Cadent

Your Gas Network

Shrinkage Profiling

January 2024

Agenda

1. Shrinkage Procurement Process
2. Uniform Network Code - Section N Definition
3. Historic Procurement Approach
4. Uniform Network Code - Modification 203
5. Harnessing Technology to Produce a Realistic Shrinkage Profile
6. Conclusion

Shrinkage is forecasted annually and procured at a flat daily rate, with the difference between forecast and actual volumes reconciled at year end

December | February | April — March | July

1. Forecast

Forecast generated by LDZ using SLM and expected operational performance for the forthcoming year

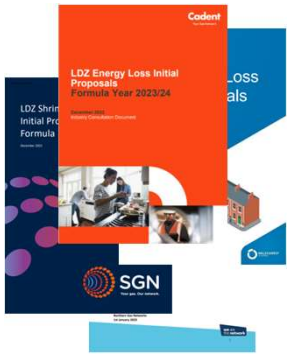
Cadent Your Gas Network · Northern Gas Networks · WALES&WEST UTILITIES · SGN Your gas. Our network.

2. Consult

Consultation document published on Joint Office for 28day consultation with interested parties

Joint Office ofgem

3. Refine



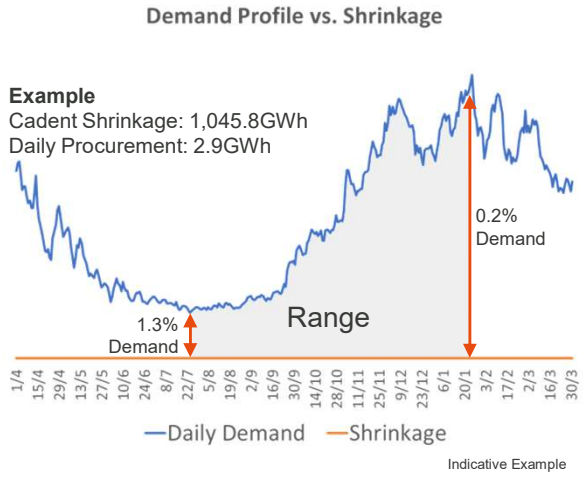
Final proposals document published on the Joint Office website and distributed to the Authority

Joint Office ofgem

https://www.gasgovernance.co.uk/Shrinkage/Shrinkage-Quantity-Proposals

4. Procure

Distribution Networks procure Shrinkage Gas at a single daily volume as directed within the Uniform Network Code Section N 3.1.2.



5. Reconcile

Distribution Networks complete the Regulatory Reporting Pack (RRP) and utilise the end of year volumes to determine the difference between actual Shrinkage losses and the procurement volumes

Cadent Your Gas Network · Northern Gas Networks · WALES&WEST UTILITIES · SGN Your gas. Our network.

The current iteration of the Uniform Network Code describes the method for determining the daily estimated amounts of LDZ Shrinkage

> **the LDZ Shrinkage Quantity for each Formula Year will be determined as the aggregate of the estimated amounts (…) in the LDZ for the Formula Year, divided by the number of Days in the Formula Year**

