

## Gas Transmission Charging Methodologies Forum

### Draft Meeting Report: 25 May 2006

*This report outlines the key discussions of the fifth Gas TCMF meeting held at Elexon, 350 Euston Road, London on 25<sup>th</sup> May 2006. All supporting material can be found at [www.nationalgrid.com/uk/gas](http://www.nationalgrid.com/uk/gas)*

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#### ATTENDEES

|                               |                                     |
|-------------------------------|-------------------------------------|
| Tim Davis (Chair)             | TD Joint Office of Gas Transporters |
| Angela Love                   | AL Ilex                             |
| Barbara Vest                  | BV GdF                              |
| Chandima Dutton               | CD National Grid NTS                |
| Colin Dickens                 | CDi ExxonMobil                      |
| Charles Ruffell               | CR RWE                              |
| Denis Aitchison               | DA Scotia Gas Networks              |
| Dan Roberts                   | DR Frontier Economics               |
| Dennis Timmins                | DT RWE Npower                       |
| Dave Wilkerson                | DW BGT                              |
| Eddie Blackburn               | EB National Grid NTS                |
| Eric Sleutjes                 | ES Ofgem                            |
| John Bradley                  | JB Joint Office of Gas Transporters |
| Jeff Chandler                 | JC SSE                              |
| Julie Cox                     | JCoAEP                              |
| Merel van der Neut Kolfshoten | MK BGT                              |
| Nick Wye                      | NW Waterswye                        |
| Paul Roberts                  | PR National Grid NTS                |
| Shelly Rouse                  | SR Statoil                          |
| Yasmin Sufi                   | YS ENI                              |

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#### 1. Report of Previous Meeting

The meeting report of the Forum held on 24 April 2006 was agreed as accurate.

#### 2. Actions and Issues from previous meetings

6 *National Grid NTS to conduct further analysis of Transport Model Variants 1 to 3 plus Variant 5 suggested at the working group meeting.*

This was presented under item 3 below

**Action Closed**

11 *National Grid NTS to identify the assumptions behind the determination of Milford Haven UCAs and the relationships with existing Entry points*

National Grid NTS was reviewing the relevant documents.

**Action Carried Forward**

12 *National Grid NTS to include with the spreadsheet a summary of planning assumptions from which the flows were established.*

This action had been completed

**Action Closed**

- 13 *National Grid NTS to place the indicative spreadsheet on its website and notify the Joint Office of the hyperlink details. Also to place presentations from this meeting on the website.*

National Grid NTS had placed both the indicative spreadsheet and its presentations on the website. **Action Closed**

- 14 *National Grid to arrange for the presentation “Capacity Release Mechanisms and Implications for Pricing – Estimation of Long Run Capacity Costs” to be given after the Transmission Workstream 4 May 2006.*

This presentation was given on 4 May 2006 **Action Closed**

### 3. Outcome of LRMC Modelling Analysis

EB gave this presentation. He began by outlining the TCMF consensus achieved previously. He reminded the meeting that this led to a decision to explore six options which he entitled A to D (Transcost Model variants) and F1 and F2 (Transportation Model variants).

He then turned to expansion factors and the cost basis of the Transportation Models. These were expressed as £/peakdayMWh.km. EB stated that these were calculated from every entry point to the reference node and from the reference node to the exit point. JCo enquired whether this would give anomalous results for an exit point situated close to an Entry Point. EB explained an offsetting negative cost from the reference point to the exit point would ensure that the result was appropriate.

The basic pipe calculation assumed a maximum flow for a 100km pipe length with an 85 bar inlet and 38 bar outlet. This length had been selected as it was typical of the pipe lengths between compressors on the NTS. Compression costs were related to the power requirement to recompress back to 85 bar. He then demonstrated the economies of scale resulting from use of larger diameter pipes. JCo queried why compression costs should be included if an exit point was close to either the extremity of the system or an entry point. EB acknowledged this but the alternative was to produce a more complex model with different expansion factors for different scenarios. TD pointed out that this analysis produced an average expansion factor and as such some inaccuracies were only to be expected. The alternative was to use a Transcost Model, which would be specific to each entry/exit combination. EB suggested that the expansion factors costs were generally cost reflective. BV asked whether the “postage stamp” principle of a single cost applied. TD suggested that the principle was analogous in that national expansion factors were used but this did not produce a single NTS charge rate.

