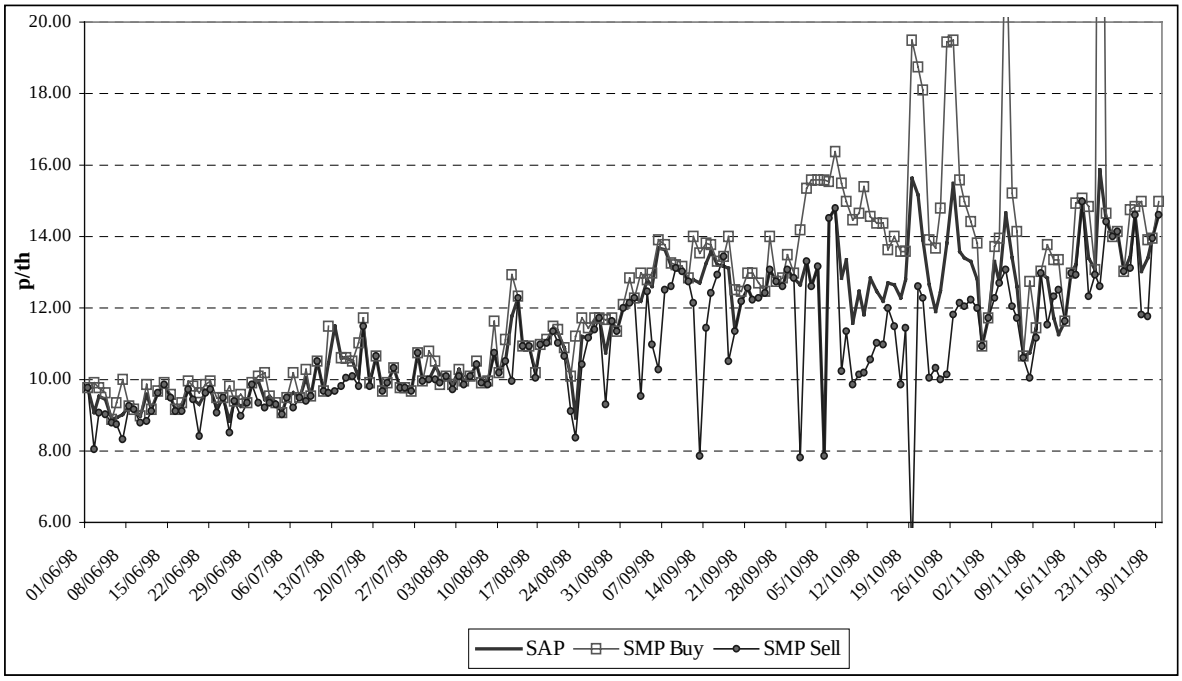
Figure 7.2 shows how there was a close match between the system sells (at St Fergus) and the system buys (at Bacton) up until 9 October 1998. However, after this date until the end of October 1998 there was a continuing need for system buys at Bacton to balance the system while the level of sells at St Fergus decreased significantly. Taking into account that there were accompanying system sells at other terminals during this period, Ofgas is investigating the causes of these ongoing locational balancing actions.

In contrast to the over-nomination trend seen at St Fergus, during the latter part of September 1998 and throughout October 1998 the level of nominations at Bacton was much lower than anticipated based on previous years' nominations. In some cases, these events may have been a consequential reaction to the events at St Fergus. However, the under-nomination trend continued beyond 9 October 1998 when modification 271 was implemented. As a result of the lower level of nominations at Bacton, Transco took balancing actions in order to increase the level of gas to be delivered at Bacton.

One way to assess the cost associated with relieving this shortage of gas is to compare the price at which Transco has bought gas at Bacton to SAP. SAP is used here as a proxy for the average price at which Transco could have bought gas from other points on the system, either directly through the flexibility mechanism, or indirectly through shipper imbalances. The estimated neutrality charge arising from these actions during October was approximately £2.2 million.

Figure 7.3 shows the volatility in the System Buy and Sell prices as well as in the SAP.

Figure 7.3 - SAP, SMP Buy and SMP Sell: June – November 1998



The increase in volatility and in the differential between SMP Buy and Sell implied an additional risk to the shippers. Constraints at St Fergus may have resulted in the SMP Sell being set at that entry point and the SMP Buy at Bacton. If a shipper did not have a balanced portfolio, Transco might have needed to buy gas at Bacton or sell it at St Fergus, and the out of balance shipper would have then been exposed to the prices shown in the graph.

