

April 2012

**National Grid Gas
(NTS) System Operator
Incentives –
Supporting Information
Version 4.0**

UK Gas Transmission

nationalgrid

THE POWER OF ACTION

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Version Control

Version Number	Date of Publication	Changes Made
1.0	October 2009	First issue
2.0	May 2010	Update for incentive schemes in place from April 2010
2.1	August 2010	Update of 2009/10 incentive scheme performance
3.0	June 2011	Update for incentive schemes in place from April 2011
4.0	April 2012	Update for incentive schemes in place from April 2012

Section 1

Introduction

1.1 Introduction to Gas System Operator Incentives

1. National Grid Gas (National Grid) operates the high pressure Gas Transmission System in Great Britain. This System Operator (SO) function is subject to Licence¹ obligations and a number of financial incentive arrangements. These incentive arrangements encourage National Grid to minimise the overall cost of system operation to consumers, to consider environmental impacts and to support the efficient operation of the wholesale gas market.
2. These incentives are designed to deliver benefits to the industry and consumers. These benefits include direct financial benefit from reductions in the costs associated with operating the gas transmission network and other benefits from meeting key performance measures (such as through improved information provision to the market).
3. The various incentive schemes provide a focus on key areas where National Grid is able to create value for the industry and consumers, allowing National Grid to retain a share of any value created (or to be penalised should targets not be met).

1.2 Background to this Document

4. This document has been produced following feedback received through responses to consultation papers and industry events. This document summarises the Gas SO Incentive Schemes applicable from April 2012.

1.3 Summary of Incentive Development for 2012/13

5. Two financial incentives established in 2011 were set for two years, and are still in place for 2012/13 (Operating Margins and Greenhouse Gas Emissions (GHG)) the remaining five have been reviewed to put in place one year rollover schemes for Shrinkage, Unaccounted for gas (UAG), Residual Balancing, Demand Forecasting and Data Publication
6. Four financial schemes have been retained (Shrinkage, Residual Balancing, Demand Forecasting, Data Publication) However the UAG incentive has been replaced with a licence obligation² to continue witnessing meter validations and carry out data centred investigations into the causes of UAG.
7. All seven incentives are being reviewed for 2013 onwards as part of the review of the SO Incentives from 2013 onwards for the RIIO-T1 period.

1.4 Feedback and Contact Details

8. We welcome any feedback on this document including suggestions for additional information to incorporate.

¹ The National Grid Gas plc Gas Transporter Licence in respect of the NTS

² Special condition C29

9. Contact details and further information on Gas SO Incentives can be found on the National Grid website via the below link:

<http://www.nationalgrid.com/uk/Gas/soincentives/>

Section 2

Financial Incentive Schemes from 1 April 2012

2.1 Summary of Current Financial Incentives

10. The following pages provide a summary of the current shallow financial SO incentive schemes which are listed in the table below:

Document Section	Financial Incentives
2.2	Demand Forecasting
2.3	Operating Margins
2.4	Greenhouse Gas (GHG) Emissions from Compressors
2.5	NTS Data Publication
2.6	Residual Balancing
2.7	Shrinkage

2.2 Demand Forecasting

Purpose: to incentivise improvements in the accuracy of the 13:00 D-1 Demand Forecast

- National Grid publishes national gas demand forecasts over a range of timescales. Since Winter 2006/07, the accuracy of the forecast published day-ahead at 13:00 has been subject to an incentive. For 2012/13 National Grid has an incentive target of a forecast error of 2.75% with an adjustment for the level of storage injection capability as explained below. The demand forecast error is calculated as the sum of each day's absolute error divided by the sum of each day's actual demand over a one year time period. The incentive is summarised in the figure below.

