LDZ Shrinkage Quantity
Initial Proposals
Formula Year 2014/15

National Grid
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National Grid LDZ Shrinkage Quantity Initial Proposals - Formula Year 2014/15

Contents

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1. Purpose of Proposal

The purpose of this paper is to present our proposals in respect of National Grid LDZ Shrinkage for the Formula Year 2014/15, as required under Section N of the Uniform Network Code.

Under Section N of the Uniform Network Code, National Grid has an obligation to estimate the LDZ Shrinkage Quantity values for the coming Formula Year and to present these to Users for consultation.

Following representations from Users, a further paper will be issued, by 1 March 2014, in which National Grid will set out its final estimate of its LDZ Shrinkage Quantity values.

For the purposes of this document, 'LDZ' refers to LDZs owned by National Grid and as defined by Uniform Network Code.

2. Summary of Proposal

The LDZ Shrinkage Quantity values, which are set out within Table 1 below, reflect the losses associated with Unaccounted for Gas (leakage & theft of gas) and Own Use Gas (gas used in the operation of the system). Details of how these Quantities have been determined are included in this paper. The current shrinkage volumes are shown for comparison purposes.

Table 1. Proposed 2014/15 LDZ Shrinkage Quantities using Leakage Model v1.4

	Existing Shrinkage Quantities 2013/14 Formula Year (GWh)				Proposed Shrinkage Quantities 2014/15 Formula Year (GWh)			
LDZ	**Leakage**	**OUG**	**Theft**	**Total**	**Leakage**	**OUG**	**Theft**	**Total**
Eastern	206	5	8	219	204	5	8	217
East Midlands	256	6	11	273	243	6	11	260
North Thames	256	6	10	272	241	6	10	256
North West	350	8	14	371	342	8	14	364
West Midlands	302	5	9	316	293	5	9	307
National Grid	**1,370**	**29**	**52**	**1,451**	**1,323**	**29**	**51**	**1,403**

The calculations that were used to derive the Shrinkage Quantity values and a summary of the underlying information are set out in this proposal.

This year's shrinkage proposal reflects a reduction of 48GWh in estimated leakage compared to the current year, the majority of the leakage reduction, approximately, 34GWh, is associated with the forecast mains replacement in addition to a general reduction in assumed operating pressures and improved MEG saturation levels. In the previous price control period, National Grid made significant investment in pressure management systems, the impact of which has been a year-on-year improvement in operating pressures. In order to reflect this in our leakage projections, we developed a methodology for estimating pressure on a rolling 12 month basis on which to base our shrinkage proposals and this methodology has been used for this year. A further benefit of this methodology is that it reduces the potentially distortional impact on the forecast of an individual warm or cold year. The impact of any variation between the actual and assumed factors underpinning these Shrinkage Proposals will be picked up in the post year Shrinkage Assessment and Adjustment process in July 2015.

Throughout these proposals, shrinkage and leakage quantities are quoted using two versions of the leakage model, versions 1.3 and 1.4. The reason for this is that the proposed modification to the leakage model that was originally issued for consultation in February 2012 and resubmitted in August 2013 is awaiting Ofgem approval pending further independent review and clarification of the variance in impact across the LDZs. Details of this can be found in Section 3.1.1.1. The model to be applied for 2014/15 proposed shrinkage quantities will be discussed at a Shrinkage Forum in the New Year; however, given that there is general acceptance that the modification represents an improvement to the leakage estimation process, we would expect the proposed modification to be approved in time for the 2014/15 post period Shrinkage Assessment and Adjustment to be carried out in July 2015.

Table 2 below shows the shrinkage quantity values with version 1.3 of the leakage model being applied.

Table 2. 2014/15 LDZ Shrinkage Quantities Using Leakage Model v1.3

LDZ	Shrinkage Quantities 2014/15 Formula Year (GWh)			
	Leakage	OUG	Theft	Total
Eastern	220	5	8	232
East Midlands	266	6	11	283
North Thames	266	6	10	282
North West	360	8	14	382
West Midlands	297	5	9	310
National Grid	**1,408**	**29**	**51**	**1,489**

The Daily Shrinkage Quantity values, shown in Table 3 below, will be used as the basis for National Grid's LDZ Shrinkage gas procurement during the Formula Year in question.

