

National Grid Gas (NTS) SO Incentives for 1 April 2009

Initial Proposals Consultation

Issued 12 November 2008

Responses requested by 19 December 2008

nationalgrid



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Section 1 Executive Summary

In 2007 Ofgem trialled a new consultation process for System Operator (SO) Incentives by asking National Grid to lead on the development of Initial Proposals for SO Incentives commencing on 1 April 2008. Having reviewed the success of this approach, Ofgem has again asked National Grid to lead on the engagement with industry and development of Initial Proposals for SO Incentives which expire on 31st March 2009.

The process commenced with an industry workshop on SO Incentives in June 2008. This was followed by two consultation documents which were issued in August 2008. The first document covered issues on Shrinkage and Residual Balancing, the second covered Operating Margins, from both a contestability and incentive point of view. To aid the industry in forming their responses a data-pack was issued alongside the consultation documents. Copies of these documents and all responses can be found on the National Grid Website¹.

Views expressed at the workshop, in bi-lateral meetings and through the responses to the two August consultation documents have helped National Grid to develop the Initial Proposals for Gas SO Incentives contained in this consultation document. Responses to these proposals are requested by 19 December 2008. Responses will be published on the National Grid website and forwarded to Ofgem for consideration in their Final Proposals.

The key themes in this consultation are summarised below:

Residual Balancing

- We describe the interaction between the two elements² of the scheme, which have been the main focus of the August consultation. As a result of the range of industry views on how strong any linepack measure should be, two schemes are proposed which show the potential range of options for the strength of the linepack component of a Residual Balancing Incentive.

NTS Shrinkage

- We propose changes to the existing incentive structure, to introduce a better way of incentivising Unaccounted or gas (UAG) based on the level of control National Grid has over this element of Shrinkage. This is achieved through the proposal of a new UAG specific incentive.
- For the existing shrinkage cost minimisation incentive new compressor fuel forecasts are presented based on the updated regression modelling approach discussed in the previous consultation document.

¹ <http://www.nationalgrid.com/uk/Gas/soincentives/>

² The linepack measure and the price performance measure

- We seek views on an appropriate way to benchmark the costs of the volatility of the shrinkage gas profile and also propose an enduring reference price methodology for electric compressor requirements.
- We also present our proposals for revised incentive parameters for the shrinkage incentive

Operating Margins

- There is considerable uncertainty around the outcomes of the OM contestability project in both in terms of the number and prices of new providers and the potential for Ofgem to remove the regulated prices for NG LNG facilities. As a result we are proposing that for one year, the OM holding costs should operate on a cost past through basis. With further experience of the market that the contestability project is trying to create, we would expect that an incentive be re-established and potentially redesigned to reflect the nature of services procured in future years.
- We are proposing that the existing utilisation incentive should be retained for 2009/10.

Other Incentives

- For the other incentives (Demand Forecasting, Data Publication and Environmental Incentives) we propose no changes to the structure of the incentives, but where appropriate we propose updates to targets and prices within these schemes.

Responses to the consultation should be sent to
soincentives@uk.ngrid.com

by 5pm on 19 December 2008

Section 2 Introduction

This section provides an overview of the process being followed for the development of SO Incentives commencing 1 April 2009 and puts these Initial Proposals into context.

Consultation Process

1. National Grid operates the high pressure Gas Transmission System in Great Britain. This system operation function is subject to a number of financial incentive arrangements which encourage the SO to minimise the overall cost of balancing to consumers and to support the efficient operation of the wholesale gas market. These incentives sit under the wider Licence obligation to operate the system in an economic, efficient and co-ordinated manner. A number of these incentives expire at the end of March 2009.
2. Last year Ofgem trialled a new consultation process for SO Incentives and in November 2007 asked National Grid to lead the development of Initial Proposals for SO Incentives. Following a review of the success of this approach, Ofgem issued an open letter and again asked National Grid to lead on the development of Initial Proposals for its own SO Incentives for the period from 1 April 2009³. In response to industry feedback, this process has been initiated earlier this year to allow a more fundamental and thorough review and to give industry more time and involvement in the development and consideration of proposals. The timetable for the review is set out in Ofgem's open letter and our response⁴.
3. The operational entry capacity buy-back incentive⁵ does not expire in March 2009 and is not within the scope of this consultation process. However, we are aware that Ofgem intends to run its own consultation upon and review of the operational buy-back scheme as stated in the last Transmission Price Control Review (TPCR). Ofgem's review will consider any potential resetting of the operational buy-back parameters from 1 April 2009.
4. To initiate industry engagement and debate on the issues around Gas SO Incentives, National Grid held an Industry Workshop on the 25 June 2008 where we presented on a number of issues relating to the current SO Incentive schemes. The slides from the workshop can be found on the

³<http://www.ofgem.gov.uk/Markets/WhlMkts/EffSystemOps/SystOpIncent/Documents1/SO%20Incentives%20Open%20Letter%20May%202008.pdf>

⁴<http://www.nationalgrid.com/NR/rdonlyres/BA106C2D-0E67-41AC-8549-B110BCE657F6/27078/SOInitialProposalsMiniConsultationsOpenLetterJuly3.pdf>

⁵ The operational entry capacity buy-back incentive relates primarily to the costs of buying back firm entry capacity rights in the event National Grid cannot make the capacity available on the day, but also includes revenues from non-obligated release of capacity and a number of other components. Currently for 2009 onwards it has a target of £21m, 50% sharing factors, a cap of £18m and a collar of -£18m.

National Grid Website⁶. To ensure maximum industry engagement in the process, National Grid has also presented on this year's process to the Transmission Workstream, Gas Forum, Demand Side Working Group and the Gas Operational Forum. Bilateral meetings with interested parties have also been held.

5. Following the June workshop National Grid issued two consultation documents focussed on addressing a number of key issues that were left unresolved or were not able to be explored fully as part of last year's incentives development process. These key issues relating to incentives on Shrinkage, Residual Balancing and Operating Margins. To assist market participants in conducting their own analysis in relation to the issues contained within the consultations, we also published an accompanying data pack⁷ on our website.
6. Seven responses were received to the Residual Balancing and Shrinkage Incentive consultation document and eight responses to the Operating Margins consultation document. These responses are published in full on the National Grid website. We would like to thank the industry for these responses, which have helped us develop the proposals in this document.
7. This document is the next step in this year's process and contains proposals for SO incentives commencing 1 April 2009. Industry views are invited on, but not limited to, the incentive options contained in this document. Responses to this consultation will be published on National Grid's website (unless marked confidential) and forwarded to Ofgem in full. Responses are requested by **19 December 2008**.
8. To assist market participants in conducting their own analysis in relation to the forecasts contained within this consultation document, we have published a data pack in the Analyst Area⁸ of the SO Incentives part of National Grid Website. This data is provided in good faith for the purposes of assisting the assessment of our forecasts contained in this document. Whilst the data is accurate to the best of our knowledge, it should only be treated as indicative.
9. National Grid is holding an **industry workshop** to support this consultation which is scheduled for **28th November at Hilton Hotel, Warwick**. Details for registering for this event can be found on the National Grid website⁹.
10. On conclusion of this consultation, National Grid will issue a consultation report incorporating the responses received from interested parties this will be published on our website. The report and all responses will be sent in full to Ofgem. In early 2009, Ofgem will then take the lead on developing and consulting on its Final Proposals for SO Incentive schemes, (and associated licence changes) prior to implementation.

⁶ <http://www.nationalgrid.com/uk/Gas/soincentives/IndustryWork/>

⁷ <http://www.nationalgrid.com/uk/Gas/soincentives/AnalystArea/>

⁸ <http://www.nationalgrid.com/uk/Gas/soincentives/IndustryWork/>

⁹ <http://www.nationalgrid.com/NR/rdonlyres/A64BE474-F683-4E20-9314-0398382D5869/29304/GasSOIncentivesWorkshopinvitationNovember08.pdf>

11. Throughout the process, the SO Incentives area of the National Grid website will be kept updated with all relevant documents. A link to this part of our website is included in the contact details section of this document. National Grid can be contacted using these contact details to discuss any aspects of SO Incentives.
12. As well as discussing these issues at industry fora and through written consultation, we are also very happy to meet with Market Participants on a one-to-one basis to discuss specific issues in more detail. Details to arrange this are provided in the contact details section of this document.

Structure of this Document

13. The remainder of the document is structured as follows:
 - **Section 3** describes the interaction between the two elements of the Residual Balancing Incentive and whether these drive the right balance of behaviours by the System Operator. Industry responses to the August consultation, which has focussed on this interaction, are presented. As a result of the range of views expressed in the responses, two incentive schemes with different levels of focus between the two elements of the scheme are presented.
 - **Section 4** sets out our conclusions on the appropriate form and scope of Shrinkage Incentives, and presents our forecasts and scheme options for incentivising minimisation of the costs of shrinkage. It also proposes a new scheme to incentivise a reduction in levels of NTS unaccounted for gas.
 - **Section 5** provides an overview of our proposals for the treatment of Operating Margins costs and explains the interaction with the OM Contestability Project and the regulation of NG LNG storage facilities.
 - **Section 6** provides an overview of the environmental incentive around methane venting from NTS compressors and includes proposals for this incentive from April 2009.
 - **Section 7** provides an overview of the Demand Forecasting Incentive and proposed incentive arrangements in this area from April 2009.
 - **Section 8** provides an overview of the Data Publication incentive and includes proposals for incentives from April 2009.
 - **Section 9** provides a summary of the consultation questions.
 - **Section 10** provides our contact details for any party that wishes to contact us to discuss any aspect of this consultation, or arrange a bilateral meeting.

Consultation Feedback

14. National Grid is keen to receive feedback from the industry on the quality of the consultation process this year. This information is being requested to help National Grid improve any future consultations it may run.
15. As we would like to keep views on the consultation process separate to any views on the proposals contained within this document, a separate Consultation Process Feedback Form is available on the National Grid website¹⁰. We would very much appreciate it if you would complete and return the feedback form with your consultation response.

**Responses to the consultation should be sent to
soincentives@uk.ngrid.com**

by 5pm on 19 December 2008

¹⁰ <http://www.nationalgrid.com/uk/Gas/soincentives/docs/>

Section 3

Residual Balancing

This section provides an overview of our conclusions from the August consultation on Residual Balancing which has focused on the objectives of the Residual Balancing Incentive and whether this drives the right behaviours by the System Operator.

The section concludes with two options for incentives from 1 April 2009. These two options recognise the range of industry views on the balance between operating to the physical limits of the NTS and the need for a daily linepack balance to aid correct allocation of costs.