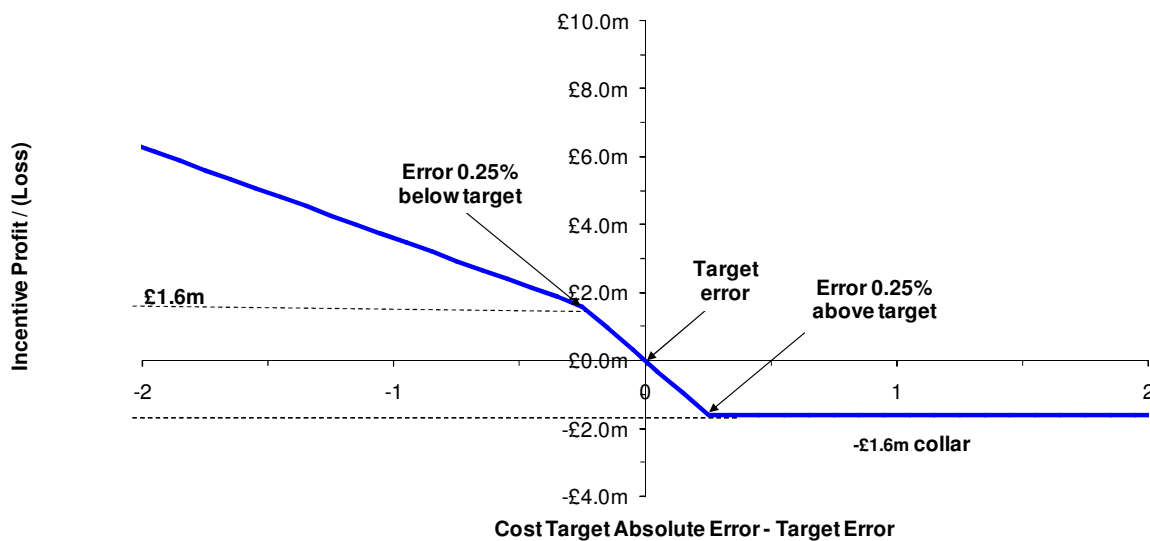


Figure 1: Demand Forecasting Incentive

- If National Grid has a demand forecast error below the target, an incentive payment will be received, however if the forecast error is greater than the target then an incentive penalty will be applied. The steeper slope of the line around the target indicates a stronger link between performance improvement and the incentive payment close to the target.
- A forecast error of 0.25% below the target (approximately 9%) would mean National Grid earned £1.6m, and an error of 0.25% (approximately 9%) would result in National Grid being penalised by the same amount. The latter represents the highest loss that National Grid is exposed to under this incentive.
- The maximum payment that National Grid can receive under this incentive is £8.3m, although this would require the forecast error to be zero.
- To take account of the unpredictability of demand from fast-cycle storage sites, the 2.75% target will increase in proportion to the additional injection capability at fast-cycle storage in 2012/13 compared to a baseline value from 2011 (19.3mcm/day) This adjustment will only apply for new injection

capability where National Grid has received notification that it will come on line during 2012/13.

16. The adjustment for fast-cycle storage capability has been capped to an additional 0.35% (an additional 35mcm/day of additional injection capability at fast-cycle storage in 2012/13). Accordingly, the maximum demand forecasting target error for 2012/13 is 3.1%.

2.3 Operating Margins

Purpose: To incentivise efficient procurement and utilisation of Operating Margins Gas.

17. Operating Margins (OM) gas is used to maintain NTS pressures in the immediate period following operational stresses and before market balancing measures become effective. Such stresses may result from supply failure, unanticipated demand changes or failure of an NTS pipeline or associated equipment. A quantity of OM is also procured to manage the orderly run-down of the system in the event of a Network Gas Supply Emergency (NGSE) whilst firm load shedding takes place.
18. National Grid has traditionally procured its OM in the form of gas held in storage facilities but is now able to also procure offtake reduction and supply increase services. Procurement from the regulated National Grid LNG Storage facilities is via pre-emption rights on an annual basis, in accordance with the provisions of the Uniform Network Code (UNC). Procurement of the service from the other facilities is on commercial terms.
19. For 2012/13, National Grid has an incentive target of £16.5m for the procurement of OM gas. The current bundled incentive scheme covers both service procurement and utilisation of OM. The scheme incorporates a utilisation volume cap of 78.1 GWh for the year (to reduce exposure to the risk of a major event such as a major supply loss, leading to a large volume of OM being utilised, which would not be within National Grid's direct control) and a cap and collar of +/-£1m. The incentive is summarised in the figure below.

