AUDIT OF NATIONAL GRID'S 'INTERIM TRANSFER AND TRADES' PROCESS

PÖYRY

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A report produced for the Gas Forum

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FOREWORD

This document has been produced for the Gas Forum under arrangements designed to (amongst other things) allow the independent verification of analysis performed by National Grid Gas (NGG) in executing a methodology[1] required by NGG's Gas Transporters (GT) Licence that facilitated the implementation of a process contemplated by the Uniform Network Code (UNC) and introduced via UNC Modification number (Mod) 169. For the avoidance of doubt, the subject of this audit is the 'interim' trades and transfers process that was applied in 2007.

The analysis so performed relies on certain confidential information that, under the terms of the Utilities Act 2000, cannot be released to any party other than the Gas and Electricity Markets Authority (GEMA), or other Authorities as mentioned therein. Such confidential information has been procured by the Office of Gas and Electricity Markets (Ofgem) via a formal 'information request', and subsequently passed to Pöyry Energy Consulting (Pöyry) for the purposes of this audit.

This report and any views expressed herein are the independent views of Pöyry Energy Consulting, have not been influenced by and do not necessarily represent the views of Ofgem or GEMA.

This document is the full account of the audit work provided for Ofgem's use, and contains information which is protected by the Utilities Act. For the purposes of reporting to the Gas Forum, parts of this report have been concealed to protect the confidential status of the information contained herein.

1 The Entry Capacity Transfer and Trade Methodology Statement, Issue 1.0, National Grid

EXECUTIVE SUMMARY

This audit was commissioned by the Gas Forum to report to Ofgem. The audit concerns the application of the principles used to facilitate the transfer of unsold capacity, and the trade of previously sold capacity, from one NTS entry point to another NTS entry point. The audit included the formal examination of the analyses performed and the data used to establish 'exchange rates', pursuant to The Entry Capacity Transfer and Trade Methodology Statement release 1.0.

This audit finds that the methodology has been mostly adhered to, and where there has been a deviance from the methodology, that such deviance was probably appropriate in the circumstances, and immaterial in effect. The methodology was developed relatively quickly, presenting a time constraint to the amount of useful analysis that could be undertaken to establish ex-ante exchange rates.

The logical application of Licence obligations that allow for no 'material increases in costs'[2] was not inherently incorrect. The precise implementation of this obligation has relied on NGGs stipulation that some flow patterns considered credible by NGG could introduce additional buy-back risk, and that any related additional cost would *always* be material. Pöyry note that other flow conditions, considered incredible by NGG, were considered as presenting immaterial buy-back risk. Pöyry also notes that there is no consideration of the potential reduction in buy-back risk that any trade or transfer might pose.

There has been no recognisable risk assessment presented to the audit, and the interpretation of licence conditions has relied on stipulation. With no understanding of what should be considered as material it is difficult to find particular fault (or merit) with this approach, and whether it is consistent with stated Ofgem views[3].

It is Pöyry's opinion that in the long-run the above interpretation would result in lower buy-back risks for NGG, though we cannot say whether this reduction would be considered material in a wider context.

The specification of a 1:1 exchange rate for all possible transfers and trades within a zone acted as a limit on the amount of capacity that could be moved by the scheme. The requirement to generate ex-ante exchange rates without knowing the volumes to be moved and the value of those volumes, required the selection of parameters that with hindsight have also acted to limit the amount of capacity moved by the scheme.

As NGG has a certain amount of discretion in determining the supply conditions under which exchange rates are generated, these supply conditions must be subject to scrutiny to ensure that they are credible from a wider industry perspective, as their usual use – to

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2 NGG NTS Transporters Licence Special Condition C8D, Part C, Paragraphs 11(d)(iii) & 12(d)(iii); "avoiding material increases in the costs (including entry capacity constraint management costs in respect of obligated entry capacity previously allocated by the licensee to relevant shippers) that are reasonably expected to be incurred by the licensee as a result of facilitating entry capacity [transfer][trade]."

3 http://www.gasgovernance.com/NR/rdonlyres/F5B5482B-8BF6-4EB3-A471-8B8A6C2DDEAF/18048/070627_capacitytradeandtransfer_nh.ppt and http://www.gasgovernance.com/NR/rdonlyres/D93A0A0E-1225-41A5-9AB1-EC077887E390/17843/ofgemletter.pdf

determine entry capacity buy-back risk exposure – is specific to NGGs commercial interest. Manipulation of the supply conditions or network configurations could significantly lower the buy-back risk that NGG faces, and significantly limit the capacity moved via the transfer and trades process. Pöyry therefore recommends that any ex-post determination of exchange rates be subject to regular audit by Ofgem.

The audit has also examined the application of constraints within the network analysis models that were used to generate exchange rates. Two types of constraints have been commonly encountered: high pressure constraints associated with the design pressure of the pipelines and plant; and low pressure constraints associated with exit capacity contracts (including both 'Anticipated Normal Operating Pressures'[4] with directly connected load, and 'Assured Offtake Pressures'[5] with distribution networks). Pöyry notes that the actual design pressures are higher than the pressures used within the model, and we observe that this may serve to limit the amount of capacity moved by the process. Pöyry also notes that there are no assessments of the costs of lowering contractual pressures. Pöyry does not believe that this is a deliberate attempt by NGG to de-risk, that they reflect normal practice, and they are reflective of the interpretation of 'material cost', described above.

4 UNC J.2.2.3

5 UNC J.2.5.1

1. BACKGROUND

1.1 Commission

Pöyry Energy Consulting was commissioned by the Gas Forum to audit and report to Ofgem on the application of the principles of the process followed to facilitate the transfer of unsold capacity, and the trade of previously sold capacity, from one NTS entry point to another NTS entry point. This included the formal examination of the analyses performed and the data used to establish 'exchange rates', pursuant to The Entry Capacity Transfer and Trade Methodology Statement release 1.0.

1.2 About Pöyry Energy Consulting

Pöyry Energy Consulting is Europe's leading energy consultancy providing strategic, commercial, regulatory and policy advice to Europe's energy markets. Part of Pöyry Plc, the global engineering and consulting firm, Pöyry Energy Consulting merges the expertise of ILEX Energy Consulting, ECON and Convergence Utility Consultants with the management consulting arms of Electrowatt-Ekono and Verbundplan. Our team of 250 energy specialists, located across 14 European offices in 12 countries, offers unparalleled expertise in the rapidly changing energy sector.

