







UNC Request	At what stage is this document in the process?
<h1 data-bbox="124 365 724 456">UNC 0828R:</h1> <h2 data-bbox="132 495 1007 633">Introduction of an Independent Shrinkage Expert</h2>	<div data-bbox="1187 349 1453 589"> <div data-bbox="1187 349 1453 421">01 Request</div> <div data-bbox="1187 432 1453 504">02 Workgroup Report</div> <div data-bbox="1187 515 1453 586">03 Final Modification Report</div> </div>
<p>Purpose of Request:</p> <p>To lower greenhouse gas emissions, increase the robustness of RIIO-GD2 incentivisation, and reduce end-consumer costs. Panel is requested to investigate the introduction of a new role to the UNC: the Independent Shrinkage Expert (ISE). The request should also investigate what activities the ISE would be responsible for such as the production of the Shrinkage and Leakage Model (SLM), how the National Leakage Tests (NLT) are updated/replaces through innovation, including development of principles of impartiality, emissions reduction, and with the aim of identifying best outcomes for end-consumers.</p>	
<p>Next Steps:</p> <p>The Panel recommended that this should be assessed by a Request Workgroup on 17 November 2022.</p>	
<p>Impacted Parties:</p> <p>High: Consumers</p> <p>Medium: Distribution Networks Operators, Shippers, Suppliers</p>	
<p>Impacted Codes:</p> <p>UNC</p>	

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About this document:		 david.morley@ovo.com
Pre-Modification Discussed	27 October 2022	 Please email to schedule a call
Date Original Modification Raised	28 October 2022	Systems Provider: Xoserve
Original Modification considered by Panel	17 November 2022	 UKLink@xoserve.com
Request Raised	24 November 2022	
First Request Workgroup Meeting	02 December 2022	
Request Workgroup Report to be presented to Panel	15 June 2023	
This document is a Request, and Panel have agreed this Request should be referred to a Workgroup for review.		

1 Request

Why is the Request being made?

The UK is one of over 100 countries who pledged to reduce methane emissions 30% by 2030 at COP26 as part of the Global Methane Pledge.¹ A recent study notes that, from early 2018 onwards, natural gas leaks recorded above cities are 30-35% higher than is reported by Gas Distribution Networks.²

This Request to Panel is being made to explore ways to ensure that the Shrinkage and Leakage Model (SLM) is accurate and independent. Underreporting Shrinkage damages the environment and increases customer bills. This Request aims to unify Shippers and Distribution Network Operators (DNOs) by decoupling the SLM from operating completely under the DNOs, with the aim of protecting customers and the environment from the deleterious effects of methane leaks. The Allocation of Unidentified Gas Expert (AUGE), for comparison, is not operated by Shippers - this would be obviously flawed, as the financial interests would bias AUGE outputs.

Scope

To reduce greenhouse gas emissions and end-consumer costs³, this Request is to explore views on the introduction of a new role to the UNC: The Independent Shrinkage Expert (ISE). The Request would also investigate what activities the ISE should be responsible for such as the production of the Shrinkage and Leakage Model, including updating or replacing the National Leakage Test via innovative methods (for example, direct measurement of methane levels in the air coupled with modelling rather than estimation - it would either work alongside or take over the control of the work that is being completed under the Digital Platform Leakage Analytics (DPLA), and should be led by principles of impartiality, environmentalism, and to develop the best outcomes for end-consumers.

The Request should develop:

1. Ways to establish an ISE and potential business rules
 - a. see additional info for initial ideas
2. The content of the ISE Framework
 - a. should this be based on the AUG Framework?
3. Consider impacts on the UNC and other Codes

Context:

The Request Workgroup may wish to develop two solutions:

1. Solutions that complement the Special Standard Conditions of the Transporter Licence
 - a. including clear rationale as to why the Special Standard Conditions of the Transporter Licence should not be controverted
2. Solutions that overrule the Special Standard Conditions of the Transporter Licence
 - a. including clear rationale as to why the Special Standard Conditions of the Transporter Licence should be controverted

¹ [Launch by US, EU and Partners of the Global Methane Pledge](#)

² [Continuous CH₄ and δ¹³ CH₄ measurements in London demonstrate under-reported natural gas leakage](#); see also [London produces up to a third more methane than estimates suggest | Imperial News](#).

