

November 1999

Storage Connection Agreement

A Consultation Document

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1. Introduction

1.1 Purpose of the Document

On 18 February 1999, BG plc undertook to use all reasonable endeavours to complete a robust internal, physical, financial, information and systems separation of the storage business from all other commercial activities¹ carried on by BG plc by 30 April 1999.

On 18 June 1999, BG plc announced its intention to initiate a corporate restructuring to take effect in December 1999. The aim of this restructuring is to contain the regulated gas transportation and LNG storage business of BG plc in a subsidiary of the new BG Group plc, separate from the other BG Group businesses. BG plc intends, as part of this restructuring, to create a separate storage subsidiary, BG Storage Limited, which will own the Rough and Hornsea storage facilities. Ofgem consulted on BG plc's proposed restructuring in August 1999.²

The separation of BG Storage and Transco means that BG plc must clarify the terms by which Transco will deal with all storage operators, including BG Storage. To clarify the terms by which storage operators can connect their facilities to Transco's pipeline system, Transco has developed a generic Storage Connection Agreement (SCA). The terms of this generic agreement would apply to any storage facility connecting to Transco's system. However, before Transco can introduce the SCA at any particular storage facility, it must obtain the approval of the Director General of Gas Supply (DGGS) for the agreement.

The purpose of this document is to seek views on whether Transco's draft generic SCA appended to this document is acceptable as a statement of the general terms by which storage facilities are to connect to Transco's pipeline system. It is intended that the generic SCA will form the basis of all SCAs from 1 December 1999.

1.2 The Process So Far

Transco initially developed the generic SCA by discussing it with shippers and potential storage operators at its Storage Workstream. In December 1998, as part of the

¹ Except for BG plc's Common Service Business as defined in Standard Condition 2 of its licence.

² BG plc Corporate Restructuring: A Consultation Document and Licence Modifications, Ofgem, August 1999.

consultation on the deregulation of BG plc's Rough and Hornsea storage facilities, Ofgas summarised some of the issues that had been discussed during the development of the SCA over the previous 12 months, and provided our own initial views on those issues. In the light of responses to that document, we indicated in our decision document on storage,³ the form that we expected the SCAs to take, and indicated where Transco should make changes to the generic document. We said that we expected those changes to be reflected in any SCAs submitted to us for approval, and that, if they were not, we would consider vetoing individual SCAs, including any SCA between BG Storage and Transco.

In view of the undertaking to separate BG Storage from Transco by 30 April 1999, Ofgas expected that Transco would submit SCAs in respect of BG Storage's seven storage facilities - in a manner that could be approved by the DGGS - before 1 May 1999. However, Transco did not submit SCAs for BG Storage's facilities until July 1999. In August 1999, Transco submitted a SCA in respect of ScottishPower's Hatfield Moor storage facility.

Under the Restrictive Trade Practices (Gas Conveyance and Storage) Order 1996, the DGGS has 28 days, following receipt of a copy of a SCA, in which to give notice to Transco if he believes that a SCA does not satisfy the criteria specified in the Order.⁴ Ofgem examined each of the SCAs to ensure that each agreement was consistent with our position as set out in our February 1999 decision document on storage. In doing so, we sought to identify any inconsistencies in the treatment of different storage facilities so as to ensure that Transco did not discriminate unduly between storage operators. We also sought to ensure that the SCAs reflect, as far as possible, the generic clauses in Transco's other connection agreements, in order that Transco could not be said to have concluded SCAs that discriminated unduly against connecting parties at non-storage entry and exit points.

³ Review of the supply of gas storage and related services – Decision Document, Ofgas, February 1999.

⁴ The criteria stipulate that an agreement must not be likely to have a significant effect in restricting, distorting or preventing competition. If an agreement does have this effect, the effect must be not greater than is necessary to, amongst other things, promote effective competition between gas shippers in making arrangements with a public gas transporter in respect of access to a pipeline system and storage system.

Having examined the SCAs, Ofgem informed Transco that we could not approve the SCAs in their current form. We issued a formal Notice to that effect.⁵ There were two main reasons for withholding approval. First, there appeared to be material amendments to the generic SCA that had last been reviewed by the industry in March 1999. Second, there appeared to be a number of issues on which Transco and one particular connecting party had failed to agree. We expected that Transco would amend the SCAs in line with our comments and resubmit them.

Following separate discussions with ScottishPower and Ofgem, Transco resubmitted a SCA in respect of ScottishPower's Hatfield Moor storage facility in September. The DGGs approved this agreement on an interim basis until 1 December 1999. He took this decision because there appeared to be a number of issues where further industry consultation was needed. He was also concerned that ScottishPower, wishing to commence commercial injection as a matter of urgency, was not able to do so without having entered into an ancillary agreement with Transco.

The DGGs expected that concluding an interim SCA on that basis would provide Transco and interested parties with sufficient opportunity to debate both the amendments to the generic SCA, and the outstanding issues that were of relevance to the wider community. Transco accordingly placed these matters on the agenda of its Planning, Security and Storage workstream.

1.3 Outline of This Document

Chapter 2 sets out the main issues that have been raised as a result of negotiations between Transco and connecting parties, and which are presently being discussed at Transco's workstream. The issues relate mainly to Transco's treatment of Anticipated Normal Offtake Pressures (ANOPs) at a storage connection point, ramp rates and SCA measurement provisions. Views are sought on all of these issues and any others that are considered relevant.

⁵ We did so in relation to all the SCAs submitted to us, notwithstanding the fact that agreements which have as their parties two trading divisions of the same limited company may be incapable of registration under the Restrictive Trade Practices Act 1976. We took this approach in respect of BG Storage's facilities so that there is a notice in being if, on being incorporated, BG Storage Ltd take on the obligations of BG Storage under the agreement and it then came into effect. We note that BG plc proposes that storage incorporation take place soon after 1 December 1999. In that event, an approved SCA would have to be in place on that date.

The appendices provide copies of relevant documents produced by Transco. Appendix 1 contains a copy of Transco's draft SCA, appendix 2 is an explanatory note by Transco on ANOPs, while appendix 3 sets out Transco's views on measurement provisions in the generic SCA.

1.4 Way Forward

Following consideration of the responses to this document, we will discuss with Transco and other interested parties whether any changes might be required to the generic SCA. We will also publish a document setting out our decisions on the issues covered in this consultation document. In the event that changes are required to the draft generic SCA, we would expect Transco to take them into account in submitting, for RTPA clearance, any SCA that is intended to come into effect on 1 December 1999.

1.5 Views Invited

If you wish to express views on the draft SCA it would be helpful to receive responses by 26 November 1999.

Responses to this consultation document should be addressed to:

Mr Stephen Smith
Director, Trading Arrangements
Office of Gas and Electricity Markets
Stockley House
130 Wilton Road
London SW1V 1LQ.

Respondents are free to mark their replies as confidential, although we would prefer that, as far as possible, we were able to put replies to this document in the Ofgem library. If you would like to discuss any aspect of this document, Dr Richard Marriott (0171 932 5861) would be pleased to help.

2. Generic SCA: Outstanding Issues

2.1 Introduction

This chapter summarises some of the issues that have been raised during negotiations between Transco and the connecting parties, and discussed in recent meetings of the Planning, Security and Storage workstream. Where possible we describe the views to date of Transco and interested parties, and set out our own initial view.

2.2 Anticipated Normal Offtake Pressures

2.2.1 Introduction

Section J of Transco's network code sets out detailed rules on offtake pressures and the generic SCA, as an ancillary document to the network code, must be consistent with these rules. Annex B-2 of the generic SCA refers to the anticipated normal offtake pressure (ANOP) at a storage connection point. Transco defines an ANOP as the minimum pressure at which it expects that gas will be made available for offtake at the meter supply point under normal system operating conditions. The ANOP is important because storage operators (and, indeed, other connecting parties) will wish to ensure, as far as is possible, that the pressure of gas made available for offtake by Transco is sufficient to meet the level required by their facilities. To the extent that connecting parties are able to achieve this, they may be able, in designing their facility, to avoid the extra costs of installing and maintaining compressors.

2.2.2 Calculating and Determining an ANOP

In recent months concern has been expressed at the process that Transco follows in calculating and determining an ANOP. The generic SCA states that system users "will be taken to have been advised" of the ANOP. Storage operators expressed great concern, whilst the individual SCAs were being negotiated, that the ANOPs calculated by Transco should be appropriate and should provide a sound basis on which to base commercial decisions when choosing whether or not to build storage facilities and when designing the specification of those facilities. Storage operators also felt that Transco should have to demonstrate very clearly that the process was objective and non-discriminatory. One connecting party believed that its declared ANOP had been based on the minimum pressure that Transco considered to be achievable on all days as opposed to that which would be available under normal operating conditions.

2.2.3 Transco's Explanatory Note on ANOPs

In order to address these concerns Transco has produced an explanatory note which is included in this document as appendix 2.

The note clarifies Transco's view as to the purpose and nature of an ANOP. So far as Transco is concerned, at any given connection point, the ANOP is the lowest pressure which could normally be expected on the system on any day. It is not intended to provide an indication of the average pressure that might occur over a particular period nor of the actual pressure that might be expected on any particular day. Transco says that the intent of the ANOP is to indicate to the shipper (and consequently the facility operator) the minimum pressure that may be expected under normal operating conditions. For the purposes of calculating an ANOP 'normal' is taken by Transco to include procedures that are carried out infrequently but which are integral to the efficient and economic running of its pipeline system, such as planned maintenance days. The ANOP figure that results from this calculation will, Transco claims, allow the operator to take an informed decision on whether it ought to install compressors on site.

2.2.4 Publishing ANOP-related Data

In the light of representations made to us, we requested that Transco explore the extent to which it could increase the transparency of its ANOPs calculations, whether through proposals to modify its network code or in other ways. We suggested, for instance, that Transco could make available the historical average operating pressure at specific parts of its pipeline system (whether at the connection point itself or on the feeder main). We also suggested that Transco should explain how any variances between that average and the calculated ANOP reconcile with its Ten-Year Statement. In addition, we suggested that Transco could make available information about the ANOPs quoted to it by other users at or near that point of its pipeline system.

Transco has suggested that the publication of detailed pressure information on the system can indicate the level of certain connected parties' demands. Transco did, however, agree to consider how best it might present ANOP-related information.

2.2.5 Provision of Data about Compressor Usage by Transco

Concern has been expressed to Ofgem about the potential impact of compressor usage on pressure levels at nearby connection points. In the light of representations made to

us we sought Transco's views as to whether and on what basis it would be willing to provide data relating to the likely use of its compressors on a day-ahead basis, given the potential impact of compressor. One party has suggested, in this regard, that Transco ought generally to provide this service, on request, and that it should do so using its current price controlled revenues.

Transco has stated that to provide such a service on a nation-wide basis would necessitate a significant administrative burden. Consequently, Transco has indicated that it would be willing to provide such information only if it was an excluded service. Transco has enquired whether analysis is required as to who receives what information, and has also stated that operating decisions are often made at short notice.

Condition 9C of BG plc's public gas transporter (PGT) licence includes a definition of Transportation Revenues for the purposes of the transportation price control. This Condition also defines certain categories of turnover that are excluded from the price controlled revenues. One of these categories relates to turnover that "derives from the Supply of Transportation Services which otherwise are not ordinarily required by shippers". Ofgem's initial view is that this service is one that could ordinarily be required by shippers. On that basis, Ofgem's initial view is that providing data on compressor usage should not be an excluded service.

2.2.6 Resolving ANOP-related Disputes

Ofgem has also suggested to Transco that it should introduce a procedure by which connecting parties could seek reassurance if they did not concur with Transco's ANOP calculation. On this issue, Transco has indicated that where the connecting party cannot accept Transco's calculation, the ANOP calculation can be made available for review by Ofgem's Technical Directorate, if required.

ANOPs - views are invited on whether:-

- **Transco's explanatory note on ANOPs is sufficient to allay concerns over the process by which ANOPs are calculated;**
- **an ANOP as currently defined is a useful tool for enabling connecting parties to gauge the levels of investment needed at their plant;**
- **Transco should publish ANOP-related data in its Ten-Year Statement;**

- Transco should provide data relating to the likely use of its compressors on a day-ahead basis and, if so, if it ought to receive additional revenues for doing so (ie. in addition to its price controlled revenues); and
- it is appropriate for Transco to approach Ofgem for a determination in the event that a connecting party does not agree with Transco's ANOP calculation.

2.3 Ramp Rates

2.3.1 Introduction

Annex B-2 of the generic SCA also includes provisions relating to the rates at which storage operators may increase or decrease offtake at the connection point. The March 1999 generic document contained ramp rate obligations in respect of input as well as offtake; in this way the document was intended to reflect the range of ramp rate obligations contained in Transco's other entry and exit agreements.

2.3.2 Undue Discrimination Between Storage Operators and Other Connecting Parties

Ofgem is concerned to ensure that Transco does not agree to ramp rate obligations in its SCAs that discriminate unduly in favour of storage operators vis-à-vis other entry and exit points. Transco's current approach is to place only offtake obligations on storage operators. We are concerned that this might be said to discriminate unduly against connecting parties at non-storage entry and exit points.

Transco believes that the changes to the March SCA take the terms closer to those established for other entry and exit points. Transco has added that formal ramp rate restrictions usually only apply as exit conditions, and that consequently the amendments to the March version are intended to ensure consistency with Transco's other connection agreements.

Ofgem would not envisage accepting any SCA after 1 December 1999 that treats a storage facility differently from other entry or exit points without Transco demonstrating to our satisfaction that a storage facility or class of storage facility merits special treatment. We believe that this is something that Transco will wish to consider in negotiating ramp rate obligations in its SCAs after 1 December 1999. For its part, Transco has suggested that it is not necessary to include input ramp rate provisions in its

SCAs. Transco has also pointed out that it is the offtake provisions, and especially increasing offtake, that might be expected to have a wider impact on Transco's system.

2.3.3 Undue Discrimination Between Storage Operators

Ofgem has also been concerned to ensure that Transco does not discriminate unduly between different storage operators in the setting of actual ramp rate figures. Transco has suggested that all storage operators could be given a ramp rate of 50MW/minute, which can normally be accommodated and is typical of network exit agreements. Alternatively, Transco could undertake to use reasonable endeavours to meet requests for ramp rates in excess of 50MW/minute. Transco has suggested that, if the latter option were chosen, it would meet such requests so long as there were no additional costs to operate the system at that connection point (as it has done for other Very Large Daily Metered Customers). It is for consideration whether Transco should offer a standard ramp rate to all storage operators or whether it should use reasonable endeavours to meet requests from storage operators for higher ramp rates.

Ramp rates - views are invited on whether:-

- **the generic SCA should also contain ramp rate provisions for increasing and decreasing input to the system; and whether**
- **Transco should offer a standard ramp rate for offtake or whether it should use reasonable endeavours to meet requests from storage operators for higher ramp rates.**

2.4 Measurement Provisions

2.4.1 Introduction

Annex D of the generic SCA sets out the requirements for the measurement, calculation and communication of the calorific value, volume and energy flow of gas transferred to and from a storage facility to Transco's pipeline system. It also defines the measurement system to which these requirements apply and describes the gas quality measurements required to monitor the Gas Entry Conditions.

As a result of negotiations between Transco and connecting parties, annex D differs in a number of respects from the generic version viewed by the industry in March 1999.

Consequently Ofgem considers that the industry should be given an opportunity to provide views on whether the new annex D represents an improvement on the previous one and on whether it should be included within all SCAs after 1 December 1999.

2.4.2 Measurement Arrangements

Transco has made a number of changes to the provisions relating to measurement arrangements since March. Concern has been expressed at the extent to which Transco has attempted, by way of the generic SCA, to prescribe detailed requirements on measurement arrangements. Members of the Planning, Security and Storage Workstream have suggested that the measurement arrangements should be sufficient to ensure, on a non-discriminatory basis, that:-

- volume measurements are accurate to +/-1%;
- energy measurements are accurate to +/-1.1%;
- all Gas Safety (Management) Regulations and network code Gas Entry Conditions are complied with;
- appropriate industry, national and international standards on design, maintenance and validation are met;
- gas and energy flows are traceable and auditable; and
- the system can be efficiently and safely operated.