Table 3. Proposed LDZ Daily Shrinkage Quantity Values for 2014/15 Formula Year

LDZ	Daily Shrinkage Quantity (kWh)	
	Based on Leakage Model v1.4	Based on Leakage Model v1.3
Eastern	593,161	636,702
East Midlands	712,608	775,120
North Thames	702,202	772,363
North West	996,269	1,045,792
West Midlands	840,383	849,132
National Grid	3,844,623	**4,079,109**

3. Component Analysis

This section of the document presents an analysis of the components of LDZ Shrinkage that make up the estimates for the Formula Year 2014/15 proposal.

3.1 Leakage

Leakage represents the largest component of the LDZ Shrinkage Quantity. Leakage is estimated using the agreed leakage model, which is controlled under Special Condition 1F of the GDN Licences. Under paragraph 1F.17 Distribution Networks have the obligation to annually review the leakage model to ensure that it meets the obligation, specified under paragraph 1F.13, of:

(a) the accurate calculation and reporting of gas shrinkage and leakage from each of the LDZs operated by the licensee; and

Any proposed modifications to the leakage model would be subject to consultation with the industry, be independently assessed and submitted to Ofgem for approval.

DNs also have an obligation by 31 July each year to assess and publish the leakage volume for the previous financial year; the latest approved model is used for this assessment.

In February 2012, National Grid consulted on a proposal to update the service leakage calculation; details of this can be found in Section 3.1.1.1 below. These proposals reflect the impact of this modification, as agreed at the Shrinkage Forum held 10 December 2012.

For the purpose of analysis, leakage may be conveniently split into three categories:

- Distribution Mains (including service pipes),
- Above Ground Installations (AGIs) and
- Other losses

Distribution mains and services leakage is a feature of normal system operation.

AGI leakage includes the routine venting of control equipment.

Other losses include gas lost as a result of interference damage and broken mains. These losses are caused by specific events and are not continuous.

3.1.1 Distribution Mains (and Services) Leakage

The leakage of gas from the Distribution Mains system, which includes service pipe leakage, is calculated by combining the results of the 2002/03 National Leakage Test programme with the following network[1] specific information:

- Pipe asset data[2]
- Annual average system pressure (ASP) in each network
- Measured concentration of Monoethylene Glycol (MEG) joint treatment chemical in the gas
- Annual metallic service replacement

Leakage is calculated by multiplying the annual average mains pressure in each network by the Main and Service Pipe Leakage Factors determined by the 2002/03 National Leakage Test programme and the relative lengths of mains / numbers of services in each network. Where applicable, i.e. cast iron mains only, the Pipe Leakage Factors are adjusted to take into account the measured concentration of MEG.

Information relating to the National Leakage Test programme, the application of the results to calculate leakage and the external validation of the results has already been shared with Users and Ofgem; consequently, it is not proposed to include additional details in this paper.

A detailed comparison of changes in low-pressure leakage from last year's proposal is included in Appendix 1.

As part of National Grid's endeavour to reduce greenhouse gas emissions, real-time estimation of leakage management performance, ASP and MEG, has been introduced; this keeps the focus on emissions and enables any potential problems to be identified and addressed quickly. The output of this monitoring of ASP and MEG performance has been used as the basis for these proposals.

There has been, and will continue to be, significant replacement of iron mains, in line with National Grid's mains replacement policy. These proposals assume an estimated amount of mains replacement applicable for the 2014/15 leakage assessment; equating to approximately 3,400km of iron main from April 2013.

Table 4, below, shows the Low Pressure leakage on an LDZ basis:

[1] Network in this context relates to physically interconnected pipe systems, not National Grid's regionally based administrative structure.

[2] Actual asset data as at 31 March 2013 adjusted for completed and planned iron replacement to 31 March 2015.

Table 4. Estimated LDZ Low Pressure Leakage for 2014/15 Formula Year

	Low Pressure Leakage			
	Based on Leakage Model v1.4		Based on Leakage Model v1.3	
LDZ	Tonnes[3]	GWh	Tonnes	GWh
Eastern	10,119	151	11,214	167
East Midlands	10,874	162	12,452	186
North Thames	12,668	188	14,432	215
North West	18,800	281	20,066	300
West Midlands	15,560	232	15,814	236
National Grid	**68,021**	**1,015**	**73,977**	**1,104**

Table 5, below, shows the estimated Medium Pressure leakage on an LDZ basis:

Table 5. Estimated LDZ Medium Pressure Leakage for 2014/15 Formula Year

	Medium Pressure Leakage	
LDZ	Tonnes	GWh
Eastern	1,047	16
East Midlands	2,812	42
North Thames	1,435	21
North West	1,045	16
West Midlands	1,469	22
National Grid	**7,808**	**116**