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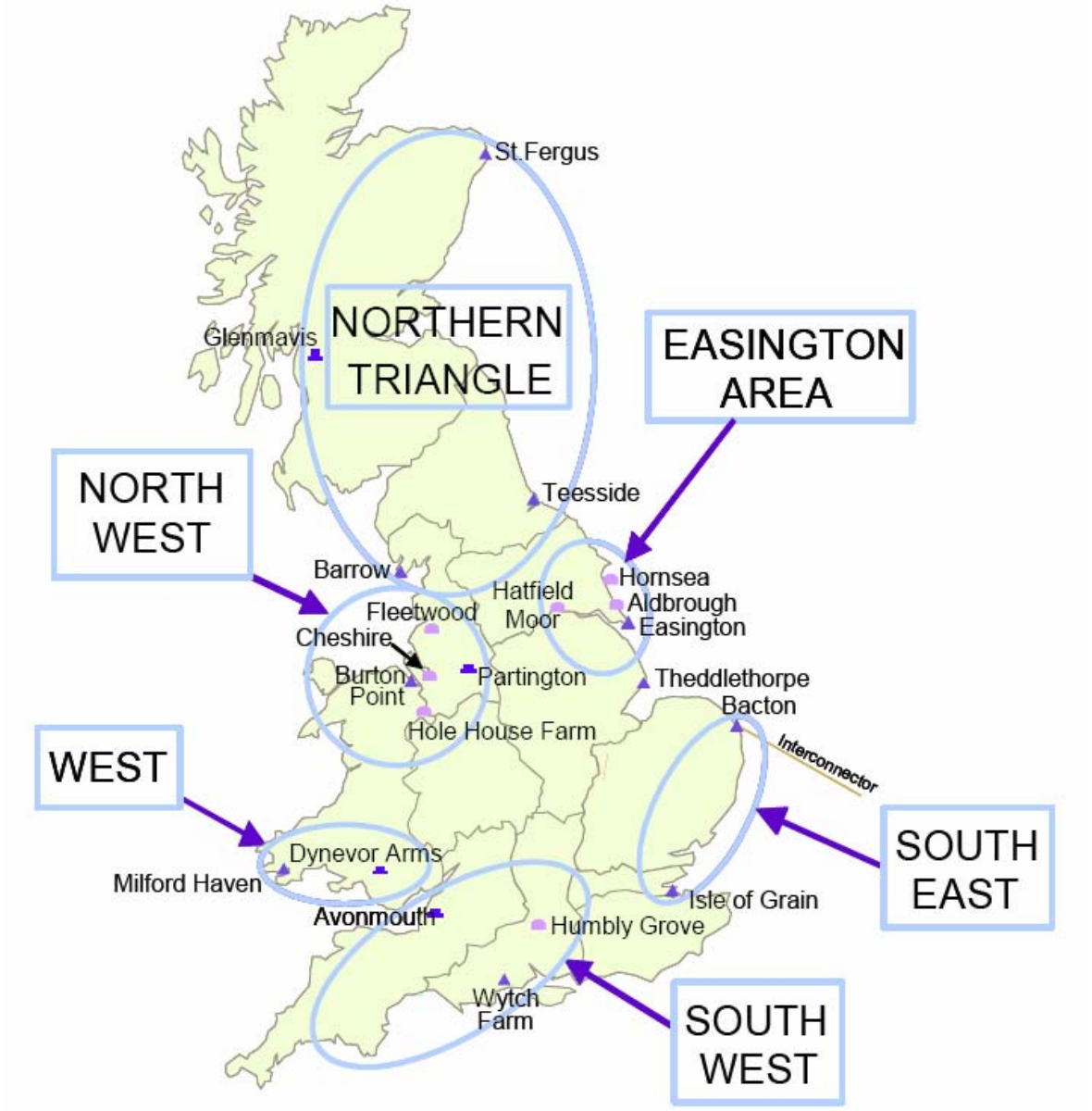
1.3 Entry points

There are several entry point to the NTS, which include pipeline entry terminals, LNG regasification terminals, interconnection points and storage points. For the purposes of the Transfer and Trades mechanism, they are grouped into zones as shown in Figure 1.

Figure 1 – Entry points and zones



Source: National Grid

1.4 Entry capacity regime development

1.4.1 Introduction of auctions

Prior to the introduction of capacity auctions in 1999, National Grid Gas (then Transco) (NGG) sold unlimited amounts of entry capacity at an administered price. In the event that gas could not moved (due to physical constraints), locational purchase and sale of gas was undertaken by NGG The costs of these actions were smeared back to the shipping community. Unforeseen circumstances, (e.g. delays to providing additional network capacity or unanticipated incremental flows), meant that as NGG acted in a distressed state and significant amounts of smearing could take place, which had the potential to distort the market.

Auctions were first introduced in 1999 with the amount offered by NGG being determined from historical flows at the relevant entry point (projected by Seasonal Normal Demand (SND)). This resulted in different treatment at some entry points than at others, which was alleviated through Network Code modification 0363 which allowed the transfer of capacity from one entry point to another entry point.

There was also speculation that NGG was deliberately withholding capacity from the market to increase auction revenues. However, as the applicable price control did not include any commercial incentives, there was no incentive for NGG to do so.

1.4.2 Introduction of baselines and incentives

The ongoing reform of arrangements introduced the concept of entry capacity auctions where NGG was obliged to offer set amounts of capacity for sale, reflective of the physical capability of the entry point. The physical capability of each entry point was defined within the Licence as a set of independent entry capacity baselines, and capacity was also auctioned on a long-term basis.

Parallel to the introduction of defined output measures, NGG was also exposed to commercial incentives to maximise the release of entry capacity, and to minimise the costs of capacity buy-backs.

1.4.3 Issues

1.4.3.1 Baseline interdependence and allocation

Entry capacity baselines attempt to quantify the ability of the NTS to absorb flows into the whole network at a specific entry point. They are intended to be independent, however as parts of the physical network can be used at more than one point, baselines are interdependent to some degree.

Due to this interdependence, the allocation of 'common' capacity to one or another entry point becomes a problem of definition; furthermore, the use of common capacity at more than one entry point double-counts that capacity and increases the risks faced by NGG.

It is unclear from available documentation how the allocation problem was solved in NGG's April 2002 GT Licence, i.e. whether it was anticipated that the capex allowed in the 2002 to 2007 period would alleviate any double-counting; or whether other elements of the April 2002 Licence (e.g. cost of capital, buy-back targets) considered the double-counting.

1.4.3.2 Capacity sterilisation – relinquishment

Prior to the introduction of changes arising from NGGs April 2007 GT Licence, a feature of the UNC was the inability of shippers to relinquish entry capacity that they had previously procured, e.g. when they no longer placed any value on this capacity. Pöyry understands that this situation has existed to encourage secondary trading of capacity.

The relinquishment of capacity would provide NGG with information regarding entry capacity that has been sold but is no longer needed, which would allow NGG to this information in its assessments of buy-back risk. Lower levels of buy-back risk may have encouraged the release of more non-obligated or other forms of capacity by NGG.

1.4.3.3 Capacity sterilisation – inflexible baselines

The unsold portion of baseline capacity is required to be offered at many stages, including at short-term. All other things being equal, it would be prudent for shippers to obtain at least part of their capacity requirements at short-term notice, as they become more certain of their capacity requirements closer to the time of delivery.

In addition, to discharge its obligation to offer capacity in a clearing auction, NGG implemented a pricing policy that offered discounts for short-term booking of capacity, which has the effect of further decreasing the amount of capacity booked by shippers in the longer-term auctions. Therefore, the lack of sales in the longer-term auctions is not necessarily a signal to NGG that capacity is not required at those locations.

Because of the interdependence of baselines, this can have the effect of sterilising capacity at a location where it is not needed.

1.4.3.4 Efficient investment and allocation of resources

The capacity sterilisation resulting from inflexible baselines means that spare, common capacity cannot be used to provide capacity at a new entry point, instead requiring a potentially higher level of investment than would otherwise be the case. This implies that the hurdle associated with securing capacity at a new entry point (or incremental capacity at an existing entry point,) may have been set too high, and may fail to allocate capacity efficiently.

1.4.3.5 Facilitating new entry

A less controversial feature of the 2002 to 2007 Licence has been the obligation to hold back 20% of the baseline for use in short-term auctions. This was intended to ensure that new market entrants could obtain capacity and to prevent hoarding of capacity via the long-term auctions.

1.4.4 NGG's GT Licence from 2007

A number of the above issues have been addressed within the current Licence and/or UNC and/or NGG's pricing policies. They key changes are outlined below.

1.4.4.1 Baseline consultation

Pöyry notes that baseline interdependence has been a key feature of the ongoing considerations of how to set baselines within the current Licence.

1.4.4.2 Clearing auction

The obligation to hold a clearing allocation has been retained, however Pöyry note that NGG has discussed the possibility of removing short-term discounts, including the possibility of offering some form of long-term discount. If pricing mechanisms are changed, it should encourage participation in longer-term auctions.

1.4.4.3 Substitution

The current Licence has introduced an obligation on NGG to substitute capacity from one ASEP to another, in order to minimise the levels of investment required to meet signals for incremental capacity. This means that Shippers no longer have certainty that capacity will

be available in shorter-term auctions, thereby further encouraging participation in longer-term auctions.

The opportunity cost of not procuring capacity may be much higher than current reserve prices for entry capacity, so the substitution obligation also encourages speculation.

