

# **TRANSCO REVIEW OF INTERRUPTIBLE SERVICES CONCLUSIONS AND PROPOSALS**

## **TRANSCO PRICING CONSULTATION PAPER PC39**

### **SUMMARY**

The Transco review of interruption has been an extensive examination of the processes associated with Transco interruption. The review has been conducted in the knowledge that there are other major consultations ongoing at present, which may have a considerable impact on the structure of interruptible services offered. Ofgas has indicated, that once the Review of Gas Trading Arrangements (RGTA) proposals for the entry capacity regime have been concluded and implemented, it is keen to make the NTS exit capacity regime consistent with that for entry. Similarly, the Ofgas consultation on End User arrangements has raised the possibility of changes in the relationship between Transco and gas consumers, which could lead to significant changes in the way interruptible services are constructed and managed.

With these consultations in mind, radical overhaul of the interruption regime has not been proposed by Transco for October 1999. That said, the review does propose that some changes to the structure and pricing of interruptible services are made, within the constraints of the present regulatory regime. The desirability and timing of major changes needs to be considered alongside the other potential changes which could take place, so that co-ordinated changes can be implemented - possibly for October 2000.

There are some changes that are proposed for implementation from October 1999. The issue of network sensitive loads (NSLs) has been highlighted over the past two winters. These winters have been relatively mild and, as a consequence, there has been little Transco-initiated interruption. That which has taken place however has been largely confined to NSLs.

Analysis of the costs avoided by sites being NSL rather than standard interruptibles indicates that, on a cost-reflective basis, there should be a differential between the charges for NSLs and standard interruptibles. However, rather than NSL charges being too high, the analysis indicates that standard LDZ interruptibles at present may be undercharged for capacity relative to firm loads, and that an increase in their charges might be justified. As this would mean a major change in the structure of interruptible charges however, this issue is highlighted here to gather views and for possible implementation from October 2000.

In order that NSLs see some early charge benefit (relative to standard interruptibles) Transco proposes a reduction in transportation commodity charges of 10% for NSLs, with effect from October 1999. This level of reduction is also proposed to serve as the minimum discount received by Transco Nominated Interruptible sites (TNIs).

There appears to be demand from some consumers for a level of interruptible service below 45 days. Transco is not yet convinced that this type of service will be economically attractive to gas consumers, given the recent history of low interruption levels. Transco has determined the likely level of charge for such a service, based on either 20 or 30 days maximum interruption,

and will consider the introduction of such a new service if there is positive feedback on the likely use of the service.

Transco is considering a change to its policy on investment relating to interruptible supply points. Such a change could lead to Transco investing if necessary in order to maintain standard interruptible sites at a maximum 45 day interruption duration rather than changing their status to TNI. Similarly Transco would consider investment to convert any of the existing fifteen TNI supply points to standard, 45 day maximum, interruptible status.

The present threshold for supply points to be interruptible is 200,000 therms per annum. In order to offer more choice to smaller industrial and commercial gas consumers, Transco believes it would be beneficial to reduce this threshold towards a final threshold in the region of 100,000 therms per annum. In view of the other changes proposed, Transco would welcome feedback on the desirability and timing of any such change.

A significant finding of the review is the apparent lack of knowledge on actual levels of interruption. There also appears to be misunderstanding of the historical split of interruption between that determined by Transco and by shippers for their own commercial purposes. As part of its consultations with gas consumers and other interested parties, Transco has already published historical interruption data and provided information on the likelihood of interruption in an average winter. Transco is committed to improving and updating this data. In addition, Transco is continually improving its interruption web site and consumer information phone lines in response to feedback.

The various ancillary interruptible services that are available at present have also been reviewed, and Transco has already implemented a proposal aimed at improving the requirements for provision of Partial Interruption (modification 0301) and has raised a proposal aimed at improving the conditions associated with Interruptible Supply Point Firm Allowances (IFAs) (modification 0324).

## **1. INTRODUCTION**

This review of interruptible transportation services under Network Code arose from the work of Review Group 137 (RG137). In the report issued by RG137 at the end of 1997, it was proposed that Transco's Pricing section be invited to consider the charging issues that had been beyond the scope of that group.

These issues (along with further examination of Transco's interruptible services) were considered throughout 1998, and in November Transco published a discussion paper (NCD1) which tabled a number of ideas about how the existing interruption regime might be developed. During the past few months Transco has consulted widely, and examined all of the ideas contained within the original discussion paper and several which have arisen as a result of consultation. This paper gives details of the areas which Transco has investigated, along with the resulting proposals - both for changes from October 1999 and possible changes subsequently.

As part of the review conclusions, the paper also formally proposes changes to Transco's charging methodology, in line with the requirements of the PGT Licence.

## **2. REVIEW PROCESS**

A key part of the review process has been to seek the views of both shippers and gas consumers on the present interruptible services and on what services they would like Transco to offer. In order to initiate responses from the community, Transco issued a discussion document in November 1998 (NCD1), with ideas for changes to the interruption regime and inviting comment from all readers. A summary of the responses is in Appendix A of this document.

Transco also held two interruption seminars in November 1998, to which shippers and gas consumers were invited. Speakers at the seminars included Transco, a selection of shippers, Ofgas, MEUC and EIUG. The total attendance was over 400 people.

At each of the seminars Transco issued a questionnaire which was aimed at obtaining the views of gas consumers. The initial response rate to the questionnaire was low, and so in January 1999 Transco mailed a copy of the questionnaire to interruptible sites. A response rate of 8% was achieved. A summary of the questionnaire results is in Appendix B.

Transco has also reported regularly to the Capacity Workstream and has held separate meetings to which gas consumers and their representatives were invited.

## **3. RATIONALE FOR INTERRUPTIBLE SERVICES**

### **3.1 Present Interruptible Services**

Under Transco's Network Code there are three circumstances in which Transco may call for interruption. These are:

1. On any day on which there is, or Transco anticipates that there would otherwise be, a transportation constraint which would be relieved (in whole or in part) by the discontinuance or suspension of offtake at the interruptible supply point,
2. On not more than three days in any Gas Year (1<sup>st</sup> October - 30<sup>th</sup> September), for the purpose of verifying that a supply point could comply with a notice to interrupt where Transco has a reasonable doubt as to whether that supply point could interrupt,
3. On any day in respect of which, at any time, forecast total system demand exceeds 85% of system 1-in-20 peak day firm demand.

In addition to the above, Transco can also interrupt in a gas supply emergency.

For supply points which are presently interruptible, the shipper in question pays neither the NTS exit nor the LDZ capacity charges, and Transco can interrupt these supply points for up to 45 days in each Gas Year (where 45 is known as the Interruption Allowance). A non-Network Code term used to describe these “45-day” sites is SNI (Shipper Nominated Interruptible). This term should not be confused with the commercial interruption carried out by shippers on their own interruptible sites, which is outside the scope of this paper.

Interruptible transportation is presently available to supply points which consume over 200,000 therms per annum. To ensure network safety and security, Transco also reserves the right to interrupt a few supply points for more than 45 days in each Gas Year. These supply points, which are known as Transco Nominated Interruptibles (TNIs), are not only exempt from paying NTS exit and LDZ capacity charges, but are also eligible for discounted NTS and LDZ commodity charges. The discount rate is calculated as:

$$\frac{(N - 45)}{183} \times 100\%$$

where N is the lower of the maximum number of days of interruption stipulated at the TNI supply point, and 183.