3.1.1.1 Leakage Model Modification

In February 2012, National Grid proposed a modification to the leakage model to better reflect the impact of low pressure service replacement; this was followed by an equivalent modification proposal by Scotia Gas Networks in July 2012. The original leakage model contained service population assumptions dating back to the early 1990s and there was no mechanism built in for updating these assumptions to reflect actual service replacement. In 2008, the leakage model was updated to enable the impact of replacement of metallic services to be included; however, this modification did not correct for historic service replacement and did not capture the impact of service leakage reduction associated with transferring plastic services from the old metallic main to the new plastic main. The leakage model modification proposed in February 2012 sought to address both of these issues. The outcome of the consultation was that, although there was general agreement that the proposed modification would provide a more accurate assessment of service leakage, it was decided that for commercial reasons the modification would not be implemented within the GDPCR1 price control period.

It was anticipated that the proposed modification will be implemented within the first year of the new RIIO-GD1 price control period and, as such, it was agreed at the Shrinkage Forum held 10 December 2012 that DNs would include an estimate of the impact of the modification within the 2013/14 Shrinkage Proposals. Following a request at the Shrinkage Forum, a further consultation was issued in August 2013 detailing the impact of the proposed modification for all Distribution Networks, as the modification had only been formally consulted on for National Grid and Scotia Gas Networks.

[3] Leakage figures in Tonnes are provided for information; it is not used in respect of Shrinkage Quantity calculations. Conversion to Tonnes is based on a gas density of 0.73kg/m^3.

Full details of all the Consultations can be found on the Joint Office website at http://www.gasgovernance.co.uk/sf/leakage.

The modification is still awaiting approval and, therefore, shrinkage and leakage values based on both versions of the leakage model have been provided throughout this document, where appropriate.

3.1.2 AGI Leakage and Venting

The figures for leakage from Above Ground Installations have been taken from the findings of the 2003 Above Ground Installation Leakage Test programme.

Information relating to the programme was shared with Users and Ofgem at the Shrinkage Forums held in 2003; consequently, it is not proposed to include significant detail in this paper.

Table 6, below, shows the estimated AGI leakage and venting on an LDZ basis:

Table 6. Estimated AGI Emissions for 2014/15 Formula Year

	AGI Emissions[4]	
LDZ	**Tonnes**	**GWh**
Eastern	2,487	37
East Midlands	2,535	38
North Thames	2,028	30
North West	2,996	45
West Midlands	2,578	38
National Grid	**12,623**	**188**

3.1.3 Other Losses

Gas may be lost from LDZ equipment as a result of specific events, namely broken mains and interference damage to plant, in addition to ongoing leakage. These losses are known collectively as 'other losses'.

Statistics in respect of the number of routine broken mains and damages are used in conjunction with calculations of the amount of gas lost through each type of incident to derive the total amount of gas lost from these events. (For the purpose of this paper, the number of events in 2012/13 has been used for the analysis together with emergency personnel response times.)

In addition to the routine events in 2012/13, there were 28 gas release events where the total gas released was greater than 500kg. For these, the specific volume released, where calculated, was used. However, two of these incidents were exceptionally large and it is unlikely that incidents of this magnitude would occur on an annual basis and, therefore, these have been omitted from the estimates for 2014/15; however, the actual gas release volume of any large incidents that do occur will be accounted for in the 2014/15 Shrinkage Assessment & Adjustment process carried out in July 2015. Table 7 below shows the amount of gas lost because of other losses on a LDZ basis, which is proposed as the estimate for 2014/15:

[4] Includes leakage and routine equipment venting

Table 7. Estimated 2014/15 Interference Damage

LDZ	Interference Damage	
	Tonnes	**GWh**
Eastern	27	0.4
East Midlands	50	0.8
North Thames	43	0.6
North West	56	0.8
West Midlands	40	0.6
National Grid	**216**	**3.2**

3.1.4 Leakage Reduction Initiatives

National Grid recognises that climate change is possibly one of the greatest challenges facing society in the 21st century. Natural Gas is composed primarily of Methane, which as a Greenhouse Gas is twenty-one times worse than carbon dioxide. National Grid has a climate change strategy that targets an 80% reduction in greenhouse gas emissions by 2050.