1.4.4.4 Transfer and trades mechanism

The Licence included the requirement to facilitate the movement of capacity between entry points – the trade and transfer mechanisms. This is outlined in further detail in section 1.5 below.

1.5 Transfer and trades mechanism

1.5.1 Initial development

Initial development of the process that would eventually become the transfer and trade processes began in May 2006 with the development a 'straw-man' by NGG. This straw-man was developed and refined by NGG, leading to UNC Mods 0150 and 0151, and alternates, being raised in May 2007.

1.5.2 Initial UNC Modification proposals

Within UNC Mods 0150 and 0151 and their alternates, the transfer and trade processes were still being considered separately, and the application of the transfer process was being considered as an annual process. These Mods were rejected by Ofgem on 12th June 2007[6,7] on the basis that they did not facilitate the efficient and economic operation of the pipeline system or secure effective competition between shippers. A key component of the reason why they were rejected was the lack of certainty in advance of an auction – the exchange rates provided were to be indicative only.

1.5.3 Development of interim process

This led to the recognition that the development of an enduring solution could probably not be implemented in time for the capacity bookings for winter 2007/08. It was recognised that there was a need to develop an interim solution that could be rapidly applied for the forthcoming winter and which included ex-ante exchange rates[8]. This culminated in the development of Mods 0156 and 0169 and alternates during July and August 2007, with the eventual implementation of Mod 0169, which was directed for implementation on 6th September 2007.

In parallel to the development and of these Mods, NGG consulted on the methodology necessary to define certain parameters used within the auction[9] – the initial methodology statement.[1]

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6 http://www.gasgovernance.com/NR/rdonlyres/A27A4944-5214-4C79-B01D-AEE38305EEA1/17680/01510151AOfgemDecisionLetter.pdf

7 http://www.gasgovernance.com/NR/rdonlyres/12A1548F-9754-419E-BA1F-4563E2C63B33/17679/01500150AOfgemDecisionLetter.pdf

8 http://www.gasgovernance.com/NR/rdonlyres/F1834E2A-B392-4555-B3A6-A39208746141/18049/SpecialtransmissionworkstreamTandT280607.ppt

9 http://www.gasgovernance.com/NR/rdonlyres/3CC15835-4B1A-4FF8-BC68-BFABDC337FBE/18763/TandTconsultationletter30July07.pdf

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2. AUDIT SCOPE

2.1 Gas Forum scope

The full scope for the audit, as agreed with the Gas Forum, is included as Annex B. The substantive points of the audit are set out below.

- An audit of the test scenarios to determine whether the flow assumptions were reasonable for the purposes of the transfer and trade mechanism, under different demand levels. Questions to be considered include:
  - What flows have been assumed at which ASEPs?
  - What is the supporting evidence for such assumptions?
  - Are they reasonable in the historic contexts?
  - Are they reasonable in the forward-looking contexts?
  - What are the sensitivities?
- Identification of what is causing the model to fail, considering:
  - Why specific scenarios were rejected as materially increasing buy-back risk?
  - Where are the physical constraints materialising and are they valid?
  - Is there a common pattern of failure?
  - What reconfigurations have been tested?
  - What reconfigurations have been rejected?

In addition, Pöyry proposed that the audit should also:

- inform the industry of the boundaries of the interim transfer and trade process, including informing the industry of other entry capacity related topics;
- ensure compliance with the interim methodology statement and establish that NGG has not produced inappropriate exchange rates for the purpose of lowering its risk;
- provide confidence within the industry that the development and application of the interim methodology statement was appropriate under the circumstances in which it was developed and applied; and
- ensure that any discretion exercised by NGG was appropriate.

Other specific questions have come to light, being:

- Why were there no 1:1 transfers within the Easington Zone? and,
- Why was no exchange possible for transferring Northern Triangle capacity to the Easington zone?

Pöyry has undertaken to analyse the specificities of these questions in Section 5.4 below.

2.2 Confidentiality

It was acknowledged in our proposal that confidentiality issues would need to be resolved. To achieve a satisfactory confidentiality arrangement with NGG, Pöyry has acted through Ofgem in order to undertake this audit.

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3. AUDIT APPROACH

3.1 Document review

The documents reviewed whilst planning this audit include those mentioned in the Gas Forum scope, copied below as Annex B. Other documents reviewed include the auction invitation letters[10], Consultation Conclusions (Supplementary) Report[11], and the Entry Capacity Transfer and Trade Methodology Statement Consultation Conclusions Report[12]. In addition, use has been made of the Joint Office website to access minutes of the Transmission Workstream.

Pöyry notes that the development of the transfer and trade process has been a relatively lengthy and involved process, with initial discussions held between NGG and industry participants in August 2006. There is therefore a significant body of background information and argumentation which has been used indirectly to produce this report.

3.2 Methodology Statement review and Information Request

Due to the confidential nature of this audit, information was initially requested from NGG via a formal information request. The information request was constructed to obtain the specific details and data described within the interim methodology statement. The information request schedule is included in Annex C.

Prior to the submission of the information request, Pöyry was led to believe that the majority of network analysis results were available as a series of 'ceefax' diagrams. These diagrams, included in Annex D, captured supply/demand and constraint information from the network analyses in a summarised form. A subset of these diagrams were provided by NGG well in advance of the information deadline, albeit not sufficiently far enough in advance to warrant detailed analysis before meeting with NGG.

3.3 Meeting with NGG

A key element of this audit was the meeting with NGG to review the network analysis models on 16th April 2008.

It was anticipated that the format of the visit would be for Pöyry and Ofgem to analyse any available summary information, and to drill down and confirm the summary information within the actual network analysis models. However, NGG had taken the opportunity to put together a presentation, containing most of the required information in a structured format. This has helped significantly to focus the audit on the substantive results of the interim transfer and trades process. It should be stressed that Pöyry and Ofgem were both given every opportunity to freely explore any features of the presentation and the underlying analyses.

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10 Dated 25th, 26th, September 2007 and 8th October, 2007, signed by Chris Gumley, National Grid Network Operations.

11 National Grid, 4th September 2007

12 National Grid, 22nd February 2008

The (confidential) presentation covered the following points:

- the demand assumptions used and their derivation;
- the supply assumptions used and their derivation;
- the process for creating nodal allocation maxima (NAMs) from network analysis;
- the 'ceefax' diagrams and Graphical Falcon models, which incorporated:
  - the analysis to generate of zonal allocation maxima (ZAMs); and
  - the analysis to generate the exchange rates.

The meeting then went through the individual elements of the information request, to confirm whether the information had been provided within the presentation and, if not, whether further information would be required for the purposes of the audit. The completed information set was provided by Friday 18th April.

The meeting then went through a targeted sample of 'ceefax' diagrams to check these against the requisite Graphical Falcon network analysis models. Within this, Pöyry and Ofgem both requested and witnessed the application specific changes to the Graphical Falcon models to test the validity and scope of any network constraints.

In addition, following the meeting, short notes clarifying small points have been requested and provided by NGG.

3.4 Auditor's independent analysis

Pöyry has undertaken an independent analysis of the supply and demand conditions used within the transfer and trades process, which is discussed section 5.

4. INFORMATION PROVIDED

4.1 Demand assumptions

The historical minima and maxima for the appropriate months that were furnished by NGG pursuant to the Information Request is set out in Table 1, below.

Table 1 – 2004 to 2006 demand maxima and minima

	November	December	January	February	March	Average	Demand Studied
Max (2004 - 2006)	373	396	415	436	394	403	**400**
Min (2004 - 2006)	235	284	291	302	257	274	
75th Percentile	323	345	361	379	348	351	**350**

Source: National Grid, non-confidential information (replicated at http://www.nationalgrid.com/NR/rdonlyres/AA50AF69-2031-4524-873B-5BF0B460F9C4/24963/Demand_TemperatureCombinedv2.xls)

The demand levels actually used in the analysis of Zonal Allocation Maxima (ZAM) and exchange rates were 400mcm/d and 350mcm/d.