### 3.2 Economic Rationale

Transco’s PGT Licence requires it to provide a firm transportation service to a level of security where the peak day demand would be exceeded only one year in 20. The provision of transportation capacity to cope with such extreme levels of demand means that most of the time there is spare transportation capacity available. If alternative, interruptible, transportation arrangements can be offered which can make use of this capacity at off-peak times, and which is valued by customers, then this can benefit both interruptible and firm consumers.

The ability to achieve a mix of firm and interruptible transportation services which benefits all consumers depends upon a number of factors:

- (a) that services customer require can be offered which utilise the off-peak capacity without requiring significant investment in peak capacity. Transco’s analysis indicates that this is not possible for all parts of the transportation system (see section 4.2).

- (b) that the charge for the interruptible transportation service makes it desirable compared to firm transportation. Analysis (described in section 7) indicates that this factor is likely to limit the attractiveness of some types of interruptible service that could be offered.
- (c) that the charge for the interruptible transportation service makes it attractive compared to the use of other fuels. Fuel costs for interruptible consumers are typically a significant proportion of their total business costs, and the ready use of other fuels is generally a realistic alternative, since most interruptible consumers will have back-up facilities for burning other fuels.
- (d) that the marginal cost of providing additional firm or interruptible transportation is below the average cost. This is generally true for gas transportation for a number of reasons, and means that increasing the level of firm or interruptible transportation can benefit all consumers.

At present, the basis for charging interruptible transportation is that interruptible supply points do not pay either NTS exit capacity or LDZ capacity charges, on the basis that there is no investment in peak capacity for them - this assumption is questioned later in this report (section 4.2). However, analysis indicates that NTS and LDZ operating costs related to off-peak throughput are a very small proportion of total NTS and LDZ costs respectively - probably less than 5% of total costs (see discussion paper PD4).

NTS and LDZ revenue from interruptible loads is at present around £100m out of a total of around £3,000m (3.3%). However, throughput related to interruptible loads accounts for around 16% of LDZ throughput and a quarter of total throughput.

The analysis of LDZ costs (section 4.1) indicates that, for historical and technological reasons, there is a large proportion of LDZ costs which is not related to changes in the level of throughput. If interruptible charges were only to reflect the level of directly variable costs related to interruptible supply points, then firm transportation charges should reflect both directly variable and non-variable costs. In this situation the differential between firm and interruptible transportation would be higher than the cost-reflective difference and there would be an artificial incentive for sites to become interruptible, potentially leading to uneconomic decision making and higher transportation charges for firm consumers. At the opposite extreme, if interruptible charges reflect both the directly variable costs and some of the non-variable costs, but are at a level so high so as to lead to many of the interruptible consumers (actual or potential) to use alternative fuels, then the benefit of having additional throughput on the gas transportation system will be lost, to the disbenefit of all users. It would appear therefore that the level of interruptible transportation charges should be between these extremes. Thus, while cost-reflective analysis can indicate a minimum level of transportation charges for interruptible supply points it does not provide a definitive answer to the “best” level of the charges in terms of the community of users.

## **4. GENERAL LEVEL OF INTERRUPTIBLE CHARGES**

### **4.1 Capacity/Commodity Split**

At present, for interruptible supply points, the shipper pays neither NTS exit capacity nor LDZ capacity charges. The level of interruptible transportation charges relative to firm transportation charges is therefore determined by the split of capacity and commodity charges for the NTS and LDZ.

For the NTS, a proposal was made last year to move the capacity/commodity split from 65/35 to 75/25. This proposal was vetoed by Ofgas, and Transco would welcome any views or evidence on the appropriate split (see discussion paper PD4).

The LDZ capacity/commodity split is more significant, in terms of the level of charges, for most interruptible supply points. The present split of 50/50 has been reviewed as part of the general review of LDZ charges. The findings are set out in Pricing Discussion paper PD4. These findings indicate that, on a marginal cost basis, capacity costs are around 38% of total LDZ costs and commodity-related costs are less than 1%. The marginal cost analysis does not therefore give a definitive answer as to what the total capacity/commodity split should be since this depends crucially on the question of how the remaining LDZ costs should be reflected in charges. However, the marginal cost analysis does suggest that, on a cost-reflective basis and with the assumptions made in the paper, the difference between the firm and interruptible LDZ charges should be no more than 38% of the total LDZ charge. On this basis the LDZ capacity charge proportion should be reduced from the present 50% rather than increased. No proposal for changing the LDZ capacity/commodity split is being put forward for October 1999.

#### **4.2 Capacity-Related Costs**

The above discussion of the level of interruptible transportation charges assumes that LDZ capacity charges should not be incurred for interruptible transportation on the basis that there is no need for investment in capacity-related assets to support these loads. However, for most interruptible supply points connected to the LDZ distribution system this is not true.

The sizing of the distribution pipeline system is based primarily on the need to cope with the peak six-minute flow. The timing of the peak six-minute flow for a supply point is less certain than the timing of peak day demand. For a low pressure distribution main which supplies both firm and interruptible supply points it is not normally possible at present to accurately forecast when the peak six minute flow will occur and to interrupt the interruptible supply point in time to reduce the flow at that peak. For this reason, the sizing of the distribution system will typically need to assume that the interruptible supply point is taking gas. There is therefore, in most cases, little or no reduction in investment in capacity-related low pressure distribution main assets related to a supply point being interruptible rather than firm. On a cost-reflective basis therefore transportation charges for interruptible supply points should, in most cases, reflect the same level of distribution system costs as is reflected in firm transportation charges.

The impact on the LTS of peak flows experienced on the lower pressure tiers is reduced by diversity and the relationship between maximum hourly flow and daily demand is more easily established. As a result it is easier to identify when interruption will reduce the peak flow rate and the LTS can normally be designed to meet the peak day firm load only. Therefore a supply point being interruptible will not typically lead to any additional LTS investment requirement

and it is reasonable that interruptible transportation charges should not reflect the LTS capacity-related costs.

If interruptible LDZ charges were changed to be more cost-reflective as set out above, it would lead to a substantial increase in the level of these charges for many supply points. However, further analysis is recommended prior to implementation of any change in the structure of LDZ charges for interruptible transportation in order to determine what level of capacity-related costs should be reflected for different sized supply points. Possible options are for all standard interruptible LDZ supply points to pay a fixed proportion of the normal LDZ capacity charge or, alternatively, to determine a separate interruptible capacity charge function which would reflect typical usage of the distribution and LTS systems by different sized interruptible supply points.

Section 5 below shows that there would be reinforcement costs, covering investment in both LDZ transmission and distribution systems, in order to eliminate Network Sensitive Loads (NSLs). This shows that there can be locations in the distribution network where an interruptible supply point requires less capacity-related reinforcement than if the supply point had a firm supply. The implication from this is that, in order to achieve cost-reflective charges, the differential in charges between standard interruptible supply points and NSLs should be delivered by, for an NSL, a reduction in, or avoidance of, the capacity charges which a standard interruptible supply point should pay, rather than through a reduction in the commodity charge.

Transco recognises that a move to interruptible transportation charges for LDZ supply points including a capacity element would be a major change. It therefore wishes to consult on the change now with a view to potential implementation from October 2000.