One connecting party has raised a concern over the possibility that higher standards might apply to new facilities as opposed to older facilities. For its part, Transco has stated that there should be a joint assessment of risks and measurement provisions agreed to manage these risks.

2.4.3 Definition of the Measurement System

Transco has also amended the definition of the measurement system to which these requirements are to apply. The measurement system is now taken to include not only the meters and gas analysis equipment upstream of the storage connection point, but also the system used to communicate the volume or energy flow and quality of gas at the storage connection point. Annex D now also states that the storage operator shall agree with Transco a compatible design for the equipment needed to communicate measurement data to Transco. Clearly these changes might be interpreted as increasing the extent of obligations on storage operators.

One connecting party has suggested that this broader definition of the measurement system unjustifiably extends Transco's rights with respect to inspection and validation. It has suggested that Transco should not be concerned with the design of the communications equipment, only that the equipment delivers the necessary information in a timely manner and to the appropriate degree of accuracy. Transco has said that it requires storage operators' communication systems to be designed in a manner compatible with Transco's IT system so as to ensure that measurement signals are made available to Transco in real time.

2.4.4 Signals Relating to Gas Quality

Annex D also states that the storage operator shall install, commission, operate and maintain equipment to provide signals to Transco of a type, quality and quantity to be agreed between the two parties. One connecting party has also suggested that, during the course of negotiating a SCA, Transco sought to include an unjustifiably broad set of signals. For instance, the connecting party was concerned to ensure that it was not obliged to provide Transco with data relating to aspects of gas quality that it could not affect merely by virtue of storing the gas in its facility.

Transco has now acknowledged that the need for real time monitoring of gas quality depends on the ability of a storage facility to affect gas quality. It has indicated that if a storage facility cannot materially affect a particular aspect of gas quality then that aspect will not be measured. However, Transco has also suggested that there is a minimum set of real time measurements that it requires of every storage facility. These are shown in bold text within a table on page 49 of the generic SCA. This generic SCA is enclosed as appendix 1. They include signals relating to calorific value, instantaneous volume and energy flows for input and offtake, and faulty metering systems. Transco also believes that the requirement for real time monitoring should be agreed as part of the joint risk assessment. However, Transco has also included in this table a broader set of signals that it suggests could also be telemetered individually at the storage operator's discretion as an alternative to a composite gas quality alarm.

2.4.5 Transco's Explanatory Note

Transco has indicated to Ofgem that it considers that its draft annex D might constitute a new generic annex D after 1 December 1999. In support of this draft annex D, Transco

has produced a short explanatory note on measurement provisions for storage connection points. This note is included here as appendix 3.

Measurement provisions - views are invited on whether:-

- **the new annex D should be included within the generic SCA and applied in all SCAs after 1 December 1999;**
- **the measurement arrangements contained in annex D ought to go further than the general, non-prescriptive obligations currently found in the Gas Safety (Management) Regulations;**
- **stricter measurement arrangements should apply to newer storage facilities than apply to older ones;**
- **the definition of the measurement system ought to include the equipment used to communicate gas quality values to Transco, and storage operators should be obliged to agree the design of this equipment with Transco; and on whether**
- **the list of gas quality values is appropriate or whether it places unnecessary obligations on storage operators.**

2.5 Other Issues

2.5.1 Calorific Value

The generic SCA states, in the Gas Entry Conditions, that the calorific value (CV) of gas entering Transco's system shall be within 0.5 MJ/m³ of a target CV provided by Transco. Transco envisages that CV will be in the range 36.9 to 42.3 MJ/m³. One connecting party has requested that Transco clarify whether the target CV is a normal level for all storage facilities or whether the CV might be altered on a daily basis. This company was concerned that the CV could be altered at Transco's discretion and that additional administrative costs would fall on the storage operator. It noted that Transco was making no corresponding commitment as to the CV of gas arriving at the storage connection point. Consequently, the company has said that it would prefer to see a fixed CV specified.

Transco has said that CV was likely to be a material issue if a storage facility was producing native gas. Transco also stated that withdrawing stored gas could have an impact on flow weighted average CV as the CV of shippers' gas in the system might vary on a seasonal basis. In any event, Transco has said that storage operators will be able to

return gas that is outside the CV specification if it was “off-spec” when originally offtaken from Transco’s system. This would, of course, be subject to the Gas Safety (Management) Regulations and a facility’s ability to change the quality of gas.

2.5.2 Maintenance Days

The generic SCA includes provisions relating to maintenance. These state that there shall be eight maintenance days in any one Planned Maintenance Period (ie. April to October) and 20 in any three consecutive Planned Maintenance Periods. One connecting party suggested the level of maintenance days was inappropriately high. This company has said that Transco’s maintenance days should reflect a legitimate need for maintenance on a site-specific basis, rather than a generic number of days applied to all storage facilities.

Transco has said that the maintenance day provisions in the generic SCA are consistent with those in its other connection agreements. Transco has also said that any shift toward a site-specific maintenance regime at storage facilities would have to be applied at non-storage exit points as well.

Ofgem considers that the issue of site-specific as opposed to generic maintenance day provisions should be addressed as part of our forthcoming review of exit capacity.

2.5.3 Ownership of Connecting Pipes

The connection agreements submitted by Transco in respect of the storage facilities currently owned by BG plc made clear that Transco would own the pipes connecting the facilities to the NTS. Under this arrangement, any maintenance and reinforcement costs would be borne by all shippers through transportation charges rather than just the storage customers at a particular storage facility. In contrast, the pipeline connecting ScottishPower’s Hatfield Moor facility to the NTS is to be owned by ScottishPower. This is consistent with ScottishPower’s desire to retain ownership of the connecting pipeline and operate it under a PGT exemption order. Consequently, any maintenance and reinforcement costs will be borne by ScottishPower and, presumably, passed through to users of its facility.

Ofgem is concerned to ensure that Transco deals with all connecting parties in a non-discriminatory manner. We are concerned that the arrangements at the BG plc facilities

might constitute an unjustifiable cross-subsidy which could be avoided if ownership of the pipes lay with the storage operator. If the assets were owned by the storage business, that business would be on the same footing as other storage operators having to finance the cost of building, operating and maintaining the pipes leading to and from the NTS.

Transco has stated that arrangements with respect to the facilities currently owned by BG plc are consistent with its general connections policy for taking ownership of pipelines supplying premises above 75,000 therms per annum where the connecting party agrees. Therefore, Transco has suggested that, if this policy is to be reconsidered, it should be addressed through the wider arena of the Connections Steering Group.

Transco has also stated that storage facilities will be treated in the same way as any other end user. Transco has also said that it is operating a trial in relation to taking ownership of pipes above 7 barg and that both prospective storage operators at Aldbrough could take advantage of this if planning consent is granted to their projects.⁶ Finally, Transco has stated that ScottishPower could not have taken advantage of this policy because work on constructing its Hatfield Moor pipeline had begun before the trial was established. Transco concludes that, as a result, ScottishPower will be operating on the same basis as other parties who have chosen to self-lay connecting pipelines.

We recognise that the issue of connecting pipeline ownership affects all connecting parties, not merely those seeking to operate storage facilities. Nonetheless, we consider that it would be appropriate at this stage to seek comments on Transco's proposals.

Other issues – views are invited on whether:-

- **the CV regime should be based around a changeable range or a specified fixed number; and on whether**

⁶ Both InterGen and BG plc intend to construct new storage facilities at Aldbrough, in the East Riding of Yorkshire. However, these projects have been refused local planning permission and are the subject of appeals to the Department of the Environment, Transport and the Regions.

- Transco's proposed arrangements vis-à-vis the pipelines connecting the storage facilities currently owned by BG plc are unduly discriminatory or whether they constitute an unjustifiable cross-subsidy.

**Appendix 1 Transco's Draft Generic Storage
Connection Agreement**

[Dated]

**GENERIC
STORAGE CONNECTION AGREEMENT**

BETWEEN

BG plc

AND

[]

IN RELATION TO A STORAGE FACILITY AT

[]

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THIS AGREEMENT dated

is made

BETWEEN:

(1) **BG plc** (registered no. 2006000) having its registered office at 100 Thames Valley Park Drive, Reading, Berkshire, RG6 1PT (hereinafter called “**Transco**”)

and

(2) [] having its registered office at []
[](hereinafter called the “**Storage Operator**” acting in its capacity of Storage Operator not as System User)

WHEREAS:

(A) Transco is the operator of a pipeline system in Great Britain and holds a licence as a public gas transporter under the Gas Act 1986 (as amended), pursuant to which Transco has prepared a network code (a copy of which as in force at the date of this Agreement has been provided to the Storage Operator) setting out the terms on which System Users may arrange with Transco for the conveyance of gas by means of the System.

(B) The Storage Operator is the operator of a [] storage facility located at []
[] which is or is to be connected to the System at the SCP [] [and is or will be a ‘Storage Facility’ as defined in the Network Code.

[(C) For the purposes of the Network Code the points at which the Storage Facility is to be connected to the System at the SCP will constitute a Connected System Exit Point and a System Entry Point in relation to which the Storage Operator will be respectively the Connected System Operator and the Delivery Facility Operator.

(D) The Network Code contemplates that there will be an Storage Connection Agreement in relation to a Storage Facility.

GENERIC STORAGE CONNECTION AGREEMENT DRAFT DATE: 01.11.99

(E) This Agreement is the Storage Connection Agreement relating to the Storage Connection Point and shall constitute both the Network Entry Agreement and Network Exit Agreement for the purposes of Network Code.

[(F) Transco has entered into a [CSEP] Ancillary Agreement of even date with this Agreement with those persons who at that date are System Users.]

IT IS HEREBY AGREED AS FOLLOWS:

1. DEFINITIONS

1.1 In this Agreement the following terms shall have the following meanings:

“Affiliate”: in relation to any company means any company which is its subsidiary or holding company or any other subsidiary of any such holding company, for which purposes “subsidiary” and “holding company” shall have the meaning assigned to it under Section 736 of the Companies Act, 1985, as amended by Section 144 of the Companies Act, 1989;

“Agreement”: this Storage Connection Agreement including all annexes and schedules hereto;

“Competent Authority”: any local, national or supranational agency, authority, department, inspectorate, minister, official, court, tribunal or public or statutory person (whether autonomous or not) of the United Kingdom or the European Union which has jurisdiction over Transco or the Storage Operator or the subject matter of this Agreement (including without limitation the Director);

“Connection Facilities”: the Transco Connection Facilities and the Storage Connection Facilities;

“CSEP”: the Storage Connection Point as Connected System Exit Point;

“Directive”: any present or future directive, request, requirement, instruction, code of practice, direction or rule of any Competent Authority having the force of law or which a party is otherwise required to comply with under the arrangements by which a party is regulated pursuant to the Gas Act and any modification, extension or replacement thereof;

“Director”: the Director General of Gas Supply which shall include any successor position;

“Effective Date”: shall have the meaning ascribed to it in Clause 2.2 of this Agreement.

“Expert”: shall mean a person appointed as an expert pursuant to Clause 13

“Gas Act” : shall mean the Gas Act 1986, as amended by the Gas Act 1995 and as otherwise amended.

“Legal Requirement”: any act of Parliament, regulation, licence or Directive;

“Network Code”: the network code prepared by Transco as from time to time modified pursuant to the Transco Licence (and any reference to a modification of the network code is a reference to any modification made in accordance with the Transco Licence);

“Operator”: Transco or the Storage Operator and "Operators" shall mean Transco and the Storage Operator;

“Reasonable and Prudent Operator”: a person acting, in good faith, to perform its contractual obligations and, in so doing and in the general conduct of its undertaking, exercising that degree of skill, diligence, prudence and foresight which would reasonably and ordinarily be expected from a skilled and experienced operator engaged in the same type of undertaking under the same or similar circumstances;

“SEP”: the Storage Connection Point as System Entry Point;

“Storage Agreement”: an agreement made between the Storage Operator and a Storage User for the storage (including injection or withdrawal) of gas in the Storage Facility;

“Storage Connection Facilities”: the facilities installed and operated by the Storage Operator at the Storage Connection Point as described in Annex A;

“Storage Connection Point” or **“SCP”**: the points (each being an Individual System Exit Point or an Individual System Entry Point or both) at which the System and the Storage Facility are connected as described in Annex A;

“Storage Facility”: the [] storage facility at [] operated by the Storage Operator, including the Storage Connection Facilities;

“Storage Flow Notification” or **“SFN”**: a notification from the Storage Operator to Transco in the form attached marked Schedule B

“Storage Local Operating Procedures”: procedures established between the Operators in connection with the Connection Facilities and related parts of the System and the Storage Facility, initially in the form in Annex H and as from time to time revised in accordance with Clause 9.1;

“Storage User”: the Storage Operator and any person (whether or not being a System User, and including Transco if such a person) with whom the Storage Operator may for the time being have arranged for the storage of gas in the Storage Facility;

“System”: the main pipeline system operated by Transco in Great Britain (being the ‘System’ as defined in the Network Code), including the Transco Connection Facilities and for the avoidance of doubt "System" shall include Transco's Local Distribution Zones;

“System User”: a ‘User’ (as defined in the Network Code, and including the Storage Operator if such is a ‘User’) which is pursuant to the Network Code for the time being

a CSEP User in respect of the CSEP or is for the time being registered as holding System Entry Capacity at the Aggregate System Entry Point which comprises or includes the SEP;

“Transco Connection Facilities”: the facilities installed and operated by Transco at the Storage Connection Point as described in Annex A;

“Transportation Arrangement”: an arrangement made by Transco with a User for the transportation of gas in the System to or from the Storage Connection Point; and a reference to a Transportation Arrangement shall include the Network Code;

- 1.2 The provisions of Annex G as to the interpretation of technical expressions shall apply.
- 1.3 Words and expressions defined in the Network Code and not defined in this Agreement have the meanings ascribed to them under the Network Code.
- 1.4 References to Annexes and Clauses are references to annexes to and clauses of this Agreement, references to Paragraphs are (unless otherwise provided) references to paragraphs of the Annex in which the reference occurs and, unless otherwise provided, references to Sections are references to sections of the Network Code.
- 1.5 Unless otherwise provided, references to paragraphs are references to paragraphs of the Annex to this Agreement in which such reference is made.

2. CONDITIONS AND DURATION

2.1 [This Agreement shall not come into effect until the following conditions are satisfied, and if any of such conditions is not satisfied by *[date]* either Operator may terminate this Agreement by giving notice to the other whereupon this Agreement and the rights and liabilities of each Operator shall cease and no Operator shall have a claim against the other (save in respect of any antecedent breach of this Agreement):

[list any conditions such as signature of CSEP Ancillary Agreement, installation of meters/measurement equipment]

2.2 This Agreement shall be effective from the date on which all of the conditions in Clause 2.1 are satisfied (the “**Effective Date**”) and shall continue in force until and unless terminated by agreement of the Operators or as otherwise provided in this Agreement.

2.3 Upon the termination of this Agreement, unless a new Agreement is entered into in place of this Agreement, the Storage Facility shall cease to be connected to the System and each Operator shall be responsible at its cost for any required decommissioning, disassembly or removal of its Connection Facilities.

2.4 Upon the termination for any reason of this Agreement, Transco will permit the continued connection of the Storage Facility to the System, for the purposes only of enabling gas remaining in such facility to be withdrawn and delivered to the System, for a period not exceeding 15 months, provided that the terms of this Agreement are complied with in respect of the delivery of such gas to the System.

2.5 Transco will notify any termination of this Agreement to all System Users by notification on UK Link as soon as reasonably practicable after such termination save where the parties immediately enter into a further Storage Connection Agreement in respect of the Storage Facility.

