GAS DISTRIBUTION TRANSPORTATION CHARGING METHODOLOGY

1. Introduction

Gas distribution transportation charges consist of:

- LDZ System charges;
- Customer charges;
- LDZ Exit Capacity NTS (ECN) charges;
- Administration charges.

For transportation to Supply Points directly connected to the distribution system the LDZ System, Customer and Administration charges are applicable. For transportation to Connected System Exit Points (CSEPs) the LDZ System and Administration charges are applicable.

The LDZ System charges and the Customer charges are set so as to maintain the proportional split of revenue recovery between them determined by the methodology. The levels of these charges are scaled proportionately to recover the target level of revenue. The LDZ ECN charges are set to aim to recover the level of cost incurred by the DN for NTS Exit Capacity in respect of NTS/LDZ offtakes in the Distribution Network. The levels of the Administration charges are based on the costs of providing the services and these charges are not scaled to recover any given proportion of the targeted revenue.

2. Split of revenue recovery between LDZ System and Customer Charges

The target balance of revenue recovery between LDZ System charges and Customer charges for each DN is based upon a network-specific analysis of the split of relevant costs. The target revenue recovery for LDZ System charges includes revenue for the Standard LDZ System charges, the Optional LDZ System charge and the LDZ System Entry commodity charge. The costs are taken from the regulatory reporting packs submitted to Ofgem.

Customer charges reflect costs relating to service pipes funded by the transporter and the costs of emergency work relating to service pipes and supply points (i.e. not including any costs associated with gas mains). Service pipe costs include all operational and depreciation costs associated with DN-connected service pipes; these costs also include the replacement of such pipes and service pipe leakage. The relevant portion of support, employee overheads and work management costs of supporting Customer cost activities, based on direct work activity costs are attributed to the Customer cost category.

LDZ System charges reflect costs which include the cost of all work relating to assets upstream of the service pipe (including the gas mains to which the service pipes are connected) and those costs associated with managing the flow of gas through the system including capacity management. Accordingly, costs for all activities upstream of service pipes relating to the maintenance, replacement and repair of mains and larger pipes, as well as energy management work and the construction of new pipes are included in this cost category. The relevant portion of support, employee overheads and work management costs of supporting LDZ System cost activities, based on direct work activity costs are attributed to the LDZ System cost category. Depreciation costs associated with gas mains and Local Transmission System (LTS) pipes and LDZ System activity assets are attributed to the LDZ System cost category. All odorant and shrinkage costs except for service pipe leakage are attributed to the LDZ System cost category.

The network-specific estimate of the split of relevant costs is assessed using an average of an appropriate number of years for which data on a consistent basis is available for each network.

The current target revenue recovery splits are as shown in the table below.

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Target Revenue Recovery Split between LDZ System and Customer Charges

	LDZ System	Customer
East of England	70.5%	29.5%
London	68.1%	31.9%
North West	73.7%	26.3%
West Midlands	74.0%	26.0%
Scotland Gas Networks	71.2%	28.8%
Southern Gas Networks	72.8%	27.2%
Northern Gas Networks	71.2%	28.8%
Wales & West	71.8%	28.2%

3. Split of revenue recovery between LDZ System Capacity and Commodity Charges

The capacity element of the LDZ System charges is targeted to recover 95%, and the commodity element of the LDZ System charges is targeted to recover 5%, of the revenue from the LDZ system charges. This split is based on an assessment of the extent to which LDZ System associated costs are related to throughput or to system capacity. The 95:5 split applies to all the DNs.

The set split applies to the Standard LDZ System capacity and commodity charges. The LDZ System Entry commodity charge revenue is not considered in determining the split.

4. Standard LDZ System Charges

All the data underlying the Standard LDZ System Charges is derived on a Network specific basis.

The distribution networks contain a series of pipe networks split into four main pressure tiers - Local Transmission System (LTS), Intermediate Pressure System (IPS), Medium Pressure System (MPS) and Low Pressure System (LPS). Because it accounts for the majority of the total system costs the LPS is then sub-divided on the basis of pipe diameter into a further eight sub-tiers.

All LDZ System related costs, other than those attributed to LDZ System Entry Points, are attributed across these pressure tiers and sub-tiers.

The methodology below describes the derivation of the capacity charge function and is based on peak daily flows. A similar calculation, based on annual flows, is carried out to determine the commodity charge function

The average cost of utilisation is calculated for each of the main pressure tiers of the system. The probability of a load within a consumption band using any given pressure tier is determined by an analysis of where supply points of different sizes tend to connect to the system. Combining the average cost of utilisation with the probability of connection generates a tier charge for an average load within any given band. These tier charges are added together to give the total relative charge for a load within the consumption band to use the system.

To provide a workable basis for charging individual customers of differing sizes, the total average unit costs of utilising each tier of the distribution network are plotted. Functions are fitted to the data points representing the total unit costs such that the overall measure of error is minimised.