³ Costs are two-fold: 1) costs of the gas element in a consumers bill 2) the ongoing environmental cost and the knock on impact that has to the wider global economy

Developing multiple solutions will allow a party to bring forward a collaboratively developed Modification. Offering multiple solutions to Ofgem will then allow them to make a clear and informed decision on the best solution.

This Request Workgroup should be aware that the veracity of the modelling that underpins the Own Use Gas element of Shrinkage is also being currently assessed. The Request Workgroup should consider how the potential business rules and ISE Framework could be drafted to ensure that the Own Use Gas (OUG) calculation is assured and independent.

Impacts & Costs

- Increase/decrease in leakage and OUG may need to be considered as this is recovered from shippers via pass through costs
- Price cap may need to be amended
- Application of RIIO-GD2 will need to be considered as per the financial and reputational incentivisations that are contained therein.
- Increase/decrease in Unidentified Gas (UIG) may need to be considered by AUGÉ
- Cost of running ISE should be considered
- Environmental impact may need to be quantified

Any Modification(s) arising from this Request:

(i) is likely to have a material effect on:

- (aa) existing or future gas consumers; and
- (bb) competition in the shipping, transportation or supply of gas conveyed through pipes or any commercial activities connected with the shipping, transportation or supply of gas conveyed through pipes; and
- (cc) the operation of one or more pipe-line system(s); and
- (dd) matters relating to sustainable development, safety or security of supply, or the management of market or network emergencies; and
- (ee) the uniform network code governance procedures or the network code modification procedures; and

(ii) is unlikely to discriminate between different classes of parties to the uniform network code/relevant gas transporters, gas shippers or DNOs.

Recommendations

This Request should establish what the business rules and remit of the ISE should be so that a modification(s) to UNC can be raised.

A modification is likely to have a material impact on existing and future gas consumers, by more accurately allocating Shrinkage. Therefore, this Request aims to explore how a modification could be raised to reduce greenhouse gas emissions through more accurate application of RIIO-GD2.

If necessary, it is recommended that the modification that is subsequently raised should complement any existing legislation. However, if necessary, the modification can recommend to Ofgem that licence conditions related to the provision of the SLM should be added, changed or deleted. This is captured in the scope section above.

Additional Information

Why Change?

Greenhouse gases (GHG) pose an existential threat. This is recognised by UK government in their [Net Zero Strategy](#):

“We are at a crossroads in our history. As we recover from the impact of the pandemic on our lives and livelihoods, we know that it will not be enough to go back to the way things were before. The science is clear, we know that human activity is changing our climate and that this will have a devastating impact on human lives, the economy, and the natural world – ranging from the extinction of some species and the melting of ice caps to extreme weather patterns threatening our homes, businesses, and communities.”

Methane is widely accepted to be 84x more potent than CO₂ as a greenhouse gas.⁴ 16 TWh of methane that enters the gas distribution network is currently unaccounted for. Current rates of methane leaks are estimated off the back of the National Leakage Tests performed in 2002, which have been shown to be inaccurate. Inaccuracies in this test lead to deficient application of RIIO-GD2. This change seeks to remedy that deficiency.

What

If Daily Metered and Non-Daily Metered volumes are substituted from Total LDZ throughput, there are currently two mechanisms that are used to account for any gas that is missing: Shrinkage and Unidentified Gas (UIG). First Shrinkage is removed from any missing gas and the rest is deemed to be UIG. UIG is then distributed amongst Shippers by the independent Allocation of Unidentified Gas Expert (AUGE).

The Shrinkage and Leakage Model (SLM) is calculated annually by the Gas Distribution Networks (GDN). The GDNs then use this model to calculate the amount that they need to pay towards gas that is lost via leaks, own-use-gas, and upstream theft, and ultimately it feeds into the RIIO-GD2 incentivisation mechanism, which ensures that leak repairs and pipeline replacements are performed at rate that is environmentally and economically efficient.

