

# **The review of top up arrangements in gas**

## **Conclusions document**

August 2004

## Summary

Transco, part of National Grid Transco, is responsible for operating the gas transportation system in Great Britain. Transco has a number of legal obligations, regulated by Ofgem, that govern its ownership and operation of the system. Transco also has a safety case, regulated by the Health and Safety Executive (HSE), setting out how it maintains the safe operation of the gas transmission system. Transco has in place a multi-lateral contract, known as the network code, that sets out the terms under which gas shippers can have access to, and use, the gas transmission system.

Transco's network code provides commercial incentives on gas shippers to balance their inputs to, and offtakes from, the system by the end of each day<sup>1</sup>. These incentives are created by the 'cash out' arrangements that set the price that shippers pay for any imbalances at the end of each day. These arrangements are important for ensuring that the market delivers secure supplies. They provide incentives for gas producers, shippers, suppliers and storage operators to contract to meet their customers' demands and manage the risk of gas supply failures.

Transco has two principal roles associated with keeping the system in balance. First, Transco is responsible for residual gas balancing when shippers' aggregate inputs and offtakes do not balance at the end of each day. Second, Transco is also responsible for system balancing over operational timescales when, for example, there is a network constraint or sudden loss of offshore supply and additional gas needs to be delivered within day.

Transco must demonstrate, as part of its safety case, that it has established adequate arrangements to minimise the risk of a gas supply emergency. To meet this requirement, Transco's safety case sets out, amongst other things, the current environment for balancing under the network code which includes 'top up' gas.

Top up gas is gas held (or placed) in store by Transco to meet any shortfall that Transco identifies when its forecasts of gas supplies are compared with its forecasts of firm demand in a severe winter. Under the top up rules, Transco sets a 'monitor level' of gas that must be maintained in certain storage sites. As the winter months pass, the

---

<sup>1</sup> Although the network code arrangements only apply directly to shippers, these arrangements are relevant for other parties, such as suppliers, through the contractual and market arrangements in place.  
The review of top up arrangements in gas: Conclusions document  
Office of Gas and Electricity Markets

probability of sustained cold weather and high demand falls and so this monitor level falls. Ahead of winter, Transco is required to book storage and inject top up gas if the level of gas placed in store by the market is below Transco's opening monitor level. Within winter, Transco is required to place additional gas in store to prevent the level of gas in store falling below the monitor level as a result of shippers' withdrawals of gas from storage during the winter. The detailed rules associated with the provision (and recovery of costs) of top up gas are set out in Transco's network code.

The top up arrangements were put in place with the introduction of Transco's network code in 1996. Ofgas<sup>2</sup> reviewed the top up arrangements and concluded in April 1998 that there should be no long term requirement for a top up type mechanism<sup>3,4</sup>. However, between 1998 and 2001, Transco was unable to make a demonstration to the HSE that there would be adequate arrangements to minimise the risk of a supply emergency without the top up provisions. Following the conclusions of the 1998 top up review, Ofgem approved a change to Transco's network code so that Transco now bears the net direct costs of providing top up gas. Customers, however, are exposed to any indirect costs resulting from Transco's buying gas for top up purposes such as potentially higher prompt and forward wholesale gas prices.

The potential for the current top up rules to lead to substantial costs to customers through higher gas prices has not been a significant issue in recent winters. This is because Transco's forecast levels of supply and demand in each year since 1998 have not required Transco to book significant storage capacity for top up gas or buy significant volumes of top up gas over the winter. This year, however, on the basis of Transco's forecast tightening of the levels of supply<sup>5</sup> and the indicative monitor levels, the direct and indirect costs of top up could be much higher than in previous years.

### **Ofgem's review**

Ofgem therefore initiated a review of the top up rules in May this year.<sup>6</sup> This provided an opportunity for market participants and customers to give their views on the current

---

<sup>2</sup> On 16 June 1999, the former regulatory offices, Ofgas and OFFER, were renamed the Office of Gas and Electricity Markets (Ofgem). References in the text to documents and events before this date use the name of the original regulatory office.

<sup>3</sup> "Review of top-up gas, A Consultation Document", Ofgas, February 1998.

<sup>4</sup> "Review of top-up gas, Conclusions", Ofgas, April 1998.

<sup>5</sup> Transco's preliminary forecasts for this winter are published in NGT's Preliminary Winter Outlook Report 2004/05.

<sup>6</sup> "The review of top-up arrangements in gas, A Consultation Document", Ofgem, May 2004.

top up arrangements given the potential impact of top up on the gas market, customers and prices this winter.

The main purpose of the review was to determine whether, given developments since Ofgas' last review, the arguments for removing the top up arrangements remained valid. The review focussed on whether the top up arrangements were an effective means of enhancing security of supply at a reasonable cost to customers.

Ofgem's initial assessment reconfirmed the findings of Ofgas' earlier review that the top up arrangements should be removed. Ofgem's analysis suggested that the top up arrangements could lead to significant direct and indirect costs to Transco and customers. It also suggested that the top up actions that Transco would be required to take would not enhance security of supply. Ofgem was of the view that, at best, Transco's actions would simply substitute for actions that market participants would take anyway and therefore provide the same level of security of supply but at a higher cost to customers. Ofgem also set out why it considered that the detailed operation of the rules could undermine the commercial incentives on companies to deliver secure supplies. Ofgem also noted that the current top up rules could distort competition in the provision of storage and other flexibility services.

### **Respondents' views**

Ofgem received ten responses to its May 2004 consultation document. There was strong support from respondents for the complete removal of top up, with five respondents stating that this was their preferred option. Some thought that it would not be practical to remove it ahead of this winter. Three respondents thought that top up should be retained whilst another respondent noted the potential for the top up arrangements to distort market signals but concluded that there probably remained a role for Transco to intervene in the market. Transco did not express a definitive view in relation to the removal of top up although did comment that there may be a need for a supplementary mechanism if it was felt that commercial mechanisms were not sufficient to deal with managing risks with a very low probability of occurrence.

### **HSE's views**

The HSE did not provide a specific response to this consultation document. However, it did subsequently write to Ofgem setting out its views regarding removal of top up from Transco's safety case. In particular, it clarified that the HSE's safety case consideration

was to ensure that the risk of a supply emergency is minimised and that there could be ways other than the current top up arrangements that could meet this criteria, for example by Transco demonstrating that sufficient gas will be available to the network or that demand will be controlled.

### **Transco's proposal**

Following a number of constructive meetings between HSE, Transco and Ofgem, Transco has developed a proposal that would facilitate removal of top up from its safety case and has put forward a change to its safety case to the HSE on this basis (hereafter referred to as 'Transco's proposal').

Transco has proposed that it would identify a group of gas customers that, in a network gas supply emergency, can be physically isolated in a short period of time to ensure that they do not continue to consume gas (referred to as 'customers protected by isolation'). Once this group of customers has been identified, Transco would establish a series of 'safety monitor' levels at each storage site, which Transco has indicated will be at levels significantly below the existing top up monitor levels, to ensure that sufficient gas remains in store to account for the demand of all customers that Transco cannot physically isolate in the required timescale (referred to as 'customers protected by the safety monitor').

In practice, Transco would monitor storage stocks at each facility against the safety monitor and, if it appeared to Transco that the safety monitor would be likely to be breached, it would exercise its judgement regarding the risks associated with such a breach and take action accordingly. For instance, Transco may determine that it would be appropriate to consider re-allocation of the monitor levels between storage facilities. In the event that the safety monitor was breached, Transco would instigate a network gas supply emergency and, pursuant to the emergency provisions set out in Transco's network code, it would take action to ensure that the required volume of loads protected by isolation were no longer taking gas. This would ensure there was sufficient gas available to protect other customers.

Transco has indicated that it shortly intends to submit a network code modification proposal to remove top up from its network code consistent with its proposed revision to its safety case.

## **Conclusions**

Clearly, the removal of top up would be a significant change to the existing arrangements. Therefore this document includes an impact assessment of the removal of top up in the context of Transco's proposal. To facilitate this assessment, Ofgem has made the assumption that the HSE will approve the proposed revision to Transco's safety case. (However, to be clear, the HSE has given no indication as to whether it will approve Transco's revision to its safety case.) Ofgem has also assumed that any consequential network code modification proposal would be consistent with Transco's proposal.

On the basis of its impact assessment, and having considered the views of respondents, Ofgem remains of the view that top up should be removed from Transco's network code. As set out in Ofgem's impact assessment of the removal of top up in the context of Transco's proposal, Ofgem is of the view the pre-winter expected direct and indirect costs associated with top up counter nomination actions could be over £200m. In addition, given Ofgem's view that top up counter nomination actions are unlikely to be effective in maintaining gas in store and its concerns over the mechanism by which top up gas is made available to the market, Ofgem is of the view that the removal of top up in the context of Transco's proposal would be likely to be neutral, and at best slightly positive, for security of supply. Further, Ofgem is of the view that the removal of top up in the context of Transco's proposal would be likely to lead to a lower level of interruption by customers than would otherwise be the case, particularly in mild conditions. Ofgem invites comments on its impact assessment.

## **Way forward**

In order to progress its proposal, Transco has submitted a revision to its safety case in line with its proposal on 10 August 2004. The HSE has indicated that it expects to have concluded whether this change is acceptable within three months. Transco has indicated that it shortly intends to submit a modification proposal to the network code to remove top up from its network code consistent with its proposed revision to its safety case in time for this winter. Transco has also indicated that it will be seeking urgent status for this modification proposal. This process could, if urgent status is granted, lead to decisions on any relevant modification proposals in September.

# Table of contents

<b>1. Introduction.....</b>	<b>1</b>
Purpose of this document .....	1
Background .....	2
Ofgas' 1998 review of top up .....	3
Subsequent developments .....	4
May 2004 review document.....	8
Way forward .....	9
Views invited .....	10
Outline of this document.....	10
<b>2. Responses to the May consultation document .....</b>	<b>12</b>
Ofgem's proposed options for reform .....	12
HSE views .....	32
Summary of Ofgem's views .....	33
<b>3. Transco's proposed option for reform.....</b>	<b>35</b>
The HSE's views on Transco's safety obligations .....	35
The safety monitor concept .....	37
Setting the safety monitor .....	37
System operation under the safety monitor .....	38
<b>4. Impact Assessment.....</b>	<b>40</b>
Regulatory background.....	40
Introduction .....	40
Key issues .....	41
Assessment of likely impacts.....	44
Conclusions .....	52
<b>5. Conclusions and way forward.....</b>	<b>55</b>
<b>Appendix 1 : Relevant modifications.....</b>	<b>58</b>

<b>Appendix 2 : Respondents to the May 2004 consultation document .....</b>	<b>61</b>
<b>Appendix 3 : Regulatory framework in respect of top up .....</b>	<b>62</b>
The Gas Act 1986 .....	62
Gas Safety (Management) Regulations .....	63
Transco’s gas transporter licence .....	63
Transco’s network code.....	65
Transco’s GT safety case.....	66
Emergency arrangements.....	66
<b>Appendix 4 : The top up counter-nomination arrangements: highlighting key weaknesses .....</b>	<b>69</b>
<b>Appendix 5 : Analysis of direct top up costs .....</b>	<b>72</b>
Background.....	72
Transco’s analysis of direct top up costs.....	73
Ofgem’s analysis of direct top up costs .....	74
<b>Appendix 6 : Analysis of indirect top up costs .....</b>	<b>78</b>
The potential impact of top up counter-nominations on wholesale price levels .....	78
Pass through of wholesale price increases.....	82



# 1. Introduction

## *Purpose of this document*

- 1.1. In recent years, Transco has raised a number of specific concerns with respect to the current top up arrangements. These included: the calculation of the price at which top up gas is offered to market; the extent to which shippers are exposed to the costs of providing for top up; and the likely effectiveness of top up counter-nomination actions at storage sites.
- 1.2. Separately, Ofgem was concerned that, on the basis of Transco's forecast of the likely supply/demand position for this winter, the current arrangements may require Transco to take substantial top up actions this winter that could lead to significant direct costs to Transco and, potentially, higher gas prices and costs for customers.
- 1.3. To address these concerns, Ofgem issued a consultation document in May 2004 initiating a review of the top up arrangements<sup>7</sup> and Ofgem invited market participants and customers to give their views. The primary focus of this review was to determine whether, given market and other developments since Ofgas' review of top up gas in 1998, the arguments for removing the top up provisions from Transco's network code remained valid. Ofgem's analysis and initial assessment, also set out in the document, suggested that the arguments remained valid and that top up should be removed. Ofgem put forward six potential options that could be considered going forward, with complete removal of top up being the option initially favoured by Ofgem.
- 1.4. Ofgem has reviewed its position in the light of the responses it received to its consultation document and subsequent discussions it has held with both Transco

---

<sup>7</sup> The comments in this document are focused on what is typically referred to as 'national' top up. In addition to national top up, Transco could under some circumstances be required to book what is referred to as 'Constrained LNG' (CLNG) top up. CLNG top up is concerned with ensuring that sufficient stocks are held in particular LNG facilities such that, given the location of the facilities, the stored gas can act as a substitute for transportation capacity at times of very high demand. Since CLNG top up is related to transportation constraint issues, rather than aggregate supply/demand balancing, it is not considered further in this document. However, Transco has indicated to Ofgem that removal of top up from its network code may impact on the operation of CLNG top up. It is Ofgem's view that, whilst there is a low risk that Transco will be required to make use of CLNG top up, there remains an ongoing requirement for its provision in the code.

and the HSE. Complete removal of top up from the network code remains Ofgem's preferred option. This document summarises respondents' views to the document and presents a proposal from Transco that would facilitate the complete removal of the top up arrangements. Finally, this document sets out Ofgem's conclusions on the top up review, including an impact assessment of Transco's proposal, and the proposed way forward for implementing the changes.

## ***Background***

- 1.5. Transco, a subsidiary of National Grid Transco, is responsible for operating the national gas transportation system in Great Britain. Transco has a number of statutory and licence obligations, regulated by Ofgem, that govern its ownership and operation of the transportation system. Transco also has a safety case, regulated by the HSE, setting out how it should ensure the safe operation of the transportation system. Transco also has in place a multi-lateral contract, known as the network code, which sets out the terms under which gas shippers can have access to, and use, the gas transportation system.
- 1.6. Transco must demonstrate, as part of its safety case, that it has established adequate arrangements to minimise the risk of a supply emergency. Transco's safety case sets out, amongst other things, the commercial incentives and the range of daily balancing tools available to Transco, including top up gas.
- 1.7. The rules associated with the provision of top up gas are set out in Transco's network code. Top up is gas that is held in store by Transco in response to a shortfall identified by Transco between the level of demand that it forecasts would be observed if the forthcoming winter – or what remains of it – turned out to be 'severe'<sup>8</sup>, and its assessment of the level of available supplies over that period. When a top up provision is made, the gas is subsequently made available to market participants (including Transco in its role as system operator) at times of high system demand at a price determined by rules set out in Transco's network code.

---

<sup>8</sup> The term 'severe winter' is typically used to describe a '1 in 50' winter. This is described in detail in Appendix 3.

## ***Ofgas' 1998 review of top up***

1.8. The top up arrangements were put in place with the introduction of Transco's network code in 1996. Shortly after the introduction of Transco's network code, Ofgas initiated a review of the top up arrangements. In its consultation document, Ofgas set out its view that there should be no long term requirement for a top up type mechanism in the GB gas market. This view was underpinned by a number of factors, including:

- ◆ **Developments in peak supply.** Ofgas was of the view that developments in the UK gas market both planned and underway at that time meant that it would be unlikely that top up would be required in the long term. For instance, it was Ofgas' view that the UK-Continent interconnector, which at that time was due to become operational in 1998, would be likely to offer possibilities for providing further peak supplies. It was also Ofgas' view that demand side management was becoming increasingly sophisticated.
- ◆ **Perverse incentives on Transco.** Ofgas was of the view that, although the top up methodology was clearly defined in Transco's network code, the decision about whether top up was required ultimately lay with Transco through the way it interpreted supply and demand information in its forecasts. In particular, Ofgas highlighted the following points:
  - ◆ Transco was, at that time, not exposed to any of the costs associated with the provision of top up. Ofgas was of the view that top up provided Transco with a potential means of increasing security at no cost to itself. The costs associated with top up were, at that time, recovered directly from shippers (and ultimately customers) based on the share of demand of firm customers in the winter months. Ofgas considered, therefore, that there was little incentive on Transco to determine the most efficient level in terms of the top up requirement.
  - ◆ Transco and BG Storage were both part of BG plc at the time. Ofgas was of the view that any overestimate of the top up requirement by Transco could benefit BG Storage through substantially larger storage bookings and revenues.

- ◆ **Effectiveness of top up.** Ofgas was of the view that the small volumes of top up booked for 1996/97 and 1997/98 would have little security benefit for domestic customers. That is, what benefits there were would be outweighed by the associated costs, both the direct costs in meeting the top up requirement and the indirect costs associated with the distortions to the gas wholesale and storage markets caused by top up.

