



**LDZ SHRINKAGE ASSESSMENT
FOR GAS YEAR 2005/2006**

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LDZ Shrinkage Assessment for the Gas Year 2005/2006

1 Executive Summary

The purpose of this document is to present the Wales & West Utilities element of the assessment of LDZ Shrinkage for the Gas Year 2005/2006, in accordance with Network Code Section N 3.3.3. This assessment covers the gas year 2005/2006 consisting of the months of October 2005 through to September 2006.

WWU's final LDZ Shrinkage Factor proposal for the Gas Year 2005/2006 was not subject to Condition 7(4) disapproval and as a result, the proposed LDZ Shrinkage Factors were applied in accordance with Network Code Section N 3.1.8.

LDZ Shrinkage Factors are comprised of three main components:

- Leakage with factors applied at LDZ level.
- Operational Usage with a factor applied at a national level.
- Transporter responsible Theft of Gas with a factor applied at a national level.

The LDZ Shrinkage Factors proposed for the Gas Year 2005/2006 were derived using the methodology and data sources as stated in the proposal document. Table 1 shows the date range for the information used as the basis of the proposed and assessed factors for the Gas Year 2005/2006:

Table 1 Date Range of Data Used for LDZ Shrinkage Factor Proposal and Assessment 2005/2006

LDZ Shrinkage Component	Basis of Proposed LDZ Shrinkage Factor 2005/2006	Basis of Assessed LDZ Shrinkage Factor 2005/2006
Leakage	Assessment of actual leakage for the calendar year 2004.	Assessment of leakage for the calendar year 2005.
Operational Usage	Assessment for the calendar year 2004.	Assessment for the Gas Year 2005/2006.
Theft of Gas	Assessment for the calendar year 2004.	Assessment for the Gas Year 2005/2006.

Expressed as energy, the assessment of LDZ Shrinkage covering the months of October 2005 through to September 2006 is 16 GWh lower than the amount of Shrinkage purchased for the Gas Year 2005/2006.

2 LDZ Shrinkage Factor Assessment

This section of the report provides a detailed breakdown of the assessment for the period 1 October 2005 – 30 September 2006.

2.1 Leakage

For the Gas Year 2005/2006, LDZ specific Shrinkage Factors were based on an assessment of leakage for the calendar year 2004 derived from the Network Leakage Reduction Monitoring Model (NLRMM). The NLRMM utilises the following information:

- Leakage rates
- Asset profile information for both mains/service from Transco Engineering Asset Repository (TeAR)
- An assessment of network pressures within LDZs
- An assessment of the level of gas conditioning using Monoethylene Glycol (MEG) applied to the cast iron mains containing lead yarn joints

2.1.1 Assessment of 2005/2006 Leakage

In accordance with the agreement established at the LDZ Shrinkage Forum held 8 June 2004, the leakage applicable to the 2005/06 Gas Year Assessment has been calculated such that it reflects changes to Average System Pressure. All other inputs being those used for the 2004 Leakage Assessment, i.e. those used to derive the 2005/06 Gas Year applied Shrinkage Factors. LDZ specific Flow Weighted Average Calorific Values (FWACV) are applied to convert the NLRMM output from a volume to an energy.

Estimated and assessed leakage quantities for each LDZ are shown in Table 2.

Table 2 Estimated and Assessed Leakage Energy and Leakage Factors by LDZ

LDZ	2005/2006 Assessed Energy GWh	2005/2006 Estimated Energy GWh
South West	320	317
Wales North	55	55
Wales South	155	155
Total	530	527

As shown in Table 2, the assessment of leakage has resulted in an increase in energy of 3 GWh.

Analysis of LDZ specific changes were detailed in Transco's 2005/2006 LDZ Shrinkage Factors Proposal, issued 1 July 2005, which also compared 2004 leakage data with 2003 leakage data.

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 pre-heater factor for the Gas Year 2005/2006 proposal was estimated using data from 1999 to be 0.035% of national LDZ throughput.

With reference to the Advantica report presented at the Shrinkage Forum held on 22 June 2006, the Own Use Gas factor has been amended to 0.0113%. and consequently the Operational Usage has been assessed for the Gas Year 2005/06 using 0.0113% of LDZ throughput which is equivalent to 9.31 GWh.

2.3 Theft of Gas

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.

Unidentified theft was estimated to be 0.2% of throughput for 2005/2006, of which 10% was deemed to be the transporter's responsibility. The best information available to the gas transporters is supportive of the assumed level and proportions of Theft of Gas and as such, Wales and West Utilities do not believe that it should revise its assessment of theft of gas from 0.02% of LDZ throughput.

2.4 LDZ Specific Shrinkage Factors

Applied and assessed LDZ shrinkage factors are shown in table 3

Table 3 LDZ Specific Shrinkage Factors

LDZ	Applied Factors 2005/06	Assessed Shrinkage Factors 2005/06	Difference Between Assessed & Applied Factors
South West	0.92	0.9057	-0.0142
Wales North	0.68	0.6570	-0.0229
Wales South	0.56	0.5329	-0.0271

Note: Shrinkage Factors are expressed as a percentage of LDZ throughput.

2.4.1 Reasons for Differences

The main reason for the difference in the shrinkage factors is due to change in the Own Use Gas factor calculations.