September 1999

TRANSCO REVISED CONSULTATION REPORT ON PC48

Methodology for determining floor prices for auctions of monthly entry capacity

1. TRANSCO'S INITIAL PROPOSAL

In Consultation Paper PC48 Transco proposed that floor prices should be based on administered charges as published in Transco's statement of transportation charge's. It was further proposed that the charges be adjusted to take into account quantities of capacity determined by a Seasonal Normal Demand profile and an assumption that NTS capacity charges are split on a 50/50 basis between entry and exit charges. Finally a discount was proposed for each auction location based upon an historic concentration ratio of the five largest holdings of entry capacity at each location. The discounted price would be the floor price.

2. SUMMARY OF RESPONSES

In total there were seventeen responses to PC48, nine from shippers, five from producers and three from industry groups. Seven of the respondents did not support the principle of having floor prices for auctions of monthly entry capacity. Seven of the respondents supported the proposed methodology for setting floor prices at Barrow. There were however concerns about the level of floor prices elsewhere.

2.1 Revenue Protection

Comments Received

One respondent has expressed a view that floor prices are not required because Transco is provided with a measure of revenue protection through its price control formula. In addition, some respondents are concerned about potential windfall effects of under or over recovery feeding through to other transportation charges via the correction mechanism. One shipper suggested that any abuse of a dominant position should be dealt with under the appropriate legislative framework, another respondent suggested that floor prices should be used solely to prevent abuse of market power.

Transco's Response

Transco has indicated in PC48 three key features that create a need for floor prices.

1. to ensure continuing recovery of formula revenue
2. to limit potential inefficiency arising from market power
3. to limit potential inefficiency arising from bidder collusion

Whilst the provisions of Transco's price control formula offer revenue protection. The formula does not address the risks of abuse of market power or bidder collusion. If such activity were to reduce revenue from entry capacity auctions, then the revenue protection provision suggests that charges may have to be increased elsewhere to ensure the level of formula revenue is maintained. In effect removing floor prices may allow inefficiencies in the auction process which in turn could prompt further inefficiencies elsewhere if cost reflective prices are to be scaled up to compensate for reduced entry capacity revenue.

The error correction mechanism is an established component of Transco's price control formula. Any over or under recoveries are calculated from the aggregate revenue recovered across the range of tariffs covered by the formula. Transco believes that it is appropriate that entry capacity should continue to be counted towards the aggregate total for the purposes of calculating the degree of error correction required in the following year. There are no mechanisms presently available for ring fencing over or under recovery in any specific area of Transco's transportation services.

A number of shippers have also expressed concern that the error correction mechanism could create a windfall for other services in the following year if revenue from entry capacity auctions is higher than expected. Transco believes that the Uniform Price auction proposed in Network Code Modification 0350 is not a revenue maximising model. It has been proposed that the cleared price shall be the lowest accepted price in an auction. This suggests that the majority of bidders will pay a price that is less than their valuation of the product.

2.2 Implications for Efficient Allocation

Comments Received

A number of respondents are concerned that the floor prices may prevent efficient allocation of capacity. A shipper suggested that if auctions clear at low levels, this may be taken as evidence that Transco has designed its pipeline system in a way that is inefficient and uneconomic.

Transco's Response

A market clearing position, under which a price ensures that available demand is equal to available supply and floor prices have not been invoked, does not necessarily imply an allocatively efficient outcome. Allocative efficiency in the context of auctions implies that output is allocated to those shippers that value it the highest. A standard economic interpretation of allocative efficiency is an outcome where it is not possible to change an allocation of resources in such a way that someone is made better off and no one is worse off. Based on this definition allocative efficiency is unlikely to be achieved in a uniform price auction. Such an outcome is more likely in discriminatory price auctions (Vickrey) of the type previously proposed by Transco. Research suggests that the potential for gaming is greater in uniform price auctions. For this reason there is a greater need for floor prices in a uniform pricing auction than in the case of discriminatory price auctions. In general, floor prices are set at a level that implies a reduced income (for Transco) from entry services if the auctions clear at the floor price. It may be reasonable to assume that if the floor price is less than the level at which shippers had previously bought capacity then there is a credible case that the auctions will clear at levels above the floor prices.