1.9. In April 1998, Ofgas published its conclusions in respect of its review of top up gas. Ofgas confirmed its initial view that there was no longer term need for top up. Ofgas acknowledged that, due to timing issues, it may not be possible for Transco to modify its safety case for the removal of top up in time for the storage year 1998/99. However, Ofgas also stated that it expected the reconsideration of Transco's safety case would be completed in time for the 1999/2000 storage year, but that this was a matter for Transco and the HSE.

### ***Subsequent developments***

- 1.10. The top up arrangements were also considered as part of Ofgas' review of storage and related services<sup>9</sup>. The storage review identified the top up regime as being a key obstacle to the development of competition in the storage market. Furthermore, the ability of Transco to recover the costs of top up from shippers was found to distort purchases of storage capacity. In February 1999, BG plc gave Ofgas a series of undertakings concerning the future provision of storage services at its Rough and Hornsea facilities<sup>10</sup>.
- 1.11. As part of the undertakings given by BG plc in February 1999, BG plc undertook to expedite discussions with the HSE with a view to obtaining the HSE's approval for the removal of top up from its safety case<sup>11</sup>. The expectation was that top up would be removed before the storage year 1999/00 commenced.
- 1.12. In November 1998, Transco had submitted a revised safety case to the HSE with the top up arrangements removed. The HSE was not persuaded, however, that Transco had demonstrated that the remaining arrangements were adequate to

---

<sup>9</sup> "Review of the supply of gas storage and related services, the Director General's Initial Proposals", Ofgas, July 1998.

<sup>10</sup> Whilst the ownership of Transco is now fully separate from that of both Rough and Hornsea, NGT continues to own the LNG storage facilities.

minimise the risk of a supply emergency. Transco withdrew the submission in June 1999 to allow the arrangements for managing the reform of gas trading arrangements (RGTA<sup>12</sup>) to be considered by the HSE.

- 1.13. During the period when Transco was negotiating with the HSE for the removal of top up from its safety case, British Gas Trading proposed network code modification 297, "Top up cost treatment", which proposed to remove shipper funding for the top up arrangements. The principle of this proposal was that Transco would bear all of the net direct costs associated with the provision of top up gas. Where top up gas was sold back to the market or system operator, these revenues could be used to offset any top up costs. Any net revenue was returned to shippers. In February 1999, Ofgas approved the modification on the basis that it did not consider that there was a need for top up gas given the increase in the availability and diversity of peak gas supplies. In addition, Ofgas stated that it expected that the top up provisions would be removed from Transco's network code but that, until then, Ofgas was of the view that Transco should bear the full costs of top up.
- 1.14. In March 2000, Transco submitted another revised safety case to the HSE with references to the top up arrangements removed. Again the HSE was not persuaded that Transco had made the necessary case. In December 2000, following a meeting with the HSE in November 2000, Transco amended its March 2000 submission to remove top up only in respect of non-domestic load. The HSE responded in February 2001 stating that its legal advice was such that the risk of a supply emergency to both domestic and non-domestic customers needed to be covered by the arrangements described in the safety case, and as such they could not consider this proposal further. In August 2001, Transco withdrew this submission.
- 1.15. A number of further modification proposals to Transco's network code have been proposed since network code modification 297 was approved by Ofgas. A detailed description of these modification proposals is given in Appendix 1 of this document. They are summarised briefly below:

---

<sup>11</sup> "Review of the supply of gas storage and related services, a Decision Document", Ofgas, February 1999.

<sup>12</sup> "Reform of Gas Trading Arrangements: Proposals and Consultation", Ofgas, February 1999.

- ◆ **Modification proposal 472, “Restoration of funding for national top up”**, was raised by Transco to reintroduce the provisions of Transco’s network code relating to the recovery of top up costs which were removed by modification proposal 297. In January 2002, Ofgem rejected this modification proposal.
- ◆ **Modification proposal 504, “Top up process enhancements”**, was raised by Transco to make a number of changes to the top up arrangements, primarily to allow Transco, acting as the top up manager, greater discretion in regard to taking top up related actions. In August 2002, Ofgem approved this modification proposal.
- ◆ **Modification proposal 583, “Top up monitor cost recovery”**, was raised by Transco to recover the net costs of certain counter storage injection actions made by the top up manager. In August 2003, Ofgem rejected this modification proposal.
- ◆ **Modification proposals 659, “Winter injection cost allocation based on user daily imbalances”, and 660, “Winter injection cost allocation based on user daily offtakes”**, were raised by Transco to allow it to recover the net costs of winter injection. In December 2003, Ofgem rejected these modification proposals.
- ◆ **Modification proposal 671, “Enhancements to winter injection process”**, was submitted by Transco in order to amend the calculation of the top up market offer price to ensure that it is based upon prices available prior to the day and that this price reflects the cost of firm storage capacity. This proposal is currently with Ofgem for decision.
- ◆ **Modification proposal 699, “Amendment to Transco’s interruption rights for supply / demand purposes”**, was submitted by Shell Gas Direct in order to increase the current demand limit at which Transco can interrupt from 85% to 95%. This modification is currently under assessment by industry.
- ◆ **Modification proposal 705, “Changing the basis for triggering supply demand interruption”**, was submitted by Transco in order to modify its existing supply / demand interruption rights by allowing it to initiate interruption where, on any day, it determines that there is an operational

balancing requirement which cannot be satisfied by the acceptance of a market balancing action (because there are no or insufficient market offers which are operationally suitable). In relation to top up, Transco was of the view that this modification proposal would enable Transco to reduce the top up monitor levels on the assumption that LDZ interruptible supply points would not be supported by top up. This proposal is currently at consultation stage.

- 1.16. The top up arrangements therefore remain in Transco's safety case and Transco's network code, although the net direct costs associated with operating the top up regime cannot be charged back to shippers and customers.
- 1.17. In rejecting Transco's modification proposals for cost recovery, Ofgem has made it clear that it had given regard to the nature of Transco's ongoing top up obligation and the basis on which any funding might be permitted. Ofgem was of the view that, in allowing the recovery of any top up costs, it would consider whether these costs had been incurred efficiently and in particular the extent to which any other actions that would have been likely to reduce the total costs of any top up requirement had been taken by Transco<sup>13</sup>.
- 1.18. In setting Transco's current System Operator (SO) incentives, Transco sought funding for top up as part of the discussions leading up to the introduction of the schemes. It is Ofgem's view that funding for top up via the SO incentives explicitly ruled out any top up funding through either the internal or external schemes during the development of the current SO incentives as it considered that Transco's network code was the most appropriate route to deal with any top up funding issues<sup>14</sup>. However, Transco has indicated to Ofgem that it considers that top up costs such as the purchase of top up gas can be recovered via the internal cost incentive scheme<sup>15</sup>. Since the costs associated with top up actions, such as the purchase of top up gas, taken by Transco are fundamentally external

---

<sup>13</sup> Special condition 28B of Transco's GT licence provides for adjustments to be made to Transco's system operation revenue. Any such income adjusting event is subject to approval by the Authority.

<sup>14</sup> This was first stated in "Transco's National Transmission System System Operator incentives 2002-7, Initial Proposals", Ofgem September 2001 and confirmed in the final proposals document "Transco's National Transmission System System Operator incentives 2002-7, Final Proposals", Ofgem, September 2001. This view was reiterated most recently in Ofgem's review of Transco's NTS SO incentives set out in "Transco's National Transmission System Review of System Operator incentives, 2002-7, Proposals Document", Ofgem, February 2004.

<sup>15</sup> The internal cost incentive scheme is set out in Special Licence Condition 28B 14(10) of Transco's Gas

costs, Ofgem does not consider that it is appropriate for these costs to be recovered through the SO incentives via the internal cost incentive scheme.

### ***May 2004 review document***

- 1.19. In May 2004, Ofgem initiated its review of the top up arrangements. The primary focus of the review was to determine whether, given market and other developments since Ofgas' review in 1998, the arguments for removing the top up provisions from Transco's network code remained valid. As part of this review, Ofgem published its initial assessment of the current top up arrangements, in which it considered whether the arrangements were an appropriate reflection of Transco's security of supply obligations, whether Transco's methodology for forecasting supply and demand was appropriate, and whether the top up arrangements were effective in terms of enhancing security of supply at a reasonable cost to customers. In addition, Ofgem set out a number of potential options for reform, which included the removal of top up from Transco's network code.
- 1.20. As stated previously, the May review document set out Ofgem's initial assessment of the current top up arrangements. Ofgem's analysis suggested that Transco's top up actions could lead to significant direct costs being incurred by Transco and significant indirect costs being incurred by customers through potentially higher prompt and forward gas prices. It also suggested that the actions that Transco would be required to take would not enhance security of supply. Ofgem was of the view that, at best, Transco's actions would simply substitute for actions that market participants would otherwise take and therefore provide the same level of security of supply but at higher cost to customers. In addition, Ofgem highlighted concerns that the detailed operation of the rules could actually undermine the commercial incentives on companies to deliver secure supplies and could therefore reduce security of supply. Ofgem also noted that the current top up rules could distort the use of storage capacity and, more generally, competition in the provision of storage and other flexibility services such as demand side response.



- 1.21. Ofgem's initial assessment was therefore that the top up arrangements should be removed from Transco's network code and its safety case.

### ***Way forward***

- 1.22. Ofgem published its initial proposals recommending removal of top up, together with documents reviewing the cash out arrangements in gas and electricity, and other specific security of supply issues for 2004/05, in May 2004. This was to ensure that there would be sufficient time for the industry and Ofgem to assess and consider the top up arrangements ahead of this winter.
- 1.23. Following a number of constructive meetings between HSE, Transco and Ofgem, Transco has developed a proposal that would facilitate removal of top up from its safety case and has put forward a change to its safety case to the HSE on this basis on 10 August 2004. Transco has indicated that it shortly intends to submit a network code modification proposal to remove top up from its network code consistent with its proposed revision to its safety case. Transco has also indicated that it will be seeking urgent status for this modification proposal.
- 1.24. Ofgem recognises that the timescales required to properly consider such a modification proposal prior to this winter are tight. Indeed, Ofgem is mindful of the potential risks in making significant changes to the market arrangements at short notice and, in considering any potential changes to the top up arrangements for this winter, Ofgem will have regard to the fact that the 2004/05 storage year is underway and that shippers have adopted contractual positions on the basis of the current arrangements. However, Ofgem is of the view that there are significant benefits associated with the removal of top up in the context of Transco's proposal which suggest that these matters should be progressed even under a challenging timetable.

## ***Views invited***

- 1.25. Ofgem welcomes views on the impact assessment set out in chapter 4 of this document, to be received by close of business Friday 10 September 2004. Respondents are requested to provide views in a timely manner. Responses should be addressed to:

Kyran Hanks

Director, Wholesale Markets

Office of Gas and Electricity Markets

9 Millbank

London

SW1P 3GE

- 1.26. Electronic responses should be submitted electronically to [matthew.buffey@ofgem.gov.uk](mailto:matthew.buffey@ofgem.gov.uk).
- 1.27. If you wish to discuss any aspect of this document, please contact any of the following people who will be pleased to help:
- ◆ Kyran Hanks – telephone number: 020 7901 7021, fax number: 020 7901 7452, email: [kyran.hanks@ofgem.gov.uk](mailto:kyran.hanks@ofgem.gov.uk); or
  - ◆ Matt Buffey – telephone number: 020 7901 7088, fax number: 020 7901 7452, email: [matthew.buffey@ofgem.gov.uk](mailto:matthew.buffey@ofgem.gov.uk).

## ***Outline of this document***

- 1.28. Chapter 2 summarises responses to the May consultation and Ofgem's views in the light of those responses. Chapter 3 sets out Transco's proposal for the removal of top up in detail. Chapter 4 sets out an impact assessment of the removal of the top up arrangements from the network code in the context of Transco's proposal. Chapter 5 sets out Ofgem's conclusions and the proposed way forward.

1.29. Appendix 1 of this document set out the relevant top up modifications that have been proposed to the network code. Appendix 2 of this document sets out a list of respondents to the May 2004 consultation document. Appendix 3 of this document sets out the regulatory framework governing top up. Appendix 4 of this document describes Ofgem's views of the key weaknesses of the top up counter-nomination arrangements. Appendix 5 sets out Ofgem's analysis of the direct costs of top up. Appendix 6 sets out Ofgem's analysis of the indirect costs of top up.

## 2. Responses to the May consultation document

- 2.1. This chapter provides a summary of the ten responses Ofgem received to its May 2004 consultation. In addition, this chapter also presents Ofgem's views in the light of these responses. A list of respondents is set out in appendix 2. The responses are available in full on Ofgem's website ([www.ofgem.gov.uk](http://www.ofgem.gov.uk)).
- 2.2. The May 2004 consultation document set out six potential options for reform to address the weaknesses of the current top up arrangements. In addition, the consultation document presented Ofgem's views on a number of issues in connection with top up, for instance whether Transco's methodology for forecasting supply and demand was appropriate.

### ***Ofgem's proposed options for reform***

- 2.3. The six potential options for reform that Ofgem proposed in its May 2004 consultation were:
- ◆ removing top up from Transco's network code (and its safety case);
  - ◆ amending the current arrangements so that Transco changes the way it assesses the need for top up gas during the winter given Ofgem's concerns about the existing methodologies and assumptions that underpin the calculation of the top up requirement;
  - ◆ developing alternative ways of responding to situations where top up actions might otherwise be taken that are more efficient and generate less market distortions (for example, the substitution of top up gas by forward contracts);
  - ◆ considering other modifications to the current top up arrangements aimed at improving their effectiveness;
  - ◆ redefining top up such that it focuses only on the domestic customer supply security standards; and/or
  - ◆ making no significant changes to the current top up arrangements.

- 2.4. Below we set out a summary of each option together with a summary of responses.

***Option 1: The complete removal of top up from the network code (and Transco's safety case)***

**Ofgem's proposal**

- 2.5. In its May 2004 consultation, Ofgem's initial view was that the most desirable approach would be for the top up arrangements to be removed from Transco's network code and for references to top up to be removed from Transco's safety case. Ofgem expressed the view that the top up arrangements could lead to significant direct costs being incurred by Transco and significant indirect costs being incurred by customers through potentially higher prompt and forward gas prices. It also suggested that the actions that Transco would be required to take would not enhance security of supply. At best, Ofgem was of the view that Transco's actions would simply substitute for actions that market participants would otherwise take and therefore provide the same level of security of supply but at higher cost to customers. In addition, Ofgem highlighted concerns that the detailed operation of the rules could actually undermine the commercial incentives on companies to deliver secure supplies and could therefore reduce security of supply. Ofgem also noted that the current top up rules could distort the use of storage capacity and, more generally, competition in the provision of storage and other flexibility services.
- 2.6. Whilst Ofgem considered that the removal of top up would be the most appropriate course of action, Ofgem recognised that removal of references to top up from Transco's safety case would require the approval of the HSE, and the process for making changes to the safety case could take a number of months.

**Respondents' views**

- 2.7. Five respondents agreed with Ofgem's initial assessment that top up should be removed from Transco's network code and its safety case and that this was their preferred option for reform.
- 2.8. One of these respondents was of the view that it did not seem appropriate that Transco should continue to hold regulated top up obligations given the

competitive nature of the UK gas market and the robust emergency procedures recently developed in conjunction with the upstream industry. This respondent also expressed concern that the top up arrangements could lead to the potential for adverse market operation and security of supply problems.

- 2.9. One of these respondents considered that this year, on the basis of Transco's forecast of tightening in the supply demand balance, there appeared to be a strong likelihood that Transco would have to intervene in the market, which could lead to significant disruption in the wholesale gas market. Further, another respondent was of the view that the existence of top up could act to limit the incentives on shippers / suppliers to ensure they can source sufficient gas to meet their customers' demand.
- 2.10. However, there was an acknowledgment from these respondents that it could be impractical to remove top up ahead of winter 2004/05. In particular, one respondent suggested that it may not be desirable to make such a change ahead of this winter if this left shippers / suppliers with little time to adjust their supply strategies. As an alternative, this respondent suggested that the removal of top up should be considered as an aim for next spring such that shippers / suppliers would have more time to consider their supply strategies before the onset of winter 2005/06.
- 2.11. One respondent noted the potential for the top up arrangements to distort market signals but concluded that there probably remained a role for Transco to intervene in the market. This respondent also considered that it was not possible to impose any significant changes to the current top up arrangements in time for winter 2004/05.
- 2.12. Three respondents expressed the view that top up should not be removed from Transco's network code and its safety case. One of these respondents supported a reliance on the market in principle but expressed concern relating to the removal of top up at this time. This respondent was of the view that NGT had recently been communicating to the market a more pessimistic view of the supply demand position in years to come. This respondent also considered that the demand levels experienced since the introduction of the current commercial regime have been relatively low due to recent mild winters and therefore that the industry had not had to respond to 1 in 50 severe winter conditions. In light

of this, this respondent considered that it would not appear prudent to abandon the top up mechanism entirely to rely solely upon market responses in a context of operation that is uncharted. Another of these respondents was of the view that, although market forces should normally provide suitable security levels provided that shippers and suppliers are likely to face suitable commercial exposures if they fail fully to cover their commitments; the top up mechanism provides an important and valuable back-up without which the overall system security could in some years be unnecessarily reduced.

