

NATIONAL GRID

NTS Shrinkage Incentive Methodology Statement

June 2020

ABOUT THIS DOCUMENT

This document describes the methodology that National Grid Gas plc (“National Grid”) in its role as holder of the Gas Transporter Licence in respect of the NTS (“the Licence”) employs to calculate specific components within the shrinkage incentive scheme.

This Shrinkage Incentive Methodology Statement is an initial statement effective for Formula Year 2021/22, ahead of arrangements for this Formula Year (the first of the RIIO-2 period) being confirmed.

This document has been published by National Grid in accordance with Special Condition 3D of the Licence.

If you require further details about any of the information contained within this document or have comments on how this document could be improved, please contact the Shrinkage & Emissions team at:

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GENERAL INFORMATION

National Grid Gas plc (“National Grid”) is the owner and the operator of the gas National Transmission System (NTS) in Great Britain.

The NTS plays an important role in facilitating the competitive gas market and helps to provide the UK with a secure gas supply. It is a network of pipelines, presently operated at pressures of up to 94 barg, which transports gas safely and efficiently from coastal terminals and storage facilities to exit points from the system. Exit points are predominantly connections to gas Distribution Networks (DNs), but also include storage sites, and direct connections to power stations, large industrial consumers and other systems, such as interconnectors to other countries.

These operations are undertaken to meet the needs of the companies that supply gas to domestic, commercial and industrial consumers and to power stations. These activities incur shrinkage operating costs managed by NGG as the “Shrinkage Provider”.

This publication sets out the methodology that National Grid in its role as holder of the Gas Transporter Licence in respect of the NTS (“the Licence”) employs to calculate specific components within the shrinkage incentive scheme.

Details of National Grid and its activities can be found on its internet site at www.nationalgrid.com.

An electronic version of this publication can be found at the following internet page:

<https://www.nationalgrid.com/uk/gas-transmission/about-us/system-operator-incentives/nts-shrinkage>

PRINCIPLES

This methodology statement is an enduring statement and, in accordance with Special Condition 3D of the licence, prior to any modification National Grid shall consult interested parties and furnish Ofgem with a report detailing representations and proposed modifications for approval. Notwithstanding the process to modify the Methodology Statement, National Grid undertook full review of the Methodology Statement that was implemented from April 2017. The changes made reflected our recommendations and the feedback from interested stakeholders providing support for these recommendations.

The review document and conclusions report can be found at:

<https://www.nationalgrid.com/uk/gas-transmission/about-us/system-operator-incentives/nts-shrinkage>

The diagram in Appendix A illustrates how shrinkage incentive targets are calculated and highlights the specific elements that are calculated using this methodology.

The relevant shrinkage incentive parameters specified within the licence will be calculated by following this methodology statement for each Formula Year. The values calculated for each component will be published on National Grid's website within the following timescales (where t-1 and t+1 relate to the year preceding and following the relevant Formula Year):

- Quarterly baseline volumes: June, September, December and March (all t-1); and
- Efficiency volume targets: July t+1 (following close out of outturn data, calculation and audit).

The timescales of when each parameter is calculated and published for any Formula Year are shown in Appendix B.

For Formula Year 2021/22, no material changes requiring consultation to modify the methodology statement are identified.

BASELINE VOLUMES

The forward baseline volume comprises the forecast volumes for CFU, UAG and CV shrinkage, as detailed below. These will be calculated in advance of each quarter.

Compressor Fuel Use

CFU forward baseline volumes (for gas and electricity) will be calculated, in June t-1, using forecast St. Fergus flows and the relationship between historical annual average of daily St. Fergus flows and total annual CFU volume.

Step 1

Calculate the exponential relationship (least error fit) between historical annual average flow at the St. Fergus aggregated system entry point (ASEP) and annual total CFU (gas equivalent) using data from 2009/10 to the latest data available for a full incentive year (inclusive).