Context

16. Shippers are incentivised, via cash-out arrangements, to ensure that the volume of gas that they supply onto the system matches the volume of gas that they take from the system on a daily basis. However shippers (in aggregate) can not always maintain a balance, and it falls to National Grid as residual balancer to buy and sell gas via the on-the-day commodity market (OCM) to balance the system by end of day and to keep system pressures within operational limits at all times.
17. National Grid's decision on whether to carry out an energy balancing trade is influenced by the information that is provided by market participants. This information changes throughout the gas day as Shippers' physical and commercial positions become clearer. Where we believe there is a need to bring more or less gas into the NTS we will trade accordingly on the OCM NBP title market in an attempt to provoke a physical change in the delivery of gas to improve the anticipated residual imbalance position.
18. There is a link between the residual balancing trades that National Grid takes and the commercial incentives provided by the cashout mechanism to encourage Shippers to balance their own position. If National Grid takes a residual balancing trade on a day to resolve an energy imbalance, the highest (or lowest) priced trade will set a System Marginal Price, and it is at this price that a Shipper's imbalance on that day will be cashed out.
19. This link is important in the context of incentives as National Grid's residual balancing behaviour is intrinsically linked with market behaviour through the cashout and neutrality mechanism. The incentives that influence National Grid's balancing decisions are therefore key in driving efficient market operation as well as efficient system balancing.
20. The Residual Balancing Incentive was established in 1999, and updated in 2002 when it was set for five years as part of Transco's NTS price control. The incentive was rolled over on a one year basis for 2007/8 and again for 2008/9. As the form and scope of this incentive had not been thoroughly

reviewed since 2002, Residual Balancing formed one of the key areas in this year's consultation process.

21. The current incentive contains two elements, the Price Performance Measure (PPM) and the Linepack Measure (LM). The two elements are described in the following paragraphs.
22. As National Grid has no direct exposure to the costs of its balancing actions, the PPM is set to encourage National Grid to trade efficiently on behalf of the community, minimising the overall costs passed to neutrality and paid by shippers, and minimising its impact on cashout prices. The PPM encourages price efficiency by incentivising National Grid to carry out any balancing actions close to the System Average Price (SAP), measured through the differential between any National Grid balancing trades.
23. On its own the PPM would incentivise National Grid to avoid taking balancing actions whenever possible. Where actions were required, the incentive would encourage National Grid to seek opportunities to resolve imbalances at the cheapest prices, even if they were not on the same day that the original imbalance had arisen. Whilst this may result in an overall lower cost of balancing, this behaviour could cause poor cost targeting with those parties causing an imbalance not necessarily being exposed to the associated balancing costs. The current Residual Balancing Incentive promotes cost targeting through the LM element of the scheme.
24. The LM incentivises National Grid to minimise any changes between starting and closing NTS linepack over a gas day. This is intended to ensure that any system imbalances are resolved on the relevant day, ensuring that the costs of resolving any imbalances are targeted to those responsible for the imbalance (referred herein as the 'polluter pays' principle). As a result of the LM, National Grid is incentivised to manage linepack changes in a tighter commercial band than the physical system limits that may exist on the day. Hence the LM may cause National Grid to trade for 'polluter pays' reasons rather than purely against a physical balancing requirement.
25. Between the two parts of the incentive there is an inherent tension between National Grid trying to avoid taking balancing trades as a result of the PPM, but needing to trade as a result of the LM to try and return linepack close to its opening level, thereby upholding the 'polluter pays' principle. In the event that a trade is necessary, the incentive ensures that we trade close to SAP thereby minimising the spread in cashout prices.

3.1 Residual Balancing Consultation Issues

Interaction between PPM and LM

26. A key issue raised during the consultation was the interaction of the two elements of the Residual Balancing Incentive. The PPM incentivises National Grid to minimise the impact on the market of any Residual Balancing trades or to not trade at all. The LM incentivises National Grid to trade when appropriate, to ensure that closing linepack returns to the level of opening

linepack at the end of each gas day. The consultation document therefore asked a number of questions on the tension between the PPM and LM and whether these resulted in the desired balance of behaviours from National Grid as residual balancer.

27. One of the key points raised in the consultation document was whether the objective of the LM was still appropriate, including whether or not to widen the linepack target or even completely remove it. This would potentially allow linepack to operate closer to the physical limits of the NTS, rather than within the current tighter commercial limits, which would decrease the incentive on National Grid to enter into residual balancing trades. However, it was noted that this might result in larger imbalances between gas days potentially resulting in misallocation of costs between parties.
28. Adjustment (or removal) of the linepack target or other changes to incentive parameters were highlighted as dependent on industry views of the desired balance between minimal market intervention by the residual balancer and upholding of the 'polluter pays' principle.
29. The responses to the consultation document confirmed that minimal market intervention by the residual balancer should continue to be a key objective for a Residual Balancing Incentive. When the residual balancer needed to enter the market, the incentive should continue to encourage trades close to market prices. All of the responses indicated that the existing PPM supported these objectives and that structural changes to PPM were not required.
30. Views on the existing LM were mixed, with two of the responses showing support for the removal of any commercial linepack targets to allow linepack to be constrained only by the wider physical system limits. The other responses indicated support for continuation of a commercial linepack measure to avoid large imbalances being transferred between days. However, these responses did indicate support for reform of the existing LM, with support for widening of the 2.4 mcm target. In these proposals we are consulting on two options which have been developed to reflect varying views on a LM. The options are contained in section 3.2 of this document.

Potential LM Scheme changes

31. The existing LM is based around the objective of balancing the system to achieve closing linepack back to the level of opening linepack. In this year's consultation document National Grid highlighted that although this supported the daily balancing regime, there might be valid operational reasons for the system operator to want to move away from opening linepack. An example of this is the need to build up linepack levels to operate the system at higher demand levels during a winter period. It was generally acknowledged by respondents that National Grid should not be unduly penalised through the incentive in these circumstances.
32. National Grid therefore sought views on whether an alternative method, based around operational requirements, should be used for setting the closing linepack target. One example of this is to link the closing linepack target to

forecast demand.

33. Consultation responses showed support for further consideration of alternative operationally based options for setting the closing linepack target. Suggestions included using a forecast seasonal profile or a predefined fixed relationship with demand. However, shippers did have clear requirements that any new mechanism would need to be transparent and should not introduce uncertainty into the market.
34. We have considered various ways of setting a linepack target in a way that met the needs expressed by Shippers. A mechanistic relationship between demand forecast and linepack could result in daily linepack target swings based on the volatility in daily weather patterns. The alternative option of smoothing demand by using a forecast seasonal profile could lead to operational issues if actual weather/demand were not in line with forecast. For these reasons we believe the complexity and risk that these mechanisms could introduce outweigh any potential benefits that such a scheme could deliver.
35. One of the consultation responses suggested the creation within UNC of a separate role, the National Grid linepack account, which would have responsibility for managing the required operational changes in daily linepack by trading for operational linepack requirements in advance.
36. Given the typical difference between summer and winter linepack levels this movement between these two levels over a six month period would create a requirement for a daily linepack account trade of ~0.16mcm. As the daily volatility in closing linepack is much larger than this, it is not clear that additional trading of 0.16mcm a day would add to the overall efficient operation of the market.
37. National Grid's buy and sell actions are broadly equal in number in both the periods when a linepack account would be looking to increase or decrease linepack either heading into or out of a winter. As a result there is an equal probability of the linepack account trades helping or hindering the residual balancer and in the extreme the residual balancer may have to trade to undo the linepack account trades.
38. Overall, whilst we understand the rationale for proposing such a mechanism, we believe it could potentially lead to inefficiency in residual balancing. Given the UNC and system changes required to facilitate it, this approach is not appropriate in resolving the issue.
39. National Grid believes that a better approach would be to relax the LM target to allow the system operator greater scope to move linepack as operationally required. A wider linepack target is aligned with the industry responses to the questions on changes to the Residual Balancing Incentive.

3.2 Proposed Incentive Design Options

40. Reflecting the range of views expressed in the responses to the consultation, National Grid has produced two distinct proposals for potential new incentive schemes. The main differences between the schemes relate to the strength of the LM compared to the PPM. We recognise that it is possible to design many options that are variations to those proposed and we welcome market participants views on the features of the schemes, as well as a preference on the options proposed.
41. During this year's consultation, some parties have raised concerns about the timing of National Grid's residual balancing trades. In our August consultation document National Grid provided data on the times of our residual balancing trades which showed the majority occurring in the second half of the gas day. The behaviour is driven by the objective of minimal action by the residual balancer, allowing market participants time to balance their own position and National Grid only trading once there is certainty around predicted closing linepack (PCLP)¹¹. Although the proposals contained in this consultation document could potentially lead to less residual balancing trades, they are unlikely to effect the times at which these trades are undertaken.
42. The two proposed schemes are summarised in the figures below and each is discussed separately in the subsequent paragraphs.

¹¹ The August consultation document includes a graph which shows how certainty of the PCLP increases as the Gas Day progresses.