### **Transco response**

- 2.13. Transco did not express a definitive view in relation to the removal of top up. However, Transco did express the view that, in relation to top up, there was a broader question relating to the appropriate balance between protecting security of supply and accruing further efficiency by facilitating the development of the market. Transco was of the view that commercial mechanisms tend to work well in managing risks with a high or medium probability of occurrence, but that for a very low probability occurrence (such as a 1 in 50 severe winter), even when this is associated with a very high cost, the rational commercial response might be to take the risk. Therefore, in the view of Transco, in an efficient market environment there may remain the need for a supplementary mechanism in order to meet a regulatory requirement or other imperative, which by its nature is likely to introduce costs into the market.

### **Ofgem views**

- 2.14. Ofgem remains of the view that the top up arrangements should be removed. Ofgem continues to be of the view that the top up arrangements could lead to significant direct costs being incurred by Transco and significant indirect costs being incurred by customers through potentially higher prompt and forward gas prices. Ofgem is still of the view that Transco's top up actions are unlikely to enhance security of supply and that, at best, Transco's top up actions would simply substitute for actions that market participants would otherwise take and therefore provide the same level of security of supply but at higher cost to customers. In addition, Ofgem still considers that the detailed operation of the rules could actually undermine the commercial incentives on companies to deliver secure supplies and could therefore reduce security of supply. Ofgem

also remains of the view that the current top up rules could distort the use of storage capacity and, more generally, competition in the provision of storage and other flexibility services.

- 2.15. Ofgem notes the views of a number of respondents that it may not be possible or desirable for top up to be removed for this winter. Ofgem recognises that the timescales required to remove top up in time for this winter are tight and Ofgem is always mindful of the potential risks in making significant changes to the market arrangements a short notice. However, Ofgem would like to note that it published its initial proposals seeking to remove top up in May 2004 in order to ensure that there would be sufficient time for the industry to assess and consider the impacts of the removal of top up ahead of this winter.
- 2.16. Ofgem is of the view that there are significant benefits associated with the removal of top up in the context of Transco's proposal which suggest that these matters should be progressed even under a challenging timetable. In considering the desirability of any potential changes to the top up arrangements for this winter, Ofgem has also had regard to the fact that the 2004/05 storage year is underway and that shippers have adopted contractual positions on the basis of the current arrangements.
- 2.17. Some respondents, including Transco, expressed concerns about whether the market will provide for a 1 in 50 winter. Ofgem considers that the commercial incentives exist for the market to manage the risks generated by the possibility of such events. Suppliers have a range of tools available to them, even on the day, and no clear evidence has been presented to Ofgem that demonstrates that these mechanisms will either not work or will not be used. Ofgem has presented evidence in this, and previous documents, about the potential level of costs associated with top up and the impact it has on commercial incentives. Respondents have not presented any evidence that undermines this analysis or demonstrates significant benefits of retaining top up to justify these costs. Ofgem does not, therefore, consider that those respondents supporting top up have demonstrated a case for the retention of top up on this basis.
- 2.18. Ofgem acknowledges the views of a number of respondents that Transco has forecast a tightening of the supply / demand position for this winter. However, contrary to the view of a number of respondents that top up provides a useful



back up without which the overall system security could be reduced, Ofgem is of the view that, in light of the forecast tightening of the supply demand position for this winter, the current top up arrangements could lead to interruptions to supply occurring earlier in winter than would normally be the case. This is explained in more detail in chapter 4 of this document.

### ***Option 2: Changes to the way Transco assesses the need for top up gas***

- 2.19. In its May 2004 consultation, Ofgem noted that the adequacy of the supply and demand assumptions presented were important because of the impact that they can have on the likely existence or otherwise of a top up requirement and the impact they can have on the actions taken by market participants concerning their provisions for extreme conditions.
- 2.20. Under this option, Ofgem proposed that Transco should change the way it assesses the need for top up gas. For instance, in undertaking its forecast of the overall supply/demand position for winter, Ofgem proposed that Transco could include an assessment of the level of storage recycling and the level of demand side response that could be expected in a severe winter. Ofgem was of the view that the economics of factors such as demand side response and storage recycling are different when assessed in the relatively mild winters that have been experienced recently as compared with a 1 in 50 severe winter, and account should be taken of this in Transco's forecasts.
- 2.21. Ofgem considered that a more sophisticated approach to supply and demand forecasting on the part of Transco would reduce the need for top up actions to be taken and thereby reduce the scope for distortions to both the wholesale and storage markets to arise as a result of the top up arrangements.

### **Respondents' views**

- 2.22. All respondents supported greater transparency in respect of Transco's demand forecasting and top up monitor setting methodologies. They also agreed with Ofgem's view that Transco should adopt a more sophisticated approach to its forecasting of the supply / demand position for winter.

- 2.23. One of these respondents was of the view that storage recycling and demand side response should be included in Transco's overall assessment of the supply/demand position. In addition, this respondent supported Ofgem's view that a more sophisticated approach to supply and demand forecasting from Transco could decrease the potential for inefficient costs and market distortions as a result of the top up arrangements.
- 2.24. Another respondent agreed with Ofgem's assessment of the inadequacy of the supply / demand assumptions used by Transco in its forecasts and agreed that these seem to include some apparent anomalies. This respondent also commented that the market would benefit from greater transparency with respect to how Transco forecasts the 1 in 50 demand curve and determines the top up monitor levels. This respondent considered that greater transparency could lead to a wider industry debate on what security standards are appropriate for the GB gas market.
- 2.25. One respondent was of the view that the discretion that Transco has in determining the top up requirements for each winter could undermine market arrangements. This respondent commented that the current methodologies for assessing the top up requirement did not appear to fully incorporate likely responses of market participants, including the potential to re-inject gas into storage during lower demand periods (for instance during warm spells, over weekends, and over the Christmas holiday period).
- 2.26. In addition, one respondent agreed that storage recycling and demand side responses could be included in Transco's overall assessment of the supply / demand position. However, given the lack of experience of severe winter conditions, this respondent acknowledged that in practice it would be difficult to make an assessment of this kind. In addition, this respondent considered that companies would be unlikely to be willing to disclose commercial arrangements or arbitrage strategies to Transco.
- 2.27. A number of respondents supported the idea of an industry workgroup to explore other options available to Transco for the way in which it forecasts for the overall supply / demand position for winter.

### **Transco response**

- 2.28. Transco commented that it had no objection to publishing further information to explain its demand forecasting and monitor setting methodologies and stated that this was desirable as it would prompt other appropriate measures that would enhance efficiency and transparency.
- 2.29. In addition, Transco stated that it was working on further improvements for assessing the potential for demand response, particularly in the power generation sector, and has actively requested information from market participants in these areas. Further, Transco stated that it was also evaluating suggestions such as allowing for storage recycling.

### **Ofgem views**

- 2.30. Ofgem welcomes Transco's commitment to publish further information on its demand forecasting and monitor setting methodologies.
- 2.31. As set out in its May 2004 consultation, Ofgem has concerns in respect of the accuracy of Transco's methodology for forecasting the overall supply / demand position and its methodology for determining monitor levels. Ofgem considers that the lack of transparency in terms of the methodologies used means that neither the regulator nor industry can have confidence that the top up actions taken by Transco in relation to meeting a forecast supply / demand shortfall or in relation to counter-nominations to maintain gas in store are proportionate or indeed necessary. For instance, it is Ofgem's understanding that Transco's methodologies do not take account of demand side response or storage recycling which, in Ofgem's view, demonstrates that Transco's assessment of the volume required in store to meet the risk of a 1 in 50 winter is too high and therefore could be making too great a top up provision.
- 2.32. Ofgem has requested that Transco provide the industry with a clear account of how the 1 in 50 load duration curve and the 1 in 20 peak day demand forecasts are generated, with particular reference to 2004/05. Ofgem has suggested to Transco that this would most usefully take the form of a step-by-step guide to what is assumed in the demand forecasting processes for each relevant category of load.
- 2.33. In addition, Ofgem has requested that Transco provide the industry with a clear account of how top up monitor levels are determined for each winter, with

particular reference to the preliminary top up monitor levels determined for winter 2004/05. Ofgem has suggested to Transco that this would most usefully take the form of a step-by-step guide to what is assumed in setting monitor levels for each storage facility, with the relevant steps in each case explicitly linked to preliminary 2004/05 data. In the event that the top up monitor level is replaced by a safety monitor level (as discussed in Chapter 3) then Ofgem would expect the methodology used in setting this level should be made transparent in a similar manner.

- 2.34. Ofgem expects Transco to make these guides public shortly. Once this information is in the public domain, consistent with the views expressed by a number of market participants, it may be beneficial to establish a working group to consider whether the current demand forecasting and monitor setting methodologies are appropriate and, if not, what potential changes could be made to these methodologies.
- 2.35. Ofgem notes that if the industry wishes to see greater transparency in this area it remains open to them to raise modification proposals to bring these methodologies into Transco's network code and/or require publication of methodologies and assumptions.

### ***Option 3: Transco to develop alternative ways of contracting to address supply/demand shortfalls***

- 2.36. In its May 2004 consultation, Ofgem proposed that Transco could develop alternative, more flexible and innovative ways of contracting to address identified supply / demand shortfalls that would be more efficient than the current approach which focuses only on one potential source of response: storage.
- 2.37. For example, Ofgem suggested that, rather than taking top up actions, given the distortion to market arrangements that might result, Transco could enter into forward agreements for demand side response. Ofgem considered that agreements of this kind could be used to underpin changes in top up monitor levels that reduced or eliminated the need for top up actions, and could therefore be developed even in situations where the existing top up arrangements remained unchanged.

2.38. Ofgem's initial view in respect of this option was that there was not a compelling case for developing such arrangements because Ofgem's preferred option was for the complete removal of top up from Transco's network code and its safety case.

### **Respondents' views**

2.39. A number of respondents expressed support for this option. However, concerns were raised that this option would need further consideration by the industry. In addition, a number of those expressing support for this option also stated that they supported option 1 (removal of top up) in preference but that it may not be possible to put in place option 1 for this winter.

2.40. One respondent was of the view that shippers would be willing to offer gas on the OCM as locational and physical trades, and strongly believed that physical trades on the OCM would allow a number of different sites to offer gas to the market. This respondent considered that, as these trades are posted on the OCM, their costs would feed into the cash out prices and thereby provide appropriate signals to the market.

2.41. Another respondent proposed a way in which a market based approach could be introduced that would not require any new funding arrangement or changes to Transco's incentives or the cash out rules. This respondent considered that large daily metered customers could voluntarily opt-in to an arrangement where they would be obliged to make a locational offer on the OCM on each day during the winter. This respondent considered that such an approach would enable Transco to be confident that demand side response would be available and so it would be able to reduce the monitor levels accordingly. The respondent also considered that an arrangement of this type would formalise what the market would be expected to do in terms of demand side response in severe conditions and could also reinforce the case for the removal of top up from Transco's network code and its safety case.

2.42. One respondent felt that although there may be some scope for Transco to develop alternative, more flexible ways for contracting to address supply/demand shortfalls at times of peak demand through interruption arrangements, it remained concerned about inappropriate interference by

Transco in the energy, as opposed to locational, market and would wish to limit Transco's ability to interrupt for supply / demand reasons.

- 2.43. One respondent was of the view that previous discussions regarding the procurement of top up from non storage sources had identified considerable difficulties, especially over how to ensure that any non storage top up service with only a low prospect of being "called" would be likely to be available if needed.

### **Transco response**

- 2.44. Transco commented that this option would require them to play a more direct role in contracting for and controlling storage and demand-side products. This would have a knock-on effect in terms of limiting a wider range of market-based solutions and, in its view, would appear to be at odds with the present market structure in which Transco is the residual balancer, providing incentives to shippers through the network code and taking actions where necessary to maintain a physical balance on the System.
- 2.45. Further, Transco stated that it did not favour this option as there were questions relating to the volume to be procured and also that the fact that costs would be incurred every year could lead to potentially inefficiencies. Transco also expressed the view that such an approach could be unduly complex.

### **Ofgem views**

- 2.46. As stated previously, Ofgem's initial view in respect of this option was that there was not a compelling case for developing such arrangements. Although Ofgem considers that there could be merit in developing such a proposal, Ofgem remains of the view that this would be a less satisfactory option than removal of the top up arrangements.
- 2.47. Ofgem notes that a number of respondents accept that there are more flexible and innovative ways of contracting to address identified supply/demand shortfalls that are more efficient than the current approach which relies solely on storage as a source of response. In Ofgem's view this further demonstrates the inefficiency of the existing mechanism and implies that maintaining the current

rules that rely on storage would generate inefficient costs. This means that top up prices could be inefficient as well as top up volumes.

- 2.48. Ofgem notes the view of one respondent that a mechanism could be developed whereby large daily metered customers could voluntarily opt-in to an arrangement where they would be obliged to make a locational offer on the OCM on each day during the winter. Ofgem welcomes the initiative from industry to explore potential new arrangements. However, Ofgem considers that, as a general principle, market participants and customers should not be compelled to participate or make offers in any particular market. In a well functioning market, customers and shippers would voluntarily make offers to the market when it was in their commercial interests to do so. Compelling market participants and customers to offer into the market may lead to unnecessary costs being incurred and/or unforeseen consequences.
- 2.49. In the absence of top up, there is no need for a formal mechanism to demonstrate that the demand side can and will respond. In a number of responses to this consultation, respondents have expressed the view that market mechanisms can be relied upon to deliver the required response. Ofgem agrees with this view and therefore, in the absence of top up, Ofgem's preferred option would be to rely on the market.

#### ***Option 4: Modify the existing top up arrangements***

- 2.50. In its May 2004 consultation, Ofgem considered the proposal that Transco could progress incremental changes to reduce the potential for the current top up arrangements to distort the market and the current commercial incentives whilst leaving these arrangements in place.
- 2.51. Ofgem presented a number of potential ways in which the current top up arrangements could be modified, which are addressed in turn below. Ofgem's initial view was that none of these options would materially address the weaknesses of the current top up arrangements that were highlighted in the consultation document.

- 2.52. **Changing storage use it or lose it (UIOLI) rules so that top up counter-nominations result in firm gas delivery.** Transco and other respondents raised concerns with respect to the extent to which counter-nomination actions may be effective given the current arrangements for accessing capacity at storage sites. In particular, where there are UIOLI arrangements in place, the effect of any top up counter-nomination could be off-set by additional withdrawal. Given this, Transco have suggested that storage UIOLI arrangements could be changed such that UIOLI capacity is not made available when top up counter-nominations are being made, in order to ensure that the counter-nomination action could not be undermined by subsequent withdrawal under the UIOLI arrangements.
- 2.53. **Publication of storage stocks.** Transco indicated that access to information concerning inventory levels held in different types of storage facility (i.e. long duration, medium duration and short duration) would be beneficial to the market.
- 2.54. **The calculation of the Top up Market Offer Price (TMOP).** Transco argued that the current methodology for the calculation of the TMOP does not consistently provide the most appropriate incentives for shippers. In particular, Transco highlighted the fact that if there is not an opening top up requirement (and since all available storage capacity is booked, no opening requirement is anticipated for 2004/05), but that top up is subsequently booked within winter, then the resulting TMOP is likely to be only slightly higher than the weighted average cost of purchasing the gas when the injection took place. Transco has proposed network code modification 671, which amongst other things seeks to change the basis upon which TMOP is calculated. This modification is currently being considered by the Authority.

### **Respondents' views**

- 2.55. **Changing storage UIOLI rules so that top up counter-nominations result in firm gas delivery.** In respect of changing the UIOLI rules so that top up counter-nominations result in firm gas delivery, a number of respondents were of the view that the UIOLI arrangements should not be changed. These respondents considered that changing the rules as proposed would have an impact on the storage contracts entered into by shippers and could lead to an interference with shippers' commercial rights under their contracts and legal challenges could



potentially occur. Further, these respondents expressed concern that changing the UIOLI rules would lead to inefficient storage utilisation by limiting storage cycling and would cause increased costs to shippers in obtaining gas from other sources.

- 2.56. One respondent proposed an alternative solution whereby Transco could contract directly with shippers for storage capacity and/or gas in store to replace the need to counter nominate by the top up manager to maintain monitor levels. This respondent considered that this would negate the requirement for storage operators to give Transco firm capacity.
- 2.57. One respondent agreed with Transco's view that the counter-nomination mechanism, which is intended to prevent physical withdrawals from storage to protect monitor levels, may not always have the desired impact since the injection nominations may create more interruptible withdrawal capacity because withdrawal capacity is generally determined by physical withdrawal capacity plus any injection nominations. This respondent supported a change to the generic Storage Connection Agreement (SCA) such that all storage operators would be bound to accept top up counter injections from Transco, at prevailing lead times, unless this would cause a safety problem, and that these counter injections would not contribute any addition to interruptible withdrawal capacity (which would be capped by physical withdrawal capacity plus injection nominations excluding Transco's counter injection nominations).
- 2.58. **Publication of storage stocks.** A number of respondents supported the publication of storage inventory and daily flow levels across different storage facility types as this would provide the market with a better means of assessing overall system security. There was a belief that as all market participants have access to the same information, the risk of gaming would be low and also that this type of behaviour should be relatively easy to monitor.
- 2.59. One respondent commented that they had previously supported the publication of aggregated storage information, and expressed disappointment that this information had still not been published, especially as Transco used the fact that this information would be made available last winter to support its top up modification proposals.

