TRANSCO CONSULTATION REPORT ON PC68

REVIEW OF LDZ TRANSPORTATION CHARGES

1 Transco's Initial Proposal

In PC68, Transco sought views on a number of proposed amendments to the LDZ Transportation Charging Methodology established by PC59. These amendments were:

- To subdivide the Low Pressure System into six sub-tiers for the purposes of charge calculation;
- To calculate the connection probabilities used within the methodology weighted by the AQ of the connections within each of the consumption bands;
- To adopt three-stage power functions for the LDZ transportation charges to directly connected supply points and to CSEPs; and
- To use charging functions based on a power of the peak demand rather than on the log of the peak demand.

This report sets out the views received and Transco's responses.

2 Summary

There were fifteen responses to the consultation paper.

Respondents		
Shippers	Amerada	AM
	BP Gas Marketing	BPGM
	British Gas Trading	BGT
	Innogy	INY
	PowerGen	PG
	Scottish Power	SP
	Scottish and Southern	SSE
	Shell Gas Direct	SGD
	TXU Europe (Eastern)	TXU
Users or User Associations	AEP	AEP
Other Gas Transporters	Association of Independent Gas Transporters	AIGT
	United Utilities Gas Networks	UU
	Scottish Power Systems (SP Gas Ltd)	SPG
	British Gas Connections	BGC
	TotalFinaElf	TFE

- Nine respondents supported one or more of the proposals (AM, BPGM, BGT, PG, SSE, SP, TFE, TXU, AEP)
- One respondent commented on the proposals but neither supported nor rejected them (INY)
- Two respondents were not supportive of the proposals (SGD, UU)

- Three respondents requested more information and more time to comment (AIGT, BGC, SPG)

3 Detailed Responses

The following section details issues that were raised through the consultation process and Transco's response to them.

3.1 Low Pressure System Sub-tiers

Seven respondents (BPGM, BGT, SSE, SP, TFE, TXU, AEP) were supportive of the use of six Low Pressure sub-tiers. One respondent (PG) was broadly supportive of the review of LDZ Charges without specifically referring to the use of six Low Pressure sub-tiers. One respondent (AM) would not recommend the proposal because, in its view, it only had a marginal effect.

Transco's Response

Transco considers that analysis using six Low Pressure sub-tiers, rather than four, increases the level of cost reflectivity and should therefore be adopted.

3.2 Replacement Costs

One respondent (TFE) asked for clarification of the term "Replacement Cost" in relation to the apportionment of LP costs across the LP six sub-tiers.

Transco response

The replacement costs were calculated based on the present unit cost of replacement for each pipe diameter multiplied by the amount of that pipe diameter asset. These replacement costs were used purely to apportion LP costs across the six sub-tiers, as Transco does not have ABC data on an LP sub-tier basis.

3.3 AQ Weighting of Connection Probabilities

Four respondents (SSE, TFE, TXU, AEP) were supportive of the proposal to use AQ weighting in the calculation of connection probabilities. Two respondents (BPGM, SP) were broadly supportive of the review of LDZ Charges without specifically referring to the AQ weighting of connection probabilities.

One respondent (BGT) did not support the introduction of AQ weighting of connection probabilities as the R squared statistic indicated a worse fit when weighted by AQ.

One respondent (AM) would not recommend the proposal because, in its view, it only had a marginal effect.

One respondent (TFE) stated that the introduction of connection probability AQ weighting was an alternative to increasing the number of load bands.

Transco's Response

The AQ-weighted R-squared value demonstrates how well a function fits the underlying costs data but weighted by the total AQ associated with each data point. It is inappropriate to compare the AQ-weighted and non-AQ weighted R-squared values since they are different

measures of fit. In any case, the statistic does not relate to AQ weighting of connection probabilities but is a particular type of goodness of fit measure. The statistic was not an alternative to the standard R squared value and did not show the effects of using the AQ weighted connection probabilities.

