Northern Gas Networks Shrinkage Adjustments

Formula Year 2018/19

Northern Gas Networks
July 2019
Northern Gas Networks Shrinkage Adjustments Formula Yr. 2018-2019 SLM v1.4

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1.0 Executive Summary

This document provides information to Industry on the following:

- Assessment of North and North East LDZ Shrinkage Quantities
- Northern Gas Networks LDZ Shrinkage Adjustment
- Financial Adjustments applicable to Northern Gas Networks

Assessment of North and North East LDZ Shrinkage Quantity

In accordance with Uniform Network Code Section N3.3.3, the following information provides an assessment of shrinkage for both North and North Eastern LDZs. Northern Gas Networks final proposals for the Gas Year 2018/19 was not subject to Condition 7(4) disapproval and as a result, the proposed LDZ Shrinkage Quantities were applied in accordance with *Uniform Network Code TPD + Section N 3.1.8*.

Table 1.1 - Final Proposal Shrinkage Quantity for 1st April 2018 to 31st March 2019

LDZ	Shrinkage Quantity (GWh)
North	148.95
North East	175.69
NGN Total	324.64

The assessment of shrinkage quantity for North and North East LDZs for the period 1st April 2018 to 31st March 2019 is approximately **15.89** GWh higher than the amount of shrinkage identified for that period, based on the above quantities.

Northern Gas Networks LDZ Shrinkage Adjustment

This section advises Industry of the Shrinkage Adjustment for North and North East LDZ's for the period 1st April 2018 to 31st March 2019 as referred to in *Uniform Network Code TPD Section N 3.4.1.* Using the applied and assessed shrinkage factors, the following shrinkage quantities were calculated for the period 1st April 2018 to 31st March 2019:

Table 1.2 - LDZ Shrinkage Reconciliation for the period 1st April 2018 to 31st March 2019

LDZ	Assessed LDZ Shrinkage Quantity (kWh)	Procured LDZ Shrinkage Quantity (kWh)	LDZ Shrinkage Reconciliation Quantity (kWh)
North	157,355,488	148,950,763	8,404,725
North East	183,170,955	175,690,882	7,480,073
NGN Total	340,526,443	324,641,645	15,884,798

Note: Negative values indicate an over procurement.

2.0 Financial Adjustments Applicable to Northern Gas Networks

In accordance with the *LDZ Shrinkage Adjustments Methodology Version 2.0* there are two elements of financial adjustment. These are:

- Financial Adjustment for shrinkage energy reconciliation
- Financial Adjustment required for commodity charge reconciliation

Both of these financial elements are determined in the following sections.

2.1 Financial Adjustment for Shrinkage Energy Reconciliation

Applying the algorithm in section 2.2 of *LDZ Shrinkage Adjustments Methodology Version 2.0* the following financial adjustment has been determined for Northern Gas Networks for the period 1st April 2018 to 31st March 2019.

Table 2.10 – Financial Adjustment (Gas Reconciliation)

LDZ	LDZ Shrinkage Reconciliation Quantity (kWh)	Adjustment Value
North	8,404,725	£166,070.30
North East	7,480,073	£147,799.95
NGN Total	15,884,798	£313,870.25

The Northern Gas Networks total financial adjustment of **£313,870.25** is positive and therefore identified as a debit to the Gas Transporters.

2.2 Financial Adjustment required for Commodity Charge Reconciliation

Applying the algorithm in section 2.3 of *LDZ Shrinkage Adjustments Methodology Version 2.0*, the following financial adjustment has been determined for Northern Gas networks for the period 1st April 2018 to 31st March 2019.

Table 2.20 – Financial Adjustment (Transportation Commodity Reconciliation)

LDZ	LDZ Shrinkage Reconciliation Quantity (kWh)	Adjustment Value
North	8,404,725	£5,168.84
North East	7,480,073	£4,600.18
NGN Total	15,884,798	£9,769.02

The Northern Gas Networks total financial commodity charge adjustment of **£9,769.02** is positive and therefore identified as a debit to the Gas Transporters.

Northern Gas Networks Total Financial Adjustment is therefore £323,639.27.

2.3 Transportation Commodity Charges

The commodity charges used in the Transportation Commodity Reconciliation calculations are:

Table 2.30 –Transportation Commodity Charges

	Period of Application	
	01/04/2018 to 30/09/2019	01/10/2018 to 31/03/2019
NTS Commodity	**0.000303**	**0.000309**
LDZ Commodity	**0.000309**	**0.000309**
Total Commodity Rate	**0.000612**	**0.000618**

Note: The above figures are in pound per Kwh whilst the figures taken from the charging Statements are in pence per Kwh.