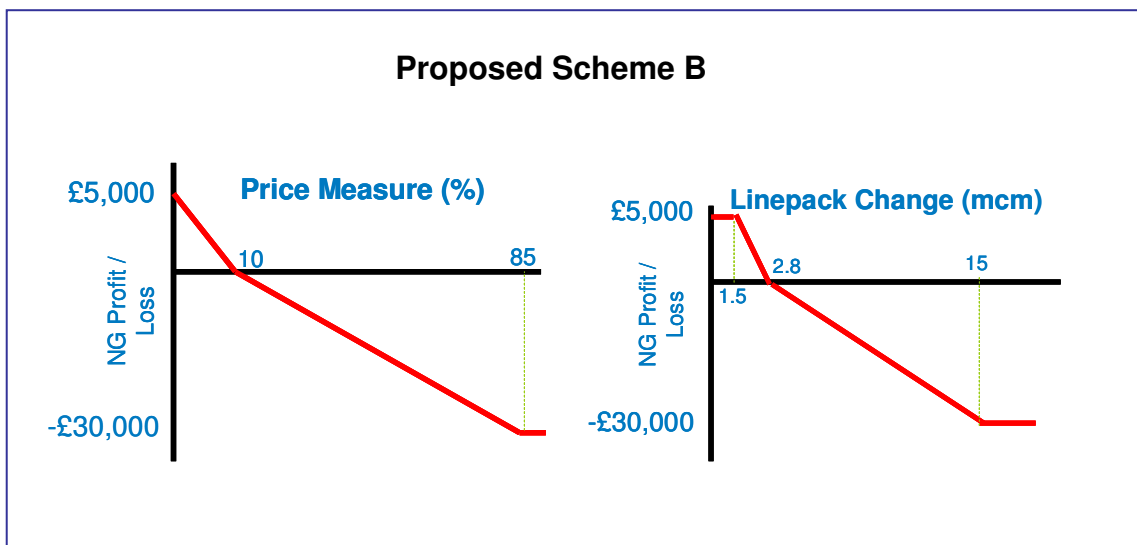
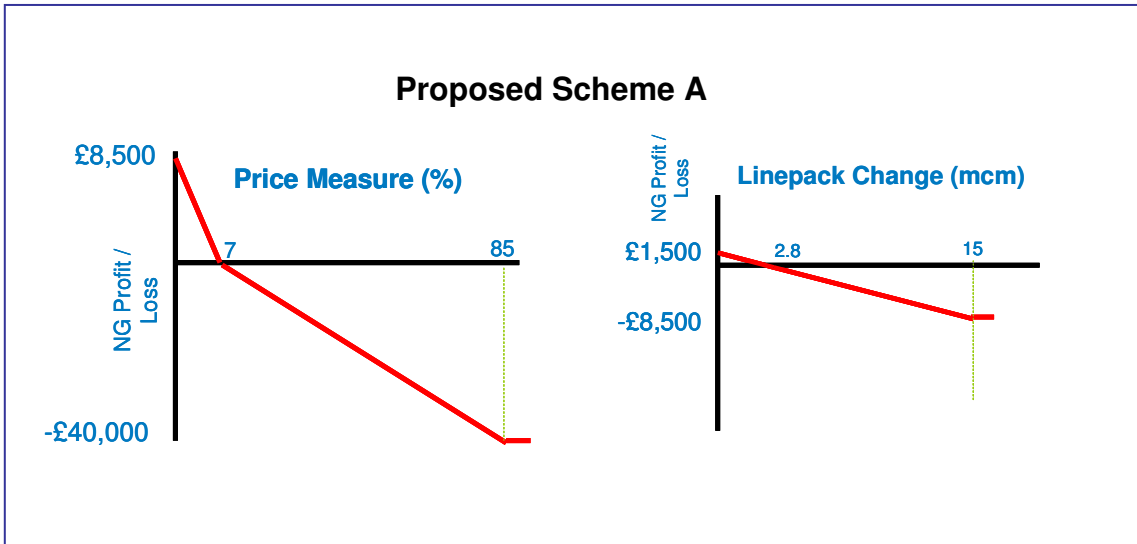
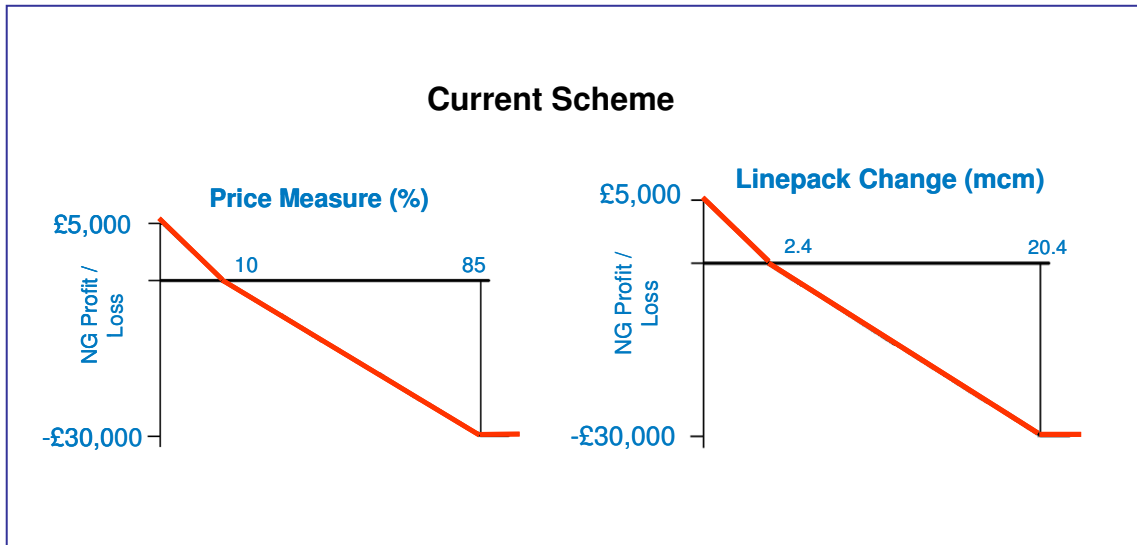


Figure 1: Alternative options for the Residual Balancing Incentive

43. **Scheme A** changes the balance between the PPM and LM, with a stronger incentive on PPM and a weaker incentive on LM than at present, although it does not go as far as removing the LM completely. Such a scheme should lead to National Grid taking fewer balancing actions than at present as the considerations over the linepack incentive would be less prominent in the operational strategy developed for each day. Although an incentive remains to prevent large imbalances being carried forward. Such a scheme may provide scope, within operational limits, for resolving imbalances on different days where we believe it could be achieved with a lower price spread although this must be weighed against potentially weaker cost targeting.

The proposed linepack target of 2.8mcm is based on analysis of an “unmanaged” linepack change where historic outturn linepack changes are adjusted by removing the impact of National Grid’s balancing actions (assuming a 1:1 volume delivery against our balancing trades).

With the increased focus on price performance in this scheme it is proposed to tighten the PM target from 10% to 7% with increases to the daily caps and collars to increase the incentive on National Grid in this area. This scheme for PPM was originally proposed in one of the responses to the consultation document.

In summary this scheme would promote a minimal residual balancer role with incentives to trade based largely on physical needs of the system whilst retaining the objective of not allowing large imbalances to be taken across days to constrain significant misallocation of costs.

44. **Scheme B** is incremental to the current incentive by retaining the current balance between the PPM and LM elements with some changes to the LM scheme. The objective of the proposed changes is to reduce the incentive to take potentially unnecessary trades to ‘fine tune’ the system balance and to strengthen the incentive to minimise large imbalances being taken across days.

This scheme builds on an idea raised in response to the August consultation and proposes that once the closing linepack is close (within 1.5 mcm) to opening linepack the incentive payment should be flat removing any incentive for further residual balancing trading. We are also proposing that the downside sharing factor be made steeper¹² to tighten the incentive to ensure large imbalances are not carried forward to the next gas day to promote cost targeting. We are proposing the LM target be set to 2.8mcm for the reasons set out in Scheme A.

In summary Scheme B upholds the polluter pays principle by incentivising the SO to ensure linepack imbalances are not transferred between days, but not to trade to unnecessarily ‘fine tune’ the system balance.

¹² It should be noted that the physical system limits also act to ensure that large imbalances are resolved and therefore there is no need to make the incentive punitive to prevent large imbalances e.g. through an ever increasing downside.

Annual Caps and Collars

45. We propose that the existing overarching annual caps and collars of $\pm\text{£}3.5\text{m}$ are retained unchanged.

Scheme Duration

46. To create stability for National Grid and market participants we believe, having conducted a fundamental review of the Residual Balancing Incentive that a scheme should be set until there is a specific need to review it again, rather being subject to continual annual review.

Consultation Questions

Question 1	Do either of the two residual balancing schemes presented better reflect an appropriate balance between driving minimal residual balancing and correct allocation of costs?
Question 2	Do you have any comments on any aspects of the scheme(s) features or parameters (including the performance target, the daily caps/collars, the balance between the strength of the LM compared to the PPM) ?
Question 3	Should this incentive be reviewed periodically (e.g. annually) or only when there is a specific need to?

3.3 Inter Day Energy Transfer Service

47. Through this year's consultation National Grid introduced the concept of an inter day energy transfer service, which could be designed to allow an agreed amount of imbalance to be carried over between pre-agreed days. This concept was included in the consultation as it stemmed from the discussions on Residual Balancing Incentive design, potentially allowing shippers to access the wider physical system linepack change limits whilst still upholding the polluter pays concept. We sought views on whether in principle this service is something that Shippers might be interested in us developing.
48. Responses to this potential service ranged from interest in the concept (with the caveat that further development was required) to responses not supporting it. Shippers raised a number of areas of concern that would need to be addressed through the design of the service, such as impacts on overall market efficiency, National Grid's role in the market and the potential impact on safe system operation.
49. The responses to the consultation have highlighted some of the key questions that would need to be answered if a service was taken forward. Whilst there may potentially be an interaction between such a service and a Residual Balancing Incentive, we believe that the consideration of such a service should be taken forward separately to the development of SO incentives. Based on the representations received we believe there is merit in taking this concept potential service to the next stage of development and it is our intention to develop a "strawman" model for industry consideration in 2009.

Section 4 Shrinkage

This section sets out our conclusions on the appropriate form and scope of Shrinkage Incentives, and presents our forecasts and incentive scheme options for incentivising minimisation of the costs of shrinkage. It also proposes a new scheme to incentivise a reduction in levels of NTS unaccounted for gas.

Context

50. National Grid undertakes the role of NTS Shrinkage Provider on behalf of the community and procures gas and electricity for this purpose. NTS Shrinkage covers the gas and electrical energy which is used for compression and to cater for gas that cannot be accounted for and billed in the measurement and allocation process. The Shrinkage Incentive encourages National Grid to minimise the overall cost of procuring gas and electricity to cover the three shrinkage components:
- Compression Energy - that energy used to run compressors to transport gas through the NTS.
 - Calorific Value Shrinkage (CV Shrinkage) – that energy which cannot be billed due to CV capping under application of the Gas (Calculation of Thermal Energy) Regulations 1996, subsequently amended in 1997.
 - Unaccounted For Gas (UAG) – that energy which cannot be allocated 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 and is primarily due to inherent Entry and Exit metering tolerances.

The existing Shrinkage Incentive

51. The form of the current Shrinkage Incentive is a bundled cost minimisation incentive across all components of shrinkage, with a £m target derived from gas and electricity volume forecasts multiplied by gas and electricity reference prices respectively.
52. The volume target is set in advance of the year based on separate forecasts for each of the three elements of shrinkage. Last year, to reduce the uncertainties in the forecast of compressor fuel use, the target was referenced to an identified volume driver using a five step banding approach (hence the target varied depending on the outturn of the volume driver). The incentive was also changed from an annual incentive to a quarterly incentive.

