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The economic regulation of gas processing services - key issues and initial thoughts

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Target audience: Gas shippers, suppliers, National Grid Gas, LNG terminal investors and any other interested parties.

Overview:

The quality specifications for natural gas entering the Great Britain (GB) transmission system are based on indigenous sources that are in decline. As imports provide a greater share of our natural gas supplies, gas processing facilities may be required to bring imported gas within the prescribed quality specifications for use in gas appliances in homes and businesses. The GB gas quality specifications are typically narrower than those applied in continental Europe - which is likely to be a significant source of imports.

Ofgem is consulting on the appropriate regulatory arrangements for any onshore gas processing services that may be developed to bring gas imports to the required specification. This document builds on two industry workstreams held in 2006 to consider this issue. We will use responses to this document to inform the development of regulatory policy - and in particular, whether the provision of these services and facilities can be left to the market or whether there should be scope for services and facilities to be run as regulated services by network companies such as National Grid Gas.

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Context

Gas quality specifications in Great Britain (GB) were set when GB was self-sufficient in gas. They are based on the typical quality of gas from the UK Continental Shelf. As North Sea reserves decline, the GB market is likely to become more reliant on imported gas from a range of sources, including continental Europe. As gas specifications in continental Europe are broader than those in GB, there is a concern that differences in gas quality could prevent gas being exported from Europe to the UK. This could reduce security of supply and lead to higher prices for GB customers.

The Department of Trade and Industry (DTI) is evaluating one potential solution to this issue - broadening GB gas specifications to match those in Europe - but does not propose to seek changes to take effect before 2020. An alternative to amending the specifications is to develop gas processing services so that non-compliant gas can be treated and brought within GB quality specifications before it enters the GB market. These services might be developed onshore in GB or further upstream.

In line with our regulatory responsibilities for the GB onshore network, we are considering the appropriate arrangements for any onshore gas processing services that may be required to treat gas imports. The purpose of this document is to seek views on several important issues related to these arrangements. We will draw upon these responses in considering the appropriate treatment of onshore gas processing services - and in particular, the degree to which these services should be provided solely by the market or whether they should be developed as regulated activities.

Associated Documents

- Gas Quality Scenario Development and Economic Regulation workstreams - Conclusions, Ofgem, January 2007.
http://www.ofgem.gov.uk/Markets/WhlMkts/CompandEff/GasQual/Documents1/16830-1707.pdf

- Advantica Report: Blending at Bacton Terminal: 26 July 2006.
http://www.nationalgrid.com/NR/rdonlyres/2CAD68F8-1323-4C8B-ACC1-18DD39CB0D01/8111/BactonBlendingPublicVersion.pdf

- Future Arrangements for Great Britain's gas quality specifications - a public consultation: 29 December 2005. Department of Trade and Industry.
http://www.dti.gov.uk/files/file15296.pdf

- Importing Gas into the UK- Gas Quality Issues: November 2003. ILEX energy consulting report, prepared for DTI, Ofgem and HSE.
http://www.dti.gov.uk/files/file20961.pdf

- The EASEE-gas Common Business Practices
http://www.easee-gas.org/common%2Dbusiness%2Dpractices/approved%2DCBPs/

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Summary

Natural gas comprises a mixture of hydrocarbon gases and other gases and impurities. The relative quantities of these contents in a given amount of natural gas define its 'quality', and this can vary widely depending on the source of the gas.

Gas appliances in GB are designed to operate safely within a specified gas quality range. This range is based on the quality of gas typically found on the UK Continental Shelf (UKCS) – traditionally the primary sources of GB supplies. As supplies from the North Sea decline, GB will become increasingly reliant on imported gas - whose quality may not conform to the specifications of the UKCS. This could limit the number of sources from which suppliers can buy gas to import to the GB market, which could lead to higher wholesale gas prices for GB customers and could reduce security of supply by reducing the diversity of available gas supplies.

The Department of Trade and Industry (DTI) has commissioned research on solutions to this potential issue, and in light of initial results has announced that it does not propose to seek changes to GB's regulated gas specification to take effect before 2020. This is because the DTI considers it would not be cost effective to replace or alter all GB gas appliances to run safely on specifications consistent with those in Europe. An alternative option to amending the GB specifications, that the DTI considers is cheaper, is to develop processing services so that non-compliant gas may be treated and brought within GB qualification specifications prior to entry to the GB market. These services and facilities might be developed onshore in GB or further upstream in the gas supply chain.

In line with our regulatory responsibilities for the GB onshore network, we are considering the appropriate treatment for any onshore gas processing services and facilities that may be required to treat gas imports. We continue to consider all of the options, from an approach where services are developed commercially and the companies investing in them bear the risk (i.e. a fully commercial approach) to one where the services or facilities are formally regulated and all of the risk is borne directly by gas customers (i.e. 'pure regulated' approach).

In this consultation document we are seeking views on key issues in this consideration, building on the progress of a number of industry meetings held in 2006 that raised these issues. Responses are sought by 22 August 2007. We will draw upon these responses in considering the appropriate treatment of onshore gas processing services, including the degree to which (if any) the risk of providing these services should be shared with gas GB consumers. Our next step will be to develop Initial Proposals and we will publish these later in the year when we have considered responses to this document.

1. Introduction

Chapter Summary

In this Chapter we present a brief overview of potential concerns for GB gas consumers related to gas quality issues. We then discuss recent work by Ofgem and the industry in assessing these concerns, before outlining the objective of this paper and way forward.

1.1. Natural gas comprises a mixture of hydrocarbon gases and other gases and impurities that can vary widely between sources. Its 'quality' is determined by the relative quantities of these in a given amount of natural gas.

1.2. Gas appliances in GB are designed to operate within a specified gas quality range, with those specifications based on gas sourced from the UK Continental Shelf (UKCS) – traditionally the primary source of GB supplies. As these supplies decline, GB will become increasingly reliant upon imports of gas, whose quality may not conform to the specifications of the UKCS. To the extent that this acts as a potential constraint on gas imports entering the GB market, this could lead to higher GB wholesale gas prices. As a consequence, new gas processing facilities may be required at NTS entry points. This document addresses the issue of the most appropriate regulatory treatment of any such facilities.

Background

1.3. It is the responsibility of National Grid Gas (NGG) as Transmission System Operator (TSO) of the National Transmission System (NTS) to ensure that the gas flowing on the NTS complies with the GB gas quality specifications. Shippers also have a responsibility to ensure that they deliver compliant gas to system entry points. It is possible, however, to treat gas that does not comply with the GB specifications prior to entry to the NTS. Treatment typically involves blending or ballasting gas to alter its chemical composition at a processing facility.

1.4. Policy and regulatory responsibilities for gas quality matters in GB are shared across three public agencies:

- The Health and Safety Executive (HSE), which sets the (safety-related) quality levels of gas;
- The DTI, which is the licence authority for the offshore oil/gas production regime and liaises with the HSE on gas quality matters; and
- Ofgem, which regulates the onshore gas market and monitors compliance with the onshore regulatory framework.

