OFGEM DECISION LETTER No. 0681

"Amendment of Network Entry Provisions at ConocoPhillips sub terminal at Theddlethorpe"
Version 1.0

Shippers, National Grid Transco and other interested parties

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Dear Colleague

Network code modification proposal 0681 "Amendment of Network Entry Provisions at ConocoPhillips sub terminal at Theddlethorpe"

Ofgem[1] has carefully considered the issues raised in modification proposal 0681 to Transco's network code, "Amendment of Network Entry Provisions at ConocoPhillips sub terminal at Theddlethorpe".

Having had regard to the principal objective and statutory duties of the Authority, Ofgem has decided to direct Transco to implement modification proposal 0681 because we consider that the proposal will better facilitate the relevant objectives of Transco's network code under standard condition 9 of Transco's Gas Transporters (GT) licence.

In this letter, we explain the background to the modification proposal and give reasons for making our decision.

Background to the proposal

Gas Safety (Management) Regulations (GS(M)R)
The GS(M)R, which are part of health and safety legislation, set the legal parameters for gas entering into and leaving the GB gas network. These parameters are set to ensure the safe transportation and utilisation of gas. All gas entering the National Transmission System (NTS) must comply with these regulations.

Network entry agreements / legacy contracts
In addition to the GS(M)R, Transco has its own individual gas quality specifications at each entry point, which it agrees with the relevant sub terminal operator. At some sub terminals, these specifications are contained in Network Entry Agreements (NEA). NEAs are subsidiary documents governed by Transco's network code. However, at some of the sub terminals, these

specifications are contained in pre-network code agreements (so called "legacy contracts). These legacy agreements were signed primarily by British Gas and the relevant producers at the entry points, prior to the inception of Transco's network code.

While the legacy agreements are not directly regulated by Ofgem, the gas quality specifications contained in these agreements are referenced in Transco's network code and are therefore subject to modification proposals in the normal way. That is, under section I of Transco's network code, any changes to the Network Entry Provisions, which includes gas entry conditions, measurement provisions and the point or points of delivery, need the written consent of all users who are registered at such a date when the amendment is to take affect or it is necessary to raise a modification proposal. Any changes to the gas quality parameters falls under the measurement provisions section and therefore, Ofgem has the power to approve amendments to the NEAs and in particular the changes to the gas quality specifications.

Gas quality parameters

In the UK, gas appliances are designed and tested to operate on methane. The appliances are tested with this reference gas and also limit gases. The limit gases[4] are those which fall at the upper and lower ends of the GS(M)R Wobbe range. [5]

Natural gas contains hydrocarbons (methane, ethane, propane, and butane), small quantities of hydrogen, inert gases such as such as nitrogen and carbon dioxide, and contaminants such as hydrogen sulphide, oxygen and mercury.

There are five elements of gas quality that are specific to this particular modification proposal:

- the Wobbe index is related to calorific value and density. At the moment the Wobbe specification at Theddlethorpe is between 48.3 – 51.3 MJ/m^3. This is within the current GS(M)R limit of 47.2 – 51.41 MJ/m^3;

- the calorific value (CV) is a measure of the energy content of gas. Presently the CV at Theddlethorpe is between 36.9 MJ/m^3 - 42.3 MJ/m^3. There is currently no specification for CV in GS(M)R;

- the soot index is a property of gas that can be defined as the highest level of aeration that results in the visible production of soot, divided by the natural aeration of the burner. The GS(M)R and the NTS specifications limit the soot index to a number lower than 0.60;

- the Incomplete combustion factor (ICF) predicts the amount of unburned hydrocarbons in flue gas when gas of known composition is burned in an appliance. The amount specified in the GS(M)R and Transco's NTS specifications limit the ICF to a number lower than 0.48;

- the hydrogen specification stated in the GS(M)R and Transco's NTS specification allows 0.1% of a molecule or less.

Transco's obligations

Transco has a number of obligations that affect arrangements and performance for gas quality within the GS(M)R, the Gas Act 1986 and under its GT licence.

Transco must comply with the GS(M)R when allowing gases to enter its transportation system.