NGG explained that the distribution of demand around the network follows its standard demand forecasting methodology: that directly connected loads are directly forecast using statistical analyses, and that distribution network offtakes are interpolated from Offtake Capacity Statements. The formal description of the demand levels used are Day 6 and Day 45 of the Average Load Duration Curve, respectively for the 400 mcm/d and 350 mcm/d demand levels.

4.2 Supply assumptions

The methodology statement makes reference to the use of Transporting Britain's Energy (TBE) scenarios as the basis for the analysis, but explains that supplies will be changed in order to test for cost materiality. Pöyry notes that there was only one test scenario examined – the 'High East Coast' scenario – which is provided in Table 2 below.

Table 2 – High East Cost supply scenarios

ASEP	Demand level = 400		Demand level = 350	
	Flow	Rationale	Flow	Rationale
Easington	98	Set to Baseline	92	Set to Baseline of 98. Average of high East coast days.
Hornsea	9	Average of High East Coast days	0	Likely to be off at this demand level
Aldborough	0	Assume no flow for the winter. Expert opinion.	0	Assume no flow for the winter. Expert opinion.
Hatfield Moor	1.4	Baseline - flows seen at this level	0	Assume more likely zero flow. Expert opinion.
Bacton	100	Has been seen on average at the demand level.	80	Average of high East coast days.
Isle of Grain	12	Flows seen last winter	12	Flows seen last winter
St Fergus	110	Use to balance. Flows around this level.	112	Use to balance. Flows around this level.
Teesside	33	Use current Baseline. Average balanced from Barrow	27	Based on last winter's flows and expert opinion
Barrow	9	Used as swing field - Down from Average - Balance to Teesside. Expert opinion.	4.5	Average of high East coast days
Theddlethorpe	24	Based on Expert Opinion and last winter's flows	22	Average of last winter and high East coast days
Point of Ayr	2.5	Consistent with last winter	0	Expert opinion.
Milford Haven	0	Expert opinion.	0	Expert opinion.
Others	0	Negligible historical flows	0	Negligible historical flows

Source: National Grid.

The High East Coast flow scenario was mostly derived from examining the historical flows over the period November 2006 to March 2007. NGG provided historical flow data to support its selection of flows for the High East Coast scenario (we note that the information is also available via the NGG website). Pöyry examines this flow data in Section 5.2 below, to test the validity of the rationale presented in Table 2.

4.3 Nodal allocation maxima (NAMs)

The NAMs used within the transfer and trade process were simply derived from the NAMs published on 6th July, via the Joint Office website[13]. For the majority of ASEPs the NAM (as originally computed) reaches the cap level of 150% of baseline. The exceptions to this are Easington, Bacton, St. Fergus, Milford Haven, and Avonmouth, of which only Easington was recognized as a recipient ASEP within the transfer and trade process.

NGG provided the information set out in Table 3 to describe the exact supply pattern that had been used to achieve the original NAM for Easington. It should be noted that, at the time of this analysis, Caythorpe was expected to be operational. We have highlighted (in pale blue) where NGG has assumed substantial reductions in flows from the other ASEPs to accommodate the increased flow levels from Easington. We have also highlighted (in pale yellow) Pöyry's expectations of which ASEPs would have the most significant impact on capability at Easington.

13 www.gasgovernance.com/Code/Workstreams/TransmissionWorkstream/2007Meetings

Pöyry has not examined the individual network models used to generate these results and therefore cannot assert that they are fully correct (i.e. are reaching real system constraints). The supply patterns and resultant NAMs appear consistent, from observations made elsewhere in the audit, with constraints within other physically identical network models.

As the original NAM analysis agrees with Pöyry's expectations, we therefore conclude that the original NAM analysis appears to be correct and did not examine them in any further detail.

Table 3 – Easington NAM supply pattern, highlighted to show assumed substantial reductions and Pöyry's expectations of impact

[redacted]

Source: National Grid and Pöyry Energy Consulting. Confidential.

4.4 'Ceefax' diagrams and Graphical Falcon models

4.4.1 'Ceefax' summary statistics

A series of 'ceefax' diagrams were provided by NGG which summarised the network analysis undertaken to determine ZAMs and exchange rates. Each diagram represents one network analysis model. There were a total of 99 networks models created to analyse the various scenarios considered, although the majority of these were not directly used for the purposes of the interim process. There were 17 network analysis models that were directly used for setting parameters within the interim process. The 17 relevant diagrams have been included in Annex D.

4.4.2 Graphical Falcon models

The Graphical Falcon models examined by Pöyry were represented by the following 'ceefax' diagrams:

- 2N – 400mcm/d demand, High East Coast supplies, Easington ZAM calculations – examining the impact of Hatfield Moor flows;
- 2V – 400mcm/d demand, High East Coast supplies, Easington ZAM calculations – finalising the Easington ZAM after considering the effects of Hatfield Moor and Hornsea flows, and confirming that Easington ASEP is the correct location for calculating the ZAM;
- 2AE – 400mcm/d demand, High East Coast supplies, Isle of Grain to Easington band 1 exchange rate calculations – examining the effects of reducing flows at Isle of Grain on Easington capability; and
- 2S – 400mcm/d demand, High East Coast supplies, Isle of Grain to Easington band 1 exchange rate calculations – examining the effects of reducing flows at Isle of Grain on Easington capability.

During the examination of diagram 2N, Ofgem and Pöyry requested the particular examination of both the mathematical convergence of the model and the pressure definition node (St. Fergus compressor). These were both found to be satisfactory.

4.4.3 Constraints demonstrated

In each model, the constraints were demonstrated. All the constraints demonstrated were high or low 'alarm' pressures – messages from the internal mathematics that the model can only find a solution that breaches these alarms. Without re-specifying supply or demand assumptions these alarms can only be resolved by the analyst intervening by:

- removing the alarm (thereby breaching design/safety or contractual obligations); or
- adding capacity (i.e. mimicking investment).

Pöyry understands that other alarms commonly encountered include temperature alarms representing pipeline design criteria.

The individual constraints demonstrated included:

- Easington high pressure alarm (the alarm is set at [redacted] barg, reflective of the point where action may be taken by the System Operator to avoid breaching Maximum Operating Pressure (MOP) – the design pressure of the pipeline – of 70 barg);
- Sellafield low pressure alarm (the alarm is set reflecting the Anticipated Normal Operating Pressure (ANOP) applicable for the directly connected offtake); and
- Pannal low pressure alarm (the alarm is set reflecting the Assured Offtake Pressure (AsOP) as specified in the relevant Offtake Capacity Statement for the distribution network.

In addition, NGG confirmed that the flow margin used within the network models was set at 3%. The flow margin is a parameter used within the mathematics that inflates flows within the model to calculate the resultant pressures on the network. The flow margin is

[14] This figure is confidential.

intended to 'provide a level of security for compressor trips, forecasting errors, NTS connection profiling and offshore supply alerts.'

4.4.4 Zonal allocation maxima

Diagrammatic evidence was provided that sets out the process described below; this appears to be consistent with the process described within the methodology statement. The process employed within the modelling to ascertain the 'initial ZAM' for Easington was to:

- test the NAM (i.e. apply the Easington NAM (116mcm/d) to the High East Coast scenario); and
- then reduce the NAM until a valid network is found, balancing firstly within Easington zone, and secondarily out-of-zone (St. Fergus).

This result is considered the 'initial ZAM', and reflects the maximum flow that can be obtained at Easington ASEP under a modified High East Coast scenario, where the modification is to reduce other Easington zone supplies to zero. The initial ZAM was computed as 106 mcm/d.

A 'new ZAM' is then found by considering any potential impact of trades and transfers on the within-zone flow assumptions: This requires:

- consideration that if the ZAM were 106 mcm/d and this was all at Easington, the within-zone transfer would supply the additional 8 mcm/d at Easington from:
  - a reduction at Hatfield Moor (1.5 mcm/d); and
  - a reduction at Hornsea (6.5 mcm/d), in accordance with the zonal merit order.
- This would still leave Hornsea with firm capacity of 9 mcm/d, consistent with the expected flow.