53. A gas cost reference price (GCRP) is used as the benchmark against which National Grid's procurement strategy can be judged. As part of last year's consultation process, a mix of year ahead and more prompt (monthly) wholesale market prices was agreed as the gas cost reference price (GCRP) to apply until 2012 (the end of this Transmission Price Control period) to avoid uncertainty.
54. An interim Electricity Cost Reference Price was also established for 2008/9 for one year. The ECRP was only set for one year to allow consideration of potential alternatives during this year's review process.
55. During last year's consultation process, specific CV shrinkage risks were identified which due to the existing network topology were outside of National Grid's control as SO. These risks were considered low probability events with large impacts should they occur. As there are no economic solutions available to the SO to reduce these specific risks, the volume risk associated with them was excluded from the incentive scheme. However, National Grid is still incentivised to buy any volumes associated with all CV shrinkage efficiently as with other components of Shrinkage.
56. The objective of the current Shrinkage Incentive is for National Grid to minimise the overall annual cost of shrinkage to the community. This can be achieved by reducing the volumes of shrinkage and/or through the adoption of efficient procurement strategies. On a "mark to market" basis the forecast costs to the community for shrinkage in 2009/10, is currently around £156m.

Key issues raised in this year's consultation

57. Through the workshop and consultation document, National Grid raised a number of questions on the existing incentive and potential future incentives. The key themes from the consultation can be summarised as follows:
 - The overall objective of the Shrinkage Incentive, particularly in relation to minimising the use of compression.
 - How the form and structure of the incentive could be changed to target behaviours and better measure performance, particularly in respect of UAG.
 - Developments to modelling and forecasting future requirements for compressor fuel to derive a robust incentive target.
 - The best way of managing and incentivising the procurement of electricity for electrically driven compressors.
58. In relation to the overall objective of the incentive, the consultation responses showed a near unanimous response that the fundamental objective of the Shrinkage Incentive should be cost minimisation. Our proposals have

therefore been designed with this fundamental objective in mind.

59. In relation to the other issues raised, the following sections provide more details on each of these issues, the industry's responses to the consultation questions and how these issues have subsequently been taken forward to develop initial proposals for incentives.
- **Section 4.1** describes the issues with the current bundled total cost incentive, in particular the treatment of UAG volumes. It concludes by proposing changes to the structure of the Shrinkage Incentive to provide an increased focus on reducing levels of UAG over the longer term by splitting out a separate UAG scheme, whilst still ensuring that the remaining shrinkage components are incentivised as now.
 - **Section 4.2** contains a proposal for a long term incentive scheme to reduce UAG volumes.
 - **Section 4.3** describes our modelling, forecasts and options for the remaining shrinkage cost incentive scheme with the objectives of reducing compressor fuel volumes, CV shrinkage volumes and the efficient procurement of all gas and electricity for the overall shrinkage requirement.

4.1 Unaccounted for gas (UAG)

Background

60. UAG is that energy which remains unallocated after accounting for all measured inputs and outputs from the NTS, Own Use Gas consumption, CV shrinkage and the change in NTS linepack. The primary cause is believed to be the inherent metering tolerances associated with entry and exit meters. The diagram below summarises this, and shows the number of input and output meters that may be in service on a particular day.

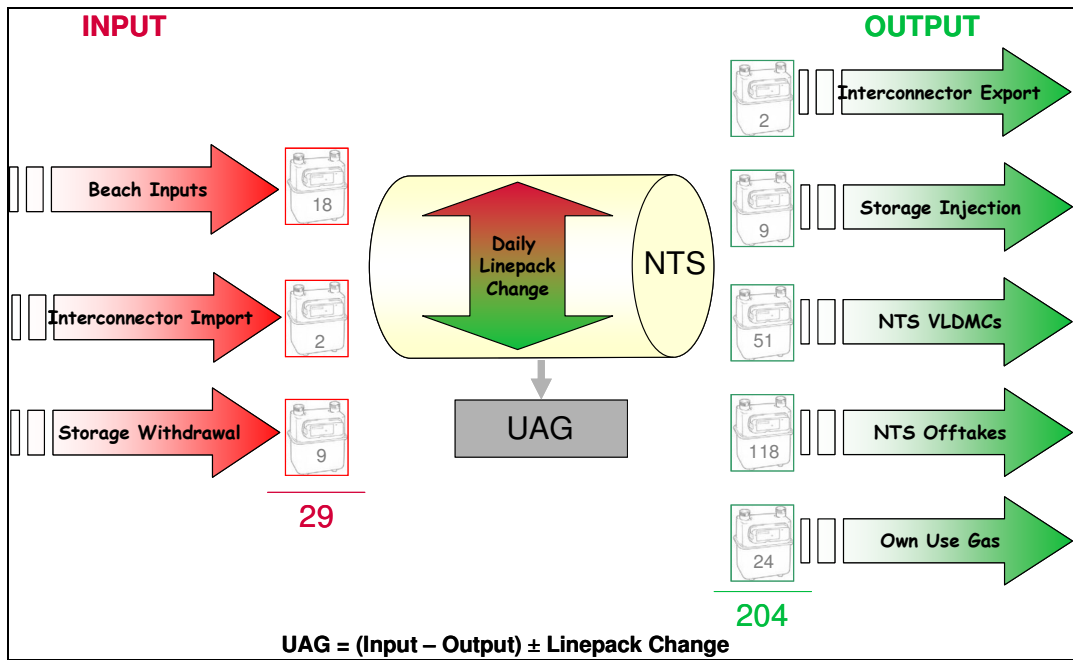


Figure 2: UAG calculation and metering inputs

61. UAG volumes show a high level of volatility on a daily basis and no correlations with other factors, such as demand, have been identified. Over recent years there has been a rising trend in the net annual UAG volume as shown in the figure below (current year forecast in mauve).

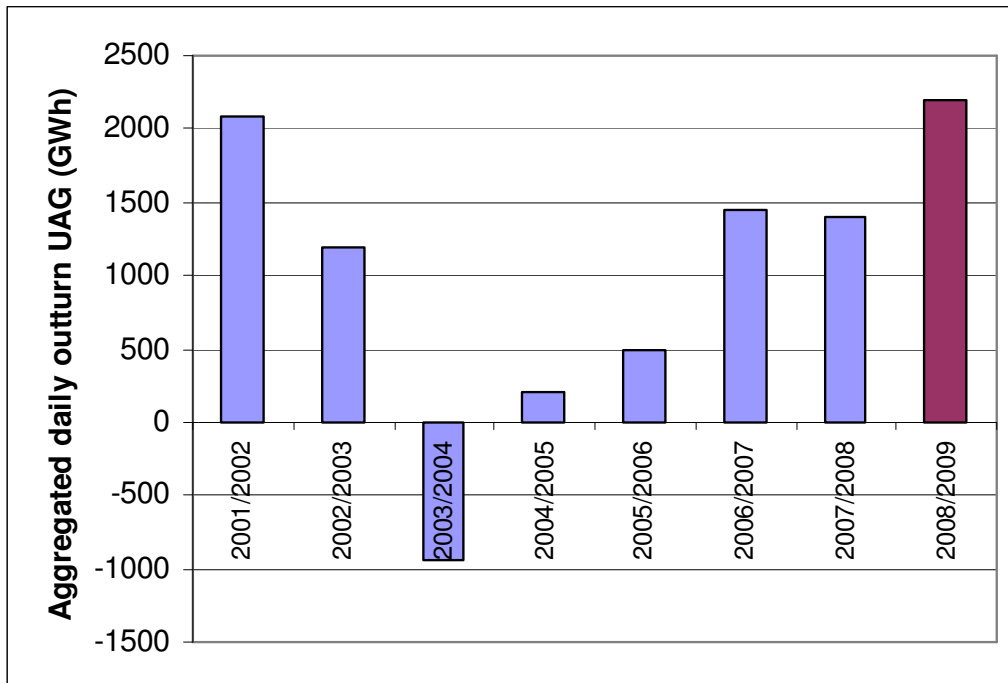


Figure 3: Outturn UAG and forecast for 2008/09

UAG in a bundled Shrinkage Incentive

62. The previous consultation highlighted a number of issues associated with UAG being part of a bundled Shrinkage Incentive, which are summarised below.
- National Grid does not have the same level of influence over volumes of UAG as it does over other components within the incentive. This creates a weaker incentive in relation to targeting UAG.
 - As Shrinkage provider, National Grid procures gas to cover the net UAG outturn position and therefore this has to be forecast for inclusion in the incentive target. Given the unpredictability of the annual net UAG volume, the absence of an explainable driver and the extent to which it has varied historically, it is difficult to have confidence in such a forecast leading to the potential for windfall gains and losses to arise.
 - How to measure the efficiency of a procurement strategy for a volatile profile (UAG) compared to one which can be forecast with a higher degree of certainty (compressor fuel).

UAG Consultation issues and responses

63. The previous consultation document set out the potential sources of UAG and highlighted the limited degree of influence that National Grid NTS can have in reducing UAG given that it only owns 32 of the 204 exit meters and none of the entry meters. It set out the sorts of activities that National Grid currently undertakes in the area of meter assurance and pre-close out activities.
64. The consultation responses showed support for changes to the existing incentives to find a better way of incentivising a reduction in UAG, reflecting the fact that National Grid is probably best placed in the industry to tackle the issue, but also recognising that National Grid can only have an indirect influence on UAG.
65. Given that any action taken in attempting to reduce UAG is not guaranteed to succeed, we consulted on whether incentive performance should be based on the UAG outturn levels or on the specific activities undertaken (e.g. the number of meter validations witnessed). Although the responses indicated an industry desire for more validation witnessing there was a clear steer that performance should be measured by the reduction in UAG volume and this should ensure that National Grid focused on all areas that could potentially be contributing to UAG. Given the timescales associated with influencing some of the drivers of UAG a majority of responses supported this being a multi year incentive.

Conclusions on Incentive structure

66. Given the UAG issues raised during the consultation and the industry's response to them, we are proposing to incentivise UAG volumes in a different

way through a new incentive which uses annual gross (or absolute) levels of UAG as the performance measure. This is described in Section 4.2 below.

- 67. We are also proposing to retain the existing shrinkage cost minimisation incentive with appropriate adjustments for outturn UAG (as the annual net energy still has to be procured by the shrinkage provider); this is described in section 4.3.

4.2 Proposed UAG Incentive

- 68. NTS UAG is in reality an accounting tool which directs net volumes that cannot be allocated to other accounts (e.g. meters) to the Shrinkage provider account. Whilst the existing Shrinkage Incentive recognises and focuses attention on the net costs associated with the costs socialised through shrinkage it does not recognise the misallocations and therefore cross subsidies that occur on a gross basis. For example, in the shrinkage provider account, 10 units of positive UAG on one day could be offset by 10 units of negative UAG on the next, resulting in zero costs being passed to commodity charge. In reality on both of these days there was misallocation of costs between parties which is masked.
- 69. The table below summarises how there will be individual parties who gain and lose as a result of the misallocation of volumes under every individual meter error.