Previous work by Ofgem on gas quality

1.5. The key role for Ofgem is to regulate the onshore gas market and monitor compliance with the onshore regulatory framework. In this capacity we facilitated a series of industry workshops from September to December 2006. Separate workstreams considered, in parallel, two key questions concerning the quality of future gas imports to the UK.

i. How likely was it that future gas flowing to the GB would be of a quality that was outside of that allowed to flow onto the NTS?

ii. What would be the most appropriate regulatory treatment for any onshore gas processing facility required to treat gas at an entry point to the NTS to ensure that it is within the GB specifications?

1.6. The progress of the workshops in considering these issues is presented in *Gas Quality Scenario Development and Economic Regulation workstreams – Conclusions*[1]. In summary:

- the Scenario Development workstream found there was significant uncertainty over the potential source and quality of future UK gas supplies – and over whether gas quality mismatches could raise GB wholesale prices. The major buyers and sellers of gas – who we would expect to be best placed to assess future gas sources – were unwilling or unable to provide sufficient information for a full evaluation (citing commercial confidentiality and uncertainty); and

- the Economic Regulation workstream considered the most appropriate regulatory approach to be one where, in addition to any investment that might be undertaken on a fully commercial basis, NGG would be required to invest in an onshore gas processing facility if potential users were willing to commit to finance it. NGG could also invest in a processing facility at its own discretion subject to different regulatory arrangements.

Purpose of this paper

1.7. In *Gas Quality Scenario Development and Economic Regulation workstreams – Conclusions*, Ofgem noted that further work would be required to consider an appropriate regulatory approach, building on the progress of the workstream.

1.8. This paper meets this purpose. It considers a number of issues in relation to the potential treatment of an onshore gas processing facility, drawing partly upon the conclusions of the workstream, and seeks feedback from market participants on

[1] This document can be found at http://www.ofgem.gov.uk

those issues. As an initial consultation document on such issues, it seeks views on the entire spectrum of possible regulatory approaches.

1.9. We invite views and supporting evidence from market participants on the issues raised in this document and, more broadly, on the appropriate treatment of onshore processing services. **Submissions are sought by 22 August 2007.** We will use these responses to inform the development of regulatory policy - and in particular, the degree to which (if any) the risk of onshore gas processing services should be shared with GB consumers.

Structure

1.10. This paper is structured as follows:

- Chapter 2 provides a background to the discussion of key issues by outlining the conclusions of the industry workstreams and other ongoing work on gas quality;
- Chapter 3 considers general issues in the treatment of any onshore GB gas processing services;
- Chapter 4 considers two particular issues related to regulatory approach developed in the Economic Regulation workstream; and
- Chapter 5 outlines the way forward in this area of work.

2. Background

Chapter Summary

This Chapter provides background to our discussion of key issues in considering the treatment of gas processing services in GB. It outlines the progress of the Scenario Development and Economic Regulation workstreams, then considers ongoing work by other parties, including in Europe.

2.1. This Chapter is structured as follows:

- first, the progress and conclusions of the Scenario Development workstream are discussed;
- the findings of the Economic Regulation workstream are then presented, along with industry responses to those findings; and
- finally, other ongoing work on gas quality by the DTI, by European bodies and by the UK gas industry is highlighted.

Scenario Development workstream

2.2. The objective of the Scenario Development workstream was to identify the extent of any future gas-quality related constraints to GB supplies. To this end, it sought to develop and assess a set of gas supply scenarios for the GB market in the medium to long term.

2.3. This workstream considered a number of supply scenarios before conducting a modelling exercise with the three scenarios considered most realistic. This modelling produced a set of potential supply outcomes comprising a combination of gas volumes and Wobbe Index[2] values.

2.4. The next step would have been for the workstream to assign probabilities to each of the supply outcomes it developed. However, participants did not progress this stage as it was felt that they did not have sufficient information, due in part to reluctance from market participants to disclose matters they argued were commercially sensitive.

[2] The Wobbe Index is defined as the calorific value (CV) of gas, divided by the square root of the relative density. It is one key property that determines whether gas can be safely burned in industrial and domestic appliances. The Wobbe Index range for the UK is set at 47.2 - 51.41 MJ/sm3 under GS(M)R.

2.5. The main finding of the Scenario Development workstream was that there is considerable uncertainty over the mix of supplies likely to service future GB gas demand. Even those considered to have the most knowledge over future supply sources - buyers and sellers of gas - could not bring further clarity to this issue. The workstream concluded that the degree to which existing GB gas quality specifications may impose supply constraints - and hence the future need for gas processing services - is highly uncertain.

Economic Regulation workstream

2.6. This section considers the progress and conclusions of the Economic Regulation workstream. It includes:

- a brief overview of workstream conclusions; and
- a summary of responses we received to these conclusions.

Workstream conclusions

2.7. The Economic Regulation workstream ('the workstream') met on three occasions to discuss and develop options for a potential regulatory framework for an onshore gas processing facility constructed in GB to treat off-spec gas imports. The workstream did not intend for any regulated approach it may develop to preclude private investment in gas processing services.

2.8. Three broad regulatory frameworks were considered - two from opposing ends of the spectrum of regulatory approaches (pure commercial and pure regulated), and a third (a 'hybrid' approach) that sat between these extremes.

- Under the pure regulated approach, the gas processing facility would be built by National Grid Gas (NGG) and fall into its regulated asset base (RAB). Service costs would be recovered from shippers (and ultimately consumers) through National Transmission System (NTS) charges.
- In the pure commercial approach, an interested party or group of parties would build the facility and recover its costs from service users under commercial terms and conditions.
- Under the 'hybrid' approach, the facility would be built by NGG, but this investment would be fully (or partially) backed by firm financial commitments from shippers. NGG would earn a rate of return consistent with its transmission price control on its investment in service capacity underpinned by user contracts (and be subject to a similar risk profile).
    - In the basic hybrid approach ('Hybrid 1'), NGG would only build capacity to the level committed by users – if this proved viable.

- In a variation to this approach ('Hybrid 2'), NGG would build in response to user signals but would also have discretion to invest in additional capacity at the facility. NGG would face greater risk on its investment in this additional capacity than user-committed capacity.

2.9. The workstream highlighted several concerns with a pure regulated approach that led to it being excluded from further development. Foremost among these was the risk that GB gas customers would pay for a facility that wasn't needed or used. Other concerns included that this approach may crowd out any unregulated solution, that it may discriminate against LNG terminals (some of the existing and planned terminals have already invested in gas processing facilities with the risk borne by the developer or shipper(s)) and that unless the facility was designed on the basis of user commitment, then NGG may have an incentive to over-invest.

2.10. A purely commercial approach would address many of these issues by imposing commercial disciplines on the service, but this was also considered problematic. The primary concern was that signals from users to a potential investor in processing services might not be strong enough, increasing the risk of such investment and undermining the likelihood that it would be undertaken in sufficient time to ensure that any gas-quality related tightness in GB supplies was addressed at the right time. For this reason, the workstream did not choose to develop the unregulated approach further - although we do seek to explore this option further in this document.