Under section 9 of the Gas Act, Transco must comply, so far as it is economical to do so, with any reasonable request for it to connect to the system, and convey gas by means of that system to, any premises. In doing so, Transco must avoid any undue preference or undue discrimination … in the terms on which it undertakes the conveyance of gas …

Amended Standard Condition 4D of the GT licence also states that:

> "the licensee shall conduct its transportation business in the manner best calculated to secure that neither –
>
> - the licensee or any affiliate or related undertaking of the licensee, nor
> - any gas shipper or gas supplier,
>
> obtains any unfair commercial advantage including, in particular, any such advantage from a preferential or discriminatory arrangement…"

Ofgem's statutory duty with regards to gas quality

The principle objective of the Authority is to protect the interests of consumers[6] . Further, under the Gas Act, "the Authority may with the consent of the Secretary of State, prescribe standards of pressure and purity to be complied with by gas transporters in conveying gas to premises or to pipe-line systems operated by other gas transporters". [7]

DTI/Ofgem/HSE study

The Government committed in the Energy White Paper with respect to gas quality, to "keep developments here closely under review. In particular we will monitor the likely effects on gas quality."[8] Subsequently, the Department of Trade and Industry (DTI) announced the launch of a three phase gas quality exercise. This is a joint study between the DTI, Ofgem and the Health and Safety Executive (HSE).

This study will assess the gas quality implications for the UK as it becomes import-dependent in the coming years. The study will consider both the need to facilitate trade in the wholesale gas market and the need to ensure that customers' gas appliances function adequately. In phase one, a study was commissioned by the DTI from Ilex Energy Consulting Ltd.[9] It concluded that the UK's ability to meet gas demand could be impaired by the mismatch between the national gas specification requirements with respect to the quality of gas that could be imported and the quality of potential gas sources. This finding launched phase two of the study, which is currently exploring the different policy options available to the UK. Phase three will implement the preferred policy option, likely to be around mid 2005.

Ofgem and the DTI are also aware of the gas quality developments that are occurring in Continental Europe. These developments are mainly focusing on the work being achieved by

EASEE-gas[10], which comprises of representatives of gas transporters and other interested parties from Europe, working to agree on common gas quality standards to aid the harmonisation of the gas markets in Europe. However, the results of this forum are voluntary and therefore EASEE-gas cannot currently force member states to adopt the standards.

Flow weighted average CV calculations
The Gas (Calculation of Thermal Energy) Regulations 1996, written by Ofgas, specify in detail permitted methods that Gas Transporters may use to calculate the energy content of gas supplied to consumers. The 1997 Amendment Regulations introduced a concept of charging areas and flow weighted average energy content. Regulation 4 introduced a capping mechanism that prevents the gas transporter from charging for energy content higher than 1 MJ/m^3 above that of the gas with the lowest energy content entering the charging zone.

Transco's system is split up into a number of charging areas. Some of these charging areas receive gas from a single feeder (e.g. Scotland) and others receive gas from a number of feeders, all with varying CV contents. The gas supply is metered (to a good degree of accuracy) at each entry point to a charging area and shippers pay for gas measured at these meters. In these charging areas, the energy content of gas that is delivered to customers, is measured on a flow weighted average (FWA) basis reconciled via RbD (reconciliation by difference). The FWA methodology, in using averaging, could lead to some customers receiving a higher energy content of gas for the price they pay and some customers could receive a lower energy content of gas for the same price. However, when the FWA methodology was approved, it was judged that the costs of introducing more accurate metering to ensure accuracy were judged to be too high relative to the benefits of marginally more accurate cost targeting.

The Proposal

Modification proposal 0681 was proposed by Transco on 12 December 2003. The modification proposal seeks to modify certain clauses of section I of its network code so that the Wobbe number in place at ConocoPhillips sub terminal at Theddlethorpe, set out in the relevant NEA, be lowered from 48.3 MJ/m^3 to 47.36 MJ/m^3. It also proposes the upper limit for the Wobbe number should be increased from 51.3 MJ/m^3 to 51.41 MJ/m^3 and the lower limit of CV be increased from 36.9 MJ/m^3 to 37.3 MJ/m^3. Furthermore there are other parameters included in this modification proposal to align the sub terminal at Theddlethorpe with GS(M)R, which are not currently specified at Theddlethorpe. These parameters are hydrogen, ICF and the soot index.

Respondents' views

There were five responses to this proposal, three respondents supported the proposal and two offered qualified support.

Of the three respondents expressing support for the proposal, they all cited the fact that this modification proposal would ensure effective competition between shippers because it would allow more gas into the UK, with one respondent saying that if this proposal was not

implemented it could lead to less flexibility and/or costs for shippers. Two respondents also noted that effective competition would be secured with suppliers due to the extra gas able to flow in the UK.

One respondent claimed that in the past it was easier to blend the lower Wobbe gas with higher Wobbe gas. However, as gas fields are being depleted this is no longer possible on the same scale and as greater quantities of lower Wobbe gas reserves are being discovered, implementing this modification proposal would ease production constraints in the North Sea and enhance medium term security of supply.