	Impact on Shippers at the affected meter	Socialised impact on all Shippers
+ UAG Gas metered in exceeds gas metered out. Gas has been 'lost' from the network.	Gain Through either not paying for gas that they have actually taken or being paid for putting more gas into the system than they actually have.	Lose Increase in commodity charge
- UAG Gas metered out exceeds gas metered in. Gas has been 'created' in the network.	Lose Through either paying for gas that they have not actually taken, or being paid for putting less gas into the system than they actually have.	Gain Decrease in commodity charge

Table 1: The impact of a meter error on UAG and industry parties

- 70. National Grid believes that since UAG (irrespective of direction) is effectively misallocation of costs between parties it is appropriate to propose a new scheme with the objective of reducing gross UAG levels, designed to recognise the limited degree of influence that National Grid has over these volumes and the nature of the things it can do to try and influence a reduction in UAG levels.
- 71. Figure 4 shows that although net aggregate UAG volumes on an annual basis have been volatile and are currently exhibiting a rising trend, over the same period the gross aggregates of daily UAG volumes are reasonably constant.

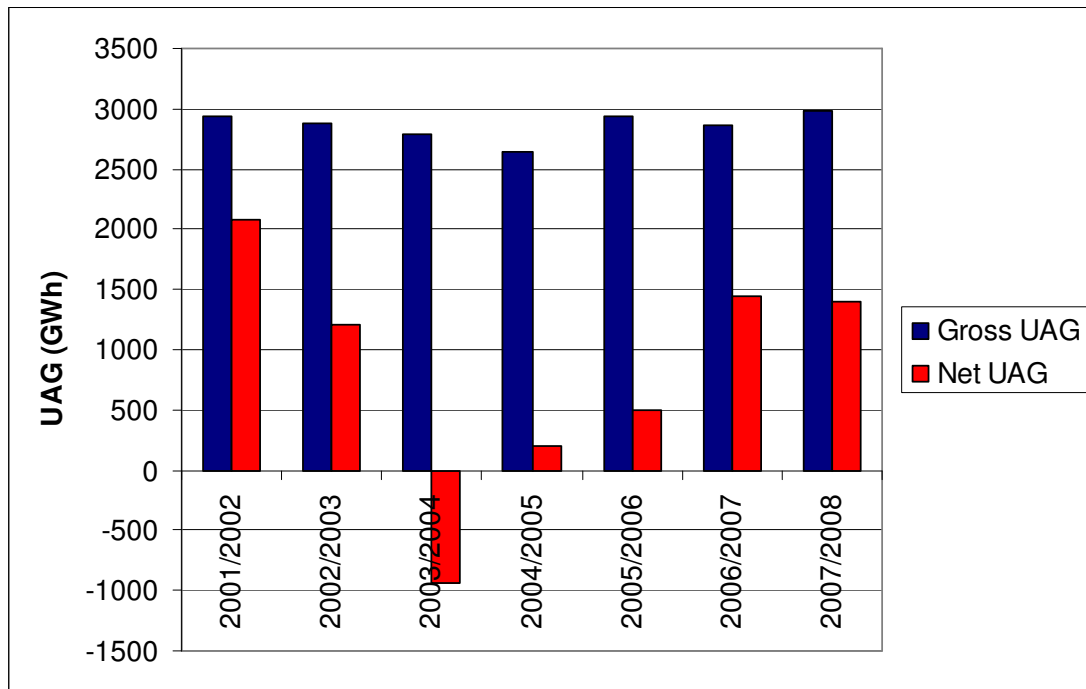


Figure 4: Gross and Net UAG

Target

72. National Grid's proposal for a volume target against which performance should be measured is the average of the historic data available. To ensure the most up to date target is set we believe that in the final scheme the target should be set to include the outturn gross UAG level from 2008/9, (i.e. the target would be the average of 2001/02 to 2008/9). As a guide, based on the completed years 2001/02 to 2007/08, the target would be 2862 GWh. As there is variance in the historic data it may be appropriate to include a deadband, although this weakens the incentive. We also believe that the target should be set at the outset for the duration of the incentive.

Duration

73. The activities that National Grid may undertake as a result of this incentive, for example witnessing of additional meter validations could, given the size of the meter population, take a number of years¹³ before any potential benefits would start to be observed. Given the potential costs and timescales for delivery of any benefits National Grid proposes that the scheme should be an annual scheme but set for five years.

Risk / Reward Profile

74. National Grid will be incurring additional costs in attempting to reduce UAG which would be done so at risk with no guarantee of delivering a benefit against the incentive target due to the fact that our activities have a limited and indirect influence on UAG. National Grid therefore believes that the incentive should therefore be upside only recognising that incurring costs at

¹³ Including time to recruit and plan for visits and to actually carry out visits to the identified sites, which may take more than one visit to deliver benefits.

risk is an implicit downside to the scheme.

Incentive Value

- 75. We propose to set the financial incentive parameters by valuing UAG misallocation at a market price, and then sharing the benefits of any reductions of UAG between shippers and National Grid. Whilst we believe this is appropriate to ensure that any incentive payment does not outweigh the value delivered, we also believe the incentive needs to fulfil another objective which is to be strong enough to actually make a business case to incur costs against an uncertain outcome.
- 76. To calculate our proposed value for the incentive we have multiplied the absolute level of daily UAG in 2007/8 by the SAP value for the corresponding day, this values UAG at approaching £40m. This figure can then be divided by the annual average UAG estimated at 2862 GWh, to produce a benefit value of approx £14k per GWh. National Grid proposes that any benefits delivered be shared equally with Shippers and therefore applying a 50% sharing factor gives an incentive value of £7k per GWh of reduction to the gross annual level of UAG.

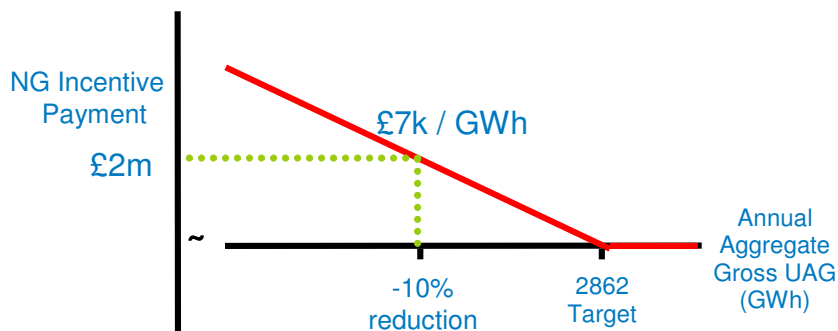


Figure 5: Summary of Proposed UAG Scheme

To illustrate the proposed scheme, a 10% reduction against the target would deliver a benefit valued at £4m and therefore an incentive payment of £2m.

Limits on Incentive Benefits

- 77. We have not proposed a ‘cap’ on this incentive as we believe that this would imply a level at which it would not be beneficial to seek further reductions in UAG, which does not seem appropriate. We also consider that the level of reduction that can reasonably be achieved is likely to be relatively modest given the indirect nature of our actions on UAG outturns.
- 78. We recognise that by not re-setting the target year on year over the 5 year incentive duration there is the potential to earn incentive payments over multiple years, more so from benefits delivered in earlier years. There are three reasons why we believe this is appropriate.

- Overall, given the context of this scheme, and the nature of activities likely to influence UAG, we consider it is unlikely that significant reductions in UAG can be achieved in the first few years of the scheme.
- In considering ways to respond to the incentive we may identify actions that have a 'one off' cost, as well as actions that would generate recurring costs. Resetting the target annually to incorporate benefits delivered into a new target would not deliver the longer payback period necessary to make the incentive attractive enough at the proposed levels to consider actions of this nature.
- In the case of activities that incur recurring costs (which are likely to be necessary to deliver sustained benefits from year to year), we believe it is appropriate to continue to earn an incentive payment in each year.

79. We welcome industry views on all aspects of the proposed scheme including the potential for additional mechanisms such as caps and target deadbands that may be appropriate.

Consultation Questions

Question 4	Do you think it is appropriate to have a separate incentive on UAG? Do you agree that this should be a long term incentive?
Question 5	Do you agree with the proposed UAG incentive and do you have any comments on the specific proposals outlined (including whether a scheme should be based around gross UAG and whether the proposed target and incentive value are appropriate)?
Question 6	Do you believe that any limits should be applied to the proposed scheme? Please describe how best to achieve this e.g. by suggesting a dead-band, cap or method for resetting the target?
Question 7	Do you believe there is an alternative proposal that would better incentivise reduction of UAG volumes?

4.3 Proposed Shrinkage Cost Incentive

80. We are proposing to retain the Shrinkage Incentive largely in its current form, constructed as a total cost incentive with a target derived from target volumes multiplied by reference prices relating to the gas and electricity requirements respectively. The volume target will consist of the forecast compressor fuel requirement¹⁴, forecast CV shrinkage volumes and outturn volumes (effectively volume pass through) associated with CV Shrinkage carve out and net UAG. The price element consists of reference prices for both gas and electricity procurement. Each of these elements is discussed in turn in the following paragraphs.
81. For the avoidance of doubt, with the proposed introduction of a separate UAG volume incentive it is necessary to make changes to the shrinkage cost incentive to avoid incentivising UAG volumes twice. As all shrinkage

¹⁴ Including an adjustment factor to remove windfall profits or losses due to factors outside of National Grid's control

procurement is carried out through the single Shrinkage Provider account it is necessary to add the outturn UAG volumes (and CV Shrinkage carve out) into the incentive target, making the incentive volume neutral to these components but still incentivising the efficient procurement and management of price risk associated with these components.

82. In order to derive appropriate targets for the shrinkage cost incentive, it is necessary to model and forecast future requirements and these issues are covered below.