The costs of building and operating a pipeline system and the opportunity costs of buying capacity in an auction do not have any relationship. Bids are based on a short run calculation of what is economic for the shipper and the lowest price at which the shipper believes he can capture that capacity. The relationship between the cost of developing a service and the opportunity cost of obtaining that service is one that

Transco shall continue to explore with the industry through the long term investment work groups.

2.3 High Prices are a Barrier to Entry

Comments Received

A shipper has identified the benefits of maintaining low barriers to entry by use of low floor prices. A number of other respondents argued that floor prices should be low so that the maximum quantities can be allocated. Another respondent was of the opinion that the floor price variation between terminals was too great.

Transco's Response

Transco agrees with the desirability of operating auctions with low barriers to entry. Only through widespread participation in the auctions can the process be a success. For this reason Transco has proposed a sealed bid uniform price auction which it believes is the easiest auction method for prospective participants to understand and therefore may encourage greater participation. It also removes the risk that new participants may have to pay prices that are higher than those of other shippers in the same auction. Floor prices in general will be at a discount from the charge levels necessary to recover the target revenue implied by the previous charging regime. It follows that if cleared prices are indeed determined by the proposed floor prices then the barrier to entry as determined by price will be less than in the previous regime.

The proposed aggregate quantity on offer is based on a seasonal normal demand profile. Transco has successfully sold similar quantities under the previous charging structure despite having a higher price than implied by the proposed floor prices. Transco believes it is a reasonable assumption that the quantity can be sold through the primary auctions. Elsewhere the RGTA regime seeks to maximise capacity availability through incentives introduced for operation of the daily entry capacity market.

The spread of proposed floor price's is no greater than the spread of administered entry charges.

2.4 Secondary Market

Comments Received

In an earlier consultation by OFGEM of auction methodologies two respondents had been of the opinion that low floor prices will stimulate secondary market trading. Further to the issue of secondary market trading OFGEM indicated in its February publication "Reform of Gas Trading Arrangements: Proposals and Consultation" a preference for a primary auction that would ensure that the maximum possible capacity was made available to the market, without creating distortions in the secondary market. Elsewhere in that document the importance of low transaction costs has been stressed, to encourage a liquid secondary market.

Transco's Response

Transco does not believe that a primary auction of monthly capacity will impinge upon trading costs on the new over the counter market (OCM). In addition it is anticipated that the sale of a finite SND quantity in a monthly auction should stimulate trading, compared with a previous regime in which unlimited quantities of capacity could be purchased from Transco.

One shipper expressed concern that insufficient capacity would be sold to create an efficient secondary market. The quantity on offer through monthly and daily auctions should be sufficient to satisfy all reasonable demand conditions up to Transco's peak day demand level.

2.5 NTS Capacity Split

Comments Received

A number of respondents have opposed or asked for clarification of the reasons for basing the floor price calculation on an assumption that NTS entry capacity charges should recover 50% of NTS capacity charges. One respondent noted that the proposal was an improvement than the existing methodology in which cost can be moved between entry and exit.

Transco's Response

Transco's present methodology for calculating entry and exit charges requires a full matrix of LRMC costs to be converted to a single charge for each entry and exit point. The entry exit charges are then scaled to a level consistent with 65% of NTS revenues being gained from capacity charges. The methodology for determining entry and exit charges is to minimise the error term for each LRMC entry exit pair. The outcome of this calculation has always been an entry exit split of around 50/50. If the split had been fixed at precisely 50/50 then the additional constraint would have hampered the best fit calculations and consequently may reduce cost reflectivity. The advent of auctions at entry, whilst exit charges continue to be based on an LRMC methodology raises an issue of how much income should be anticipated when setting the administered exit charge. Without a cost target for administered charges the remaining option is to charge the unadjusted rate produced by the LRMC calculation which may produce a more volatile outcome than charges controlled by a predetermined level of income.

2.6 Uniform Floor Prices

Comments Received

One respondent have suggested that a single floor price should apply to all auctions.