As is the case for the analysis of the costs associated with actions at St Fergus, however, the use of SAP as a benchmark is not ideal. The level of SAP may itself have been affected by Transco actions arising from the constraints, (which led for implementation of modification 265a). For example, to the extent that SAP was inflated over the relevant period, the figure of £2.2 million given above may significantly under-estimate the costs at Bacton.

Moreover, as described earlier, until the implementation of modifications 265a and 277, gas purchases made by Transco to alleviate constraints were included in the calculation of SAP. Since SAP and SMP Buy and Sell are used in setting cash-out prices, the resulting costs were

more specifically targeted on out of balance shippers, irrespective of whether they were responsible for the localised shortage of gas.

7.4 Potential Responses

As described above, when the system constraint and over nomination situation emerged at St Fergus, a response was implemented in the form of network code modification 271. However, the design of a suitable modification to increase the level of nominations at Bacton is fundamentally more difficult. This is because of the difficulty in forcing shippers to flow gas through a particular terminal. Indeed, no network code modification was proposed or implemented.

As such the concerns raised by this situation are potentially more serious than those at St Fergus and although the level of costs estimated at Bacton were not as significant as St Fergus, the investigation of the events at Bacton warrants close attention.

8. Initial Conclusions and Solutions

The previous chapters have identified the sequence of events that occurred at St Fergus and Bacton in 1998. This chapter outlines some initial conclusions and solutions.

8.1 Initial Conclusions

- Transco failed to complete its CE&MP at St Fergus by 1 October 1998 and this resulted in additional transportation constraints, although most of the costs were incurred before this date.

- Constraints gave rise to significant balancing actions through the flexibility mechanism that considerably increased balancing costs. The estimated costs associated with the constraint at St Fergus were £21.3 million whilst costs for system buys at Bacton were approximately £2.2 million.

- The current regime for balancing gas inputs to and offtakes from Transco's system does not always encourage the level of shipper input nominations to relate to the level of available entry capacity. This requires balancing actions to take place to bring the level of gas deliveries into line with the limits of the system.

- The network code does not recognise the localised shortage of gas that occurred at Bacton as the result of a transportation constraint. Moreover, the costs of the balancing actions required to deal with a localised supply shortage are targeted at out of balance shippers (through cash-out) rather than being shared across all shippers. This contrasts to the cost recovery for a localised excess of gas (constrained sells) which does not target out of balance shippers directly.

8.2 Interim Solutions

8.2.1 Transco Performance and Liabilities

In order to make Transco liable for the costs of delayed maintenance programmes, a number of modification proposals were put forward by shippers in October 1998. Of these, modification 287 seemed at the time to Ofgas to be the most appropriate. Discussions have continued between Ofgas and Transco to determine the appropriate method by which the liability could be determined. Ofgas recently wrote to shippers and other interested parties to consult on the

appropriate level of this liability. Close out for representations was 12 March 1999 and Ofgas will make a decision shortly.

Balancing costs are currently paid by shippers, who are likely to pass such costs through to customers in the form of higher gas prices. During the CE&MP, Transco had no commercial incentive to complete its programme on time since costs of all its balancing actions were borne by shippers. The issue of incentives on Transco is being taken forward as part of the RGTA programme.

Transco has recognised the commercial implications of any delay in its maintenance programme. It convened a meeting to explain its summer maintenance programme and has pledged to keep the SIS up to date over the summer period.

Given the potential for constraints this summer, Transco has drafted a proposed new modification. This is intended to pre-empt any problems whilst the D-1 auctions (under modification 273) are intended to allow additional capacity, which is unbooked or unused, to be made available.

8.2.2 Shipper Performance and Incentives

Modification 265a was implemented on 30 September 1998 whilst modification 277 was implemented on 21 November 1998. The effect of these two modifications is to link constrained system sells and subsequent system buys and to allow costs to be recovered via neutrality. In addition, these modifications mean that these buys do not directly affect the cash-out price and the consequential effects on the spot price are reduced.

Modification 271 was implemented on 9 October 1998 in order to reduce nominations in line with available firm capacity. This modification reduced the effects of overselling capacity by allowing a scaling factor to ration booked capacity in line with that which was physically available.

Shipper behaviour is likely to be modified under the proposed solution that Transco is to put forward for the forthcoming summer. This can, however, only represent an interim step between the implementation of modification 271 and the reform of capacity being considered as part of the RGTA process.

Among other things RGTA proposes that shippers who provide better information to Transco will be immune from shared costs; this is a step for the longer term that will begin to reward the provision of within-day information.