## **5. NETWORK SENSITIVE LOADS (NSLs)**

An NSL is a specific interruptible supply point that may need to be interrupted to maintain nearby firm supplies which are connected to the same pipeline system. Since the question of whether a site is an NSL depends on the pipeline system and the level of firm supply nearby, which can change at any time, NSL status can only be determined by Transco, and for security of supply reasons there must be an opportunity to determine a supply point as NSL at short notice to reflect changing supply conditions. At present NSL status is not recognised within the Network Code but is a term used by Transco to provide better information to the consumer and shipper on a supply point's situation and its likelihood of being interrupted. There are 146 NSLs out of 1,653 interruptible sites within the LDZs.

As a result of an interruptible supply point being an NSL it may have a higher probability of being interrupted, particularly during mild winter weather, than standard 45-day interruptible supply points. Appendix D shows information which Transco has already provided to shippers and consumers on the level of Transco-determined and commercial interruption for each of the last three winters. Each of these winters has been milder than average and the average level of Transco-determined interruption has been very low and far below that caused by shippers. In each of the winters NSLs have, on average, experienced more interruption, in terms of the volume of interruption per site, than non-NSL sites. This has been particularly

noticeable in the last two winters. However, it should be noted that in a severe winter NSLs may not be interrupted more than other interruptible sites.

The different level of interruption in recent mild winters has led to calls for a difference in the level of charges for NSLs compared to standard interruptible sites. Related to this, there has been a suggestion that transportation charges for interruptible sites could be restructured so that interruptible sites receive a rebate whenever they are interrupted; in this way those sites seeing most interruption would receive the highest rebate.

Transco operates under the BG plc PGT Licence which includes, as one of its conditions, that Transco's charges should reflect its costs. Under the present operating regime, the main difference in costs incurred by Transco between a firm supply point and an interruptible supply point is the difference in capacity-related investment. There is little or no variation in costs caused by the actual interruption of a supply point. It would not therefore be cost-reflective to have as a main element of the interruptible transportation charges a charge or rebate relating to the actual incidence of interruption.

Any difference in the level of charges for NSLs from standard interruptible sites needs to be related to possible differences in the level of capacity-related investment. Recent analysis of the costs which are avoided through sites being NSLs rather than standard interruptible indicates that there is a difference in the typical level of these costs. On a cost-reflective basis, there should be a significant differential between the charges for NSLs and standard interruptibles in terms of the level of capacity charges payable. However, at present standard interruptible sites do not pay any LDZ capacity charge.

If a difference in the level of charges is to be introduced from October 1999 it will be necessary for it to be in the form of a commodity charge reduction. The cost differential, between NSLs and standard interruptible sites, is estimated as being equivalent to 50% of the standard commodity charges payable for transportation to an interruptible supply point. Further details of this analysis of the cost differential can be found in Appendix C. As outlined in Section 4, it is considered that, rather than NSL charges being too high, standard LDZ interruptibles are at present potentially being undercharged. However, if any change were delayed until standard interruptible charges include a capacity element then a differential would not be introduced before October 2000. In order that NSLs see some charge differential relative to standard interruptibles as soon as possible, **Transco proposes a reduction in transportation commodity charges of 10% for NSLs, with effect from 1 October 1999.** This proposal is in effect an interim charging position for NSLs prior to the restructuring of standard interruptible charges, possibly from October 2000. It is for this reason that a differential below the fully cost-reflective level is proposed initially.

In order to introduce a different level of transportation charges for NSLs it is necessary for NSLs to be recognised within the Network Code. Transco has raised Network Code Modification 0300 in order to do this. This modification is at present awaiting a decision from Ofgas.

## **6. TRANSCO NOMINATED INTERRUPTIBLES (TNIs)**

### **6.1 Investment Policy**

TNI sites are sites where Transco has determined that more than 45 days interruption may be required in a 1 in 50 cold winter. There are, at present, fifteen of these sites.

At present Transco does not normally invest in order to prevent a standard 45-day interruptible having to move to TNI status, possibly as a result of other load changes. Similarly if a new interruptible load cannot be accepted as a standard 45-day interruptible then Transco will require it to be TNI, with a maximum interruption beyond 45 days.

**Transco is considering a change to its policy on investment relating to interruptible supply points.** Such a change could lead to Transco investing if necessary in order to maintain standard interruptible sites at a maximum 45 day interruption duration rather, in these circumstances, than changing their status to TNI. If the need for investment to keep to the 45 day maximum were to be as a result of a potential new supply point then this investment requirement would be considered with any other investment for the new supply point, and included in the Economic Test for the new supply point, where this is applicable.

Similarly Transco may consider investment to convert any of the existing fifteen TNIs to standard 45-day maximum interruptibles. A contribution could be required in some circumstances. The present TNIs would have the option of remaining TNI if this is their preference.

These possible changes would not eliminate all TNIs immediately, even if all TNIs were to wish to become standard interruptibles, since investment in additional pipeline capacity typically takes up to three years. Similarly if a new site were to want to be connected as soon as possible as an interruptible site then it might be necessary for it to have TNI status on a temporary basis until the investment could be undertaken.

## **6.2 Amendment to Charges**

At present, TNIs are not only exempt from paying NTS exit and LDZ capacity charges, but are also eligible for discounted NTS and LDZ commodity charges. The discount rate is calculated as:

$$\frac{(N - 45)}{183} \times 100\%$$

where N is the lower of the maximum number of days of interruption stipulated at the TNI supply point, and 183.

Given the proposed reduction in NSL charges, which is also based on discounted NTS and LDZ commodity charges, it is proposed to adjust the above formula in order to recognise the value of TNIs in ensuring the safety and security of the network.

**It is therefore proposed that with effect from 1 October 1999, the discount rate which applies to the NTS and LDZ commodity charges will be:**

$$\frac{(N - 45)}{183} \times 100\%, \text{ or } 10\%, \text{ whichever is greater}$$

This has the effect of giving all TNIs with N less than 64 (and all NSLs) a 10% discount on commodity charges. TNIs where N is great than or equal to 64 will continue to receive discounted commodity charges based on the present formula.

## 7. FLEXIBLE INTERRUPTION ALLOWANCE

The present “45-day or firm” regime has been around for a long time, and as a result of this and consumer demand, Transco has looked at offering additional services based on Interruptible Allowances (IAs) other than 45 days.

From previous customer representations and responses to NCD1, the most interest in this service lies in the availability of IAs which are significantly lower than 45. Consequently, Transco has concentrated its efforts on examining the effect of offering such services, which by their nature, would involve additional costs relating to system capacity.

Since the need to provide additional capacity is the key, it is cost-reflective to introduce a part-payment of capacity charges, where an IA below 45 is requested. Indicative (NTS exit and LDZ) capacity charge payments put to the industry in March 1999 were as follows:

<u>Interruption Allowance</u>	<u>Percentage of Capacity Charges Payable</u>
15 days or less	100 %
20 days	80 %
30 days	50 %

These figure are indicative only and come from a basic analysis of capacity availability in the Southern UK areas of the NTS, on the basis that it is in these areas that a service such as this is likely be most highly valued by the Industry.

In these areas the maximum transmission capacity (i.e. that provided by the pipelines and compressors of the NTS) is reached before the 1:20 Peak Winter Day design level, the shortfall in daily capacity being provided from the Constrained LNG facilities in these areas. A simple linear interpolation has been applied which concludes that a 30 day SNI would pay 50% of the capacity charges on the basis that a 45 day SNI currently pays none and a 15 day SNI service would need to pay 100% of the capacity charges due to the effect of Constrained LNG.

