



**Consultation on Proposed Modifications to the
Leakage Model (No. 3)**

March 2012

1. Introduction

SGN is currently required under Special condition E9 of the Gas Distribution Network Transportation Licence to establish and maintain a Leakage Model to facilitate the accurate calculation and reporting of gas leakage. We have recently reviewed the Leakage Model and have set out below proposals to amend model to more accurately reflect actual system configuration and leakage rates in relation to Low Pressure Services. We would welcome your views on the proposals by 27th April.

2. Obligations Regarding Leakage Volumes and the Leakage Model

Special Condition E9 of the Distribution Network (DN) transportation licence sets out DN Operator obligations in relation to the establishment and maintenance of (where practicable on a common basis between relevant DN Operators) a Leakage Model which operates within an appropriate degree of accuracy.

The model must facilitate the following obligations:

- The accurate calculation and reporting of gas leakage from each LDZ operated by the licensee; and
- Being consistent with, and where reasonably practicable, identical to Leakage Models used by other DN Operators.

The model may be modified from time to time in accordance with the provisions set out in Special Condition E9. Paragraph 7 of Special Condition E9 sets out an obligation requiring the licensee, together with other DN Operators, to annually review the Leakage Model to ensure it continues to meet the obligations as described above. As part of the review the licensee, together with other relevant DN Operators must consult with Shippers and other interested parties to seek their views. After giving proper consideration to any representations the licensee, together with other relevant DN Operators, is required to propose such modifications (if any) as are necessary for the purpose of better achieving the obligations. Any modifications must be approved by the Authority.

By the 31st July each year DN Operators are also required to make publicly available and provide to the Authority a report setting out the actual leakage volumes reported from the Leakage Model for each LDZ which it operates for the preceding year and any new information regarding leakage rates. This is made available in the Shrinkage Assessment and Adjustment Report.

2. The Leakage Model

The methodology used to estimate leakage in the current Leakage Model dates back to 1992. It estimates leakage for each of the following categories:

- i) Low Pressure Mains
- ii) Low Pressure Services
- iii) Medium Pressure Mains and Services
- iv) Above Ground Installations (AGI)
- v) Interference Damage

The model recognises four categories of Low Pressure Service connections. Each one has a leakage rate determined from National Leakage Tests (NLT). The last test carried out in 2002/03 determined that:

- Steel service connections to metallic mains generally have a leakage rate of 10.6m³/annum/service
- PE service connections to metallic mains generally have a leakage rate of 2.2m³/annum/service
- Steel service connections to PE mains have zero leakage
- PE service connections to PE mains have zero leakage

The Leakage Model makes a number of assumptions regarding the populations of steel and PE services. In 2009 assumptions were updated, recognising steel services are generally replaced with PE. However, there are several issues associated with the way in which changes were applied:

- the change in approach was only recognised and applied from 2006/07 onwards, the point at which the current incentive allowances were set. No adjustment was made for the period 2002/03 to 2006/07;
- the volume of steel and PE services were applied at a national level and did not take account of practices at LDZ level; and
- it did not take account of service transfers (where an existing PE service is connected to the new PE main)

3. Proposal

In accordance with the requirements of our licence, we have reviewed the Leakage Model. Following discussion at the Shrinkage Forum on 6 January 2012 we have set out in this consultation document our proposals to amend the data contained within the Leakage Model for each of the 3 LDZs owned and operated by Scotland and Southern Gas Networks in relation to Low Pressure Services. We believe the Leakage Model should be amended to address the issues set out above and to more accurately reflect actual system configuration and leakage rates.

For the avoidance of doubt, the proposed modifications set out in this consultation document are consistent with those set out in National Grid's consultation dated 23 February 2012.

The proposed modifications to the model are:

- to establish a better estimate of the current Low Pressure Service population for each of SGN's LDZs, particularly in relation to the relative volume of steel and PE services; and
- to take account of the reduction in leakage rates associated with service transfers.

We propose mains replacement data for the period 2008/09, 2009/10 and 2010/11 be used to determine the proportion of remaining steel and PE service connections to metallic mains. Data collected regarding the proportion of service re-lays and service transfers carried out over this period would be deemed to be representative of the overall population of service connections to metallic mains and the Leakage Model would be amended accordingly. The analysis would be carried out at LDZ level. Data would be taken from the Regulatory Reporting Pack (RRP) submitted to Ofgem

for 2008/09, 2009/10 and 2010/11. For completeness, we propose to utilise the existing assumptions already incorporated in the leakage model with regard to service leakage rates. This will establish new values for the four service categories for the base year, which will be 2010/11. For subsequent years, the population values will be derived from these base year values along with the known year-on-year service replacement and relay numbers, in the same manner as at present.