8.2.3 Constrained Buy

Ofgas believes changes to the network code are required to clarify that a localised shortage of gas is the result of a transportation constraint and that the balancing action required to alleviate it should be defined as a 'constrained buy'. Moreover, the costs associated with constrained buys should be treated in the same way as a constrained sell. Indeed, on any occasion when a flexibility mechanism bid is taken for locational reasons, this should be declared a constraint. Balancing actions required as a consequence of constrained buys and sells should also be treated in the same way in respect of cost recovery.

Ofgas has asked Transco to consider bringing forward a network code modification to this end.

8.2.4 Constrained Sells

Ofgas believes that the arrangements introduced at St Fergus for accounting for consequential buys in the same way as the initial constrained sells should be considered at all terminals. This provision was proposed by Transco as part of modification proposal 307, *'Additional measures to cater for terminal constraints'*, which is currently out for consultation.

9. The Way Forward: Next Steps

The interim conclusions and solutions outlined in the previous chapter reinforce Ofgas' belief that a fundamental reform of the capacity and balancing regime is required, including the development of incentives on Transco to perform in a more efficient and effective manner. This process is already underway in the form of the RGTA, and as mentioned earlier Ofgas has recently published a consultation document covering the major issues. Meanwhile, Ofgas is continuing to undertake a detailed investigation into the causes and consequences of the events at St Fergus, Bacton and other terminals, as well as into the conduct of Transco and of shippers, both at the aggregate and individual levels.

This chapter highlights the matters that are of most concern to Ofgas and the ways in which we intend to proceed in addressing these concerns. Appendix 3 provides a summary of the ongoing work.

9.1 Areas of Investigation

At this stage we have identified two, major areas for investigation:

- shippers' nomination behaviour; and

- Transco's conduct and performance as a gas transporter.

9.2 Shippers' Nomination Behaviour

Ofgas is currently investigating whether any individual shippers breached conditions 2(2) and 2(3) of the Gas Shipper's Licence. As explained earlier, these conditions set out certain obligations regarding the safe and efficient operation of the transporter's pipeline system, the efficient balancing of that system by the transporter, and the functioning of the arrangements provided for in the transporter's network code as well as the giving of a false impression as to the amount of gas to be delivered. Thus, for example, manipulation of shippers' nominations, aimed at gaining short-term financial advantage from the operation of the balancing rules and procedures in particular circumstances, but which have the effect of giving rise to inefficiencies in either pipeline operation or in system balance, would, *prima facie*, be a breach of the Gas Shipper's Licence.

In order to assess this possibility, it is necessary for Ofgas to form a view as to the nominations behaviour that would have been reasonable, and therefore in compliance with the Gas Shipper's Licence, in the circumstances arising from the Transco performance failures described earlier in this document. Actual nominations behaviour can then be assessed against this benchmark, or range of benchmarks, in order to determine whether the conduct of individual shippers was different in any way. Any evidence of such behaviour that is discovered will then be investigated more closely to determine whether or not it constituted a breach of licence.

9.2.1 Analysis of Differences between AT-Link Nominations and Offshore Nominations

In June 1998, Transco expressed concern to Ofgas about the increasingly significant variations in AT-Link and DFN information at the day-ahead stage that was contributing to unnecessary balancing actions, particularly at St Fergus. Ofgas wrote to shippers on 19 June 1998 to emphasise that any nominations that were likely to give a false impression could involve a breach of Standard Condition 2(3) of the Gas Shippers' Licence. The aim of the ongoing analysis is to assess whether any such impression had been created by individual shippers and whether such a breach therefore occurred.

The analysis involves comparing the level of nominations given to Transco through the AT-Link system to shipper nominations to producers (which are then aggregated as DFNs) both before and after 19 June 1998. Where there are discrepancies, Ofgas will seek further explanation from shippers.

Ofgas already has some detailed information provided by shippers and Transco, covering a number of days including 18 June 1998. This information covered AT-Link data, accepted flexibility sells, beach trades and producer nominations. Ofgas will make additional requests for information, including information covering a wider period where discrepancies are likely to have occurred.

9.2.2 Analysis of AT-Link Nominations Compared to Capacity Bookings

As previously discussed, as part of this investigation, Ofgas is seeking to form a view as to the nominations behaviour that would be reasonable and therefore in compliance with the Gas Shipper's Licence. An analysis of nomination behaviour compared to capacity bookings is being conducted to determine this.

The first stage of this analysis will compare the level of nominations at St Fergus to capacity bookings (taking into account day-ahead and end of day positions) to determine whether there are any discrepancies in behaviour. This analysis will compare figures for 1998 with data from previous years. If the St Fergus nominations over the relevant period in 1998 appear to have been unusually high or low in comparison, then these deviations will be investigated further to determine whether or not there were special circumstances that explain this.