Transco currently utilises a LRMC modelling process to determine pricing alterations to the NTS Exit Capacity Charges. This model could be used in the future to determine, on an exit zone basis, more accurate exit capacity charges for 30 day SNIs but would require development in order to take account of the impact of additional interruptible load within the system on compressor stations. Enhanced utilisation of the NTS, and in particular compressor stations, has an indirect impact on investment relating to the acceptable limits of running hours, maintenance life and emissions.

Transco has not yet received evidence to suggest that this type of service will be economically attractive to many gas consumers, particularly given the recent history of low interruption

levels. The industry's reaction to the above figures so far has been muted. In addition, it may be that similar flexibility is better achieved through future developments relating to exit capacity. **Transco is keen to receive feedback on whether it would be worthwhile introducing such a service.**

Attention is drawn to two other considerations. Firstly, that the costs involved in necessary system changes, particularly for systems relating to network operation, need to be considered against the potentially short lifespan of such services before other developments overtake them. Secondly, this service can only be offered when the relevant part of Transco's system is physically able to support such a load.

## **8. THRESHOLD FOR INTERRUPTIBLE SERVICES**

The present threshold above which interruptible transportation services are available is 200,000 therms per annum. As part of the NCD1 consultation process Transco has received representations which point out that the existing threshold excludes a number of sites that wish to receive interruptible transportation services.

Transco believes there is only limited justification for the present threshold. So long as the charges for interruptible transportation are cost-reflective then the choice of firm or interruptible transportation should be offered as widely as possible. Indeed, if additional interruptible supply points can be connected to the network as a result of lowering the threshold, and these supply points pay transportation charges which are above the marginal costs incurred, then these new loads should in due course be expected to lead to lower transportation charges for all consumers.

As indicated in earlier sections, Transco believes there is evidence that the transportation charges for all interruptible sites are not at fully cost-reflective levels at present. However, Transco believes that there would be benefit in reducing the threshold to enable more supply points to have the opportunity to receive interruptible transportation services.

It is recognised however that, from a shipper's point of view, interruptible supply points incur higher administration costs than firm sites, and that given the tight margins which exist in the industrial and commercial gas market, there is likely to be a level at which it could cost a gas consumer more in transportation charges to be interruptible than firm. Transco believes that lowering the interruption threshold towards 100,000 therms will allow the market to effectively set its own lower level. In view of the other changes proposed, **Transco would welcome feedback on the desirability and timing of the above proposal.**

## **9. OTHER ISSUES RAISED IN NCD1**

### **9.1 Demand Level Interruption**

It was suggested that it may be more equitable if every interruptible site had a nominated demand level at which it would be interrupted by Transco. For example, some sites could be interrupted when system demand reached 85% of peak, while others would only be

interrupted at 95% of peak. The suggestion for this type of regime did not receive any support from the representations to NCD1. It would also require some radical changes to the pricing structure, UK Link systems and Supply Point Administration (SPA) processes; and while it may make planning of the network a little more straightforward in the longer term, it may also lead to some over-interruption. There would also be no cap to the number of days on which Transco may request interruption, which would lead to greater uncertainty for gas consumers.

**Transco does not propose to introduce demand level interruption at this time.**

## **9.2 LDZ-Based Regime**

The original thinking behind the idea of an LDZ-based interruptible regime was that the charges for interruptible transportation should vary to reflect the location of the LDZ and the demand position within the LDZ. However, the analysis described in earlier sections indicates that the NTS is the most significant part of the network in terms of the level of interruption for most standard supply points. The level of capacity within the NTS relative to demand is already reflected in the NTS exit capacity charge from which interruptible sites are exempt. Thus, whilst transportation charges for standard interruptible supply points are the same regardless of location (other than the optional NTS commodity tariff), the difference between the charges for a firm site, and an equivalent interruptible site in the same charge zone, is already dependent upon the location of the supply point.

**Transco does not propose to introduce an LDZ-based regime at this time.**

## **9.3 Change the 1-in-50 Severe Winter Criterion**

The interruption allowance presently indicates the maximum number of days that Transco may interrupt a site in a 1-in-50 severe winter. It was thought that if this criterion was reduced to, say, 1-in-20, this could create additional flexibility, which in turn would allow for more interruptible services to be introduced. A change to this criterion however, would not change the amount of actual interruption that would be required, and the idea received little support during Transco's consultations.

**Transco does not propose to change the 1-in-50 severe winter criteria at this time.**

## **9.4 Short Notice / Short Duration Interruption**

The idea of short notice interruption is that interruption could be called, for some consumers, at less than the four hours notice - for example, possibly one hour or less - at present given to shippers. Short duration interruption is where the interruption would be, at the time of notification, for a period less than a whole day.

Both short notice and short duration interruption could benefit the industry. However, in both cases it is felt that, within the present arrangements, the extent of this benefit would be minimal at present. With short notice, any benefit would only be apparent at specific times, such as in emergencies and during high demand forecast swings.

In light of this **it is not proposed to introduce either service with effect from 1<sup>st</sup> October 1999**. These types of services might be more attractive with changes to the NTS balancing regime or if there were direct interruption communication between Transco and the consumer.

With the potential developments in the NTS balancing regime and in the relationship between Transco and end consumers, Transco will review how these services might be better utilised in future, to the benefit of the industry.

## **9.5 Reducing the Number of Interruptible Supply Points**

Some of the interruptible sites that are connected to the Transco system have a greater value, in terms of their interruption capabilities, than others. NCD1 included the idea that interruptible transportation should either only be offered where required by Transco, or offered on terms reflecting the particular benefits of a location. Such a move would be likely to reduce the number of interruptible supply points.

Transco's present view is that, given the PGT Licence requirements, charges for interruptible transportation should reflect the costs involved. If the charges reflect the avoided costs then they might be expected to better reflect the interruptible benefits of a location. However, it is impractical to do this on a site-specific basis.

Transco also believes that it is difficult to justify an arbitrary reduction in the number of interruptible supply points. Indeed, with the proposal to reduce the interruption threshold, the choice of interruptible transportation would be available to more consumers.

## **10. COMMUNICATION ISSUES**

### **10.1 Direct Communication between Transco and Gas Consumers**

As has been previously mentioned, Transco has made a substantial effort to obtain the views and opinions of gas consumers. There is clearly a very strong opinion amongst consumers that Transco should have more direct communication with them, rather than relying upon shippers. In particular, consumers would like Transco to call interruption directly with the consumer, and Transco recognises that there could be potential benefits from this change to the existing regime. It would cut a link from the communication chain (shippers) and therefore reduce the possibility of errors being made. Some consumers also feel that the relationship that previously existed between their site managers and British Gas staff in the old regional grid control rooms led to potential difficulties being picked up and resolved early in the process before they created a problem.

There are however considerable difficulties that need to be overcome before the interruption process could be changed. One of the hurdles is that Transco's operational shift teams are presently resourced to contact (using faxes and IX links) a maximum of around 25 shippers in the event of interruption being required. If direct communication of interruption is introduced, then Transco would need sufficient resources to potentially contact up to 1,700 individual sites. In addition, shippers would also need to remain informed, in order to allow them to adjust their demand forecasts accordingly. Shippers would also lose the ability to propose

alternative sites to be interrupted. This may cause difficulties for some shippers that have made use of this facility in the past.

Another area of concern would be the application of failure to interrupt (FTI) charges. It seems reasonable that, if shippers are to be removed from the communication process, any FTI charges should be applied directly to the relevant consumer. To do this would require some form of contract between Transco and interruptible consumers. This is a central theme of the present Ofgas consultation on customer/Transco issues in the industrial and commercial gas market which proposes the development of connection agreements. Transco believes that this issue will be better dealt with as part of that process. Transco does not object to direct communication of interruption, but does propose to change the existing process until such time as the above issues have been satisfactorily addressed.