Transco's Response

Unless the floor price is set at a low level (i.e. below the Bacton Entry charge), southern terminals will have floor prices that are higher than the present administered charges. This does not appear to be a reasonable position in the transition to a new regime, implying a potential for significant distributional effects between shippers and between terminals. The potential gain for shippers buying capacity at northern terminals could be regarded as being at the cost of shippers at southern terminals.

2.7 Use of Herfindahl-Hirschman Index

Comments Received

A number of respondents have indicated that it may be preferable to base floor prices on a measure of concentration provided by Herfindahl-Hirschman indices (HHI) rather than simple concentration ratios. They felt that this may overcome having to make a decision about the appropriate measure of concentration. Some have suggested that it may be more equitable to consider all shippers at an entry point. One shipper agreed that terminals with an index greater than 8,000 should be an exception from the uniform scaling requirement.

Transco's Response
The HHI is an accepted measure of market concentration that has advantages over concentration ratio measures, in particular, that it takes account of all participants in a market. When guarding against market dominance and abuses of market power it is the larger players in a market that have the greatest potential to shape events to their own advantage rather than smaller players who by definition have more limited power. For this reason Transco has proposed a floor price methodology that takes account of market concentration.

If The HHI were to be used one must consider how best to use the index to construct a reasonable scale of discounts appropriate to differing degrees of competitive potential. The exponential relationship between Herfindahl readings makes it inappropriate to take a simple reading from the index. For example one shipper in a market implies a reading of 10,000 and two equal sized shippers in a market produces a reading of 5,000. Though the difference in readings appears to be large, the impact upon competitive potential of increasing the number of competitors to two may not be that great. Similarly an increase from seven to eight equal sized shippers produces a change of 179 in the index, which outwardly appears to be a smaller change than that recorded for the transition from one to two shippers. Transco has therefore considered a logarithmic reading of the HHI to create a range of discounts that offer a smoother transition between differing numbers of shippers in a market. This approach suggests a range of discounts that would be less than those proposed in PC48 and hence Transco do not intend to pursue it.

2.8 Concentration Ratio
Comments Received
Two respondents supported the use of concentration ratios. One shipper commented that where competition exists, the market should be left to decide the selling price. A number of respondents to the recent OFGEM consultation suggested that use of concentration ratios is flawed because they can only present a historic picture of competitive potential. Other respondents have commented that the proposed floor price methodology does not take into account its possible impact on prices at unconstrained terminals. Some respondents also questioned the choice of the five largest shippers for an appropriate measure of concentration One respondent requested clarification of how floor prices will be adjusted to take account of changes in the concentration ratio over time.

Transco's Response
The n-firm concentration ratio is a widely recognised measure of market concentration. The concentration ratio is based on a subset of the same data used to inform the HHI. There is no precise level at which competition can be deemed to exist. However, concentration ratios are used as an aid to monitoring competitive

potential in a market. The readings have been based on annual capacity bookings. No details of monthly bookings will become available until the launch of auctions in September. A study of daily allocations for a 12 month period has been undertaken. Based on these indications of gas flow attributed to each shipper a concentration ratio for each month can be constructed (see table 1 below). These indicate a degree of stability throughout the period. The concentration ratio readings tend to be slightly higher than those used in PC48, which were repeated from an OFGEM document.

It is a matter of judgement as to the appropriate concentration ratio to use in a market. The purpose is to inform of the amount of concentration in a market and an analyst may choose to use a number of CR readings to build a picture of the prevailing environment. The data presented in table 1 suggests that CR[5] is a reasonable measure of market concentration which can be used to inform the scale by which cost reflective floor prices can be discounted.

Floor prices are established to provide a measure of protection from abuse of market power and gaming in auctions. Such protective measures can be deployed to greater effect if a measure of market concentration is utilised in the calculation. However, Transco recognises the wide degree of doubt in the industry regarding the appropriate concentration measure to be used. In the light of these comments Transco's final proposal will not include the use of concentration ratios.