Step 2

Insert the forecast St. Fergus flows for the following year, as published in the Future Energy Statement, into the exponential relationship identified in step 1, to calculate the annual CFU forward baseline volume.

Step 3

Calculate the ratios of quarterly outturn CFU to annual outturn CFU for the previous full Formula Year and use these ratios to pro-rate the annual CFU forward baseline volume into quarterly CFU forward baseline volumes.

Step 4

Split the quarterly CFU forward baseline volumes between gas and electricity, based on electric drives' operations consistent with prevailing electric drive commissioning programme. These forward baseline targets will not be updated throughout the year.

Unaccounted for Gas and Calorific Value Shrinkage

Calculate combined UAG and CV Shrinkage forward baseline volumes in June, September, December and March t-1 as the daily average of the outturn combined UAG and CV Shrinkage volumes for the 150 calendar days (up to and including the final calendar day of the month prior to publication of the relevant statement) multiplied by the number of days for the relevant quarter.

ENERGY EFFICIENCY VOLUMES

The volume variances described in this section will be used to determine the adjustment to the shrinkage cost target.

Energy Efficiency Variance for Compressor Fuel Usage (EEVCFU)

The CFU efficiency volume variance will be calculated following the relevant Formula Year, using actual St. Fergus flows and the relationship between historical annual average of daily St. Fergus flows and total annual CFU volume.

Step 1

Insert the outturn St. Fergus flows into the St. Fergus/CFU relationship identified in June of the Formula Year prior to the relevant Formula Year to calculate the annual CFU efficiency volume target.

Step 2

Calculate the residuals of the historical fit used in Step 1 as

$$\text{residual (year } x) = \text{outturn CFU (year } x) - \text{historical fit (year } x),$$

where

$$\text{outturn CFU (year } x) = \text{total annual CFU volume for year } x,$$

$$x = \text{years used in setting baseline for relevant Formula Year,}$$

historical fit (year x) = result of inserting the annual average of daily St Fergus flows for year x into the exponential relationship used for setting baselines for the relevant Formula Year.

Step 3

Calculate the upper and lower tolerances as

$$\text{upper tolerance} = \text{average of positive residuals calculated in step 2,}$$

$$\text{lower tolerance} = \text{average of negative residuals calculated in step 2.}$$

Step 4

Calculate EEVCFU =

$$\begin{cases} (\text{target} + \text{upper tolerance}) - \text{outturn} & \text{if outturn} > \text{target} + \text{upper tolerance,} \\ (\text{target} + \text{lower tolerance}) - \text{outturn} & \text{if outturn} < \text{target} + \text{lower tolerance,} \\ 0 \text{ (zero)} & \text{otherwise,} \end{cases}$$

where

$$\text{outturn} = \text{total annual CFU volume for relevant Formula Year,}$$

$$\text{target} = \text{as calculated in Step 1,}$$

$$\text{upper and lower tolerances} = \text{as calculated in Step 3.}$$

Energy Efficiency Variance for Calorific Value Shrinkage (EEVCVS_t)

The CV Shrinkage efficiency volume variance will be calculated following the relevant Formula Year t as follows.

Step 1

Calculate

- (a) rolling 3 year average up to and including year t-1 = average annual outturn CV Shrinkage over years t-3, t-2 and t-1,
- (b) rolling 3 year average up to and including year t-2 = average annual outturn CV Shrinkage over years t-4, t-3 and t-2.

Step 2

Calculate

tolerance band top = maximum of (a) and (b) above,

tolerance band bottom = minimum of (a) and (b) above.

Step 3

Calculate EEVCVS =

{ tolerance band top – outturn	if outturn > tolerance band top,
{ tolerance band bottom – outturn	if outturn < tolerance band bottom,
{ 0 (zero)	otherwise,

where

outturn = total annual CV Shrinkage for relevant Formula Year,

tolerance band top and bottom = as calculated in Step 2.

APPENDIX A – SHRINKAGE COST TARGET OVERVIEW