The 'new ZAM' was computed at 102 mcm/d, and was exposed when considering expected flows at Hornsea of 9 mcm/d. This represents the maximum flow that can be allocated at any single ASEP within the zone, whilst satisfying both the 1:1 exchange rate and no 'material increases in costs' limitations.

Cross-zone check

The analysis was conducted before the capacity surrender process was completed, so further analysis had been undertaken to restate the ZAM considering different zones. This 'cross-zone check' applies two ZAMs coincidentally – specifically the Easington and Northern Triangle (St. Fergus, Barrow, Glenmavis, Teesside) zones – and reduces the ZAMs evenly until the modelling constraints are met.

The Northern Triangle ZAM is computed in a similar manner. However, as expected flows at St. Fergus and Barrow imply significant volumes of unsold baseline capacity, the ZAM includes significant volumes of baseline – i.e. it is far more descriptive of capability than expected flow. (Compared with Easington zone where as it is constrained, the ZAM can be descriptive of both capability and expected flows). In effect, the Northern Triangle ZAM becomes the Teesside NAM at High East Coast flows (44 mcm/d).

The cross-zone check therefore examines the combination of Hornsea at 9 mcm/d, Easington at 102 mcm/d and Teesside at 44 mcm/d, and concludes that the final ZAMs would be 99.5 mcm/d for Easington and 216.5 mcm/d for the Northern Triangle (comprising Teesside at 41.5 mcm/d plus Barrow and St. Fergus baselines).

Following the surrender process, insufficient capacity was surrendered within the Easington zone to require the use of the cross-zone check. The final ZAMs used were therefore 102 mcm/d for the Easington zone and 218 mcm/d for the Northern Triangle.

4.4.5 Exchange rates

Diagrammatic evidence was provided that described the generation of exchange rates to transfer or trade capacity from one zone to another zone. The process considered the incremental amounts that could be accommodated at Easington from reduced flow at Isle of Grain, whilst rebalancing the system where necessary at St. Fergus. The analysis considered two bands, each of 8 mcm/d reduced capacity at Isle of Grain, which resulted in transfers to Easington of 3.5 and 4.5 mcm/d. The difference between these values is explained by the fact that the first band transfers both expected flow and 'spare' capacity, whereas the second band transfers only expected flow.

NGG explained that two bands each of 50% of maximum transfer were assumed to reflect the two stages envisaged by the UNC. If four bands of 25% had been assumed, the first of four bands would be likely to have a very high exchange rate, with the remaining three bands having significantly lower exchange rates. As the allocations resulting from the auction may result in allocations at less than 50%, representing proportionately more 'spare' capacity, NGG might absorb some incremental risk.

5. AUDITOR'S COMMENTS

5.1 Demand levels

Pöyry notes that the interim methodology statement mentioned that demand levels would be the minimum and maximum demands from historical records for each month. However, the demands used for all months were set at 350mcm/d and 400mcm/d. Pöyry therefore finds that NGG has deviated from the interim methodology statement.

However, we note several mitigating factors:

- comparing results from the 350mcm/d and 400mcm/d analyses yield similar exchange rates;
- computing results for all 12 demand levels would require up to six times the amount of analysis;
- certain parameters (e.g. number of auction rounds, and therefore the breakpoints used for banding exchange rates) were unknown until late in the development of the initial methodology statement; and
- as a result there was a very limited timescale in which to generate exchange rates.

The first observation is perhaps the most important as it suggests that little additional value might be extracted from a significantly greater level of analysis, and Pöyry believes that it was unlikely that the analysis could have been completed in a timely fashion.

Following the process, NGG published an "Explanatory Note on Trade and Transfer Process" that states, "*In determining a ZAM for the months in question, the applicable minimum and maximum demands were considered. Within this range two particular demand levels were identified which would be applicable to all months. The demand levels were 350mcm/d and 400mcm/d. The reason for selecting these demand levels was that they represent a cold and a typical winter day, therefore they provide a good basis to undertake the risk assessment.*" Pöyry agrees with this final assertion and we consider that the deviation from the methodology is immaterial.

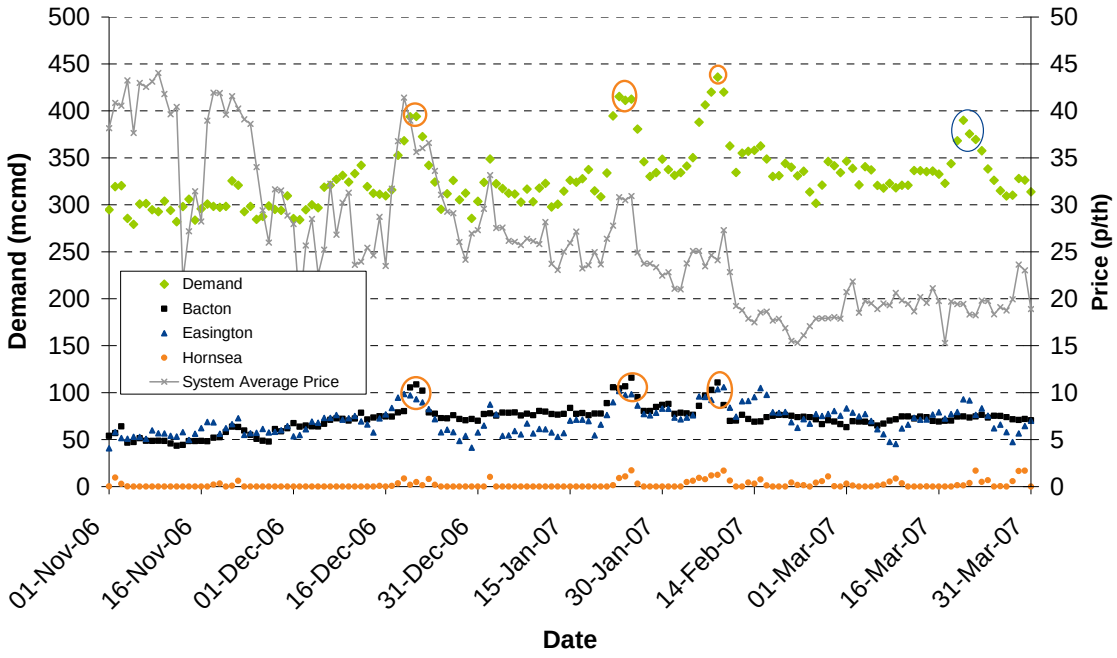
5.2 Supply analysis

Pöyry has examined the historical supply patterns used to generate the High East Coast flow scenario. Figure 2 below shows a graphical representation of the supplies at Bacton, Easington and Hornsea ASEPs, including demand and price.

Pöyry makes the observation that of the four periods of relatively high demand, only one was not considered for the definition of a High East Coast flow scenario, consistent with the observation that flows at Bacton were not particularly high at that time.

Pöyry has assessed the reasons NGG had stated for setting each supply within the High East Coast scenario which are set out in Table 4 below.

Figure 2 – Test case selection (major East coast flows winter 06/07)



Source: Pöyry Energy Consulting analysis of National Grid data. Confidential.