2.11. The focus of the workstream thus became the hybrid regulatory approach. Of the two variations noted, the workstream preferred the Hybrid 2 model due to its greater flexibility: investment could be driven either by users or NGG. Specifically, the potential for NGG to drive investment in the event that user signals were insufficient to drive investment was a key attraction of the Hybrid 2 model.

Supporting arrangements for the Hybrid 2 model

2.12. The workstream further considered a process through which gas treatment services could be initiated under the Hybrid 2 model. Key features of the initiation phase developed by the workstream are outlined below.

- Upon being approached by a third party, NGG would be obliged to quote terms and conditions for undertaking a feasibility study for a gas processing facility at the specified entry point to the NTS.
- Provided these are agreed, NGG would carry out the feasibility study and provide to the third party its findings, including details on the relevant costs. The third party would then decide whether to proceed to tender for capacity at the facility.
- If the third party agreed, NGG would undertake an open season for treatment services at the specified location.

- On the basis of the open season and its own views, NGG would make a decision on the extent of its investment in a processing facility. Some investment by NGG might be obligated if market interest cleared some 'hurdle' level.

- The cost of the feasibility study would initially be borne by the party requesting the study. In the event that the study led to the offering of processing services, the cost of the study would need to be remunerated appropriately. One option considered is that it could be recovered from all users.

Next steps

2.13. At the conclusion of the workstream, Ofgem noted that further work would be required to consider the regulatory approach developed in the workstream. We flagged our next step to be the publication of a consultation document on the appropriate regulatory framework to support any investment in gas treatment facilities, drawing on the findings of the workstream.

Industry response

2.14. We sought industry views on the workstream conclusions document and the scope of work that should be undertaken on developing a regulatory framework to apply to any onshore gas processing facilities. Nine parties responded. Most highlighted the emerging importance of gas quality issues to the UK and supported Ofgem's role initiating discussion on onshore regulatory issues.

2.15. Many recognised the significant uncertainty surrounding the future source and quality of GB gas supplies. Several submissions claimed that such uncertainties were so extensive that they doubted the construction of a gas treatment facility fully underpinned by user commitment would ever occur; that the approach developed in the workstream would be similar to an unregulated approach. In addition to the source and quality of future gas supplies, respondents also considered that there were a number of other sources of uncertainty, including the future gas specifications to be applied in GB and across the EU.

2.16. Some respondents advocated a regulatory model that split stranded asset risk among future users and gas customers by reducing the commitment of future users to less than 100% of capacity. A threshold level of 50% was supported, on the basis of consistency with long term system entry capacity auctions. Spare capacity would be auctioned via a short-term pricing mechanism.

2.17. Some submissions highlighted practical concerns with the workstream approach. These related to:

- its targeting of service costs to importers of off-spec gas – it was argued that this would present significant difficulties, given that interconnectors and import pipelines receive a co-mingled stream of gas from a number of shippers and that it was not possible within the pipeline to identify gas quality on a shipper by shipper basis; and

- other contractual and regulatory arrangements – it was claimed that a key problem is that the current specifications on interconnected and import pipelines prevent any off-spec gas from even reaching GB. On this issue, IUK noted that changing its gas quality specifications would require consensus among its users, which may be problematic. It was also recognised that gas quality specification changes at Bacton, for example, may need to be accompanied by corresponding amendments to operational arrangements on European networks.

2.18. Some stakeholders suggested that a 'pure regulated' approach was the best solution to difficulties associated with cost-targeting. It was also proposed that Ofgem closer engage with European authorities to resolve key inter-operability and regulatory issues. We were also asked to provide greater clarity around a work program of activities that needs to be carried out by the parties relevant to these practical difficulties, in order to resolve key upstream issues. Further information on the interaction between Ofgem, DTI, ERGEG and the European Commission on gas standards, was also sought.

Other ongoing work on gas quality

2.19. This section discusses other ongoing work on gas quality, including:

- the work of the Department of Trade and Industry on the future GB gas specification;
- work across Europe; and
- the special Transmission Workstream meeting of 23 April 2007.

Department of Trade and Industry

2.20. One of the roles of the DTI is to liaise with the Health and Safety Executive (HSE) over GB's regulated gas quality specifications. In that capacity DTI makes policy recommendations to the HSE on GB's regulated gas quality specifications.

2.21. DTI has already indicated that it does not propose to seek any change to GB's regulated gas quality specifications to take effect prior to 2020. It has consulted on its further proposal not to seek amendment to those specifications after 2020. That proposal was based on the potential cost of such amendment; DTI estimated in 2005 that replacing or adapting UK gas appliances (after 2020) to make them compatible with a broader gas quality range would cost in the order of £2.0bn - £14.5bn in net present value terms. We understand that DTI intends to publish the Government response to finalise a position on future gas specifications soon.

Work across Europe

2.22. Several initiatives are currently underway examining gas quality in the broader context of a common European market. These require consideration in order to place gas quality issues on the GB market within a broader context. The two matters of most relevance are:

- the CEN Mandate; and
- work by the European Regulators' Group for electricity and gas.

The CEN Mandate

2.23. As part of its project on gas interoperability between member states, the European Commission has commissioned CEN (Comité Européen de Normalisation, European committee for standardisation) to develop European standards for gas quality.

2.24. CEN is, in 'phase 1', to create an overview of the existing population of relevant gas appliances within the EU, including the behaviour (in terms of safety, efficiency and environmental performance) of domestic appliances using different gas qualities. This will include a Europe-wide testing program. There will then be a 'co-ordination' phase, when CEN will present their results to the European Commission, which will integrate those results with its own work on inter-operability. In 'phase 2', CEN will develop European standards for gas quality, to help promote competition and security of supply. This work will take into account the Common Business Practise (CBP) developed by the European Association for Streamlining Energy Exchange for gas (EASEE-gas).

2.25. The mandate will be undertaken within a five year 'plus' timeframe, after which member states shall have 6 months to transpose the CEN European standard(s) into national standards. Taking these matters into account, 2012-13 is likely to be the earliest time at which the CEN-developed European standard(s) could apply.

2.26. Existing GB gas quality standards may not be affected, as the CEN mandate allows Member States to take into account the implications of the proposed standards for existing gas appliances. It also recognises the possibility of two or more gas quality standards in the EU, and the CEN process will allow a number of opportunities for policy consideration by the European Commission and Member States.

European Regulators' Group for electricity and gas

2.27. The European Regulators' Group for electricity and gas (ERGEG) is currently considering whether there needs to be any changes to the existing framework of legislation to ensure that there are appropriate arrangements in place for the treatment of gas processing services and facilities.

