



LDZ SHRINKAGE ASSESSMENT AND ADJUSTMENT

FOR 1 APRIL 2011 – 31 MARCH 2012

Wales & West Utilities

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Version 1

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LDZ Shrinkage Assessment and Adjustment for the Period 1 April 2011 – 31 March 2012

1 Executive Summary

The purpose of this document is to present an assessment of LDZ Shrinkage for the period 1 April 2011 to 31 March 2012, in accordance with *Uniform Network Code Section N 3.3.3*.

Wales & West Utilities' (WWU) Final LDZ Shrinkage Quantity Proposal for the Formula Year 2011/12, issued 1 March 2011, proposed individual LDZ Shrinkage Quantities equating to a total RDN Shrinkage Quantity of 1,254,454 KWh per day. The Final Proposal for the Formula Year 2011/12 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
- WWU responsible Theft of Gas, with a single factor being applied across all LDZs

The assessment of LDZ Shrinkage for the Formula Year 2011/12 detailed within this document provides, where applicable, reasons for significant variance between the estimated and the assessed LDZ Shrinkage Quantities for the period.

Expressed as energy, the assessment of LDZ Shrinkage for the period 1 April 2011 to 31 March 2012 is 15GWh or approximately 42,183 kWh/day lower than the volume of Shrinkage purchased for the Formula Year 2011/12.

For this year's leakage assessment, Wales&West Utilities applied v1.3 of the Leakage Model. WWU applied this model in last year's leakage assessment and no further modifications have been made. The leakage assessment resulted in an annual estimated leakage for 2011/12 of 424.8GWh for the purposes of the Shrinkage Adjustment, which is 9.1GWh lower than originally estimated, and 425.6GWh¹ for the purposes of the Environmental Emissions Incentive (LV_{t,i} as defined in Special Condition E9 of the Distribution Gas Transporter Licences). LDZ specific values can be found in Table 1.

In addition to the reduction in leakage, there was also a reduction of 6.3 GWh in the assessed volumes for Own Use Gas and Theft of Gas, which was caused by outturn consumption being slightly lower than that assumed when setting the original shrinkage quantities. Details of this can be found in Section 2.4 Impact of Throughput Assumptions

The assessed Shrinkage leads to a financial adjustment of £297,656.95 credit to Wales&West Utilities, and therefore debit to RbD Shippers, and an associated debit of £7,031.08 to Shippers for Commodity Charges under the RbD process.

¹ Calculated using the LDZ specific Baseline CVs and reported net of any applicable caps/collars.

2 LDZ Shrinkage Quantity Assessment

2.1 Leakage

LDZ specific Shrinkage Quantities for 2011/12 were proposed based on an assessment of leakage for the formula year 2010/11 with anticipated mains replacement being taken into account, leading to a procurement requirement of 1,185,519 kWh/day for leakage.

2.1.1 Assessment of 2011/12 Leakage

Wales&West Utilities applied V1.3 of the Leakage Model to carry out the assessment of leakage for the formula Year 2011/12. No further amendments have been made to the methodologies applied within the leakage model.

LDZ	2011/12 Estimated Leakage (GWh)	2011/12 Assessed Leakage (GWh)	2011/12 Assessed Leakage ($LV_{t,i}$) ² (GWh) ²	2011/12 Estimated Leakage (kWh/Day)	2011/12 Assessed Leakage (kWh/Day)
WN	53.8	54.0	54.5	146,995	147,649
WS	131.9	127.7	127.6	360,383	348,836
SW	248.2	243.1	243.5	678,142	664,187
WWU	433.9	424.8	425.6	1,185,519	1,160,671

Table 1 Estimated and Assessed Leakage Energy by LDZ

As shown in Table 1, above, the assessment of leakage has resulted in a decrease in energy of approximately 9.1GWh, equivalent to 24,848kWh per day or 2.1%.

2.2 Operational Usage

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 2011/12 Gas Year, no better information (meter readings) or calculation for actual OUG was available; therefore, the proposed factor of 0.011% of consumption, based on the GL Noble Denton model, was used.

LDZ	Consumption 2011/12 (GWh)	Applied OUG Factor 2011/12	Daily OUG Quantity (kWh)
WN	6,344	0.011%	1,907
WS	26,875		8,077
SW	27,702		8,326
WWU	60,921		18,309

Table 2 Assessment of OUG

² This is the leakage estimation used for the purposes of the Environmental Emissions Incentive. It differs from that used for the Shrinkage Adjustment in that it is calculated using the LDZ specific Calorific Values that were used to determine the EE Incentive baselines; the leakage for the Shrinkage Adjustment being calculated using the average actual LDZ specific CVs. In addition, the EE Incentive is subject to a 10% cap and collar regime; the values have been quoted without the application of the cap/collar.