During 1998 and 1999, Transco has continued (through existing and new communication initiatives) to provide information about interruption and the interruption regime to shippers, gas consumers and other interested industry parties. These initiatives have included the following:

#### **10.1.1 Interruption Seminars**

During November 1998 Transco held two interruption seminars. These were well attended, with approximately 400 shipper and gas consumer delegates. Presentations were made by Transco, gas consumers and shippers, on topics which included the reasons for and mechanics of interruption, Transco ancillary services and potential future developments to the regime.

#### **10.1.2 Interruption Information Packs**

Transco has updated and recirculated its interruption information packs for both shippers and gas consumers. These packs provide a concise introduction to the interruption process and the interruption services which Transco provides.

#### **10.1.3 Interruption Forum**

Transco hosted a monthly interruption forum at its offices in Tottenham Court Road in London. Participants included shippers and representatives from gas consumer groups. This forum has been instrumental in identifying and debating issues of industry-wide concern, and in part led to the present review of interruptible services. In recent months the interruption forum has become a part of the Capacity Workstream. This has avoided the duplication of discussion and the need for several people to attend two meetings.

#### **10.1.4 Web Site**

Transco's interruption web pages continue to be a popular service as evidenced by the 3534 hits it received over the winter. The web site includes real time details of actual interruption and probability of future interruption. It also includes details of Transco interruption services, and high level data on historical and expected levels of interruption.

The address for the web site is <http://www.transco-bgplc.com>

### **10.1.5 Telephone Information Service**

Shippers, suppliers and gas consumers can also obtain information about interruption and the probability of interruption by calling this recorded message service. The telephone number is 0345 400 000. This line has received 2350 calls this winter.

### **10.1.6 Confirmation of Interruption Line**

This is a new service which has been provided this year. The service enables gas consumers to contact Transco directly to confirm Transco-interruption of their sites. The service is available “after the day”, on weekdays during normal office hours. Transco has undertaken a mail shot to all interruptible sites to inform them about this new facility.

The telephone number for this service is 01455 893062.

## **10.2 Interruption Questionnaire**

Despite all the above initiatives, Transco’s questionnaire to interruptible consumers has shown that there is a lack of understanding about the existing regime; 30% of respondents thought that they were TNI loads (actual proportion 1%), 63% had the impression that the majority of their interruption during winter 97/98 was Transco-initiated (actual proportion 4%). There was also a high proportion (69-81%) of respondents who had no opinion on, or no knowledge of, Transco’s ancillary services. Full details of the questionnaire results are in Appendix B.

This lack of understanding is of concern to Transco. Transco has already set up the Confirmation of Interruption phone line which, if used by consumers, will remove any doubts about the reasons for any interruptions. Also, throughout the summer of 1999, Transco intends to target sites that may benefit from services such as partial interruption. These services will still need to be applied for and booked by a shipper, but Transco will be more proactive in marketing the available services.

## **10.3 Information Provision**

Interruptible gas consumers make commercial decisions about their expected number of days of interruption. They need to estimate the levels of standby fuel for example that they are likely to require. Consumers should recognise that they need to have contingencies in place for a severe winter, but in an average winter the number of days interruption will be considerably less than 45.

As a direct result of consultation with consumers, Transco has produced detailed historical data about the amount of interruption for the last three winters. This information should be considered alongside information on the severity of each winter for the past 70 years. Transco has also produced information associated with the expected interruption levels in an “average” winter. This shows the number of days on which Transco expect to require some interruption due to NTS constraints only. Interruption may also be required for other reasons. The most usual of these is due to LDZ constraints, but sites affected by these are generally classed as

NSLs. This information, found in Appendix D, has already been published on Transco's web site and Transco will endeavour to improve and update it.

## **11. OTHER ISSUES**

### **11.1 Equitability**

Transco has an obligation to give unfair advantage to one shipper over another in the conveyance of gas. In addition to this, Transco seeks to avoid inequity between gas consumers in terms of the number of days interruption as far as is practicable.

There has been a perception among some within the industry that a consumer who is part of a shipper's small interruptible portfolio would see a higher level of interruption than an equivalent site in a larger portfolio. This however is not the case in practice for Transco interruption of standard interruptible supply points. The issue of NSLs is referred to in section 5.

If a shipper's actual interruption exceeds their target, for example because they only have one site to choose from, then the supporting system automatically adjusts the allocation of interruption the next time interruption is called to compensate for this. The net result of this functionality is that consumers whose shippers have only a small number of sites in any LDZ should not experience any more Transco interruption than those whose shippers have larger portfolios.

It is important to note, however, that in most cases Transco will only suggest a list of sites that may be interrupted, and shippers may choose to substitute those sites for others.

### **11.2 NTS Exit Capacity Market**

The arrangements for how NTS entry capacity is determined and sold are presently being debated as a part of the Review of Gas Trading Arrangements (RGTA). Ofgas have indicated that once these entry arrangements are implemented they would wish for the arrangements for NTS exit capacity to be made consistent with entry. Major changes to the exit capacity regime are likely to lead to changes to the interruption regime. In particular, if there were a market-based mechanism for exit capacity, such as an auction, then this might lead, for example, to existing interruptible consumers bidding on the market for firm capacity when they require it.

Another possible development that might be considered is the introduction of an interruption market. This could allow all consumers/shippers to put a value on the inconvenience associated with being interrupted. Transco's survey of interruptible consumers shows very limited support for such a market.

Although it is not possible to say how the regime will look if and when these types of changes occur, it is likely to be considerably different to the present regime. It may also require changes to BGs PGT Licence. It would be disruptive and inefficient to introduce radical

changes to the structure of interruptibles services now if further radical changes, which may be inconsistent with these, are on the horizon. Against this background, Transco does not consider it prudent to introduce significant changes to the existing services for October 1999, but rather proposes to further develop the services offered within the constraints of the present regulatory regime.

### **11.3 Consistency with Interconnectors and Storage Sites**

Ofgas has indicated that it places a high priority upon the principle of consistency. While Transco supports this principle where it is appropriate, it should be recognised that supply points, interconnectors and storage sites are all different, and that the industry's interests as a whole may be best served by seeking the most appropriate rules relating to each particular case. These rules should account for parallels with other activities, but without requiring comparability or equivalence where this would be unhelpful, inefficient or reduce levels of service.

Storage sites cannot be interrupted for more than 15 days outside of the winter period. In this instance the winter period is defined as 1 November to 30 April. If there is sufficient interest from all parties, Transco will raise a proposal to extend a similar arrangement to standard interruptible supply points.

### **11.4 Trumping**

The term trumping refers to the situation where a supply point is already interrupted by its shipper, and Transco also calls for interruption at the same supply point.

The only circumstance in which Transco trumps shipper interruption (apart from NSLs) is when forecast demand (taking account of shipper interruption) exceeds the capacity of part of the NTS. Some Transco interruption is then required in addition to the shipper interruption already in place. If shippers were allowed to convert some of their own interruption into Transco interruption, the required demand reduction would not be achieved and system security would be compromised. Any sites which have already been interrupted by their shipper are added to the list of candidates for Transco interruption (although shippers have the opportunity to vary these).