Transmission Workstream meeting

2.28. On 23 April 2007, the Joint Office of Gas Transporters hosted a special Transmission Workstream meeting to introduce a number of issues relevant to the development of gas processing services by NGG (under the approach developed by the Economic Regulation workstream) and to seek agreement on schedule of further meetings to resolve them.[3]

2.29. The set of issues outlined by NGG and the subsequent discussion at the meeting highlighted some general industry concerns with the approach developed in the workstream. These included:

- that arrangements upstream to the NTS form a key barrier to investment in onshore gas processing services; and
- that a full user commitment model was little different from a pure commercial approach, and as such:
    - there need not be any involvement by NGG; and
    - investment in gas processing services would not occur to an efficient level given the current uncertainties involved (in line with industry concern under a commercial approach).

2.30. In light of this meeting, we believe that the issues raised by industry need to be considered in more depth before a robust decision on the appropriate treatment for onshore gas processing facilities can be made. Ofgem considers that there are other issues that also need to be addressed at this stage.

2.31. This document provides an overview of these issues and provides for formal industry comment on them, along with a proposed way forward.

[3] Minutes for this meeting may be found at http://www.gasgovernance.com

3. General issues in the regulation of gas processing services

Chapter Summary

This Chapter sets out some issues we consider key to the development of policy regarding the treatment of onshore processing services, including how the risks in providing those services might be allocated between users and gas consumers. We also present our initial views on these issues.

Questions

Allocation of risk

Question 3.1: To what degree can commercial incentives alone be relied on to deliver efficient investment in gas processing services? If not, what is a reasonable balance of risk between customers and users?

Question 3.2: Would provision of gas processing services by NGG be the most cost effective approach? If so, please explain why.

Question 3.3: If NGG involvement is essential to the efficient provision of gas processing services, to what degree do existing arrangements ensure that NGG develops such services, if they are demanded? What other arrangements, if any, would be more appropriate?

Competition issues

Question 3.4: Given that existing market participants have already invested in gas import facilities including treatment of gas, how is the approach you favour consistent with preserving incentives for private investment in gas import and treatment facilities?

Upstream issues

Question 3.5: How much of the overall uncertainty attached to investment in onshore gas processing facilities is attributable to upstream issues, rather than future supply sources and demand? To what extent do potential difficulties in resolving such issues favour a processing solution (if required) upstream of the NTS?

Question 3.6: Can commercial parties be expected to resolve the upstream barriers to the provision of onshore processing services, to exploit commercial opportunities? If not, what limits might there be to the barriers commercial negotiations might resolve and what is an appropriate role for Ofgem?

3.1. The Economic Regulation workstream made good progress in highlighting, at a high level, a number of issues that need to be addressed in considering the treatment of an onshore gas processing facility. As outlined in Chapter 2, the workstream concluded that an approach in which risks were shared between

consumers and users was appropriate - hence the preference for a 'hybrid' regulatory approach.

3.2. In light of industry responses to the Conclusions document and the discussion at the Transmission Workstream meeting of 23 April (as outlined in Chapter 2), we believe more detailed consideration of these issues is necessary prior to the development of initial proposals. These issues relate to both the general principles on which regulatory policies in this area should be based, as well as more specific issues directly related to the output of the Economic Regulation workstream.

3.3. This chapter covers the more general issues, these being:

- allocation of service risks;
- competition issues; and
- upstream issues.

3.4. We cover questions more closely linked to the output of the workstream in Chapter 4.

Allocation of service risks

3.5. The fundamental issue in designing the regulatory framework is how best allocate the service risks[4] between shippers/producers and consumers. The aim is to allocate risk where it can best be managed so that customers have the best chance of benefiting from good investment decisions based on efficient investment in these services.

3.6. If commercial incentives alone will not lead to efficient investment, it may be appropriate for consumers to share some service risks. It may be that NGG is better placed to invest than other parties, or that there are other factors that mean that shippers individually or collectively do not have the best information or capabilities to judge the case for investment.

3.7. However, in principle the advantage of relying solely on commercial incentives is that when shippers are investing their own money they are most likely to make the most informed investment decisions. Consumers are likely to end up paying for any new facilities to a greater or lesser extent in various different scenarios, but they are likely to be protected from inefficient expenditure when investors face the full costs

[4] 'Service risks' refers to the range of risks associated with the provision of gas processing services. These include, for example, the risk that the investment is not used (stranded asset risk), the risk that the service is delayed or disrupted or subject to cost overruns and the risk that parties default on contracts, etc.

and benefits of the investment decisions they make. For this reason, there need to be compelling factors to underpin the case for a regulated approach.

Commercial incentives and investment efficiency

3.8. In the work undertaken to date, three main reasons have been raised by industry in support of the argument that commercial incentives alone will not deliver efficient investment in gas processing services. These are that:

- the level of *uncertainty* in relation to this investment is too high;
- there may be difficulties in accurately *targeting costs* to users; and
- NGG may hold a *monopoly advantage* in the provision of least-cost processing services to the GB market.

Uncertainty

3.9. The perceived high level of uncertainty attached to investment in gas processing services is seen as a key barrier to such investment in GB. Indeed, it was the primary reason underpinning the assessment by the Economic Regulation workstream that a pure commercial approach would not deliver efficient investment in gas processing services.

3.10. Uncertainty in the type and timing of delivery of processing services focuses on four main areas:

- **the quality of future gas imports to the GB**. A 2003 (ILEX) report jointly commissioned by DTI, Ofgem and HSE found that future gas imports may be of a quality outside the limits of the GS(M)R and would not therefore be suitable for direct supply to consumers without treatment. Further consideration of this issue in the Scenario Development workstream failed to add substantially to this conclusion;
- **whether essential amendments to upstream arrangements can be made** to accommodate off-spec gas being imported to GB[5];
- **the gas quality specifications to apply in GB after 2020**. As noted in Chapter 2, DTI are considering this issue with a government decision expected in 2007. The CEN mandate may also influence these specifications; and
- **the gas quality specifications to apply elsewhere in the EU**. These are important because they may determine the specification quality of GB imports

[5] Note that this issue is covered in more detail later in this chapter.

from the continent - and hence the required capability of services to process this gas. The work of CEN will provide clarity around this issue (although not until 2012-13, at the earliest).

3.11. Consequently, some stakeholders consider that there is a significant risk to GB consumers that investment in a processing facility may not occur to the required degree or within an appropriate timeframe to address any gas quality related supply impacts on the GB market. Sharing service risks with consumers would, they argue, mitigate this concern.

Cost targeting

3.12. It has been claimed that the difficulty associated with targeting costs to service users justifies those costs being paid directly by consumers - i.e. the potential complexity of the charging arrangements to support a GB onshore processing facility may undermine commercial development of processing services. This complexity arises because interconnectors cannot 'tag' gas molecules they transport; the contributions of individual shippers to the overall quality of gas in these pipelines cannot be itemised.

Monopoly advantage

3.13. A further potential concern in terms of the efficiency of investment in gas processing services may arise if the least-cost solution is at a site where one party has a monopoly advantage in providing those services.

3.14. For example, the multiple sub-terminals at Bacton, St Fergus and Easington and the volume of gas passing through these terminals may make these the ideal sites (on technical grounds) to locate gas blending services. NGG's ownership and operation of such sites may lend it a significant cost advantage over other potential investors in providing certain gas processing services in GB. There may also be environmental advantages attached to NGG providing these services.[6]

3.15. It is important to highlight that this advantage may only apply to GB onshore solutions, which may compete with a range of other processing options: gas could potentially be processed at any point from the gas field prior to entering the NTS.