While increasing the number of consumption bands and AQ weighting the connection probabilities do have similar effects, they are not mutually exclusive. The paper indicated that additional consumption bands have no significant effect once the effects of AQ connection probability weighting and the form of the function have been taken into account.

Transco considers that although the AQ weighting of connection probabilities in the analysis has only a small impact, it increases the level of cost reflectivity and should therefore be adopted.

3.4 Introduction of a Three-Stage Power Function

Nine respondents (AM, BPGM, BGC, PG, SSE, SP, TFE, TXU, AEP) supported the introduction of the three-stage power function.

A number of respondents pointed out that the R squared statistic, used as part of the process to identify the form of function that represented the best fit to the underlying data, is only one of a number of statistics that can be used to assess goodness of fit.

One respondent (UU) suggested that Transco should withdraw the proposed functions until more detail supporting the analysis has been provided.

One respondent (SGD) expressed concerns that the three-stage power charging function was not the right approach due to the discontinuities, or 'dog legs', within the function.

Transco's Response

Transco believes that the statistical analysis carried out to select the form of the charging functions has identified a function that best matches the underlying costs and best represents the variation of costs across the range of load sizes.

Investigation of the residuals, after fitting each of the function forms, lead to the final proposal of the three-stage power function. The function forms were improved until patterns in the residuals were minimised.

It is true that the more terms that are added to a function the higher the R squared statistic is expected to be. However the introduction of the additional terms that allow for the construction of a three-stage power function were found to be statistically significant when compared with two stage functions such as the present simple log function. The statistical significance of the additional terms was shown in the further details of the statistical analysis, which has been provided to respondents that requested it.

There is only one discontinuity within each of the proposed functions, that being the change between the domestic consumption band (<73.2 MWh/annum) and non-domestic loads (>73.2MWh/annum). The discontinuity at this point is supported by the underlying cost data.

3.5 Impact for small CSEPs

One respondent (TFE) commented that CSEP Charges below 293 MWh/annum were perverse as they implied that a small CSEP used more assets than a single house.

Transco's Response

The analysis of small CSEP loads (those using less than 293 MWh/annum but more than 29.3 MWh/annum) was based on a reasonably large (400+) number of CSEPs. It is not intuitively obvious why such small CSEPs should, on average, tend to use more of the system than similarly sized directly connected loads. However, this may be due to the nature and location of recent small developments.

Given the uncertainty over the cause of this unexpected result, it is proposed that, until further information is available, the CSEP charging function for loads less than 293 MWh/annum should be set at the same level as the charging function for standard supply points.

3.6 Review of CSEP Connection Data

The CSEP data used within the connection survey was sent to the relevant iPGTs for comment. A number of corrections were received that Transco verified. The CSEP charging function has been recalculated taking into account this corrected data.

3.7 Impact for large CSEPs

One respondent (INY) commented on the effects of applying NDM CSEP derived functions to DM CSEPs.

Transco's Response

The CSEP charging function is fitted to the underlying cost data based on weighted regression analysis such that the weighting for each consumption band is proportional to the annual consumption. Transco has taken the opportunity to review the effect and sensitivity on the function of loads greater than 58,614 MWh/annum and has concluded that the small numbers of data points within these bands do not make these costs estimates robust. The CSEP charging function has been recalculated without these data points, which slightly reduces the CSEP charges for large CSEP loads, relative to the proposal in PC68.

3.8 CSEP Load Factors

Two respondents (TFE, UU) suggest that the load factors for CSEPs should be modified for the purposes of the charging function derivation. The load factors in question are the annual load factors used in the calculation of a peak load from an annual consumption figure.

Transco's Response

The load factors used in the derivation of the charging functions are consistent with the load factors used to calculate the peak load for each CSEP, as held on Transco's CSEP database. Separate CSEP specific load factors for each consumption band were calculated from the consumption band specific average AQ and SOQ data from Transco's CSEP database.