### **11.5 Ancillary Interruptible Services**

#### **11.5.1 Interruptible Supply Point Firm Allowances (IFAs)**

The IFA service allows an interruptible site to take up to 30% of its peak load (SOQ), subject to the availability of capacity, on a day of interruption. This service enables sites to maintain essential processes or provide their own ancillary services such as canteens or water heating

The charge for an interruptible firm allowance is equivalent to 12 months capacity charges based upon the size of the allowance. IFAs all expire on 30 September each year, which can mean that shippers who apply for an IFA with effect from a date after 1 October pay a relatively high charge. Transco has proposed a Network Code Modification (0324) that would allow the IFAs to remain effective for a full 12 month period, no matter when the allowance was first taken out. The payment for the IFA will be by a single charge to cover the

12 month period. Where applicable, a reconciliation will take place to take account of any changes to Transco's charges during the IFA period.

### **11.5.2 Partial Interruption**

The partial interruption service allows for a reduction in gas demand on a site, rather than full interruption. The amount of reduction is agreed in a series of tranches in order to arrive at a gas supply profile which best serves the individual needs of the site. This service may be of particular use to NSLs where only a part of their load may be network sensitive.

The maximum number of tranches available under a partial interruption contract has recently been increased from five to nine (Network Code Modification 0301, implemented 1 February 1999). As part of the consultation process for this modification, Transco agreed to look again at the reasons why shared supply meter points are not able to have a partial interruption contract. This was initially because the inclusion of shared supply meter points was considered too complex. Transco now takes the view that if there is sufficient demand to justify the necessary process developments, then Transco will propose a further Network Code Modification.

## **QUESTIONS FOR CONSULTATION**

**Respondents' views are invited on all the issues raised in this document and, in particular, on the proposals for changes in the structure of interruptible transportation charges.**

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## **APPENDIX A**

### **RESPONSES TO DISCUSSION PAPER NCD1**

The following paragraphs are a brief summary of the responses to the discussion paper NCD1 - Transco Review of Interruptible Services. Transco wishes to thank all those who responded.

#### **Association of Electricity Producers**

The AEP believes that there is a significant level of inequity in the number of interruptions experienced by consumers and the level of compensation in terms of commodity charge discounts for each supply point. It supports the idea of shorter, or possibly longer, notice periods than the 5 hours currently afforded to the shipper.

The AEP believe that Transco should provide historical and forecast data at LDZ level, detailing the actual number of interruptions that have occurred and that are forecast to occur.

#### **British Gas Trading**

BGT are concerned that any changes to the interruption regime are carefully considered and phased in over a period of time.

BGT believes that Transco should only be allowed to sell the quantity of interruption that it requires in any area. Its says that where Transco "oversells" interruption, the firm loads in an area are effectively cross subsidising the interruptible loads.

Swapping and Buddying are of little use and a review of the suitability should be undertaken.

Network Sensitive Loads - any network code definition should be supported by a pricing proposal.

Short Notice Interruption - BGT has concerns about how Transco would be equitable in the administration of interruption if sites had different notice periods.

Generally, BGT support the review process but believe that any changes should bring benefits to the whole community.

In a later response to the discussion paper BGT expressed its concern about the high priority that Ofgas appear to have placed upon the principle of consistency across different types of exit points (e.g. supply points, storage sites, and interconnectors).

BGT believes that the overall interests of the industry are best served by seeking the most appropriate rules relating to each case.

#### **British Steel**

British Steel thinks that as a minimum Transco should immediately "freeze" the current service levels and invest to maintain them at the current levels. Transco should be not able to unilaterally downgrade the service to NSL or TNI.

New firm load should be refused or delayed if it is likely to degrade the level of service an Interruptible Supply Point receives.

Current pricing is discriminatory as it fails to make any allowance for the different levels of risk of interruption or actual interruption. In order to eliminate this discrimination, at each ISP, Transco could pay the customer an option fee which would vary according to the interruption allowance. This would then be followed by an exercise fee for each day of interruption.

British Steel also comments that the differential between interruptible and firm prices should be increased.

It suspects that Large sites are interrupted more often than small sites and would like Transco to propose a network code modification outlawing this and removing shipper choice from interruption.

### **Chemical Industries Association**

CIA has long argued that the current interruptible regime is operated unjustly and inequitably. It believes that the regime is archaic and has not evolved to reflect the dramatic changes in the UK gas market since privatisation. There is increasing discrimination between groups of customers depending upon who the shipper is, where they are located in the country and location on the local network.

The CIA has conducted a survey amongst their members. Number one priority, amongst CIA members is direct interruption by Transco. These members have experienced problems where shippers have claimed that Transco have interrupted them when in fact the interruption was shipper initiated. Delays have also been experienced in supply restoration.

The CIA views the current regime as inflexible and believes that the cost of interruption does not reflect the risk of interruption. Most of their members would prefer a considerably smaller interruption allowance.

The CIA supports a reduction of the 200,000 therms interruption threshold.

### **Eastern Natural Gas Ltd.**

Eastern supports the introduction of differential charging for NSLs.

It strongly supports more transparency in interruptible charging and believes that transportation charges to a particular supply point should clearly reflect the value to Transco of the potential to interrupt.

### **EIUG**

EIUG responded by sending a copy of their response to the Ofgas consultation on consumer issues. It would like, in the short term, more information from Transco about the costs of investing to allow smaller interruption allowances and to eliminate the need for NSLs.

EIUG raise serious concerns that in the event of a severe winter, many sites would be interrupted for 45 days and “UK plc” would suffer from shortages in back up fuel and problems with delivery.

It believes that customers should be able to assess their interruption profile, including number of available days duration and notice periods, to give Transco a range of services to choose from. Having agreed these details with customers, Transco will have more flexibility in calling interruption and should therefore be able to operate the system more efficiently. Transco must also operate its own regime by talking directly to customers for both the beginning and the end of interruption.

EIUG would like to see interruptible customers paying a lower price than they currently pay and it would like Transco to introduce a system of charging where Transco would pay a fee to the customers for each actual interruption.

### **Gas Consumers Council**

The GCC restricted their comments to the interruption threshold. It believes that the current 200,000 therms pa limit is too high for some consumers. It gave an example of a grain drier which would never use gas after mid October but whose AQ would be less than 200,000 therms. The only options open to this company are firm gas or oil. It currently uses oil but may switch to gas if interruptible transportation were to be offered.

### **Mobil**

Mobil would support a move to change the current 1 in 50 severe winter criteria to a lower level of 1 in 20. It does not support Demand Level Interruption which appears to be “too mechanistic and lacking the required flexibility”.

### **Scottish Hydro-Electric**

Scottish Hydro-Electric believes that the current interruption regime is too complex and lacks transparency. It would like Transco to publish the likely number of days interruption for an average winter for each particular site.

It thinks that Transco should not, ordinarily, be allowed to designate NSLs or TNIs, but where has to it should lose all rights to any transportation charges until it has reinforced the network to alleviate the problem.

Scottish Hydro supports the concept of a daily market for exit capacity. Only sites which had not booked exit capacity on the day would be deemed to be interruptible. Demand side bidding would be possible allowing customers to self interrupt.

### **Total Gas Marketing**

TGM believe that new interruptible loads should, where possible, be accepted on the same terms as the existing interruptibles in that area. NSL and TNI may be used for short term only (2 - 3 years max.) whilst reinforcement is completed.

TGM support the introduction of differential charging for NSLs. It also supports the introduction of a level of service different to 45 days. TGM believes that any such service should be guaranteed for a period of at least 2 years.