3.16. From the perspective of economic efficiency, the key issue is whether the current regulatory framework will ensure that the party who is capable of providing least-cost processing services to the GB market (NGG) has appropriate incentives to do so if users demand them. Under the existing regime, it could be argued that NGG does not have an explicit obligation to respond to market interest in such services,

[6] Blending, which may be undertaken at these sites, typically consumes far less energy than techniques requiring nitrogen (ballasting).

and the regulatory treatment that would apply to any new expenditure by NGG on gas quality services is not clear.

Ofgem view

3.17. We agree that there is considerable uncertainty regarding whether new gas processing facilities will be required. However, uncertainty in and of itself is not a sufficient basis to assume that commercial incentives alone will fail to deliver efficient investment in gas processing services and facilities. Market participants will have the best information available to assess the potential for the profitable development of any gas processing facility opportunity to import (treated) off-spec European gas to the GB market. Where there are regulatory uncertainties that affect their ability to plan and invest, they can also take the lead in identifying the issues and working with governments and regulators to ensure that they are addressed in a timely manner.

3.18. It was apparent through the work of the Scenario Development workstream that publicly available information on the likely need for gas processing facilities is limited. Given the commercial sensitivities of such information we consider this understandable - and not sufficient evidence that such information is not held by shippers (especially given that the identification and comparison of commercial opportunities such as this is the commercial business of gas shippers).

3.19. As regards cost targeting, we can appreciate that difficulties in monitoring shipper contributions to gas quality levels (particularly in the IUK) may lead to difficulties in terms of the charging for usage of gas processing services. However there are potential solutions to this issue, such as monitoring flows across the supply chain, or relocating gas processing facilities upstream. So issues around the charging of users are not insurmountable and we are encouraged that NGG has initiated workstreams that could be used by the industry to address these issues.

3.20. We are open to arguments that NGG is in fact best-placed to make this investment. NGG's operation of certain sites may provide it with blending options not available to other parties, which may mean that the cooperation of NGG is essential for efficient investment in gas processing facilities. However, even if NGG's special position is established, it does not necessarily follow that the right approach is a regulated one where investment is not backed in full by firm financial commitments by future users. Nonetheless, it may help establish the need for a clear framework within which NGG's role can be clarified in the context of an investment proceeding on a solely commercial basis. We note, for example, that the approach developed by the workstream envisaged some form of obligation being placed on NGG to assess the feasibility of an investment proposal.

Question 3.1: To what degree can commercial incentives alone be relied on to deliver efficient investment in gas processing services? If not, what is a reasonable balance of risk between customers and users?

Question 3.2: Would provision of gas processing services by NGG be the most cost effective approach? If so, please explain why.

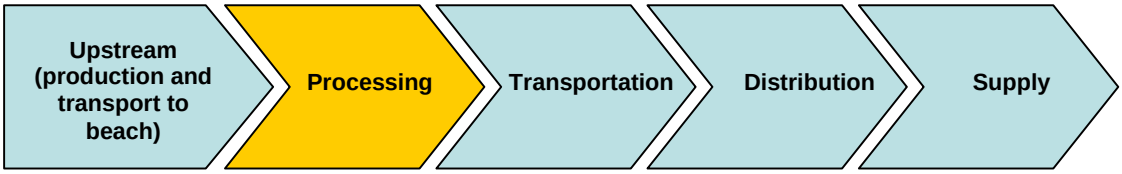
Question 3.3: If NGG involvement is essential to the efficient provision of gas processing services, to what degree do existing arrangements ensure that NGG develops such services, if they are demanded? What other arrangements, if any, would be more appropriate?

Competition issues

3.21. Shippers compete to supply GB consumers with gas sourced from a range of locations, transported in competing infrastructure systems, and delivered at different entry points to the NTS. The market determines the most efficient sources of gas, the most efficient way of bringing the gas into the GB market and ultimately the price GB consumers pay.

3.22. Gas processing therefore represents one potential link in the supply chain that delivers gas to the GB market, applicable solely for shippers who choose to source and import gas that falls outside GB specifications. This is illustrated in Figure 3.2.

Figure 3.2: Onshore gas processing services in the gas supply chain



3.23. At present, gas processing is already undertaken at various LNG importation terminals in GB. These include the Isle of Grain and Teesside. Processing facilities are also under development at Milford Haven. In these cases processing services are being funded through purely commercial approaches.

3.24. One issue that requires careful consideration is the potential impact on competition of regulatory policy relating to new gas processing facilities. Were we to adopt a regulatory model in which a significant share of the investment costs and/or risks of a new processing facility were placed on consumers, this may discriminate unduly against parties that have already invested in treatment facilities without the benefit of any regulatory protection or support. It may also undermine the incentives of private investors to invest in commercial gas processing facilities (or indeed any gas infrastructure) in the future.

3.25. Furthermore, shippers using gas processing facilities partly underwritten by consumers could be viewed as benefiting from an unfair competitive advantage compared to other shippers. We therefore need to be careful that any policy adopted

to regulate the provision of gas processing services does not unduly restrict, distort or prevent competition in the gas supply industry.

Ofgem view

3.26. Any regulatory framework needs to be consistent with preserving private incentives to invest in gas processing facilities and gas infrastructure more generally. Policies must also not unduly distort competition.

Question 3.4: Given that existing market participants have already invested in gas import facilities including treatment of gas, how is the approach you favour consistent with preserving incentives for private investment in gas import and treatment facilities?

Upstream issues

3.27. Off-spec gas may only be processed in GB if arrangements upstream of the NTS enable that gas to reach GB. However, commercial and regulatory arrangements on interconnector and import pipelines and on the European networks that feed them are, to some degree, tailored to current GB gas quality regulations. These arrangements potentially form a significant obstacle to processing off-spec gas in GB and removing these obstacles is likely to be a major exercise, requiring changes to commercial contracts.

3.28. Bacton, for example, is usually highlighted as the most viable location for onshore blending services because of its multiple gas streams. To enable this, however, it is likely that a series of potentially complex and interrelated changes to upstream arrangements would need to be carried out, including:

- changes to pipeline specifications - Interconnector UK (IUK) has its own set of gas specifications for the pipeline, which are aligned with GS(M)R specifications. To enable non-GS(M)R spec gas to be transported to Bacton these specifications would need to be changed; and
- possible network and regulatory changes in Belgium - this will require the Commission de Regulation de l'Electricte et du Gaz (CREG) and Fluxys to approve changes to certain gas specifications on the Belgium network, along with the implementation of new arrangements to support these changes.

3.29. Reaching agreement would mostly likely involve negotiation and consultation among numerous interested parties, over commercial contractual arrangements as well as regulatory issues. For example, changing the IUK specifications would require the consent of all IUK shippers.