9.2.3 Analysis of AT-Link Nominations Compared to Shippers' Contractual Nominations Rights

Further work being undertaken by Ofgas will determine whether or not shippers' nomination behaviour was reasonable or not (and therefore in breach of the Gas Shippers' Licence). Ofgas is analysing the level of AT-Link nominations compared to the shippers' contractual rights for gas deliveries.

The analysis will involve a comparison of the nominations compared to the maximum deliveries possible within the shippers' contracts with producers. In the event that this highlights inappropriate behaviour, Ofgas will seek explanations from relevant shippers to determine whether or not special factors (such as contractual take-or-pay positions) were at work.

9.2.4 Analysis of Nominations Post Modification 271 Compared to Scaled Back Capacity Entitlement

As well as investigating nominations with respect to determining inappropriate behaviour prior to the implementation of modification 271, Ofgas is investigating the behaviour of shippers after its implementation. This analysis will involve the comparison of the scaled back capacity entitlements to the level of shippers' nominations and end of day allocations.

9.2.5 Analysis of AT-Link Nominations Compared to Shippers' Contractual Pricing Levels

Another study being undertaken by Ofgas to determine whether or not shippers' nomination behaviour was reasonable or not (and therefore in breach of the Gas Shippers' Licence) is to analyse the level of AT-Link nominations compared to the shippers contractual pricing levels.

Ofgas is aware that shippers' contracts with producers may have different prices for different delivery quantities. The analysis will involve a comparison of the nominations compared to the prices shippers would have paid their suppliers for gas (taking into account the prevailing

market price) if they had not had their nominations reduced by accepted flexibility sell bids. In the event that this highlights inappropriate behaviour, Ofgas will seek explanations from relevant shippers to determine whether or not special factors (such as contractual take-or-pay positions) were at work.

9.2.6 Analysis of Bacton Nominations and Allocations

As discussed previously, Ofgas is analysing operations data for Bacton (made available by Transco) to determine whether the low level of nominations seen was reasonable and therefore in compliance with the Gas Shippers' Licence.

The analysis involves a comparison of before the day nominations to end of day allocations taking into account Transco accepted flexibility buy bids. This analysis will assist Ofgas in deciding when and where explanations of shippers' behaviour are required to determine the motivations for that behaviour.

9.2.7 Information Request

Ofgas has already made an information request to shippers, although this has only focused on a small number of the relevant days at St Fergus. Ofgas expects to make further, more extensive requests for information in the near future, including requests for information covering the entire period for which constraints were effective and covering terminals other than St Fergus, although the precise scope and coverage of these requests will depend upon the outcome of the preliminary stages of the more detailed analysis now being undertaken.

Operations data made available to Ofgas by Transco is also being analysed, and this includes both data for Bacton and St Fergus. Ofgas is currently analysing this information more closely and will use it to assist in deciding when and where further explanations from shippers of their behaviour are required in order to help determine the motivations for that behaviour.

9.3 Transco's Conduct and Performance

As part of its continuing investigation of whether Transco's conduct and performance was consistent with its obligations under the Gas Act and its PGT licence, Ofgas is discussing with Transco the planning and implementation of its 1998 investment programme. Ofgas will seek to evaluate this programme in terms of its development, its timeliness, and the efficiency with which it was implemented. In particular:

- Ofgas is investigating why the various constraints occurred, distinguishing between factors that were outside Transco's control (eg. weather conditions) and factors that Transco could potentially control. In respect of the former, we will be seeking to determine whether Transco made prudent allowance for the risks involved. In respect of factors within Transco's control, we will be examining whether Transco's planning process was effective, whether the timing of the programme was appropriate, and whether plans were implemented efficiently.

- In assessing Transco's conduct and performance, Ofgas is evaluating the factors that gave rise to the expansion of capacity at St Fergus. Of particular interest is the information available to and expectations of Transco concerning the commissioning of the Britannia field and the resulting build up of flows of gas. Although Ofgas has already received some information from Transco, we will be writing to Transco and Britannia operators to ascertain whether or not Transco made sufficient provision for flows of gas from the commissioning field.

As noted in section 2.2, Standard Condition 11(1) of the PGT Licence requires a PGT to conduct its transportation business in the manner best calculated to ensure that neither the PGT or any person related to it, nor any gas shipper, obtains any unfair commercial advantage. Ofgas is considering whether this condition may have been violated in that constraints at particular terminals arising from performance failures can be expected to have had differential impacts on different shippers, thereby conferring advantages on some and disadvantages on others.