TGM considers that the development of an LDZ-based regime should be pursued, however it did not support the annual variation in transportation charges that potentially could follow such a change.

### **Utility Buyers Forum - UBF**

UBF would like a more flexible system with a smaller interruption allowance. It strongly supports a move to 90/10 capacity/commodity for NTS and LDZ.

It feels that the smaller established sites are getting a raw deal compared to the new power stations and the interconnectors. It would like to see a regime where new sites interrupted first and the more established sites receive less interruption.

## **APPENDIX B**

### **SUMMARY OF QUESTIONNAIRE RESULTS**

The questionnaire was originally handed out at the November interruption seminars. A very poor initial response was received (around 15 questionnaires returned) and no real conclusions could be drawn. The same questionnaire was then mailed to all interruptible sites in early January. A much better response was achieved.

A total of 1706 questionnaires were sent out and 130 (approx. 8%) were returned by 24/2/99.

Interruptible consumers were asked about their current status. A total of 48% did not know their status or thought that they were TNI sites. This indicates a clear lack of understanding about the meaning of the terms used to describe the status of interruptible sites. Consumers with AQs over 5 million therms showed significantly more understanding of their status than the smaller sites.

62% of respondents favoured a regime that was similar to the current regime, with only 28% wanting a regime that included a variety of interruption allowances, however amongst the largest consumers demand for this type of service was much greater.

If a new variable interruption allowance was to be offered by Transco then 49% of respondents would prefer to stay at 45 days with roughly equal proportions wanting a firm supply, an interruption allowance of less than 45 days or an interruption allowance of more than 45 days.

When asked who initiated the majority of the interruption at their site last winter 63% said that it was Transco and 11% said it was the shipper. There was no significant change to this figure across all load sizes. In fact throughout the winter across all the LDZs only 4% of the total interruption was initiated by Transco.

When asked about the current ancillary services which Transco offer the majority (69-81%) of respondents had no opinion or no knowledge of the services. Out of those who did offer an opinion a high proportion made positive comments with only the swapping and buddying service being unpopular.

**Results of Questionnaire sent to Interruptible Consumers (Jan 1999)**

	<b>Load Size (AO therms)</b>						<b>Totals</b>	<b>Actual Proportions</b>
	<b>10-50 million</b>	<b>5-10 million</b>	<b>2-5 million</b>	<b>1-2 million</b>	<b>0.2-1 million</b>	<b>Not Stated</b>		
<b>Current Status (respondents opinion)</b>								
45	10 67%	5 83%	7 50%	9 45%	23 39%	5 31%	59 45%	99%
TNI	2 13%		6 43%	7 35%	21 36%	3 19%	39 30%	1%
NSL	1 7%			1 5%	2 3%		4 3%	8%
Don't know	1 7%	1 17%	1 7%	3 15%	13 22%	5 31%	24 18%	
<b>Type of future regime</b>								
As Existing	4 27%	1 17%	7 50%	15 75%	42 71%	11 69%	80 62%	
Varying max days	9 60%	4 67%	4 29%	3 15%	14 24%	3 19%	37 28%	
Market based	1 7%		2 14%		2 3%		5 4%	
Other	1 7%	1 17%	2 14%	1 5%		1 6%	6 5%	
<b>Preference if a varying interruption allowance was offered</b>								
Firm	1 7%		2 14%	2 10%	10 17%	3 19%	18 14%	
Lower	7 47%	3 50%	2 14%		6 10%	2 13%	20 15%	
45	5 33%	2 33%	6 43%	12 60%	32 54%	7 44%	64 49%	
Higher			2 14%	4 20%	8 14%	1 6%	15 12%	
No preference	2 13%	1 17%	2 14%	2 10%	3 5%	3 19%	13 10%	
<b>Last winter (97/98) who initiated the majority of your interruption</b>								
Don't know				1 5%	6 10%	5 31%	12 9%	
Transco	12 80%	5 83%	7 50%	14 70%	40 68%	4 25%	82 63%	4%
Even		1 17%	5 36%	1 5%	4 7%	2 13%	13 10%	
Shipper	3 20%		1 7%	3 15%	5 8%	2 13%	14 11%	96%
<b>Opinion of current interruptible services</b>								
<b>Opinion +ve</b>								
Partial	10 67%	3 50%	2 14%	2 10%	5 8%	4 25%	26 20%	
IFA	11 73%	3 50%	3 21%	4 20%	8 14%	5 31%	34 26%	
Swap/Buddy	2 13%		2 14%	2 10%	2 3%	2 13%	10 8%	
Web/Line	12 80%	2 33%	3 21%	3 15%	8 14%	4 25%	32 25%	
<b>Opinion -ve</b>								
Partial			1 7%		1 2%		2 2%	
IFA				2 10%	3 5%	1 6%	6 5%	
Swap/Buddy	8 53%	3 50%	1 7%		1 2%	1 6%	14 11%	
Web/Line		2 33%	1 7%				3 2%	
<b>No opinion</b>								
Partial	5 33%	3 50%	11 79%	18 90%	53 90%	13 81%	103 79%	
IFA	4 27%	3 50%	11 79%	14 70%	48 81%	10 63%	90 69%	
Swap/Buddy	5 33%	3 50%	11 79%	18 90%	55 93%	13 81%	105 81%	
Web/Line	2 13%	2 33%	10 71%	16 80%	48 81%	12 75%	90 69%	
<b>LDZ</b>								
EM	4 27%	1 17%	4 29%	1 5%	6 10%	2 13%	18 14%	12%
SC	1 7%			3 15%	11 19%	2 13%	17 13%	12%
YORK	1 7%		2 14%	4 20%	4 7%	1 6%	12 9%	11%
NORTH	3 20%	1 17%	1 7%	1 5%	4 7%	1 6%	11 8%	6%
NW	1 7%		3 21%	2 10%	7 12%	2 13%	15 12%	15%
WM		2 33%			6 10%	2 13%	10 8%	8%
WAL				2 10%	3 5%	2 13%	7 5%	5%
EA	2 13%	1 17%	3 21%	2 10%	7 12%		15 12%	7%
SW			1 7%	1 5%	1 2%	1 6%	4 3%	7%
SOUTH		1 17%		1 5%	3 5%	1 6%	6 5%	5%
SE	2 13%			2 10%	2 3%		6 5%	6%
LOND	1 7%			1 5%	5 8%	2 13%	9 7%	6%
Totals	15 12%	6 5%	14 11%	20 15%	59 45%	16 12%	130	

Response Rate 8%

## APPENDIX C

### COST OF REMOVING NSLS

Transco has undertaken analysis to determine the costs saved in transporting gas to NSLs relative to other interruptible loads. The analysis is based on the reinforcement cost to remove the constraints causing NSL status. These constraints are all within LDZs. The cost is annualised over 60 years, as this is the expected life of the reinforcement, and a 7% rate of return on capital is assumed. The total avoided cost is divided by the total annual quantity for the NSL sites to estimate the average avoided cost on a per kilowatt hour basis.

Estimate of cost of removing all NSLs	£55,000,000
Annualised over 60 years at 7%	£3,661,315
AQ of all NSLs	1.06x10 <sup>10</sup> kWh
Dividing annualised cost by AQ to give avoided cost on a commodity basis	0.0345p/kWh

For a typical interruptible site the annualised avoided cost of 0.0345p/kWh is equivalent to approximately 50% of the NTS and LDZ commodity charges.