3.30. While the relevant set of upstream issues may be less complex for other interconnector/import pipelines, most would entail both a need to amend pipeline specifications (disrupting long term shipper contracts) along with some sections of their feeder networks.

3.31. On this issue it is worth nothing that the CEN mandate may help to facilitate changes. Under terms agreed by the European Commission and at the Madrid Forum, member states will be obligated to transpose the European gas standard(s) developed by CEN into national standards; the earliest date that this may occur under the current schedule is around 2012-13.

Ofgem initial view

3.32. We understand that the extent of amendments required to enable off-spec gas to be imported to GB may be significant. However, we do not believe that the barriers to agreement between commercial parties over the necessary changes are insurmountable.

3.33. Some parties may not benefit directly from changes in these upstream arrangements. However, if the commercial opportunities available to the industry are significant enough to justify investment in a new gas processing facility, we expect that commercial parties will able to agree to substantial amendments.

3.34. Nonetheless we recognise that there might be a role for Ofgem to assist in resolving some of the barriers that may be encountered, particularly those involving regulators in other jurisdictions. Our view, however, is that shippers and producers should take the lead in addressing these barriers. They should demonstrate they have considered the key issues and that our involvement is necessary prior to approaching Ofgem. We are interested to hear from stakeholders on how they view the barriers.

Question 3.5: How much of the overall uncertainty attached to investment in onshore gas processing facilities is attributable to upstream issues, rather than future supply sources and demand? To what extent do potential difficulties in resolving such issues favour a processing solution (if required) upstream of the NTS?

Question 3.6: Can commercial parties be expected to resolve the upstream barriers to the provision of onshore processing services, to exploit commercial opportunities? If not, what limits might there be to the barriers commercial negotiations might resolve and what is an appropriate role for Ofgem?

4. Issues in the approach developed by the workstream

Chapter Summary

This Chapter discusses two issues on which we would like to consult with industry, arising from the approach developed in the Economic Regulation workstream.

Questions

The level of user commitment

Question 4.1: How different do you consider the regulatory approach developed in the Economic Regulation workstream to be from a purely commercial approach? How important is it that NGG would be obliged to respond to market interest in gas processing services, as under the Economic Regulation workstream approach?

Investment by NGG not backed by user commitment

Question 4.2: Under a model based on user commitment, to what extent would enabling NGG to make additional investment in the service (subject to a different regulatory regime) introduce costs? What are these costs and would they outweigh the benefits?

4.1. The Economic Regulation workstream made significant progress in developing a potential approach to the regulation of gas processing facilities. However, before we develop initial proposals, there are two key aspects of regulatory policy raised by this approach that we consider require further industry consultation. These are:

- determining the appropriate level of user commitment; and
- the implications of allowing NGG to make investment not backed by user commitment.

Level of user commitment

4.2. Under the approach developed in the Economic Regulation workstream, investment by NGG in onshore processing services would only be triggered if full user commitment was secured by NGG - that is, the financial commitment of service users covered 100% of the present value of service costs.[7]

[7] NGG would also have the discretion to invest in processing services, but NGG investment would not be required unless this level of user commitment was gained.

4.3. The primary advantage of requiring full user commitment is that it is likely to be the best means available for protecting GB gas consumers from inefficient investment. By placing the investment risk with those who will benefit from the facility, customers have the comfort that we will pay for the facility only in the event that at least some shippers think there is a business case for it. Under this model, users would be committed to make payments to cover the costs of the service irrespective of whether they used it. And the risk of the facility being a 'stranded asset' lies directly with investors, rather than customers. Shippers as potential users are best placed to signal a need for gas processing services.

4.4. There are a number of options on how a 'full user commitment' model could be implemented. For example, financial commitments by users may be required to fully cover:

i. estimated service costs at the outset of the investment, so that if efficient service costs (as determined in a price review) turn out to exceed this initial estimate the difference might be borne by consumers. That is, users may be liable only for service costs assessed on an *ex ante* basis; or

ii. estimated service costs at the outset of the investment *plus* any additional efficient service costs (as determined in a price review) that arise during the life of the facility. That is, users may be liable for service costs assessed on an *ex post* basis.

4.5. Although the Economic Regulation workstream did not specify the user commitment model down to this level of detail, we assume that such a model implies the second of these alternatives - namely, that users would bear the full *ex post* cost of gas processing services (as under option ii).

4.6. If the second option is pursued then this approach is very similar to a pure commercial allocation of service risks. However, a key difference between a commercial approach and the approach of the Economic Regulation workstream would be the licence obligation on NGG to assess and develop processing services if requested by a third party (subject to certain terms and conditions). The main rationale for this obligation would be that NGG is best-placed to provide these services at least cost.[8]

Ofgem view

4.7. A regulatory approach requiring full user commitment appears to offer customers the best protection against incurring the cost of inefficient investment in gas processing services. Combining this feature with a requirement for NGG to respond to market interest in gas processing services would appear to address

[8] This is considered in Chapter 3 and stakeholder views are invited on the degree to which they consider this to be the case.

concerns that NGG may have cost or other advantages in assessing the feasibility of processing services and potentially developing them. This requirement would not interfere with any investment third parties may wish to make without the involvement of NGG.

Question 4.1: How different do you consider the regulatory approach developed in the Economic Regulation workstream to be from a purely commercial approach? How important is it that NGG would be obliged to respond to market interest in gas processing services, as under the Economic Regulation workstream approach?

Investment by NGG not backed by user commitment

4.8. The Economic Regulation workstream approach potentially allows for two different regulatory regimes to apply to a single gas processing facility:

- capacity underpinned by user commitment would be subject to a regulatory regime broadly consistent with NGG network assets; and
- investment by NGG above the level to which users have committed would have a different regulatory treatment, in which NGG would bear a greater level of risk.

4.9. The key benefit of this approach is the potential for NGG to act on additional information, above and beyond that provided by users, in determining the volume of gas processing capacity to deliver. Specifically, it was proposed in the workstream that NGG may have unique access to relevant information on aggregate demand for processing services in GB owing to its role as system operator of the NTS.

4.10. In addition, it was proposed that, as long as NGG takes all or the majority of the risk of any such investment, then the potential downside to consumers and users from such an approach is low.

4.11. However, in considering this model further, we identified a number of potential issues with this type of approach, on which we would appreciate the views of respondents. These relate to:

- complexity in designing and monitoring the regulatory regime; and
- the potential impact on user incentives.

Regulatory complexity

4.12. This approach may present considerable challenges in terms of regulatory design and monitoring. In terms of design, depending on the details:

- it would require identification and separation of the capital and operating expenditure to which different regulatory treatment applied. This may be a complex exercise - particularly where investment may be incremental or represent an 'upgrade' of existing facilities. Developing differential rates of return may present further complexities.

4.13. The monitoring of this regime may also be difficult, given that this would involve:

- 'tagging' capital and operating expenditure at the facility into that covered by user commitment, and that for which NGG bears increased risk. As NGG would have a commercial incentive to allocate cost to the 'regulated' portion of the asset, and revenue to the 'unregulated' portion of the asset, this could cause further difficulty; and

- assessing the efficiency of additional investment by NGG after an appropriate period, with a view to including investment that is shown to be efficient in the RAB. This task may be difficult if, as appears likely to be the case, there are few relevant benchmarks against which to make comparisons.