3. GENERAL

- 3.1 Subject to the terms of this Agreement it is agreed that the Storage Operator shall be entitled to have the Storage Facility connected to the System at the Storage Connection Point.
- 3.2 [Subject to Clause 4.4,] nothing in this Agreement shall:
- (a) impose any obligation or confer any entitlement on Transco to inject gas to or withdraw gas from the Storage Facility or on the Storage Operator to deliver gas to or offtake gas from the System, or as to the rates, quantities, pressure and quality of gas so injected, withdrawn, delivered or offtaken; nor
 - (b) make any provision of any Transportation Arrangement or Storage Agreement binding as between Transco and the Storage Operator nor is any provision of this Agreement deemed to amend or vary the Transportation Arrangement or Storage Agreement.
- 3.3 Without prejudice to any other agreement (including any Storage Agreement or Transportation Arrangement) between the Operators, this Agreement shall not require Transco or the Storage Operator to reinforce any part of the System or (as the case may be) Storage Facility, or to take any other step with a view to its being feasible to accept the injection or delivery of gas into, or make gas available for offtake or withdrawal from, the System or (as the case may be) Storage Facility at the Storage Connection Point in any quantities or at any rate, nor to accept an application by any User for any particular System Capacity or capacity in the Storage Facility.
- 3.4 Without prejudice to any other agreement (including any Storage Agreement or Transportation Arrangement) between the Operators[, and subject to Clause 4.4]:
- (a) Transco shall not be liable to the Storage Operator in respect of any failure by System Users to comply with any provision of a Transportation Arrangement, nor for any failure of Transco to make gas (at any rate or pressure or of any quality or in any quantity) available for offtake from or accept delivery of gas into the System;

- (b) the Storage Operator shall not be liable to Transco in respect of any failure by Storage Users to comply with any provision of a Storage Agreement, nor for any failure of the Storage Operator to make gas (at any rate or pressure or of any quality or in any quantity) available for withdrawal from or accept injection of gas into the Storage Facility.

3.5 Save as expressly provided otherwise in this Agreement, each Operator will perform its duties under this Agreement in accordance with the standard of a Reasonable and Prudent Operator.

4. ENTRY AND EXIT PROVISIONS

4.1 The provisions of Annex B (Flows) are hereby given effect in relation to the CSEP and SEP.

4.2 The provisions of Annex C (Gas Quality Provisions) are hereby given effect in relation to the SEP. The provisions of Annex C are the Network Entry Provisions for the purposes of the Network Code.

4.3 The provisions of Annex D (Measurement Provisions) are hereby given effect for the purposes of the monitoring and measurement of the pressure, quantity and quality of gas flowing between the System and the Storage Facility at the Storage Connection Point.

4.4 The Storage Facility is a Constrained Storage Facility and accordingly:

- (a) Transco shall be entitled on behalf of the Storage Operator to reject Input Nominations pursuant to Paragraph R4.1.3 of the Network Code;
- (b) pursuant to Paragraph R4.5.2 the Storage Operator shall comply with any Constrained Storage Renomination irrespective of whether it will result in a User becoming liable for any charge to the Storage Operator

(c) Transco may from time to time on one months written notice to the Storage Operator elect whether or not the provisions of paragraph R4.6.8 apply.

4.5 The provisions of Annex F (Commissioning Arrangements) are hereby given effect for the purposes of the commissioning of the Storage Facility.

4.6 The Storage Operator may from time to time on one months written notice to Transco elect whether or not pursuant to Section R 2.1.1 of the Network Code:

(i) Transco shall notify the Storage Operator of every User's Nomination (or Renomination as the case may be) in respect of the Storage Facility in accordance with such arrangements as may be agreed between the parties; and

(ii) Transco shall reject or revise a User's Nomination at the request of the Storage Operator

PROVIDED that the Storage Operator may not change any such election at intervals of less than six (6) months. Transco shall not be liable for the accuracy or otherwise of the Nominations passed to the Storage Operator pursuant to this Clause

4.7 The Storage Operator acknowledges that as at the Effective Date the Storage Operator has [not] made an election pursuant to Section R2.1.1 of the Network Code to receive User's Nominations (or Renominations as the case may be).

4.8 Section E1.10 of the Network Code shall apply in respect of the Storage Facility pursuant to Section R1.6 of the Network Code.

4.9 Where the Storage Operator is a User the Storage Operator may from time to time on one months written notice to Transco elect whether or not a Storage Balancing Arrangement (pursuant to Section R 2.2 of the Network Code) applies in respect of the Storage Facility PROVIDED that the Storage Operator may not change any such election at intervals of less than six (6) months

4.10 For the purposes of Sections R1.9 and J5.6.4 of the Network Code the relevant conditions shall be that the User (other than the Storage Operator acting as User) is either a party to an agreement with the Storage Operator in respect of the CSEP or has acceded to an allocation agreement approved by the Storage Operator. The Storage Operator shall notify Transco of the satisfaction or non satisfaction (as the case may be) of any User of the relevant conditions.

5. CHANGE

5.1 No amendment or variation to this Agreement shall be effective unless in writing and signed by duly authorised representatives of the Operators. The Storage Operator acknowledges that pursuant to the Network Code, Transco will not agree with the Storage Operator to amend any provision (other than the Storage Local Operating Procedures) of this Agreement which governs or otherwise is directly relevant to the arrangements between Transco and System Users pursuant to the Network Code except (i) with the approval of Users who will be registered at the date when such amendment is to take effect as holding System Entry or Exit Capacity at the Storage Connection Point, or (ii) upon Transco's application or upon application by a System User, at the direction or with the approval of the Director, or (iii) in order to comply with any Legal Requirement.

5.2 Where after the date of this Agreement there is any change in any Legal Requirement (or there is a change in the interpretation of any Legal Requirement by a Competent Authority) relating to the composition or other characteristics of gas delivered to or conveyed by the System, as a result of which any provision of this Agreement is not consistent with or does not enable either Operator to comply with applicable Legal Requirements, either Operator may require that the relevant provision of this Agreement shall be amended so as to be so consistent or enable such compliance; and where either Operator notifies the other of such a requirement, if the Operators have not agreed upon the appropriate amendment within a reasonable time after such notice, the matter shall be referred to an Expert. Each Operator shall use reasonable endeavours to ensure that this Agreement is modified in accordance with this Clause.

- 5.3 Where any modification of the Network Code is made as a result of which any provision of this Agreement is inconsistent with or does not enable either Operator to comply with the Network Code, either Operator may require that the relevant provision of this Agreement shall be amended so as to be so consistent or enable such compliance; and where either Operator notifies the other of such a requirement, if the Operators have not agreed upon the appropriate amendment within a reasonable time after such notice, the matter shall be referred to an Expert. Each Operator shall use reasonable endeavours to ensure that this Agreement is modified in accordance with this Clause.
- 5.4 The Operators acknowledge that the provisions of this Agreement (including in particular those contained in Annexes B, C and D) are appropriate on the basis of the nature and configuration of the Storage Facility or the System as at the date of this Agreement, and may require modification in the event of certain changes in such nature or configuration (including but not limited to connecting the Storage Facility to other premises or systems); and the Operators agree to discuss and negotiate in good faith upon any such required modifications.
- 5.5 The Operators agree to revise the details contained in Annex A to reflect any modifications made (subject to and in accordance with the terms of this Agreement) to the Connection Facilities.

6. CONNECTION FACILITIES

- 6.1 The Storage Operator and Transco agree to consult and cooperate with a view to ensuring that the objective in Clause 6.2 is satisfied.
- 6.2 The objective is that, without prejudice to Clause 3.2(a) of this Agreement, in all material respects the Transco Connection Facilities and the Storage Connection Facilities are and will continue to be technically and operationally compatible, as facilities by which the System and the Storage Facility may safely be connected and operated.

- 6.3 Where, by reason of any modification, other than a modification made to comply with any Legal Requirement, made or to be made by either Operator to its Connection Facilities, the objective in Clause 6.2 ceases or will cease to be satisfied, such Operator shall reimburse to the other any expenditure reasonably incurred by the other for the purposes of ensuring that the objective continues to be or is again satisfied.
- 6.4 Each Operator shall be entitled, upon reasonable notice to the other, to inspect the other's Connection Facilities (and to have access to the site thereof accordingly), for the purposes of determining whether the objective in Clause 6.2 is satisfied.
- 6.5 Without prejudice to any other agreement between Transco and the Storage Operator (including any Storage Agreement or Transportation Arrangement, or any agreement in respect of the installation of the Transco Connection Facilities or the Storage Connection Facilities), subject to Clause 6.3 and 6.4, nothing in this Agreement shall impose any obligations upon or take effect as a warranty by Transco in relation to the System or the Storage Operator in relation to the Storage Facility and neither Operator will be liable to the other in respect of any failure or malfunction thereof.
- 6.6 Subject to the provisions of any other agreement between the Operators, where pursuant to this Agreement either Operator (the "**first** Operator") is required or entitled to have any measurement or other equipment installed on land or buildings or plant which the other owns or operates, the first Operator shall retain ownership of such equipment (unless it has become a part of land owned or occupied by the other) and shall have such reasonable access and other rights (without undue disturbance of the other) as are required to maintain, repair, replace, inspect and operate such equipment, provided that the first Operator shall comply with such reasonable safety and site procedures as may be imposed by the other Operator.

7. LIABILITY AND INSURANCE

- 7.1 Transco agrees that it will bear the risk of its own Relevant Loss or Liability and accordingly waives any claim (in tort (including negligence) or otherwise) against the Storage Operator in respect of any Relevant Loss or Liability of Transco.
- 7.2 The Storage Operator agrees that it will bear the risk of its own Relevant Loss or Liability and accordingly waives any claim (in tort (including negligence) or otherwise) against Transco in respect of any Relevant Loss or Liability of the Storage Operator.
- 7.3 For the purposes of Clauses 7.1 and 7.2 "Relevant Loss or Liability" of an Operator means any loss or damage to that Operator's relevant property or that of its employees agents or subcontractors, any injury or death to any of its relevant employees or those of its agents or subcontractors, and any loss, damage or liability which may result therefrom, which (in each case) may arise or result from anything done or not done (whether negligently or otherwise) by the other Operator in connection with this Agreement; an Operator's relevant property for this purpose being the Storage Facility in the case of the Storage Operator and the Transco System in the case of Transco, and an Operator's relevant employees being any of its employees for the time being who are (at the relevant time) present at any location where its relevant property is situated.
- 7.4 Neither Operator shall be liable to the other in respect of any loss of profit, revenue, use, contract or goodwill or any increased cost of working of either Operator arising out of or in connection with this Agreement from any cause whatsoever (whether or not foreseeable at the date of this Agreement) including but not limited to the negligence or breach of duty (statutory, contractual or otherwise) of either Operator or by any other tortious act or omission or breach of this Agreement by either Operator.
- 7.5 Each Operator shall insure against its obligations in Clauses 7.1 and 7.2 with limits of not less the £5 million (£5,000,000) for any year in respect of employers liability insurance and £2 million (£2,000,000) for each and every claim in respect of public liability insurance and in respect of all insurance policies taken out by each Operator with the insurer waiving any rights of subrogation in respect of such policies and each

Operator shall following a request from the other Operator provide confirmation from the insurer of such waivers of subrogation rights in a form reasonably satisfactory to the requesting Operator.

[Note: this clause 7.5 may be deleted if both Operators agree it is not appropriate]

7.6 Nothing in this Clause 7 shall affect any right or liability of Transco or any System User pursuant to the Network Code nor any right or liability of the Storage Operator or any Storage User pursuant to any Storage Agreement.

7.7 For the purposes of this Clause 7 reference to an Operator shall include that Operator's Affiliates

8. INFORMATION AND CONFIDENTIALITY

8.1 Subject to Clause 8.2 the Storage Operator may disclose the terms of this Agreement to System Users and Storage Users (or persons intending to become System Users or Storage Users), and to any Competent Authority. Transco may disclose the existence (but not the terms) of this Agreement (other than the terms of the generic Storage Connection Agreement produced by Transco from time to time) to System Users (or persons intending to become System Users) and the terms of this Agreement to any Competent Authority.

8.2 The Storage Operator and Transco may disclose to any Storage User and any System User respectively, and to any agent of any such Storage User or System User, and to the Director, any of the following information obtained from the other pursuant to this Agreement:

- (a) the terms of the generic Storage Connection Agreement produced from time to time by Transco
- (b) information needed for reconciliation purposes produced by any reports produced pursuant to Annex D

8.3 Subject to Clauses 8.2, 8.4 and 8.5, each Operator (the “**recipient Operator**”) shall keep confidential and shall not disclose or use any information (“**confidential information**”) relating to the affairs of the other which it obtains pursuant to this Agreement, other than information which is in the public domain or which it also obtains (other than under a duty of confidence) other than pursuant to this Agreement and save to the extent to which it is required to disclose such information by any Legal Requirement.

8.4 Confidential information:

(a) may be used by the recipient Operator for purposes contemplated in this Agreement, or for the purposes of performing any Transportation Agreement or Storage Agreement, or for the purposes of the operation of the System or the Storage Facility, or for any purposes reasonably ancillary to any of those purposes;

(b) may be disclosed to officers or employees of the recipient Operator whose province it is to know the same, or to professional advisers or consultants to the recipient Operator provided that such persons shall first agree to be bound by obligations of confidentiality no less onerous than those set out in this Agreement.

8.5 Each Operator shall jointly own all data obtained from measurement or monitoring equipment referred to in Annex A and may freely disclose such information to the other Operator; and in relation to such data as is (in accordance with Annex D) provided to the other Operator, the other Operator shall be entitled to disclose such data in accordance with Clause 8.2, and to use such data in connection with the operation of the System and UK Link or (as the case may be) the Storage Facility, and for the purposes contemplated by this Agreement.

8.6 This Clause 8 is without prejudice to the provisions of any Transportation Agreement as to confidentiality as between Transco and System Users or any Storage Agreement as to confidentiality as between the Storage Operator and Storage Users.

9. LOCAL OPERATING PROCEDURES

- 9.1 The Operators shall keep under review, and (as may be appropriate for reasons of safety or prudent operation) from time to time revise, the prevailing Storage Local Operating Procedures, provided that no revision of the Storage Local Operating Procedures shall be effective unless signed by duly authorised representatives on behalf of each Operator.
- 9.2 Each Operator shall provide information to the other in accordance with, and otherwise comply with, the Storage Local Operating Procedures.

10. MAINTENANCE

- 10.1 Without prejudice to Clause 8.5, the Operators agree to exchange information as to, and to take reasonable steps to co-ordinate, their respective plans for maintenance of their respective Connection Facilities and adjacent parts of the Storage Facility or System.
- 10.2 Where the operation of any pipeline inspection or maintenance equipment in the System or the Storage Facility requires a specific rate of offtake or delivery of gas from or to the System or injection or withdrawal to or from the Storage Facility at the Storage Connection Point for any period, each Operator agrees to co-operate reasonably with the other (and with each Storage User and/or System User as appropriate) with a view to ensuring that such rate of offtake is maintained for such period.
- 10.3 Without prejudice to Clause 10.1, each of Transco and the Storage Operator will endeavour to give to the other as much notice as is reasonably practicable of the times, and of any change in the times, at which it intends to carry out planned maintenance of any part of the System or as the case may be the Storage Facility where such maintenance is likely to affect gas flows or pressures at the Storage Connection Point.

- 10.4 For the purpose of Section J 5.8.2 (i) of the Network Code the number of Days of Programmed Maintenance shall be eight in any one Planned Maintenance Period and twenty in any three consecutive Planned Maintenance Periods.

11. EMERGENCIES

- 11.1 The Storage Operator and Transco agree to provide reasonable co-operation to the other with a view to ensuring safety in the event of any emergency circumstances affecting the other. The Storage Operator and Transco will agree detailed emergency procedures for giving effect to this clause.
- 11.2 The Storage Operator and Transco shall, both acting reasonably, agree procedures to apply in the event of a Gas Supply Emergency and in the event of a Gas Supply Emergency being declared, the Storage Operator will comply with such procedures and instructions.
- 11.3 The Storage Operator will comply with any instruction from Transco to deliver gas from the Storage Facility to the System in a Network Gas Supply Emergency in accordance with Section Q 3.3.3 of the Network Code.
- 11.4 For the avoidance of doubt the Operators agree that the provisions of this Clause 11 shall constitute "appropriate arrangements" for the purposes of Section Q 3.3.3 of the Network Code.

12. INFORMATION FOR SAFETY CASE PURPOSES

For the purposes of enabling Transco to discharge its safety obligations in respect of the System the Storage Operator undertakes to provide to Transco the information set out in Annex I Part 1 [where the Storage Facility has a Total Deliverability of more than 10 GWh day], subject to Clause 8. For the purposes of enabling the Storage Operator to discharge its safety obligations in respect of the Storage Facility Transco agrees to provide to the Storage Operator the information set out in Annex I Part 2 in respect of the SCP, subject to Clause 8 and to any obligations of confidentiality which Transco may owe to third parties.

