January 2000

Storage Connection Agreement

A Follow-up Document

Contents

1. Introduction

1.1 Introduction

The separation of BG Storage and Transco means that BG Transco 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[1], 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. Under the current RTPA regime, 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.

1.2 Purpose and Outline of this Document

In November 1999, Ofgem consulted interested parties on whether the draft generic SCA that had been produced by Transco was acceptable as a statement of the general terms by which storage facilities are to connect to Transco's pipeline system[2].

The purpose of this document is twofold. First, to present respondents' views on the issues raised in our consultation. Secondly, to present Ofgem's views on how the remain issues outstanding can best be taken forward to a satisfactory resolution. Chapter 2 summarises the responses to the main issues covered by our consultation document, and sets out Ofgem's views on those issues. A list of the organisations that submitted a non-confidential response is provided in appendix 1.

1.3 Way Forward

This document gives clear guidance as to the areas in which Transco should amend its generic SCA. There is ongoing industry discussion on the generic SCA within the Planning, Security (including Storage) Workstream and this document is intended to complement and aid that process by indicating Ofgem's views.

[1] Or, in the case of BG Storage Limited, continue to have its facilities connected to Transco's pipeline system.
[2] "Storage Connection Agreement: A Consultation Document", Ofgem, November 1999.

Ofgem expects its views, as presented in this document, to be reflected in the new generic SCA. It is intended that the new generic will form the basis of all future individual SCAs between Transco and storage operators. Ofgem will consider vetoing any individual SCAs that Transco wishes to enter, including any SCA that is to operate between BG Storage and Transco. In some areas, Ofgem has concluded that further industry discussion is required. We expect Transco to facilitate this discussion promptly. In the meantime, to facilitate commercial arrangements at all storage facilities, Ofgem has proceeded with interim agreements containing a duration end-date clause. It is Ofgem's view that continued and lengthy ongoing discussion is detrimental to the development of the storage industry. Ofgem will only approve subsequent SCAs if it can be demonstrated to our satisfaction that substantial progress has been made and that the remaining issues are close to resolution.

2. Generic SCA: Outstanding Issues

2.1 Introduction

This chapter summarises respondents' views on both the issues raised in our consultation document and other matters relevant to the generic SCA. This chapter also sets out Ofgem's views in respect of all of these issues. As stated in the Introduction, we expect that Transco will take full account of our views in submitting SCAs for individual storage facilities.

2.2 Anticipated Normal Offtake Pressure (ANOP)

2.2.1 Determining an ANOP and Publishing ANOP-related Data

Background

In our November consultation document, we invited views on whether or not an ANOP was a useful tool for enabling connecting parties to gauge the levels of investment needed at their plant, particularly compression capacity. We also said that a decision had to be made on whether Transco should make any further ANOP-related information available, for instance by publishing data in its Ten-Year Statement.

Respondents' Views

Several respondents pointed out that, by taking account of maintenance days in its ANOP calculation, Transco was able to declare a lower ANOP figure, which invariably resulted in increased (and potentially inefficient) investment in compressors by the connecting party. These respondents generally also commented that it was unrealistic to expect a storage operator to be able to base business plans and investment decisions on the limited information that an ANOP provides. Further information on how often, and in what circumstances, the ANOP and other pressures were likely to occur was required in order to optimise compressor design. Most respondents therefore concluded that Transco ought to provide more information on offtake pressures to connecting parties than it currently does through its ANOP determination. Some respondents believed that Transco should publish, perhaps in its Ten-Year Statement, expected and actual historic frequency distributions in relation to selected key offtake points on Transco's system. It was suggested that, although this data would not necessarily be predictive of an ANOP that would be available in the same area, it would at least offer

some information as to any trends affecting an ANOP in a particular area and provide a benchmark for comparison purposes.

Some respondents also commented that Transco should make information available to connecting parties during the Conceptual Design Study carried out by Transco at the outset of a project; this typically takes place about two years before the signing of a SCA or NExA. Doing so at the conceptual design stage, it was argued, would enable connecting parties to make early broad assessments of plant requirements and costs (subject to the understanding that major new offtakes could alter substantially the published pressures).

One respondent sought confirmation that the determination of ANOPs would not affect Transco's or the connecting party's ability (where the latter is also conveying gas) to operate its network safely and comply with its safety case.

Transco's View

Transco stated that it had no strong views over publishing outline ANOP-related data but that it would be cumbersome and complex to publish detailed data. Transco was also mindful of potential commercial sensitivities of shippers and connecting parties. Accordingly, Transco believed that the information that could be published was of limited value, given that many parameters could affect pressure (such as demand, shipper activity and plant outages). Transco favoured instead a bilateral dialogue with relevant parties as a more effective means of establishing requirements.