More generally, Ofgas is considering which methods of allocating constrained capacity are and are not consistent with Transco's obligations under the Gas Act and its PGT Licence. This goes to the heart of some of the issues surrounding the capacity regime that are being discussed as part of the RGTA process, and the matter will therefore be assessed in this wider context as well as in relation to the more specific circumstances arising from the effects of the 1998 CE&MP programme. Meanwhile, Ofgas is continuing to discuss with Transco the appropriate method for determining the level of Transco liabilities (under modification 287) arising from the recent capacity constraints.

Ofgas would welcome comments from interested parties on the additional work being undertaken, including comments on areas and methods of investigation that we should pursue, particularly if these are not explicitly noted above.

Appendix 1 Ofgas Letters

19 June 1998	St Fergus Constraints: Input Nomination Discrepancies (Letter from Director, Transportation Regulation)
4 September 1998	Cost of Constraints at St Fergus (Letter from Head of Gas Balancing)
11 September 1998	Cost of Constraints at St Fergus (Letter from Director General of Gas Supply)

Appendix 2 Transco's Major Reinforcement Projects in 1998

Project Title (Map Reference)	Description	Planned Start Date	Actual Start Date	Planned Completion Date	Actual Completion Date
Compression					
Aberdeen (G)	Construction of a new compressor station 2 x 30mw units	February 1997	February 1997	1 October 1998	Mechanically complete December 1998 Ongoing commissioning
Bishop Auckland (H)	Decommissioning two exiting 7mw units. Replacement with two new units	February 1997	February 1997	1 October 1998	Commissioned full availability 12 December 1998
Carnforth (I)	Construction of additional 30mw unit on existing site with two existing 30mw units	February 1997	February 1997	1 October 1998	Mechanically complete November 1998 final commissioning deferred until Aberdeen completion
Lockerley (K)	Construction of a new compressor station 2 x 8mw electric drive units	November 1997	July 1998	31 December 1998	October 1999 - Completion affected by delayed planning permission
Peterstow	Construction of a new compressor station 3 x 8mw electric drive units	June 1996	November 1996	12 December 1997	February 1998 - Delay mainly due to planning permission
Wooler (J)	Construction of a new compressor station 2 x 30mw units	October 1996	October 1996	1 October 1998	3 October 1998
Pipelines					
75 Uprating (A)	Uprating of max working pressure from 70 to 75 bar Feeders Nos 6, 7, 10, 11, 12 & 13	April 1998	April 1998	1 October 1998	Mechanically complete late November 1998 Final commissioning awaiting completion of Aberdeen
Treales Burscough (D)	31km 1050mm dia	May 1998	May 1998	1 October 1998	28 October 1998
Warrington-Warburton (C)	5.6km 1050mm dia	June 1998	June 1998	1 October 1998	14 October 1998
Hatton- Silk Willoughby (F)	38km 1050mm dia	June 1998	August 1998	1 October 1998	7 October 1998
Peterborough-Lutton (E)	22km 1050mm dia	June 1998	August 1998	1 October 1998	1 October 1998
Audley-Alrewas (B)	67.5km 1050mm dia	August 1998	August 1998	1 October 1998	13 November 1998

Appendix 3 Next Steps - Potential Analysis

Location	Analysis to Perform	Question or issue of relevance	What type of analysis ?	Do we have the data?
St Fergus	Offshore nominations v. AT Link Nominations	Whether shippers gave false impression and hence breached Standard Condition 2(3).	Differences in June 1998	For 5 sample days including 18 June 1998
St Fergus	AT Link nominations v. Capacity Bookings	Excessive nominations versus capacity bookings could indicate breach of Standard Condition 2(2)	Direct comparison (taking account of flexibility nominations sells accepted)	AT-Link and capacity for some days
St Fergus	AT Link nominations v. contractual nomination rights	Did shippers nominate above their ability to deliver - clear breach of Standard Condition 2(2)	Direct comparison	AT-Link - for some days contractual details - no
St Fergus	Post 9 October nominations v. scaled back capacity entitlement	Should highlight any shippers who ignored modification 271 and hence may have breached Standard Condition 2(2)	Compare the capacity entitlements though modification 271 with actual nominations/allocations	Legacy - yes Others - yes
St Fergus	AT Link nominations v. contractual pricing levels	If shippers were nominating high priced gas knowing full well that they would not have to deliver then they may have been acting in breach of Standard Condition 2(2)	Assess the prices shippers would have paid their suppliers for gas (compared to prevailing market prices) if they had not had their nominations reduced by accepted flexibility sell bids.	AT-Link - for some days contractual details - no
Bacton	Before the day nominations v. end of day allocations (including impact of flexibility buys)	Seek explanations from shippers to explain why they did not nominate gas at Bacton originally.	Comparison to highlight shippers who made additional gas available at Bacton	yes