13. EXPERT

- 13.1 Wherever this Agreement provides or the Operators have agreed that any matter is to be referred to an Expert for determination, the provisions of this Clause 13 shall apply.
- 13.2 An Operator seeking the referral of such matter to an Expert shall give notice to the other Operator that it wishes an Expert to be appointed and with such notice shall give:
- (a) details of the matter which it proposes shall be resolved by the Expert; and
 - (b) the proposed terms of reference.
- 13.3 If within twenty-one (21) days from the service of the said notice the Operators have failed to agree upon the identity of the Expert and/or the terms of reference then the matter may be referred by either Operator to the President for the time being of the Law Society of England and Wales who shall be requested to select the Expert in accordance with this Clause and if willing to do so settle the terms of reference of such Expert within thirty (30) days.
- 13.4 Upon an Expert being agreed or selected under the foregoing provisions of this Clause either Operator shall forthwith notify such Expert of his selection and of any proposed terms of his appointment and shall request him within fourteen (14) days to confirm to the Operators whether or not he is willing and able to accept the appointment on the terms proposed.
- 13.5 If the Expert shall be either unwilling or unable to accept the appointment or shall not have confirmed his willingness and ability to accept such appointment within such period then (unless the Operators are able to agree on the appointment of another Expert) the matter may be referred by either Operator to the President for the time being of the Law Society of England and Wales who shall be requested to make a

further selection and the process shall be repeated until an Expert is found who accepts the appointment in accordance with the proposed terms.

13.6 No person shall be appointed to act as the Expert under this Agreement:

(a) who at the time of his appointment is a director office holder or employee of or directly or indirectly retained as a consultant to either of the Operators or an Affiliate of any of them, or otherwise has any conflict of interest;

(b) unless he shall have the relevant experience and/or training to determine the matter in dispute in accordance with the terms of reference.

13.7 The Expert shall be deemed not to be an arbitrator but shall render his determination as an expert and the provisions of the Arbitration Act 1996 (as amended from time to time) and the law relating to arbitration shall not apply to such Expert or his determination or the procedure by which he reaches his determination.

13.8 The determination of the Expert shall be final and binding upon the Operators save in the event of fraud or manifest error.

13.9 Each of the Operators shall bear its own costs of providing all data information and submissions given by it and the costs and expenses of all the counsel witnesses and employees retained by it but the costs and expenses of the Expert and any independent advisors to the Expert and any costs of his appointment shall be borne equally by the Operators.

13.10 Any and all communications between either Operator and the Expert shall be made in writing and a copy thereof provided simultaneously to the other and no meeting between the Expert and either Operator shall take place unless both Operators have a reasonable opportunity to attend any such meeting.

14. INVOICING AND PAYMENT

- 14.1 Where pursuant to this Agreement either Operator is required to make any payment to the other (the “payee”) the provisions of this Clause 14 shall apply.
- 14.2 As soon as practicable after the end of each month the payee shall prepare and send to the other Operator an invoice for the total amount (rounded to the nearest penny) payable hereunder (including any applicable VAT) in respect of such month together with any supporting data and information required (under the relevant provision hereof) to be given.
- 14.3 On the later of the twentieth day of the month following that to which the invoice relates or the tenth Business Day after submission of the invoice, the paying Operator shall pay such invoice in immediately available funds to such account as the payee may direct.
- 14.4 Where any sum is disputed the paying Operator shall pay the undisputed portion thereof in accordance with Clause 14.3 and the Operators shall seek to resolve the dispute but if such dispute is not resolved within thirty (30) days after the receipt of such invoice either Operator may refer the matter for determination by an Expert pursuant to Clause 13.
- 14.5 Where any amount payable hereunder is not paid by the due date in accordance with Clause 14.3, the paying Operator shall pay interest on the overdue amount from the date such amount was due to the date it is eventually paid at an annual rate equal to Barclays Bank plc base rate plus 3 percentage points per annum, or if payment of any part of the overdue amount was withheld pursuant to Clause 14.4 by reason of a bona fide dispute, Barclays Bank plc base rate plus 1 percentage point per annum on such part and Barclays Bank plc base rate plus 3 percentage points per annum on the balance.
- 14.6 If the paying Operator defaults in paying any amount payable hereunder (other than an amount subject to a bona fide dispute) for a period of thirty (30) Days or more after the due date, the payee may without prejudice to any other rights or remedies suspend the performance of its obligations hereunder or terminate this Agreement, and such

termination shall be without prejudice to the rights and obligations of the Operators which have accrued at the date of such termination.

- 14.7 Unless expressly otherwise stated, amounts provided to be payable by either Operator hereunder are stated exclusive of any applicable VAT, and such VAT shall be payable in addition to the amount stated.

15. FORCE MAJEURE

- 15.1 For the avoidance of doubt, the provisions of this Agreement shall be without prejudice to any question as to whether Transco or the Storage Operator is entitled, as a result of circumstances constituting ‘force majeure’ for the purposes of Transportation Arrangements or (as the case may be) Storage Agreements, to any relief in respect of its obligations (or liability in respect of its obligations) pursuant thereto.

- 15.2 In this Agreement, subject to Clause 15.3, “**Force Majeure**” means any event or circumstance, or any combination of events and/or circumstances, the occurrence of which is beyond the reasonable control of, and could not have been avoided by steps which might reasonably have been expected to have been taken by, an Operator (the “**Affected Operator**”) and which causes or results in the failure of the Affected Operator to perform, or its delay in performing, any of its obligations owed to the other Operator under this Agreement including:

- (a) war declared or undeclared, threat of war, act of public enemy, terrorist act, blockade, revolution, riot, insurrection, civil commotion, public demonstration, sabotage, act of vandalism;
- (b) act of God;
- (c) strike, lockout or other industrial disturbance;

- (d) explosion, fault or failure of plant, equipment or other installation which the Affected Operator could not prevent or overcome acting as a Reasonable and Prudent Operator;
 - (e) governmental restraint or the coming into force of any Legal Requirement.
- 15.3 Inability (however caused) of an Operator to pay any amount due under this Agreement shall not be Force Majeure.
- 15.4 Subject to Clause 15.5, the Affected Operator shall be relieved from liability for any delay or failure in the performance of any obligation under this Agreement which is caused by or results from Force Majeure.
- 15.5 The Affected Operator shall be relieved from liability under Clause 15.4 only for so long as and to the extent that the occurrence of Force Majeure and/or the effects of such occurrence could not be overcome by measures which the Affected Operator might reasonably be expected to take with a view to resuming performance of its obligations.

16. MISCELLANEOUS

- 16.1 Either Operator may assign its rights and obligations under this Agreement with the consent of the other Operator (which shall not unreasonably be withheld) to any other person (and in the case of Transco only to a person holding a Public Gas Transporter licence in respect of the Storage Connection Point), provided that the assignee shall enter into an Agreement with the other Operator covenanting to be bound by the obligations of the assigning Operator under this Agreement as if the assignee had originally been named in this Agreement in place of the assigning Operator, whereupon the assigning Operator shall be released from all further obligations under this Agreement but without prejudice to the rights and liabilities of the Operators accrued prior to such date.
- 16.2 Neither Operator shall subcontract its obligations under this Agreement without the prior written consent of the other Operator (not to be unreasonably withheld or

delayed) as to such appointment and agreeing or procuring such other person to agree to such procedural and operational requirements (including but not limited to Storage Local Operating Procedures) as the other Operator may reasonably require in connection with such appointment.

16.3 This Agreement shall be governed by English law, and (save in respect of decisions to be made by the Expert) the English courts shall have exclusive jurisdiction in respect of this Agreement.

16.4 Where any notice or other communication (other than a communication given in accordance with a procedure set out in the Storage Local Operating Procedures) is to be given or made by either Operator to the other under this Agreement:

(a) such communication shall be in writing and may be delivered to the recipient or sent by first class prepaid letter or facsimile transmission to the address of the recipient specified in Schedule D to this Agreement or to that Operator's facsimile transmission number thereat or such other address or number as may be notified hereunder by that Operator from time to time for this purpose;

(b) such communication shall be deemed to have been given or made and delivered, if by letter, on the second day after posting, if by delivery, when left at the relevant address, and (subject to paragraph (c)(ii) below) if by facsimile transmission between the hours of 09:00 and 17:00, at the time of receipt by the sender of confirmation of transmission and otherwise on the next day after transmission;

(c) where a communication by facsimile is received in an incomplete or illegible form:

(i) if the recipient so requests (by telephone or otherwise), the sender shall promptly retransmit the communication to the recipient; and

(ii) provided that the request for re-transmission was made within 24 hours after time of receipt (in accordance with paragraph (b)) of the first

facsimile, the communication shall not be deemed to have been received until the time (whether or not between 09:00 and 17:00 hours) of receipt by the sender of confirmation of such retransmission.

- 16.5 If any provision of this Agreement is held by any court or other competent authority to be invalid or unenforceable in whole or in part, this Agreement shall continue to be valid as to its other provisions and the remainder of the affected provision.
- 16.6 Nothing in this Agreement shall create or be deemed to create a partnership or the relationship of principal and agent between the Operators.
- 16.7 No failure or delay in either Operator in exercising any of its rights under this Agreement shall be deemed to be a waiver thereof and no waiver of a breach of any provision of this Agreement shall be deemed to be a waiver of any subsequent breach of the same or any other provision.

17. RTPA CLAUSE

17.1 Any provision contained in this Agreement or in any arrangement of which this Agreement forms part by virtue of which the Restrictive Trade Practices Act 1976 ("the RTPA") applies to this Agreement or such arrangement shall not come into effect:

- (i) if a copy of the Agreement is not provided to the Director General of Gas Supply ("the Director") within 28 days of the date on which the Agreement is made; or
- (ii) if, within 28 days of the provision of the copy, the Director gives notice in writing, to the Party providing it, that he does not approve the Agreement because it does not satisfy the criterion specified in paragraphs 1(6) or 2(3) of the Schedule to The Restrictive Trade Practices (Gas Conveyance and Storage) Order 1996 ("the Order") as appropriate

provided that if the Director does not so approve the Agreement then Clause 17.3 shall apply.

- 17.2 If the Director does so approve this Agreement in accordance with the terms of the Order (whether such approval is actual or deemed by effluxion of time) any provision contained in this Agreement or in any arrangement of which this Agreement forms part by virtue of which the RTPA applies to this Agreement or such arrangement shall come into full force and effect on the date of such approval.
- 17.3 If the Director does not approve this Agreement in accordance with the terms of the Order the Parties agree to use their best endeavours to discuss with the Director any provision (or provisions) contained in this Agreement by virtue of which the RTPA applies to this Agreement or any arrangement of which this Agreement forms part with a view to modifying such provision (or provisions) as may be necessary to ensure that the Director would not exercise his right to give notice pursuant to paragraph 1(5)(d)(ii) or 2(2)(b)(ii) of the Order in respect of the Agreement as amended. Such modification having been made, the Parties shall provide a copy of the Agreement as modified to the Director pursuant to Clause 17.1(i) above for approval in accordance with the terms of the Order.
- 17.4 For the purposes of this Clause 17, "Agreement" includes a variation of or an amendment to an agreement to which any provision of paragraphs 1(1) to (4) in the Schedule to the Order applies.

18. ENTIRE AGREEMENT

This Agreement represents the entire agreement of the Operators relating to the subject matter of this Agreement and each of the Operators agrees that save in respect of statements made fraudulently it shall have no claim in respect of any untrue statement upon which it relied when entering this Agreement and that its only claim shall be for breach of contract.

IN WITNESS whereof the duly authorised representatives of the Operators have executed this Agreement the day and year first above written

Signed for and on behalf of:-
BG plc

Signed for and on behalf of:-
[]

Signature:.....

Signature:

Name:.....

Name:.....

Position:.....

Position:.....

ANNEX A
CONNECTION FACILITIES

[To include line diagrams showing points of connection; description of each Operator's offtake and delivery facilities; measurement and metering facilities, calorimeter and non-return valves etc]

ANNEX B: FLOWS

Contents

Annex B1: General and interpretation

Annex B2: Flow profiles, rate changes, etc

ANNEX B-1: GENERAL AND INTERPRETATION

1. Scope

This Annex B sets out provisions applying in respect of the CSEP and the offtake of gas from the System for delivery to the Storage Facility and the input of gas to the System from the Storage Facility.

2. Interpretation

Unless expressly otherwise provided, references in this Agreement to rates of offtake or input of gas are to the instantaneous rate of such offtake or input from or to the System, and a reference to rate of offtake or input is to such rate of offtake or input, in aggregate by all System Users, from or to the System at the CSEP or SEP respectively. Reference to a flow of gas is to an offtake or input of gas as the case may be.

[3. CSEP Ancillary Agreement

3.1 The Storage Operator acknowledges that it has received a copy of the CSEP Ancillary Agreement; and Transco agrees to provide a copy of any revision thereof promptly upon such revision being made.

3.2 It is acknowledged that (except as provided in paragraph 3) the provisions which would otherwise be contained in this Agreement (as the CSEP Network Exit Agreement) are contained in the CSEP Ancillary Agreement pursuant to Section J5.9.3 of the Network Code.]

4. Certain Network Exit Provisions

4.1 For the purposes of Section J5.8.1(i), the points of offtake at the CSEP comprise the points marked SCP shown in Annex A.

4.2 For the purposes of Sections J5.8.1(ii) and (iv):

- (a) the provisions of Annex D as to the measurement of flow (and determination of volume) and the determination of calorific value of gas offtaken shall apply;
- (b) Annex D specifies the measurement equipment which is (and is required to be) installed at the CSEP.

ANNEX B-2
FLOW PROFILES, RATE CHANGES, ETC

1. Pressure

1.1 For the purposes of Section J4.2.1(v) the Applicable Offtake Pressure (as at the date of this Agreement) is [25] bar gauge. {NB Pressure enhancement services may be available in exceptional circumstances on a site by site basis}

1.2 At the date of this Agreement the Storage Operator will be taken to have been advised that the anticipated normal offtake pressure (as defined in Section J2.2.3 of the Network Code) in respect of the Storage Connection Point is not less than [] bar gauge.

[Note: qualification or further definition may be appropriate for the ANOP depending on the prevailing local conditions in the System]

1.3 Transco shall advise the Storage Operator, not less than 36 months before such change, of any reduction in anticipated normal offtake pressure below [] bar (but without prejudice to the Applicable Offtake Pressure).

1.4 The point at which the pressure of gas made available for offtake from the System is to be determined is not the point of offtake but is as shown in the diagram in Annex A.

[1.5 At the date of this Agreement the pressure of gas available for offtake at the SCP could be less than [] bar in the following circumstances other than Excluded Offtake Circumstances (as defined in Section J3.2.2).]

[Notes: this paragraph deals with specified pressure as referred to in Section J2.2.1. It is optional and the circumstances (other than Excluded Offtake Circumstances) depend on the specific characteristics of the connection]

2. **Offtake and Input Rate Changes and Ramp Rates**

2.1 Not used.

2.2 The period of notice to be given to Transco of any change in the rate of flow (by a revised Storage Flow Notification) shall be as follows:

- (i) for an increase in offtake, or (subject to paragraph 2.3) a relevant cumulative increase in offtake, which exceeds 50% (fifty percent) of the maximum instantaneous offtake rate as set out in paragraph 3.1 not less than four (4) hours;
- (ii) for an increase in offtake, or (subject to paragraph 2.3) a relevant cumulative increase in offtake, which exceeds 25% (twenty five per cent) of the maximum instantaneous offtake rate as set out in paragraph 3.1 but does not exceed 50% (fifty percent) of the maximum instantaneous offtake rate as set out in paragraph 3.1 not less than two (2) hours;
- (iii) for an increase in offtake, or (subject to paragraph 2.3) a relevant cumulative increase in offtake, which does not exceed 25% (twenty five per cent) of the maximum instantaneous offtake rate as set out in paragraph 3.1 not less than one (1) hour;
- (iv) for a decrease in input or a decrease in offtake and/or an increase in input, not less than one (1) hour.

2.3 For the purposes of this paragraph 2 a relevant cumulative increase or decrease is the aggregate increase or decrease in rate of offtake or input under any two or more connected changes of the rate of flow, for the purposes of which two changes are connected where notice of the second-notified change is required (in accordance with paragraph 2.2) to be given before the first-notified change has occurred.