Transco has since indicated that it would be willing, with certain provisos, to undertake a trial as to how more detailed offtake pressure information could be made available. Transco suggested that each trial would require effective co-operation from the connecting parties and managed resource allocation from Transco. Transco also suggested that at the end of the trial there be some mechanism for assessing the costs and benefits to the industry of providing more detailed pressure frequency data. This data would be provided on the understanding that the calculations are complicated and users should recognise the inherent difficulties and uncertainties in the information. Transco notes industry recognition that it would be unreasonable for it to be liable in the event that the actual and forecast pressures differ.

Ofgem's View

It would appear that there are two distinct issues relating to ANOPs and pressure information: the provision of site-specific information during development and the provision of more general pressure data as a useful service to potential connecting parties.

With respect to site-specific information, Ofgem considers that the ANOP alone does not provide sufficient information for the developer of a storage site to make investment decisions, particularly in compression capacity. Ofgem believes that Transco should provide information on historic and expected operating pressures sufficient to facilitate calculation of the likelihood of an ANOP actually occurring. Ofgem welcomes the provision of this information on a trial basis to assess its usefulness and the costs involved. It remains our view, however, that Transco should provide more detailed pressure information. We regard the envisaged trial as a preliminary step to determine how this can best be achieved. That said, storage operators should recognise that any such forecasts would be uncertain and subject to factors outside of Transco's control. Investment decisions should, therefore, be made in the light of these uncertainties. Another issue on which further discussion is required is at what stage of a project a planned connection should be included in subsequent requests for another party's ANOP assessment.

With respect to non site-specific pressure information, it is Ofgem's view that Transco should make information available on expected offtake pressures at key NTS exit points such as LDZ offtakes. Pressure is an important factor for connecting parties when making investment decisions; this is true not just for storage operators. The provision of forecast pressures would provide potential connecting parties with a benchmark, for comparison purposes and also enable them to identify trends in areas of the NTS that are relevant to their operations. The obvious place for this information is in Transco's Ten-Year Statement.

Finally, we believe that interested parties should consider whether a variation clause should be inserted into the generic SCA in order to allow for the possibility that further information may be made available to storage operators in the future. Alternatively, the SCA could provide for an annual review of the ANOP data given to the connecting party.

2.2.2 Provision of Data about Compressor Usage by Transco

Background

In our November consultation document, we invited views on whether Transco should provide data relating to the likely use of its compressors on a day-ahead basis and, if so, whether Transco ought to receive additional revenues for doing so.

Respondents' Views

A number of respondents believed that advance information on compressor usage (be it a few days ahead or one day ahead) would be of great benefit to storage operators in planning and scheduling their daily operations. Consequently, respondents noted that provision of this information would allow scope for deferring injection to days of highest local system pressures. One respondent also suggested that such information might be of wider benefit to members of the community and that it should be made available to all shippers and connected system operators. All these views were reiterated during a workshop on the generic SCA held on 11 January 2000. One storage operator was not convinced that day-ahead predictions of compressor usage would be useful.

Respondents were divided on the matter of whether Transco should be able to recover additional revenues for providing the service. One respondent welcomed Ofgem's initial view that providing data on compressor usage would not be construed as an excluded service. Another respondent doubted that providing such information, for instance via the Internet, need entail a significant administrative burden or cost. However, the same respondent suggested that, because many industry participants would appreciate the information, the costs could reasonably be regarded as allowable price-controlled expenditure. That respondent did not favour Transco providing such information on an individually negotiated basis. One other respondent suggested that it might be appropriate for this information to be paid for.

Transco's View

Transco stated that reliance by connecting parties on data about short-term usage of compressors should be minimised given that the day-ahead scheduling of compressors is potentially subject to change at very short notice[3]. Transco added, however, that if a particular connecting party had specialist needs in terms of information then Transco

[3] Transco said that the drivers in this respect included shipper nominations, demand and its duty to operate a safe, economic and efficient gas transportation service.

would co-operate in the procurement of a service to meet those needs. Transco has since indicated its willingness, with certain provisos, to provide compressor data to connecting parties for a trial period, on the understanding that the industry recognises that it would be unreasonable for Transco to be liable in the event that compressor usage patterns differs from those forecast. As with the ANOP data trial, Transco has suggested that each trial would require effective co-operation from the connecting parties and managed resource allocation from Transco.

Ofgem's View

Ofgem considers that information on Transco's likely usage of its compressors would provide benefits to storage operators. We therefore welcome the provision of this information on a trial basis to assess its usefulness and the costs involved. It remains Ofgem's view, however, that Transco should provide this information. As with the provision of ANOP-related information, Ofgem regards the envisaged trial as a preliminary step to determine how this can best be achieved. Again though, we would expect storage operators to recognise that any compressor-usage forecasts will be uncertain and subject to factors outside of Transco's control. Compressor usage decisions should, therefore, be made in the light of the inherent uncertainties.