There are a number of initiatives being employed across the Company to achieve this aim, one of which has had a direct impact on the leakage from low pressure gas distribution systems. Leakage from low pressure gas distribution systems contributes approximately 80% of all gas distribution leakage and the major controllable influence on this is the pressure at which the systems operate. Replacing old metallic pipe with plastic pipe will help reduce emissions; however, in order to achieve this in the most economic way, mains insertion techniques are used where possible and the impact of this is to drive operating pressures upwards. National Grid embarked upon a programme of installing pressure profiling equipment, with the aim of lowering average system operating pressures. In addition to installing additional pressure management equipment, National Grid has also upgraded its pressure control management system, which will enable improved monitoring, recording and reporting of system pressures.

Historically, there has been minimal change in Average System Pressures (ASP) from year-to-year; typically ASP had been in the order of 30mbarg. However, with the increased focus on pressure management, the installation of profiling equipment and system upgrade there has been a signifcant reduction in average system pressure in National Grid's mixed material networks. The calculated ASP in 2007/08 was 29.3mbarg and the forecast ASP for 2014/15, and that used for these proposals, is 27.2mbarg. This represents a 7.1% reduction in ASP resulting in a significant reduction in leakage.

3.1.5 Total Leakage

Table 8 below shows the total amount of estimated leakage for Formula Year 2014/15 on an LDZ basis with the leakage expressed in GWh.

Table 8. Estimated 2014/15 Formula Year LDZ Leakage Summary

LDZ	Leakage (GWh per annum)	
	Leakage Model v1.4	**Leakage Model v1.3**
Eastern	204	220
East Midlands	243	266
North Thames	241	266
North West	342	360
West Midlands	293	297
National Grid	**1,323**	**1,408**

3.2 Own Use Gas

Own Use Gas is treated as a consolidated Quantity, calculated as a factor of seasonal normal annual LDZ consumption, to be procured on a flat daily basis.

In line with this methodology, National Grid proposes to apply a fixed LDZ Specific daily Quantity for OUG equivalent to 0.0113% of seasonal normal LDZ consumption. This factor represents the estimated National average (to four decimal places as a percentage) that was determined by Advantica in 2002 and has been applied since the 2005/06 Gas Year.

The estimated 2014/15 Own Use Gas Quantity values are shown in Table 9 below.

Table 9. Estimated 2014/15 LDZ OUG Quantity Values

LDZ	Seasonal Normal LDZ Consumption GWh/annum	OUG GWh/annum	OUG kWh/day
Eastern	41,171	**5**	25,562
East Midlands	54,260	**6**	33,689
North Thames	50,177	**6**	31,154
North West	68,941	**8**	42,804
West Midlands	42,879	**5**	26,623
National Grid	257,429	**29**	159,832

3.3 Theft of Gas

UNC Section N 1.3.2 states that LDZ Shrinkage shall include, and National Grid is therefore responsible for, gas illegally taken upstream of the customer control valve and downstream where there is no shipper contract with the end-user.

Historically, unidentified theft has been assumed to be 0.3% of LDZ Consumption.

As with Own Use Gas, Theft of Gas is treated as a consolidated Quantity calculated as a factor of seasonal normal annual LDZ consumption to be procured on a flat daily basis.

The responsibility for Theft of Gas is split between Gas Transporters and Shippers. In recent years, Transporter Responsible Theft has been deemed 0.02% of LDZ Consumption. For 2014/15, National Grid proposes to retain a Theft of Gas factor equal to 0.02%. Table 10 below shows the estimated 2014/15 Theft of Gas Quantity Values:

Table 10. Estimated 2013/14 LDZ Theft of Gas Quantity Values

LDZ	Seasonal Normal LDZ Consumption GWh/annum	ToG GWh/annum	ToG kWh/day
Eastern	41,171	**8**	45,243
East Midlands	54,260	**11**	59,627
North Thames	50,177	**10**	55,140
North West	68,941	**14**	75,759
West Midlands	42,879	**9**	47,120
National Grid	257,429	**51**	282,889

3.4 LDZ Shrinkage Quantity Summary

Table 11 below shows the proposed LDZ Shrinkage Quantity Values for the Formula Year 2014/15 in GWh per annum:

Table 11. Estimated 2014/15 LDZ Shrinkage Quantity Values

LDZ	Leakage (GWh)		OUG (GWh)	Theft (GWh)	Total (GWh)	
	Leakage Model v1.4	Leakage Model v1.3			Leakage Model v1.4	Leakage Model v1.3
Eastern	204	220	5	8	217	232
East Midlands	243	266	6	11	260	283
North Thames	241	266	6	10	256	282
North West	342	360	8	14	364	382
West Midlands	293	297	5	9	307	310
National Grid	**1,323**	**1,408**	**29**	**51**	**1,403**	**1,489**