## APPENDIX D

### HISTORICAL AND INDICATIVE LEVELS OF INTERRUPTION

#### How much interruption can I expect ?

Factors which can determine levels of interruption are;

- supply/ demand matching (i.e. "true commercial interruption")
- NTS transportation constraints (see below)
- localised constraints (at LDZ level, reflected in NSLs)
- offtake constraints (unlikely to be invoked as interruption should already be occurring for the above reasons)

#### Indication of the no. days in an average winter when Transco would normally expect to invoke interruption due to NTS transportation constraints

<u>Exit Zones</u>	<u>No. Days</u>
SC, NO & NE	0
NW1 & WM	9
WN & NW2	0
EM	1
WS & SW1	11
NT & EA	3
SE	0
SW2,3 & SO	14

- Based on 1999/2000 forecasts
- Note that this shows the number of days when one or more interruptible contracts would be interrupted. Not all sites would be interrupted on all days
- Analysis based on these forecasts indicates that in a **severe** (1-in-50 winter) year, it is unlikely that any exit zones would experience in excess of 45 days interruption **due to NTS transportation constraints**
- These estimates do not apply to Transco Nominated Interruptible (TNI) sites

**Actual Transco and Commercial Interruption by LDZ (Network Code winters only)**

	<b>Winter 1998/99</b>										
	<b>Transco Interruption</b>							<b>Commercial Interruption</b>			
	<u>No. Days</u>	<u>Site Days</u>	<u>Volume (mcm)</u>	<u>of which NSL</u>	<u>No. Sites</u>	<u>No. NSLs</u>	<u>CWV&lt;0 Days*</u>	<u>No. Days</u>	<u>Site Days</u>	<u>Volume (mcm)</u>	
<b>Scotland</b>	29	153	2.43	2.43	198	29	0	72	435	6.51	
<b>Northern</b>	13	18	1.38	1.09	94	7	0	15	140	22.26	
<b>North Eastern</b>	7	34	0.21	0.21	179	22	0	18	306	4.10	
<b>North Western</b>	6	84	1.14	1.14	256	27	0	17	296	13.60	
<b>East Midlands</b>	10	59	2.85	2.85	198	42	0	27	242	12.26	
<b>West Midlands</b>	6	6	0.92	0.92	127	1	0	16	270	3.32	
<b>Wales North</b>	0	0	0.00	0.00	21	0	0	14	19	0.76	
<b>Wales South</b>	5	5	0.10	0.10	66	1	0	16	92	3.65	
<b>Eastern</b>	0	0	0.00	0.00	113	0	0	13	109	1.43	
<b>North Thames</b>	1	43	1.01	0.18	104	1	0	26	139	10.51	
<b>South Eastern</b>	1	44	0.73	0.05	102	1	0	16	140	8.07	
<b>Southern</b>	4	70	0.72	0.39	83	2	0	13	118	1.36	
<b>South Western</b>	9	115	1.32	0.98	112	13	0	14	242	7.53	
	91	631	12.81	10.34	1653	146		277	2548	95.35	
Separate Days of Interruption	35								73		
							National Figure	0			

Note 1 - Contrary to previous winters, Transco interruption volumes now account for within-day restoration

Note 2 - Figures exclude NTS site information

\* Number of days where Composite Weather Variable (CWV) was below zero degrees Celsius (CWV is temperature and windspeed, transformed to give a linear relationship with gas demand)

<b>Winter 1997/98</b>										
	Transco Interruption							Commercial Interruption		
	No. Days	Site Days	Volume (mcm)	of which NSL	No. Sites	No. NSLs	CWV<0 Days*	No. Days	Site Days	Volume (mcm)
<b>Scotland</b>	8	38	1.08	0.61	199	24	0	93	595	7.65
<b>Northern</b>	6	6	0.56	0.00	92	3	0	23	157	11.79
<b>North Eastern</b>	1	2	0.01	0.01	185	18	1	23	579	10.82
<b>North Western</b>	5	50	1.78	1.70	258	24	0	21	475	20.25
<b>East Midlands</b>	2	4	0.03	0.03	200	41	0	28	352	14.57
<b>West Midlands</b>	5	9	0.50	0.42	126	3	0	18	329	7.35
<b>Wales North</b>	0	0	0.00	0.00	18	0	0	13	13	0.42
<b>Wales South</b>	1	5	0.06	0.00	69	0	0	18	120	5.97
<b>Eastern</b>	0	0	0.00	0.00	116	2	0	15	170	4.53
<b>North Thames</b>	0	0	0.00	0.00	103	1	0	26	227	7.28
<b>South Eastern</b>	0	0	0.00	0.00	98	1	0	19	209	9.57
<b>Southern</b>	2	4	0.18	0.18	78	4	0	13	202	3.52
<b>South Western</b>	13	41	0.63	0.28	116	19	0	18	248	10.09
	43	159	4.83	3.24	1658	140		328	3676	113.80
Separate Days of Interruption	18							93		
					National Figure		0			

Note - Transco interruption volumes do not account for within-day restoration. Figures exclude NTS site information

\* Number of days where Composite Weather Variable (CWV) was below zero degrees Celsius (CWV is temperature and windspeed, transformed to give a linear relationship with gas demand)

<b>Winter 1996/97</b>										
	Transco Interruption							Commercial Interruption		
	No. Days	Site Days	Volume (mcm)	of which NSL	No. Sites	No. NSLs	CWV<0 Days*	No. Days	Site Days	Volume (mcm)
<b>Scotland</b>	0	0	0.00	0.00	n/a	15	0	n/a	n/a	n/a
<b>Northern</b>	17	23	1.25	0.02	n/a	4	0	n/a	n/a	n/a
<b>North Eastern</b>	11	13	0.23	0.00	n/a	19	10	n/a	n/a	n/a
<b>North Western</b>	11	85	1.34	1.13	n/a	21	7	n/a	n/a	n/a
<b>East Midlands</b>	24	101	6.60	6.11	n/a	37	10	n/a	n/a	n/a
<b>West Midlands</b>	9	351	7.35	1.88	n/a	5	11	n/a	n/a	n/a
<b>Wales North</b>	0	0	0.00	0.00	n/a	0	7	n/a	n/a	n/a
<b>Wales South</b>	19	639	30.45	0.00	n/a	0	5	n/a	n/a	n/a
<b>Eastern</b>	3	288	4.27	0.00	n/a	2	6	n/a	n/a	n/a
<b>North Thames</b>	9	456	11.54	4.01	n/a	1	6	n/a	n/a	n/a
<b>South Eastern</b>	10	468	10.32	0.47	n/a	3	6	n/a	n/a	n/a
<b>Southern</b>	6	340	5.00	0.22	n/a	5	9	n/a	n/a	n/a
<b>South Western</b>	11	961	13.93	1.89	n/a	10	4	n/a	n/a	n/a
	130	3725	92.30	15.72	1524	122		n/a	n/a	n/a
Separate Days of Interruption	33							n/a		
					National Figure		7			

Note 1 - Transco interruption volumes do not account for within-day restoration. Figures exclude NTS site information  
Note 2 - Transco does not possess sufficient commercial interruption data for 1996/97

\* Number of days where Composite Weather Variable (CWV) was below zero degrees Celsius  
(CWV is temperature and windspeed, transformed to give a linear relationship with gas demand)

## No. days where national CWV < 0 degrees Celsius

(Composite Weather Variable (CWV) is temperature & windspeed,  
transformed to give a linear relationship with gas demand)