3.9 Capacity Commodity Split

One respondent (TFE) stated that it was not clear why the commodity charge is based on the peak day capacity.

A number of respondents (TFE, INY) expressed concern that the LDZ capacity/commodity split had not been reviewed. One asked for assurance that the split would not change over the course of the price control period.

Transco's Response

The commodity charge is based on the expected annual use of each of the pressure tiers for a load of a given size. The forecast maximum peak day capacity is the best descriptor of load size for these purposes.

No new information has been available that might support a change in the capacity: commodity split and thus no change has been proposed Transco has previously stated that it would be desirable for any change to the capacity: commodity split to be co-ordinated with possible changes to the interruptible regime. Any future change to the capacity: commodity split on its own would not change the form of the function.

3.10 Phasing

Two respondents (AM, SGD) suggested that consideration be given to smoothing the three-stage power function or phasing in its introduction. One respondent (SSE) commented that it had supported phasing in the past.

Transco's response

Transco has considered the possibility of phasing in the introduction of the new charging function form. However, given the change of function form, it is difficult to determine a simple function that would give a reasonable phased impact to the changes for all load sizes. Transco considers that the introduction of a more complex functional charging form for an interim period is not justified since it would introduce additional complexity and cost for Transco and Shippers.

3.11 Stability of Charges

Three respondents (INY, SSE, TXU) stated that they would welcome stability in charges.

Transco's Response

Transco acknowledges that there is benefit, in terms of both implementation and the future projection of charges, in having stable charging structures. Given the major reviews of LDZ charging structures that have been undertaken in recent years, it is Transco's present intention not to have a further major review of the LDZ charging structures. Transco is, however, obliged by its Licence to keep its transportation charging methodology under review, for example to take account of developments in the gas business, and so cannot rule out further change. For example, it is possible that changes will be implemented as part of a review of the LDZ interruption regime.

3.12 Principle of separate charging to CSEPs

A number of respondents commented on the appropriateness of separate charging functions for a specific customer class. Two respondents (SP, AEP) thought that separate CSEP charging might be discriminatory.

Transco response

The principle of separate LDZ charges in respect of CSEP connections was established by PC58. The increased sample size underlying the analysis this year gives increased confidence in the results obtained.

3.13 Principle of Average Charging based on tier Costs and Connection Probabilities

One respondent (TFE) questioned whether it was appropriate to use average tier costing or connection probabilities for transportation charges for CSEPs.

Transco response

The methodology of determining LDZ charges based on average tier costs and connection probabilities has been established previously. The analysis this year has given no indication that this approach is inappropriate.

4 Conclusion

Transco welcomes the comments and general support received for the proposals contained within PC68. Transco therefore proposes that with effect from 1st April 2002 the LDZ Transportation Charging Methodology should be amended such that:

- **Three-stage power functions are used for the LDZ transportation charges to directly connected supply points and to CSEPs;**
- **The Low Pressure System is subdivided into six sub-tiers for the purposes of the cost analysis;**
- **The calculation of the connection probabilities used within the analysis is weighted by the AQ of the connections within each of the consumption bands.**

5 Revised Indicative Charges

As indicated in sections 3.5 and 3.7, Transco has revised the detail of the analysis. This has resulted in slightly lower indicative LDZ transportation charges to CSEP loads than published in PC68, as shown below. To aid comparison, these figures are on a like for like basis and so consistent with those published in PC68.

