

LDZ Shrinkage Assessment and Adjustment For 1 April 2014-31 March 2015

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LDZ Shrinkage Assessment and Adjustment for the Period 1 April 2014 – 31 March 2015

1 Executive Summary

The purpose of this document is to present an assessment of LDZ Shrinkage for the period 1 April 2014 to 31 March 2015, in accordance with Uniform Network Code Section N 3.3.3, in addition to providing notification of the leakage and shrinkage volumes to be used for incentive purposes as required by Special Condition 1F.14 of the Gas Transporter License.

In accordance with Uniform Network Code Section N3.3.3 the following information provides an assessment of shrinkage for Scotland, Thurso, Wick, Campbeltown, Oban, Stranraer, South, and South East LDZs. SGNs Final LDZ Shrinkage Proposals for the Formula Year 2014/15 was not subject to Standard Special Condition A11 (18) disapproval and as a result, the proposed LDZ Shrinkage Quantities were applied in accordance with Uniform Network Code Section N 3.1.8.

LDZ Shrinkage Quantities are comprised of three main components:

- Leakage with individual quantities being applied at LDZ level;
- Operational Usage with a single factor being applied across all LDZs; and
- Transporter responsible Theft of Gas with a single factor being applied across all LDZs

The assessment of LDZ Shrinkage for the Formula Year 2014/15 detailed within this document provides, where applicable, reasons for significant variance between the estimated and the assessed LDZ Shrinkage Quantities for the period.

In 2013/14 SGN applied V1.3 of the model. For the 2014/15 leakage assessment, SGN has applied V1.4, which has been approved for use and now includes an updated calculation of service leakage.

The leakage assessment for the purposes of the 2014/15 shrinkage adjustment has resulted in annual leakage for 2014/15 of 737.3GWh, which is 10.9 GWh lower than estimated.

The Leakage Volume (LVt) and Actual Shrinkage Volume (ASVt) to be used for incentive revenue purposes for 2014/15 are 740.5GWh (LVt) and 784.2GWh (ASVt). The values relating to each specific LDZ can be found in Table 1. The values used for incentive revenue purposes differ from those used to calculate the Shrinkage Adjustment for UNC purposes because they are calculated using the same calorific value assumptions underpinning the incentive baseline targets, thus avoiding potential windfall gains or losses arising from variations in outturn calorific value.

2 LDZ Shrinkage Quantity Assessment

2.1 Leakage

LDZ specific Shrinkage Quantities for 2014/15 were proposed based on an assessment of leakage for the formula year 2014/15. SGN applied V1.4 of the Leakage Model to carry out the assessment of leakage for the formula Year 2014/15. No further amendments have been made to the methodologies applied within the leakage model.

Estimated and assessed leakage quantities for each LDZ are shown in Table 1;

Table 1: Estimated and Assessed Energy by LDZ

Baseline CV						
LDZ	2014/15 Assessed Shrinkage - ASVt (GWh)	2014/15 Assessed Leakage - LVt (GWh)	2014/15 Estimated Leakage (GWh)	2014/15 Estimated Leakage (kWh/Day)	2014/15 Assessed Leakage (GWh)	2014/15 Assessed Leakage (kWh/Day)
South	225.2	213.4	213.1	583,726	213.3	584,357
South East	345.4	329.1	334.0	915,123	329.1	901,522
Scotland	212.5	197.1	199.7	547,068	194.0	531,502
Campbeltown	0.2	0.2	0.2	658	0.2	439
Oban	0.3	0.3	0.4	1,068	0.3	851
Stranraer	0.3	0.3	0.3	849	0.2	667
Thurso	0.1	0.1	0.2	658	0.1	346
Wick	0.2	0.1	0.3	767	0.1	388
SGN Total	784.2	740.5	748.2	2,049,918	737.3	2,020,071

As shown in Table 1, above the assessment of leakage has resulted in a decrease in energy of 10.9GWh.

2.2 Operational Usage

Operational Usage is gas, also known as Own Use Gas (OUG), 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, e.g. venting.

Pre-heater fuel is the largest component of OUG and it is determined using the output from a model that utilises the thermodynamic principles of the Joule-Thompson effect and LDZ throughput, calorific value, pressure and temperature data. The OUG factor for 2014/15 of 0.0113% was determined from Advantica's 2006 review of their OUG model. The assessed figure remains the same.

Table 2: Assessment of OUG

LDZ	Consumption 2014/15 (GWh)	Applied OUG Factor 2014/15	Daily OUG Quantity (kWh)
South	37,758.5	0.0113%	11,690
South East	52,167.8		16,151
Scotland	49,305.3		15,264
Campbeltown	32.8		10
Oban	32.3		10
Stranraer	135.1		42
Thurso	47.1		15
Wick	42.8		13
SGN Total	139,521.8		43,194

2.3 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. Unidentified theft was estimated to be 0.0200% of throughput for 2014/15.