Table 12 below shows the estimated Daily Shrinkage Quantity values applicable for the 2014/15 Formula Year in kWh per day:

Table 12. Estimated 2014/15 LDZ Daily Shrinkage Quantity Values

LDZ	Total (kWh)	
	Leakage Model v1.4	Leakage Model v1.3
Eastern	593,161	636,702
East Midlands	712,608	775,120
North Thames	702,202	772,363
North West	996,269	1,045,792
West Midlands	840,383	849,132
National Grid	**3,844,623**	**4,079,109**

4. Extent to which the Proposal would better facilitate the relevant objectives

This proposal provides a robust estimate of LDZ Shrinkage Quantity values for the Formula Year 2014/15. As a result, the gas usage and loss in transportation within the LDZs will be reflective of actual conditions. This in turn facilitates the achievement of efficient and economic operation of the system through effective targeting of costs.

It will also lead to better targeting of costs to Users through the RbD process and this is consistent with securing effective competition.

5. The implications for National Grid of implementing the Proposal

a) Implications for the operation of the System:
We are not aware of any such implications that would result from implementing this proposal.

b) Development and capital cost and operating cost implications:
The proposed LDZ Shrinkage Quantity values lead to a fair allocation of operating costs between LDZ systems.

c) Extent to which it is appropriate for National Grid to recover the costs, and proposal for the most appropriate way for National Grid to recover the costs:
It is appropriate for each LDZ to incur a share of the overall Shrinkage Energy dependent upon the actual shrinkage in that LDZ.

d) Analysis of the consequences (if any) this proposal would have on price regulation
None identified.

6. The implications of implementing the Proposal for Users

This proposal improves the equability and accuracy of cost targeting across all Users.

7. Analysis of any advantages or disadvantages of implementation of the Proposal

- **Advantages:** Better reflective of the actual system usage and losses with improved cost targeting.
- **Disadvantages:** National Grid is not aware of any disadvantages.

8. Summary of the representations (to the extent that the import of those representations are not reflected elsewhere in the Proposal)

This paper outlines our Initial Proposals. We appreciate hearing the views of Ofgem and Users; these views will help inform our Final Proposals, which are due to be published on 1 March 2014.

Users wishing to discuss any matter can do so either in private or at the Shrinkage Forum scheduled for 22 January 2014.

It would be appreciated if Users could let us have any feedback that they would like to share with us before 1 February 2014[5] to enable us to better respond to any concerns.

9. Programme of works required as a consequence of implementing the Proposal

The only required modification is the input of LDZ Daily Shrinkage Quantity values into GEMINI.

[5] Due to the pressure of time, it will be difficult to respond to any points that might be raised during February because the Uniform Network Code requires National Grid to publish its proposals on 1 March.

10. Proposed implementation timetable (inc timetable for any necessary information system changes)

Following publication of our Final Proposals, Users will have until 15 March 2013 to request that Ofgem issue a Standard Special Condition A11 (18) disapproval of this proposal; this provision is in the Uniform Network Code Section N 3.1.8.

If no disapproval notice is issued beforehand, it will be our intention to implement revised LDZ Daily Shrinkage Quantity values from 06:00 hrs on 1 April 2014.

11. Recommendation concerning the implementation of the Proposal

We recommend the proposed LDZ Daily Shrinkage Quantity values be implemented with effect from 06:00 hrs on 1 April 2014.

12. National Grid's Proposal

This report contains our Initial Proposals for the LDZ Daily Shrinkage Quantity values for the Formula Year 2014/15.

Appendix 1: LP Leakage Analysis 2013 to 2014 proposals by LDZ

This section of the document provides a comparison of the estimated levels of LP pipe and service leakage by LDZ; LP Leakage accounts for approximately 80% of total leakage.

Details of leakage in energy quantity, annual Average System Pressures (ASP) and Monoethylene Glycol (MEG) levels are presented for 2014/15 with 2013/14 estimates for comparison purposes. The levels quoted are only those attributable to low pressure mains and service leakage; MEG Levels relate to the length weighted average saturation in low pressure networks where MEG is used.