- 2.60. The owners of storage facilities that responded expressed the view that, whilst they were not against the publication of storage information in principle, there remained a number of commercial sensitivities that would have to be resolved. Further, one of these respondents considered that any requirement to publish storage stocks should apply equally to all storage operators and, ideally, should be progressed as part of a wider agreement or requirement to publish other equally relevant information including producing field availabilities. This respondent also commented that due to the nature of Transco's definition of storage facility types, publication of aggregate inventory on a facility type basis could discriminate against certain storage operators and their customers.
- 2.61. **Calculation of the TMOP.** A number of respondents noted that, once Transco has entered into the market as top up manager and made gas available at the TMOP, this price could set the cash out price. These respondents expressed concern that this price could limit the extent of demand side response the market provides and therefore inhibit shippers and/or suppliers from entering into commercial arrangements with their customers leading to inefficient intervention in the market.
- 2.62. One respondent was of the view that it was not practicable to regard the TMOP as a good basis for incentives to secure adequate winter supplies, but also that it was clearly undesirable that TMOPs were likely to be so low as to actually reduce the incentives that would otherwise exist. This respondent expressed support for appropriate changes that which would increase the likely TMOP levels.
- 2.63. A number of respondents supported a wider review of this issue. One of these respondents considered that any incremental changes would be unlikely to have any enduring benefit but that some interim measures may be required whilst more long-term solutions were developed.

### **Transco response**

- 2.64. **Changing storage UIOLI rules so that top up counter-nominations result in firm gas delivery.** Transco expressed that view that UIOLI arrangements are generally beneficial in contributing to efficient storage utilisation but that, in the case of winter injections for top up purposes, it considered that the nature of the

UIOLI rules could give rise to further withdrawals. In the view of Transco, it could not be considered to be efficient for the top up manager to make total winter injection nominations of several times the extent of the initially identified monitor breach nor to cause additional volatility in the gas market by so doing. Transco expressed the view that the availability of UIOLI capacity could also incentivise gaming on the part of storage users without any benefit to security of supply. Transco considered that it would be useful to explore further solutions that kept the benefits of the UIOLI rules but mitigated gaming opportunities.

- 2.65. **Publication of storage stocks.** Transco supported Ofgem's view that greater transparency can lead to more efficient markets. Transco also expressed the view that the publication of storage stocks at an aggregate level could alert market participants to the possibility of a network gas supply emergency which would lead to a less satisfactory return for shippers with interruptible arrangements than normal market operation. Transco considered that this should lead to higher demand-side participation, which would reduce the probability of an emergency occurring. However, Transco also agreed with Ofgem that the publication of storage stocks could increase the potential for gaming close to the monitors.
- 2.66. **Calculation of the TMOP.** Transco agreed with Ofgem that it would be preferable for TMOP to reflect market prices at times of very high demand and a pre-determined price cannot be relied upon to do that. Transco also commented that a pre-determined price would have the effect of setting rather than reflecting prices in the market. Transco expressed the view that it would consider any suggestions for pricing that reflected the market and would ensure that other supply sources and demand flexibility were first fully utilised.
- 2.67. **Other options.** Transco also suggested some further incremental changes that could be brought about through network code modifications and that could have some short term merit without requiring a material change to Transco's safety case. Transco suggested that allowing Transco greater discretion in determining whether a counter-nomination is required (after taking account of weather forecasts and the ability of a storage facility to refill) could potentially be a way to manage or mitigate top up costs. However, Transco also expressed that view that, in the longer term, such a strategy may make little difference to costs

should the market price move in anticipation of counter-nominations and related gas purchases.

- 2.68. Transco also stated that it was considering other aspects of its current top up calculation methodology, for instance its assumptions on interruption at LDZ supply points, simulation of CCGT response, evidence of NTS non-power response, and the effect of climate change and assumptions on storage.

### **Ofgem views**

- 2.69. **Changing storage UIOLI rules so that top up counter-nominations result in firm gas delivery.** Ofgem considers that removing the availability of UIOLI capacity would be likely to make the withholding of gas in store by the top up manager more effective than is the case under the current arrangement. However, Ofgem remains of the view that the potential for top up actions to result in the withholding of physical storage flexibility is a major source of concern in itself.
- 2.70. As stated previously, Ofgem remains of the view that the top up arrangements should be removed from Transco's network code and that references to top up be removed from Transco's safety case. Ofgem therefore considers that the principle of UIOLI should be preserved as it brings clear benefits to the operation of the storage market and concerns about the effects of the UIOLI rules would not be an issue if the top up arrangements are removed.
- 2.71. **Publication of storage stocks.** Ofgem considers that increasing the availability of storage inventory and flow information would be a desirable development in that it would facilitate more efficient competition in the market. If the top up arrangements are removed, any concerns that the information could increase the potential for gaming to the detriment of the top up manager are no longer an issue.
- 2.72. Ofgem welcomes the support, in principle, of storage operators for publication of storage stock levels. Ofgem acknowledges, however, that there are a number of issues that remain unresolved with respect to wider publication of information, in particular, in relation to potential commercial sensitivities, and discussions between Ofgem and relevant market participants is ongoing.

- 2.73. Ofgem is confident that a solution acceptable to Ofgem, storage operators and the wider market will be found in time for this winter so that the information on storage stocks can be made available to the market.
- 2.74. **Calculation of the TMOP.** Ofgem notes that there is agreement that the current administered price for top up can interfere with the commercial incentives that lead to shippers and suppliers balancing and maintaining security of supply. As set out in appendix 1, there is currently a modification proposal with Ofgem for decision concerning the calculation of the TMOP. Without fettering its discretion in relation to this modification proposal, and in light of Ofgem's preferred option to remove top up in the context of Transco's proposal, it is Ofgem's view that amendment to the calculation of the TMOP is not necessary.

***Option 5: Redefine top up such that it focuses only on the domestic customer supply security standards***

- 2.75. In its May 2004 consultation, Ofgem proposed that the top up arrangements could be retained (in some form), but that the top up assessment should be modified such that top up would only provide for the meeting of domestic customer demand.
- 2.76. Ofgem noted that the domestic supply security standards are explicitly referred to as a rationale for top up in Transco's safety case. However, Ofgem commented that the safety case also refers to top up as involving the assessment of gas supplies against firm demand. That is, it refers (albeit in a very general manner) to an assessment that goes beyond the domestic customer supply security standards. Similarly, Ofgem noted that the network code provides for a top up assessment that takes account of demand from non-domestic as well domestic customers.

**Respondents' views**

- 2.77. A number of respondents commented that Transco had tried to amend its safety case to remove top-up for non-domestic load on a previous occasion but that the proposal had failed. It was therefore argued that this was not a viable option.
- 2.78. One respondent expressed the view that, as a pragmatic, time limited interim measure, top up could be redefined to focus only on domestic customers.

Another respondent considered that it was possible to make an alternative provision to top up for certain load types. This respondent was of the view that, where it is possible to establish a demand side response service among large daily metered loads (in order to ensure the reduction of consumption where required for system security), this category could be removed from the top up requirement. This respondent considered that other, non price responsive customers (for instance domestic customers, small and medium sized industrial customers, etc), would not have the same price sensitivity and therefore should be supported by the provision of top up gas. However, this respondent expressed concern that it would be inequitable that the costs relating to the actions of large consumers and their shippers are borne entirely by domestic customers.

- 2.79. One respondent expressed the view that that load shedding systems are unlikely to be able to ensure that the demands of domestic customers are met in full unless security planning is based on the requirements of all firm customers.
- 2.80. A number of respondents argued that it would be discriminatory to focus the provision of top up on any particular customer group and that the maintenance of sufficient supplies of gas to ensure firm demand is met in a severe winter was not an exclusively domestic issue.

### **Transco response**

- 2.81. On the basis that Transco had previously failed to redefine top up in its safety case such that it focused only on the domestic customer supply security standards, Transco was of the view that it was unlikely that this option would be able to be implemented for this winter (or indeed at all). Transco also pointed out that any practical means of retaining 1 in 50 severe winter security exclusively for domestic customers would have to take into account the fact that isolation of adjacent non-domestic customers may be neither practicable nor desirable.

### **Ofgem views**

- 2.82. As stated previously, Ofgem remains of the view that the top up arrangements should be removed from Transco's network code and that references to top up be removed from Transco's safety case. Ofgem therefore does not consider that

redefining top up such that it focuses only on the domestic customer supply security standards is appropriate.

### ***Option 6: No significant changes to the current top up arrangements***

- 2.83. In its May 2004 consultation, Ofgem noted that policy development should, as a general principle, consider a “do nothing” option (although in some circumstances, for example where a licence condition was being breached, this may not be an option). However, Ofgem had substantial concerns with respect to the extent to which the current top up arrangements could generate market distortions and undermine security of supply given Transco’s preliminary supply and demand forecasts for this coming winter. Ofgem was of the view that these concerns were more significant than in previous years given that Transco has indicated that, on the basis of its preliminary supply/demand assessment, the current methodology for setting monitor levels would generate opening levels of 100% for LNG and medium duration storage facilities.
- 2.84. It was Ofgem’s initial view that, other things being equal, the setting of monitors at these levels would not be consistent with the operation of a pipeline system in an efficient and economic manner.

### **Respondents’ views**

- 2.85. No respondents supported this option. A number of respondents agreed with Ofgem that the do nothing option was not desirable as, based on Transco’s preliminary supply and demand forecasts and the likely outcome of high monitor levels for this winter, there is a significant risk of top up generating market distortions and of significant costs being incurred this winter.
- 2.86. Other respondents considered that, although the do nothing option was not desirable, the difficulty in progressing any substantial changes in time for this winter would be too great and that instead changes of an incremental nature would be more appropriate. One respondent in favour of retaining the top up mechanism was of the view that the top up arrangements should be amended to make them more effective and reduce the potential for distortion.

## **Transco response**

- 2.87. Transco expressed the view that the likelihood of high monitor levels for this winter was high but that this was symptomatic of reduced levels of beach gas and trends in the market towards Transco only interruption rights. Although it agreed that protecting these monitor levels would give rise to undesirable market volatility, Transco did not agree that this would constitute a breach of its GT licence.

## **Ofgem views**

- 2.88. Ofgem agrees with respondents that it would not be desirable to allow the current top up arrangements to persist into this winter. Whilst Ofgem notes that a range of views was expressed as to what the preferred option for reform should be, all respondents to the consultation expressed concern in relation to the increased risk of market distortions and direct and indirect costs being incurred as a result of top up actions being taken this winter.

## ***HSE views***

- 2.89. The HSE did not provide a formal written response to this consultation document although Ofgem has had two meetings with HSE to discuss the proposals and HSE subsequently wrote to Ofgem setting out its views regarding removal of top up from Transco's safety case. In particular, it clarified that HSE's safety case consideration was to ensure that the risk of a supply emergency is minimised. A supply emergency is an emergency endangering persons and arising from a loss of pressure in a network or any part thereof. The HSE recognised that there may be ways other than the current top up arrangements that would meet this criteria. This could include, for example, demonstrating that sufficient gas will be available to the network or that demand could be controlled to minimise the risk of a supply emergency. HSE's safety case considerations do not extend to the continuity or security of supply for Britain as a whole which it believed was for others to consider. The HSE's views are discussed further in chapter 3 below.



## ***Summary of Ofgem's views***

- 2.90. Ofgem agrees with a number of industry respondents that the top up arrangements could lead to the potential for adverse market operation and security of supply problems. In particular, Ofgem shares the view of one respondent that, on the basis of Transco's forecast of tightening in the supply demand balance, there is a strong likelihood that Transco will have to intervene in the market to take top up actions, which could lead to significant disruption in the wholesale gas market. Further, Ofgem agrees with another respondent that the existence of top up could act to limit the incentives on shippers / suppliers to ensure they can source sufficient gas to meet their customers' demand.
- 2.91. In light of this, Ofgem agrees with all industry respondents that it would not be desirable to allow the current top up arrangements to persist into this winter. Ofgem notes the views of a number of respondents that incremental changes to the current arrangements would be most appropriate for this winter. However, Ofgem does not consider that a compelling case has been presented as to whether any incremental changes to the current arrangements would remove the potential detrimental impacts of these arrangements or lead to any compensating benefits that would outweigh these potential detrimental impacts.
- 2.92. In light of the serious concerns raised in respect of the operation of the current arrangements and having regard to the limited likely benefits from any incremental changes, Ofgem agrees with a number of respondents that the preferred option for reform is for the removal of top up from Transco's network code for this winter.
- 2.93. Ofgem notes the view of a number of respondents that it may not be possible or desirable for top up to be removed for this winter. As set out previously, Transco has indicated that it shortly intends to submit a network code modification proposal to remove top up from its network code consistent with its proposed revision to its safety case.
- 2.94. Ofgem recognises that the timescales required to properly consider such a modification proposal prior to this winter are tight. Indeed, Ofgem is mindful of the potential risks in making significant changes to the market arrangements at short notice and, in considering any potential changes to the top up

arrangements for this winter, Ofgem will have regard to the fact that the 2004/05 storage year is underway and that shippers have adopted contractual positions on the basis of the current arrangements. However, Ofgem is of the view that there are significant benefits associated with the removal of top up in the context of Transco's proposal which suggest that these matters should be progressed even under a challenging timetable. In addition, Ofgem would like to note that it published its initial proposals seeking to remove top up in May 2004 in order to ensure that there would be sufficient time for the industry to assess and consider the impacts of the removal of top up ahead of this winter.

### **3. Transco's proposed option for reform**

- 3.1. Since initiating its review in May 2004, Ofgem has been in discussions with both Transco and the HSE about the potential for reform of the top up arrangements. These discussions have led to a better understanding of the HSE's views on Transco's role with regard to safety. As part of this process, Transco has developed a new proposal for removal of top up from its safety case ahead of this winter. The HSE has also indicated that the proposal could, in principle, allow for all references to top up to be removed from its safety case. Transco has indicated that it shortly intends to submit a network code modification proposal to remove top up from its network code consistent with its proposed revision to its safety case. Ofgem would like to thank both Transco and the HSE for the constructive, helpful and open manner in which such discussions have taken place.

#### ***The HSE's views on Transco's safety obligations***

- 3.2. Appendix 3 of this document provides a summary of the regulatory framework in respect of top up gas. It is noted that the GS(M)R sets out certain safety requirements with which gas transporters must comply. Schedule 1 of the GS(M)R sets out the particulars to be included in the safety case of a person transporting gas. In relation to continuity of supply, paragraph 16 of this Schedule states that the safety case must contain particulars to demonstrate that the duty holder has established adequate arrangements to minimise the risk of a supply emergency. The GS(M)R defines a supply emergency as "an emergency endangering persons and arising from a loss of pressure in a network or any part thereof".
- 3.3. One cause which could lead to a supply emergency would be an imbalance during or at the end of a severe winter between demand and the quantity of gas available to the network from beach gas, the Belgian interconnector and storage. The HSE has stated that Transco's current safety case relies on top up gas being available to minimise the likelihood of this event occurring.
- 3.4. However, the HSE has also indicated to Transco and Ofgem that there may be other mechanisms that can provide the same (or lower) level of risk than the top

up arrangements. Such mechanisms would, relative to top up, pass the relevant test of being adequate in terms of minimising the risk of a supply emergency throughout and at the end of a severe winter. In discussions with the HSE and Ofgem, Transco suggested that such a mechanism might be based on a demonstration that sufficient demand could be controlled (if necessary through physical isolation) to ensure that there is sufficient gas to match remaining demand and so prevent loss of pressure in the network. The HSE has indicated that it would, in principle, be willing to consider such a mechanism as an alternative to top up.

- 3.5. Ofgem has consistently argued that, in the gas market, as in other markets, prices will rise in response to a tightening demand / supply balance until they reach a level where demand and supply are brought into balance. This may involve significant voluntary demand side reduction as customers respond to the high prices by choosing to sell their gas back into the market either directly or via their supplier / shipper.
- 3.6. The HSE has indicated to Transco and Ofgem, however, that Transco would have to be able to demonstrate clearly that the market would operate in this manner and that customers would respond in this way to satisfy its GS(M)R requirement to demonstrate that it has established adequate arrangements to minimise the risk of a supply emergency. As recent winters have been relatively mild, there is little experience available to make this demonstration to the HSE. As a result, the HSE has stated that Transco must have a level of control which ensures that it can maintain balance on the network. If Transco can demonstrate to the HSE that, in a network gas supply emergency<sup>16</sup>, Transco can reduce the level of demand on the network, if necessary by physically isolating customers, to avoid a supply emergency occurring, then this would meet the requirements of its safety case.
- 3.7. Transco's proposal therefore seeks to demonstrate that it has sufficient control once a network gas supply emergency has been declared to request certain end-users to cease taking gas and, if necessary, to physically isolate a proportion of these customers, to ensure that the risk of a supply emergency later in the winter

---

<sup>16</sup> Network gas supply emergencies are described in section Q1.2.3(a) of Transco's network code. Appendix 3 of this document provides a high level description of these arrangements. The review of top up arrangements in gas: Conclusions document  
Office of Gas and Electricity Markets

can be minimised. This would then enable the top up arrangements to be removed from Transco's safety case.