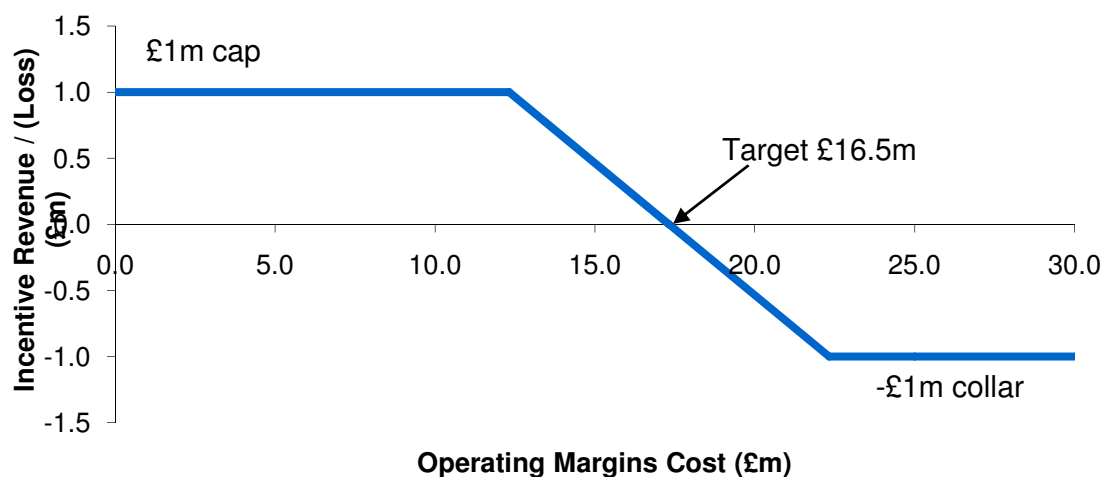


Figure 2: Operating Margins Incentive

20. Sharing factors are 0.2% for upside and 0.2% for downside with a maximum incentive profit of £1m and a maximum incentive loss of £1m.
21. The target OM cost is £16.5m for 2012/13. Accordingly, if for example such costs equated to £15m (approximately 9% below the target) this would mean National Grid would earn approximately £290,000. Alternatively, where OM costs are in excess of target by the same proportion (£17.9m), this would result in National Grid being penalised by -£290,000.

2.4 Greenhouse Gas (GHG) Emissions from Compressors

Purpose: To incentivise the consideration of the environment when venting from NTS compressors

22. Compressors are utilised to increase pressures in parts of the NTS and to move gas from the sources of supply to areas of demand. The need to operate an individual compressor on any given day will depend on a number of circumstances including the sources of supply and demand, the prevailing network conditions, such as the current linepack distribution and the need to accommodate maintenance and construction plans.
23. The scheme incentivises National Grid to make the trade-off between choosing to depressurise compressor units (venting the gas within them) or to keep units on standby - which incurs costs associated with ancillary electrical equipment (vent fans, oil pumps etc) and leakage through the shaft seal. The incentive applies to both gas and electrically driven compressors.
24. The amount of natural gas vented from NTS compressors (in tonnes) results from a number of areas; namely starting a compressor, purging a compressor, depressurising a compressor or through the leakage of gas through compressor shaft seal. Under the incentive this amount is compared against a target.
25. The incentive target for 2012/13 is 3007 tonnes with a deadband from 2,857 to 3,157 tonnes of natural gas. For every tonne vented above or below the deadband, National Grid is subject to a penalty or payment of approximately £1,224³. This is equivalent to £100,000 for every 82 tonnes vented above or below the target. The incentive is summarised in the figure below.

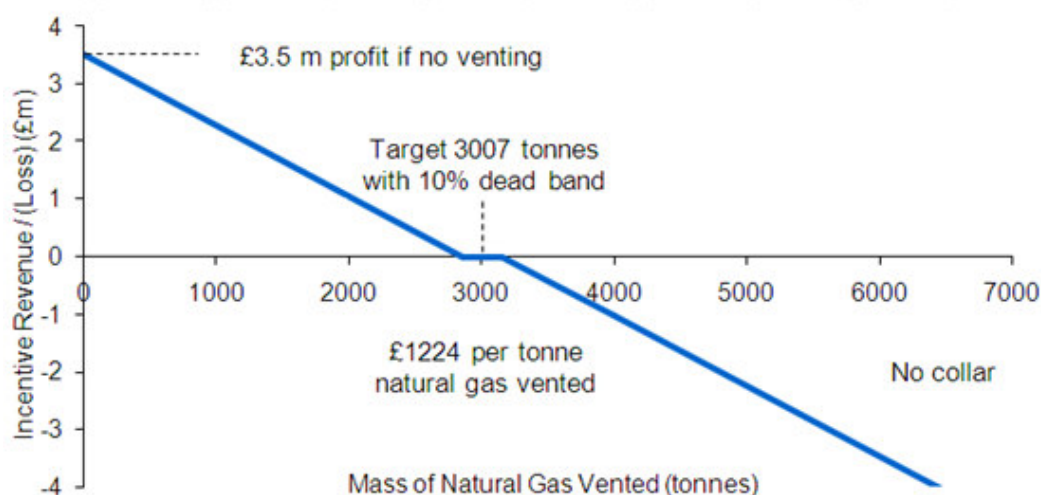


Figure 3: GHG Emissions from Compressors Incentive

³ Based upon the Non Traded Central Carbon Price as published by the Department of Energy and Climate Change.

2.5 NTS Data Publication

Purpose: To incentivise prompt and reliable publication of key data on the National Grid website.

26. This incentive covers specific gas system data published on the National Grid website. National Grid is incentivised to keep three key screens (Prevailing View, Data Item Explorer and Report Explorer) available with a target of 99.3% availability, and to publish 90.5% of the hourly updates for four key data items (Predicted Closing Line Pack, National Forecast Flow, National Physical Flow, and Forecast NTS Throughput) within 10 minutes of the start of the hour. The incentive is summarised in the figures below. Note that performance is measured monthly however the following figures contain annualised values.