Given that Transco already has access to the data, Ofgem is not convinced that its publication need would necessarily entail a significant administrative or financial cost; this is subject to an assessment of the costs and benefits of providing such data during the trial period. At this stage, we do not envisage that providing this information would constitute an excluded service.

Further discussion between Transco and interested parties will be needed as to how and when such information should be made available. Ofgem's view is that Transco should make the issue of providing compressor-usage data part of an ongoing debate in an appropriate forum.

2.2.3 Resolving ANOP-related Disputes

Background

In our November consultation document, we invited views on whether it was appropriate for Transco to approach Ofgem for a determination in the event that a connecting party does not agree with Transco's ANOP calculation.

Respondents' Views

Some respondents supported the suggestion that parties should approach Ofgem for a determination in the event that a connecting party does not agree with Transco's ANOP calculation. One respondent believed that there should be an opportunity for connecting parties to appoint an independent consultant to review all relevant information that Transco has used to determine an ANOP. The respondent acknowledged that the consultant would not be able to pass on all the information that it receives, for reasons of commercial confidentiality, but nonetheless believed that such an arrangement would increase the likelihood that the connecting party would be satisfied with the outcome. Only in the event that the connecting party remained dissatisfied should Ofgem intervene and determine the ANOP.

One respondent noted that adjudication in favour of an ANOP higher than that proposed by Transco might require Transco to reinforce the system so as to ensure that the pressure could routinely be provided. In that event, the respondent suggested that the community needed to be clear as to the extent to which the reinforcement costs would be borne by Transco, the counter-party or smeared across system users.

Transco's View

Transco stated that it made a detailed presentation of the method of calculating ANOPs to Ofgem's Technical Directorate in respect of the storage facilities at Hatfield Moor, Rough and Hornsea. Transco added that it was willing to co-operate with similar requests in future provided that such requests did not unduly interfere with Transco's overall PGT responsibilities. Transco has since commented on the issue of using independent consultants. Its view was that the perceived risk of leakage of sensitive information by independent external consultants might inhibit the provision of that information and compromise general investment planning. Transco therefore favoured determination by Ofgem rather than by an independent consultant.

Ofgem's View

Ofgem considers that any dispute about an ANOP calculation should be referred in the first instance to an independent engineering consultant agreed by the two parties, and be referred to Ofgem only in the last resort. It should be noted that prior scrutiny by an independent consultant would not fetter the discretion of the DGGS to conclude that Transco's ANOP determination is inappropriate for any reason.

2.3 Ramp Rates

2.3.1 Undue Discrimination Between Storage Operators and Other Connecting Parties

Background

In our November consultation document, we said a decision would have to be taken on whether the generic SCA should contain ramp rate provisions for inputting gas into Transco's system.

Respondents' Views

Most respondents observed that Transco should not discriminate unduly between connecting parties at different points on Transco's system. They therefore supported Transco's proposal to place only offtake obligations on storage operators, on the understanding that Transco had not included input ramp rate obligations in its other connection agreements. One respondent commented that Transco should not restrict input ramp rates unless operationally required.

On a separate issue, one respondent was concerned that the draft SCA failed to recognise that an increase in offtake and a decrease in input have exactly the same effect on Transco's system. Consequently, this respondent believed that these changes should be treated identically in terms of notice periods[4]. The same respondent further pointed out that if the condition were to remain unchanged in the final generic SCA, it would unfairly disadvantage other large users of the system which are required to give four hours' notice in respect of decreasing input. This respondent concluded that the generic SCA should be amended such that the notice periods for decreasing input are consistent with those for increased offtake in Transco's other connection agreements.

Transco's View

Transco said that formal ramp rate restrictions are not applied for increasing and decreasing input into the system at non-storage entry points and to include such restrictions in the generic SCA would be unduly discriminatory. Transco recommended that input ramp rate restrictions should be subject to co-operation (as outlined in Annex H of the SCA and in other connection agreements) with particular connecting parties.

[4] The draft SCA provides that the storage operator must give Transco four hours' notice of an increase in offtake and one hour's notice of a decrease in input.

On the issue of ramp rate notice periods at different types of connection point, Transco believes that amending the text of the generic SCA to provide that storage operators must give four hours' notice before decreasing input would itself discriminate unduly between storage and non-storage entry points. Transco noted that the four hour notice period applied only for flow rate changes of greater than 50%, decreasing to two hours for changes of 25-50% and one hour for changes of less than 25%.

Ofgem's Decision

Ofgem considers that input ramp rate restrictions should be negotiated with particular connecting parties on a non-discriminatory basis according to operational need; they should not be included in the generic SCA. So far as ramp rate notice periods are concerned, we believe that further discussion in an operational balancing forum is appropriate.

2.3.2 Undue Discrimination Between Storage Operators

Background

In our November consultation document, we invited views on whether Transco should offer a standard ramp rate for offtake and whether it should use reasonable endeavours to meet requests from storage operators for higher ramp rates.