Uniform Network Code
Section N 3.1.2

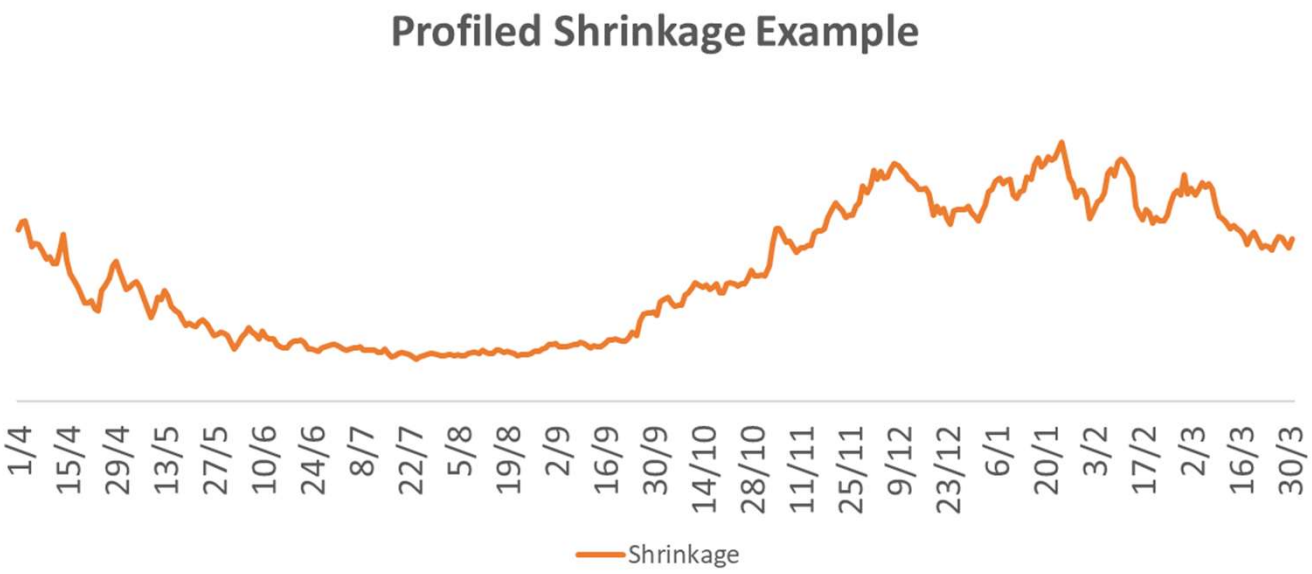
https://www.gasgovernance.co.uk/UPS08/277

Historically, DNs produced forecasted volumes of Shrinkage losses for a year, which were then converted to a daily Shrinkage factor

Distribution Networks calculated the forecasted emissions for the formula year.

The forecasted emissions were submitted for consultation with interested parties.

A final volume was agreed (subject to representations and associated revisions) with a daily demand profile applied.



A proposal was implemented to change from Shrinkage factors to quantities, in essence, the introduction of flat-rate daily volumes

Network Code Modification 0203

Background:

Ofgem proposed setting a fixed volumetric allowance for Shrinkage for each LDZ, stating that throughput-based purchases could lead to windfall gains or losses.

Ofgem concluded that there is little correlation between shrinkage and throughput.

Changes to Section N of UNC were required:

- to update references to LDZ Shrinkage Factors to reflect LDZ Shrinkage Volumes.
- make appropriate amendments to the industry notification processes, namely current Shrinkage Factor Initial and Final Proposals.

Result: The Authority concluded that change should be implemented.

ofgem

Reasons for the Authority's decision

The UNC defines the volumes of gas that are required to be purchased by GDNs for Shrinkage purposes. Currently the volumes are based on shrinkage factors. Following the changes implemented in the GDPCR the GDNs are exposed to windfall gains or losses if the UNC is not changed because they are required to purchase quantities of gas proportional to throughput. Our analysis showed that there is no evidence of a link between shrinkage and throughput. This modification proposal is therefore expected to mitigate the GDNs' exposure to windfall gains and losses and thus lead to more effective allocation of costs, which in turn will lead to benefits to consumers through greater efficiency across the industry.

(…)

As explained above, Ofgem's analysis shows no correlation between shrinkage and demand and that a fixed quantity better reflects the actual amount of shrinkage. Ofgem therefore considers the existing shrinkage factor itself causes mis-allocation and that this Proposal will reduce the effect.