Compressor Fuel Modelling

83. Last year in its final proposals document Ofgem expressed concerns about the sensitivity of compressor fuel volumes to supply and demand levels. To mitigate concerns over the potential influence of these external drivers under an annual scheme Ofgem set the Shrinkage Incentive scheme on a quarterly basis.
84. As a result of these concerns, in its consultation document, National Grid suggested a range of methodologies that could be used to forecast compressor fuel including an improved version of the existing regression model.
85. These improvements relate to the historic supply data used to train the regression models, which in turn are used to produce the overall compressor fuel forecast. Historically National Grid has used a number of regression models, some of which included historic data going back 48 months (reflecting the relative stability of supplies onto the NTS). With changing supply patterns on the NTS, particularly at Easington, the models trained on the older data were found to not be reflective of the current compressor requirements on the NTS. National Grid therefore moved towards using more recent supply history to train the models and increased the weighting between the models to the most recent history.
86. Responses to the consultation generally supported the continued use of National Grid's regression modelling approach and throughout the year National Grid has continued to focus on improving the forecasting accuracy of its models. Consultation responses showed unanimous support for using TBE¹⁵ Base Case for the supply assumptions and seasonal normal demand (SND) as model inputs.
87. Given the expected commencement of flows from Milford Haven during winter 2008/09 there is no historic data to model the influence of Milford Haven on Compressor Fuel Use (CFU), network analysis has been undertaken to determine the relative impact of flows from Milford Haven on CFU, compared to the impact of flows from other entry points. The network analysis shows that flows from Milford Haven have a similar influence on national CFU to that of flows from Isle of Grain and therefore the regression coefficient for Milford

¹⁵ Transporting Britain's Energy – National Grid's annual consultation process which produces the supply and demand forecasts and the Ten Year Statement

Haven has been set to the same value as that for the Isle of Grain.

- 88. Consultation responses also showed support for a mechanism by which the volume target could be adjusted as a consequence of changes in the most significant drivers of compressor fuel, to mitigate the forecast error caused by the outturn values of these drivers varying from the level assumed by the TBE forecast. Throughout the year National Grid has investigated which are the most appropriate target driver(s) to apply under such an approach.
- 89. The analysis carried out this year to determine the regression coefficients has identified that St. Fergus entry terminal continues to have the largest influence over total levels of CFU. This can be seen in the figure below which shows St Fergus has the largest regression coefficient with a sizeable difference to the regression coefficient of any of the other entry terminals.

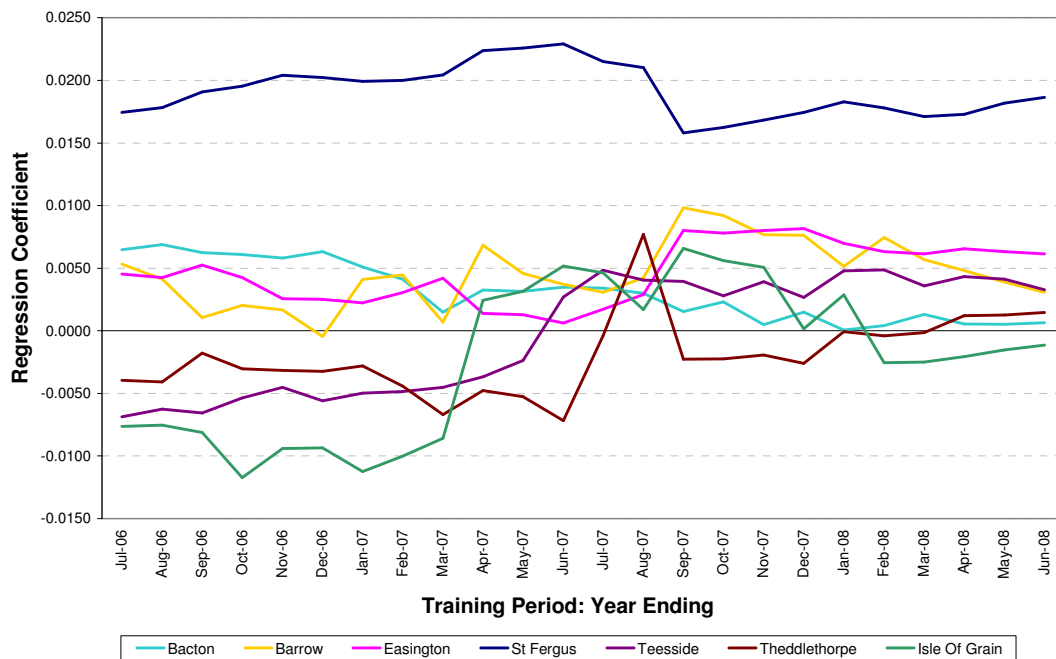


Figure 6: Regression Model Coefficients

- 90. In order to produce CFU forecasts it is necessary to make assumptions about supply and demand levels and patterns. Based on the industry responses to the consultation, National Grid has continued to use SND demands and the TBE Base Case for these assumptions in the modelling. As well as improvements to our models, we have also looked into further developing target drivers to adjust the CFU target for changes in key outturn conditions that affect compressor fuel use.
- 91. In previous years, the average daily St. Fergus flow has been used as the target driver of the total CFU forecast. St. Fergus was chosen as a result of its large regression coefficient (hence large impact on the overall forecast) and because there is a strong and consistent relationship between daily St. Fergus flows and CFU (see figure below).

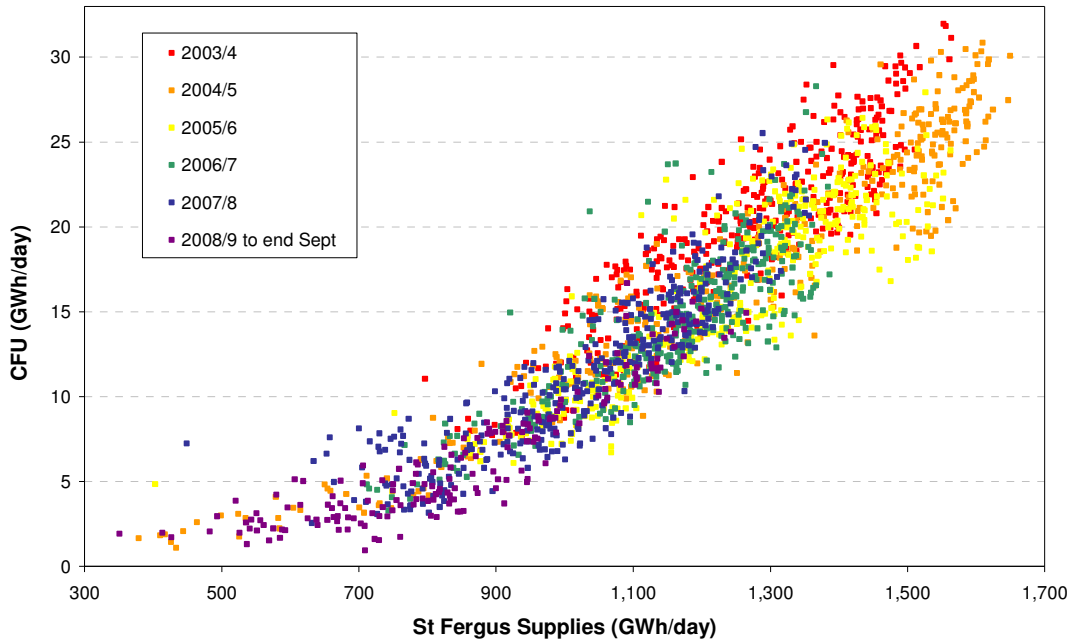


Figure 7: Relationship between St Fergus Supplies and National CFU by incentive year

92. National Grid has investigated alternative potential target drivers which could help improve the accuracy of the CFU volume target. These have included factoring in the influence of demand and also Easington terminal flows. Easington was chosen as it has the second largest coefficient in the regression model and therefore is the next most influential supply in relation to CFU.
93. In the August consultation document National Grid presented analysis which showed that demand was an inferior target driver to St. Fergus supplies (either on its own or as a second order correction to a St. Fergus driver).
94. Since then we have analysed the effects of adding Easington to a St. Fergus target driver. This analysis showed that the CFU adjustment effects of Easington were less than a tenth of St. Fergus. Our conclusion is therefore that the addition of a target driver adjustment for Easington flows is not warranted.
95. National Grid is proposing that St. Fergus should remain as the sole target driver for the CFU forecast, hence the three year forecasts for CFU contained in this document are shown against the corresponding St. Fergus supply.
96. As a result of developments this year, National Grid believes the model and hence forecasts have been significantly improved. This can be seen in the figure below which shows the CFU forecasts for the next three years are consistent with outturn from previous years and below the 2008/9 forecast contained in last year's Initial Proposals Document (issued in December 2007).

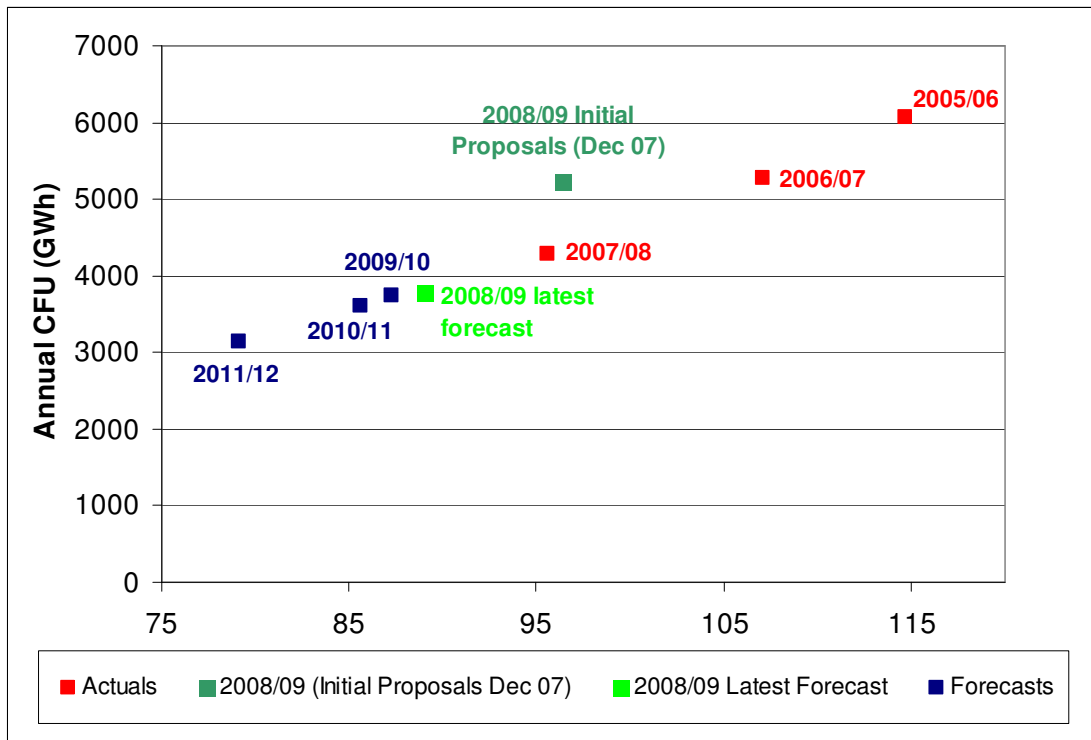


Figure 8: CFU forecasts

97. In previous years the target driver has operated in discrete bands, for example for the 2008/9 scheme there are bands of 5mcm St. Fergus flow¹⁶. Whilst bands offer a pragmatic approach to adjusting target adjustment a small change in the average St. Fergus flow can result in a significant change in the CFU target (under the existing scheme each band equates to a ~340 GWh change in the CFU forecast). National Grid is therefore consulting on whether this year's scheme should use a banding approach or a continuous function to alter the CFU target based on the relationship between St. Fergus flows and CFU. The continuous function is shown in the figure below for the 2009/10 forecast:

¹⁶ Starting at <85mcm/d and ending at >105 mcm/d

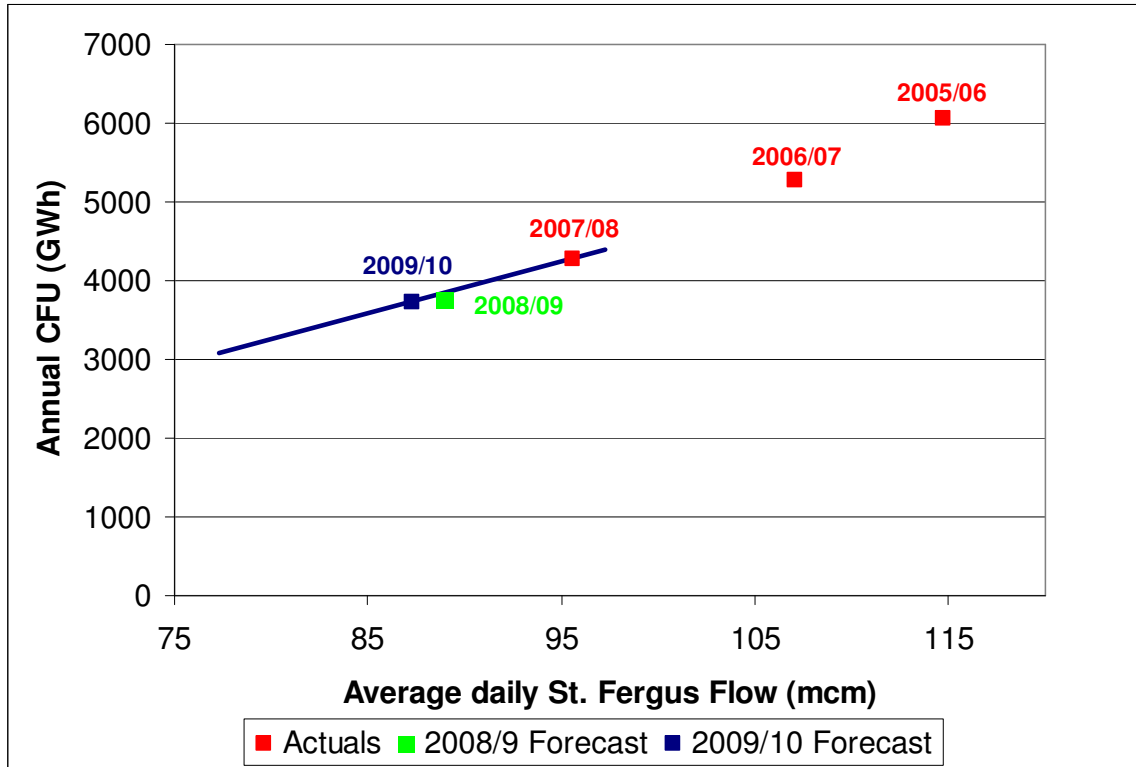


Figure 9: The relationship between St. Fergus flows and annual CFU, based around the 2009/10 forecast.

Compressor Fuel Forecast

- 98. The table below shows the annual forecast compressor fuel forecast from the regression model by year. This is split into the own use gas (OUG forecast) and the Electric Compression Energy (ECE) based on the electric changeout programme which is summarised in the following section.
- 99. As Peterstow and Lockerley compressors are too small to be included in the regression analysis, 4 GWh¹⁷ is added to the annual electric compression forecast for these compressors based on their historic usage.

Incentive year	Average daily volumetric flow through St. Fergus Terminal (mcm)	Compressor Fuel Forecast (GWh)	OUG Forecast (GWh)	Compression ECE component (elec GWh)
2009/10	87.3	3735	2826	307
2010/11	85.6	3598	2082	509
2011/12	79.1	3139	1498	551

Table 2: Annual St. Fergus flow assumptions and compressor fuel forecasts

¹⁷ The historic monthly data behind the calculation of the 4GWh value is contained in the datapack published alongside this consultation document

100. For each of the schemes the target driver would adjust the CFU target by 65 GWh of annual CFU for each 1 mcm change in the annual average daily volumetric flow through the St. Fergus terminal. This factor equates to the gradient of the line shown in figure 9. For example in 2009/10 if the average St. Fergus flow was 85.3 mcm (2 mcm below the assumption in the forecast) the CFU forecast would be reduced by 130 GWh.

101. Table 3 below breaks these annual forecasts down into a quarterly basis.

Incentive year split by quarter	Average daily volumetric flow through St. Fergus Terminal (mcm)	Compressor Fuel Forecast (CFU) (GWh)	OUG Forecast (GWh)	Compression ECE component (elec GWh)
2009 Q2	78.7	703	703	0
2009 Q3	69.2	397	350	16
2009 Q4	98.5	1257	917	116
2010 Q1	103.2	1378	856	175
2010 Q2	82.5	780	449	110
2010 Q3	70.6	436	234	67
2010 Q4	91.4	1108	644	156
2011 Q1	98.3	1274	755	175
2011 Q2	76.4	701	386	105
2011 Q3	64.3	380	197	61
2011 Q4	83.9	935	411	177
2011 Q1	91.8	1123	504	208

Table 3: Quarterly St. Fergus flow assumptions and compressor fuel forecasts

102. National Grid believes that should a quarterly scheme be agreed, adjustments should be made to each quarter’s CFU volume target by referring to the assumed St. Fergus flow for that quarter and applying an adjustment of 16 GWh of CFU for each 1 mcm change in the quarterly St. Fergus assumption.

Electric changeout programme

103. We are presently implementing a program to install electric drives at certain compressor sites, replacing gas fuelled turbines. Currently there are three electric drives on the NTS, two small stations at Peterstow and Lockerley and the new compressor installed this year at Wormington. Over the next few years, the changeover program will mean that a much more significant proportion of the energy required for operating NTS compressors will be electrical, rather than own use gas. The table below shows the current commissioning schedule for the new electric drives which underpins the forecasts for electric compression requirements above.

Site	Commissioning Target date
Felindre	Jan 09
Kirriemuir	Jul 09
Churchover	Sept 09
St. Fergus	Dec 09
Hatton	Oct 11
Peterborough	Oct 12

Table 4: Commissioning Schedule for Electric Drive compressors

CV Shrinkage Volume Forecast

104. The CV of natural gas determines the amount of energy transported. CV information is provided daily to gas shippers and suppliers, and is used to bill gas consumers for the energy they use. The methodology for calculating the daily CV within a charging zone is designed to ensure that customers within a zone are not at material risk of being charged for energy not supplied due to local variations in the CV of gas. This therefore gives rise to the possibility of energy being delivered that cannot be billed, which is termed CV Shrinkage.
105. Determination of the daily CV is enshrined within the Gas (Calculation of Thermal Energy) Regulations 1996 (Amended 1997). In summary, the methodology detailed in paragraph 4(A) of the Regulations says that the daily CV for a charging zone shall be the lowest of:
- the flow weighted average CV calculated across all of the inputs into charging zone; or
 - the average CV measured at any of the individual input points to the charging zone, plus 1MJ/m^3 .
106. Last year specific CV shrinkage risks associated with Ross, Dyffryn Clydach and Cowpen Bewley offtakes, (i.e. caused by Milford Haven and Teesside entry flows) and CV shrinkage volumes caused by direct DN entry were excluded from the incentive arrangements as there were no economic mitigating actions that National Grid could take as SO to manage these risks. National Grid believes these volume risks should continue to be excluded from the incentive arrangements.
107. Our forecast requirement for underlying CV shrinkage for 2009/10 is 142GWh, which excludes any effects of CV capping from supplies from Milford Haven, Teesside or Direct DN Entry. Given the unpredictability of when CV shrinkage may occur during a year, the associated quarterly targets would be 35.5 GWh for each quarter.

108. For the avoidance of doubt, National Grid would still have to procure gas to cover CV shrinkage from all sources, and the GCRP methodology would still provide us with an incentive to procure these volumes efficiently in the market, and expose us to the risk of inaccurately forecasting these volumes or mistiming their procurement.

Consultation Questions

Question 8	Do you agree with the shrinkage volume forecasts? Do you have any comments to make?
Question 9	Do you support using outturn flows at St Fergus as a target driver for the compressor fuel forecast?
Question 10	Is there still a requirement to have bands around the compressor fuel volume target or should the continuous relationship be used?

Gas Cost Reference Price and Uplift

109. The efficiency of the procurement strategy adopted by National Grid in purchasing gas to meet the Shrinkage volume requirement is measured against a Gas Cost Reference Price methodology, which was revised and agreed until 2012 through last year’s incentives review. The GCRP for each quarter is calculated by applying a 75% weighting to the average price of a quarter contract over each day in the year t-1, and a 25% weighting to the average price of a monthly contract over each day in the preceding month.
110. The GCRP methodology is used to provide a cost reference for a flat shrinkage profile. However, on any day National Grid will need to undertake residual buy or sell trades to fine tune the procurement position to meet the daily shrinkage allocation. The volume of these daily buys and sells are referred to as the “swing” volumes. The costs associated with these actions are currently captured through an uplift to the GCRP (the “GCRP Uplift”).
111. The current GCRP Uplift of 0.055p/kWh was set in 2001, based on the costs of meeting the swing requirement from the Rough storage facility and has not been reviewed since. We are proposing to review the uplift this year.
112. We believe there are two broad approaches to setting a GCRP uplift:
- Set a fixed uplift ex-ante of the incentive year based on costs of procuring a storage service to manage swing. This is the current approach.
 - Set an uplift methodology which will calculate ex-post an estimate of the costs of managing swing by trading on the within-day market.

These approaches are discussed further below.