Respondents' Views

Some respondents believed that the proposed uniform ramp rate of 50 MW/minute was too cautious and would unnecessarily restrict the efficient operation of both the storage facility and Transco's system. One respondent agreed that there should be a standard number, but that it should be greater than 50 MW/minute. Another respondent concluded that Transco should determine ramp rates on a site-specific basis for all exit agreements.

Most respondents supported Transco's suggestion that it provides higher ramp rates to storage operators, as it has already done for other Very Large Daily Metered Customers (VLDMCs), so long as there were no additional costs to operate the system at that connection point. One respondent stated that higher ramp rates had been negotiated at Rough and Hornsea on this basis, and that severe operational difficulties would result at those facilities if the ramp rate were restricted to 50 MW/minute.

One respondent commented that it would be wrong to withhold higher ramp rates where they could be provided free of charge or at the connecting party's own expense. Another respondent sought confirmation that determining a higher ramp rate would not affect Transco's ability (and that of the connecting party, where appropriate) to operate safely and in accordance with its safety case. Finally, one respondent suggested that a "reasonable endeavours" service should be included in the generic SCA so that it is available to all storage operators who ask for a higher ramp rate on a particular day.

Transco's View

Transco has stated that a ramp rate of 50 MW/minute had been found to meet the needs of the majority of connecting parties, and that this figure could generally be accommodated. However, Transco said that detailed specific assessments, where required by some VLDMCs, had resulted in accommodation of higher ramp rates. Transco proposed, on the basis of avoiding undue discrimination between exit points, to extend this practice to storage operators.

Ofgem's Decision

Ofgem considers that the generic SCA should include a standard figure of 50 MW/minute for offtake ramp rates. We also expect that the generic will include an explicit reference to the effect that Transco will use reasonable endeavours to meet a higher ramp rate on request, so long as the higher rate can be accommodated safely and entails no additional costs to operate the system at that connection point. We would expect Transco to consider any such requests in a non-discriminatory manner.

2.4 Measurement Provisions

2.4.1 A Detailed Annex D or a Set of Principles

Background

In our November consultation document, we invited views on whether the amended draft Annex D should be included in all future SCAs, or whether it would be better to identify a set of principles or minimum standards intended to apply at all storage facilities. In the event that respondents favoured the latter approach, we invited views on an alternative set of measurement arrangements 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.

Respondents' Views

Some respondents commented that Annex D was now much more complex than it needed to be. In addition, a number of respondents felt that Transco had unreasonably amended the measurement provisions in ways that increased Transco's rights and the storage operator's obligations. One respondent commented that this was a regrettable development given that discussions on the generic SCA had been ongoing for many months, and that several storage operators had developed designs for metering and information flows in the light of views from Transco that were no longer reflected in its draft Annex D.

Most of these respondents believed that a simpler framework describing the measurement arrangements should be put in place, for example based on the list set out in Ofgem's consultation document (and set out again above). One respondent added that it had expected Transco to produce a short discussion paper proposing principles that would apply at all entry and exit points, so that any metering proposal that met the principles would be deemed 'fit for purpose' unless a clear problem had been identified. The same respondent believed that the principles set out in Transco's Explanatory Note on measurement[5] represented an acceptable basis for measurement provisions at all storage facilities, and concluded that an annex covering such principles should be included within the generic SCA.

One other respondent had no objection to the text of Annex D being included in final SCAs provided that it was not to be adhered to rigidly. This respondent said that changes would have to be made to reflect site-specific requirements, and that the specifically negotiated Annex D could be tested against a set of principles along the

lines of those contained in Transco's Explanatory Note on measurement. The respondent concluded that, if this approach were not acceptable to Ofgem, it would prefer to see the draft Annex D replaced with a set of principles.

Transco's View

Transco said that it had developed the generic Annex D to provide a basis for determining appropriate measurement provisions at specific storage facilities. It said that the basis was as set out in its Explanatory Note on measurement. Transco also stated that gas quality measurement should be identified as part of the joint risk management of potential excursions of gas quality parameters.

Ofgem's View

Ofgem remains concerned that the requirements in the current annex D are unduly prescriptive. It is our firm view that annex D should contain a statement of the principles that a measurement system should meet, which taken together, would define a system which was 'fit for purpose'. This would include a list of appropriate gas quality elements and associated uncertainties and the provision for initial testing and subsequent validating of equipment. It is clear that in its current state annex D is unacceptable and should be redrafted. Whilst there is some debate over whether the definition of a measurement system should include the communications equipment (see section 2.4.3 below) it is clear that 'fit for purpose' should include the ability to communicate operational data to Transco's system.

To that end, we believe that the principles governing measurement arrangements could be based upon the principles enunciated by Transco in its Explanatory Note. We also agree that the measurement arrangements must be non-discriminatory and consistent with appropriate national and international standards on design, maintenance and validation.