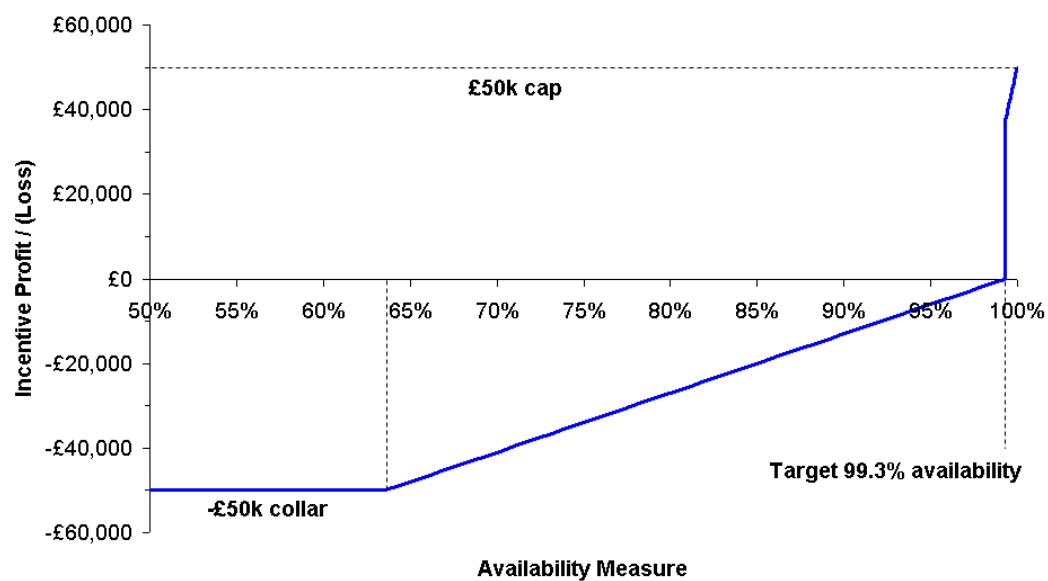


Figure 4a: NTS Data Availability Incentive

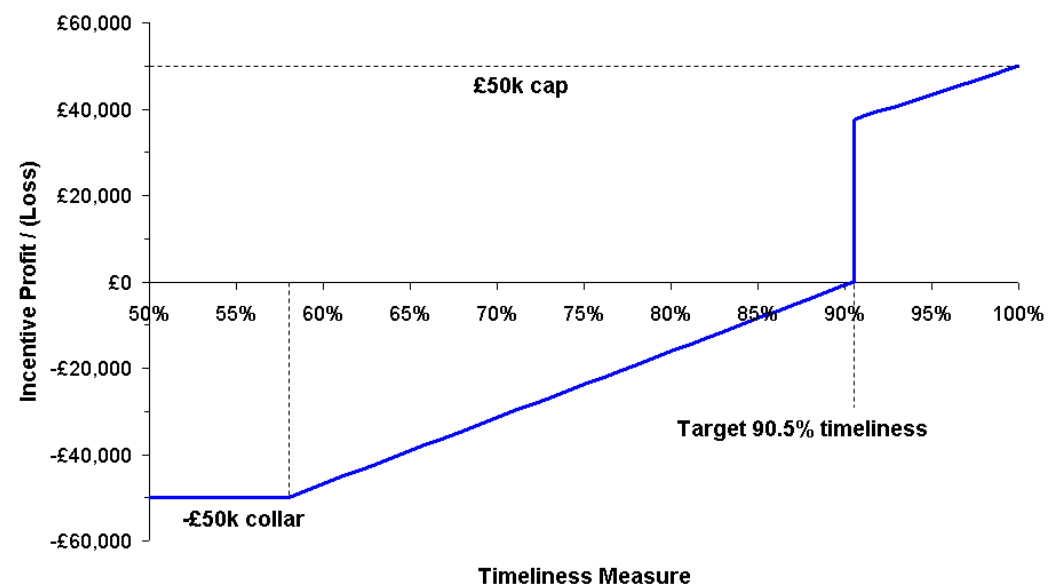


Figure 4b: NTS Data Timeliness Incentive

27. If aggregate performance is on target, then National Grid receives a payment of £75,000 (£37,500 in respect of each of the two measures). If performance exceeds the target then National Grid receives an increased payment up to a maximum additional amount of £25,000 (£12,500 in respect of each of the two measures). If performance is below target National Grid incurs a penalty of up to £100,000.

2.6 Residual Balancing

Purpose: To incentivise the daily balancing of supply and demand whilst minimising the impact of any actions on market prices.