Table 3: Assessment of ToG

LDZ	Consumption 2014/15 (GWh)	Applied ToG Factor 2014/15	Daily ToG Quantity (kWh)
South	37,758.5	0.0200%	20,690
South East	52,167.8		28,585
Scotland	49,305.3		27,017
Campbeltown	32.8		18
Oban	32.3		18
Stranraer	135.1		74
Thurso	47.1		26
Wick	42.8		23
SGN Total	139,521.8		76,450

The assessed figure remains the same. The quantification of the level of theft and proportion attributable to Transporters is under review – both in the Shrinkage Gas Forum and Theft of Gas Forum.

2.3 LDZ Specific Shrinkage Quantities

Scotia Gas Networks made their final LDZ specific Shrinkage Quantities proposal for the Formula Year 2014/15 in July 2014. Scotia Gas Network's proposal was not subject to Ofgem disapproval under Licence Condition A11 (18) disapproval, with the proposed LDZ specific Shrinkage Quantities being applied with effect from the 1 April 2014. The proposed/applied LDZ Shrinkage Quantities are shown in Table 4 below, along with the assessed LDZ specific Shrinkage Quantities for 2014/15 produced in the method detailed within this document.

Table 4: LDZ Specific Shrinkage Quantities (kWh/day)

LDZ	Leakage	OUG	ToG	Assessed Shrinkage Quantities 2014/15	Applied Shrinkage Quantities 2014/15	Difference Between Assessed & Applied Quantities (kWh/day)
South	584,357	11,690	20,690	616,736	616,174	562
South East	901,522	16,151	28,585	946,258	961,501	-15,243
Scotland	531,502	15,264	27,017	573,783	590,030	-16,247
Campbeltown	439	10	18	467	696	-229
Oban	851	10	18	879	1,109	-230
Stranraer	667	42	74	782	970	-188
Thurso	346	15	26	386	699	-313
Wick	388	13	23	424	793	-369
SGN Total	2,020,071	43,194	76,450	2,139,716	2,171,972	-32,256

The difference between Scotia Gas Network's estimated and assessed LDZ Shrinkage Quantities is 32,256kWh per day, as shown in Table 4, which is primarily due to slightly lower than forecast operating pressures.

3 LDZ Shrinkage Adjustment

3.1 Introduction

This document advises Shippers of the Shrinkage Adjustment for Scotia Gas Networks operated LDZs for the period 1 April 2014 to 31 March 2015, as referred to in the *Uniform Network Code* Section N 3.4.1. The Shrinkage Adjustments have been calculated in accordance with the LDZ Shrinkage Adjustments Methodology Version 2.0.

3.2 LDZ Shrinkage Reconciliation Calculations

The LDZ Shrinkage Reconciliation Quantity (SLRQ) is calculated as the difference between the Assessed and Procured LDZ Shrinkage Quantities. This reconciliation quantity is the amount that Scotia Gas Networks has over or under procured.

Therefore, for each LDZ;

$$\begin{array}{ccccc} \text{LDZ Shrinkage} & & & & \text{Assessed LDZ} & & & & \text{Procured LDZ} \\ \text{Reconciliation Quantity} & = & \text{Shrinkage Quantity} & - & \text{Shrinkage} \\ \text{(SLRQ)} & & \text{(SLAQ)} & & \text{Quantity (SLPQ)} \end{array}$$

Table 5 below shows the LDZ Reconciliation Quantities for the Shrinkage Adjustment for the period 1 April 2014 to 31 March 2015.

LDZ	LDZ Shrinkage Reconciliation Quantity (kWh/day)
South	562
South East	-15,243
Scotland	-16,247
Campbeltown	-229
Oban	-230
Stranraer	-188
Thurso	-313
Wick	-369
SGN Total	-32,256

3.3 Financial Adjustment

The Financial Adjustment (FA) due to Scotia Gas Networks for Energy (cost of the gas) is calculated as shown below:

$$FA(£) = \sum_{1/4/14}^{31/3/15} SLRQ(kWh) \times SAP(p/kWh) / 100$$

Where:

FA (£) = Financial Adjustment

SLRQ (kWh) = LDZ Shrinkage Reconciliation Quantity

SAP = Daily System Average Price for the period 1 April 2014 to 31 March 2015

The allocation of any debit or credit to Shippers resulting from the Adjustment process is achieved by calculating the energy adjustment on a daily basis, multiplying this by the daily system average price, summing this by LDZ by month and apportioning this by the relevant Shipper RbD affected portfolio in each LDZ for each month.

Table 6, below, shows the financial adjustment by LDZ for the period 1 April 2014 to 31 March 2015, calculated on a daily basis in line with the methodology indicated above.