[5] See Appendix 3 of Ofgem's consultation document, November 1999. The note refers to five key requirements for measurement systems in general: statutory, including safety; commercial; traceability and auditability; operability and non-discrimination.

2.4.2 Measurement Arrangements at Existing and New Storage Facilities

Background

In our November consultation document, we invited views on whether stricter measurement arrangements should apply to newer storage facilities than apply to older ones.

Respondents' Views

Most respondents believed that the same measurement arrangements should apply to all storage facilities, lest Transco be accused of discriminating unduly between different storage facilities. One respondent said that it had no sympathy with the view that only new storage operators should be required to meet any new higher standards. Another respondent believed that the measurement arrangements should apply equally to new entry and exit points of similar size and should neither discriminate against or in favour of new storage operators in comparison with arrangements at existing storage facilities. One respondent, however, suggested that sites with a long history of safe GS(M)R compliant operation required less frequent testing of measurement equipment.

Transco's View

Transco accepted that operators should choose the equipment provided that the interfaces were compatible with Transco systems and that the equipment met agreed, recognised standards. Transco added that the age of a storage facility had no direct bearing on the scope of the measurement arrangements except to the extent that where industry standards are raised, a negotiated upgrading of requirements at legacy connections is necessary. Transco also suggested that the relative availability of information on which to base a risk assessment, and the technology used to achieve the same risk management performance, might lead to differing measurement arrangements at different storage facilities.

Ofgem's View

Ofgem does not consider that stricter measurement arrangements should apply in respect of new storage facilities. Neither is Ofgem persuaded that sites with a long history of GS(M)R compliant operation require less frequent testing of measurement equipment. A system meeting the principles envisaged in the new annex D would, by definition, be fit for purpose irrespective of the length of operational history or the age of the site.

This is not to say that there will not be differences in the individual SCAs in force at particular sites. It is merely to state that the generic SCA must not contain provisions for different requirements relating to the age of the site or the length of its operational history. Differences that do occur will have been identified in the joint risk assessment and will arise out of operational requirements.

2.4.3 Definition of the Measurement System and Design of Communications Equipment

Background

In our November consultation document, we invited views on whether the definition of the measurement system should include the equipment used to communicate operational data to Transco. We also invited views on whether storage operators should be obliged to agree with Transco the design of that communication equipment.

Respondents' Views: Definition of the Measurement System

Few respondents commented on this issue. One prospective storage operator agreed that it was reasonable and indeed necessary for the SCA to include an agreed set of standards relating to the communication of gas quality values. However, another respondent said that the provisions of Annex D had been drafted on the basis that such communication equipment was not included in the definition of the measurement system. This respondent believed that to include such equipment in the definition without amending the rest of the annex would extend Transco's rights in relation to validation and inspection. The respondent also believed that some of the provisions previously relating, for example, to the metering system were not appropriate when applied to the communications system.

Transco's View: Definition of the Measurement System

Transco believes that the communications systems should be included in the definition of the measurement system. However, irrespective of whether it is included, Transco has suggested that the implications of its safety case, in respect of real-time information, requires it to test and revalidate such systems so as to ensure that they are functioning properly.

Respondents' Views: Communications Equipment

Most of those who commented on the issue believed that it was inappropriate for Transco to insist on agreeing the design of the equipment needed to communicate with Transco's system. Rather, it was solely a matter for the storage operator. One respondent believed that Transco should supply an outline of its requirements and then the storage operator should be responsible for choosing the design on the basis of those requirements.

Transco's View: Communications Equipment

Transco said that, where flow metering or joint risk assessment results in a need for Transco to view real-time data, it is appropriate that the connecting party's communication system is fit for purpose. It was pointed out that telemetered measurement systems are end-to-end tested with each operator responsible for its own system and compatibility at the interface. Transco said that the drafting was intended to reflect this. Transco also said that its practice was to offer co-operation, in terms of checking, during the design phase of such communications systems so as to mitigate the risk of incompatibility or unreliability. However, Transco added that it did not intend to become inappropriately involved in a system designed by another party. Therefore, it was willing to consider redrafting the generic SCA in order to avoid potential misinterpretation of its intentions.

Ofgem's View

It is clear that the issues of definition and design in this case are very closely related. Extending the definition to include communications equipment might enable to Transco to influence the design of equipment that the storage operator considers to be their responsibility; what Transco might consider to be advice the storage operator might construe as interference.

Ofgem agrees that Transco has a legitimate need to 'end-to-end' test telemetered systems. It is, however, Ofgem's view that Transco should not seek to determine the design of communication equipment. It should, instead, publish and provide a definition of its communication interface as part of the other information provided to a prospective connecting party. However, ultimately it is the storage operator's responsibility to ensure that its communications equipment operates properly and is compatible with Transco's published interface. Furthermore, a system that cannot

communicate appropriately would not be 'fit for purpose' as defined in the principles envisaged in annex D more generally.

