NATIONAL GRID

NTS Shrinkage Incentive Methodology Statement

March 2013

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 will be effective from 1 April 2013.

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 might be improved please contact Mike McCluskey, Gas Incentives team on 01926 654100 or at mike.mccluskey@nationalgrid.com or 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: http://www.nationalgrid.com/uk/Gas/soincentives.

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 shall undertake a full review of the Methodology Statement to be implemented from April 2017.

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: April t+1 (following close out of outturn data).

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

Parameters for Formula Year 2013/14 are set out in Appendix C. For the avoidance of doubt, the arrangements agreed for Formula Year 2013/14 will transition to the enduring approach outlined in the prevailing Methodology Statement for Formula Year 2014/15 onwards.

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 2006/07 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

Calculate UAG forward baseline volumes in June, September, December and March as the daily average of the outturn UAG volumes for the 90 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.

Calorific Value Shrinkage

The quarterly baseline CV Shrinkage targets for the relevant Formula Year will be determined in June t-1.

Step 1

Take standard supply and demand profiles from seven demand days across the annual forecast NTS demand curve (Peak, D2, D13, D30, D46, D150 and D300). Perform network analysis using these supplies and demands with an intact network model, optimising for balanced pressures and flows and minimum compressor usage.

Step 2

For each of the seven days, take the end-of-day volumes and calorific values for all of the distribution network exit points from the network analysis. Calculate the flow weighted average calorific value shrinkage for each distribution network as per the Gas (Calculation of Thermal Energy) Regulations 1996, amended by The Gas (Calculation of Thermal Energy) (Amendment) Regulations 1997.

Step 3
Summate the flow weighted average calorific value shrinkage for each distribution network to give a national value for each of the seven days.

Step 4
Aggregate the calorific value shrinkage for each of the seven days across the whole year i.e. D2 applies for days two to 12, D13 applies for days 13 to 29 etc. This will give an annual value for calorific value shrinkage.

Step 5
Adjust the annual value to exclude capped CV volumes in respect of:

1) gas taken off the following NTS offtakes:

   - Ross;
   - Dyffryn Clydach;
   - Cowpen Bewley; and/or

2) gas entering a Distribution Network without passing through the NTS.

Step 6
The annual NTS CV Shrinkage target will then be divided by four to determine baseline quarterly CV Shrinkage targets. These forward baseline targets will not be updated throughout the year.

ENERGY EFFICIENCY VOLUMES

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

Energy Efficiency Variance for Compressor Fuel Usage ($EEVCFU_t$)

The CFU efficiency volume target will be calculated in May 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.

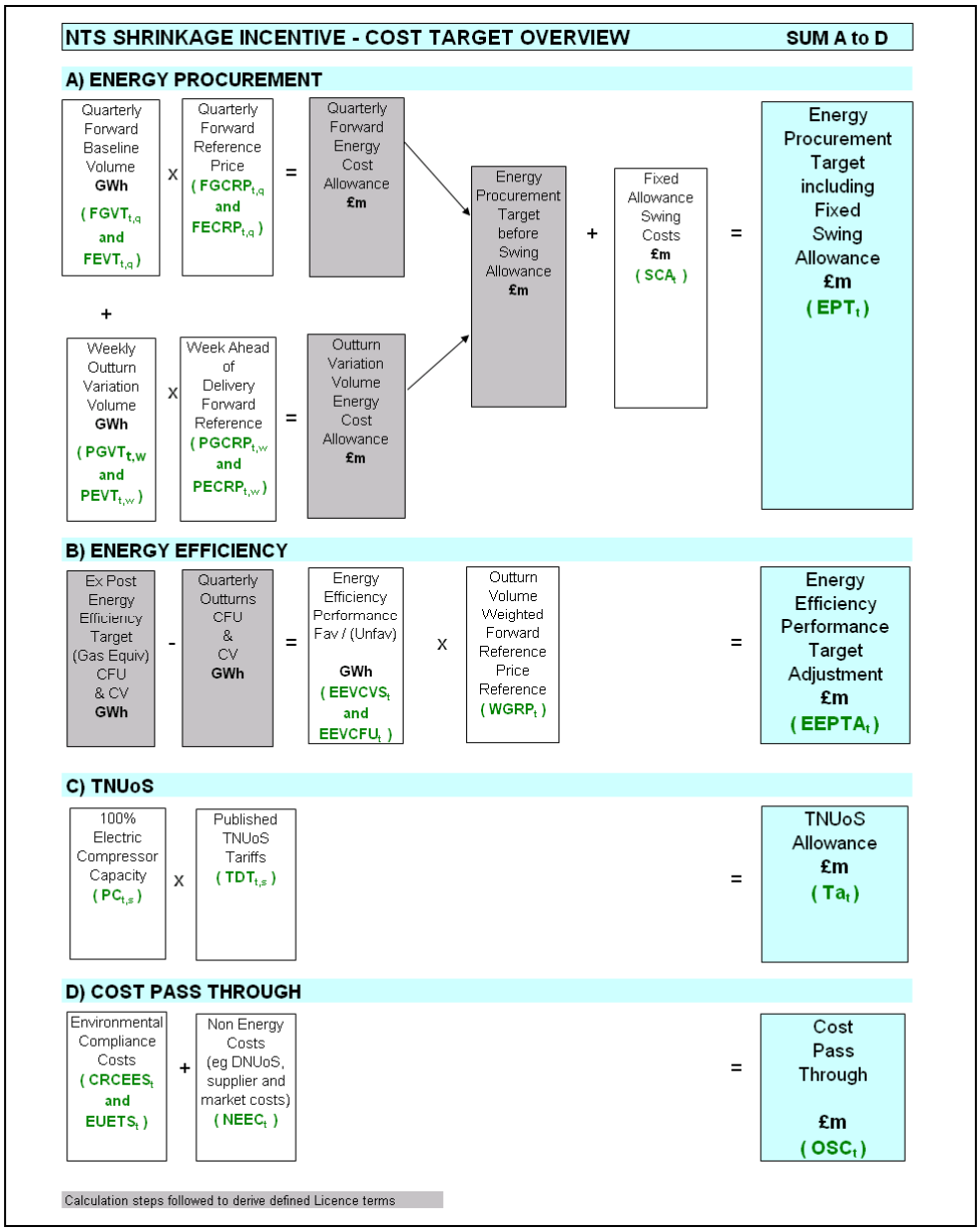
Insert the outturn St. Fergus flows into the St. Fergus/CFU relationship identified in June of the Formula Year prior to the relevant Formula Year to calculate the annual CFU efficiency volume target.

