SGN

LDZ Shrinkage Assessment and Adjustment

For 1 April 2021 - 31 March 2022

July 2022

SGN

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Contents

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1 Executive Summary

The purpose of this document is to present an assessment of LDZ Shrinkage for the period 1 April 2021 to 31 March 2022, 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 2021/22 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 2021/22 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 2021/22 shrinkage assessment, SGN has applied V1.4, which has been approved for use.
The assessment for the purposes of the 2021/22 shrinkage adjustment has resulted in annual shrinkage for 2021/22 of 623.2 GWh, which is 3.6 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 2021/22 are 581.8 GWh (LVt) and 625.3 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 2021/22. SGN applied V1.4 of the Leakage Model to carry out the assessment of leakage for the formula Year 2021/22. No further amendments have been made to the methodologies applied within the leakage model.

	Baseline CV				Actual CV	
LDZ	2021/22 Assessed Shrinkage - ASVt (GWh)	2021/22 Assessed Leakage - LVt (GWh)	2021/22 Estimated Leakage (GWh)	2021/22 Estimated Leakage (kWh/Day)	2021/22 Assessed Leakage (GWh)	2021/22 Assessed Leakage (kWh/Day)
South	189	177	177.7	486,784	177.1	485,305
South East	268	251	249.2	682,781	250.3	685,830
Scotland	167	153	154.2	422,518	151.2	414,366
Campbeltown	0	0	0.2	427	0.1	352
Oban	0	0	0.3	861	0.3	850
Stranraer	0	0	0.2	497	0.2	517
Thurso	0	0	0.1	358	0.1	347
Wick	0	0	0.1	406	0.1	394
SGN Total	625.3	581.8	582.0	1,594,631	579.6	1,587,961

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

Table 1: Estimated and Assessed Energy by LDZ

As shown in Table 1, above the assessment of leakage has resulted in a decrease in energy of 2.4 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 2021/22 is 0.0113% which was determined from Advantica's 2006 review of their OUG model.

Table 2: Assessment of Own Use Gas

LDZ	Consumption 2021/22 (GWh)	Applied OUG Factor 2021/22	Daily OUG Quantity (kWh)
South	38,580	0.0113%	11,944
South East	54,504		16,874
Scotland	45,764		14,168
Campbeltown	29		9
Oban	25		8
Stranraer	143		44
Thurso	39		12
Wick	36		11
SGN Total	139,119		43,070

The assessment of OUG has resulted in a decrease in energy of 0.7 GWh from the 2021/22 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 2021/22.

Table 3: Assessment of Theft of Gas

LDZ	Consumption 2021/22 (GWh)	Applied ToG Factor 2021/22	Daily ToG Quantity (kWh)
South	38,580	**0.0200%**	21,140
South East	54,504		29,865
Scotland	45,764		25,076
Campbeltown	29		16
Oban	25		13
Stranraer	143		78
Thurso	39		21
Wick	36		20
SGN Total	**139,119**		**76,230**

The assessment of TOG has resulted in a decrease in energy of 0.7 GWh for the 2021/22 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 2021/22 in February 2021. 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 2021. The proposed/applied LDZ Shrinkage Quantities are shown in Table 4 below, along with the assessed LDZ specific Shrinkage Quantities for 2021/22 produced in the method detailed within this document.

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

LDZ	Leakage	OUG	ToG	Assessed Shrinkage Quantities 2021/22	Applied Shrinkage Quantities 2021/22	Difference Between Assessed & Applied Quantities (kWh/day)
South	485,305	11,944	21,140	518,388	520,354	-1,966
South East	685,830	16,874	29,865	732,569	729,668	2,901
Scotland	414,366	14,168	25,076	453,610	464,128	-10,518
Campbeltown	352	9	16	377	461	-84
Oban	850	8	13	871	893	-21
Stranraer	517	44	78	639	634	6
Thurso	347	12	21	380	405	-25
Wick	394	11	20	426	450	-25
SGN Total	**1,587,961**	**43,070**	**76,230**	**1,707,260**	**1,716,993**	**-9,733**

The difference between SGN's estimated and assessed LDZ Shrinkage Quantities is 9,733 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 2021 to 31 March 2022, 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;

LDZ Shrinkage Reconciliation Quantity (SLRQ)	=	**Assessed LDZ Shrinkage Quantity (SLAQ)**	-	**Procured LDZ Shrinkage Quantity (SLPQ)**

Table 5 below shows the LDZ Reconciliation Quantities for the Shrinkage Adjustment for the period 1 April 2021 to 31 March 2022.

LDZ	LDZ Shrinkage Reconciliation Quantity (kWh/day)
South	-1,966
South East	2,901
Scotland	-10,518
Campbeltown	-84
Oban	-21
Stranraer	6
Thurso	-25
Wick	-25
SGN Total	**-9,733**

3.3 Financial Adjustment

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

$$FA(£) = \sum_{1/4/21}^{31/3/22} SLRQ(kWh) \times SAP(p/kWh)/100$$

Where:

FA (£) = Financial Adjustment
SLRQ (kWh) = LDZ Shrinkage Reconciliation Quantity
SAP = Daily System Average Price for the period 1 April 2021 to 31 March 2022

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, summating 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 2021 to 31 March 2022, 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	-1,966.26	-£38,719.61
South East	2,901	£57,124.11
Scotland	-10,518	-£207,129.50
Campbeltown	-84	-£1,655.25
Oban	-21	-£420.54
Stranraer	6	£109.85
Thurso	-25	-£485.21
Wick	-25	-£485.59
SGN Total	**-9,733**	**-£191,661.74**

The overall financial value for the Energy Adjustment of negative £191,661.74 is therefore identified as a credit to SGN and a debit to Shippers.