2.4.5 Gas Quality Values

Background

In our November consultation document, we invited views on whether the list of gas quality values was appropriate or whether it placed unnecessary obligations on storage operators.

Respondents' Views

The majority of attendees at the Planning, Security and Storage Workstream supported the principle that the storage operator should only have to measure those elements of gas quality that its facility can affect. One respondent suggested that the gas quality values for which Transco sought signals should be limited to those that are necessary for Transco to operate its system. This respondent believed that minimum list to be represented by those items, marked up in bold in table on page 49 of the draft generic SCA, that Transco suggested were mandatory[6]. The same respondent concluded that only the bold items on that list should be reflected in the generic SCA. One respondent believed that, where a storage facility does not change the composition of gas, volume and calorific value information should suffice. That respondent suggested that two of the values cited by Transco as mandatory, relative density and gas quality alarm, might not be required at some facilities. Another respondent also believed that Transco's requirement for quality monitoring was excessive and would put an unnecessary burden on the storage operator.

One respondent believed that Transco should be able, at its discretion, to waive some of the non-bold items in its list of gas quality values, for instance where the technology or site history indicates that there is little risk. This respondent suggested that this might be done by introducing "reduced lists" for classes of facility such as all LNG facilities and all salt cavity facilities (but not for all depleted gas fields which have native and cushion gas of differing characteristics).

[6] These concern calorific value, relative density, instantaneous standard volume and energy flows for offtake and entry, integrated standard volume and energy flows for offtake and entry, metering system fault and gas quality alarm.

One respondent believed that storage operators should be free to decide whether they would send Transco real-time information as opposed to simply sending a real-time composite alarm to Transco that some unidentified element of gas quality had deviated from the specified requirements. This respondent suggested that, at minimum, an alarm should be capable of indicating that any element of gas quality is outside the limits specified by the Gas Safety (Management) Regulations (GS(M)Rs). However, the respondent also suggested that, if a storage operator opted for the minimum level of information provision, such that Transco were alerted merely to the fact that a GS(M)R limit was being contravened without specifying which one, Transco might have little option other than to suspend flow to that facility. Another respondent felt that the obligation on the storage operator to have a warning signal in place to alert Transco as to any deviation from the specified quality requirements afforded Transco sufficient protection.

Transco's View

Transco has previously indicated that it would be willing to accept signals from storage operators covering the items marked as mandatory in generic SCA. However, Transco has also made the point that connecting parties must measure gas quality parameters to the satisfaction of HSE, as well as to Transco, in order to satisfy established safety standards developed from previous experience in similar circumstances. Consequently, HSE would have to be made aware of the "discretionary" waiving of measurements.

Ofgem's Decision

Ofgem believes that the generic SCA should contain a minimum list of gas quality values reflecting only those elements of gas quality that a storage operator needs to operate its facility safely and those that Transco needs to operate its system safely, efficiently and economically. We also believe that some of the non-essential items of this list could be waived at some storage sites if agreed by the two parties and did not raise concerns from the HSE.

Ofgem believes that, in respect of gas quality values where Transco requires the actual value in real time in order to operate its system in a safe and efficient manner, the storage operator should transmit these elements of gas quality in real time. However, for other elements of gas quality, we believe that the storage operator should be able to choose its own communication arrangements. Thus the storage operator might decide

to transmit real-time information, or to transmit an alarm notifying Transco when that element is out of specification, or to transmit a composite warning signal that does not distinguish which element of gas quality is out of specification. We believe that the generic SCA should be amended in order to reflect this. We do note, though, that although sending a composite alarm might be cheaper for the storage operator, doing so might increase the likelihood of Transco seeking to suspend flows at that facility in the event that gas quality is compromised. In this regard, we note that a more comprehensive set of arrangements would be likely to reduce the likelihood of gas outside of specification re-entering the NTS.

2.5 Other Issues

2.5.1 Calorific Value

Background

In our November consultation document, we invited views on whether the calorific value (CV) regime should be based on a fixed minimum CV or a changeable range. We also sought views on what arrangements should be put in place in the event that gas outside GS(M)R specification was offtaken from Transco's system and injected into store.

Respondents' Views

Of the respondents that commented on this issue, the majority believed that the generic SCA should provide for a CV regime based on a changeable range. Only one respondent favoured a specified fixed minimum CV.

One respondent noted that, whilst Annex C2 of the generic SCA includes an obligation to allow gas delivered to the storage facility out of specification to be returned to the system, the obligation was qualified by a proviso stating that Transco was not required to act in contravention of GS(M)R. This respondent was concerned that Transco would use this clause to argue that it did not have to take the gas back. Another respondent said that, in the - presumably rare - event that "offspec gas" is either delivered into or evolves within a storage facility, Transco should discuss options with the Health and Safety Executive prior to any export operation being undertaken. This respondent believed that the generic SCA should refer explicitly to these discussions.