Table 4 – 400 mcm/d High East Coast scenario commentary

ASEP	Flow	Rationale	Pöyry Commentary
Easington	98	Set to Baseline	Historical maximum significantly higher, though this has little relevance as above baseline
Hornsea	9	Average of High East Coast days	Significant deviation at this demand level, figure is perhaps conservative in zero risk analysis
Aldborough	0	Assume no flow for the winter. Expert opinion.	We agree with the assertion that Aldborough would not be flowing in winter 2007/08
Hatfield Moor	1.4	Baseline - flows seen at this level	Flows generally in excess of this at this demand level
Bacton	100	Has been seen on average at the demand level.	Flows generally in excess of this at this demand level
Isle of Grain	12	Flows seen last winter	Slightly above the average levels; consistent with Teesside
St Fergus	110	Use to balance. Flows around this level.	No/insignificant impact
Teesside	33	Use current Baseline. Average balanced from Barrow	Historical flows significantly below this level, however there was an expectation of incremental flows from the Exelerate facility which would be consistent with LNG at Grain
Barrow	9	Used as swing field - Down from Average - Balance to Teesside. Expert opinion.	Disagree that Teesside would displace Barrow flows as LNG has alternative markets
Theddlethorpe	24	Based on Expert Opinion and last winter's flows	There is evidence of flows at this level
Point of Ayr	2.5	Consistent with last winter	Agreed
Milford Haven	0	Expert opinion.	LNG terminals not ready; agreed
Others	0	Negligible historical flows	Agreed

Source: National Grid and Pöyry Energy Consulting. Confidential.

In providing the above commentary, Pöyry has produced summary statistics of the historical ASEP flows over the 2006/07 winter period. These statistics are presented in Table 5 below, and we have highlighted the three main East Coast ASEPs.

Table 5 – Historical ASEP flows summary statistics

	Numerical statistics			Dispertion	
	Maximum	Mean	Minimum	Standard deviation	Coefficient of variance
Theddlethorpe	26	23	18	1.55	0.07
St Fergus	128	113	95	8.03	0.07
Teesside	32	27	19	2.54	0.09
Bacton	116	72	44	13.72	0.19
Easington	106	70	41	14.43	0.21
Others	8	4	0	1.94	0.54
IOG	16	9	0	4.89	0.55
Barrow	24	10	3	6.43	0.64
Hatfield Moor	2	1	0	0.66	1.24
Glenmavis	0	0	0	0.03	1.46
Humbly Grove	7	1	0	2.28	1.80
Hornsea	17	2	0	4.03	1.86
Avonmouth	1	0	0	0.05	9.95
Dynevor	0	0	0	0.01	11.77
Canvey LNG	0	0	0	0.00	
Caythorpe	0	0	0	0.00	
Garton	0	0	0	0.00	
Milford Haven	0	0	0	0.00	
East Coast (Thed, Easn, Bact)	237	166	120	24.53	0.15

Source: Pöyry Energy Consulting analysis of National Grid data.

A more detailed examination of the historical 2006/07 flows against demand, time and price, does not provide any additional insight into the validity of NGGs arguments. This is perhaps because of the unusual price track experienced over that winter with prices generally declining through the winter, and its influence on market behaviour. This unusual price track is shown in Figure 2. In addition, the as the interpretation of no 'material increases in cost' is open to interpretation, NGG only need perform the analysis at whatever conditions it deems as presenting risk.

Pöyry therefore concludes that the test scenario used for the interim transfer and trade process does not seem inappropriate.

5.3 Capability and modelling

The capabilities presented within the modelling appear to be consistent across the network models and with previous analysis, such as the generation of NAMs. Pöyry has also explored the effects that certain increments of flow have within the network models, and is satisfied that the network models have not been inappropriately manipulated within the interim transfer and trades process.

The low pressure alarms used within the network models appear to reflect contractual parameters. However, the two parameters used – the ANOP and the AsOP – do not necessarily result in material liabilities on NGG (there is no liability associated with the ANOP, and only a consequential liability associated with the AsOP, which Pöyry understands has not, to date, been exercised). Pöyry understands from industry sources that failure to maintain an AsOP is not a rare occurrence, and we note that the industry is currently discussing this topic[15].

The high pressure alarm encountered within the network model ([16] barg at Easington) is not the MOP of the pipeline (which is 70 barg). NGG has explained that the alarm pressure is agreed with the System Operator, and Pöyry understands that this figure is reflective of the pressure where physical actions that lead to buy-back may be initiated. More capability could be realised if this alarm pressure was elevated towards the Maximum Permissible Operating Pressure (MOP) of the pipeline.

The physical and contractual constraints assumed within the network model are therefore potentially conservative with regards to the capability of the network. However, Pöyry understands that the constraints are consistently applied within all steady-state[17] network analysis undertaken by NGG and therefore they do not present any particular impact to the transfer and trades process. Use of different alarm pressures specifically within the transfer and trades process might be argued as increasing risk, and therefore would be rejected by NGG based on its interpretation of no 'material increases in cost'.

An examination using different alarm pressures might yield an understanding of their impact on both general network capability and specific ASEP capabilities. With regards to the contractual parameters, an understanding of the costs of lower contractual pressures (to establish whether they are actually zero as is implied by the current liabilities) could also be obtained. It would then be possible to understand the cost of providing elevated capability at specific points on the network.

Furthermore, in respect to the high pressure alarm, as there have never been buy-back actions taken at the Easington ASEP, it would be impossible to provide evidence of exactly at what pressure the System Operator would take action. A review of buy-back actions at the St. Fergus ASEP may yield greater understanding of any 'action threshold' that might be adopted by the System Operator.

5.4 Specific analysis

5.4.1 Easington Zone exchanges

As discussed above, the Easington ZAM had been computed at 99.5 mcm/d for all months (assuming a requirement for within-zone transfers). The aggregate level of sold capacity within the Easington Zone was 153.5 mcm/d for all months except November. Under the terms of the UNC as applied (incorporating Mod 0169,) there would need to be levels of surrendered capacity of about 54 mcm/d for the formal triggering of the within-zone transfer and trade process at Easington in these months. The actual levels of surrender were significantly lower at around 2.5 mcm/d. It is therefore the lack of

15 UNC Mod 0206 – Summer and Winter Assured Pressure Periods, was raised and subsequently withdrawn by NGG for reconsideration.

16 Confidential.

17 Assuming no within-day profiling of entry or exit flows and therefore no within-day linepack variation.

surrendered capacity within the Easington Zone which has meant that there was no within-zone process.

At a higher perspective, there will be instances where a physical flow reduction at an ASEP within the Easington zone would provide capability which could be used at another ASEP within the same zone. Considering the Easington ASEP, given that the constraining factor for the zone tends to be local to the ASEP (i.e. Easington high pressure alarm), it is unlikely that such a movement would be at a 1:1 exchange rate.

The NAM at Easington (116 mcm/d) is only reached where all other supplies, regardless of location, are flowing at favourable levels. The original computation of the NAM assumed that all other Easington zone flows were at zero, and assumed lower flows than were expected (at the time of computation) at Theddlethorpe (just 14 mcm/d). The initial ZAM (106 mcm/d) assumed that there would be physical flow of 24 mcm/d at Theddlethorpe, and the final ZAM (102 mcm/d) assumed there would be physical flow of 9 mcm/d at Hornsea. This implies that the real exchange between Hornsea and Easington is not 1:1. These observations are summarized in Table 6 below.

Other results presented by NGG included the consideration of transfers between Hatfield Moor and Easington, with similar though less restricting implications. The underlying question therefore becomes one pertaining to the relevance of assuming Hornsea will be flowing 9 mcm/d of physical gas at those demand levels – i.e. whether the High East Coast flow scenario is appropriate, which we have addressed above.

Table 6 – Cursory examination of Easington exchange rates

	NAM	Initial ZAM	Final ZAM
Easington	116	106	102
Hornsea	0	0	9
Other Easington ASEPs	0	0	0
Easington Zone (transferable @ 1:1)	116 (N/A)	106 (N/A)	111 (102)
Theddlethorpe	14	24	24
'Thread area' total	130	130	135

Source: Pöyry Energy Consulting

5.4.2 Northern Triangle transfers to Easington Zone

NGG confirmed that whilst there is a technical possibility of transferring capability from the Northern Triangle to Easington, the fact that Teesside ASEP was sold out prevented it from being considered as a donor ASEP, and that the exchange rate that would be computed for St. Fergus or Barrow to Easington would be inappropriate. Pöyry notes that there was an expectation prior to the auction that Teesside would be a recipient ASEP.