28. The incentive contains two elements based upon the Price Performance Measure (PPM) and the Linepack Performance Measure (LPM).
29. The price element incentivises National Grid to execute any residual balancing trades at prices that are in a small range compared to the System Average Price (SAP) for the day. The PPM is defined as the difference between the highest and lowest prices at which National Grid trades divided by SAP. The target for 2012/13 is a price spread of 1.5% of SAP.
30. The linepack element incentivises National Grid to minimise any changes between starting and closing NTS linepack over a gas day (i.e. to achieve a balance between the supply and demand on the gas day). This is intended to ensure that any system imbalances are resolved on the relevant day, such that the costs of resolving any imbalances are targeted to those responsible for the imbalance. The target for 2012/13 is a linepack change of 2.8mcm.
31. The PPM and LPM each have their own incentive structures, which apply to each gas day in the year. The structure for the PPM is shown below.

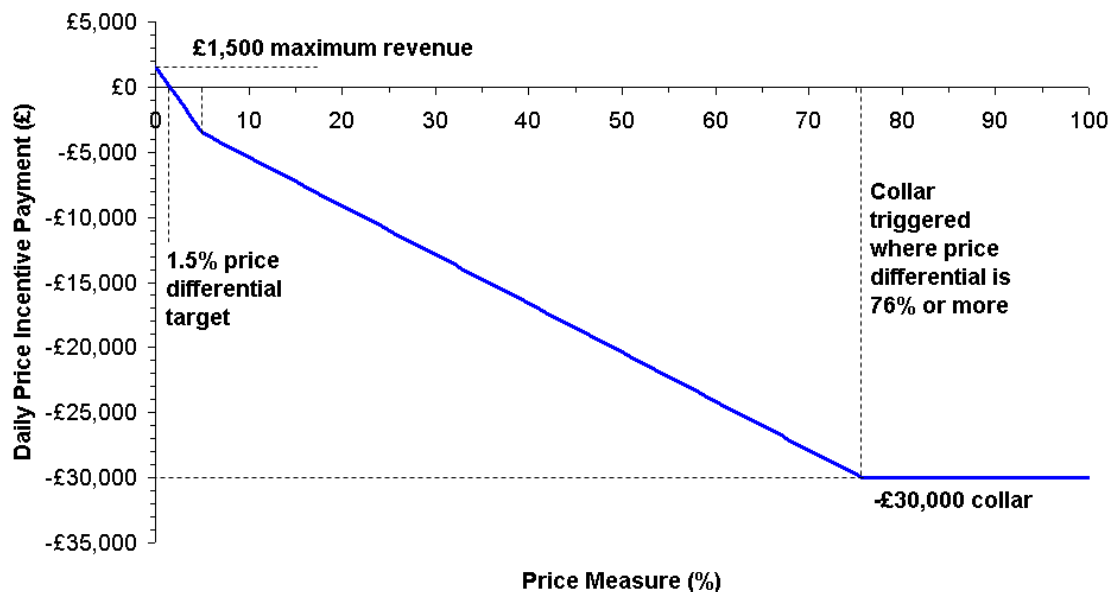


Figure 5a: Price Measure of the Residual Balancing Incentive

32. If the PPM is below 1.5% on a given gas day then National Grid receives an incentive payment up to a maximum of £1,500. Conversely if the PPM is above 1.5% then National Grid incurs a penalty up to a maximum of £30,000.
33. The incentive structure for the LPM is similar to that for the PPM and is shown below.