### ***The safety monitor concept***

- 3.8. Transco's proposal is to replace the current top up arrangements with a physical mechanism that would only be triggered once a network gas supply emergency had been called. Transco is of the view that this mechanism is designed specifically for Transco's safety requirement, which is to minimise the risk of a supply emergency occurring.
- 3.9. In order for Transco to do this, it has proposed that it would identify a group of gas customers that in a network gas supply emergency can be physically isolated in a short period of time to ensure that they do not continue to consume gas (referred to as 'customers protected by isolation'). Once this group of customers has been identified, Transco would establish a series of monitor levels in respect of each type of storage facility to ensure that sufficient gas remains in store to account for the severe winter demand of all customers that Transco cannot physically isolate in the required timescale (referred to as 'customers protected by the safety monitor').

### ***Setting the safety monitor***

- 3.10. Transco has set out that customers protected by isolation would include NTS and LDZ interruptibles and the majority of daily metered loads, whilst customers protected by the safety monitor would include non daily metered customers such as domestic customers and also certain 'priority' customers<sup>17</sup>. The figure below illustrates how, based on Transco's current proposals, this safety monitor level will differ from the existing calculation of the top up monitor levels.

---

<sup>17</sup> Ofgem is awaiting confirmation from Transco as to which customers are covered by its definition of 'priority customers'. These are customers who it may be physically possible to isolate, but where such action may not be desirable from a wider perspective (for example hospitals).

**Figure 3.1: Comparison of GS(M)R safety monitor level and top up monitor level**

Category	Proposed Top Up Assumption	Current Top Up Demonstration
NTS Interruptible	Protected by Isolation	Excluded
LDZ Interruptible		
NTS Firm		
LDZ Firm – Daily Metered I&C		
LDZ Firm – NDM Firm “Priority” Customers Irish Interconnector	Protected by GSMR Monitor	Included
Domestic		

3.11. Transco has not yet provided details of the safety monitor calculation. Ofgem would expect that consideration of the methodology on which the safety monitor level would be set and the specific ways in which Transco should seek to ensure that the safety monitor is not breached would form the subject of further discussion with industry.

### ***System operation under the safety monitor***

3.12. Ofgem’s assessment of the likely impacts of the removal of top up against the background of Transco’s proposal is set out in chapter 4. In addition to this, Transco has provided Ofgem with a description as to how it envisages the supply / demand situation on the system would be likely to develop over time assuming cold winter conditions. This description is set out below.

3.13. Under Transco’s proposal, it would monitor levels of gas in store relative to the safety monitor level in respect of each storage facility type. At certain trigger points,<sup>18</sup> set in terms of the level of gas in store, Transco would issue a system message to the market in order to alert the market to the depletion of stored gas. In addition, Ofgem has obtained agreement that additional information on storage stocks will be available to the market. This will ensure that the market

---

<sup>18</sup> These have yet to be fully specified, although Transco have proposed trigger points equivalent to previous  
The review of top up arrangements in gas: Conclusions document  
Office of Gas and Electricity Markets 38 August 2004

would be kept fully aware of the level of gas in store throughout the winter and therefore that market participants will have the opportunity to determine their views with respect to relevant trigger points. Transparency with respect to storage stock levels will, therefore, allow market participants to better observe movements in storage stock levels and to respond appropriately.

- 3.14. However, market conditions (including prevailing weather conditions), and market responses to falling storage stock levels, may be such that the level of gas in store could start to approach the safety monitor level. It is very unlikely that stock levels would fall to levels very close to the safety monitors. This would require a sustained lack of price response from customers and the market to very high prices.
- 3.15. In such circumstances, Transco has indicated to Ofgem that it would exercise its judgement regarding the risk of a safety monitor breach. For instance, Transco may determine that it is appropriate to consider re-allocation of the monitor levels between storage facilities. In the event that Transco's actions were unable to reduce the likelihood of a safety monitor breach sufficiently and, as a consequence, the safety monitor was breached, a network gas supply emergency would be instigated and, pursuant to the emergency provisions set out in Transco's network code, it would seek to ensure that the required volume of loads protected by isolation were no longer taking gas through the mechanism of firm and interruptible load shedding.

## 4. Impact Assessment

### *Regulatory background*

- 4.1. Section 5A of the Utilities Act 2000 (“the Utilities Act”) generally requires the Authority to carry out an impact assessment where it is proposing to do anything for the purposes of, or in connection with, the carrying out of its functions under Parts I of the Gas or Electricity Acts and where it appears to the Authority that the proposal is ‘important’.
- 4.2. It is Ofgem’s view that the removal of top up would be a significant change to the existing arrangements and therefore can be considered to be important under Section 5A of the Utilities Act. Ofgem has therefore decided to conduct an impact assessment of the removal of top up in the context of Transco’s proposal.
- 4.3. In July 2004, Ofgem published draft guidance on impact assessments<sup>19</sup>. As set out in this draft guidance, Ofgem considers that conducting an assessment of impacts is an integral part of policy development and is not only about publishing reasons for a decision but about a structured approach to policy development and decision making and that impact assessments, as evolving documents, have a significant role to play in this.

### *Introduction*

- 4.4. In this chapter, Ofgem has attempted to assess the impacts of the removal of top up in the context of Transco’s proposal. To facilitate this assessment, Ofgem has made the assumption that the HSE will approve the proposed revision to Transco’s safety case. (However, to be clear, the HSE has given no indication as to whether it will approve Transco’s revision to its safety case.) Ofgem has also assumed that any consequential network code modification proposal would be consistent with Transco’s proposal.
- 4.5. This impact assessment includes an evaluation of the costs and benefits associated with the existing top up arrangements as compared with the costs and

---

<sup>19</sup> “Draft guidance on impact assessments”, Ofgem, July 2004.  
The review of top up arrangements in gas: Conclusions document  
Office of Gas and Electricity Markets



benefits associated with the removal of top up in the context of Transco's proposal.

4.6. Ofgem has identified a number of key issues associated with the reform of the top up arrangements against which an assessment of the impact of removing top up in the context of Transco's proposal can be made. These key issues are:

- ◆ security of supply;
- ◆ direct costs incurred by Transco;
- ◆ indirect costs and impacts on customers; and
- ◆ impact on competition.

4.7. We explain each of these issues in greater detail below.

4.8. Ofgem has, where possible, sought to assess the impacts of the removal of top up quantitatively, against the key issues described above. In cases where the costs and benefits are difficult to quantify, for instance the benefits associated with removing distortions in competition, Ofgem has made a qualitative assessment.

4.9. The assessment set out in this chapter supports Ofgem's initial view that reform of the existing regime is necessary, and that the current top up arrangements should be removed.

### ***Key issues***

4.10. As set out earlier in this chapter, Ofgem considers that there are a number of key issues associated with the top up arrangements against which an assessment of the removal of top up in the context of Transco's proposal should be made. These are discussed below.

### ***Security of supply***

4.11. One of the key rationales for the existence of the current top up arrangements is that they are said to improve security of supply. Ofgem is therefore of the view that, in terms of assessing the impacts of the removal of top up, a key question

concerns whether, and if so to what degree, the removal of top up can be expected to impact on the incentives on market participants to make security of supply provisions as compared with the current arrangements. Ofgem has also considered here the impacts of the removal of top up in the context of Transco's proposal.

- 4.12. In addition, Ofgem considers that a further key factor in terms of assessing the impacts of the removal of top up in relation to security of supply is whether, and if so to what degree, the removal of top up could be expected to impact on the risk of a network gas supply emergency being declared. Ofgem has also considered here the impacts of the removal of top up in the context of Transco's proposal. The issue of interruption is dealt with in more detail in the section on indirect costs and impacts on customers below.

### ***Direct costs incurred by Transco***

- 4.13. As set out in its May 2004 consultation document, Ofgem's preliminary assessment was that the current top up arrangements could potentially generate very significant direct costs. In particular, Ofgem's view was that, due to the mechanistic nature of the top up arrangements, the top up manager could incur substantial direct costs – even in mild winters – as a result of taking counter-nomination actions to ensure that the levels of gas in store do not fall below defined monitor levels.
- 4.14. In addition, Ofgem highlighted a number of areas of concern both with respect to the methodology that Transco uses to determine top up monitor levels, and, for a given set of monitor levels, the basis upon which Transco contracts in order that it can address identified shortfalls.
- 4.15. Ofgem considers that, in terms of assessing the impacts of the removal of top up in relation to the promotion of economy and efficiency, a key impact is whether, and if so to what degree, the removal of top up would result in direct costs being incurred by Transco as compared with the current arrangements. Ofgem has also considered here the impacts of the removal of top up in the context of Transco's proposal.

### ***Indirect costs and impact on customers***

- 4.16. As set out within the May 2004 consultation document, Ofgem's preliminary assessment of the top up arrangements was that they could lead to potentially significant indirect, as well as direct, costs. In terms of the indirect costs that could be incurred, Ofgem argued that the counter-nomination actions of the top up manager could lead to significant distortions in the wholesale gas market, potentially leading to significant increases in short term prices (and forward prices) that could subsequently be passed onto customers.
- 4.17. Ofgem therefore considers that, in terms of assessing the impacts of the removal of top up in relation to its impact on customers, a key impact is whether, and if so to what degree, the removal of top up could be expected to result in indirect costs being incurred by customers as a result of movements in wholesale price levels as compared with the current arrangements. Ofgem has also considered here the impacts of the removal of top up in the context of Transco's proposal.
- 4.18. A related issue to be considered here concerns the extent to which the removal of top up can be expected to impact on likely levels of interruption.

### ***Impact on competition***

- 4.19. It was noted by Ofgem in its May 2004 consultation document that, to the extent that the counter-nomination arrangements influence commercial incentives with respect to the use of storage facilities, they could be expected to distort competition in the provision of storage and related flexibility services. Therefore, Ofgem considers that a key factor in terms of assessing the removal of top up in relation to its impact on competition is whether, and if so to what degree, it could be expected to distort competition in the provision of storage and other flexibility services as compared with the current arrangements. Ofgem has also considered here the impacts of the removal of top up in the context of Transco's proposal.
- 4.20. Other relevant factors to consider with respect to the effects on competition are the potential impacts that the likelihood of a significant level of top up actions could have on market expectations, and subsequently on market liquidity. This is a result of the likely effect of the operation of the counter-nomination

arrangements on wholesale prices, and concerns with respect to the robustness of those arrangements, as compared with the removal of top up. Ofgem has also considered here the impacts of the removal of top up in the context of Transco's proposal.

## ***Assessment of likely impacts***

### ***Security of supply***

- 4.21. Ofgem does not consider that the current top up arrangements can be expected to have any material benefits with respect to security of supply. The detailed operation of the top up rules is such that the arrangements could in fact undermine the commercial incentives on companies to deliver secure supplies. The current rules could, therefore, actually increase the risk of suspension of the commercial arrangements and the introduction of firm load shedding.
- 4.22. This view is underpinned by a number of factors, including the following:
- ◆ The counter-nomination arrangements are unlikely to be robust, even under mild conditions, given the very high top up monitor levels that would be likely to apply for 2004/05 under the current arrangements. In particular, there is a significant likelihood that top up counter-nomination actions would result in additional storage withdrawals which would in turn generate further Transco intervention. Transco has expressed concern over the potential for very substantial costs to be incurred in taking counter-nominating actions, without achieving the protection of the storage stocks for which such actions are intended. In such a situation, Transco has indicated that declaration of a network gas supply emergency may be necessary in order to shed firm load from the system to maintain gas storage stocks. This appears a highly problematic use of the emergency arrangements (given that it is driven by commercial rather than safety criteria), and if such an approach were adopted, Ofgem would need to carefully consider the extent to which it was consistent with Transco's GT licence obligations. We would note that increased levels of uncertainty with respect to the likely usage of the emergency arrangements would be expected to have a negative impact on commercial incentives to secure supplies.

Transco's proposal for the introduction of the safety monitor level would introduce an additional reason to instigate a network gas supply emergency (i.e. for breach of the safety monitor). However, the lower the safety monitor level, the less likely it would be that an additional emergency would be called for this reason alone. In addition, it may be expected that customers that will be isolated under the terms of a network gas supply emergency may have an additional incentive to ensure that the new safety monitor levels were not breached.

- ◆ The existing market arrangements would generate substantial incentives for 'large' firm customers to reduce their gas demand on peak demand days. Given the substantial proportion of Transco's peak demand estimate that is accounted for by large<sup>20</sup> firm load (about 20% of total firm load - 100mcm/day<sup>21</sup> of demand), Ofgem considers that the market would be able to deliver the level of response that may be required under severe conditions.

Ofgem cannot envisage a situation under which Transco's proposal to replace top up with the safety monitor will have an adverse effect on the ability of the market to respond to price signals. Ofgem is therefore of the view that Transco's proposal is neutral in this regard and that the market would be able to deliver the level of response that may be required under severe conditions if top up was removed.

- ◆ To the extent that the top up market offer price – the price at which top up gas is offered to market - has a material impact on the incentives on market participants to secure supplies, it is likely to be negative. In particular, if any alternative supply or demand side response can be expected to be available at times when a top up market offer might be accepted, but at a higher price than the TMOP, then the likely effect of the top up market offer arrangements is to reduce the price that would be faced by a shipper that has a supply shortfall under severe conditions.

---

<sup>20</sup> 'Large' firm load here includes daily metered LDZ firm loads, other LDZ loads that consume more than 200,000 therms per annum, NTS firm loads, and firm exports to the Irish power sector.

<sup>21</sup> 1 therm = 2.7 cubic meters (cm) = 29.3kWh; 30 p/therm = 11.1p/cm = 1.02 p/kWh.

In the context of Transco's proposal to remove top up and replace it with the safety monitor, provisions for top up market offers will clearly be removed. Since Transco's proposal to introduce the safety monitor has no similar mechanism, Ofgem considers that Transco's proposal would remove the potential for the incentives on market participants to secure supplies to be undermined by top up market offers.

- 4.23. Given these factors, Ofgem is of the view that removal of top up in the context of Transco's proposal would be likely to be neutral, and at best slightly positive for security of supply.

### ***Direct costs incurred by Transco***

- 4.24. The very high monitor levels that would apply for winter 2004/05 under the current arrangements increase the risk that Transco has to take substantial top up actions to maintain defined levels of storage stocks throughout the winter. These actions could give rise to substantial direct costs that would be avoided if top up were to be removed. The principal source of direct costs is net losses made by Transco from the purchase and sale of top up gas through the counter-nomination process.
- 4.25. However, the above comments should not be taken to mean that Transco would incur significant counter-nomination costs in all scenarios: there is clearly some prospect of prevailing supply and demand conditions being such that no costs would be incurred.
- 4.26. Appendix 5 of this document sets out Ofgem's analysis of what the pre-winter expected direct cost of top up counter-nominations would be. In order to do a full analysis of this issue, information on the range of direct costs that would be likely to occur in a series of winters (from 1 in 50 warm to 1 in 50 cold, for instance) would be required. Since this would be a complicated and hypothetical analysis, Ofgem has instead carried out a more simplistic analysis in which the direct costs derived in Appendix 5 are weighted according to an estimate of their likelihood.
- 4.27. For the purpose of this analysis it is assumed that the 'average' winter severity direct costs are incurred 50% of the time. It is also assumed that the 1 in 10 and 1 in 50 direct costs are incurred 20% and 5% of the time respectively. Further,

it is assumed that zero direct costs are incurred for the remaining 25% of the time (i.e. warm to very warm). This is shown in Table 4.1 below.

**Table 4.1: Pre-winter direct cost estimate**

	Winter Severity			
	Warmer than average	Average	1 in 10 cold	1 in 50 cold
Likelihood	25%	50%	20%	5%
Transco estimates	£0	£8m - £40m	£30m - £150m-	£50m - £350m
Revised estimates based on Ofgem volume assessment	£0	£20m - £150m	£40m - £300m	£60m - £600m

- 4.28. Weighting the direct costs according to these likelihoods gives a pre-winter expected cost of top up counter-nominations of between £12m and £67m under Transco's estimates and between £21m and £165m under Ofgem's estimates.
- 4.29. The principal source of direct costs is net losses made by Transco from the purchase and sale of top up gas.
- 4.30. Whilst there are some differences in the assumptions underpinning these estimates, the ranges shown are broadly similar and in both cases show that pre-winter expected top up counter-nomination costs are substantial.
- 4.31. Furthermore, the cost estimates shown above do not take account of the potential impact that top up actions could have on market behaviour, and the subsequent effects that this could have on the costs of top up actions. For example, Transco's counter-nomination actions may generate incentives for further storage withdrawals and thus give rise to further counter-nominations. The potential for the counter-nomination arrangements to generate problematic dynamics of this kind is of particular concern this winter. This is because of the very high level of monitor levels that would be likely to apply under the current arrangements (given, for example, that the opening monitor position would involve any withdrawal from an MRS or LNG site triggering top up actions).