3. Operational Usage (Own Use Gas)

Operational Usage, also known as Own Use Gas (OUG), is gas used within the LDZ for such purposes as pre-heater fuel to counter the impact of the Joule-Thompson effect and for other minor operational purposes.

Pre-heater fuel is the largest component of OUG and has always been determined using the output from a model that utilises the thermodynamic principles of the Joule-Thompson effect and gas volume, calorific value, pressure and temperature data. The currently accepted factor is based on a model developed by GL Noble Denton, which has been shared with the User community through the Shrinkage Forum.

For the purposes of assessment in respect of the 2018/19 Formula Year, no better information (meter readings) or calculation for actual OUG was available; therefore, the proposed factor of 0.0113% of consumption, based on the GL Noble Denton model was used.

Table 3.10 - Assessment of OUG

LDZ	Consumption 2018/19 (GWh)	Applied OUG Factor 2018/19	Daily OUG Quantity (kWh)
North	**31,734**	**0.0113%**	**9,824**
North East	**36,881**		**11,418**
NGN	**68,615**		**21,242**

4. Theft of Gas

Uniform Network Code Section N1.3.2 states that “LDZ Shrinkage shall include gas lost through theft either upstream of the customer control valve or downstream where there is no shipper serving the gas consumer”. In respect of the 2018/19 Formula Year, a National Factor of 0.02% of throughput was applied.

Table 4.10 - Assessment of ToG

LDZ	Consumption 2018/19 (GWh)	Applied ToG Factor 2018/19	Daily ToG Quantity (kWh)
North	31,734	0.020%	17,388
North East	36,881		20,209
NGN	68,615		37,597

This report is based on data sourced from the Shrinkage and Leakage Model (SLM) Version 1.4 which was approved by Ofgem in September 2014 (modification to low pressure service calculations).

Because of the number of decimal places within the formula in the Shrinkage & Leakage Model (SLM), the rounding differences may result in immaterial changes to the overall values.

Appendix A - LDZ Shrinkage Adjustment Methodology Version 2 (2009)

0. Introduction

The purpose of this document is to define how LDZ shrinkage will be reconciled after the End of the relevant period as defined by the Transporters and how the costs shall be Distributed. The relevant period may be less than 12 months, but shall be for a period of Consistent Daily Shrinkage Quantity. This document does not form part of the Uniform Network Code (UNC).

1. Reconciliation Methodology

The following is designed to reconcile the purchased LDZ shrinkage quantities at the end Of the relevant period against those calculated following the assessment applicable to that Relevant period, in accordance with *UNC – Transportation Principal Document Section N3.3*, and ensure that the reconciliation by difference (RbD) billing process is adjusted Accordingly.

A negative 'adjustment', in the calculations below, indicates an over procurement and, hence, a credit to the Gas Transporter; a positive 'adjustment' indicates an under Procurement and, hence, a credit to Shippers.

1.1 Reconciliation Quantity

After the end of the relevant period, the Daily LDZ shrinkage reconciliation quantity Shall be calculated as follows:

***SLRQ* = (*SLAQ* − *SLPQ*)**

Where *SLRQ* = Reconciliation LDZ specific Daily Shrinkage Quantity (kWh)
SLAQ = Assessed LDZ specific Daily Shrinkage Quantity (kWh)
SLPQ = Procured LDZ specific Daily Shrinkage Quantity (kWh)

1.2 Financial Adjustment (Gas Reconciliation)

The financial adjustment associated with gas reconciliation (*FARec*) shall be calculated, on a daily LDZ basis, as follows:

$$FA(£) = \sum^{AllDays} \left(S_{LRQ} \times SAP / 100 \right)$$

Where *FARec* = Financial Adjustment associated with Gas Reconciliation (£)
SAP = Daily System Average Price (p/kWh)
All days = Sum for all days in the relevant period

1.3 Financial Adjustment (Transportation Commodity Reconciliation)

The financial adjustment associated with transportation commodity reconciliation shall be calculated individually for each of the Commodity Charge elements on a daily LDZ basis, as follows:

$$FA_{com} = \sum_{1}^{n}\left(\sum_{Pstart}^{Pend}(S_{LRQ}) \times CC_n / 100\right)$$

Where *FAComm* = Financial adjustment associated with transportation Commodity reconciliation (£)
n = Number of charging periods
Pstart = Start date of the charging period
Pend = End date of the charging period
CCn = Applicable Commodity Charge for the specific Commodity Charge element and charging period
1= NTS Commodity and System Commodity

2. Billing

The financial adjustments identified in Section 2, above, shall be allocated between Shippers in proportion to their share of the Aggregate LDZ AQ for the relevant period, subdivided into periods of consistent transportation charging, and shall be compiled into a single set of energy and network operator invoices or rebates.