One respondent considered this modification proposal to be beneficial because new gas supplies could be brought onto the system without any capital investment necessary to develop Transco's system to allow this new gas source to enter the NTS. This respondent also noted that these new gas supplies could be developed relatively quickly, easing some of the constraints in the North Sea. One of the respondents in favour of the proposal did state that it was wholly supportive if the modification were to be approved and the specifications amended, as long as no other such terminal would be discriminated against, in that any other terminal should be free to alter its entry specifications where it is deemed necessary by the terminal operator.

One of the respondents that offered qualified support commented that the quality of gas that can be accepted is dependent on a number of factors and is usually site specific. It also claimed that as long as all the affected shippers agreed to the changes in the entry specifications then it would have no objections to the modification proposal.

The other respondent offering qualified support was concerned about the effect the lower Wobbe gas would have on its end users. The respondent was concerned about the effect this modification proposal would have on its pipeline, in which gas flowing through it is generally commingled with the gas coming in at ConocoPhillips sub terminal at Theddlethorpe. However the respondent supported the principle of the modification proposal but had concerns over the potential time scale. In a further submission this respondent stated that its concerns had been allayed and therefore offered its support to the modification proposal.

The Health and Safety Executive did not respond to the consultation.

Re-consultation on the CV shrinkage costs

In the original modification report, Transco considered the increase in CV shrinkage costs for this modification proposal, arising from the FWA methodology, were minor. After assessing the merits of the modification proposal, Ofgem asked Transco to provide a clear estimate of the CV shrinkage costs before Ofgem could finalise its position with respect to the modification proposal. Transco estimated that the increase in CV shrinkage costs, as a result of this modification was around £1.5 million. As a result, Ofgem published a further consultation on 30 April 2003 with respect to the increase in CV shrinkage costs. There were 10 responses to the second consultation. Of these responses; nine were in favour of the modification proposal. Transco continued to support the modification proposal. Further details on this re-consultation can be found in Appendix 1.

Transco's view

Transco supported the modification proposal stating that it would allow more gas to flow onto the NTS. It acknowledged that this proposal would be more beneficial for security of supply reasons because the development of these new sources could occur quickly and it is proposed that 9,900 mcm of gas would be delivered to the NTS if the modification is approved. Transco considered that these new developments would help to secure medium term security of supply. Transco also stated that this did not require any immediate requirement to invest further into the NTS as there is significant spare entry capacity at Theddlethorpe to support the additional gas supplies.

Transco also states that the potential increase in the gas supplies would be expected to facilitate the achievement of securing effective competition between shippers and suppliers. Transco acknowledged that a potential disadvantage with this modification proposal is that CV shrinkage[11] costs could increase as lower Wobbe gas enters the NTS. However Transco has demonstrated that the costs of this will be largely offset by Theddlethorpe's location as it is expected that any flows from Theddlethorpe will be commingled with gas supplies from other terminals before the offtake at the LDZ level. Transco has provided analysis demonstrating that, based on likely patterns of gas flows onto and from the system, there is unlikely to be any material increase in shrinkage costs (see Appendix 1).

Ofgem's view

Ofgem has carefully considered all of the respondents and Transco's views on both the original modification proposal 0681 Final Modification Report and Ofgem's further consultation. Having had regard to its principal objective, Ofgem considers that this modification proposal better facilitates achievement of relevant objectives (a) and (c) of the network code.

Relevant objective 9(a) of the GT licence – the efficient and economic operation by the licensee of its pipe-line system

This modification proposal allows for a significant increase in available supplies of the UKCS gas that can be delivered to the GB gas market across Transco's system via ConocoPhillips sub terminal. By allowing this lower Wobbe gas to enter ConocoPhillips sub terminal, it would ensure that up to 14% more gas could be made available at Theddlethorpe per annum. This additional supply of gas will, other things being equal, increase competition in the provision of gas balancing and other system services that Transco must procure to operate the system. Greater competition will lead to more efficient and economic operation of Transco's system.

Ofgem also notes that approval of this modification proposal could enable further exploitation of the Southern basin carboniferous fields. This would potentially allow for further additional gas to be brought on stream, easing any supply constraints, and again enable Transco to operate the pipeline system in an economic and efficient manner.