EB then outlined the modelling process followed, particularly the assumptions that have to be fed into any Transcost simulation. JCo asked about the relevance of regulator setting. EB explained that this was a process of setting flows within the system to optimise costs. He recognised that a standard set could be fed in but this may not always produce an optimised cost result. It was explained that it may be possible to automate, to an extent, the optimisation of regulated flow settings within Transcost, but it was likely that some degree of manual intervention and judgement would still be necessary. This was a major contributor to the time and workload required for Transcost analysis. JCo noted that the suggestion that system capability was subject to judgement was crucial to the work being carried out by National Grid NTS on flexibility costs under the Enduring Offtake regime.

JCo’s memory of previous discussions was that Transportation Models were a “bad idea” so wondered why these were still being discussed. EB summarised the differences between the two approaches and said that this had only led to some of the Transportation Model variants being discarded: not the whole concept. TD suggested that whilst a preference for modelling spare capacity, and hence Transcost, had been expressed, TCMF had still agreed that Transportation Model variants should be considered.

EB presented summary LRMC results from the models. In terms of the 10-year average exit price, the results were fairly uniform. However, in terms of Standard Deviation, Model A (existing) showed far more variation than the other variants. He concluded that the desire for stability suggested that Model A should be discarded as an option for the future.

EB volunteered to produce spreadsheet data for direct connects as well as the current data for DN offtakes. This was accepted. **Action National Grid NTS**

JCo suggested that consistency of averages would be expected, as they were all averages. EB maintained that, on an individual offtake basis, some variation between the models might be expected.

Turning to Scotland and the North, EB pointed out that the Transportation Model variants gave the intuitively expected small cost allocation to exit, and that NTS investment had latterly been driven by Entry considerations. JCo questioned whether this supported the 50:50 entry:exit split assumption. PR suggested that arguments could be put forward for movement from 50:50 in either direction. A 50:50 split was, he believed, a pragmatic solution that should be retained. AL asked why Models A to D did not come up with the expected pattern. EB responded that Models A and B did not model backhaul, but the detail as to what was driving the results in C and D was unclear. EB stated that the variation demonstrated in Models F1 and F2 was more easily explained. For example, Milford Haven commissioning will change South Wales from the highest cost area to the lowest. TD suggested that the results indicated that Model D should be discarded - which was not unexpected as it was seeking to remove spare capacity from a model, which was designed to be appropriate for modelling spare capacity.

EB then summarised the DN impact (ie difference between the 10 year average price and current) sorted by offtake. In all the Transcost Models, significant impacts were observed in Scotland. The Transportation Models showed lower impacts and where higher impacts were observed a ready explanation could be made based on changes to the supply and demand pattern.

On Entry, EB concluded that the Transportation Model variants were more consistent with prevailing UCAs and expected expansion costs for all Entry Points and how the Transcost variants was showing low costs for declining terminals and to some extent was overstating costs for small Entry Points. He also demonstrated the smaller TO Entry Commodity charge resulting from the Transportation Model variants.

EB then summarised the work done to assess the impact of changing supply demand scenarios, comparing the Ten Year Statement "Central Case" model with "Global LNG". Due to time constraints this had only been conducted for the two Transportation Model variants. This gave the expected results that the F1 Model was less susceptible to change due to the single expansion factor basis. Looking at the ten-year impacts by exit zone, this displayed the expected result – South Wales displayed the highest impact. EB stated that the critical driver was the flow penetration distance, which was higher with the Central Case than with Global LNG. CD and DR saw this as an aspect of backhaul. EB also showed that with a one year model the variations would be minimal. JCo acknowledged this but stated that this did not demonstrate potential year-to-year step changes in prices, which were her major concern. JCo also queried whether a one-year model could be characterised as **Long Run Marginal Costs**. EB responded that, whilst this appeared to be inconsistent, it wasn't because the costs were based on asset investment and assets would have a forty-year life. TD asked whether these Ten Year Statement variants could be run for Models A to D. EB responded that it could be done but was very time intensive and would welcome TCMF views on this.

CR asked about the current weighting between years using Transcost. EB responded that there was a weighting effect but this was not major. DR asked about volatility, in particular whether the concern was in terms of year-on-year variation or variation between prediction and variation. TD reminded the group that this aspect had been discussed at previous meetings and one possibility, such as at entry, was booking future capacity at fixed prices. NW suggested that fixed prices could be built into the approach but would involve high variations of commodity prices, which might be undesirable.

EB then summarised the results. Model A had been shown to exhibit the most variation due to the Entry exit solver using a non-negative constraint only which resulted in a variable Entry Exit split. Model B corrected the variation of Model A by imposing a defined Entry Exit split within the solver but continued to result in counter intuitive prices in Scotland and Northern England. Whilst Model C considered backhaul, in reality this had little effect where spare capacity is modelled. Model D, whilst promising improvements in cost reflectivity due to the removal of spare capacity, was limited in this respect as the true removal of spare capacity was not achievable with a Transcost based model.