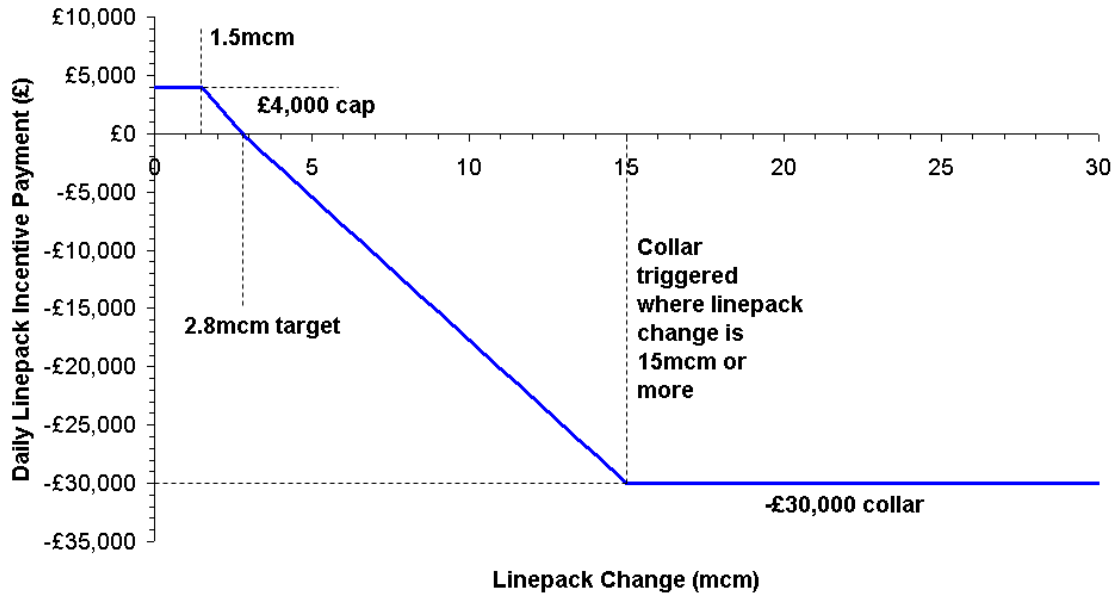


Figure 5b: Linepack Performance Measure of the Residual Balancing Incentive

34. If the LPM is below 2.8mcm on a given gas day then National Grid receives an incentive payment up to a maximum of £4,000. This maximum applies at 1.5mcm, so there is no incentive for National Grid to balance the system beyond this point. Conversely if the LPM is above 2.8mcm then National Grid incurs a penalty up to a maximum of £30,000.
35. The sum of all of the daily payments for linepack and price performance under the Residual Balancing Incentive are annually capped at £2m and collared at -£3.5m in 2012/13 as shown in the figure below.

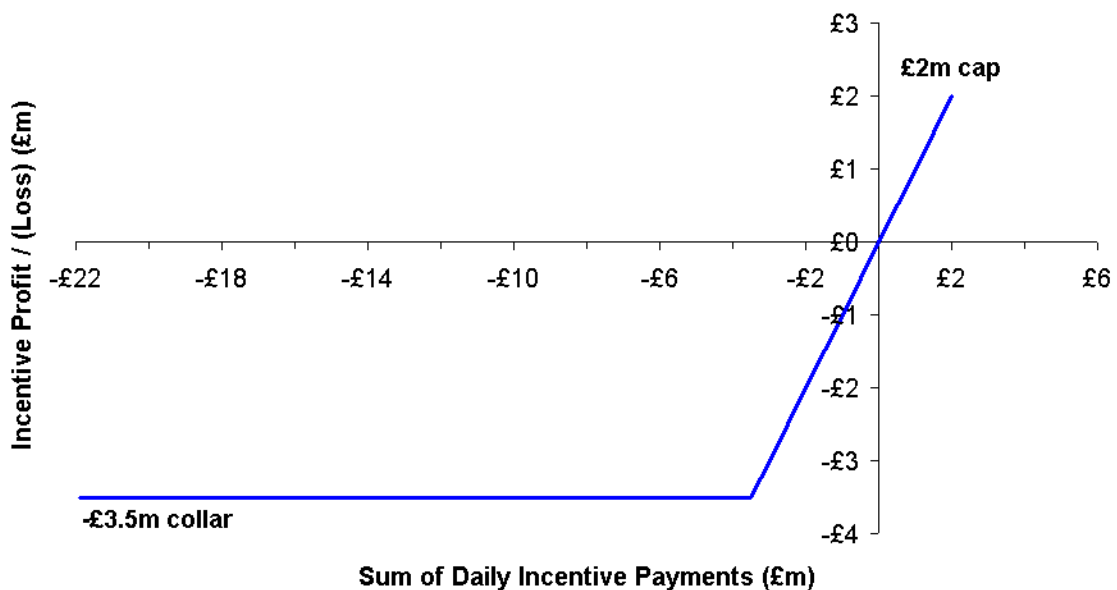


Figure 5c: Residual Balancing Incentive Parameters

2.7 Shrinkage

Purpose: To incentivise an efficient overall cost of shrinkage through efficient system operation and energy procurement.

36. NTS Shrinkage covers the gas and electrical energy which is used in operating NTS compressors, and the gas that cannot be accounted for and billed in the measurement and allocation process. The components that comprise shrinkage are summarised as:
- Compressor Fuel Use (CFU): The energy used to run compressors to transport gas through the NTS. For gas driven compressors this is Own Use Gas (OUG), for electric driven compressors this is Electric Compressor Energy (ECE);
 - Calorific Value (CV) shrinkage: The energy which cannot be billed due to the provisions of the Gas (Calculation of Thermal Energy) Regulations 1996 (amended in 1997); and
 - Unaccounted for Gas (UAG): The quantity of gas which remains after taking into account all measured inputs and outputs from the system, own use gas consumption, CV Shrinkage and the daily change in NTS linepack.
37. The form of the Shrinkage incentive is a bundled cost minimisation incentive across all components of shrinkage, with a target derived from a volume forecast multiplied by a gas (and electricity) reference price. The volume target consists of a forecast CFU volume (adjusted by outturn St Fergus supplies), a forecast CV Shrinkage volume, and outturn UAG volumes. This incentive has been set for one year commencing 1 April 2012.
38. Sharing factors are 25% upside and 20% downside with a maximum incentive profit of £5m and a maximum incentive loss of £4m. This incentive structure is illustrated below.