Impact on user incentives

4.14. A further issue relates to the impact that a 'dual' regulatory approach may have on shipper incentives. In a model where NGG does not have discretion to invest, shippers have a clear signal that unless 100% commitment is made to the purchasing of a facility, then the facility will not be constructed. However, where NGG has an option to construct a facility (or part of a facility) if it considers it will be likely to be used, then shippers may have a reduced incentive to signal their need for the asset (in the hope that it will be constructed by NGG anyway).

Ofgem view

4.15. There may be benefit from allowing NGG to make further investment not backed by user commitment at greater risk to NGG, within a regulatory framework that relies heavily on user commitment. Yet such a model introduces two downsides: it introduces regulatory complexity; and potentially undermines the degree to which users may commit to the service. Ofgem invites stakeholder views on the potential benefit of allowing NGG to make additional investment (subject to a different regulatory regime) within a user-commitment based approach, and in particular on the extent to which the benefits of so doing may outweigh the cost.

Question 4.2: Under a model based on user commitment, to what extent would enabling NGG to make additional investment in the service (subject to a different regulatory regime) introduce costs? What are these costs and would they outweigh the benefits?

5. Way forward

Chapter Summary

This Chapter briefly summarises the way forward for this area of work.

Questions

Question 5.1: Do you have any comments on the proposed way forward?

5.1. This document presents a number of issues on which Ofgem seeks industry comment. These issues are important considerations in determining the appropriate treatment of GB onshore gas processing services. While the workstream made good progress in developing industry thinking, Ofgem believes this further stage of consultation is an essential part of the process. **We invite the written submissions by market participants on the issues raised in this document by 22 August 2007**.

5.2. Ofgem will draw upon these responses in considering the appropriate treatment of onshore gas processing services - and in particular, the degree (if any) to which the risk of those services should be shared with GB gas consumers.

Appendices

Index

Appendix 1 - Consultation Response and Questions

1.1. Ofgem would like to hear the views of interested parties in relation to any of the issues set out in this document.

1.2. We would especially welcome responses to the specific questions which we have set out at the beginning of each chapter and which are replicated below.

1.3. Responses are requested by 22 August 2007 and should be sent to:

'Gas quality consultation'
GB Markets, Ofgem
9 Millbank, London, SW1P 3GE
gb.markets@ofgem.gov.uk

1.4. Unless marked confidential, all responses will be published by placing them in Ofgem's library and on its website www.ofgem.gov.uk. Respondents may request that their response is kept confidential. Ofgem shall respect this request, subject to any obligations to disclose information, for example, under the Freedom of Information Act 2000 or the Environmental Information Regulations 2004.

1.5. Respondents who wish to have their responses remain confidential should clearly mark the document/s to that effect and include the reasons for confidentiality. It would be helpful if responses could be submitted both electronically and in writing. Respondents are asked to put any confidential material in the appendices.

1.6. We will use responses to this document to inform the development of regulatory policy - and in particular, the degree to which (if any) the risk of any onshore gas processing services should be shared with GB consumers. Any questions on this document should, in the first instance, be directed to:

Bruce Phillips
GB Markets, Ofgem
Level 4, 9 Millbank, London, SW1P 3GE
0207 901 7164
bruce.phillips@ofgem.gov.uk

CHAPTER: THREE

Allocation of risk

Question 3.1: To what degree can commercial incentives alone be relied on to deliver efficient investment in gas processing services? If not, what is a reasonable balance of risk between customers and users?

Question 3.2: Would provision of gas processing services by NGG be the most cost effective approach? If so, please explain why.

Question 3.3: If NGG involvement is essential to the efficient provision of gas processing services, to what degree do existing arrangements ensure that NGG develops such services, if they are demanded? What other arrangements, if any, would be more appropriate?

Competition issues

Question 3.4: Given that existing market participants have already invested in gas import facilities including treatment of gas, how is the approach you favour consistent with preserving incentives for private investment in gas import and treatment facilities?

Upstream issues

Question 3.5: How much of the overall uncertainty attached to investment in onshore gas processing facilities is attributable to upstream issues, rather than future supply sources and demand? To what extent do potential difficulties in resolving such issues favour a processing solution (if required) upstream of the NTS?

Question 3.6: Can commercial parties be expected to resolve the upstream barriers to the provision of onshore processing services, to exploit commercial opportunities? If not, what limits might there be to the barriers commercial negotiations might resolve and what is an appropriate role for Ofgem?

CHAPTER: FOUR

The level of user commitment

Question 4.1: How different do you consider the regulatory approach developed in the Economic Regulation workstream to be from a purely commercial approach? How important is it that NGG would be obliged to respond to market interest in gas processing services, as under the Economic Regulation workstream approach?

Investment by NGG not backed by user commitment

Question 4.2: Under a model based on user commitment, to what extent would enabling NGG to make additional investment in the service (subject to a different regulatory regime) introduce costs? What are these costs and would they outweigh the benefits?

CHAPTER FIVE

Question 5.1: Do you have any comments on the proposed way forward?

Appendix 2 – The Authority's Powers and Duties

1.1. Ofgem is the Office of Gas and Electricity Markets which supports the Gas and Electricity Markets Authority ("the Authority"), the regulator of the gas and electricity industries in Great Britain. This Appendix summarises the primary powers and duties of the Authority. It is not comprehensive and is not a substitute to reference to the relevant legal instruments (including, but not limited to, those referred to below).

1.2. The Authority's powers and duties are largely provided for in statute, principally the Gas Act 1986, the Electricity Act 1989, the Utilities Act 2000, the Competition Act 1998, the Enterprise Act 2002 and the Energy Act 2004, as well as arising from directly effective European Community legislation. References to the Gas Act and the Electricity Act in this Appendix are to Part 1 of each of those Acts.[9]

1.3. Duties and functions relating to gas are set out in the Gas Act and those relating to electricity are set out in the Electricity Act. This Appendix must be read accordingly[10].

1.4. The Authority's principal objective when carrying out certain of its functions under each of the Gas Act and the Electricity Act is to protect the interests of consumers, present and future, wherever appropriate by promoting effective competition between persons engaged in, or in commercial activities connected with, the shipping, transportation or supply of gas conveyed through pipes, and the generation, transmission, distribution or supply of electricity or the provision or use of electricity interconnectors.

1.5. The Authority must when carrying out those functions have regard to:

- The need to secure that, so far as it is economical to meet them, all reasonable demands in Great Britain for gas conveyed through pipes are met;
- The need to secure that all reasonable demands for electricity are met;
- The need to secure that licence holders are able to finance the activities which are the subject of obligations on them[11]; and
- The interests of individuals who are disabled or chronically sick, of pensionable age, with low incomes, or residing in rural areas.[12]

[9] entitled "Gas Supply" and "Electricity Supply" respectively.
[10] However, in exercising a function under the Electricity Act the Authority may have regard to the interests of consumers in relation to gas conveyed through pipes and vice versa in the case of it exercising a function under the Gas Act.
[11] under the Gas Act and the Utilities Act, in the case of Gas Act functions, or the Electricity Act, the Utilities Act and certain parts of the Energy Act in the case of Electricity Act functions.
[12] The Authority may have regard to other descriptions of consumers.