The CFU efficiency volume adjustment should be calculated as the difference between the annual outturn CFU volumes and the annual CFU efficiency volume target (outturn subtracted from the efficiency volume target).

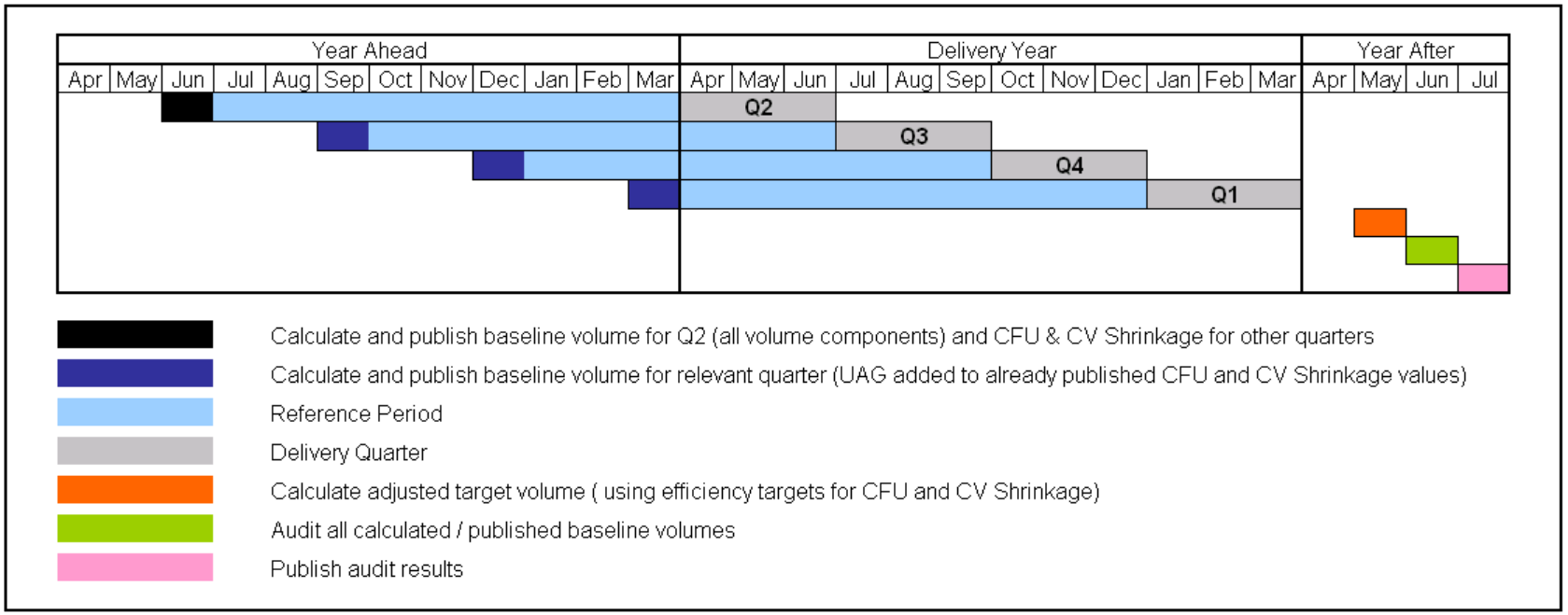
Energy Efficiency Variance for Calorific Value Shrinkage ($EEVCVS_t$)

The CV Shrinkage efficiency volume will be calculated employing the same methodology used to calculate the forward baseline target, but using the actual demand and supply values for the relevant gas days (Peak, D2, D13, D30, D46, D150, D300) and actual values for capped CV volumes.