The annual SLM exercise mainly looks at own-use-gas and upstream theft, which account for a combined total of about 5% of Shrinkage. The vast majority of Shrinkage (around 95%), however, consists of Leakage.⁵

Leakage is calculated off the back of the National Leakage Tests (NLT), and, as these tests are not updated or redone, leakage remains static at about 0.5% total LDZ throughput. The Theft of Gas element of UIG by comparison is assumed by AUGE to be 1.48% of Total LDZ throughput.⁶

The National Leakage Tests, however, were carried out in 2002, and have not been updated since this date. Despite repeated calls upon GDNs to review the leakage model by UNC parties, and independent reports outlining that the leakage model needs to be reviewed, as using the NLTs to estimate leaks could be greatly inaccurate, calls to redo the tests are dismissed as overly expensive.⁷ For example, independent research by Imperial College London notes that there is three times more methane above London than is reported as being lost via gas leaks.⁸

Why

Methane is a powerful greenhouse gas. It is 84 times more potent than CO₂.⁹ The UK government's Net Zero Strategy seeks to decarbonise all sectors of the UK economy to meet their net zero target by 2050, and the UK was one of over 100 countries who pledged to reduce methane emissions 30% by 2030 as part of COP26.

⁴ <https://www.edf.org/climate/methane-crucial-opportunity-climate-fight>

⁵ These percentage values are taken from “[Shrinkage and Leakage Model Review 2021-22 – Final Report](#)”, p.14.

⁶ See AUG Statements for both 21/22 and 22/23.

⁷ See above link

⁸ [Energy UK GRG shrinkage study](#). GDNs response to the study dismissed ICL's findings as the product of natural causes and landfill. This is counter-argued by ICL within [this article](#) and [this paper](#).

⁹ https://energy.ec.europa.eu/topics/oil-gas-and-coal/methane-emissions_en

Any under-forecasting within the SLM will cause UIG to increase and decrease the effectiveness of RIIO-GD2 incentivisation, thereby undermining the effectiveness of the Net Zero Strategy. Currently, gas losses attributable to UIG and Shrinkage amounts to approximately 16 TWhs.¹⁰

For 20/21, GDNs reported 2,256.24 GWhs of natural gas as being lost via leaks. 35% underreporting increases this by 789.68 GWh to 3,184.29 GWh.¹¹¹² The environmental impact of 3 TWhs of CH₄ being lost via leaks is the equivalent of 12,229,331 tonnes of CO₂e.¹³

As GDNs currently pass-through costs attributable to gas leaks to Shippers, Suppliers, and ultimately the end consumer, any recalculation of Shrinkage would may be passed through in such a manner and so could need to be considered as part of the Price Cap.

However, through enabling more accurate application of the incentivisations already enforced under RIIO-GD2, gas lost to the atmosphere via leaks will be more accurately managed and reduced, thereby lowering customer bills and lessening the environmental impact of natural gas leaks within the UK.

Proposed solution

To reduce greenhouse gas emissions and end-consumer costs¹⁴, this modification introduces a new role to the UNC: The Independent Shrinkage Expert (ISE). The ISE will be responsible for the production of the Shrinkage and Leakage Model, including updating or replacing the National Leakage Tests via innovative methods (for example, direct measurement of methane levels in the air coupled with modelling rather than estimation), and will be led by principles of impartiality, environmentalism, and best outcomes for end-consumers.

NB: the solution should be the product of thorough analysis by a workgroup.

1. The role of Independent Shrinkage Expert (ISE) will be implemented via tender.
2. The ISE must be independent. i.e. the ISE must not have interests (financial or otherwise), other than those set out within the ISE Framework, that would bias any of their outputs.
3. The ISE will review the Shrinkage and Leakage Model on an annual basis.
4. The ISE will use innovative means to detect methane output. E.g. air methane concentrations coupled with modelling.¹⁵
5. The ISE will base their outputs on clear evidenced-based research.
6. The ISE will enable engagement with their activity via a forum, if appropriate.
7. The ISE will be bound by the principles of best end consumer outcomes, environmentalism, and impartiality.
8. The ISE will ensure that leakage rates are accurately set, enabling efficient application of RIIO-GD2, and, ultimately, supporting UKs Net Zero Strategy.¹⁶

¹⁰ This figure is a summation of observed levels of UIG from the [AUG Statement](#) and Shrinkage levels as [reported](#) by the GDNs

¹¹ [Cadent](#): 1,120.0 GWh (1,038.5 GWh Leakage); [NGN](#): 312.24 GWh (312.17 GWh Leakage); [SGN](#): 641.8 GWh (594.1 GWh leakage); [WWU](#): 320.57GWh (311.97 GWh leakage); Total: 2394.61 GWh (2,256.24 GWh Leakage)

¹² At the [current average price](#) cap of 7.8p/kwh, 789.68 GWh equates to £61,595,040.