2.3 Theft of Gas

Uniform Network Code Section N1.4.2 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 2011/12 Gas Year, a National Factor of 0.02% of throughput, equating to a deemed Transporter responsibility of 6.67% of assumed theft, was applied.

LDZ	Consumption 2011/12 (GWh)	Applied ToG Factor 2011/12	Daily ToG Quantity (kWh)
WN	6,344	0.020%	3,467
WS	26,875		14,686
SW	27,702		15,138
WWU	60,921		33,290

Table 3 Assessment of ToG

2.4 Impact of Throughput Assumptions

The Shrinkage volumes procured in 2011/12 in respect of Own Use Gas and Theft of Gas were based on the application of the agreed factors (0.031%, combined, of consumption) to the 17-year seasonal normal demand for 2011/12 from the 2010 Demand Statements. Due to the milder weather in winter 2011/12, the outturn throughput for 2011/12 was considerably lower than the original assumption³. The impact of this is shown in Table 4 below.

LDZ	Est 2011/12 Consumption (2010 Demand Statements) (GWh)	2011/12 Actual Consumption (GWh)	Combined OUG/ToG Factor	Estimated OUG/ ToG (GWh)	Outturn OUG/ToG (GWh)	Adjustment (GWh)
WN	7,330	6,344	0.031%	2.3	2	-0.3
WS	41,796	26,875		13.1	8.3	-4.8
SW	31,270	27,702		9.8	8.6	-1.2
WWU	80,396	60,921		25.2	18.9	-6.3

Table 4 Assessment of the Impact of Throughput Assumptions

2.5 LDZ Specific Shrinkage Quantities

Wales&West Utilities initially proposed LDZ specific Shrinkage Quantities for the Formula Year 2011/12 in January 2011, with the same quantities again being included within the Final Proposal. Wales&West Utilities proposal was not subject to Ofgem disapproval under Standard Special Condition A11 (18), with the proposed LDZ specific Shrinkage Quantities being applied with effect from the 1 April 2011. The proposed (applied) LDZ Shrinkage Quantities are shown in Table 5, along with the Assessed LDZ specific Shrinkage Quantities for 2011/12 produced in the method detailed within this document.

³ This is in part due to the Industry using 17-year seasonal normal demand (SND) estimation at the time that the Shrinkage Quantities were set. 17-year SND has subsequently been replaced with the EP2 methodology, which predicts a lower level of seasonal normal demand.

LDZ	Leakage	OUG	ToG	Assessed Shrinkage Quantities 2011/12	Applied Shrinkage Quantities 2011/12	Difference Between Assessed & Applied Quantities
WN	147,649	1,907	3,467	153,022	153,361	-339
WS	348,836	8,077	14,686	371,598	396,175	-24,577
SW	664,187	8,326	15,138	687,650	704,918	-17,268
WWU	1,160,671	18,309	33,290	1,212,270	1,254,454	-42,183

Table 5 LDZ Specific Shrinkage Quantities (kWh/day)

2.5.1 Reasons for Differences

The difference between Wales&West Utilities' estimated and assessed LDZ Shrinkage Quantities is -42,183 kWh/day or a 3.4% decrease. This is due to an decrease in leakage equivalent to 24,848kWh per day and actual throughput being lower than the estimated 17-year seasonal normal leading to lower OUG and ToG equivalent to 17,335kWh/day.

3 LDZ Shrinkage Adjustment

3.1 Introduction

This Section advises Shippers of the Shrinkage Adjustment for Wales&West Utilities operated LDZs for the period 1 April 2011 to 31 March 2012, as referred to in *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 (S_{LRQ}) is calculated as the difference between the Assessed and Procured LDZ Shrinkage Quantities. This reconciliation quantity is the amount that Wales&West Utilities has over or under procured.

Therefore, for each LDZ:

$$S_{LRQ} = (S_{LAQ} - S_{LPQ})$$

Where S_{LRQ} = Reconciliation LDZ specific Daily Shrinkage Quantity (kWh)

S_{LAQ} = Assessed LDZ specific Daily Shrinkage Quantity (kWh)

S_{LPQ} = Procured LDZ specific Daily Shrinkage Quantity (kWh)

Table 6 below, shows the LDZ Reconciliation Quantities for the Shrinkage Adjustment for the period 1 April 2011 to 31 March 2012⁴.