For the purposes of deriving charging functions the data points for the consumption bands are grouped into 3 charging bands:

- For the 0 to 73.2 MWh/a charging band a fixed unit charge is determined. The rate applies to directly connected Supply Points and CSEPs;

- For the 73.2 to 732 MWh/a charging band a fixed unit charge is determined. The rate applies to directly connected Supply Points and CSEPs;

- For the 732 MWh/a and above charging band, functions based on a power of the peak daily load (SOQ) are fitted. There are separate power functions for directly connected Supply Points and for CSEPs as the cost data justified separate functions for the >732 MWh charging band.

The form of the LDZ System functions is currently derived on a national basis.

5. Standard LDZ System Charges for Interruptible Supply Points

The Standard LDZ System charges for interruptible Supply Points are based on the principle that interruptible Supply Points typically receive a discount of 50% on the standard LDZ System charges they would pay if they were Firm.

Prior to 1st October 2011, this means interruptible Supply Points pay 47.37% of the appropriate LDZ System Capacity charge which would apply if the Supply Point were firm plus the appropriate LDZ System Commodity charge.

On and after 1st October 2011 all Supply Points will pay firm capacity and commodity charges.

Prior to 1st October 2011, where the transporter requires a Supply Point to be interrupted for more than 15 days in a particular year there is a transportation charge credit. For each day of interruption over 15 days, a transportation charge credit equivalent to 1/15 of the annual LDZ standard capacity charge avoided by having interruptible rather than firm transportation is payable to the Shipper User.

From 1st October 2011 transportation credits in respect of interruption will cease.

6. Optional LDZ System Charge

The rationale for the Optional LDZ System charge is that, for large DN-connected loads located close to the NTS, the standard LDZ System charges can appear to give perverse economic incentives for the construction of new pipelines to supply loads that are already connected to the transportation system, or for potential new loads to build lengthier and costlier pipelines than are available via nearby DN connections. This may give rise to economically inefficient bypass of the Distribution Network system, and unnecessary duplication of infrastructure.

The level of the Optional LDZ System charge is based on the estimated costs to the Distribution Network of laying and connecting a dedicated pipeline for a range of flow rates and distances from the NTS.

The costs considered in deriving the Optional LDZ System charge include the capital cost of laying the hypothetical pipeline and other capital costs relating to connection, metering, volumetric control and other requirements, and the ongoing direct and indirect costs of the hypothetical pipeline.

The level of the Optional LDZ System charge is independent of the overall level of revenue recovery targeted and so the level of the charging function remains unchanged until its cost basis is reanalysed.

Shipper Users opting for the Optional LDZ System charge pay this charge instead of the Standard LDZ System capacity and commodity charges.

7. LDZ System Entry Commodity Charge

LDZ System Entry commodity charges are payable in respect of gas input at LDZ System Entry Points. For each LDZ System Entry Point the charge is a fixed unit commodity charge applicable to all gas input. The unit rate may vary by entry point and may be positive, resulting in a charge, or negative, resulting in a credit.

The LDZ System Entry commodity charge will be determined for each LDZ System Entry Point as the summation of the unit rates in respect of:

1) Opex Costs

The unit rate will be determined in respect of the forecast operating costs incurred by the DN associated with the provision or operation of:

- the entry facilities related to the LDZ System Entry Point; and
- any network assets which have been provided for, or are operated solely for, the management of gas flows from LDZ System Entry Points. Where such network assets are provided or operated solely for the management of flows from one LDZ System Entry Point then the forecast operating costs will be wholly allocated to that LDZ System Entry Point. Where such network assets are provided or operated for the management of flows from more than one LDZ System Entry Point then the forecast operating costs will be appropriately allocated between each relevant LDZ System Entry Point in proportion to the estimated cost causality.

The unit rate will be determined as Forecast operating costs / Forecast entry gas flow, expressed as pence per kWh.

The unit rate will be redetermined periodically from the forecast operating costs and entry flows. Inbetween such redeterminations, the unit rate may be determined for a period from the previously determined unit rate and an appropriate RPI inflation factor reflecting the change in RPI since the last determination.

2) DN Usage Credit

The DN Usage credit unit rate will be determined as the sum of the unit rates in respect of:

a) ECN Credit

The unit rate in respect of the ECN Credit for a LDZ System Entry Point will reflect the deemed saving in the cost of booked NTS Exit Capacity for the DN due to the forecast availability of gas flows at the LDZ System Entry Point leading to deemed lower levels of booked NTS Exit Capacity than otherwise.

The unit rate is based on the average ECN charge for the whole DN multiplied by a Dependability Factor and then converted into a commodity equivalent charge.

The average ECN charge for the DN is calculated as

$$AverageECN = \sum_{all\ z}[ECN_z \times SOQ_z] / \sum_{all\ z}[SOQ_z]$$

where ECN_z is the ECN charge in zone z, SOQ_z is the forecast Supply Point capacity in zone z and $\sum_{all\ z}$ means the sum across all NTS Exit Zones z within the DN.

The Dependability Factor is set equivalent to the Load Factor for the LDZ System Entry Point.