The Transportation Models F1 and F2, which explicitly model backhaul and no spare capacity, gave stable, transparent and explicable results.

#### **4. Selection of Preferred LRMC Model**

EB suggested the key question was whether to retain a Transcost Model or move to a Transportation Model. He then summarised the licence and methodology objectives as a basis for the decision. He gave three interpretations of the term “cost reflectivity” – historical, marginal cost of increasing commercial capacity and marginal cost of increasing physical capacity.

On Historical Costs, EB reminded the Working Group that there had been major changes in flow patterns and concluded that the present Transcost Model may not generate cost reflective prices in the future.

On transparency, Transcost was dependent on compressor and regulator parameter settings made by individual users with an understanding of network design. As well as reducing transparency EB suggested that this adversely affected stability and repeatability. None of these parameters, however, are included in the Transportation Model variants.

On efficient use of the system, EB suggested that setting a low price for St Fergus entry may not promote efficient use of the system as while the price was low due to spare capacity at peak, there may still be constraints away from peak.

EB summarised the models with a matrix that showed the Transportation Models incorporated the fewest concerns in respect of the relevant objectives. The exception was with respect to the marginal cost of increased flow. EB restated the aspect of training personnel to run Transcost. BV did not see this as a problem if the training and documentation was adequate. EB acknowledged this but suggested that not all shippers would have the resources to mirror the results. BV responded that these skills could be obtained collectively if necessary.

JCo asked how UCAs would be calculated. ES reminded the meeting that UCAs would be delinked from charges. EB suggested that these might be derived from Graphical Falcon data in future. ES confirmed that this was the subject of the Ofgem consultation for new UCAs. JCo responded that there should still be consistency between UCAs and prices when set at the same time. EB noted that the Transportation Models produced prices that were closest to the expected expansion costs and to the existing UCAs.

NW asked when National Grid NTS realised that the Transcost Model was not giving the correct results. EB responded that this came to light twelve months ago when National Grid

NTS were working on UCA data as part of exit reform and identified some differences compared to expected results.

National Grid NTS suggested, based on the assessment, that the Transportation Model (Model F) should potentially be used with a single year supply and demand forecast. On the tariff Model, a simple 50:50 average of positive costs was suggested.

PR asked whether participants had a different opinion to the assessment matrix prepared by National Grid NTS. DA asked how National Grid NTS was to differentiate between Models F1 and F2 as the profile in the matrix was identical. EB responded that the F1 Model may provide advantages over the F2 Model due to stability considerations and cost reflectivity. Model F1, which uses a single cost expansion factor, results in the most stable year-on-year prices yet retains cost reflectivity. Model F2 conceptually should be the most cost reflective as it uses pipe diameter specific expansion factors yet it is still more stable than the Transcost Model results. Recent history indicates that exclusively 900mm to 1200mm pipe projects have been built or are planned to be built to reinforce the system and the average costs for these pipe diameters have been used to calculate the single expansion factor within Model F1 and therefore Model F1 is arguably the most cost reflective. This can be seen when looking at the Milford Haven results. Model F1 is closest to the prevailing UCA, which was based on the planned 1200mm expansion whereas the results from F2 result in a much higher price due to the prevalence of 600mm pipe in South Wales.

No further comments on National Grid NTS' assessment of the options were received. TD suggested that participants might be reluctant to give an immediate response and so the meeting should proceed to the next item.

## **5. Application of LRMC Model to determine:**

### **5.1 Transitional Exit Capacity Charges**

EB reminded attendees that, due to the perceived imminence of exit reform, prices had not been rebalanced since 2002. National Grid NTS was therefore proposing that the F1 Model should be used to update exit prices in the period April 2007 to September 2010. He reminded the meeting of the effect of moving from the ten-year average to year 1. JCo asked when year 1 was in practice. EB replied that for the analysis this was 2006/7. PR indicated that NTS prices could be changed in April and therefore these price changes would come into effect on 1 April 2007. NW pointed out that these changes appeared small in absolute terms but wondered what the percentage changes would be. National Grid NTS agreed to work out and publish these.

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DA asked why SC2 was most sensitive of the Scottish exit zones to the proposed changes. EB responded that the other Scottish Zone offtakes were on the main feeders. EB then summarised the proposal against the ten questions raised in early TCMF meetings. There was a 😊 response to these questions if F1 was applied. NW asked why one year or ten year options had been considered rather than an intermediate period, such as four years. This would allow Milford Haven to be factored in whilst reducing the disadvantages identified for the ten year Model. National Grid NTS clarified that the costs presented reflected the NTS as it would be on 1 October 2006 and hence did not take into account developments such as Milford Haven. National Grid NTS agreed to consider which year to use as the base, and whether a move to more than one year averaging would be desirable.