¹³ [The Gas \(Calculation of Thermal Energy\) Regulations 1996](#); Convert TWh to m³: 3 TWh * 1,000,000,000 (convert to kWh) * 3.6 (joules) / 39.0 (calorific value) / 1.02264 (Volume Correction) = 270,792,337 m³ * 84 (to convert to CO₂ equivalent) / 1.86 (convert to kg) = 12,229,331,410 kg of CO₂e.

¹⁴ Costs are two-fold: 1) costs of the gas element in a consumers bill 2) the ongoing environmental cost and the knock on impact that has to the wider global economy

¹⁵ For example: 'Continuous CH₄ and δ¹³CH₄ measurements in London demonstrate under-reported natural gas leakage' by Eric Saboya, Giulia Zazzeri, Heather Graven, Alistair J. Manning, and Sylvia Englund Michel

¹⁶ [Net Zero Strategy](#)

9. Appointment to the role should be for a minimum of four years, in line with AUGE's average tenure.
10. The role will be funded by DNOs. Precedent: AUGE is 100% Shipper funded.

Further considerations:

- 1 Due consideration is needed on who coordinates and manages the procurement of the ISE. It is initially proposed that this should be carried out by a code administrator.
- 2 Part of the solution would have to be based on the procurement process. Renegotiation rules will need to be considered.
- 3 Intellectual property rights - if there's a physical element, and systems are created (to manage the NLT and the SLM, for example), consideration is needed on who owns the systems and processes. It should be ensured that a conversation is had on how ownership of ISE products is managed to obtain best outcomes.
- 4 Performance management need to be considered as part of a workgroup.
- 5 Requirements need to be compiled.
- 6 The above can be used as a rough framework for the initial WG agenda.

2 Impacts and Costs

Consideration of Wider Industry Impacts

Digital Platform Leakage Analytics (DPLA)

The work being led by Cadent and Guidehouse in the DPLA is a step in the right direction. However, ensuring that this is led by principles of impartiality, environmentalism, and best outcomes for end-consumers is paramount.

Impacts

Impact on Central Systems and Process	
Central System/Process	Potential impact
UK Link	<ul style="list-style-type: none"> ● No
Operational Processes	<ul style="list-style-type: none"> ● No

Impact on Users	
Area of Users' business	Potential impact
Administrative and operational	<ul style="list-style-type: none"> ● Yes - SLM calculation may be shifted away from DNOs
Development, capital and operating costs	<ul style="list-style-type: none"> ● Yes - Costs may be reallocated
Contractual risks	<ul style="list-style-type: none"> ● Yes - Contractual terms may be amended
Legislative, regulatory and contractual obligations and relationships	<ul style="list-style-type: none"> ● Yes

Impact on Transporters	
Area of Transporters' business	Potential impact

Impact on Transporters	
System operation	<ul style="list-style-type: none"> • Yes
Development, capital and operating costs	<ul style="list-style-type: none"> • Yes
Recovery of costs	<ul style="list-style-type: none"> • Yes
Price regulation	<ul style="list-style-type: none"> • Yes
Contractual risks	<ul style="list-style-type: none"> • Yes
Legislative, regulatory and contractual obligations and relationships	<ul style="list-style-type: none"> • Yes
Standards of service	<ul style="list-style-type: none"> • Yes

Impact on Code Administration	
Area of Code Administration	Potential impact
Modification Rules	<ul style="list-style-type: none"> • No
UNC Committees	<ul style="list-style-type: none"> • Yes - UNCC
General administration	<ul style="list-style-type: none"> • Yes
DSC Committees	<ul style="list-style-type: none"> • Yes – DSC Contract Management and DSC Change Management Committees

Impact on Code	
Code section	Potential impact
	<ul style="list-style-type: none"> • New Framework