2.4 The tolerance within which the rate of offtake or input may deviate from the Prevailing Offtake or Input Rate without the requirement for notice under paragraph 2.2 is +/- 3%

2.5 For the purpose of ramp rates:

- (a) except as provided in paragraph (b), the rate of increase of the rate of offtake shall not exceed fifty (50) MW/minute [Note: it may be possible to accommodate higher rates subject to Network and engineering analysis];
- (b) on each occasion on which the rate of offtake increases from zero, the rate of increase of the rate of offtake during the first two (2) minutes from the time at which offtake commences shall not exceed one hundred (100) MW;
- (c) the rate of decrease of the rate of offtake shall not exceed fifty (50) MW/minute.

2.6 In the event of a failure of either Operator's Facilities

- (a) the requirements under paragraphs 2.2(iv) and 2.5(c) do not apply;
- (b) notice under paragraph 2.3 is not required in respect of any increase in the rate of offtake or input which is completed within a period of sixty (60) minutes after, and results in a rate of offtake or input not exceeding the Prevailing Offtake Rate or Prevailing Input Rate immediately before, the occurrence of such event.

3. Offtake and Input Rates

3.1 The maximum instantaneous offtake rate shall not exceed [] kWh/day.

3.2 In the event that the Flow Rate required to achieve the Storage Operators' Expected End of Day Quantity is less than [] kWh/day for input then the Storage Operator will notify Transco as soon as is reasonably practicable and the Operators will

cooperate in defining mutually acceptable flow rates. Any SFN issued by the Storage Operator relating to such a Gas Day will define the flow profile accordingly. The conversion from gas volumes to energy quantity in paragraphs 3.1 and 3.2 of this Annex B-2 is based on an assumed gross calorific value of [36.9] MJ/m³.

- 3.3 The Prevailing Offtake Rate is that flow which will offtake the Expected End of Day Quantity at a constant rate over the 24 hour period or, following a revised SFN, the remainder of the day to 0600 hours.
- 3.4 The Prevailing Input Rate is that flow which will input the Expected End of Day Quantity at a constant rate over the 24 hour period or, following a revised SFN, the remainder of the day to 0600 hours.

ANNEX C GAS QUALITY PROVISIONS

Contents

Annex C1: General

Annex C2: Gas Entry Conditions

ANNEX C-1 GENERAL

1. **Scope**

This Annex C sets out provisions applying in respect of the SEP and the delivery of gas (withdrawn from the Storage Facility) to the System.

2. **Interpretation**

In this Annex C the following terms shall have the following meanings:

“Entry Gas”: gas delivered or tendered for delivery to the System at the SEP;

“Gas Entry Conditions”: the gas entry conditions contained in Annex C-2;

“Network Entry Provisions”: the network entry provisions set out in paragraph 3.

3. **Network Entry Provisions**

3.1 For the purposes of the Code, the Network Entry Provisions applicable in respect of the SEP shall be as set out in this paragraph 3.

3.2 The Connected Delivery Facility is the Storage Facility (as referred to in part in Annex A).

3.3 The Individual System Entry Points comprised in the SEP are as referred to in Annex A.

3.4 The Gas Entry Conditions are as specified in Annex C-2.

3.5 The Measurement Provisions are as specified in Annex D .

3.6 The points of delivery at the SEP comprise the points marked [SCP] shown in Annex A.

- 3.7 Local Operating Procedures for the SEP are included (combined with local operating procedures for the CSEP) in the Storage Local Operating Procedures.
- 3.8 Any other provision of this Agreement, insofar as (i) relating to the delivery of gas to the System at the SEP, and (ii) falling within the permitted scope of Network Entry provisions pursuant to Section I2.3.3, shall be a Network Entry Provision.

ANNEX C-2 GAS ENTRY CONDITIONS

1. These Gas Entry Conditions apply at the Storage Connection Point to gas that is delivered at the Storage Connection Point to the System.

All gas delivered to the System from the Storage Facility shall be in accordance with the following values:

- | | |
|---------------------------------|--|
| (a) Hydrogen Sulphide | not more than 5 mg/m ³ . |
| (b) Total Sulphur | not more than 50 mg/m ³ . |
| (c) Hydrogen Content | not more than 0.1 mole%. |
| (d) Oxygen Content | not more than 0.2 mole%. |
| (e) Impurities | Gas delivered to the System from the Storage Facility shall not contain any solid, liquid or gaseous material which would interfere with the integrity or operation of the System or any pipeline connected to such system or any appliance which a consumer might reasonably be expected to have connected to the System. |
| (f) Hydrocarbon Dewpoint | not more than -2°C at any pressure up to the delivery pressure provided in paragraph (q). |
| (g) Water Content | not more than 50 mg/m ³ nor such as would cause a water dewpoint more than -10°C at the delivery pressure provided in paragraph (q). |

- (h) **Wobbe Number** shall have a lower limit more than or equal to 48.14 MJ/m³, and an upper limit less than or equal to 51.41 MJ/m³.
- (i) **Incomplete Combustion Factor (ICF)** not more than 0.48.
- (j) **Sooting Index** not more than 0.60.
- (k) **Odour** where gas is delivered to the Transco National Transmission System it shall have no odour that may cause Transco to fail to meet its obligation under Schedule 3 of the Gas Safety (Management) Regulations 1996 (unless the same has been introduced by Transco). Where gas is delivered to the Transco Local Distribution System it shall be odourised as follows: with odourant NB (80% tertiarybutyl mercaptan, 20% dimethyl sulphide), and the odourant injection rate will be 6 mg/scm and may be varied at Transco's request by up to plus or minus 2 mg/scm to meet operational circumstances.
- (l) **Carbon Dioxide** not more than [2.0] mole%.
- (m) **Nitrogen** not more than [5.0] mole%.
- (n) **Total Inerts** not more than [7.0] mole%.
- (o) **Calorific Value** [shall be within 0.5 MJm³ of a target calorific value provided by Transco. The range of CV's is expected to be in the range 36.9 to 42.3

MJ/m³. CV is to be expressed as the real, gross value.]

- (p) **Delivery Temperature** shall be between [1°C and 38°C.]
- (q) **Pressure** shall be that required to deliver gas into the Transco system taking account of the back pressure as the same shall vary from time to time. The delivery pressure shall not exceed [85] bar gauge.

Note (a) to (q) inclusive - These entry conditions will continue to be subject to future modification by agreement of the Parties' Duly Authorised Representatives to ensure compliance with any relevant statutory gas safety requirement.

Note (a) to (k) inclusive - These limits are determined from the Gas Safety (Management) Regulations 1996 and are not subject to negotiation, and see additional notes (h), (f) and (g).

Note (l) to (q) inclusive - These limits are defined by Transco for entry of gas at the specified connection point. Contract limits are subject to agreement.

Note (b) - Total Sulphur is assessed as the amount of elemental sulphur contained within the gas.

Note (h) - The actual limits are dependent on compliance with the GS(M)R Schedule 3 gas composition/safety envelop and local circumstances. The lower limit is consistent with Transco's Network Entry Quality Specification.

Note (i) and (j) - Incomplete combustion factor (ICF) and Sooting Index (SI) have meanings as defined in Schedule 3 of the Gas Safety (Management) Regulations 1996.

Note (f) and (g) - These "prescriptive" hydrocarbon dewpoint and water dewpoint figures are the practical working limits recognised by Transco as being at such levels that they comply with the "descriptive" statutory safety requirement, within the Gas Safety (Management) Regulations 1996, not to interfere with the integrity or operation of pipes or any gas appliance which a consumer could reasonably be expected to operate. A gas appliance is within the meaning of regulation 2(1) of the Gas Safety (Installation and Use) Regulations 1998;

[2. Where gas is offtaken at the SCP outside the Gas Entry Conditions set out in paragraph 1 of this Annex C-2 then:-

(a) where such gas is within the limits referred to in Schedule 3 of the Gas Safety (Management) Regulations 1996 ("GSMR") the Gas Entry Conditions in respect of such gas will be the GSMR limits; and

(b) where gas is outside the GSMR limits, Transco shall as soon as reasonably practicable allow the input of such gas to the System by such means as the parties may reasonably agree provided that nothing in this subparagraph 2 (b) shall require Transco to act or omit to act in contravention of its statutory obligations (including, without limitation, its obligations under GSMR).]

ANNEX D MEASUREMENT PROVISIONS

[These Measurement Provisions set out the requirements for the measurement, calculation and communication of the calorific value, volume and energy flow of gas transfer to and from the Storage Facility and of the gas quality values which comprise the Gas Entry Conditions.]¹Requirements (if any) arising from an agreed change in the Transportation Charging methodology in respect of the SCP shall be accommodated.

Part 1

1. Definitions

In this Annex:

“Measurement System” means the Meters and the Gas Analysis Equipment and any other instrumentation and communication system used to determine and communicate the volume or energy flow and quality of gas at the SCP installed in respect of the SCP at which all gas shall be measured or analysed in accordance with the terms of this Agreement, prior to entry into or after exit from the System;

“Permitted Range” means the range of uncertainty levels (for any characteristic) specified in column 4 of Table 2 in Annex D;

“Meters” means [define]² installed in respect of the SCP as shown in Annex A;

“Gas Analysis Equipment” means the measurement equipment for measuring quality of gas to be installed in respect of the SCP as shown in Annex A;

1

² The description of the meters and metering system is a matter for specific SCAs.

GENERIC STORAGE CONNECTION AGREEMENT DRAFT DATE: 01.11.22

2. General

2.1 The quantity and quality (including calorific value) of gas offtaken from or delivered to the System at the SCP shall be determined by the Measurement System corrected to metric standard conditions and reported, in respect of volume, as Cubic Metres of gas and, in respect of calorific value, as megajoules per Cubic Metre (MJ/m³).

2.2 The Storage Operator shall be responsible for the design installation, calibration, operation, maintenance and repair of the Measurement System.

2.3 Other Measurements

2.3.1 Where the flow of gas falls under the requirements of Section 12 of the Gas Act the Storage Operator shall make provision for the Public Gas Transporter to meet any additional requirements for measurement to satisfy the Gas (Calculation of Thermal Energy) Regulations 1996 (as amended).

2.3.2 Where Transco reasonably demonstrates that the Storage Operator is not complying with the Gas Safety (Management) Regulations 1996 [(save in circumstances where such non-compliance is as a result of an agreement made between the Operators under paragraph 2(b) of Annex C-2)]³, the Storage Operator shall provide such access, space and services as Transco may reasonably require to allow Transco to install, commission, operate and maintain equipment to determine the CV or quality (as the case may be) of the gas.

2.3.3 Where measurements are made by Transco under sub-paragraphs 2.3.1 or 2.3.2, repeat signals of the measurements for custody transfer or compliance with gas quality conditions under Annex C-2, shall be made available to the Storage Operator if requested, from the analysis equipment. For the

³ Depends whether the Storage Facility can return the gas in the same state as it was oftaken.

avoidance of doubt such provision is without prejudice to any other provisions of Annex D.

2.4 Design and Validation of Measurement System

2.4.1 Measurement System Design

If so requested by the Storage Operator Transco may (but is not obliged to) make comments on and/or discuss with the Storage Operator any designs for the Measurement System.

2.4.2 Measurement System Validation

Transco will accept the Measurement System for custody transfer and flow of gas once the Measurement System has been validated to demonstrate that the characteristics of gas in Table 2 can be reliably measured and communicated to Transco across the measurement range to the uncertainty levels set out in column 4 of Table 2 in accordance with procedures in respect of such validation that have been agreed with Transco which satisfy industry standards where practicable (“Validation” which term shall include revalidation for the purposes of paragraph 4 hereof). Transco shall have the right to witness such validation and the Storage Operator, or their nominated representative shall give reasonable notice to Transco of such validation.

3 Uncertainty

3.1 The total uncertainty in the measurements of the energy flow and gas quality characteristics provided to Transco by the Measurement System shall in all steady-state flow conditions be within the Permitted Range or as agreed pursuant to paragraph 3.4 for Low Flow Gas.

3.2 The methods used for the determination of uncertainties in the measurement of volume flow rates in the calculation of the total uncertainty in the measurement of

energy flow rates referred to in paragraph 3.1 shall be agreed between Transco and the Storage Operator and will satisfy relevant industry standards.

3.3 The methods specified in accordance with the validation procedures, to be agreed between Transco and the Storage Operator, shall be used for the determination of uncertainties in the measurement of gas quality characteristics referred to in paragraph 3.1.

3.4 The parties shall agree (such agreement not to be unreasonably withheld or delayed) a methodology for estimating Low Flow Gas in respect of the Storage Facility. In the event that the parties cannot agree within a reasonable time period then either party may refer the matter to an Expert in accordance with Clause 13 of this Agreement.

4 **Revalidation**

4.1 Transco shall have the right to witness the revalidation of the Measurement System. The Storage Operator shall ensure that the Measurement System is revalidated no less frequently than once every [6]⁴ months. The Storage Operator shall keep Transco informed of the procedures and schedules for such revalidations.

4.2 Transco may request that the Measurement System be revalidated at any time in which case any such revalidation shall be carried out as soon as reasonably practicable. The costs and expense of such revalidation, shall if such Measurement System is found to read within the Permitted Range be paid by Transco and in any other case by the Storage Operator. The Storage Operator shall pay the cost and expenses of any adjustment or replacement of relevant components made as a result of any revalidation made pursuant to this paragraph 4.2.

4.3 Subject to paragraph 4.6 the Storage Operator may at its own expense undertake revalidation of the Measurement System and may adjust or replace the components of the Measurement System also at its own expense at any time.

- 4.4 Immediately following revalidation pursuant to paragraphs 4.1, 4.2, or 4.3 the relevant individual components shall be adjusted or replaced as necessary so that the Measurement System reads centrally within the Permitted Range.
- 4.5 Where the Measurement System is found when so revalidated to read outside the Permitted Range for energy flow then:
- (a) for the purposes of calculating any sums due to or from System Users the gas flows during the period since the last revalidation shall be recalculated on the basis that the whole of the error applied to latter half of that period or as otherwise agreed between the Parties (except in the case where it is proved that the Measurement System began to read outside such Permitted Range on some other date or during such other period as agreed by Transco and the Storage Operator when the flows shall be recalculated from that date or in respect of that period);
 - (b) for the purposes of paragraph (c), the quantities read as offtaken from the System on each Day during the period when the Measurement System is assumed to have read outside such Permitted Range shall be adjusted by an amount as agreed by Transco corresponding to the amount by which the Measurement System was found on revalidation to read outside such Permitted Range;
 - (c) in connection only with the CSEP:
 - (i) the amount by which the quantity determined to have been offtaken on any Day differs from the quantity originally determined to have been offtaken on such Day pursuant to any revalidation or resolution of any dispute in relation thereto shall be the “Aggregate Daily Reconciliation Quantity” in respect of the CSEP on such Day;

⁴ May vary depending on the metering system and any relevant industry standards

- (ii) the Aggregate Daily Reconciliation Quantity shall be negative where the Measurement System was found on revalidation to have over-read, and positive where they were found to have under-read;
 - (iii) the provisions of the Network Code in respect of CSEP Reconciliation (including any charges payable as a consequence of the application of such provisions) shall apply in relation to the Aggregate Daily Reconciliation Quantity.
- 4.6 Any revalidation pursuant to this paragraph 4 shall be conducted by the Storage Operator and the Storage Operator shall give reasonable advance notice of such revalidation to Transco who shall be entitled to be present. The Storage Operator shall provide a revalidation report to Transco within fourteen (14) Days of any revalidation stating the results of such revalidation.
- 4.7 The results of any revalidation conducted by the Storage Operator shall be binding on the Storage Operator and Transco (and on all Transco Shippers and Storage Users), unless Transco shall within fourteen (14) Days after receiving the revalidation report specified in paragraph 4.5 give notice to the Storage Operator that it disputes the accuracy of such revalidation. Transco shall not be entitled to dispute the accuracy of such revalidation solely on the grounds that it did not attend such revalidation.
- 4.8 At the request of either the Storage Operator or Transco, the Storage Operator and Transco shall meet and discuss and endeavour to settle any dispute or failure to agree arising from the application of the provisions of this paragraph 4 and if within thirty (30) Days after such request they shall have been unable to agree the matter may be referred to an Expert for determination (at the request of either the Storage Operator or Transco).