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From this the unit rate credit, expressed as p/kWh, in respect of ECN Credit is equivalent to the numerical value of the average ECN charge, expressed as p/pdkWh/day and is independent of the flow characteristics at each LDZ System Entry Point, i.e. an average ECN charge of X p/pdkWh/day will lead to a unit rate in respect of ECN Credit of X p/kWh for each LDZ System Entry Point within that DN.

b) LDZ System Credit

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The unit rate credit in respect of LDZ system usage reflects the notional typical reduced usage of the LDZ System tiers by gas from the LDZ System Entry Point relative to that for gas from NTS offtakes into the LDZ system. The credit is calculated individually for each LDZ System Entry Point and is dependent on the Highest Utilisation Tier for gas from the entry point.

The Highest Utilisation Tier is defined as the higher (in terms of pressure) of:

- the tier at which gas enter into the LDZ system from the LDZ System Entry Point;
- the tier which gas from the LDZ System Entry Point is, via within-network compression, moved to (this is not applicable for gas which is not subject to within-network compression).

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The tiers considered are, in order of pressure (high to low):

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- Local Transmission System (LTS);
- Intermediate Pressure (IP);
- Medium Pressure (MP);
- Low Pressure (LP).

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The unit rate credit in respect of LDZ System usage is then determined as the sum of the Utilisation Rates for the tiers of higher pressure than the Highest Utilisation Tier i.e.:

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Highest Utilisation Tier	**Unit Rate Credit**
LTS	Zero
IP	LTS Utilisation Rate
MP	IP plus LTS Utilisation Rates
LP	MP plus IP plus LTS Utilisation Rates

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The Utilisation Rate for each of the tiers is determined from the analysis of LDZ System utilisation used to determine the Standard LDZ System commodity charging functions, as set out in the methodology for determining the Standard LDZ System Charges. The Utilisation Rate for a tier is calculated as:

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Utilisation Rate = 20 x Unit Commodity Cost for tier

where the Unit Commodity Cost is the Commodity Cost of utilising the tier based upon the LDZ System commodity charges being targeted to recover 5% of the LDZ System charge revenue and where the Commodity Costs are scaled by a constant multiplicative factor such that the sum of the Commodity Costs for the four tiers is equal to the LDZ System commodity charge rate for the 0 to 73.2 MWh/a charging band.

In this manner the unit rates in respect of the LDZ System credits should always be consistent with the Standard LDZ System commodity charges applicable for the same period.

The overall LDZ System Entry commodity charge may be positive (a charge) or negative (a credit) depending on the relative magnitude of the unit rates in respect of Opex Costs and DN Usage Credit.

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8. Customer Charges

Customer charges reflect Supply Point costs, primarily costs relating to service pipes and emergency work relating to service pipes and supply points. The customer charge methodology is based on an attribution of the costs across Supply Points grouped into a number of consumption bands.

The costs are made up of two cost pools, broadly comprising costs associated with service pipes and costs associated with emergency work. Each cost pool is then divided among the consumption bands based on weighted consumer numbers by consumption band. The weightings are derived from estimates of how the costs of providing each of the services vary with consumption band. A total average cost per Supply Point is then calculated for each consumption band.

Functions are developed that best fit the relationship between supply point size and total average cost per supply point. The peak supply point capacity (SOQ) is used as a measure of supply point size.

For Supply Points up to 73.2 MWh/a, the Customer charge is a fixed unit capacity charge.

For Supply Points between 73.2 and 732 MWh/annum, the Customer charge consists of a fixed daily charge which varies with meter-reading frequency and a fixed unit capacity charge.

For Supply Points in excess of 732 MWh/annum, the Customer charge is a capacity charge whose unit rate is determined by a function based on a power of the peak daily load (SOQ).

9. LDZ Exit Capacity NTS (ECN) Charges

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The LDZ ECN Charges are effective from 1 October 2012 and are a pence per peak day kWh charge applied to the supply point SOQ to determine the amount payable. The charge has a single unit rate within each Exit Zone.

The level of the LDZ ECN charges for any Exit Zone is set each year to reflect the forecast average unit NTS charges for capacity at the NTS/LDZ Offtakes which make up that Exit Zone for the coming year plus or minus the appropriate portion of the ECNK.

The ECNK is managed separately from the overall K for the purposes of setting the levels of the LDZ Exit Capacity NTS charges. It is calculated as the difference between the revenue collected from the LDZ ECN charges and the amounts paid to NG NTS in respect of the Exit Capacity Charges in the previous formula year plus or minus any ECNK from the previous period.

K means the Distribution Network Transportation Activity Revenue adjustment factor to the Distribution Network Transportation Activity Revenue in respect of over or under recovery for a Distribution Network in a Formula Year.

10. Administration Charges

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There are specific administration charges for some services which are required by some Shipper Users but not by all. These administration charges are:

- Charges for the administration processes required to manage the daily operations and invoicing associated with CSEPs;

- Charges for the administration of allocation arrangements at Shared Supply Meter Points.

The methodology used to calculate the appropriate level of these charges is based on an assessment of the costs incurred of the ongoing activities involved in providing the services. The charges are forward looking and take into account anticipated enhancements to the methods and systems used.