While the current Leakage Model takes account of re-laid services each year by reducing the number of steel service connections to metallic mains, it does not take into account transferred services. The proposed methodology will in future also adjust the number of steel service connections to take into account transfers by subtracting the number of service transfers from the PE service connections to metallic mains leakage category. The number of service re-lays and transfers will then be added to the PE service connections to PE mains leakage category.

Further details regarding the potential impact of the revised methodology and changes to the Leakage Model are set out in Appendix 1.

We believe the changes proposed will more accurately reflect current service populations and give a more accurate leakage calculation. The potential impact on leakage rates is expected to be a reduction in leakage of 13.9 GWh for Scotland and Southern Gas Networks in 2010/11 (2010/11 Assessed Leakage was 878Gwh).

The new leakage model will continue to have a leakage estimate for each of the four categories as listed above:

- Steel service connections to metallic mains
- PE service connections to metallic mains
- Steel service connections to PE mains
- PE service connections to PE mains

4. Proposed Implementation Timescales

We believe the changes set out above to the Low Pressure Service element of the Leakage Model will help improve the level of accuracy of the model and leakage calculation.

We recommend the changes should be implemented for the current Formula Year (2011/12) and applied to the next Shrinkage Proposal Assessment and Adjustment Report due in July 2012.

Appendix 1 sets out further details regarding our mains replacement activities and the level of relay and transfer work carried out in 2008/09, 2009/10 and 2010/11. It also sets out details of the potential impact of the proposed changes. As required under Special Condition E9 we have also set out proposed changes to the allowed leakage volumes (set out in Special Condition E9) to retain the incentive proportions of the environmental emissions incentive at the same level as applicable prior to the proposed change.

Subject to responses to this consultation, we plan to submit a report to the Authority within 28 days of the close of this consultation, setting out details of the proposed modification, responses to the consultation and timetable for implementing the changes. This report will be publicly available. As required under Special Condition E9 it will also include a report by an independent expert, who will review the Leakage

Model, the proposed changes and allowed leakage volumes and give the expert's opinion on the extent to which the modifications would better facilitate the achievement of the objectives set out above and the properties of the environmental emissions incentive.

Following the implementation of any such modification we would also appoint an independent expert to review and report of the implementation of the changes. The report would be sent to the Authority and made publicly available.

5. Responding to This Consultation

We would appreciate your views on the proposals set out in this consultation document. Responses should be addressed to:

Stuart Forrest
Network Planning Manager
Axis House
5 Lonehead Drive
Newbridge
Edinburgh
EH28 8TG

or emailed to stuart.forrest@sgn.co.uk

Appendix 1

Each year we replace approximately 1000km of metallic mains with PE mains. During this work we re-lay steel services with PE services and connect them to the new PE main or transfer existing PE services to the new PE main.

RRP Metallic Replacement Lengths and Services Figures			
2010/11			
	Repl Lay	Relays	Transfers
SC	303	12,868	14,462
SE	395	27,064	8,097
SO	277	16,611	7,062
2009/10			
	Repl Lay	Relays	Transfers
SC	282	13,534	14,943
SE	437	27,700	9,971
SO	312	19,116	7,813
2008/09			
	Repl Lay	Relays	Transfers
SC	295	12,476	18,562
SE	363	24,947	18,065
SO	263	10,983	7,954

GDN	LDZ	2010/11 - Service Leakage (Gwh)			Impact of taking account of Service transfers (Gwh)		Combined Impact (Gwh)	
		Current Model	Revised Model	Change	2011/12	2012/13	2011/12	2012/13
Scotia Gas Networks	SO	47.7	41.9	5.8	0.25	0.50	6.0	6.3
	SE	74.4	78.7	-4.2	-0.34	-0.69	-4.6	-4.9
	SC	48.1	35.7	12.4	0.34	0.67	12.7	13.0

GDN	LDZ	Original Baseline (Gwh)		Revised Baseline (Gwh)	
		2011/12	2012/13	2011/12	2012/13
Scotia Gas Networks	SO	276	270	270	264
	SE	396	383	401	388
	SC	252	245	239	232