Respondents generally believed that Transco should take a flexible approach where storage facilities are unable to affect the CV of gas entering and leaving Transco's

system. One suggested that, where a storage facility contains no native gas, Transco should be obliged to accept gas returned to the system with a CV within a tolerance range of +/-0.5 MJ/m^3 of the weighted average CV of gas delivered to that facility from Transco's system. If the CV of gas re-entering Transco's system had a CV outside the tolerance it would fall to the storage operator to make appropriate arrangements with Transco, be they physical (enrichment or dilution) or commercial (payments to or from Transco). Where a facility did contain native gas, that respondent suggested that the tolerance range should be either as calculated at "non-native gas" sites or that which is permitted by Transco at substantial entry points elsewhere, whichever is the greater. In this way, Transco would not prevent a storage operator re-entering gas if that gas had a CV close to either the CV of the gas injected into the storage facility or close to the CV of gas accepted elsewhere on Transco's system. Furthermore, the storage operator would not be penalised in any way if those limits were adhered to.

Transco's View

Transco stated that the costs and risks introduced by a connecting party should be targeted appropriately. Transco noted that CV risks might arise from alterations caused by the gas storage process (such as at LNG facilities), mixing with native gas, or by seasonal variation of CV in the pipeline system (which could affect any storage facility). Transco suggested that if the generic SCA only allowed for a specified fixed CV then a conservative value would be needed in order to manage commercial risk. Transco suggested that this approach would result in otherwise unnecessary enrichment by the storage operator or even non-availability of the storage service.

Ofgem's View

The issue here is how most appropriately to manage the financial risk to which Transco is exposed when the gas exiting a storage facility is of a lower CV than that being transported in the NTS pipeline where the storage facility is connected. The effect is that the gas exiting the storage facility dilutes the energy value of some of the gas being transported. In a co-mingled stream the gas will normally blend during transportation. However, the financial risk is greatest to Transco when the storage facility is very close to an NTS offtake, or enters an LDZ directly, and has an impact on the cap mechanism under the Gas Thermal Energy Regulations. In this case there is only limited opportunity to manage this effect and the low CV gas might be largely offtaken, thereby depressing the CV of the gas and reducing 'billable' energy. It should be emphasised

that the low CV gas in this case is not "off spec" gas in the sense of it being outside the network entry conditions. Rather, it is gas that has a lower CV than other volumes of gas being transported on the day but which is, nevertheless, within specification. The issue of "off spec" gas is somewhat different and is dealt with below.

Ofgem's view is that Transco should not seek to impose CV management obligations on storage operators where the site cannot alter the CV outside of Transco's standard network entry conditions. Whilst Ofgem recognises that CV is an important and complicated issue which may require further industry discussion, the principle of non-discrimination suggests that if the gas delivered to the storage facility was within Transco's standard network entry conditions, and the site has no capacity to alter the CV during storage, then that gas ought to be acceptable to Transco for re-entry into the NTS; to impose different CV entry conditions for gas flowing from storage sites would be unduly discriminatory. The ability to alter the CV of gas during storage should be identified in the joint risk assessment. Where a site is capable of altering the CV, for example through separation or mingling with lower CV 'native gas', arrangements can be entered into for the management of commercial risk. These arrangements can be either physical or financial: physical treatment might involve blending such gas with high CV gas, whilst financial arrangements might involve storage users making compensation payments to Transco. Where such arrangements are required, however, it should be the storage operator's choice as what type of arrangement is entered into.

Ofgem agrees that amendments need to be made to the generic SCA in respect of those limited circumstances in which "offspec" gas might be exported from a storage facility. We agree that the current drafting creates uncertainty in that it admits the possibility that such gas could re-enter the system. We expect that the generic SCA will be amended so as to refer explicitly to any contingency plans that a storage operator and Transco will enter into (perhaps referring also to discussions with HSE) to ensure that the safe operation of the system is not compromised.

2.5.2 Maintenance Days

Background

In our consultation document, we noted that the issue of site-specific as opposed to generic maintenance days should be addressed as part of our forthcoming review of exit

capacity. Some respondents submitted comments on this issue nonetheless; these are summarised below.

Respondents' Views

One respondent did not support Transco's proposals for eight maintenance days in any one planned Maintenance Period and 20 in any three consecutive Periods. That respondent believed that Transco should determine maintenance days on a site-specific basis. The same respondent suggested that a standardised approach would increase the likelihood of Transco setting an artificially high level to ensure that in all circumstances it could meet its obligations under the SCA. Two respondents felt that a standardised approach was reasonable, though one of them considered that the actual levels proposed were too high.

One respondent was very concerned that the summer period included the shoulder months of April and October. Another respondent wanted to ensure that Transco liaised closely with affected parties to agree the times at which maintenance is carried out and that the period was curtailed if less than eight or 20 days is actually needed. Finally, one respondent agreed that maintenance days should be considered as part of the exit capacity review but believed that it was also necessary to consider the entry provision aspects given the dual nature of storage connections.