1.6. Subject to the above, the Authority is required to carry out the functions referred to in the manner which it considers is best calculated to:

- Promote efficiency and economy on the part of those licensed[13] under the relevant Act and the efficient use of gas conveyed through pipes and electricity conveyed by distribution systems or transmission systems;
- Protect the public from dangers arising from the conveyance of gas through pipes or the use of gas conveyed through pipes and from the generation, transmission, distribution or supply of electricity;
- Contribute to the achievement of sustainable development; and
- Secure a diverse and viable long-term energy supply.

1.7. In carrying out the functions referred to, the Authority must also have regard, to:

- The effect on the environment of activities connected with the conveyance of gas through pipes or with the generation, transmission, distribution or supply of electricity;
- The principles under which regulatory activities should be transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed and any other principles that appear to it to represent the best regulatory practice; and
- Certain statutory guidance on social and environmental matters issued by the Secretary of State.

1.8. The Authority has powers under the Competition Act to investigate suspected anti-competitive activity and take action for breaches of the prohibitions in the legislation in respect of the gas and electricity sectors in Great Britain and is a designated National Competition Authority under the EC Modernisation Regulation[14] and therefore part of the European Competition Network. The Authority also has concurrent powers with the Office of Fair Trading in respect of market investigation references to the Competition Commission.

[13] or persons authorised by exemptions to carry on any activity.
[14] Council Regulation (EC) 1/2003

Appendix 3 - Glossary

B

Bacton Terminal

The Bacton gas terminal facility is situated on the Norfolk coast of England. Gas from offshore producers comes onshore and is distributed to UK customers via the Bacton terminal, or to the Belgian transmission system via IUK. Alternatively, gas from the Continent can flow to the Bacton terminal via IUK. The BBL pipeline also flows into Bacton, bringing gas to the UK from the Netherlands.

Ballasting

Nitrogen ballasting is a form of gas treatment. Ballasting gas with nitrogen allows derichment of the natural gas to bring it in line with prevailing gas quality specifications. Due to the large quantities of nitrogen required for this process, an on-site nitrogen production facility is often required.

Blending

Gas not compliant with a quality specification can sometimes be mixed or 'blended' with other gas sources so that the resulting mix is within the allowable gas quality specification range. Blending often takes place in upstream facilities where two or more gas sources are combined into a single pipeline and the gases mix during transportation prior to reaching the point where the problematic quality specification in enforced. At downstream locations, near to the customer, it is sometimes necessary to install specific hardware to ensure that the gas streams are properly mixed prior to delivery.

C

Co-mingling

Blending is sometimes referred to as co-mingling, particularly where blending is a fortuitous consequence of natural mixing.

E

European Association for Streamlining of Energy Exchange (GAS) (EASEE-gas)

EASEE-gas was set up in 2002 to support the creation of an efficient and effective European gas market through the development and promotion of common business practices (CBP's) that intend to simplify and streamline business processes between the stakeholders. More information may be found at http://www.easee-gas.org

European Regulators' Group for electricity and gas (ERGEG)

ERGEG, established by the European Commission (The Commission) on 11 November 2003, is an Advisory Group of independent national regulatory authorities. The primary purpose of ERGEG is to assist the Commission in consolidating the Internal European Market for electricity and gas. Its members are the heads of the national energy regulatory authorities in the 25 EU Member States. More information may be found at www.ceer-eu.org

F

Fluxys

Fluxys is one of the Belgian gas transmission system operators (similar to National Grid in GB).

G

Gas Safety (Management) Regulations (GS(M)R)

The legal parameters for gas entering and leaving the NTS in GB are set out in the Health and Safety Executive's Gas Safety (Management) Regulations (GS(M)R). National Grid is prohibited from conveying gas on the NTS unless that gas complies with the specifications set out in the GS(M)R.

I

Interconnector UK (IUK)

The IUK gas pipeline links the UK (at Bacton) and Continental Europe (at Zeebrugge). The pipeline provides bi-directional transport capability to facilitate energy trading in both markets.

L

Liquefied Natural Gas (LNG)

LNG consists mainly of methane gas liquefied at around -160 degrees C. Cooling and liquefying the gas reduces its volume by 600 times such that a tonne of LNG corresponds to about 1,400 standard cubic metres of methane in its gaseous state. LNG may be stored in tanks or transported by ocean going tankers or in small quantities by road tankers.

LNG important facility

Facilities that permit an LNG cargo to unload and store its cargo before re-gasification and export in the form of gas to the transmission or distribution system.

N

National Grid Gas

The licensed gas transporter responsible for the GB gas transmission system and four of GB's regional gas distribution companies.

National Transmission System (NTS)

In GB this refers to the high pressure gas transmission system owned by National Grid Gas. The NTS consists of more than 6,400 km of pipe carrying gas at pressures of up to 85 bar (85 times normal atmospheric pressure).

O

Open Season

A transparent and multilateral process in which the seller publicly offers a future product for sale. The seller then releases its product on the basis of bids received from potential buyers, on a transparent and non-discriminatory basis.

R

Regulated Asset Base (RAB)

The value ascribed by Ofgem (or other regulatory bodies) to the capital employed in the licensee's regulated network business.

T

Transmission System Operator (TSO)

The entity responsible for managing the gas transmission system. NGG is the operator of the gas NTS in GB.

U

United Kingdom Continental Shelf (UKCS)

The UKCS is the area of the sea bed over which the UK exercises sovereign rights of exploration and exploitation of natural resources. The limits of the UKCS are set out in orders made under section 1(7) of the Continental Shelf Act 1964.

W

Wobbe Index

The Wobbe Index is defined as the calorific value (CV) of gas, divided by the square root of the relative density. It is one key property that determines whether gas can be safely burned in industrial and domestic appliances without giving rise to safety, environmental and appliance function concerns. The Wobbe Index range for the UK is set at 47.2 - 51.41 MJ/sm3 under GS(M)R, and 47 - 54 MJ/sm3 for EASEE-gas.

Appendix 4 - Feedback Questionnaire

1.1. Ofgem considers that consultation is at the heart of good policy development. We are keen to consider any comments or complaints about the manner in which this consultation has been conducted. In any case we would be keen to get your answers to the following questions:

1. Do you have any comments about the overall process, which was adopted for this consultation?
2. Do you have any comments about the overall tone and content of the report?
3. Was the report easy to read and understand, could it have been better written?
4. To what extent did the report's conclusions provide a balanced view?
5. To what extent did the report make reasoned recommendations for improvement?
6. Please add any further comments?

1.2. Please send your comments to:

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Consultation Co-ordinator
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9 Millbank
London
SW1P 3GE
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