4.32. The above comments suggest that the level of direct costs that could arise under the current top up arrangements – and that would be avoided were top up to be removed - could be significantly higher than the figures shown in Table 4.1. Since there will be no potential for direct costs to arise in relation to Transco’s proposal, Ofgem considers that these costs will be avoided were top up to be removed in the context of Transco’s proposal.

### ***Indirect costs and impacts on customers***

- 4.33. Customers are not currently exposed to the direct costs of top up actions (i.e., booking storage, purchasing and injecting gas, etc). As a result, under the current arrangements, whilst Transco could potentially incur very substantial top up costs in 2004/05, these costs would not be passed through to customers<sup>22</sup>. Despite this, however, the current top up arrangements could potentially generate significant indirect effects that have a significant negative impact on customers. These indirect effects, and the negative impact on customers, would be avoided if top up were to be removed.
- 4.34. These indirect effects stem from the counter-nomination process. Counter-nomination actions seek to restrict the availability of supply from a given storage facility. To the extent that they are successful in doing this, they result in the withholding of storage capacity from the market for a period, and this can be expected to put an upward pressure on level of wholesale prices. Given this, Transco’s top up actions would be likely to increase spot gas prices and, if the amount of gas purchased is significant, could also affect forward gas prices by changing the market’s perception of the risk and costs associated with Transco’s top up actions in future.
- 4.35. Ofgem has estimated the likely magnitude of this price increase on the basis of the elasticity of demand estimate used by the Competition Commission in its report on Centrica’s acquisition of Dynegy Storage<sup>23</sup> (given the estimates of counter-nomination volumes underpinning the direct cost estimates shown in Table 4.1 above). This approach suggests that counter-nomination actions could

---

<sup>22</sup> Although it would be open to Transco to seek to recover these costs by means of the ‘Income Adjusting Event’ arrangements under its price control.

<sup>23</sup> See “Centrica plc and Dynegy Storage Ltd and Dynegy Onshore Processing UK Ltd: A report on the merger situation”, Competition Commission, 2003.



result in wholesale prices rising by in the order of between 0.6p/therm and 2p/therm for three months even in average winter conditions.

- 4.36. Gas customers that are directly exposed to wholesale prices via the contractual arrangements that they have their suppliers would clearly be exposed to the pass through and wholesale price increase immediately. Domestic customers, however, may not be immediately impacted by such increase in wholesale prices as there are often lags between movements in wholesale prices and suppliers making changes to retail prices.
- 4.37. Using Transco's Ten Year Statement 2003 figures for demand and assuming that all non small users are directly exposed to any increase in wholesale gas prices whilst small users (domestics, etc) are exposed to a 50% pass through in the first year, Ofgem estimates that under average conditions a 2p/therm increase in prices in Q4 would lead to a total annual cost in the first year of around £116m for non small users and around £56m for small users. Assuming that increased costs in cold winters would cancel out any decreased costs in warm winters, the expected pre winter cost of the indirect effects of top up counter-nominations is around £170m.
- 4.38. The effects of this price increase would be mitigated to some extent by the fact that the subsequent release of top up gas in store would put downward pressure on prices. However, since it is likely that this gas would be made available in late spring, when the likely average and peak demand level would be significantly lower than they would have been when top up gas was purchased, the magnitude of the downward price effect would be likely to be significantly smaller than that of the earlier price rise.
- 4.39. To the extent that Transco's counter-nomination actions could actually be effective in the withholding of storage capacity from the market, they would be very likely to result in a higher level of interruption (or turn down) than would have otherwise been the case, particularly in mild conditions. In particular, the current top up arrangements involve generating incentives for more interruption than would otherwise take place early in the winter – assuming conditions are not actually severe - in order for there to be some prospect of a lower level of interruption than would otherwise be the case if the remainder of the winter turned out to be severe.

- 4.40. In particular, Ofgem's estimates of the volume of counter-nomination that could be expected to arise in an average winter, indicate that a 'shortfall' of somewhere between 200-300 million therms could result even in relatively mild conditions. Given the likely potential for response from other supply sources at times when storage nominations are being made, it is to be expected that a significant proportion of this shortfall would have to be met from increased levels of interruption.
- 4.41. The above indicates that the current top up arrangements could potentially generate very substantial indirect costs - even under average conditions - that would be avoided if top up were to be removed. There have in fact been several instances where storage has been withheld from the market due to either artificial network code constraints or forces of nature. There are three examples that demonstrate the sensitivity of gas prices to storage constraints.
- 4.42. First, on 15 December 1999 the Easington terminal was struck by lightning, limiting the operation of inter alia the Rough subterminal. This reduction in flows contributed to a sharp increase in system average price which by 20 December 1999 had risen to 2.17p/kWh (63.6p/therm). Second, during winter 2003/04, an unannounced Rough outage pushed week ahead gas prices to 80p/therm (2.73p/kWh). Third, in 1997, system marginal price was set at £4.97/therm (16.96p/kWh) due to inter alia a network code rule that prevented storage withdrawals. Ofgem considers that these examples demonstrate the its analysis as above should be seen as conservative.
- 4.43. Replacement of top up with the safety monitor would not fully remove the possibility for indirect costs to be incurred. However, since the safety monitor level should be significantly below the proposed top up monitor level, Ofgem considers that these costs are unlikely to be material in comparison to the costs identified above and the probability of this happening is substantially reduced.

### ***Impact on competition***

- 4.44. As set out in Ofgem's May 2004 consultation document, to the extent that the top up counter-nomination arrangements can influence commercial incentives with respect to the use of storage facilities, the current top up arrangements could be expected to distort competition in the provision of storage and other

flexibility services. Most directly, the fact that storage is the only form of response that Transco contracts for when seeking to address an identified supply/demand shortfall could distort short-term trade-offs between sources of supply-side/demand-side response. The impact of this on likely levels of interruption was discussed above.

4.45. Also, to the extent that the top up arrangements can generate higher winter prices than would otherwise be the case<sup>24</sup>, this could potentially distort long-term investment signals with respect to storage and related forms of flexibility<sup>25</sup>.

4.46. It was emphasised earlier in this chapter that the current top up arrangements could give rise to very substantial Transco intervention into the market - even in an 'average' winter - in attempts to avoid monitor levels being breached. This intervention (or an expectation of it) could have other potentially significant impacts on competition in a number of ways. In particular:

- ◆ Significant counter-nomination activity could increase levels of price volatility (and particularly so if this activity prompts increased levels of storage withdrawal), which could have a negative effect on market liquidity;
- ◆ The lack of robustness of the top up counter-nomination arrangements generates a situation where there would be a high probability of significant changes to the market arrangements being required within winter if counter-nomination costs were otherwise likely to approach levels referred to in Table 4.1 above. A significant likelihood of significant rule changes within winter could also be expected to have a negative impact on liquidity.

4.47. With respect to the second of these points, it worth noting again that Transco has raised the prospect of it declaring a network gas supply emergency in order to seek to ensure monitor levels can be maintained in the face of what could otherwise be very substantial counter-nominations costs to be borne by NGT

---

<sup>24</sup> And potentially higher summer/winter price differentials.

<sup>25</sup> Ofgem would note, however, that it would seem highly unlikely that there would be a material effect of this kind given the lack of robustness of the current top up arrangements and that, given this, it would be unlikely that a high probability would be attached to persistent impacts on prices being generated by the top up arrangements (in particular, it seems likely that some form of reform would be expected to occur in order

shareholders. Whilst, as noted earlier in this chapter, Ofgem has concerns in terms of the extent to which such an action would be consistent with Transco meeting its GT licence obligations, it does highlight the lack of robustness even under relatively mild conditions.

- 4.48. The introduction of a new mechanism ahead of this winter may create some additional uncertainty. However, if the proposal is robust and the industry is made aware of the precise details of the mechanism, this uncertainty should be minimal and can be expected to be less damaging than reform within winter if the existing top up arrangements did prove to be unworkable.

## ***Conclusions***

- 4.49. In this chapter, Ofgem has undertaken an impact assessment of the removal of top up in the context of Transco's proposal. This involved consideration of the way in which the removal of top up in the context of Transco's proposal would be expected to perform against a number of key issues. Although Ofgem has sought to make quantitative assessment where possible, Ofgem has relied on qualitative assessment where the costs and benefits are difficult to quantify.
- 4.50. Table 4.2 below provides a summary of the costs associated with the existing top up arrangements and the removal of top up in the context of Transco's proposal.

**Table 4.2: Summary of the costs/benefits of the top up arrangements and the safety monitor level**

Key issue	Costs/benefits of top up	Costs/benefits of removal of top up in the context of Transco's proposal
<b>Security of Supply</b>		
Risk of a network gas supply emergency	Transco has said it will declare an emergency rather than incur significant direct costs of top up	This risk of an emergency is significantly reduced as the safety monitor is set at a much lower level than the existing top up monitor
Incentives on market participants	The administered TMOP has the potential for adverse effects	Risk that the administered TMOP price interferes with commercial incentives removed
<b>Direct costs incurred by Transco</b>		
Direct costs	Estimated pre-winter expected top up counter-nomination costs of £21m to £165m (Ofgem estimate). Costs could be considerably higher if significant counter-nomination activity	There is no potential for direct costs to be incurred
<b>Indirect costs and impacts on customers</b>		
Wholesale prices	Estimated pre-winter expected top up counter-nomination indirect costs of £170m. Costs could be considerably higher if significant counter-nomination activity although account must also be taken of the revenues earned on the sale of any top up gas.	Given low level of monitor and likely market response, probability of monitors being breached is very low and therefore expected level of indirect costs is very low
Interruption	Higher level of interruption than would otherwise be the case particularly in mild conditions	Lower monitor levels reduce likelihood of this occurring
<b>Impact on competition</b>		
Provision of flexibility	Distorted market for flexibility	Removal of any storage bias
Uncertainty and market liquidity	Uncertainty of operation of current scheme means high probability of change within winter	Introduction of a change in mechanism close to this winter

- 4.51. Ofgem's analysis indicates that the removal of top up in the context of Transco's proposal would provide a significant overall benefit. Indeed, Ofgem considers that in each area identified for consideration, the expected impact of the removal of top up in the context of Transco's proposal will be at worst broadly neutral and, in a number of instances, very positive. The exact level at which the safety monitor is set and the precise mechanisms which Transco would use to seek to ensure that the level is not breached will obviously impact on the magnitude of benefits that would be expected to be associated with replacing the existing arrangements.
- 4.52. Ofgem invites comments on this impact assessment.

## 5. Conclusions and way forward

- 5.1. Ofgem's proposed way forward is that the top up arrangements be removed from Transco's network code. Following a number of constructive meetings between HSE, Transco and Ofgem, Transco has developed a proposal that would facilitate removal of top up from its safety case and has put forward a change to its safety case to the HSE on this basis.
- 5.2. In order to progress the removal of top up from its safety case it will seek to ensure that certain customers are protected from a supply emergency through physical isolation. Other consumers will be protected by the concept of a safety monitor level. For Transco to do this, it would seek to identify a group of gas customers that, in a network gas supply emergency, could be physically isolated in a short period of time to ensure that they do not continue to consume gas.
- 5.3. Ofgem has been in discussions with Transco and HSE over this proposed option for reform. Transco has indicated to Ofgem that it is able to physically establish such a mechanism and progress the necessary changes to relevant industry documents in time for this winter.
- 5.4. The HSE has indicated that, in principle, and without fettering its discretion in relation to its consideration of any relevant revision to Transco's safety case that may be proposed, it would consider a proposal to remove all references to top up from Transco's safety case if Transco could demonstrate that by using alternative means it did not increase the risk of a gas supply emergency.
- 5.5. On 10 August 2004, Transco submitted a revised safety case to the HSE on the basis of the proposal discussed above. The HSE has indicated that it expects to have concluded whether this change is acceptable within three months.
- 5.6. As set out in Ofgem's impact assessment of the removal of top up in the context of Transco's proposal, Ofgem is of the view the pre-winter expected direct and indirect costs associated with top up counter nomination actions could be over £200m. In addition, given Ofgem's view that top up counter nomination actions are unlikely to be effective in maintaining gas in store, Ofgem is of the view that the removal of top up in the context of Transco's proposal would be likely to be neutral, and at best slightly positive, for security of supply. Further, Ofgem is of

the view that the removal of top up in the context of Transco's proposal would be likely to lead to a lower level of interruption by customers than would otherwise be the case, particularly in mild conditions. Ofgem invites comments on its impact assessment.

- 5.7. Transco has indicated that it shortly intends to submit a modification proposal to its network code to remove top up from its network code consistent with its proposed revision to its safety case in time for this winter. Transco has also indicated that it will be seeking urgent status for this modification proposal. This process could, if urgent status is granted, lead to decisions on any relevant modification proposals in September. However, Ofgem would like to point out that any modification proposal would be assessed on its own merits in accordance with the provisions of Transco's network code and the principal objectives and statutory duties of the Authority.
- 5.8. As part of the network code modification proposal assessment process, Ofgem would expect Transco to convene a workgroup to consider the full details of any top up proposal. In particular, careful consideration will need to be given to both the level at which the safety monitor should be set and the actions Transco would be expected to take in both the run-up to, and advent of, any breach in the safety monitor level.
- 5.9. Ofgem recognises that the timescales required to put in place Transco's proposed mechanism in time for this winter are tight. Ofgem is always mindful of the potential risks in making significant changes to the market arrangements a short notice. However, Ofgem is of the view that there are significant benefits associated with Transco's proposal which suggest that these matters should be progressed even under a challenging timetable. In considering any potential changes to the top up arrangements for this winter, Ofgem has also had regard to the fact that the 2004/05 storage year is underway and that shippers have adopted contractual positions on the basis of the current arrangements.
- 5.10. In parallel with the assessment of any modification proposal seeking to remove top up in the context of Transco's proposal, Ofgem will seek to ensure that appropriate information on storage stocks is made available to the market in time for this winter. Ofgem considers that this will enhance the benefits that should



accrue in relation to Transco's proposal for the removal of the arrangements for top up gas.

# Appendix 1 : Relevant modifications

- 1.1 This appendix summarises the most recent relevant modification proposals to Transco's network code since network code modification 297, "Top up cost treatment", was approved by Ofgem.
- 1.2 In January 2002, Ofgem rejected modification proposal 472 "Restoration of funding for national top up", which was raised by Transco to reintroduce the provisions of Transco's network code relating to recovering the costs of top up which were removed by network code modification proposal 297. As set out in its decision letter in respect of this proposal, Ofgem reiterated its view that Transco's network code arrangements at that time provided shippers with strong commercial interests to balance their inputs and offtakes over the gas day and particularly on days of tight demand and supply conditions. Ofgem acknowledged that, as part of its consideration, it had considered the nature of Transco's ongoing top up obligation and the basis on which any funding might be permitted. Ofgem was of the view that, in allowing the recovery of any top up costs, it would have regard to whether these costs had been incurred efficiently and, in particular, the extent to which any other actions that would have been likely to reduce the total costs of any top up requirement had been taken by Transco.
- 1.3 In August 2002, Ofgem approved modification proposal 504 "Top up process enhancements" which was raised by Transco to make a number of changes to the top up arrangements. In particular, it allowed Transco, acting as the top up manager, greater discretion in regard to taking top up related actions such as booking storage capacity and making injections. Ofgem was of the view that allowing Transco additional flexibility in taking top up actions would better facilitate the securing of effective competition between relevant shippers and between relevant suppliers.
- 1.4 In August 2003, Ofgem rejected modification proposal 583 "Top up monitor cost recovery", which was raised by Transco. Under this modification proposal, where the top up manager identified a winter top up injection requirement due to the amount of gas in storage falling below the monitor level, it would notify this to all users. If, following such notification, a user were to make any subsequent storage withdrawal nomination, the net costs of any counter storage

injection made by the top up manager would be recovered from all system users based on their firm demand on the gas day. In rejecting this modification proposal, Ofgem repeated its view that Transco's network code arrangements provide shippers with strong commercial interests to balance their inputs and offtakes over the gas day. Further, Ofgem went on to state that, in its view, Transco's purchases of top up could have distortionary effect on the actions of market participants. Ofgem also made the point that Transco had not included an assessment of how the changes introduced by modification proposal 504 had impacted on Transco's actions in relation to making winter top up injections.