Pöyry considers that a strict interpretation of the methodology statement might have provided a Northern Triangle to Easington exchange rate, however, we accept NGG's

arguments that the exchange rate would have been inappropriate due to the significant levels of space at St. Fergus and Barrow.

5.5 Effectiveness of Interim Transfer and Trade Process

Pöyry considers that the process has been somewhat effective in providing the opportunity for the transfer and trade of limited amounts of capacity across the network. Pöyry believes that the main constraining factors reached within the process are the within-zone 1:1 exchange rate and the interpretation of no 'material increases in cost'.

5.6 Considerations for the development of an enduring regime

Pöyry considers that the move to an ex-post determination of ASEP to ASEP exchange rates, thereby eliminating 1:1 exchange rates would result in a greater level of transfer and ability to trade capacity. However, as NGG has a commercial interest this would need to be subject to audit or a real threat of audit.

Pöyry also considers that any costs of contract renegotiation that could be used to alleviate some alarm pressures used within the modelling, should be established and assessed against the value placed on capacity transfers. In addition, where modelling parameters are set at levels below design pressures, clear evidence and justification for this practice need to be provided to Ofgem.

ANNEX A – GLOSSARY

ANOP – Anticipated Normal Operating Pressure – as defined in UNC J.2.2.3 and specified in a NExA – the lowest expected pressure at a directly connected exit point.

ASEP – Aggregate System Entry Point – as per UNC, an entry point at which capacity is sold which comprises one or more sub-terminals.

AsOP – Assured Offtake Pressure – as defined in UNC J.2.5.1 and specified in an Offtake Capacity Statement – a guaranteed minimum pressure at an exit point supplying a Distribution Network.

Capacity – a contractual right to flow gas.

Capability – the ability to move physical gas.

Exchange rate – the ratio of the amount of capacity that NGG allows to be transferred from one ASEP to the amount of capacity transferred to another ASEP.

MIP – Maximum Incidental Pressure – as defined by the Institute of Gas Engineers and Managers (IGEM), which is the highest pressure which a pipeline is permitted to experience under fault conditions (e.g. physical failure of other equipment). It is physically limited by automatic safety devices.

MOP – Maximum Operating Pressure – as defined by the IGEM, is the maximum pressure at which a pipeline can be operated under normal conditions. It is distinct from the Maximum Incidental Pressure (MIP). Excursions above this pressure are not necessarily considered unsafe.

NAM – Nodal Allocation Maximum – the maximum capability of an entry point given a set supply assumptions elsewhere on the network that has been created to maximise the capability of that node.

NExA – Network Exit Agreement – a bilateral agreement with NGG, contemplated in UNC as an 'Ancillary Agreement', specifying certain technical and operational parameters.

Northern Triangle – a zone comprising Barrow, St. Fergus, Glenmavis and Teesside ASEPs.

NTS – National Transmission System – as per the definition in the relevant Gas Transporters Licence.

Subterminal – an individual connection to the NTS used for inputting gas into the NTS.

UNC – the Uniform Network Code.

ZAM – Zonal Allocation Maximum – the maximum capability of any ASEP within a zone, variously defined (see section 4.4.4).

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ANNEX B – GAS FORUM SCOPE

TERMS OF REFERENCE V1.0
AUDIT OF INTERIM TRADE AND TRANSFER MECHANISM

1. Background

Following the decision of Ofgem to support an independent audit of the interim regime to inform the development of an enduring regime for the trade and transfer of entry capacity, Pöyry Energy Consulting has been nominated as the independent auditor. It is clear that at this stage, scope for such an audit should be mapped out.

2. Purpose

This audit shall consider:

- The substantive points of the interim Trade & Transfer process, identifying potential shortcomings that will help refine the enduring regime, and removing any potential barriers that might prevent/delay development of the enduring regime.
- The exchange rates set and whether they were set in accordance with the methodology statement and Licence obligations, and whether all capacity that was available for transfer was transferred, and whether this capacity movement resulted in an appropriate risk profile for NGG.

3. Scope & Deliverables

The audit will fall into two parts and will deliver the following:

a. An audit of the test scenarios to determine whether the flow assumptions were reasonable for the purposes of the trade and transfer mechanism, considering under different demand levels:
   i. What flows have been assumed at which ASEPs?
   ii. What is the supporting evidence for such assumptions?
   iii. Are they reasonable in the historic contexts?
   iv. Are they reasonable in the forward-looking contexts?
   v. What are the sensitivities?

b. Identification of what is causing the model to fail, considering:
   i. Why specific scenarios were rejected as materially increasing buy-back risk?
   ii. Where are the physical constraints materialising and are they valid?
   iii. Is there a common pattern of failure?
   iv. What reconfigurations have been tested?

v. What reconfigurations have been rejected?

The independent auditors shall endeavour to complete the audit within a period of no more than two weeks after the necessary confidentiality agreements being in place. The target deliverable shall be to submit a fully drafted report answering the questions set-out above, with an overall conclusion to each part.

4. Limits

It is noted that the auditor cannot enforce compliance and cooperation by NGG. It is proposed that Ofgem will need to act as facilitators and act as a filter between the auditors and Shippers to ensure that NGGs commercial integrity is not exposed unnecessarily. Ofgem may have to direct NGG to participate in an appropriate manner, and may have to approve all reports before onward circulation or publication.

5. Composition

The following parties are direct stakeholders of the audit:

Organisation	Role	Contact
Ofgem	Regulator	Bob Hull
National Grid Gas	TSO	
Centrica Storage Ltd	Sponsoring Shipper	Roddy Monroe
Centrica plc	Sponsoring Shipper	Mike Young
BP	Sponsoring Shipper	Andrew Pearce
GDF	Sponsoring Shipper	Phil Broom
Statoil	Sponsoring Shipper	Chrissie Sykes
Shell	Sponsoring Shipper	Amrik Bal
E.On	Sponsoring Shipper	Richard Fairholme
ExxonMobil	Sponsoring Shipper	Joy Chadwick
Total E&P UK	Sponsoring Shipper	Sofia Fernandez Avendaño
BG Group	Sponsoring Shipper	Alex Barnes

Roddy Monroe will be lead Sponsoring Shipper and the auditor's point of contact within the Shipper community.

6. Information Sources

Listed below are some of the key development documents produced for the interim T&T process. This list is not exhaustive and both the Joint office and NGG web sites may

provide further background references.

1. Modification Proposal 0187 and 0187A - Alterations to the RMSEC Auction to Accommodate Transfer and Trade of Capacity between ASEPs: Mod proposal, report and responses.

http://www.gasgovernance.com/Code/Modifications/LiveMods/

2. The Transfer and Trade of Capacity between ASEPs - Explanatory Note 24/12/2007

http://www.gasgovernance.com/NR/rdonlyres/DB1A7337-227E-4C81-9776-49017DC9B72E/22335/TradeandTransferExplanatoryNote21_12_07.pdf

3. Ofgem's decision letter on Interim T&T Mods: UNC 156 / 156A / 169 / 169A:

Transfer and Trading of Capacity Between ASEPs

http://www.gasgovernance.com/NR/rdonlyres/A602867E-9A41-41F9-884C-4CAC355AD65/19777/UNC156156A169169A.pdf

4. The Entry Capacity Transfer and Trade Methodology Statement Effective from 1st September 2007 (in respect of NTS Entry Capacity available in the Constrained Period).

http://www.nationalgrid.com/NR/rdonlyres/B17AFDCB-1DF4-43DD-A62B-DEBDB63C7A6F/19723/TransferandTradeMethodologyStatementv10310807.pdf

5. The Entry Capacity Transfer and Trade Methodology Statement Effective from [1st June] 2008.

http://www.gasgovernance.com/NR/rdonlyres/01C00031-72B4-4656-9C19-1C4C47A54981/21785/DRAFTTTMSv11Workstream061207no2.pdf

6. Explanatory Note on Trade and Transfer Information in respect of the Transfer and Trade System Entry Capacity Auction - September 2007

http://www.gasgovernance.com/NR/rdonlyres/30F04DE6-B0A8-4572-AAD6-2707966B2F86/20936/ExplanatoryNoteonTTSECInformation241007.pdf

7. Transfer and Trade Methodology Statement Supplementary Information 23/08/2007

http://www.gasgovernance.com/NR/rdonlyres/69D2140F-3F12-4E18-B104-9FD9FEA759D4/19489/230807TradeandTransferMethodologyStatementSuppleme.pdf

8. Two worked examples have been provided clarifying how the intended allocation process contained within Modification 0156 would work.