Transco's View

Transco did not express a view.

2.5.3 Ownership of Connecting Pipes

Background

In our November consultation document, we noted BG plc's intention that Transco would own the pipelines connecting the facilities currently owned by BG Storage to the National Transmission System (NTS). We also noted that the pipeline connecting the Hatfield Moor facility to the NTS is to be owned by ScottishPower. We sought views on whether Transco's arrangements in respect of connecting pipes were unduly discriminatory, or whether they involved any element of unjustifiable cross-subsidy.

Respondents' Views

All respondents agreed that Transco must not discriminate unduly in the arrangements that it makes with respect to connecting pipes. However, respondents were divided on whether the present arrangements were unduly discriminatory or constituted an unjustifiable cross-subsidy. In addition, respondents who stated that the present arrangements were unduly discriminatory differed in how they believed Transco should address the situation.

A number of respondents were concerned that the present arrangements were unduly discriminatory. Of those, two prospective storage operators said that Transco had refused to take ownership of the connecting pipeline to their storage facilities. One said that Transco had refused to take on ownership of the pipeline because the adoption policy in respect of such pipes was not in force when construction began. Both respondents concluded that the arrangements in respect of the facilities owned by BG plc constituted an unjustifiable cross-subsidy. Both of these respondents concluded that Transco should relinquish ownership of the connecting pipelines to BG Storage as soon as reasonably practicable.

Two other respondents believed that the present arrangements were unduly discriminatory but concluded instead that Transco should take on ownership of the ScottishPower connecting pipe. These respondents felt that if a connecting pipeline met Transco's standards and was 'fit for purpose' then Transco should not be able to rule out participation in its trial adoption policy simply because design work had already commenced. In addition, if Transco intended to own the BG Storage connecting pipes, Transco ought to be prepared to accept ownership of pipes connecting other storage facilities to the NTS on similarly favourable terms. To the extent that this might not be possible under Transco's current connection policy, it was felt that the issue ought to be referred to the Connections Steering Group as matter of urgency.

One storage operator believed that Transco's arrangements were not discriminatory, since they were consistent with its existing policy. The respondent believed that the lengths of pipeline and the level of maintenance costs were small, and suggested that any issues be addressed in the Connections Steering Group.

Transco's View

Transco stated that in the case of the current BG Storage facilities the connecting pipelines were built under the prevailing policy whereby all such dedicated pipelines were built by British Gas. Transco believed that it would be inconsistent to transfer ownership of the pipelines to BG Storage without consideration of all other such dedicated connection pipelines. Transco also commented that any potential cross-subsidy arising from ongoing ownership by Transco of pipelines connecting BG Storage facilities was small. Transco said that Hornsea was the only facility with any significant length of connecting pipeline. (There are two such pipes; each is 4 km in length.) Transco indicated that it was willing to discuss the issue of cross-subsidy and cost structures with regard to connecting pipes in an appropriate forum if the industry so required, and that it would apply any policy changes thereafter in a non-discriminatory manner.

Transco pointed out that the arrangements with respect to Hatfield Moor were fully in accordance with its current NTS connections policy, and that ScottishPower had begun construction at a time when Transco's policy was not to take ownership of such pipelines. Transco also said that these issues had been extensively considered by the industry. Transco stated that it was not currently possible retrospectively to assure design and construction standards for a pipeline that had already been laid. Transco recently noted a suggestion that it might be possible to develop a charging methodology that distinguishes between connecting pipes, the costs of which are borne by the facility operator, and those pipes that are owned by Transco. In the latter case, the charge would reflect that only users of the connecting pipe would benefit from Transco operations costs.

Ofgem's View

Ofgem notes Transco's view that it cannot, under its present connection policy, take ownership of a pipeline if construction work has already begun. However, Ofgem's initial view is that resolving the issues relating to ownership of and payment for connecting pipes requires further industry discussion since the potential implications relate to both storage and non-storage connections. We believe that the industry should consider the scale of any cross-subsidies involved in Transco taking ownership of such pipes, re-examine Transco's connection policy to see whether taking ownership 'retrospectively' could be possible, and, if appropriate, discuss any charging proposals

that could be developed in this area. A reconstituted Connections Steering Group could address these issues. In the event that these discussions result in any changes to Transco's connection policy, these changes may need to be reflected in individual connection agreements, including at storage connection points.

Appendix 1 List of Respondents to Ofgem's Consultation Document

The following organisations submitted non-confidential responses to our November 1999 consultation document:-

Aquila Energy;
BG Storage;
British Gas Trading;
Dynegy UK;
Health and Safety Executive;
InterGen;
Scottish and Southern Energy;
ScottishPower; and
Transco.

Copies of these responses are available on request from Ofgem's library. Should you require copies please contact the Ofgem library on 0171 932 1602.