5 **Inspection Rights**

Transco shall have the right, not more frequently than 6 monthly and upon not less than thirty (30) days prior written notice to the Storage Operator, to inspect the Storage Operator's Measurement System and the charts and other measurements or test data relating to the Measurement Systems. The reading calibration and adjustment of the Measurement System and the changing of any charts shall be carried out by the Storage Operator who shall preserve all original test data, charts and other similar records for a period of three (3) years and shall make such records available to Transco for inspection upon request. Transco shall procure that the persons carrying out such inspection shall not disclose any information discovered during the course of such inspection other than to Transco.

6 **Modifications**

The Storage Operator shall provide reasonable notice to Transco of any intended modifications to the Measurement System which may affect the measurement of the flow or quality of gas at the SCP. Transco shall accept the Measurement System (as modified) for flow of gas once the Measurement System (as amended) has been Validated (as appropriate).

7 **Communications Interface**

The Storage Operator shall agree with Transco a compatible design and install, commission, operate and maintain equipment to provide signals to Transco of type, quality and quantity to be agreed between Transco and the Storage Operator. The requirement as agreed at the date hereof is:⁵

Table 1 - Operational Interface

⁵ The need for real-time monitoring depends on the ability of the Storage Facility to affect gas quality. There is, however, a minimum set of real time measurements that Transco requires of every Storage Facility which is shown in bold in the table. Other possible monitoring is shown bracketed in normal text. Non real-time monitoring will be agreed depending on the nature of the storage facility and the perceived risk of non-GSMR gas flowing into the System.

Calorific Value
Relative Density
Instantaneous Standard Volume Flow [offtake and entry]
Instantaneous Standard Energy Flow [offtake and entry]
Integrated Standard Volume Flow [offtake]
Integrated Standard Volume Flow [entry]
Integrated Standard Energy Flow [offtake]
Integrated Standard Energy Flow [entry]
Metering System Fault
Gas Quality Alarm
[Sulphur]
[Hydrogen Sulphide]
[Oxygen]
[Hydrogen]
[Hydrocarbon Dewpoint]
Water [Dewpoint or Content + information to calculate same]
[Wobbe Number]
[Incomplete Combustion Factor]
[Sooting Index]
[Carbon Dioxide Content]
[Nitrogen Content]
[Gas Temperature]
[Gas Pressure Alarm]
[Flow Direction] [If bi-directional metering]
[No flow indicator] [If required to demonstrate no gas offtake]
[Data components for signal reconstruction in support of reconciliation processes where the measurement system has failed]

Transco shall maintain and operate a system at the Transco Connection Facility to receive signals from the Storage Operator and may locally store or retransmit the measurement information. Signals obtained from the Transco connection may be made available to the Storage Operator with the consent of Transco [(including a

signal to indicate the valve position of Transco's remotely operated valve in respect of the SCP).]⁶

⁶ If required by the Storage Operator

Part 2 - Measurement Failure

- 1 If during any part of any Day the Measurement System is not adequately operational (including, without limitation, where the Measurement System reads or has read outside the Permitted Range), the quantity and quality of gas delivered to, or as the case may be offtaken from, the System at the SCP during such time will be deemed to be such quantity and quality as may be agreed between the Storage Operator and Transco, in both cases acting reasonably using alternative measurements for the derivation of such quantity and quality of gas where possible. In the event that the parties cannot agree alternative measurements then paragraphs 2 or 3 below (as appropriate) shall apply.

- 2 In the event of failure of the Measurement System recourse to any available evidence should be made to manually determine flow through the meter. If no quantity is agreed by the Entry or Exit Close-Out Date (as appropriate) then:
 - (i) subject to paragraph (ii), the quantity of gas delivered or offtaken shall be assumed to be equal to the quantity which was delivered or offtaken on the same Day in the preceding week;

 - (ii) in relation to each of the first Days (on or after the Effective Date) on which gas is offtaken, and is delivered, from or to the System, and (in each case) each of the following 6 Days, the quantity of gas delivered or offtaken shall be the quantity determined by Transco.

- 3 In the event of Gas Analysis Equipment failure, spot samples shall be taken and analysed at any approved laboratory with sufficient frequency to monitor properly changes in operating conditions. The method and equipment used and installed for taking samples shall be subject to reasonable agreement by Transco and the Storage Operator (such agreement not be be unreasonably withheld or delayed).

Part 3 - Measurement System Uncertainty

TABLE 2 - MEASUREMENT UNCERTAINTIES⁷The uncertainties will be such that the risk of the Storage Operator and Transco flowing gas into the System that they are both unaware is outwith the Gas Safety (Management) Regulations 1996 Schedule 3 is minimal.

Characteristic	Unit	Measurement Range	Uncertainty
Volume Flow Rate	m ³ /hour	[] [offtake] [] [entry]	±1% of flow
Energy Flow Rate	MJ/hour	[] [offtake] [] [entry]	±1.1% of flow
Gas Pressure	barg	0 - [75]	±[0.5]
Gas Temperature	°C	0 - [40]	±[1]°C
Hydrocarbon Dewpoint	°C at 27 bar	-[60 - + 20]°C	±[2]°C
Water Dewpoint OR Water Content	°C mg/m ³	-[30 - + 10]°C	±[2]°C
Oxygen	mole%	[0 - 0.25]	±[0.01]
Carbon Dioxide	mole%	[0 - 5]	±[0.1]
Hydrogen Sulphide (Including COS)	mg/m ³	[0 - 6]	±[1]
Total Sulphur	mg/m ³	[0 - 60]	±[1]
Incomplete Combustion factor		[-3 - + 2]	±[0.02]
Soot Index		[0 - 1]	±[0.02]
Inert Gases (including Carbon Dioxide and Nitrogen)	mole%	[1 - 10]	±[0.1]
Nitrogen	mole%	[1 - 10]	±[0.1]
CV	MJ/m ³	[35 - 44]	±0.1 MJ/m ³
Relative Density		[0.5 - 0.8]	±[0.01]
Wobbe	MJ/m ³	[45 - 55]	±[0.1]

- 1 For the avoidance of doubt, the maximum hourly flow rate in Table 2 is quoted in respect of volume, as Cubic Metres of gas and, in respect of energy, in megajoules (MJ) both as defined in Annex G. Such rate does not constitute for the purposes of the Network Code or otherwise an indication of the available capacity in respect of the Storage Connection Point.

ANNEX E

**PART I
STORAGE NOMINATION ARRANGEMENT**

[To be agreed by the parties if required]

**PART II
DEFAULT FLOWS**

[To be in accordance with Section E 1.10.4 unless otherwise agreed]

ANNEX F
COMMISSIONING ARRANGEMENTS

- [1. The parties shall (each acting reasonably) agree in writing the process of commissioning within a reasonable time prior to the start of such commissioning. Such process shall include an agreed methodology for calculating the quantity of gas offtaken during commissioning.]

- [2. The Storage Operator shall give [5] days notice to Transco of the start of the commissioning and (unless otherwise agreed as part of the process of commissioning agreed between the parties under paragraph 1 above) the Storage Operator shall notify Transco as soon as reasonably practicable and in any event within [24]hours of the date on which the commissioning is completed.]

- [3. The Storage Operator shall provide an SFN to Transco no later than 17:00 on D-1 in respect of each day of commissioning . The parties shall agree, acting reasonably, the pressure, temperature, volume and CV of gas offtaken on each such day and the quantity of gas offtaken from the System at the SCP on each such day will be deemed to be the quantity derived from such agreed data.]

[Further details may be agreed between the Operators]

ANNEX G

TECHNICAL INTERPRETATION

In this Agreement the following terms have the following meanings:

“**bar**”: the bar as defined in ISO 1000-1992(E);

“**calorific value**”: that number of MJ's produced by the complete combustion at a constant absolute pressure of 1.01325 bar of 1 Cubic Metre of gas at a temperature of 15°C with excess air at the same temperature and pressure as the gas when the products of combustion are cooled to 15°C and when the water formed by combustion is condensed to the liquid state and the products of combustion contain the same total mass of water vapour as the gas and air before combustion; and for the avoidance of doubt calorific value shall be REAL as defined in ISO 6976-1:1995(E);

“**Cubic Metre**” or “**m³**”: when applied to gas, that amount of gas which at a temperature of 15°C and an absolute pressure of 1.01325 bar and being free of water vapour occupies one 1 cubic metre;

“**C**”: the particular interval between the temperature in Kelvin and the temperature 273.15 Kelvin as defined in ISO 1000-1992(E);

“**gauge**”: when used in relation to pressure, the pressure in excess of 1 standard atmosphere where 1 standard atmosphere is 1.01325 bar;

“**hour**”: the hour as defined in ISO 1000-1981(E);

“**Joule**”: the joule as defined in ISO 1000-1992(E);

“**kWh**”: 3,600,000 Joules;

“**MJ**”: 1,000,000 Joules;

“**metre**”: the metre as defined in ISO 1000-1992(E);

“**Mole**”: the molecular weight of a component in the respective mass units;

“**mole%**”: molecular percentage the ratio of the number of Moles of a particular component in a mixture of the total number of Moles present multiplied by one hundred per cent (100%) ;

“**ppm**”: parts per million by volume;

“**Relative Density**”: shall mean the mass of a volume of dry gas divided by the mass (expressed in the same units) of an equal volume of dry standard air as defined in ISO 6976-1:1983(E) both such gases being at a temperature of 15°C and an absolute pressure of 1.01325 bar; and Relative Density (REAL) shall for the avoidance of doubt be REAL as defined in ISO 6976-1:1995(E):

“**second**”: the second as defined in ISO 1000-1992(E);

ANNEX H

STORAGE LOCAL OPERATING PROCEDURES

This Annex sets out the Storage Local Operating Procedures between Transco and the Storage Operator for the Operation of the Storage Facility connected to [].

1. Introduction
2. Routine Notifications
3. Confirmation of gas quantities delivered at the System Entry Point.
4. Other Notifications/Communications
5. Information Related to the Local Security of the Connected Delivery Facility and the System

Schedules to Local Operating Procedures:

- A. Schematic diagram of the connection between the Facilities
- B. Storage Flow Notification “SFN” - Proforma Facsimile
- C. Transportation Flow Advice or “TFA” - Proforma Facsimile
- D. Communications
- E. End of Day Quantity and CV Notification.

1. **Introduction**

This document sets out Local Operating Procedures between the Storage Operator and Transco for the provision of gas flow related information to each other so as to facilitate the safe and efficient operation of the System and the Storage Facility.

Words and phrases used in this document shall bear the same meanings as in the Storage Connection Agreement relevant to the Storage Facility except where the context requires otherwise. In the event of any inconsistency between the provisions of these Local Operating Procedures and the said Storage Connection Agreement, the Storage Connection Agreement will prevail.

In these procedures the following terms shall have the following meanings:

“Gas Day” means “Gas Flow Day” as defined in the Network Code;

“Gas Day D-1” means the Day preceding the relevant Gas Flow Day;

“Expected Flow Rates” means the rates (in million m³/hour) of gas that the Storage Operator expects to flow at the SCP for each remaining hour of a Gas Day;

"End of Day Quantity" means the amount of gas flowed at the SCP in respect of a Gas Day;

“Expected End of Day Quantity” means the amount of gas the Storage Operator expects to flow at the SCP in respect of a Gas Day.

2. **Routine Notifications**

2.1 Notices

Notices given by the Storage Operator to Transco in accordance with these procedures will be made to the Transco shift representative at System Operation as set out in Schedule D (the "Transco Shift Representative").

Notices given by Transco to the Storage Operator in accordance with these procedures will be made to the Storage Operators nominated representative ("the Storage Facility Representative").

The telephone, facsimile numbers and the addresses for service of the Operators are set out in Schedule D. In the event of either telephone or facsimile number or other details being changed the Operator whose number or details are subject to such change shall notify the other Operator as soon as it is reasonably practicable and in any event in advance of such changes taking place.

2.2 Daily Notifications of gas Expected Flow Rate, Calorific Value and Expected End of Day Quantity.

The Storage Operator will notify Transco at the earliest practicable opportunity but no later than 1700 hours on Gas Day D-1 of the Expected Flow Rates and Expected End of Day Quantity and its good faith estimate of the calorific value of the natural gas that is estimated will be input or offtaken on the Gas Day.

The notification will be the Storage Flow Notification ("SFN") and will be sent by facsimile or other approved means by the Storage Operator to the Transco Shift Representative.

The SFN shall be in a form substantially similar to the pro forma set out in Schedule B.

2.3 Re-notification of natural gas Expected Flow Rate, Calorific Value and Expected End of Day Quantity.

2.3.1 On Gas Day D-1

- (i) Before a Gas Day commences the Storage Operator will, as soon as is reasonably practicable following the time at which it is made aware of any changes requiring an update to the SFN, notify the Transco Shift Representative of any such changes in the Expected Flow Rate as exceed the relevant tolerances (as defined in paragraph 2.4 of Annex B-2). Any revision to an SFN will be provided in the form of additional information on a copy of the SFN or as otherwise agreed by Transco and the Storage Operator. Notification of such change will be made by facsimile or other agreed means.

The revised Expected Flow Rate on the SFN will indicate when the change is likely to take effect and will show the Expected End of Day Quantity that is estimated will be input or offtaken on that Gas Day with an estimate of the calorific value.

- (ii) In the event that Transco receives a notice under Paragraph 2.2 or 2.3.1 (i) specifying an Expected Flow Rate for input which Transco reasonably anticipates that the System will be unable to accommodate, then Transco will advise the Storage Operator in accordance with Paragraph 4.4 below.

2.3.2 Within a Gas Day

- (i) Within a Gas Day the Storage Operator will, subject to the relevant tolerances, notify Transco by way of revised SFN of any changes to the Expected End of Day Quantity and/or Expected Flow Rate and/or the estimated calorific value of such natural gas, as soon as is reasonably practicable following the time at which it is made aware of such changes. The Storage Operator may provide the reason for the change in such detail as the Storage Operator may decide. Notification will be made by facsimile or other agreed means. The revised completed SFN will indicate the revised Expected Flow Rate (showing when the change is likely to take effect). This will be subject to the notice periods in Annex B2 of the SCA. The revised SFN will also indicate the revised Expected End of Day Quantity and a good faith estimate of the calorific value for the remainder of Gas Day D.
- (ii) In the event that Transco receives a notice under Paragraph 2.3.2(i) specifying an Expected Flow Rate for input which in Transco's reasonable opinion (taking into account any information provided by the Storage Operator of the reason for the change of flow rate) the System will be unable to accommodate, it will as soon as is reasonably practicable so advise the Storage Operator in accordance with Paragraph 4.4 below.

In the event that the actual flow rate is in excess of the Expected Flow Rate then Transco may as soon as is reasonably practicable so advise the Storage Operator in accordance with Paragraph 4.4 below.

- (iii) Variations to the Expected Flow Rate accepted by Transco will be effective from a time specified by the Storage Operator, however, the actual flow rate may change before or after the Exact Hour. This will be subject to the notice period in Annex B-2 of the SCA.

3. **Confirmation of Natural Gas Quantities Delivered and/or Offtaken at the Storage Facility**

3.1 Within Gas Day Natural Gas End of Day Quantity

The Transco Shift Representative will contact the Storage Facility Representative, by telephone from time to time as reasonably required with a view to avoiding any disparities between the End of Day Quantity, calorific value and volume of natural gas delivered and/or offtaken by the Storage Facility during the Gas Day and those notified to Transco.

- 3.2 In respect of each Gas Day, the Storage Operator will provide to Transco a best estimate of the End of Day Quantity determined in accordance with Annex D (Measurement Provisions) and the calorific value by telemetry or other agreed means no later than 0800 hours on Gas Day D+1. The Storage Operator will notify Transco of any revision made to the End of Day Quantity and calorific value in accordance with Annex D.

- 3.3 The EOD Quantity and calorific value shall be in a form substantially similar to the proforma set out in Schedule E or such other form as maybe agreed by Transco and the Storage Operator.

4. **Other Notifications/Communications**

4.1 General Communication

Subject to either Operator's duty of confidentiality to any third party the Storage Facility Representative and the Transco Shift Representative will at all times keep each other informed of all matters likely to have, or which are already having, a significant effect on gas flow, pressure or quality at the Storage Connection Point. Both Operators will use reasonable endeavours to give as much notice to the other as possible.

