

SGN

LDZ Shrinkage

Assessment and Adjustment

For 1 April 2022 - 31 March 2023

July 2023



SGN

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LDZ Shrinkage Assessment and Adjustment for the Period 1 April 2022 – 31 March 2023

1 Executive Summary

The purpose of this document is to present an assessment of LDZ Shrinkage for the period 1 April 2022 to 31 March 2023, 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 4.4.10 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 2022/23 were 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 2022/23 detailed within this document provides, where applicable, reasons for significant variance between the estimated and the assessed LDZ Shrinkage Quantities for the period.

For the 2022/23 shrinkage assessment, SGN has applied V1.4, which has been approved for use. The assessment for the purposes of the 2022/23 shrinkage adjustment has resulted in annual shrinkage for 2022/23 of 600.9 GWh, which is 3.0 GWh lower than estimated.

The Leakage Volume (LVt) and Actual Shrinkage Volume (ASVt) to be used for reputational incentive (ODI-R) purposes (RRP Tab 4.07) for 2022/23 are 561.9 GWh (LVt) and 603.1 GWh (ASVt). The values relating to each specific LDZ can be found in Table 1. The values used for reputational incentive purposes differ from those used to calculate the Shrinkage Adjustment for UNC purposes because they are calculated using the same calorific value assumptions from RIIO-GD1, which have been utilised to calculate RIIO-GD2 forecasts, 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 were proposed based on an assessment of leakage for the formula year 2022/23. SGN applied V1.4 of the Leakage Model to carry out the assessment of leakage for the formula Year 2022/23. No further amendments have been made to the methodologies applied within the leakage model.

Table 1: Estimated and Assessed Energy by LDZ

LDZ	Baseline CV			Actual CV		
	2022/23 Assessed Shrinkage - ASVt (GWh)	2022/23 Assessed Leakage - LVt (GWh)	2022/23 Estimated Leakage (GWh)	2022/23 Estimated Leakage (kWh/Day)	2022/23 Assessed Leakage (GWh)	2022/23 Assessed Leakage (kWh/Day)
South	184	173	172.9	473,753	173.4	475,051
South East	258	242	236.5	648,006	241.7	662,144
Scotland	160	146	149.2	408,756	143.7	393,578
Campbeltown	0	0	0.1	361	0.1	352
Oban	0	0	0.3	875	0.3	851
Stranraer	0	0	0.3	691	0.3	712
Thurso	0	0	0.1	358	0.1	346
Wick	0	0	0.1	406	0.1	394
SGN Total	603.1	561.9	559.6	1,533,206	559.7	1,533,427

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

As shown in Table 1 above, the assessment of leakage has resulted in an increase in energy of 0.1 GWh.

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-Thomson 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-Thomson effect and LDZ throughput, calorific value, pressure and temperature data. The OUG factor applied for 2022/23 is 0.0113% which was determined from Advantica's 2006 review of their OUG model.

Table 2: Assessment of Own Use Gas

LDZ	Consumption 2022/23 (GWh)	Applied OUG Factor 2022/23	Daily OUG Quantity (kWh)
South	35,363	0.0113%	10,948
South East	51,148		15,835
Scotland	44,991		13,929
Campbeltown	27		8
Oban	25		8
Stranraer	143		44
Thurso	38		12
Wick	36		11
SGN Total	131,771		40,795

The assessment of OUG has resulted in a decrease in energy of 2.2 GWh from the 2022/23 Final Proposal position. This is due to a decrease in consumption from the Final Proposal forecast view.

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 2022/23.

Table 3: Assessment of Theft of Gas

LDZ	Consumption 2022/23 (GWh)	Applied ToG Factor 2022/23	Daily ToG Quantity (kWh)
South	35,363	0.0200%	19,377
South East	51,148		28,026
Scotland	44,991		24,653
Campbeltown	27		15
Oban	25		14
Stranraer	143		78
Thurso	38		21
Wick	36		20
SGN Total	131,771		

The assessment of TOG has resulted in a decrease in energy of 2.0 GWh for the 2022/23 Final Proposal position. This is due to a decrease in consumption from the Final Proposal forecast view.

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.

2.4 LDZ Specific Shrinkage Quantities

SGN made their final LDZ specific Shrinkage Quantities proposal for the Formula Year 2022/23 in February 2022. SGN'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 2022. The proposed/applied LDZ Shrinkage Quantities are shown in Table 4 below, along with the assessed LDZ specific Shrinkage Quantities for 2022/23 produced in the method detailed within this document.

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

LDZ	Leakage	OUG	ToG	Assessed Shrinkage Quantities 2022/23	Applied Shrinkage Quantities 2022/23	Difference Between Assessed & Applied Quantities (kWh/day)
South	475,051	10,948	19,377	505,376	507,350	-1,974
South East	662,144	15,835	28,026	706,005	694,094	11,911
Scotland	393,578	13,929	24,653	432,159	450,363	-18,203
Campbeltown	352	8	15	375	388	-13
Oban	851	8	14	872	899	-27
Stranraer	712	44	78	834	819	15
Thurso	346	12	21	378	394	-15
Wick	394	11	20	425	440	-15
SGN Total	1,533,427	40,795	72,203	1,646,425	1,654,747	-8,321

The difference between SGN's estimated and assessed LDZ Shrinkage Quantities is 8,321 KWh per day, as shown in Table 4.



3 LDZ Shrinkage Adjustment

3.1 Introduction

This document advises Shippers of the Shrinkage Adjustment for SGN operated LDZs for the period 1 April 2022 to 31 March 2023, 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 3.0.

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 SGN has over or under procured.

Therefore, for each LDZ;

$$\text{LDZ Shrinkage Reconciliation Quantity (SLRQ)} = \text{Assessed LDZ Shrinkage Quantity (SLAQ)} - \text{Procured LDZ Shrinkage Quantity (SLPQ)}$$

Table 5 below shows the LDZ Reconciliation Quantities for the Shrinkage Adjustment for the period 1 April 2022 to 31 March 2023.

LDZ	LDZ Shrinkage Reconciliation Quantity (kWh/day)
South	-1,974
South East	11,911
Scotland	-18,203
Campbeltown	-13
Oban	-27
Stranraer	15
Thurso	-15
Wick	-15
SGN Total	-8,321

3.3 Financial Adjustment

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

$$FA(\pounds) = \sum_{1/4/22}^{31/3/23} SLRQ(kWh) \times SAP(p/kWh)/100$$

Where:

FA (£) = Financial Adjustment

SLRQ (kWh) = LDZ Shrinkage Reconciliation Quantity

SAP = Daily System Average Price for the period 1 April 2022 to 31 March 2023

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

Table 6, below, shows the financial adjustment by LDZ for the period 1 April 2022 to 31 March 2023, calculated daily in line with the methodology indicated above.

LDZ	LDZ Shrinkage Reconciliation Quantity (kWh/day)	Adjustment Value due to Changes to Shrinkage Quantities
South	-1,973.67	-£45,662.85
South East	11,911	£275,564.51
Scotland	-18,203	-£421,157.11
Campbeltown	-13	-£302.37
Oban	-27	-£620.50
Stranraer	15	£345.22
Thurso	-15	-£352.07
Wick	-15	-£341.52
SGN Total	-8,321	-£192,526.69

The overall financial value for the Energy Adjustment of negative £192,526.69 is therefore identified as a credit to SGN and a debit to Shippers.