LDZ	LDZ Shrinkage Reconciliation Quantity (kWh/day)
WN	-339
WS	-24,577
SW	-17,268
WWU	-42,183

Table 6 LDZ Shrinkage Reconciliation Quantity (kWh/day)

⁴ See Table 5 LDZ Specific Shrinkage Quantities (kWh/day)

3.3 Financial Adjustment

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

$$FA(\pounds) = \sum_{1/4/11}^{31/3/12} S_{LRQ}(kWh) \times SAP(p/kWh) / 100$$

Where:

FA (£) = Financial Adjustment

S_{LRQ} (kWh) = LDZ Shrinkage Reconciliation Quantity

SAP = Daily System Average Price for the period 1 April 2011 to 31 March 2012

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 7, below, shows the financial adjustment by LDZ for the period 1 April 2011 to 31 March 2012, 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
WN	-339	-£2,390.57
WS	-24,577	-£173,418.87
SW	-17,268	-£121,847.51
WWU	-42,183	-£297,656.95

Table 7 LDZ Shrinkage Reconciliation for the period 1 April 2011 to 31 March 2012

The overall financial value for the Energy Adjustment, -£297,656.95, is therefore a credit to Wales&West Utilities. Under the rules of Reconciliation by Difference, this is an adjustment of equal and opposite value to Domestic Shippers, i.e. a debit of £297,656.95.

4 LDZ Shrinkage Commodity Charge Adjustment

4.1 Introduction

This section advises Shippers of the Commodity Charge associated with the Wales&West Utilities operated LDZ Shrinkage Adjustment for the period 1 April 2011 to 31 March 2012. The Commodity Charge Adjustments have been calculated in accordance with the LDZ Shrinkage Adjustments Methodology Version 2.0.

4.2 Applicable Commodity Charges

Table 8 below shows the Commodity Charges that applied over the period 1 April 2011 to 31 March 2012.

Commodity (£)		Period of Application	
		01/04/11 to 30/09/11	01/10/11 to 31/03/12
NTS Commodity		0.000179	0.000246
LDZ System Commodity Charge	SW	0.000243	0.000243
	WN	0.000243	0.000243
	WS	0.000243	0.000243

Table 8 Applicable Commodity Charges 1 April 2011 to 31 March 2012

4.3 LDZ Shrinkage Reconciliation Quantities

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

LDZ	Total over Period	01/04/11 to 30/09/11	01/10/11 to 31/03/12
WN	-123,996	-61,998	-61,998
WS	-8,995,012	-4,497,506	-4,497,506
SW	-6,320,073	-3,160,036	-3,160,036
WWU	-15,439,080	-7,719,540	-7,719,540

Table 9 LDZ Shrinkage Reconciliation Quantities

4.4 Financial Adjustment

The Financial Adjustment (FA) due for Commodity Charge reconciliation is calculated, as a sum for each LDZ, as shown below:

$$\sum_{SW}^{WN} FA_{cc} (£) = \sum_{1/4/11}^{30/9/11} LRQ(kWh) \times CC_1 (£/kWh) + \sum_{1/10/11}^{31/3/12} LRQ(kWh) \times CC_2 (£/kWh)$$

Where:

$FA_{cc} (£)$ = Financial Adjustment associated with the Commodity Charge

$LRQ (kWh)$ = LDZ Shrinkage Reconciliation Quantity

$CC_1 (£/kWh)$ = Commodity Charge applicable to the period 1 April 2011 to 30 September 2011

$CC_2 (£/kWh)$ = Commodity Charge applicable to the period 1 October 2011 to 31 March 2012

Table 10 below, shows the financial adjustment, calculated on a daily basis in line with the methodology indicated above.

Transportation Charges					
LDZ	Pricing Period		Pricing Period		Assessment Period
	01/04/11 to 30/09/11	01/10/11 to 31/03/12	01/04/11 to 30/09/11	01/10/11 to 31/03/12	01/04/11 to 31/03/12
	Total Volume (kWh)	Total Volume (kWh)	Total Adjustment	Total Adjustment	Total Adjustment
WN	-61,998	-61,998	-£26.16	-£30.32	-£56.48
WS	-4,497,506	-4,497,506	-£1,897.95	-£2,199.28	-£4,097.23
SW	-3,160,036	-3,160,036	-£1,333.54	-£1,545.26	-£2,878.79
WWU	-7,719,540	-7,719,540	-£3,257.65	-£3,774.86	-£7,032.50

Table 10 Financial Adjustment by LDZ for the period 1 April 2011 to 31 March 2012

The overall financial value for the Commodity Charge Adjustment is therefore -£7,032.50, a debit to Domestic Shippers under the RbD process.