LDZ	LDZ Shrinkage Reconciliation Quantity (kWh/day)	Adjustment Value due to Changes to Shrinkage Quantities
South	562	£3,296.32
South East	-15,243	-£89,418.15
Scotland	-16,247	-£95,309.81
Campbeltown	-229	-£1,340.80
Oban	-230	-£1,349.76
Stranraer	-188	-£1,099.98
Thurso	-313	-£1,836.52
Wick	-369	-£2,163.23
SGN Total	-32,256	-£189,221.92

The overall financial value for the Energy Adjustment, £189,221.92 is therefore a credit to Scotia Gas Networks. Under the rules of Reconciliation by Difference, this is an adjustment of equal and opposite value to Domestic Shippers, i.e. a debit of £189,221.92.

4 LDZ Commodity Charge Adjustment

4.1 Introduction

This section advises Shippers of the Commodity Charge associated with the Scotia Gas Networks operated LDZ Shrinkage Adjustment for the period 1 April 2014 to 31 March 2015.

4.2 Commodity Charges

The following Commodity Charges (£/kWh) applied over the period 1 April 2014 to 31 March 2015.

Table 7: Scotland LDZ Commodity Charges for the 2014/15 period

Commodity	Period of Application	
	01/04/14 to 30/09/14	01/10/14 to 31/03/15
NTS Commodity (=TO+SO)	0.000372	0.000385
LDZ System Commodity Charge	0.000271	0.000271

Table 8: Southern LDZ Commodity Charges for the 2014/15 period

Commodity	Period of Application	
	01/04/14 to 30/09/14	01/10/14 to 31/03/15
NTS Commodity (=TO+SO)	0.000372	0.000385
LDZ System Commodity Charge	0.000318	0.000318

4.3 LDZ Shrinkage Reconciliation Quantities

Table 9 below shows the LDZ Shrinkage Reconciliation Quantities (LRQ) for each LDZ for each period of differing Commodity Charges.

Table 9: LDZ Shrinkage Reconciliation Quantities kWh

LDZ	Total over Period	01/04/14 to 30/09/14	01/10/14 to 31/03/15
South	205,099	102,831	102,269
South East	-5,563,656	-2,789,449	-2,774,207
Scotland	-5,930,239	-2,973,243	-2,956,996
Campbeltown	-83,425	-41,827	-41,598
Oban	-83,983	-42,107	-41,876
Stranraer	-68,441	-34,314	-34,127
Thurso	-114,269	-57,291	-56,978
Wick	-134,598	-67,483	-67,115
SGN Total	-11,773,512	-5,902,884	-5,870,628

4.4 Financial Adjustment

Scotia Gas Networks

The Financial Adjustment (FA) due to Scotia Gas Networks for Commodity Charge reconciliation is calculated as shown below;

$$FA_{cc} (£) = \sum_{1/04/14}^{30/09/14} LRQ(kWh) \times CC_1 (£/kWh) + \sum_{1/10/14}^{31/03/15} LRQ(kWh) \times CC_2 (£/kWh)$$

Where:

$FA_{cc} (£)$ = Financial Adjustment associated with the SGN LDZ and Customer Commodity Charges

$LRQ (kWh)$ = LDZ Shrinkage Reconciliation Quantity

$CC_1 (£/kWh)$ = SGN LDZ and Customer Commodity Charges applicable to the period 1 April 2014 to 30 September 2014

$CC_2 (£/kWh)$ = SGN LDZ and Customer Commodity Charge applicable to the period 1 October 2014 to 31 March 2015

Table 10 : Financial Adjustment due to Scotia Gas Networks by LDZ for the period 1 April 2014 to 31 March 2015

Transportation Charges - Scotia Gas Networks					
LDZ	Pricing Period		Pricing Period		Assessment Period
	01/04/14 to 30/09/14	01/10/14 to 31/03/15	01/04/14 to 30/09/14	01/10/14 to 31/03/15	01/04/14 to 31/03/15
	Total Volume (kWh)	Total Volume (kWh)	Total Adjustment	Total Adjustment	Total Adjustment
South	102,831	102,269	£70.95	£71.89	£142.85
South East	-2,789,449	-2,774,207	-£1,924.72	-£1,950.27	-£3,874.99
Scotland	-2,973,243	-2,956,996	-£1,911.80	-£1,939.79	-£3,851.58
Campbeltown	-41,827	-41,598	-£26.89	-£27.29	-£54.18
Oban	-42,107	-41,876	-£27.07	-£27.47	-£54.55
Stranraer	-34,314	-34,127	-£22.06	-£22.39	-£44.45
Thurso	-57,291	-56,978	-£36.84	-£37.38	-£74.22
Wick	-67,483	-67,115	-£43.39	-£44.03	-£87.42
SGN Total	-5,902,884	-5,870,628	-£3,921.83	-£3,976.71	-£7,898.54

The overall financial value for the LDZ and Commodity Charge Adjustment is therefore £7,898.54 a debit to Domestic Shippers under the RbD Process.