These examples and the numbers contained within them are for illustrative purposes only.

http://www.gasgovernance.com/NR/rdonlyres/7BAA0437-60DE-43E9-BB7A-AEE179101503/18435/Mod0156AllocationExamples.xls

9. NTS Entry Capability at a Nodal Level 06/07/2007

http://www.gasgovernance.com/NR/rdonlyres/0DABFB6B-3A7F-43B4-B278-CE2B83112A70/18273/NTSEntryCapabilityataNodalLevel.pdf

http://www.gasgovernance.com/NR/rdonlyres/0DABFB6B-3A7F-43B4-B278-CE2B83112A70/18274/NTSEntryCapabilityataNodalLevel1.xls

10. NTS data providing details of the capability of each entry zone at different levels of

system demand 25/06/2007

http://www.gasgovernance.com/NR/rdonlyres/F189C9F3-AE7D-42C4-935F-82952152A20E/17984/ZonalCapabilities25_06_07.xls

11. Ofgem's open Letter: "National Grid Gas National Transmission System Entry Capacity: Development of the regime ahead of winter 2007/8" 20/06/2007

http://www.gasgovernance.com/NR/rdonlyres/D93A0A0E-1225-41A5-9AB1-EC077887E390/17843/ofgemletter.pdf

7. Timetable

- RM to input key dates

ANNEX C – INFORMATION REQUEST

Below is a list of the information which the Gas and Electricity Markets Authority now requires National Grid Gas plc to furnish it with on or before 18 April 2008. We understand that a large part of the information requested below is encapsulated in a set of 'ceefax diagrams', and that these are available in electronic format. We would be grateful if these 'ceefax diagrams' could be provided by the 14 April 2008.

- For each appropriate month Min, Max, Mean, Median, Standard Deviation and sample size of daily Demand, and a description of the distribution of the distribution of the data if it is not expected to be normally distributed in the long run after correcting for demand growth [ref IMS[18] 19[19]]
- The actual levels of demand at each of the 'three demand levels' (i.e. 'forecast highest for a typical winter', 'typical summer demand', and 'typical shoulder month') [ref IMS 20(a)]
- NAM for all ASEPs at each of these 'three demand levels' [ref IMS 20(a)]
- All combinations of supplies at non-NAM ASEPs for each NAM at each of the 'three demand levels' [ref IMS 20(a)]
- Any and all alarm/constraint reached when at NAM (i.e. the alarm/constraint breached when just above NAM), for each NAM at each of the 'three demand levels' [ref IMS 20(a)]
- Details of the driver of the above alarm/constraint (e.g. if it is a contractual limit, what contract, what counterparty, etc.), for each alarm/constraint reached [ref IMS 20(a)]
- The minimum historical demand for the month, as appropriate, and the sample size (i.e. length of history considered) [ref IMS 20(a)]
- Details of any and all limiting factors that might apply through paragraph 20(b) of the IMS, and the NAM reached during paragraph 20(a) prior to the application of 20(b). [ref IMS 20(a) & 20(b)]
- The range of daily demand for each appropriate month and the corresponding range of daily gas flows expected at each ASEP [ref IMS 25]
- Details of any and all market intelligence that has led to an adjustment of the expected daily gas flow, and the amount of any adjustment [ref IMS 25]
- The level of the flow margin used in any and all underlying network analyses and whether this flow margin has been applied consistently across all analyses [ref IMS 28]
- The minimum and maximum expected demand for each appropriate month, and any other demand points analysed [ref IMS 31 preamble]
- For each analysed ASEP as appropriate, where out-of-zone rebalancing has been applied, the location and magnitude (both size and percentage reduction) [ref IMS 31(i)]

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18 IMS = Interim Methodolgy Statement, meaning "The Entry Capacity Transfer and Trade Methodology Statement" Issue 1.0, 31st August 2007.

19 Paragraph numbers as included in the IMS.

- For each instance where there has been a material increase in costs (i.e. where there has been 'an incremental forecast system failure' [IMS footnote 4]), the magnitude of those increases in costs, the location, type and size of the technical failure, the resultant MPFLs at within-zone ASEPs [ref IMS 31(i)]
- Where the analysed ASEP has been reduced to a level below the NAM, the magnitude of the reduction, and confirmation (or further explanation where not the case), that the MPFLs at within zone ASEPs has been reduced to zero [ref IMS 31(i)]
- Confirmation that the two options presented in the 3rd sentence of the 3rd paragraph of IMS 31(i) are the same, and if not provide an explanation of the difference between the two options ('This process will be repeated until either no material increases in costs occur or the rebalancing of the original increase in flow from the obligated level to the NAM at the analysed ASEP is all undertaken within the zone') [ref IMS 31(i)]
- The title of IMS 31(ii) ('Test Scenario Analyses') implies that some further analysis is undertaken assuming different conditions to those conditions used in part (i) (i.e. 'test scenarios') however there is no detail as to what these conditions are. Please provide description and detail of these 'test scenarios' (including but not necessarily limited to ASEP flow assumptions and supporting evidence for these flow assumptions and any sensitivities to these flow assumptions that have been assumed) [ref IMS 31(ii)]
- Confirmation that the 'Selected demand levels' are the same as the 'three demand levels' referred to in IMS20(a) [ref IMS 31(iv)]. If they are not, then the demand levels so used and justification for the use of those demand levels
- The magnitude of any increases in costs and the levels of reduction to WZNAMs thus generated [ref IMS 31(iv)]
- Please quantify the capacities that were made available, or were 'expected to be...made' available through the trade process contemplated therein, and confirm that the trade process contemplated therein is the same trade process that is the subject of the methodology [ref IMS 32 & IMS 35]
- Provide the full schedule of allocation of adding increments per paragraph 2, for each increment, each donor zone and each recipient zone [ref IMS 35]
- For any instances where there were increases in costs expected as a result of the network analysis described in paragraph 3, please provide details of any and all alarms/constraints that were encountered, and all the actions that were taken in attempts to alleviate these [ref IMS 35]
- Please confirm that the numbers in the paragraph immediately following the table are not actually reflective of the numbers in the table, and that this is a drafting error [ref IMS 35]

Please note that this information requirement relates to the audit of the operation of the NTS entry capacity transfer and trade methodology and resulting auction and allocation process carried out by National Grid Gas plc (the "Audit") and is not an exhaustive list of all information that will be required to conduct the Audit. As during the course of reviewing the information listed above and conducting the Audit generally it may become apparent that further information is required, upon which we will contact National Grid Gas plc again for any further information.

ANNEX D – INFORMATION PROVIDED

The information in this annex has been removed for confidentiality purposes.

D.1 Relevant 'ceefax' diagrams provided by National Grid

D.1.1 400 mcm/d ZAM

D.1.1.1 Base network

D.1.1.2 Diagram 2N

D.1.1.3 Diagram 2V

D.1.1.4 Diagram 2Q

D.1.1.5 Diagram 2R

D.1.2 350 mcm/d ZAM

D.1.2.1 Base network

D.1.2.2 Easington ZAM

D.1.2.3 Northern Triangle ZAM

D.1.2.4 Cross-zone check

D.1.3 450 mcm/d Exchange Rates

D.1.3.1 Diagram 2AE

D.1.3.2 Diagram 2S

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D.1.3.4 Diagram 2AK

D.1.3.5 Diagram 6O

D.1.4 350 mcm/d Exchange Rates

D.1.4.1 Base case

D.1.4.2 Diagram 7B

D.1.4.3 Diagram 7C

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