- 1.5 In December 2003, Ofgem rejected modification proposals 659 "Winter injection cost allocation based on user daily imbalances" and 660 "Winter injection cost allocation based on user daily offtakes", which were submitted by Transco. Transco proposed that, in the event that on one or more days the top up manager determines a winter top up injection requirement and as a consequence injects gas into storage, the net costs incurred by the top up manager would be recovered from users either based on their negative daily imbalances (659) or their daily quantities offtaken (660). Transco was of the view that the proposed modifications would incentivise users to ensure that they have made adequate provision for 1 in 50 winter condition requirements and would thereby enable the top up mechanism to deliver the 1 in 50 standard.
- 1.6 In rejecting these modification proposals, Ofgem repeated its view that Transco's network code arrangements provide shippers with strong commercial interests to balance their inputs and offtakes over the gas day. Further, Ofgem again went on to state that, in its view, Transco's purchases of top up could have distortionary effects on the actions of market participants. In addition, Ofgem drew attention to the fact that, in its view, the timing of the modification proposals was unhelpful as market participants had already taken positions in the market for that winter based on the prevailing arrangements at that time and that Transco had recently decided to raise the top up monitor levels. Further, Ofgem also commented that in determining the top up monitor levels, Transco had failed to take into account the possible effects of the storage stock recycling for which, in Ofgem's view, there was evidence of based on the previous winter's experience.

- 1.7 In November 2003, Transco submitted modification proposal 671, “Enhancements to winter injection process”. Transco proposed to amend the calculation of the top up market offer price to ensure that it is based upon prices available prior to the day and that this price reflects the cost of firm storage capacity. This modification proposal is currently with Ofgem for decision.
- 1.8 In May 2004, Shell Gas Direct submitted modification proposal 699, “Amendment to Transco’s interruption rights for supply / demand purposes”. Shell Gas Direct proposed to modify Transco’s existing supply / demand interruption rights in order to increase the current demand limit at which Transco can interrupt from 85% to 95%. This modification proposal is currently under assessment by industry.
- 1.9 In July 2004, Transco submitted modification proposal 705, “Changing the basis for triggering supply demand interruption”. Transco proposed to modify its existing supply / demand interruption rights by allowing it to initiate interruption where, on any day, it determines that there is an operational balancing requirement which cannot be satisfied by the acceptance of a market balancing action (because there are no or insufficient market offers which are operationally suitable). In relation to top up, Transco was of the view that this modification proposal would enable Transco to reduce the top up monitor levels on the assumption that LDZ interruptible supply points would not be supported by top up. This modification proposal is currently at consultation stage.

## **Appendix 2 : Respondents to the May 2004 consultation document**

The following companies provided a response to the May 2004 consultation document:

Association of Electricity Producers

British Gas Trading Ltd (part of Centrica)

Centrica Storage Ltd (part of Centrica)

EdF Energy plc

National Grid Transco

Powergen

RWE Innogy plc

Scottish and Southern Energy

Shell Gas Direct Ltd

Total Gas & Power Limited

## Appendix 3 : Regulatory framework in respect of top up

3.1 In this appendix, we set out the current regulatory framework governing the current top up arrangements and the mechanism available to change those arrangements. This consists of a summary of current legislative, licensing and regulatory regimes and describes the relationship between the Gas Act 1986 as amended, licences and industry agreements. In addition, this appendix reviews the security standards that are set out in Transco's GT licence and its safety case.

### ***The Gas Act 1986***

3.2 The Gas Act (as amended) provides for the regulation of the onshore gas regime in Great Britain.

3.3 The principal objective of the Authority is to protect the interests of consumers in relation to gas conveyed through pipes, wherever appropriate by promoting effective competition between those engaged or concerned with the shipping, transportation or supply of gas or engaged in commercial activities relating to such activities. In carrying out its functions under the Gas Act in a manner which is best calculated to further the principal objective, the Authority is required to have regard to the following:

- ◆ The need to secure that, so far as it is economical to meet them, all reasonable demands in Great Britain for gas conveyed through pipes are met; and
- ◆ The need to secure that licence holders are able to finance the carrying on of the activities which they are authorised or required to do.

3.4 Section 9 of the Gas Act sets out, amongst other things, that it is the duty of a gas transporter as respects each authorised area of his to develop and maintain an efficient and economical pipe-line system for the conveyance of gas.

## ***Gas Safety (Management) Regulations***

- 3.5 The GS(M)R sets out certain safety requirements with which gas transporters must comply. All gas transporters, including holders of a licence, must produce a safety case and have it accepted by the Health and Safety Executive before they can transport gas. The GS(M)R require that a safety case be revised as often as may be appropriate, and that material revisions are not made other than with the agreement of the HSE. Once a safety case is accepted, the GS(M)R require that the provisions or arrangements described in a safety case must be followed.
- 3.6 Schedule 1 of the GS(M)R sets out the particulars to be included in the safety case of a person transporting gas. In relation to continuity of supply, paragraph 16 of this Schedule states that the safety case must contain particulars to demonstrate that the duty holder has established adequate arrangements to minimise the risk of a supply emergency. The GS(M)R defines a supply emergency as “an emergency endangering persons and arising from a loss of pressure in a network or any part thereof”

## ***Transco’s gas transporter licence***

- 3.7 Special Condition 27(1) of Transco’s GT licence requires Transco to operate the NTS in an efficient, economic and co-ordinated manner.
- 3.8 Transco’s GT licence refers to two security standards: the ‘1 in 20’ network planning standard and the ‘1 in 50’ domestic security standard. These are outlined below, and the relevance of each standard to the current top up arrangements is highlighted.

## ***The ‘1 in 20’ network planning standard***

- 3.9 Under Standard Condition 16 of its GT licence, Transco is required to plan and develop its network such that it meets the ‘1 in 20’ network planning standard. This requires Transco to plan and develop its network such that it meets the peak aggregate daily demand for the conveyance of gas for supply to premises which, having regard to historical weather data derived from at least the previous 50 years and other relevant factors, is likely to be exceeded (whether on one or more days) only in 1 year out of 20 years.

3.10 In planning the capacity of its network to meet the 1 in 20 planning standard, Standard Condition 16 requires that Transco has regard to:

- ◆ The extent to which the supply of gas to those premises might be interrupted or reduced<sup>26</sup>; and
- ◆ The operational measures available to Transco, including the use of storage.

3.11 Consequently, the 1 in 20 network planning standard relates to the capacity of the pipeline system and its ability to convey the gas delivered by shippers to its network in order to meet the demands of the customers contracted to receive gas from these shippers. As such, the 1 in 20 planning standard places no obligations on Transco in relation to securing the availability of gas to meet forecast demand levels, and, therefore, has no direct relevance to the top up arrangements<sup>27</sup> - it relates solely to the planning and development of Transco's network.

### ***The '1 in 50' domestic security standard***

3.12 Under Standard Condition 9 of Transco's GT licence, Transco is required to develop a network code to facilitate the achievement of the following objectives:

1. The efficient and economic operation by the licensee of its pipeline system;
2. Subject to (1), the efficient discharge of Transco's licence obligations;
3. Subject to (2) and (1), the securing of effective competition between relevant shippers and between relevant suppliers; and
4. So far as is so consistent, the provision of reasonable economic incentives for relevant suppliers to secure that the domestic customer supply security standards are satisfied in relation to their domestic customers.

---

<sup>26</sup> The licence explicitly notes that such interruption or reduction in supply levels could result from contracts between any of: Transco, shippers, suppliers and customers.

<sup>27</sup> The 1 in 20 obligation would be relevant to a consideration of Constrained LNG (CLNG) top up, but, as noted above, CLNG top up is not considered in this document.



3.13 The definition of the domestic supply security standard is set out in the gas suppliers' licence. In this licence, the "domestic supply security standards" are defined as:

- ◆ The availability of a supply of gas which would equal the peak aggregate daily demand for gas by domestic customers which is likely to be exceeded (whether on one or more days) only in 1 year out of 20 years; and
- ◆ The availability of supplies of gas:
  - ◆ Over a year which would equal the aggregate annual demand for gas by those customers; and
  - ◆ During the 6 months from October that would equal the aggregate demand for gas by those customers during such a 6 month period which is likely to be exceeded only in 1 year out of 50 years.

3.14 As such, the domestic supply security standard contains obligations in respect of both a peak demand day and a severe winter period, but importantly these relate only to demand from domestic customers.

### ***Transco's network code***

3.15 As stated earlier, Transco's GT licence places certain obligations on Transco, including the requirement that it prepares a network code (amended Standard Condition 9), which sets out the arrangements between Transco and shippers for the use of, and connection to, Transco's pipeline system. The network code is required to meet the relevant objectives as set out in Standard Condition 9 of the GT licence.

3.16 Transco's network code was put in place in 1996. Section P of Transco's network code relates to top up.

3.17 The mechanism for modifying Transco's network code is set out in Standard Condition 9 of Transco's GT licence and in Transco's network code modification rules. Under the modification rules, shippers and Transco are able to propose modifications to Transco's network code. Paragraph 6(a) of Standard Condition 9 also sets out the requirement for Transco's network code modification rules to identify the designated third party participants. Ofgem is not itself able to

propose modifications to Transco's network code. The implementation of all modification to Transco's network code requires the consent of the Authority.

- 3.18 The Authority may only direct that Transco's network code should be modified if, in its opinion, the proposed modification would, as compared with the existing provisions of Transco's network code or any alternative proposal, better facilitate the achievement of the relevant objectives as set out in Standard Condition 9 of the GT licence. In making such a direction, the Authority is also required to have regard to its statutory duties.

### ***Transco's GT safety case***

- 3.19 The GS(M)R require that Transco must produce a safety case and have it accepted by the HSE. Parts of Transco's safety case concern continuity of supply issues.
- 3.20 Section 4.1.10 of this document specifies the daily balancing tools available to Transco, including top up gas. Top up gas is described as gas provided by Transco to meet any deficits that are identified when gas supplies are assessed against firm demands by the top up manager. In addition, it states that monitoring of top up gas levels and running of the top up gas account is carried out by System Operations.
- 3.21 Transco's safety case also states that Transco has no obligation to ensure that 1 in 20 peak day demand and 1 in 50 severe winter demand can be met by top up gas or any other sources of gas.

### ***Emergency arrangements***

- 3.22 A 'gas supply emergency' is defined in Section Q of Transco's network code as "the occurrence of an event or existence of circumstances which have resulted in, or which give rise to a significant risk of, a loss of pressure in the system which itself has resulted in or might result in a supply emergency". In accordance with the NEC<sup>28</sup> Safety Case, the existence, duration and cessation of

---

<sup>28</sup> Network Emergency Coordinator, i.e. Transco.  
The review of top up arrangements in gas: Conclusions document  
Office of Gas and Electricity Markets

a network gas supply emergency (a gas supply emergency which involves or may involve a loss of pressure in the NTS) is determined by the NEC.

- 3.23 Section Q of Transco's network code details the requirements on market participants in relation to a Gas Supply Emergency. These include the requirement on Transco to issue a document entitled 'Network Gas Supply Emergency Procedure' containing details of planned emergency steps. The purpose of this procedures document is to provide a measured, appropriate and co-ordinated response to a Gas Supply Emergency and to meet all requirements of Section 3 of the NEC Safety Case.

There are five stages to a Gas Supply Emergency which are set out in NEC's Safety Case, they are:

- ◆ Stage one – notice of impending emergency. This indicates that there is a potential gas emergency, where the information available to the NEC at stage one indicates that there is sufficient time, and sufficient gas available, for the primary system to be rebalanced without recourse to stage two. This would include maximising the use of linepack, storage and interruption;
- ◆ Stage two – declaration of emergency. At this stage the On-the-Day Commodity Market (OCM) is suspended and the primary transporter is instructed to carry out the measures set out in the emergency arrangements. After the OCM has been suspended, a new cash out price needs to be established. Under the current provisions of Transco's network code, the existing dual cash out price is replaced by a single price. Currently this is calculated as the average of the System Average Price (SAP) for the 30 days immediately preceding the suspension of the OCM. The rationale for this cash out price is that it represents a neutral price, which would not expose shippers to excessive windfalls or losses. In any event, any shipper that believes it has suffered costs over and above this 30 day SAP is able to submit a claim for such costs;
- ◆ Stage three – firm load shedding. The affected transporter makes direct or indirect contact with firm end-users and instructs them to stop or

reduce their offtakes of gas. Firm load shedding is divided into three tranches of increasing severity and effect. The three tranches are:

- ◆ very large end-users (VLDMC) (those taking more than 50 mtpa)
- ◆ large end-users (those taking between 25,000 tpa and 50 mtpa)
- ◆ end-users taking less than 25,000 tpa.

Firm load shedding will be invoked in the order shown above. It is at stage three that flows through the interconnectors can be curtailed;

- ◆ Stage four – system isolation. The available gas would be allocated to secondary systems supplying domestic end-users;
- ◆ Stage five – restoration. Normal arrangements are restored.

## Appendix 4 : The top up counter-nomination arrangements: highlighting key weaknesses

- 4.1 Whilst on a number of occasions in recent years some storage capacity has remained un-booked going into the winter (typically this has been capacity at Transco's LNG facilities), there is no un-booked capacity going into winter 2004/05. There is, then, no prospect of Transco making an opening booking of storage capacity for top up purposes for 2004/05. Any top up bookings that might take place would be the result of within-winter counter-nomination actions.
- 4.2 These actions seek (see below on likely success) to block physical storage withdrawals that would be expected to take stocks below Transco's top up 'monitor' levels. That is, they seek to enforce a delay with respect to the usage of available storage stocks. It is important to recognise that these actions do not – in and of themselves – make additional gas available for the winter. Such actions will, however, by necessity generate a physical shortfall between supply and demand relative to the opening position, which would have to be met from one (or some combination) of the following sources:
- ◆ Lower linepack than would otherwise have been the case;
  - ◆ Increased beach flows;
  - ◆ Increased flows through the Belgian Interconnector;
  - ◆ Increased storage withdrawals from other sites; and
  - ◆ Increased levels of interruption.
- 4.3 Whilst some response from linepack levels, beach and interconnector flows and increased interruption may result, a key problem with the counter-nomination arrangements is that there would seem to be a significant likelihood that they would generate increased storage withdrawal nominations. In particular, since there is a significant likelihood that storage would be the marginal source of supply at a time when a top up monitor was breached, it seems likely that 'additional' storage withdrawals would be the most profitable commercial

response to the supply demand-shortfall that had been generated by a counter-nomination action. The obvious difficulty with this is that additional storage withdrawals would (most likely) give rise to further counter-nomination actions by Transco. Storage withdrawals, then, would be unlikely to provide an effective means of meeting the supply/demand shortfall, but they would extend Transco's intervention under the top up arrangements, and the volume of gas in store held by Transco.

- 4.4 An additional relevant factor here is that Transco counter-nomination actions can be expected to increase the availability of storage withdrawal capacity above those levels associated with physical capabilities. That is, since Transco is making injection nominations, storage operators would be able (consistent with normal practice) to offset these nominations against existing withdrawal nominations, and make additional withdrawal capacity available on an UIOLI basis. Given this, the extent of Transco intervention on a given day would not be limited to the physical withdrawal capacity of relevant sites.
- 4.5 In line with the above, Transco has indicated to Ofgem that it does not consider counter-nomination to be an effective tool for preserving gas in store.
- 4.6 Even if this were to be ignored, and it were to be assumed that counter-nominations did not result in increased storage withdrawal nominations, the counter-nomination arrangements could be expected to generate highly problematic outcomes. This stems from the fact that, ignoring storage, the most significant source of response would seem likely to be increased levels of interruption. In particular, the following points can be noted:
- ◆ The extent to which shortfalls are managed through a running down of linepack levels will be dependent on, among other things, the opening linepack position; the top up manager's approach to balancing its position; and the extent to which the price effect of any running down of linepack levels generates a supply/demand side response;
  - ◆ The likelihood of a beach gas response will depend on, among other things, the opening level of beach flows relative to the maximum level potentially available on that day; and

- ◆ The extent to which any shortfall could be addressed from increased imports through the Bacton interconnector would clearly depend on the opening import position. It is notable that in its preliminary Winter Outlook Review, Transco assumed – on the basis of observed usage in 2003/04 – that the Bacton Interconnector would be importing ahead of withdrawals from storage.
- 4.7 If, for the counter-nomination arrangements to be effective, they would be likely to have to result in a higher level of interruption (or turn down) than would have otherwise been the case, then it is important to recognise that the operation of the counter-nomination process would be dependent on a demand-side response to higher prices. That is, the supply/demand shortfall generated by Transco’s counter-nomination action puts an upward pressure on prices, which - it is assumed - can generate a demand-side response. This raises significant questions with respect to the coherence of the current top up arrangements in relation to the assumed potential for demand-side responsiveness.
- 4.8 In particular, the current top up arrangements involve generating incentives for more interruption than would otherwise take place early in the winter – assuming conditions are not actually severe - in order for there to be some prospect of a lower level of interruption than would otherwise be the case if the remainder of the winter turned out to be ‘severe’. Clearly, the net effect of this would be to increase likely levels of interruption, since interruption would be higher in more likely (milder) conditions, and (only potentially) lower only in extreme (severe weather) conditions.