Upon an unforeseen change in gas flow, pressure or quality, the Storage Facility Representative or Transco Shift Representative shall inform the other of the nature and estimated duration of the change as soon as reasonably practicable.

4.2 Planned Flow Changes due to Maintenance Procedures

Representatives of Transco System Operation and the Storage Operator will liaise in November and May of each year (or as may otherwise be agreed) to discuss and where practicable co-ordinate their respective planned maintenance programmes, emergency shut down tests, new supplies and changes to existing supplies, pipeline operations and procedures associated with these activities and any other relevant information to assist the integrity and safety of the Storage Facility and the System. If there is any need to have a specific flow profile both Operators will make reasonable efforts to accommodate the requirements of the other. The maintenance related flow profiles will subsequently be detailed on the SFN in accordance with Paragraph 2.

Where Transco is carrying out such planned maintenance, it will endeavour to ensure that the availability of gas for offtake from the System at the CSEP is not reduced by more than is reasonably necessary for or results from the

carrying out of such maintenance, and in particular is not wholly discontinued unless the total suspension of availability of gas for offtake from the System is necessary to enable Transco to comply with a Legal Requirement, or otherwise is not practically avoidable.

4.3 Gas Quality Variations

- (a) The Operators recognise that within the gas quality requirement set out in Annex C2 of the Storage Connection Agreement ("the Gas Entry Conditions") there may be variations of the gas quality.
- (b) In the event that Transco or the Storage Operator reasonably identifies or anticipates any significant variations to the gas quality it will notify the other as soon as is reasonably practicable.
- (c) Without prejudice to any safety case obligation of Transco, if either party becomes aware, or reasonably anticipates that the gas being, or to be input, may fall outside the requirements set out in the Gas Entry Conditions and/or is in breach of any statutory gas safety requirement, including without limitation, schedule 3 of the Gas Safety (Management) Regulations 1996, then the relevant party will give the other as much notice as is reasonably practicable of such gas quality and the Storage Operator shall inform Transco as soon as reasonably practical by facsimile (or other agreed means) of the expected quality of the gas and the likely duration of this input. The Operators will then liaise and co-operate with each other regarding whether and at what level the continued flow of this gas will be acceptable to Transco.
- (d) [Save in circumstances where the Storage Operator delivers gas pursuant to paragraph 2 of Annex C-2] if gas is input that falls outside the gas quality requirements set out in the Gas Entry Conditions and/or is in breach of any statutory gas safety requirement, including without limitation, schedule 3 of the Gas Safety (Management) Regulations, then Transco may request a reduction in flow rate or a complete cessation of flow.

- (e) [Save in circumstances where the Storage Operator delivers gas pursuant to paragraph 2 of Annex C-2] following input of gas outside the gas quality requirements set out in the Gas Entry Conditions, and/or in breach of any statutory gas safety requirement, including without limitation, schedule 3 of the Gas Safety (Management) Regulations, the Operators shall co-operate in ensuring that gas being input to the System is brought within the above Gas Entry Conditions as soon as is reasonably practicable.

- (f) Furthermore, in the event of a failure or scheduled shut down of the Storage Facility and the subsequent restarting of the Storage Facility, Transco will use its reasonable endeavours to accept delivery of any gas at the Storage Connection Point during the recommissioning of the Storage Facility that for operationally justifiable reasons falls outside the requirements set out in the Gas Entry Conditions and in the event of a failure or scheduled shut down in the local Transco System and the subsequent restarting of the relevant equipment the Storage Operator will use its reasonable endeavours to re-establish normal operations. In such circumstances the Operators will liaise and co-operate with each other regarding the continued flow and acceptance of this gas by Transco at the Storage Connection Point to ensure that the gas entering and exiting from the System complies with the statutory gas safety requirements.

4.4 Transportation Flow Advice (TFA)

If in Transco's reasonable opinion, the System will be unable to accommodate any Expected Flow Rate to be input as notified on the SFN or the Actual Flow Rate, then Transco will as soon as is reasonably practicable following the time at which it is made aware, advise the Storage Operator by means of a Transportation Flow Advice (TFA) facsimile as set out in Schedule C. In so doing Transco will advise the Storage Operator as to the flow rates that it anticipates the System will be able to accommodate. Transco shall give a reason for its advice and advise the duration for which it may apply.

If in Transco's reasonable opinion, the System will be unable to accommodate the Expected End of Day Quantity as notified in the SFN, then Transco will as soon as is reasonably practicable, advise the Storage Operator both by telephone and by means of a TFA. Such TFA will advise Transco's reasonable estimate of the maximum flow rates that can be accommodated at the Storage Connection Point for the relevant period. Transco shall give a reason for its advice.

In the event that Transco seeks to reduce System User nominations as a result of its anticipating that it will be unable to accommodate any Expected Flow Rate notified on an SFN or the Actual Flow Rate in accordance with the Network Code, Transco will so inform the Storage Operator.

The Storage Operator may (but without being obliged to do so), after it receives a TFA, send Transco a revised SFN in accordance with paragraph 2 of this Annex H.

4.5 Minimum Flows

In the event that the Storage Operator's Expected End of Day Quantity is less than the level[s], for input, as set out in paragraph 3.2 of Annex B-2 or, for offtake, as agreed with Transco, then either Operator will notify the other Operator as soon as is reasonably practicable and the Operators will co-operate in defining mutually acceptable flow rates. Any SFN issued by the Storage Operator relating to such a Gas Day will define the flow profile accordingly.

4.6 Information Quality

If it becomes apparent over a period of time that the estimates of the changes to the SFN do not reasonably reflect the actual changes, then the Transco Shift Representative and the Storage Facility representative will meet to discuss the relevant data with a view to improving the accuracy of such estimates in future.

4.7 Ramp Rates

For the avoidance of doubt in the event that either Operator anticipates a significant change to the Actual Flow Rate then that Operator will notify the other Operator as soon as is reasonably practicable and the Operators will co-operate in defining mutually acceptable ramp rates.

5. **Information related to the Local Security of the Storage Facility and the System**

5.1 Arrangements to Safeguard the System

If there is an abnormal complete cessation of the flow from the Storage Facility, Transco may if required to safeguard the Transco System after discussion where practicable with the Storage Operator shut the necessary valves to the Storage Connection Facilities. When the Storage Facility is able to resume flows the Storage Facility Representative will telephone the Transco Shift Representative and confirm by facsimile or other agreed means that the Storage Facility is again capable of delivering and/or offtaking the Expected Flow Rate. Both Operators will then co-operate in returning to normal conditions as soon as practicable.

If in Transco's reasonable opinion the Storage Operator is flowing gas in excess of the flow rates advised by Transco in accordance with Paragraph 4.4, then Transco will advise the Storage Operator of any reduction that Transco may require to allow the actual maximum flow capacity of the System to be apportioned in such a manner as appears equitable to Transco acting reasonably and in good faith in its dealing with System Users to avoid reliance on high pressure safety trips, in accordance with the Network Code.

5.2 Unforeseen Cessation of Natural Gas Flow

In the event of an Emergency on the Transco System, Transco may close the necessary valves as required. Transco will as soon as is practicable inform the

Storage Facility Representative of the reasons and the likely duration of the Emergency.

In the event of an emergency at the Storage Facility requiring immediate cessation of supply, the Storage Facility Representative may close the Storage owned and operated valves. The Storage Operator will inform the Transco Shift Representative as soon as possible of the emergency, and may give the reasons therefor and, will if possible, estimate the likely duration of the emergency.

Such communications will be made as soon as is reasonably practicable.

- 5.3 The parties shall co-operate to facilitate the safe re-opening of the relevant valves following any closure pursuant to paragraphs 5.1 or 5.2 or otherwise.

SCHEDULE A
SCHEMATIC DIAGRAM
OF THE CONNECTION BETWEEN THE FACILITIES

Showing interconnections with the Storage Facility

[As per Annex A]

SCHEDULE B
PRO FORMA for STORAGE FLOW NOTIFICATION

TO INCLUDE:

- Expected instantaneous flows on an hour by hour basis
- End of day quantity and calorific value
- EODQ and instantaneous flow information in aggregate.

SCHEDULE C
TRANSPORTATION FLOW ADVICE

SCHEDULE D
COMMUNICATIONS

1. Transco Shift Representative

BG plc Transco

[

]

2. For information only
Grid Operations Controller
Transco Hinckley Operational Centre
Brick Kiln Street
Hinckley
Leicestershire LE10 0NA

Telephone: (Switchboard)
(Control Room)

Facsimile: (Office)
(Control Room)

2. Storage Facility Representative

SCHEDULE E

END OF DAY QUANTITY AND CV NOTIFICATION

ANNEX I
SAFETY INFORMATION REQUIRED

Part One - Information to be provided to Transco

The Storage Operator shall provide Transco with the following information:

- (a) on 1st May of each year (or the next following business day if 1st May is not a business day), details of:
 - (i) the quantity of Stored Gas contained in the Storage Facility at 1st May;
 - (ii) the Storage Operator's estimate of the quantity of Stored Gas which will be contained in the Storage Facility as at the following 1st November; and
 - (iii) the Storage Operator's estimate of the amount of gas, as a percentage of gas injected, to be used annually in connection with the operation of the Storage Facility;
- (b) such details of the quantity of Stored Gas contained in the Storage Facility as Transco may from time to time reasonably require; and
- (c) if reasonably required by Transco, a statement as to whether it is feasible (by reference to the injection capability of the Storage Facility) for injections to be made, by a time specified by Transco, which would result in the quantity of Stored Gas reaching a level specified by Transco.
- (d) for the purposes of paragraphs (b) and (c) above (but without limiting Transco's rights or the Storage Operator's obligations thereunder), the Operators agree that such details and statements as referred to in those paragraphs shall be reasonably required by Transco if they are required by Transco in relation to Emergency Steps (as defined in Section Q 1.3.1 of the Network Code) to be taken by Transco.

- (e) [such information as Transco shall reasonably require to enable it to ensure that the objective in Clause 6.2 is satisfied]

Part Two - Information to be provided to the Storage Operator

[To be agreed between the parties according to the Storage Operator's requirements but to include information to be provided by Transco to enable the Storage Operator to ensure that the objective in Clause 6.2 is satisfied]

**Appendix 2 Transco's Explanatory Note on Anticipated
Normal Offtake Pressures**

Transco

Explanatory Note

Anticipated Normal Offtake Pressures

1. Introduction

The Network Code sets out the types of pressure that Transco quotes and their relevance to the transportation service.

This Explanatory Note aims to clarify what the different types of pressure represent and how they are obtained on the National Transmission System (NTS) (primarily).

Anticipated Normal Offtake Pressures (ANOPs) are a concept which was introduced with the introduction of the Network Code in March 1996. The development of the UK Gas Industry has seen increasing numbers of connections to the high pressure system principally for power generation, chemical processes and connected systems such as Interconnectors and Storage facilities. This has resulted in more attention being focused on the pressures available from the Transco system, and how the Transco system is managed, because operators of connected installations seek to obtain maximum benefit for their operations.

Operators of gas-offtaking plant wish to avoid costs of installing and running gas compressors if they can obtain guarantees from Transco that the pressure of gas made available for offtake will not fall below the level required by their plant.

The minimum Applicable Offtake Pressure for the NTS is 25 bar. A Shipper can request a specified pressure higher than 25 bar and Transco will indicate whether this exceeds the anticipated normal offtake pressure and any caveats which may apply.

The perspective of the Public Gas Transporter's (PGT) obligations and duties needs to be considered when considering offtake pressures. These include:

- ◆ to address market needs for gas transportation;
- ◆ to provide safe, efficient, economic gas transportation;
- ◆ to avoid undue discrimination or cross-subsidy.

The regime for offtake pressures available for large connected loads has to balance aspirations of individual connecting parties, the potential impact this may have on other users of the gas transportation system and the need for Transco to develop and operate an efficient gas transportation system. To this end Network Code terms were defined and these are set out in Section 2 of this note. In Section 3, ANOPs are explained in more detail and Section 4 the process for determining ANOPs is outlined. Finally, Section 5 concludes that the present arrangements address the key needs of interested parties.

2. Network Code

Network Code sets out detailed rules on offtake pressures. These are addressed in Section J and are set out below. The Network Code is the contractual framework for the transportation of gas by Transco on behalf of licenced Shippers who have signed on to the Network Code. The arrangements for pressure as governed by the Network Code and its Ancillary Agreements are, therefore, between Transco and the Shipper. While Transco may supply indicative pressure information to non-Network Code parties, usually for the design of a third-party installation, the only commitments which are given by Transco are those subject to the Network Code and relevant Network Code Ancillary Agreements.

2.1 Applicable Offtake Requirements (J2.1.1)

Transco has to meet certain Applicable Offtake Requirements to ensure that gas is available at the exit point at the applicable pressure. For pressure this is 25 bar for NTS Supply Meter Points. In the case of LDZ Supply Meter Points it is according to certain offtake requirements pursuant to Section 16 of the Gas Act (this Section has subsequently been repealed and replaced by the Gas Safety (Management) Regulations 1996), relating to gas composition and pressure ("Standard Offtake Requirements"). This pressure is the "Applicable Offtake Pressure" (see Illustrations 1, 2 and 3 lowest line).

The Code also permits other pressures pursuant to:

- * a Network Code Ancillary Agreement (see Item 2.4.7, below) including a Network Exit Agreement (NExA); or
- * Network Code Section J.2.3 a Special Offtake Arrangement instead of the Standard Offtake Requirements (See Item 2.3 below).

Agreements for bi-directional flow, such as Storage facilities and Interconnectors, comprise a NExA for offtake arrangements

2.2 Reductions in the Applicable Offtake Pressure (Section J 2.1.5)

In exceptional circumstances Transco has rights to reduce the Applicable Offtake Pressure.

Where, as a consequence of any building, mining or engineering developments or change in population, it is no longer feasibly safe to maintain the Applicable Offtake Pressure, then Transco shall, as soon as it can, notify the Shipper that it cannot maintain such pressure, and notify the Shipper the pressure that can be maintained. Transco is not required to give any specific period of notice of such a reduction in pressure.

2.3 Special Offtake Arrangement (Section J 2.3)

In order to facilitate Special Delivery Arrangements (Section I 3.5) for gas entry, Transco may agree deviations from the Standard Offtake Requirements within certain permitted tolerances pursuant to a NExA or Ancillary Agreement. Pursuant to an arrangement ("Special Offtake Arrangement") provided for in a NExA, Transco may agree to make gas available for Offtake from the System at System Exit Points in circumstances where the Standard Offtake Requirements are not complied with, pursuant to the terms of any Network Exit Agreement, or where the Standard Offtake Requirements are not appropriate.

2.4 Special Offtake Pressure (Section J 2.2)

2.4.1 A Shipper may request that a particular pressure is available (called the "specified pressure" in the Network Code) which is greater than the prevailing Applicable Offtake Pressure (see Illustrations 1 and 2). Transco will advise the Shipper:

- (a) whether the anticipated normal offtake pressure (ANOP) is greater or less than the specified pressure requested by the Shipper;
- (b) in so far as it is reasonably possible to do so, of the circumstances in which Transco anticipates at the time of the request that the pressure of gas available for offtake at the Supply Meter Point may fall below the specified pressure.

2.4.2 The ANOP is the lowest pressure at which Transco expects, in normal operating conditions, that gas will be available for offtake at a Supply Meter Point.

2.4.3 If Transco wishes to reduce an ANOP, Transco must give 24 months notice in the case of an LDZ Supply Point, 36 months notice in the case of an NTS Supply Point (Section J 2.2.2).

2.4.4 If the Shipper is not satisfied with the response to the specified pressure request, he can ask Transco to enter into an Ancillary Agreement in order to meet the specified pressure, and, if Transco can agree to this in the context of its overall obligations, the Ancillary Agreement will include the specified pressure (or other pressure). The Shipper may have to pay for additional costs incurred by Transco (e.g. additional compression, system reinforcement) in order to get this specified pressure which will then be made available under all operating conditions (other than Excluded Offtake Circumstances) for the period stated in the Ancillary Agreement (Section J 2.2.4). This is not subject to the 24/36 months notice period. Examples of such Ancillary Agreements are the Pressure Maintenance Agreements at the Interconnectors.