Relevant objective 9 (c) of the GT licence – securing effective competition between relevant shippers

The modification proposal would allow new gas to flow to GB via ConocoPhillips sub terminal, not just from ConocoPhillips but any other producer that wishes to develop and exploit these lower Wobbe fields in the South North Sea. Ofgem considers that by enabling these sources of gas to come on stream this would therefore increase competition in the wholesale gas market which could lead to downward pressure on gas prices. Therefore, Ofgem considers that this modification proposal better facilitates achievement of relevant objective (c) of Transco's network code.

Other considerations

Ofgem has considered whether there is any undue discrimination as a result of lowering the gas quality standards by this modification proposal. Ofgem concludes that because no direct costs are picked up by Transco or users, there is no issue of discrimination associated with this modification proposal.

With respect to the cost re-allocation resulting from the CV FWA calculations, we consider that the increase in CV shrinkage does not impose a direct cost on the system but is a transfer cost resulting from the FWA methodology. As the £1.5 million represent a transfer in cost and not a net increase in costs to customers, Ofgem does not consider the costs associated with this modification proposal to be significant.

Ofgem's principle objective is to protect the interests of customers, whilst having regard to safety and the environment.[12] Delivery of gas with inappropriate quality parameters to customers can result in a wide range of undesirable consequences. Transco believes that there are no safety issues in accepting lower Wobbe gas at Theddlethorpe and therefore, particularly as the lower Wobbe gas remains within the GS(M)R limit, Ofgem considers that it is unlikely to cause any significant safety issues for Transco or customers.

Way forward

Ofgem notes that it is for market participants to raise any further gas quality modification proposals and also notes that any further modification proposals raised will be considered on a case by case basis. As a general principle, Ofgem would note that if any modification proposals were likely to impose significant costs on Transco's system, and therefore ultimately customers, Ofgem considers that it could be appropriate for these costs to be charged back to those parties causing the costs to be incurred.

Ofgem's consideration of this modification proposal has raised a number of important issues regarding Transco's charges for transportation services particularly where Transco offers different gas quality specifications at different entry terminals. The modification proposal has also raised the issue of the potential costs associated with changing the current gas quality specifications. Therefore Ofgem considers it necessary to explore the idea of charging for the provision of gas quality services. With this in mind, Ofgem will shortly be publishing an open

letter highlighting current and potential, gas quality problems. In particular, this letter will include a table containing gas quality specifications at each sub terminal, highlighting the different specifications currently in place. This will, in part, inform the proposed way forward regarding gas quality issues in a wider context. Ofgem also notes that the route adopted to deal with the gas quality issues will need to account for the outcome of the DTI/Ofgem/HSE gas quality study.

Ofgem's decision

For the reasons outlined above, Ofgem has decided to direct Transco to implement network code modification proposal 0681 because it considers that it better facilitates achievement of the relevant objectives as outlined under Standard Condition 9 of Transco's GT licence and is consistent with the principal objective and statutory duties of the Authority. In particular, Ofgem considers that the additional gas supplies at this sub terminal should better facilitate achievement of the relevant objective set out under standard condition 9 (a) of the GT licence – increase the efficient and economic operation by the licensee of its pipeline and the relevant objective set out in standard condition 9 (c) of the GT licence – securing the effective competition between the relevant shippers and the relevant suppliers.

If you have any further queries in relation to the issues raised in this letter, please feel free to contact me on the above number or Fiona Lewis on 020 7901 7436.

Yours sincerely

Kyran Hanks
Director, Wholesale Markets

[1] Ofgem is the office of the Gas and Electricity Markets Authority. The terms 'Ofgem' and the 'Authority' are used interchangeably in this letter.
[2] Limit gases relate to gas falling at the upper and lower end of the Wobbe limit as specified in the GS(MR)R. These gases are usually tested to confirm that they will operate safely, if temporary excursions up to these limits occur. It should be noted that it is accepted that "operate safely" can be achieved by controlling shutdown of the appliance in a manner that presents no hazard to the user or surrounding property.
[3] The GS(MR)R range for the Wobbe number is 47.2 MJ/m^3-51.41 MJ/m^3
[4] Limit gases relate to gas falling at the upper and lower end of the Wobbe limit as specified in the GS(M)R. These gases are usually tested to confirm that they will operate safely, if temporary excursions up to these limits occur. It should be noted that it is accepted that "operate safely" can be achieved by controlling shutdown of the appliance in a manner that presents no hazard to the user or surrounding property.
[5] The GS(M)R range for the Wobbe number is 47.2 MJ/m^3-51.41 MJ/m^3
[6] Section 4AA (1) of the Gas Act 1986.
[7] Section 16 (1) (a) of the Gas Act 1986.
[8] Energy White Paper: Our energy future creating a low carbon economy, DTI, February 2003
[9] A copy of this report can be found on the DTI's website in the energy section.
[10] European Association for the Streamlining of Energy Exchange, for more information see www.easee-gas.org

[11] Shrinkage gas is gas lost through the transportation system, which includes gas lost through leakage, theft and gas used for operational purposes. Specifically unbilled energy is the result of differences between the actual calorific value of gas delivered onto the NTS and the average (flow weighted) calorific value upon which billing is based.