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### **5.2 Entry Reserve Charges**

CD gave this presentation. She began by reminding the meeting why reserve prices were applied. CD said that the LTSEC auctions would be based on a year + 2 NTS but, in light of

the previous agenda item, National Grid would consider this further. JCo suggested that different considerations might apply between entry and exit. National Grid NTS also recognised the interaction with the baseline setting methodology, which it was hoping to bring to the UNC Transmission Workstream shortly.

CD then presented the indicative figures on a one year and ten year average basis. These changes were analysed in terms of fulfilment of the relevant objectives. National Grid suggested that it could present complete analysis by late June/early July. ES asked how any analysis might differ from those already carried out. CD stated that the current analysis had been carried out on the central case. Further analysis would be based on practical maximum physical capacity.

In terms of discounted reserve price auctions, these had yielded unexpected results in certain cases if it was assumed that the quantity of long-term sales should reflect the extent of competition. St Fergus showed the expected outcome. Barrow had a higher than expected volume of long term sales. The other terminals had a higher than expected volume of short-term sales. NW suggested this could be related to upstream contract duration at the Entry Point concerned. National Grid NTS suggested removing discounted reserve prices for firm capacity. No immediate comments were made by participants but it was stated that some opposing views might be expressed during the consultation.

### **5.3 Incremental Entry Step Prices**

CD reviewed the difference between a LRIC based approach with the LRMC counterpart. The LRMC process was simpler as it did not involve Transcost or Graphical Falcon runs. National Grid NTS' initial suggestion was to use LRMC based prices with a single LTSEC price for all years. The minimal price step would be retained. It was demonstrated that this approach would be consistent with the relevant objectives. National Grid NTS offered to do the analysis and place the results on their website. PR said that it was not yet in a position to place the Transportation Model itself on the website. However, National Grid NTS agreed that it could demonstrate the Transportation Model at a subsequent meeting. **Action National Grid NTS**

## **6. Way Forward**

PR explained that for a calculation tool to be developed and made publicly available for charge setting from 1 April 2007, a decision on the appropriate tool (be that based on Transcost or a Transportation Model) was required as early as possible. It was therefore proposed that National Grid NTS commence a consultation on the appropriate LRMC Model in late June. Attendees agreed with this approach.

PR asked whether it was still desirable to meet on 15<sup>th</sup> June, as originally planned. It was agreed that instead of this a meeting would be held on the afternoon of the July Transmission Workstream.

## **7. AOB**

None

## **8. Dates of Next Meeting**

The next meeting was confirmed as:

Thursday 6 July 2006, 14.00 at Elexon Offices

## Action Log

| No. | Date Raised | Description  | Status          | Comments  |
|-----|-------------|--|-----------------|---|
| 6   | 02/03/2006  | National Grid NTS to conduct further analysis of Transport Model Variants 1 to 3 plus Variant 5 suggested at the working group meeting. Full analysis to be circulated a week prior to TCMF meeting now set for 25/05/2006 | Closed          | Analysis circulated and presentation made at meeting held 25/05/2006.                               |
| 11  | 26/04/2006  | National Grid NTS to identify the assumptions behind the determination of Milford Haven UCAs and the relationships with existing Entry points  | Carried Forward |   |
| 12  | 26/04/2006  | National Grid NTS to include with the spreadsheet a summary of planning assumptions from which the flows were established.   | Closed          | These were summarised within the Working Group discussions.   |
| 13  | 26/04/2006  | National Grid NTS to place the indicative spreadsheet on its website and notify the Joint Office of the hyperlink details. Also to place presentations from this meeting on the website.                                   | Closed          | National Grid NTS has placed these details on its website and informed the Joint Office of the link |
| 14  | 26/04/2006  | National Grid NTS to arrange for the presentation "Capacity Release Mechanisms and Implications for Pricing – Estimation of Long Run Capacity Costs" to be given after the Transmission Workstream 4 May 2006.             | Closed          | This presentation was given as scheduled.   |
| 15  | 25/05/2006  | National Grid NTS to provide spreadsheet data on the five options in respect of NTS Supply Points.   |                 |   |
| 16  | 25/05/2006  | In respect of the Transitional Exit Prices, National Grid NTS to provide table showing impacts in terms of percentage  |                 |   |
| 17  | 25/05/2006  | National Grid NTS to consider which year to use as the base network in their models, and whether a move to more than one year averaging would be desirable   |                 |   |
| 18  | 25/05/2006  | National Grid NTS to arrange a demonstration of the Transportation Model spreadsheet.  |                 |   |