Impact on UNC Related Documents and Other Referenced Documents	
Related Document	Potential impact
Network Entry Agreement (TPD I1.3)	<ul style="list-style-type: none"> • No
General	Potential Impact
Legal Text Guidance Document	<ul style="list-style-type: none"> • No
UNC Modification Proposals – Guidance for Proposers	<ul style="list-style-type: none"> • No
Self Governance Guidance	<ul style="list-style-type: none"> • No
TPD	Potential Impact
Network Code Operations Reporting Manual (TPD V12)	<ul style="list-style-type: none"> • Yes
UNC Data Dictionary	<ul style="list-style-type: none"> • Yes
AQ Validation Rules (TPD V12)	<ul style="list-style-type: none"> • No
AUGE Framework Document	<ul style="list-style-type: none"> • No

Impact on UNC Related Documents and Other Referenced Documents	
Customer Settlement Error Claims Process	• No
Demand Estimation Methodology	• No
Energy Balancing Credit Rules (TPD X2.1)	• No
Energy Settlement Performance Assurance Regime	• Yes
Guidelines to optimise the use of AQ amendment system capacity	• No
Guidelines for Sub-Deduct Arrangements (Prime and Sub-deduct Meter Points)	• No
LDZ Shrinkage Adjustment Methodology	• Yes
Performance Assurance Report Register	• Yes
Shares Supply Meter Points Guide and Procedures	• No
Shipper Communications in Incidents of CO Poisoning, Gas Fire/Explosions and Local Gas Supply Emergency	• No
Standards of Service Query Management Operational Guidelines	• No
Network Code Validation Rules	• Yes
OAD	Potential Impact
Measurement Error Notification Guidelines (TPD V12)	• No
EID	Potential Impact
Moffat Designated Arrangements	• No
	•
IGTAD	Potential Impact
	• No
DSC / CDSP	Potential Impact
Change Management Procedures	• Yes - may need changes to the ISE Framework from time to time. Any changes must be independent and if material, approved by Ofgem
Contract Management Procedures	• No
Credit Policy	• No
Credit Rules	• No
UK Link Manual	• No

Impact on Core Industry Documents and other documents	
Document	Potential impact
Safety Case or other document under	• No

Impact on Core Industry Documents and other documents	
Gas Safety (Management) Regulations	
Gas Transporter Licence	<ul style="list-style-type: none"> • Yes

Other Impacts	
Item impacted	Potential impact
Security of Supply	<ul style="list-style-type: none"> • Yes - positive impact
Operation of the Total System	<ul style="list-style-type: none"> • Yes - positive impact
Industry fragmentation	<ul style="list-style-type: none"> • Yes - positive impact as brings disparate parties under one roof
Terminal operators, consumers, connected system operators, suppliers, producers and other non code parties	<ul style="list-style-type: none"> • Yes - positive impact as detailed above

3 Terms of Reference

Background

See Section 1.

Topics for Discussion

- Understanding the objective (Why Change?)
- Assessment of alternative means to achieve objective
- Development of Solution(s) (including business rules if appropriate)
- Assessment of Code Specific Matters
- Assessment of the Solution(s) (including business rules if appropriate)
- Assessment of impacts of the Request, including but not limited to Consumer and System Impacts
- Identification of potential impacts on other energy codes
- Consideration of potential performance assurance impacts
- Assessment of implementation costs of any solution identified during the Request
- Panel Questions:
 - Consider interaction of licence and hierarchy of licence/UNC.
 - Consider funding arrangements
 - Consider intended benefits to consumers
 - Consider consequences of potential Modification(s) in terms of how to reduce greenhouse gas emissions and any impact on UIG.
 - Consider data sources and accuracy/validity

Outputs

Produce a Workgroup Report and a Modification(s) for submission to the UNC Modification Panel, containing the assessment and recommendations of the Workgroup including a draft Modification(s) where appropriate.

Composition of Workgroup

The Workgroup is open to any party that wishes to attend or participate.

A Workgroup meeting will be quorate provided at least two Transporter and two Shipper User representatives are present.

Meeting Arrangements

Meetings will be administered by the Joint Office and conducted in accordance with the Code Administration Code of Practice (<https://www.gasgovernance.co.uk/cacop>)

4 Recommendations

Proposer's Recommendation to Panel

Panel Determined on the 17 November 2022 that a Request should progress to Workgroup for review with a report back to Panel on 15 June 2023.