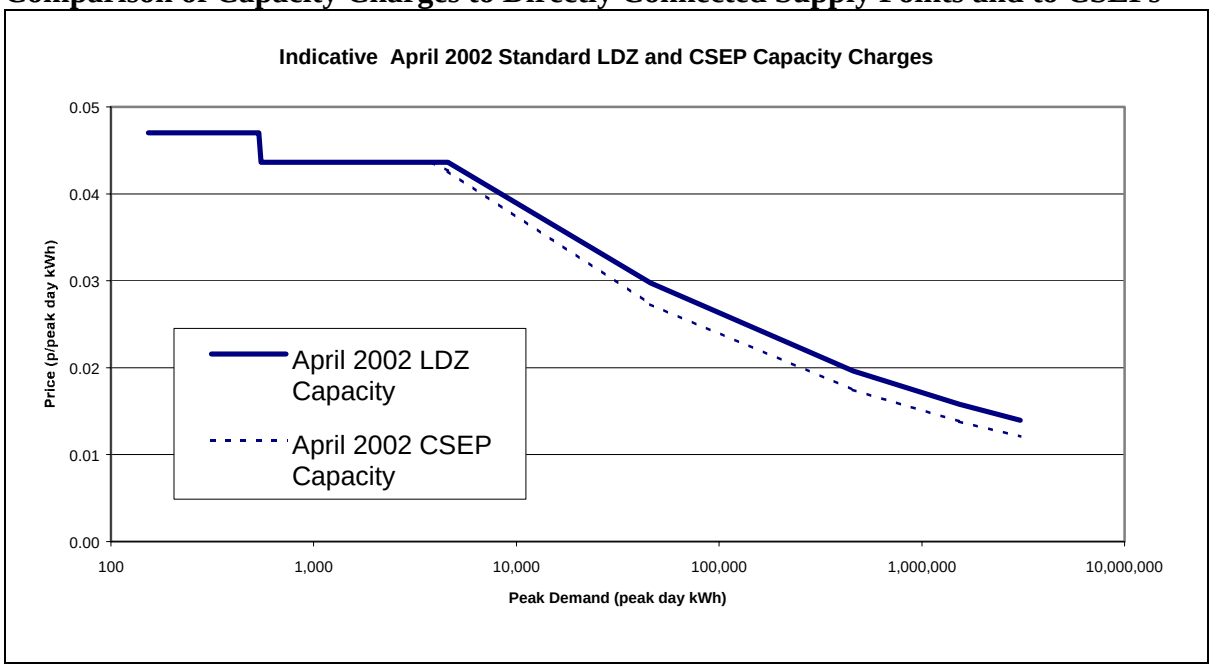
Indicative LDZ Transportation Charges to Directly Connected Supply Points

LDZ Capacity	Pence per peak day kWh per day
Up to 73,200 kWh per annum	0.0471
73,200 kWh per annum up to 732,000 kWh per annum	0.0437
732,000 kWh per annum up to 1,105,618,558 kWh per peak day	0.2073*PL^ -0.1806
1,105,618,558 kWh per peak day and above	0.0048
LDZ Commodity	Pence per kWh
Up to 73,200 kWh per annum	0.1259
73,200 kWh per annum up to 732,000 kWh per annum	0.1164
732,000 kWh per annum up to 386,683,743 kWh per peak day	0.7221*PL^ -0.2121
386,683,743 kWh per peak day and above	0.0109

Revised Indicative LDZ Transportation Charges to CSEPs

CSEP Capacity	Pence per peak day kWh per day
Up to 73,200 kWh per annum	0.0471
73,200 kWh per annum up to 732,000 kWh per annum	0.0437
732,000 kWh per annum up to 353,252,073 kWh per peak day	0.2193*PL^ -0.1939
353,252,073 kWh per peak day and above	0.0048
CSEP Commodity	Pence per kWh
Up to 73,200 kWh per annum	0.1259
73,200 kWh per annum up to 732,000 kWh per annum	0.1164
732,000 kWh per annum up to 282,069,027 kWh per peak day	0.6892*PL^ -0.2131
282,069,027 kWh per peak day and above	0.0109

Comparison of Capacity Charges to Directly Connected Supply Points and to CSEPs



Comparison of Commodity Charges to Directly Connected Supply Points and to CSEPs