https://www.gasgovernance.co.uk/sites/default/files/ggf/UNC203D.pdf

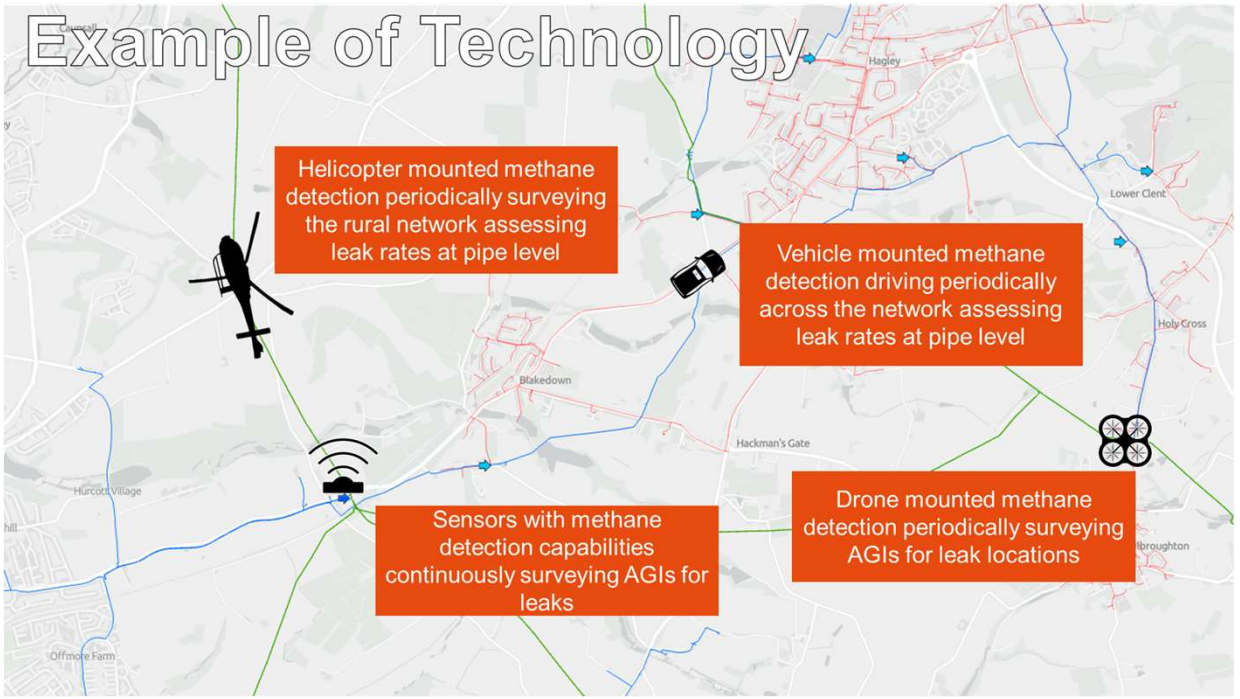
The DPLA technology trials could provide demonstrable outputs that will identify any day-by-day Shrinkage fluctuations and associated materiality

Utilising DPLA technology trials:

Real air measurement of asset leakage at a granular level is the best approach for determining the correlation between throughput, Shrinkage and localised operational settings.

Outputs from in-field technology trials could be our first evidence of whether Shrinkage is proportional to throughput on an asset categorisation level.

This could determine whether it would be appropriate to replace the existing procurement process, based on throughput, with an approach based on real-time leakage data.

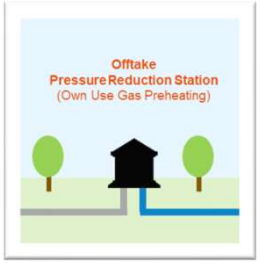


We are on the cusp of refreshing our methods for measuring emissions, and this new understanding is paramount for apportioning Shrinkage

The DPLA could give an asset category view of emissions profiles, some of which could be influenced by consumer demand, and this could inform a new and credible approach for Shrinkage profiles.

We will capture and review the approach to profiling daily Shrinkage as part of the DPLA project regulatory considerations workstream.

Potential Findings (examples of SLM components)

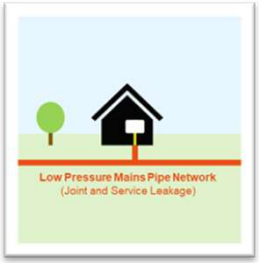


Own Use Gas (Preheating): Usage will be during periods of significant cold temperatures with very little usage in months of low demand

Expected to follow an exaggerated demand profile

3rd Party Damages: Influenced by third parties, and initial findings suggests that more damages occur in periods of low demand

Expected to follow a reverse demand profile



Low Pressure Mains: Leakage is directly proportional to the operating pressures that it has been operating at throughout the year and, due to pressure control systems, does not vary significantly on either a daily or seasonal basis.

Expected to follow a conservative demand profile