[12] Section 4AA of the Gas Act 1986

Appendix 1

Re-consultation of Modification proposal 0681 "Amendment of Network Entry Provisions at ConocoPhillips sub terminal at Theddlethorpe"

After assessing the merits of the modification proposal, Ofgem asked Transco to provide a clear estimate of the Calorific Value (CV) shrinkage costs before Ofgem could finalise its position with respect to the modification proposal. Transco quantified the potential impact on CV shrinkage to be around £1.5 million per annum, of which Transco would bear 25% of any additional CV shrinkage costs if outperforming relative to the target, 20% if below target and none of the costs if outside the caps and collars. The remainder of the costs would be reflected in the System Operator (SO) commodity charge. Ofgem was of the view that the increase in CV shrinkage costs was additional information not set out in the original modification report and therefore sought views on the potential increase in the cost of CV shrinkage from shippers, Transco and other interested parties.

Respondents' views

There were ten responses to the re-consultation, nine of these respondents supported the modification proposal.

All the respondents expressing support for the proposal did so because they believed that this modification proposal would enhance security of supply by allowing gas to enter the National Transmission System from the Southern Gas Basin.

It was highlighted amongst a few of the responses that other parties have discovered reserves in the Southern Gas Basin, which typically have lower Wobbe limits, and any further delays or indeed rejection of this modification proposal would cause these developments to be delayed or cancelled altogether. At the present time there is a shortfall of supply especially in the winter period, thus these potential new fields in the South North Sea could help increase the available gas supplies, which could help reduce gas prices. These new gas supplies can also be brought on the system relatively quickly, without the need for any capital investment on Transco's system.

The responses in favour of the implementation of this modification proposal, considered that the benefits of bringing additional gas onto the system outweighed the increase in CV shrinkage costs, especially as the alternative would be keeping gas off of the system, impeding effective competition between shippers and suppliers and hindering security of supply. It was also noted by one respondent that the increase in CV shrinkage is a transfer not a resource cost. The proposed gas entering the NTS at ConocoPhillips sub-terminal is still within the Gas Safety (Management) Regulations (GS(M)R), and the increase in CV shrinkage cost results from the design of the rules surrounding the billing of customers.

It was acknowledged by a few respondents that the depletion of offshore blend gas is becoming a constraint, allowing lower Wobbe gas onto the NTS would reduce the blending constraint, lowering the amount of unexpected supply interruptions**.**

It was noted by one respondent that the cost of insufficient gas supplies on one or a couple of days could easily be greater than changing the entry specifications at Theddlethorpe. Furthermore another respondent stated that the reduction in production, if the modification proposal was not approved, would be more severe than the increase in CV costs.

One respondent also considered that implementation of this modification proposal should not wait until the outcome of the DTI/Ofgem/HSE study on gas quality, but it may be worth implementing this proposal for a limited period of time, with the expectation of doing a review of the gas quality issues once the study has been completed.

The respondent against this proposal did not agree with narrowing the CV range for two reasons. First, doing this would not enable additional gas supplies to be delivered and secondly it was considered that narrowing the CV range in this modification proposal could lead to ranges at other entry points also being reduced. The respondent further considered that the higher CV shrinkage costs, as a result of the implementation of this modification, would be subsidised by the community and not targeted at the relevant producers. The respondent noted that Transco's policy with respect to entry conditions and any subsequent changes, especially relating to gas quality and metering should be consulted upon.

Transco's view

Transco consider that the increase in the cost of CV shrinkage is a transfer rather than a resource cost. This is because the change in CV shrinkage costs brought about by this modification proposal, may lead to a change in the costs faced by different parties, but no real resource costs are involved. Transco noted that it therefore acknowledges that the benefits of this proposal would be expected to exceed the costs, highlighting the fact that it still supported the modification proposal.

Transco also stated that in its calculations of its long run marginal cost (Transcost), the CV of gas is taken into account and therefore the reserve prices set for each entry point do, in practice reflect the CV of the gas which is anticipated at the time that the modelling is undertaken.