# Appendix 5 : Analysis of direct top up costs

## ***Background***

5.1 Transco has indicated that – following its current methodology for setting top up monitor levels – the opening top up monitors for 2004/05 (expressed as a percentage of relevant space<sup>29</sup>) would be:

◆	Rough	81 %
◆	Medium Range Storage (MRS)	100%
◆	LNG	100%

5.2 These forecast opening monitor levels are higher than they have been in previous winters and give rise to the prospect of Transco potentially having to take significant top up actions in order to ensure that storage stocks do not fall below defined monitor levels. Given this, Ofgem requested that Transco provide an assessment of the likely direct costs of top up actions under a range of scenarios.

5.3 The direct costs of top up actions can arise from:

- ◆ Net losses from the purchase and sale of top up gas;
- ◆ Storage capacity charges: payments for the right to hold top up gas in store;
- ◆ Storage commodity charges: payments to storage operators when top up gas is injected into or withdrawn from storage sites; and
- ◆ NTS transportation charges: payments for NTS entry capacity to allow stored top up gas to be brought back onto the NTS.

5.4 Transco's assessment focused only on the first of these sources of cost - net losses from the purchase and sale of top up gas – as these costs were considered

---

<sup>29</sup> Transco defines relevant space as available capacity less the volume of space required by Transco for Operating Margins purposes.



likely to be substantially larger than the other potential sources of direct cost under all scenarios. Given that any storage capacity purchases would be likely to be made on an interruptible basis at relatively low cost, Ofgem considers that this assessment is reasonable.

### ***Transco's analysis of direct top up costs***

5.5 Table A5.1 below shows Transco's estimates of the direct costs<sup>30</sup> that it could incur in winter 2004/05 from the purchase and sale of top up gas under different weather scenarios, given the monitor levels referred to above. The table also shows the volumes of top up gas purchase that underpin these estimates, and the price assumptions made. Since the net losses would arise from the fact gas is likely to be purchased at a higher price than it would be sold at, the price assumption shown is the average buy/sell price differential assumed for each case.

**Table A5.1: Transco estimates of potential top up counter-nomination costs for winter 2004/05**

	Winter Severity		
	1 in 50 cold	1 in 10 cold	Average
Direct cost estimate	£50m - £350m	£30m - £150m	£8m - £40m
Assumed volume of top up purchased	175 million therms	150 million therms	80 million therms
Assumed average buy/sell differential	30p/therm - £2/therm	20p/therm - £1/therm	10p/therm - 50p/therm

5.6 Transco has emphasised that, due to the variability that can occur in attempting this type of assessment, the counter-nomination volumes (and hence costs), that could be incurred are not based on any explicit scenarios, but are based on their judgement after analysing a large range of winters that could occur. The assumptions underpinning Transco's volume estimates include the following:

---

<sup>30</sup> 1 therm = 2.7 cubic meters (cm) = 29.3kWh; 30 p/therm = 11.1p/cm = 1.02 p/kWh.

- ◆ Beach 346mcm/day (364mcm/day max with a 95% factor applied);
- ◆ IUK 25mcm/day;
- ◆ Storage usage assumed consistent with recent experience with Rough and MRS storage used in preference to some high priced beach gas;
- ◆ All storage is full from 1 October 2004;
- ◆ Winter storage injection takes place on days when storage exports are forecast to be zero and there is surplus beach gas;
- ◆ Allowance was made for NTS and LDZ constraint-driven interruption (although no specific allowance made for LDZ Network Sensitive Loads given that volumes are insignificant);
- ◆ Shipper interruption of NTS interruptible loads assumed at demands above 400mcm;
- ◆ Market driven firm CCGT demand turndown assumed before LNG is utilised. Volumes assumed as below:
  - ◆ Up to 110GWh/day                      Oct, Nov, Feb, Mar, Apr;
  - ◆ Up to 55GWh/day                      Dec & Jan;
- ◆ NGT supply-demand interruption (of LDZ demand) as required to balance above 85% peak day;
- ◆ Counter-nomination costs do not take into account any income that may accrue to the Transco as a result of the acceptance of top up market offers.

### ***Ofgem's analysis of direct top up costs***

5.7 Ofgem has conducted some analysis assessing the assumptions underpinning Transco's top up cost assessments. The resulting difference in approach concerns the volume assumptions underpinning Transco's cost assumptions. Ofgem assessed potential volumes on the basis of simulations of the impact – in terms of the volume of top up required – of winter storage usage patterns that

have been observed at Rough in recent years (2003/04, 2002/03 and 2001/02) given an initial Rough monitor level of 81%<sup>31</sup>.

- 5.8 Since top up volumes were only assessed for Rough in this analysis, the resulting levels were considered likely to be fairly conservative. However, it is notable that the volumes generated using this approach were significantly higher than those used to calculate the Transco cost estimates. In particular, Ofgem's analysis indicated that counter-nomination volumes in the order of 200-300 million therms could result even in relatively mild conditions (each of the winters considered were warmer than average). This compares with Transco's estimates of 80 million therms, 150 million therms and 175 million therms in an average, 1 in 10 and 1 in 50 winter respectively.
- 5.9 In order to consider the level of price differential that might be observed under average conditions, we examined the average difference between the 75th percentile price for the winter months - when it is assumed Transco would be purchasing the gas - and the 25th percentile price for the months when it is assumed that Transco would be selling top up gas (i.e. April and May), over each of the years 2001/02, 2002/03 and 2003/04. This assessment indicated that a price differential in the order of 10p/therm – which Transco used as its lower bound - was a reasonable benchmark figure. Furthermore, since this assessment is based on price levels in winters that have all been warmer than average, and since top up actions can be expected to result in higher buy/sell differentials than would otherwise be the case, it seems reasonable to assume that price differentials of greater than 10p/therm could arise in average conditions.
- 5.10 Clearly there is considerable uncertainty with respect to assessments of potential price differentials that could arise in relatively cold and severe conditions. This is particularly so given that all of the winters since the network code has been in place have been relatively mild, and therefore the availability of relevant market evidence is limited. Ofgem would note, however, that the fact that prices as high as £5/therm) have been observed (in December 1997) indicates that very high levels of price differential – such as the £2 upper limit considered in Transco's 1 in 50 winter cost estimates - are plausible.

---

<sup>31</sup> The profile of monitor level decline through the winter was assumed equivalent to that of the 2003/04 Rough monitor.

5.11 Given the above comments, we have considered the impact of applying Transco's price ranges to Ofgem's estimate of potential counter-nomination volumes. The impact of this is shown in Table A5.2 below, compared with Transco's estimates.

**Table A5.2: Comparison between Ofgem and Transco estimates of potential top up counter-nomination costs for winter 2004/05**

	Winter Severity		
	1 in 50 cold	1 in 10 cold	Average
Transco estimates	£50m - £350m	£30m - £150m-	£8m - £40m
Revised estimates based on Ofgem volume assessment	£60m - £600m	£40m - £300m	£20m - £150m

5.12 Table A5.2 clearly shows the potential for very significant top up counter-nomination costs to be incurred, even in average conditions. Furthermore, it can be noted that none of the cost estimates shown above take account of the potential impact that top up actions could have on market behaviour, and the subsequent effects that this could have on the costs of top up actions. For example, Transco's counter-nomination actions may generate incentives for further storage withdrawals (given that they can be expected to put upward pressure on prices) and thus give rise to a need (under the current top up arrangements) for further counter-nominations.

5.13 The potential for the counter-nomination arrangements to generate problematic dynamics of this kind suggests that the volumes of top up actions that Transco would be required to take under the current arrangements could potentially be significantly higher than those assumed in the calculations of the direct costs shown in Table A5.2.

5.14 However, the above comments should not be taken to mean that Transco would incur significant counter-nomination costs in all scenarios: there is clearly some prospect of prevailing supply and demand conditions being such that no costs would be incurred.

- 5.15 In order to take account of this fact, Ofgem has attempted to determine what the pre-winter expected cost of top up counter-nominations would be. In order to do a full analysis of this issue, information on the range of direct costs that would be likely to occur in a series of winters (from 1 in 50 warm to 1 in 50 cold, for instance) would be required. However, given data limitations, a more simplistic analysis has been conducted in which the direct costs shown in Table A5.2 have been weighted according to an estimate of their likelihood.
- 5.16 For the purpose of this analysis, it is assumed that the 'average' winter severity direct costs are incurred 50% of the time. It is also assumed that 1 in 10 and 1 in 50 severe winter occur 20% and 5% of the time respectively. Further, it is assumed that zero direct costs are incurred for the remaining 25% of the time (i.e. warm to very warm)<sup>32</sup>. This is shown in Table A5.3 below.

**Table A5.3: Pre-winter direct cost estimate**

	Winter Severity			
	Warmer than average	Average	1 in 10 cold	1 in 50 cold
Likelihood	25%	50%	20%	5%
Transco estimates	£0	£8m - £40m	£30m - £150m-	£50m - £350m
Revised estimates based on Ofgem volume assessment	£0	£20m - £150m	£40m - £300m	£60m - £600m

- 5.17 Weighting the direct costs according to these likelihoods gives a pre-winter expected cost of top up counter-nominations of between £12m and £67m under Transco's estimates and between £21m and £165m under Ofgem's estimates.

---

<sup>32</sup> Although it is clear that even in a warm winter top up costs could be incurred depending on the level of the top up monitors.

## Appendix 6 : Analysis of indirect top up costs

### *The potential impact of top up counter-nominations on wholesale price levels*

- 6.1 The current top up arrangements could potentially generate significant indirect effects that have a significant negative impact on customers. These indirect effects stem from the counter-nomination process, and the fact that counter-nomination actions aim to restrict the availability of supply from a given storage facility. To the extent that counter-nomination actions are successful in doing this, they result in the withholding of storage capacity from the market for a period, and this can be expected to put an upward pressure on the level of wholesale prices. Given this, Transco's top up actions would be likely to increase spot gas prices and, if the amount of gas purchased is significant, could also affect forward gas prices by changing the market's perception of the risk and costs associated with Transco's top up actions in future.
- 6.2 In order to get an indication of the potential magnitude of this price increase, Ofgem has considered the elasticity of demand estimates<sup>33</sup> used by the Competition Commission in its report on Centrica's acquisition of Dynegy Storage, which were based on analysis by Lexecon. In particular, as part of its analysis of Centrica's incentives to withhold capacity, Lexecon estimated that a total of 329 million therms<sup>34</sup> of capacity would need to be withheld over the 90 days of Q1 (January – March) of a given year in order to generate an average increase in the wholesale price of about 1p/therm over that period. As an alternative strategy, Lexecon assumed that a total of 150 million therms would need to be withheld over the top 30 days of peak demand in Q1 to generate a 3p/therm increase in the average wholesale price over that 30 day period.
- 6.3 In terms of daily effects, the first strategy is equivalent to the withholding of around 3.7 million therms per day (107GWh/d) over the 90 day period resulting in about a 1p/therm increase in wholesale prices on average over that period.

---

<sup>33</sup> All calculations are based on figures available in the public version of the Competition Commission report. Lexecon's analysis is included in Appendix 5.5, the figures used are from Paragraph 4.2 of Appendix 5.5 (p265).

<sup>34</sup> 1 therm = 2.7 cubic meters (cm) = 29.3kWh; 30 p/therm = 11.1p/cm = 1.02 p/kWh.

The second strategy is equivalent to the withholding of about 5 million therms per day (147 GWh/d) over the top 30 days resulting in about a 3p/therm in wholesale prices over that 30 day period. As would be expected, these relationships reflect the fact that as prices rise, reflecting the tightening of the supply/demand position during the winter, supply can be expected to become more inelastic.

- 6.4 The top up counter-nomination volume assumptions that underpinned the direct cost estimates presented in appendix 5 are summarised in Table A6.1 below:

**Table A6.1: Top up counter-nomination volume assumptions used for direct cost estimates**

	Winter Severity		
	1 in 50 cold	1 in 10 cold	Average
Transco estimate	175 million therms	150 million therms	80 million therms
Ofgem estimate	200 – 300 million therms		

- 6.5 Table A6.2 below shows the number of days on which there were counter-nomination actions for the scenarios that were used to generate Ofgem’s volume estimates, and the average daily volume of top up gas purchase.

**Table A6.2: Average daily counter-nomination levels for Ofgem volume estimates**

Ofgem Volume Estimate	Number of days on which counter-nominations are assumed to take place	Average volume of counter-nomination action
200 million therms	23 days	8.7 million therms per day
300 million therms	38 days	7.9 million therms per day

- 6.6 In order to generate estimates of potential price effects for these two scenarios, the average daily price/volume relationships implied under the two strategies considered by Lexecon have been applied to the average daily volumes of

counter-nomination action shown in Table A6.2 above. This provides some indicative estimates of the average price increase that could be generated on each counter-nomination day. This has then been converted into a price increase for the quarter given the number of counter-nomination days that are assumed to take place, and assuming that average demand on the counter-nomination days is equal to the average for the quarter. This seems likely to be a conservative assumption since counter-nominations will have been driven by storage withdrawal nominations, which can be expected to take place on higher than average quarter demand days. The estimates that have been calculated on this basis are shown in Table A6.3 below.

**Table A6.3: Estimates of wholesale price impact of top up counter-nominations based on Ofgem volume assumptions**

	Ofgem Volume Estimate:			
	200 million therms	200 million therms	300 million therms	300 million therms
Price/Volume assumption based on:	Strategy 1	Strategy 2	Strategy 1	Strategy 2
Estimated daily price increase on counter- nomination days	2p/therm	5p/therm	2p/therm	5p/therm
Number of counter- nomination days	23 days	23 days	38 days	38 days
Estimated average price increase for quarter	0.6p/therm	1.3p/therm	0.9p/therm	2p/therm

6.7 Whilst these estimates are clearly generated on the basis of a range of assumptions, they seem likely to be a relatively conservative indication of the level of wholesale price increase that could be generated by counter-nomination actions in an average winter. The fact that storage withdrawals – which would



be the trigger for counter-nomination actions – can be expected to occur at times when prices are relatively high indicates that the ‘Strategy 2’ based figures may provide a more reasonable estimate of the likely level of price increase.

- 6.8 We have not explicitly considered the price impact that might be generated given Transco’s assumed counter-nomination volumes. Clearly these would be likely to generate somewhat smaller price increases (given that the volume assumed for an average winter is 80 million therms compared to Ofgem’s lower bound estimate of 200 million therms). It should be noted, however, that neither the Transco nor the Ofgem figures take account of the potential impact of counter-nomination actions on storage withdrawal decisions. As was emphasised in appendix 4, there is a significant likelihood that Transco’s counter-nomination actions would generate incentives for further storage withdrawals (given that they can be expected to put upward pressure on prices) and thus give rise to a need (under the current top up arrangements) for further counter-nominations.
- 6.9 It can also be noted that the effects of wholesale price increases would be likely to be mitigated to some extent by the fact that the subsequent release of top up gas in store would put downward pressure on prices. However, since it is likely that this gas would be made available in late spring, when the likely average and peak demand level would be significantly lower than they would have been when top up gas was purchased, the magnitude of the downward price effect would be likely to be significantly smaller than that of the earlier price rise.
- 6.10 Whilst this factor has not been explicitly considered, we would note that there are good reasons to expect that the price/volume relationships considered in the above analysis understate the likely responsiveness of price to capacity withholding for 2004/05, particularly if conditions were relatively cold. In particular, it can be noted that the elasticity estimates underpinning the price-volume relationships used by the Competition Commission were derived on the basis of price, volume and other relevant data (e.g. on offshore incidents) from October 2000 to March 2003. When considering the usefulness of these figures in assessing the potential impact of top up counter-nomination actions on prices in 2004/05, it should be noted that:

- ◆ The 2000/01, 2001/02 and 2002/03 winters were all relatively mild, and in particular were warmer than average; and
- ◆ NGT has forecast a significant tightening of the supply/demand position for winter 2004/05;

6.11 These points indicate that using these price/volume relationships could be expected to result in an understatement of the likely impact on prices of counter-nomination actions, with the first point in particular indicating that this understatement could be very significant with respect to more severe conditions. Given the above points, it seems reasonable to consider that the range of wholesale price increases shown above provide a relatively conservative view of the potential impact of top up counter-nominations on wholesale prices.

### ***Pass through of wholesale price increases***

6.12 Gas customers that are directly exposed to wholesale prices via the contractual arrangements that they have with their suppliers would clearly be exposed to the pass through of wholesale price increases immediately. Domestic customers, however, may not be immediately impacted by such increase in wholesale prices as there are often lags between movements in wholesale prices and suppliers making changes to retail prices.

6.13 According to Transco's Ten Year Statement 2003, for 2004 small user demand was forecast to be 541TWh and total throughput to be 1220TWh. If it is assumed that all non small users are directly exposed to any increase in wholesale gas prices (for instance through indexed contracts) then around 232 billion therms of demand would be exposed to any change in price. A 2p/therm increase in prices in Q4 would, if it is assumed that the level of non small user demand is uniform over the year, lead to a total annual cost of £116m.

6.14 In order to give an indication of the potential price impact on small users, Ofgem has assumed a 50% pass through in the first year and 25% in each of the following two years. Assuming annual domestic consumption of 18.5 billion therms and that Q4 domestic consumption accounts for 30% of annual domestic consumption (based on domestic customer demand patterns), a 2p/therm increase would give a total cost increase of around £56m.

[This page is intentionally blank]