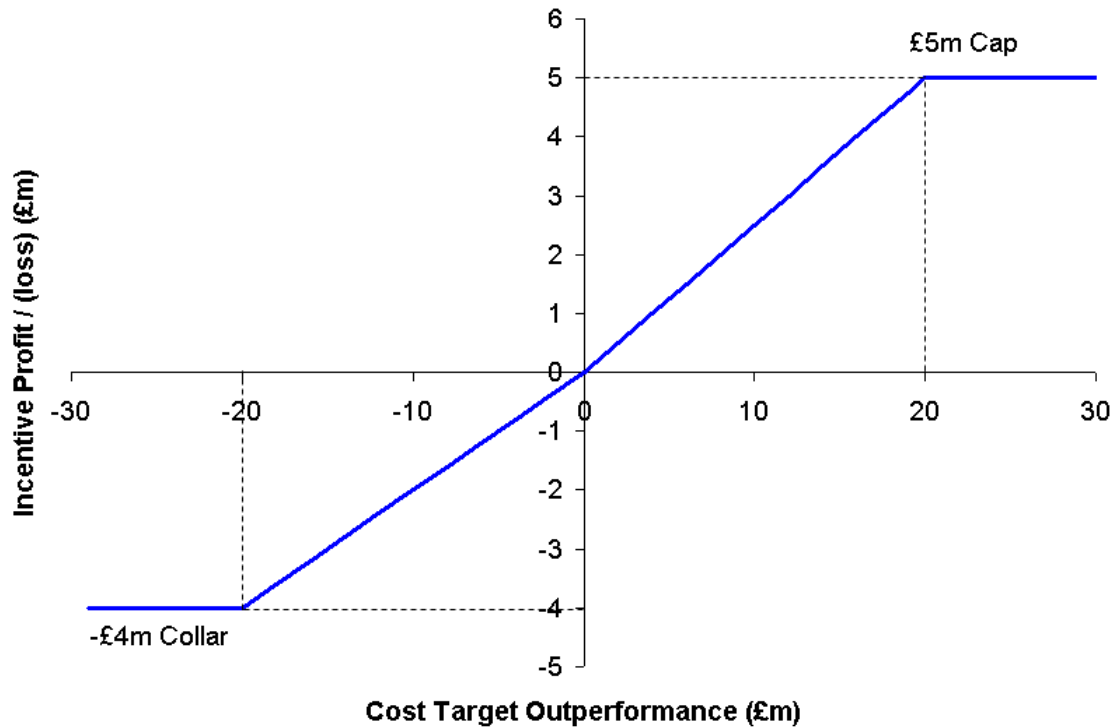


Figure 6: Shrinkage Incentive

39. If total spend against the incentive is below the target (i.e. the cost target out-performance is positive), National Grid receives a payment equivalent to 25% of the underspend, subject to a limit of £5m. Conversely, if total spend against the incentive is above the target, National Grid incurs a penalty of 20% of the overspend, subject to a limit of £4m.

Section 3 Incentive Performance

3.1 Quarterly Reports

40. Since December 2008, National Grid has published quarterly information on incentives on its website⁴. Following industry feedback a simple consolidated summary of the current incentive schemes is also published alongside the Quarterly Reports. The first consolidated summary was published in August 2009.

3.2 Summary of Past Performance

41. Feedback received through responses to consultation papers and industry events identified a requirement for information on incentive performance from previous years. The tables below have therefore been produced to summarise National Grid's incentive performance for the last four incentive years (where available).
42. Please note that incentive schemes often change from year to year so consideration should be given to this when comparing performance figures across years.
43. Figures for 2011/12 will be included in the tables later in the incentive year when the data is available.

Demand Forecasting Incentive

Incentive Year	Incentive Target	Performance	Incentive Performance
2007/08	4.0%	2.77%	£3.66m
2008/09	3.5%	2.65%	£3.14m
2009/10	3.0%	2.66%	£2.1m
2010/11	2.85%	2.75%	£1.02m

Operating Margins Incentive

Incentive Year	Incentive Target	Performance	Incentive Performance
2007/08	£25.91m	£26.12m	(£0.21m)
2008/09 ⁵	£20.81m	£18.36m	£2.45m
2009/10 Utilisation	£0.27m	£0.02m	£0.25m
2009/10 Holdings	n/a ⁶	£17.10m	n/a
2010/11	n/a ⁷	£17.11m	n/a

⁴ <http://www.nationalgrid.com/uk/Gas/soincentives/QuarterlyReports/>

⁵ 2008/09 data is an aggregation of the utilisation and holding elements of the scheme which were introduced this year.