2.4.5 This procedure relates to Supply Meter Points and therefore does not apply to CSEPs. This does not prevent Transco agreeing to a pressure but in such circumstances alternative arrangements within the relevant CSEP NExA, consistent with the Network Code, need to be made.

2.5 Liability to the Shipper in respect of offtake of gas from the System (Section J 3)

- 2.5.1 Where Transco does not make gas available for offtake, or does not comply with the Applicable Offtake Requirements then the Shipper can claim under Section J3.5 which sets out a formula for compensation to the Shipper depending on whether the supply point is domestic or non-domestic
- 2.5.2 The Applicable Offtake Requirements apply in respect to the Supply Meter Point and the claim is by the Shipper suffering loss.
- 2.5.3 There is also relief from liability for Transco due to Excluded Offtake Circumstances. This would include Force Majeure and the provisions of Section J2.1.6 whereby Transco is not in breach of its obligations to make gas available for offtake from its System if the pressure immediately downstream of the point of offtake exceeds the Applicable Offtake Pressure.

3. Anticipated Normal Offtake Pressure

An ANOP is defined by Network Code, Section J 2.2.3 as the pressure, or (within a range of pressures) lowest pressure, at which Transco expects that, under normal operating conditions, gas will be made available for offtake at a Supply Meter Point. The ANOP is determined in accordance with the criteria set out in paragraph 4.

On any day the combination of NTS inputs and offtakes will dictate a strategy of pipeline operation and compressor usage which maintains key pressures, maximises transmission capacity, and minimises transmission costs. This is the optimum NTS operating strategy and will set the pressure levels at the extremities and all other offtake points in the system. There will be a number of optimum NTS operating strategies for different conditions. Transco can only provide specified pressures at a particular offtake that are equal to or below the lowest offtake pressure anticipated in any of the optimum NTS strategies.

The ANOP at a point is therefore the *lowest* pressure which could normally be expected on the System on any day. The pressures on the Transco system vary both within day, over the year and from year to year depending on how the system is operated and operating conditions on most days will make higher pressures available than the ANOP.

The intent of the ANOP is to indicate to the Shipper (and consequently the installation operator) the minimum pressure that may be expected in order to allow the developer of the site to take an informed decision on a requirement for gas compression to be installed on site. The ANOP is not intended to provide any indication of the minimum, maximum or any other pressures that might occur on any particular day (Illustration 3). This is reflected in the Network Code definition.

4. Process for Determination

4.1 Overview

For NTS loads analysis will be carried out where a specified pressure is requested at a pressure above 25 bar.

Both long term (network development) and short term (operational) expert assessment will be needed.

4.2 Factors Involved

For the purposes of determining ANOPs, normal operating (non-emergency) conditions for the network include;

- (i) predictable compressor outages for routine maintenance;
- (ii) On Line Inspection;
- (iii) the full range of anticipated constrained beach gas deliveries;
- (iv) zero storage withdrawal and anticipated maximum storage injection;
- (v) 1 in 20 demand including an allowance for predicted load growth for the next 4 year period;
- (vi) Interruptible supply points will be assumed to be taking gas, up to the aggregate NTS demand level equal to the predicted maximum beach deliveries
- (vii) requirements for provision diurnal storage;
- (viii) allowance for load demand profiles and demand forecast changes in accordance with IGE/GL/2.

Normal operating conditions will specifically exclude:

- (i) running compressors specifically to maintain an ANOP which otherwise would not be achievable.
- (ii) configuration of pipelines and/or compressors which are not in accordance with the optimum NTS strategy and which may place any current or potential limit on transmission capacity or operational flexibility or which would incur undue additional cost or which would compromise system security.
- (iii) any actual or potential network gas supply emergency;

- (iv) when pipelines are unable to operate at maximum pressures due to temporary downrating or third party interference.
- (v) unplanned plant or pipeline unavailability.
- (vi) unplanned supply losses at any entry point.

5. Conclusion

The ANOP at a point is intended to indicate the lowest normal offtake pressure on the Transco system. It is intended as an aid to assist developers in determining their plant requirements. It is **not** an indication of average pressures, median pressures or any other type of pressure.

The timescales in the Network Code for advising a change of ANOP are to allow time for the installation of compression equipment at offtakes.

The definition and establishment of ANOPs does not exclude Transco's ability to provide historical pressures profiles on a part of the system. These, however, can only be provided for guidance, without liability on Transco, as they cannot be relied on to indicate the worst case operating scenario or give any indication of future performance of the system. Any historical data will necessarily be affected by the new or increased offtake requirement. This does not preclude the ability of Transco and a Shipper to enter into an Ancillary Agreement for a pressure maintenance service.

The ANOPs mechanism takes account of key interests and needs.

GLOSSARY

Applicable Offtake Pressure is the requirement as to pressure of gas made available for offtake from the System at an Individual System Exit point. (Section J2.1.4)

Anticipated normal offtake pressure means the pressure or (within a range of pressures) lowest pressure at which Transco expects (having regard to the period of notice of any reduction required) that, under normal System operating conditions, gas will be made available for offtake at the Supply Meter Point. (Section J 2.2.3)

Applicable Offtake Requirements are the Standard Offtake Requirements. As respects the pressure of gas made available for offtake at NTS Supply Meter Points, a pressure of 25 bar.

Excluded Offtake Circumstances are circumstances in which, in accordance with the Code, Transco is not obliged or in breach of its obligation to make gas available for offtake at a System Exit Point or is liable in respect of any failure to do so.

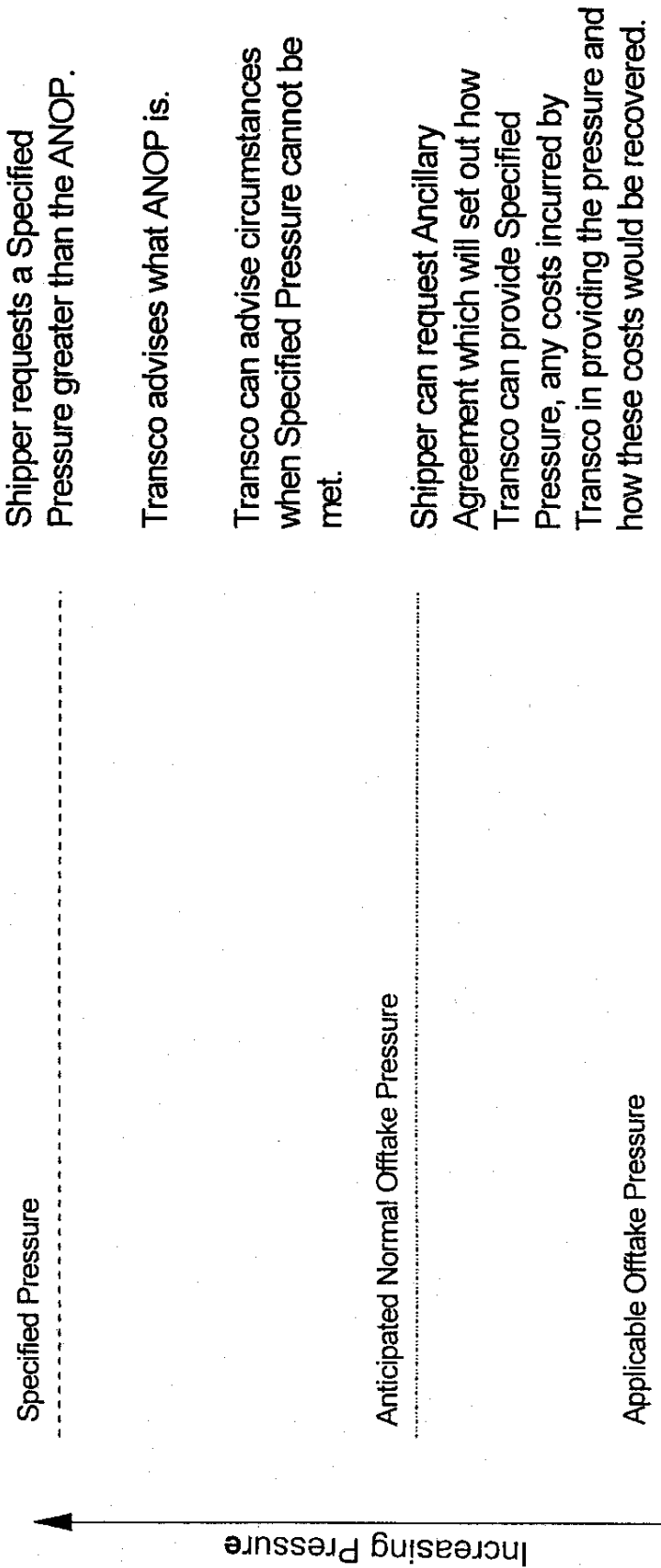
Network Exit Agreement is an agreement, containing provisions relating to or to the offtake of gas from the System at a System Exit Point.

Standard Offtake Requirements are the requirements as to gas composition and pressure of the regulations from time to time applying pursuant to Section 16(1) of the Gas Act 1986 (as amended) (now repealed and replaced by the Gas Safety (Management) Regulations 1996) as they apply in respect of gas made available by Transco for offtake at any System Exit Point.

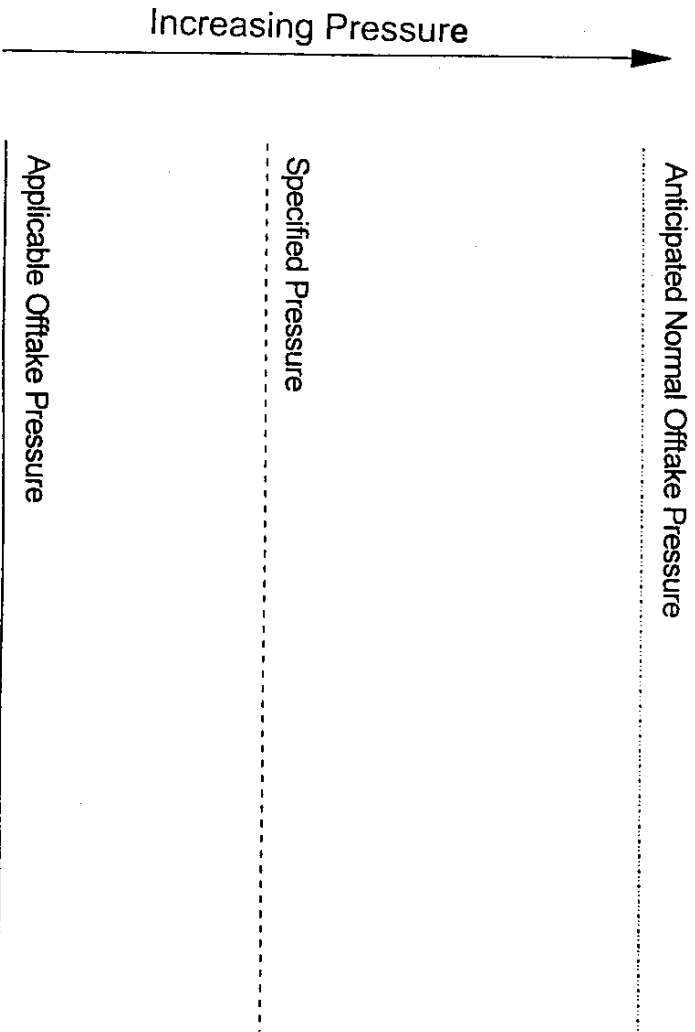
Special Offtake Arrangement is an arrangement where Transco may agree to make gas available for offtake in circumstances where the Standard Offtake Requirements are not complied with pursuant to the terms of any Network Exit Agreement, or where the Standard Offtake Requirements are not appropriate.

Excluded Offtake Circumstances are circumstances in which, in accordance with the Network Code, Transco is not obliged or not in breach of its obligation to make gas available for offtake at a System Exit Point or is not liable in respect of any failure to do so.

Anticipated Normal Offtake Pressure - Illustration 1



Anticipated Normal Offtake Pressure - Illustration 2

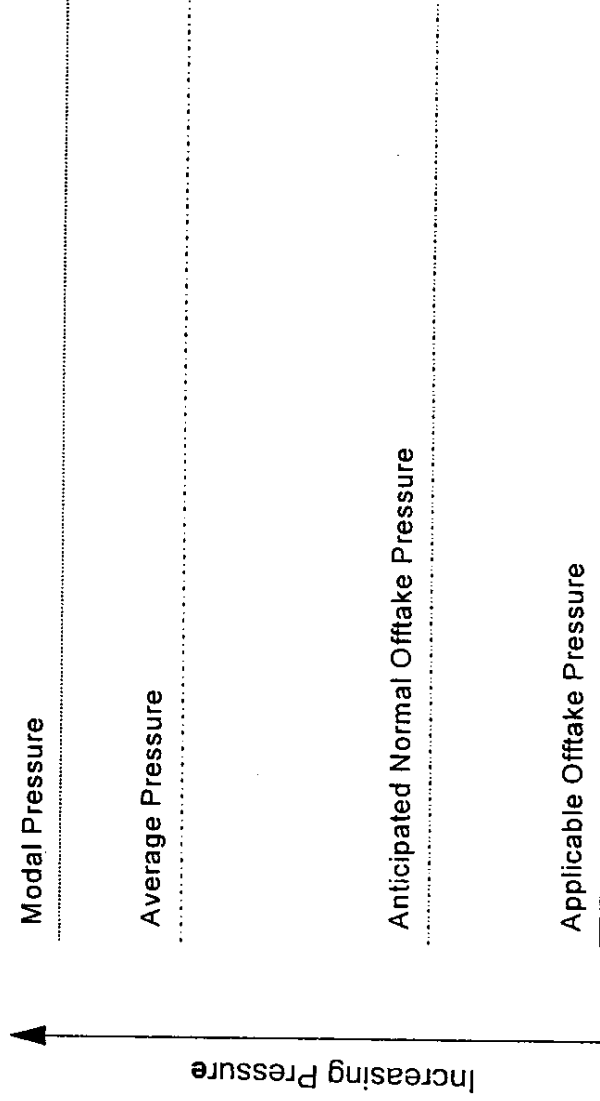


Shipper requests a Specified Pressure less than the ANOP.

Transco notifies.

Transco must give notice if ANOP is to fall below the Specified Pressure.

Anticipated Normal Offtake Pressure - Illustration 3



Transco does not produce data on average pressures or modal or median pressures for any part of the system. To do so would be resource intensive and could be misleading.

**Appendix 3 Transco's Explanatory Note on
Measurement Provisions for Storage Connection Points**

Transco

Explanatory Note

Measurement Provisions for Storage Connection Points

A Storage Connection Point (SCP) is, under the Network Code, both a System Entry Point (SEP) and a Connected System Exit Point (CSEP). It is typically a 'minimum connection' to the NTS with the Measurement System provided by the connecting party. SCPs are generally treated in the same way as other Exit and Entry points. Entry measurement requirements take account of the source of gas and the potential impact of commingling in Transco's System.

Measurement Systems in general address five key requirements: statutory (including safety), commercial, traceability and auditability, operability and non-discrimination.

The minimum requirement for available signals compatible with Transco's telemetry system are:-

- instantaneous standard volume
- instantaneous standard energy
- instantaneous relative density
- Calorific Value
- integrated standard volume
- integrated standard energy
- metering alarm
- pressure alarm
- temperature alarm
- gas quality alarm (including excursions from agreed additional gas quality parameters)

Considerations for gas quality monitoring include:-

- if a site cannot materially affect the gas quality then it will not be measured
- if a non-material risk is identified or mitigating actions have been developed interim measurements are required.
- if the gas quality can be materially affected then measurements on a regular basis are required.

There is joint responsibility of the operators to assure gas safety and GSMR compliance.

The proposed metering and gas quality principles are:-

- compliance must be demonstrated with the requirements of Regulation 8 and Schedule 3 of GSMRs (including odourisation for gas entry to LDZs).
- measure all gas flows entering and exiting storage facilities across an agreed flow ranges
- measure gas volumes to an uncertainty of +/- 1.05% across an agreed flow range
- measure energy to +/-1.1%
- measurement will as far as is reasonably be practicable be in accordance with international, national or industry standards for design, measurement, validation etc.
- measurement of the CV for gas entering a LDZ shall be in accordance with section 12 of the Gas Act.

- measurement failure is contemplated and managed - including energy reconciliation