APPENDIX A – SHRINKAGE COST TARGET OVERVIEW



APPENDIX B - TIMELINE

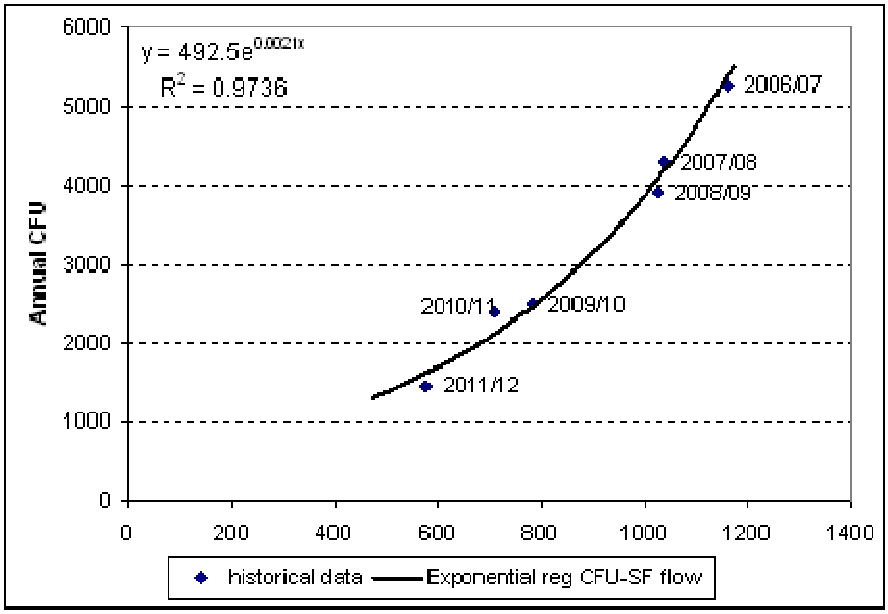


APPENDIX C - PARAMETERS FOR 2013/14

BASELINE VOLUMES - CFU

STEP 1
The relationship between flow at the St Fergus ASEP and total CFU, using data from 2006/7 to 2011/12 inclusive, is:

(A) Total CFU (GWh) = **492.5*exp**$^{0.002062 * \text{Daily Average St Fergus Flow}}$



STEP 2
The forecast flow at the St Fergus ASEP for 2013/14 is:

(B) **658** GWh/day

Inserting the forecast flow at St Fergus ASEP into equation (A) gives a total CFU baseline volume of:

(C) **1911** GWh

STEP 3
The quarterly CFU volumes for 2011/12 were:

	Q2 Apr-Jun	Q3 Jul-Sep	Q4 Oct-Dec	Q1 Jan-Mar	TOTAL
Gwh	**373**	**228**	**401**	**460**	**1462**
%	**25%**	**16%**	**27%**	**31%**	**100%**

Applying the above quarterly percentages to the total CFU baseline volume (C) gives the following quarterly CFU baseline volumes for 2013/14:

	Q2 Apr-Jun	Q3 Jul-Sep	Q4 Oct-Dec	Q1 Jan-Mar	TOTAL
GWh	**487**	**299**	**524**	**602**	**1911**

STEP 4
Applying the prevailing view of electric compressor replacement, along with historical information of the split between gas and electric compressor usage, gives the following split of quarterly CFU baseline volumes between electricity and gas for 2013/14:

	Q2 Apr-Jun	Q3 Jul-Sep	Q4 Oct-Dec	Q1 Jan-Mar	TOTAL
Gas GWh	**81**	**29**	**147**	**232**	**490**
Elec GWh	**135**	**90**	**126**	**123**	**474**

Note – electricity usage is one third of the electricity (gas equivalent) usage

BASELINE VOLUMES - CALORIFIC VALUE SHRINKAGE
The quarterly CV shrinkage baseline volumes for 2013/14 are as follows:

	Q2 Apr-Jun	Q3 Jul-Sep	Q4 Oct-Dec	Q1 Jan-Mar	TOTAL
GWh	**25.7**	**25.7**	**25.7**	**25.7**	**102.87**

BASELINE VOLUMES – UNACCOUNTED FOR GAS
The quarterly UAG baseline volumes for 2013/14 are as follows:

	Q2 Apr-Jun	Q3 Jul-Sep	Q4 Oct-Dec	Q1 Jan-Mar	TOTAL
GWh	**774**	**783**	**783**	**766**	**3106**

ENERGY EFFICIENCY VOLUMES – COMPRESSOR FUEL USE
The annual CFU energy efficiency adjustment volumes for 2013/14 will be calculated in May 2014

ENERGY EFFICIENCY VOLUMES – CALORIFIC VALUE SHRINKAGE
The CV shrinkage energy efficiency adjustment volumes for 2013/14 will be calculated in May 2014.