⁶ Operating Margins holdings costs subject to pass through in 2009/10

⁷ Operating Margins costs subject to pass through in 2010/11

NTS Environmental Incentive

Incentive Year	Incentive Target	Performance	Incentive Performance
2008/09	2,086 tonnes	1,850 tonnes	£0.058m
2009/10	1,977 tonnes	1,634 tonnes	£0.140m
2010/11	3,007 tonnes	3,347 tonnes	(£0.209m)

Data Publication Incentive

Incentive Year	Incentive Target		Performance		Incentive Performance
	Availability	Timeliness	Availability	Timeliness	
2007/08	99.86%	75%	98.74%	93.3%	£0.46m
2008/09	99.3%	90.5%	99.9%	88.9%	£0.06m
2009/10	99.3%	90.5%	99.7%	87.8%	£0.05m
2010/11	99.3%	90.5%	99.66%	91.63%	£0.06m

Residual Balancing Incentive

Incentive Year	Incentive Target (daily)		Performance (average, all days in year)		Incentive Performance
	Price	Linepack	Price	Linepack	
2007/08	10%	2.4 mcm	2.63%	2.49 mcm	£1.41m
2008/09	10%	2.4 mcm	2.22%	2.41 mcm	£1.54m
2009/10	5%	2.8 mcm	2.90%	1.97 mcm	£1.63m
2010/11	2.5%	2.8 mcm	1.58%	2.05 mcm	£0.95m

Shrinkage Incentive

Incentive Year	Incentive Target	Performance	Out-performance	Incentive Performance
2007/08	£127.0m	£79.4m	£47.6m	£4m
2008/09	£140.4m	£149.5m	(£9.1m)	(£0.06m)
2009/10	£246.4m	£139.4m	£106.9m	£5m
2010/11	£139.3m	£114.1m	£25.2m	£5m

UAG

Incentive Year	Incentive Target	Performance	Incentive Performance
2009/10	2,862 GWh	7,716 GWh	£0m
2010/11	2,862 GWh	6,313 GWh	£0m

Section 4

Impact of Incentive Payments on Charges

Feedback received indicated that publishing a standing item on the link between incentive revenues and charges faced by Users would be helpful. Therefore, this section summarises the impact of incentive payments on the SO commodity charge.

44. National Grid's incentive payments are recovered from shippers through the SO commodity charge, which National Grid has a reasonable endeavours obligation to only set twice a year on the 1st April and the 1st October.
45. For the financial year 2010/11 the incentive revenue from all of the shallow incentive schemes amounted to 2% of the total SO commodity charge.

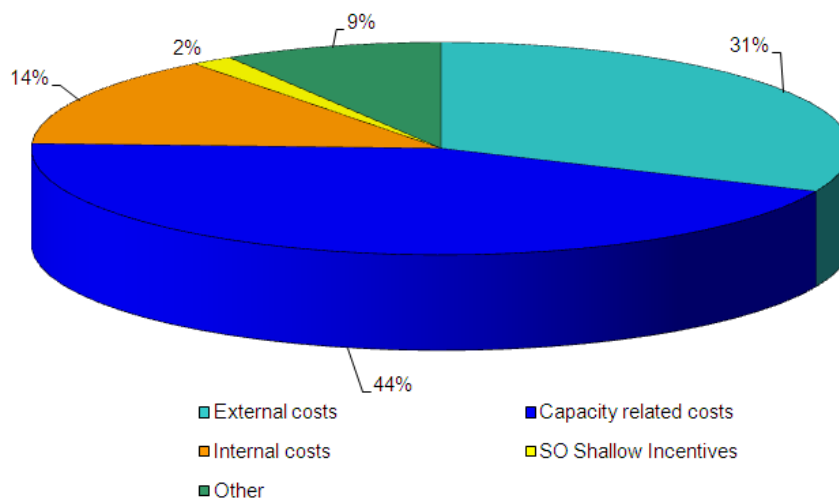


Figure 7: 2010/11 SO Commodity Charge

46. National Grid publishes a quarterly update on charges report, which contains either the actual SO commodity charge or the latest forecast of the charge. This report also includes supporting data on how these charges have been calculated and can be found (with previous versions) on the National Grid website.
47. As a rule of thumb, an increase of £1m in the costs recovered through the SO commodity charge would correspond with an increase in the SO commodity charge of approximately 0.0001p/kWh.
48. For an 11GWh (~1 mcm/d) sized load with an annual load factor of 50% a £1m increase in incentive revenues would equate to an increase in the SO commodity charge of approximately £2000. As the SO commodity charge is levied on both NTS Entry and NTS Exit allocations, the total increased costs to a shipper in this example would be £4000. How the SO commodity charge would appear on the invoices received by consumers will depend on the nature of their contractual relationship with their shipper.