National Grid has introduced real-time estimation of leakage management performance, ASP and MEG, in its endeavour to reduce greenhouse gas emissions; this keeps the focus on the emissions and enables the identification and resolution of any potential issues. These proposals utilise the output of this monitoring of ASP and MEG performance.

We have supplied specific information relating to the average pressure experienced by networks that contain metallic pipes, which excludes the all-PE networks that often operate at higher pressures but have very low leakage because of their superior performance. This should enable Users to better compare the effective operating pressures of the different LDZs.

A1.1 Eastern LDZ

Table A1.1 Eastern LDZ

	2013 Proposal	2014 Proposal
Leakage (GWh)	154	151
Annual Average System Pressure (mbar)	29.1	29.7
ASP (All-PE systems excluded) (mbar)	27.9	28.1
MEG Saturation Level	39%	0%

In comparison to last year's anticipated leakage performance, there is an anticipated increase of 0.6mbar in overall ASP for Eastern LDZ and a 0.2mbar increase in ASP for mixed material networks. Historically, EA LDZ did not treat mains with MEG. From last year, the Outer Metropolitan area, which is treated with MEG, is being considered as part of EA LDZ and this resulted in a reported MEG saturation; however, work on the London MP system, from which the MEG is supplied to the Outer Met, has resulted in no MEG entering this part of the system, hence the zero MEG Saturation expected for 2014/15. This, together with anticipated mains replacement, is expected to deliver a comparative leakage reduction of 3.0GWh.

A1.2 East Midlands LDZ

Table A1.2 East Midlands LDZ

	2013 Proposal	2014 Proposal
Leakage (GWh)	174	162
Annual Average System Pressure (mbar)	31.4	30.1
ASP (All-PE systems excluded) (mbar)	29.4	28.7
MEG Saturation Level	26%	22%

In comparison to last years anticipated leakage performance, there is an anticipated decrease of 1.3mbar in overall ASP for East Midlands LDZ, a 0.7mbar decrease in ASP for mixed material networks and 4% decrease in MEG Saturations. This, together with anticipated mains replacement, is expected to deliver a comparative leakage reduction of 12GWh.

A1.3 North Thames LDZ

Table A1.3 North Thames LDZ

	2013 Proposal	2014 Proposal
Leakage (GWh)	199	188
Annual Average System Pressure (mbar)	25.3	25.4
ASP (All-PE systems excluded) (mbar)	25.3	25.4
MEG Saturation Level	18%	18%

In comparison to last years anticipated leakage performance, there is an anticipated increase of 0.1mbar in ASP for North Thames. In addition, there is a reduction in leakage of approximately 7GWh due to the removal of steel risers that had been incorrectly included within the mains extract in previous years; this issue was raised in our 2012/13 Shrinkage Assessment and Adjustment . This, together with anticipated mains replacement, is expected to deliver a comparative leakage reduction of 11.0GWh.

A1.4 North West LDZ

Table A1.4 North West LDZ

	2013 Proposal	2014 Proposal
Leakage (GWh)	288	281
Annual Average System Pressure (mbar)	28.2	28.0
ASP (All-PE systems excluded) (mbar)	27.6	27.7
MEG Saturation Level	28%	35%

In comparison to last years anticipated leakage performance, there is an anticipated decrease of 0.2mbar in overall ASP for North West, a 0.1mbar increase in ASP for mixed material networks and a 7% increase in MEG saturation. This, together with anticipated mains replacement, is expected to deliver a comparative leakage reduction of 7GWh.

A1.5 West Midlands LDZ

Table A1.5 West Midlands LDZ

	2013 Proposal	2014 Proposal
Leakage (GWh)	241	232
Annual Average System Pressure (mbar)	28.8	26.6
ASP (All-PE systems excluded) (mbar)	26.3	26.2
MEG Saturation Level	33%	29%

In comparison to last years anticipated leakage performance, there is an anticipated decrease of 2.2mbar in overall ASP for West Midlands, a 0.1mbar decrease in ASP for mixed material networks and a 4% decrease in MEG saturation. This, together with anticipated mains replacement, is expected to deliver a comparative leakage reduction of 9GWh.

Appendix 2: Assumed Daily Weighted Average Calorific Values (CVs)

The table below shows the Calorific Values applied for these proposals; however, the actual daily average CV values over the period will be used for the assessment of the 2014/15 Formula Year:

Table A2.1 Assumed Calorific Values

LDZ	Average Calorific Values (MJ/m^3)
Eastern	39.12
East Midlands	39.27
North Thames	39.09
North West	39.26
West Midlands	39.24