Table 1.
5 firm concentration ratio for gas flowed in each month July 98 to June 99

	Bacton	St Fergus	Teesside	Theddlethorpe	Easington
July	83%	76%	76%	72%	94%
August	75%	73%	69%	82%	98%
September	71%	72%	75%	68%	96%
October	70%	69%	78%	72%	96%
November	82%	68%	78%	77%	91%
December	81%	69%	80%	83%	86%
January	78%	72%	74%	83%	86%
February	77%	72%	79%	81%	78%
March	74%	76%	76%	80%	78%
April	69%	74%	64%	73%	92%
May	64%	78%	65%	72%	100%
June	70%	74%	67%	76%	100%
PC48	73%	69%	76%	80%	65%

2.9 Capacity Constraints

Comments Received

One shipper commented that concentration ratios and Herfindahl-Hirschman Indices have no relevance in the context of auctions. They further suggested that prices will only clear substantially above floor prices where demand for capacity outstrips supply. One other shipper also suggested that the auction price should be a result of supply and demand dynamics only.

Transco's Response

Transco agrees that it is beneficial to an auction if there is a scarcity of the commodity to be sold. It is proposed that in any month capacity consistent with seasonal normal demand shall be made available in the monthly capacity auctions. There is a reasonable expectation that shippers will require that quantity. In addition shippers will have an opportunity to purchase a new product that has a greater certainty of availability than previous sales of annual capacity. A potential for misuse of market power may continue to exist regardless of supply and demand dynamics. It remains appropriate that floor prices are used to help guard against instances of misuse.

2.10 Seasonal Normal Demand

Comments Received

Three respondents has suggested that each terminal should be individually scaled such that each terminal will recover the income suggested under the present methodology. A further three respondent's suggested that a common scaling factor, when adjusting for Seasonal Normal Demand (SND) profiles may be to the benefit of high swing terminals.

Transco's Response

Transco agree that it is possible to individually scale each terminal. However the scaling factors required at high swing fields would be balanced by slightly smaller scaling factors at other terminals.

2.11 Long Run Marginal Cost (lrmc)

Comments Received

One shipper did not support the use of lrmc as a basis for calculating floor prices. Another shipper supported the principle of pricing monopoly services based on lrmc. One other shipper proposed that the floor price should be a percentage of lrmc, with no consideration given to concentration ratios.

Transco's Response

Transco has an established lrmc methodology that has been in use for a number of years. Its purpose is to reflect the expected costs of meeting the gas industries needs for new transportation capacity over a period of time. As such the methodology presents a cost reflective basis from which to commence the calculation of floor prices.

Transco accepts that floor prices could be based upon a percentage of lrmc. Year on year unadjusted lrmc have been known to present an unacceptable level of variability. Transco believes the variability should be reduced following the recent acceptance of Transcost as the means of calculating lrmc's. However, at this juncture it is considered prudent that the calculation for monthly capacity floor prices should continue to be based on the established methodology. The discontinuation of discounts based upon concentration ratios allows the respondents proposal to be adapted to provide a common discount to all adjusted entry charges. Transco's final proposals shall include a common 25% discount to all adjusted entry charges.

3. FINAL PROPOSALS

Transco proposes that the methodology for calculating floor prices in monthly entry capacity auctions should be amended in the light of responses to PC48. The final proposals are;

Floor prices should be based on entry charges determined by the established methodology.

Adjustments should be made to take into account quantities of capacity determined by a Seasonal Normal Demand Profile and scaled to a level consistent with 50% recovery of NTS capacity charges.

Adjustments to the entry charge at Barrow shall be based on an assumption that post adjustment income shall be consistent with the level of income that could have been expected at that location had peak day capacity continued to be the basis for capacity sales.

A common discount of 25% shall be applied to all entry charges to determine the floor price in monthly capacity auctions.

Proposed floor prices for the year commencing 1 October 1999 will be;

Entry Location	Floor Price
Bacton	0.0008 p/kWh/d
Easington	0.0025 p/kWh/d
Theddlethorpe	0.0013 p/kWh/d
St Fergus	0.0235 p/kWh/d
Teesside	0.0054 p/kWh/d
Barrow	0.0086 p/kWh/d