Setting Ex-ante GCRP Uplift using a Storage Benchmark

113. Under this approach, the GCRP Uplift would be set in advance of the incentive year and would be benchmarked against the costs of procuring a storage service to manage the daily swing in shrinkage volumes.
114. As the uplift would be fixed in advance, National Grid would have the choice on whether to book a storage service to manage swing or to take the risk of trying to beat the benchmark price through an alternative strategy.
115. The existing scheme is an example of this approach. As the existing GCRP Uplift was set in 2001, National Grid is interested in the industry views on how under this approach, an appropriate storage based benchmark could be set for 2009/10.
116. In order to provide an indicative view of the uplift under this approach, we have updated the 2001 uplift by taking a snapshot of current published prices for the Rough storage facility for 2009/10. This has been based on the following assumptions:
- Rough costs 55.10p/kWh/day per unit of deliverability, derived from:
 - 46 p/kWh/ day per unit deliverability of a within-day Standard Bundled Unit (SBU) including NTS Entry Capacity.
 - 6.86p/unit deliverability estimated cost of 13 units of incremental space to meet volume requirement.
 - 2.24p/unit deliverability for injection and withdrawal assuming a single cycle.
 - 21 GWh of storage deliverability to cover the swing requirement (based on the 07/08 Shrinkage swing volumes).
 - Multiplying these together gives a total indicative Storage cost of £11.57m, which when divided by the aggregate 2007/08 shrinkage volume (5285GWh) gives unit cost of 0.219p/kWh.

Calculate an ex-post GCRP Uplift based on within-day market prices

117. Under this approach the costs of managing the swing volume would vary according to the profile of market prices and shrinkage volumes, and the uplift would be calculated ex-post based on a methodology that estimates outturn costs. The proposed methodology is as follows:
- The daily swing volume is calculated as the difference between the daily shrinkage allocation and the annual average shrinkage outturn.
 - On days where buys actions are required, the swing volume is priced at SAP on the day to calculate a cost to National Grid.

- On days where sell actions are required, the swing volume is priced at SAP on the day to calculate a revenue to National Grid.
- The total of all these daily costs and revenues are aggregated on an annual basis and divided by the annual volume of shrinkage to produce a GCRP Uplift on a p/kWh basis.

118. To give an indication of the uplift derived by this methodology historically, we have applied this methodology to swing levels and market prices from the last five incentive years. A detailed breakdown of the data and estimation of this Market (SAP) Based Uplift are included in the data-pack published alongside this consultation.

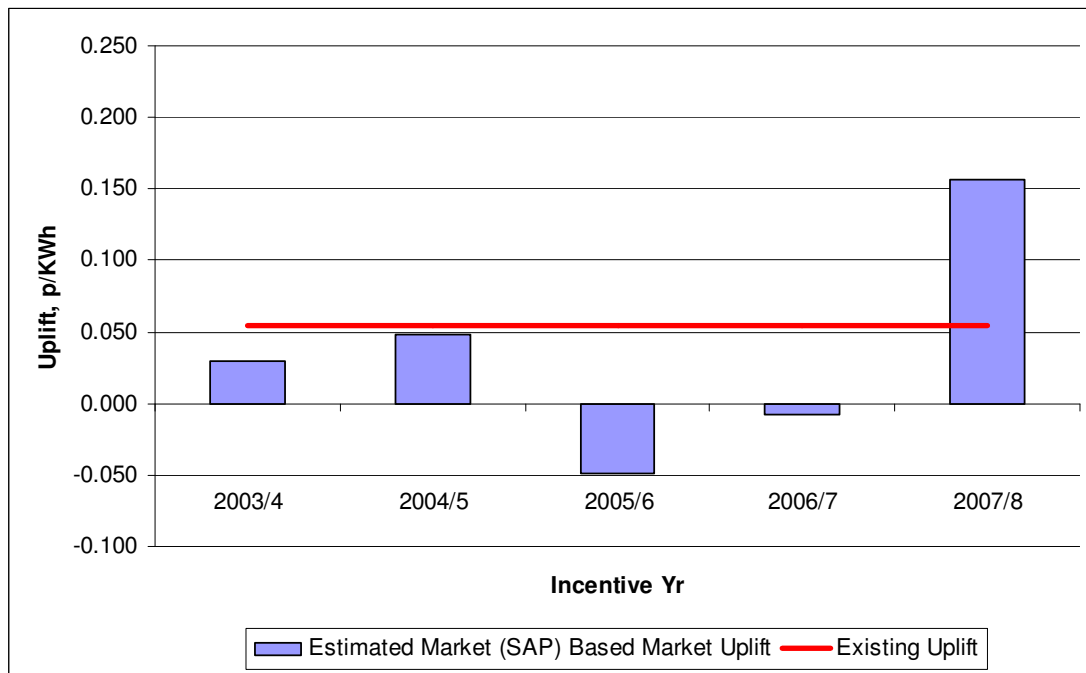


Figure 10: Estimated Market (SAP) Based Uplift compared to the Existing Uplift

119. Figure 10 shows that under the assumed market based methodology there is a level of volatility in the Uplift (i.e. the cost of swing). This is explained as follows:
120. On an annual basis the volume of swing that needs to be bought or sold is broadly consistent year on year, however the differences in costs between years occurs as a result of the profile of the volume within each year and the associated costs at which this profile need to be bought or sold. For example in 2007/8 a majority of the swing volume buy actions occur in a sustained period during the winter which was co-incident with high market prices¹⁸.

¹⁸ All of the buy and sell actions and the associated prices, assumed in the methodology can be found on a daily basis for 5 years in the data-pack.

121. We invite views on which approach (ex-ante storage or ex-post market prices) should be used for managing the costs of swing via the GCRP uplift and any views on the methodologies proposed above.

Electricity Procurement

122. National Grid has to procure electricity for the electric driven compressors on a retail basis which attracts delivery charges (DUoS and TNUoS) and other retail costs over and above wholesale prices. As part of last year’s process the retail commodity uplift over wholesale price was established at 16% + delivery charges. These equivalent retail and delivery costs are not incurred for gas volumes which are purchased wholesale through the shrinkage provider account as the gas is taken directly from the NTS and does not go through the delivery chain.
123. In the August consultation National Grid suggested that an alternative approach would be for National Grid to set up as an Electricity Supplier to purchase the electricity for the electric drives at wholesale prices. The consultation asked whether the industry would have any concerns with this approach and if so how the costs of setting up a supply business should be treated. Based on the consultation responses, which opposed this concept, National Grid is not proposing to take this approach forward at present.
124. In order to derive an appropriate retail benchmark for our procurement there was support for continuation of the existing arrangements with an Electricity Cost Reference Price (ECRP) based on wholesale prices with a retail uplift and separate treatment of delivery charges.
125. Last year an interim ECRP was set on a quarterly basis for one year. For each quarter the ECRP is based on the average March 2008 forward prices for that quarter. This is summarised in the table below.

Quarter	Apr08- Jun08	Jul08- Sep08	Oct08- Dec08	Jan09- Mar09
ECRP set using the average quarterly forward prices during	Mar08	Mar08	Mar08	Mar08

Table 5: Existing ECRP methodology

126. With uncertainty over the exact commissioning dates and until the operation of the new drives beds in, National Grid is unlikely to procure electricity at year ahead as it does with gas. To reflect the likely strategy of purchasing of electricity closer to its period of use, and the reasonably flat profile of expected use, we propose an ECRP constructed from a wholesale published price index (e.g. Heren) as the average wholesale baseload price for a quarter contract over each day in the month immediately preceding the delivery quarter, as summarised in the table below.

Quarter	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar
ECRP set using the average quarterly forward prices during	Mar	Jun	Sep	Dec

Table 6: Proposed ECRP methodology

127. This wholesale price would then be uplifted by 16% (as now) to reflect retail commodity costs to derive the ECRP for each quarter. Delivery charges would be added to the overall cost incentive target and the table below shows indicative delivery charges for 2009/10, which are based on published 08/09 rates increased by a 5.02% RPI assumption. National Grid would propose that these values are updated with the relevant TNUoS and DUoS tariffs for 09/10 prior to scheme implementation.

	Q2 2009	Q3 2009	Q4 2009	Q1 2010	Formula year 2009/2010
DUoS	£412,497	£471,316	£475,132	£475,132	£1,834,077
TNUoS	£504,074	£504,074	£504,074	£504,074	£2,016,296
Total	£916,571	£975,390	£979,206	£979,206	£3,850,372

Table 7: Estimated Electric Delivery Charges

128. If a multiple year scheme is to be introduced, then the delivery charges could either be reviewed every year (perhaps as an Authority direction or licence change) or a forecast could be produced using electric changeout program and RPI assumptions.

Consultation Questions

Question 11	On what basis do you believe the GCRP Uplift should be set for 2009/10 (e.g. ex-ante storage based or ex-post market price based)?
Question 12	Do you support the proposed Enduring ECRP methodology based on wholesale prices uplifted to reflect retail costs? Is there a more appropriate reference that could be used for the wholesale prices?

Proposed Shrinkage Incentive

129. This section describes how all of the various volume and pricing components previously discussed in this document are brought together to produce an overall cost target and then describes options for an incentivising the minimisation of these costs.

Target

130. National Grid believes that irrespective of whether the agreed scheme is annual or quarterly based, the total annual cost target should be broken down into quarters, allowing the appropriate quarterly prices to be applied to the appropriate seasonal volume requirements. The formula below shows how all of the volume and price elements discussed in this document would be brought together to produce a quarter’s cost target.

$\begin{array}{l} \text{Quarter} \\ \text{Cost} \\ \text{Target} \end{array} = \begin{array}{l} \text{Gas Volume}_{(q,t)} \\ \times \\ (\text{GCRP}_{(q,t)} + \text{Gas Uplift}) \end{array} + \begin{array}{l} \text{Electricity Volume}_{(q,t)} \\ \times \\ (\text{ECRP}_{(q,t)} + \text{Retail Uplift}) \end{array} + \begin{array}{l} \text{Electricity} \\ \text{delivery} \\ \text{charges}_{(q,t)} \end{array}$

Where

(q,t) denotes a variable with a value specific to quarter ‘q’ in year ‘t’

Gas Volume = OUG_(q,t) forecast¹⁹ (from table 3 in paragraph 101)
 +
 Underlying CVS_(q,t) forecast (see paragraph 107)
 +
 Outturn UAG_(q,t) volumes (see paragraph 67)
 +
 Outturn of the specific CVS_(q,t) risks (see paragraph 106)

Gas Uplift = Subject to outcomes from this consultation (see paragraphs 109-116)

Electric volume = ECE_(q,t) (from table 3 in paragraph 101)

Retail Uplift = 16% (see paragraph 127)

Electricity delivery charges = Value from table 7 in paragraph 127

GCRP & ECRP are the gas and electricity procurement reference prices calculated in accordance with the agreed methodologies.

¹⁹ Including adjustment for average daily St. Fergus terminal flows

Caps / Collars

131. National Grid believes the Shrinkage Incentive should be set up in a way that stretches us to deliver cost savings for the community and rewards good performance. At a point where either the caps or collars of a scheme are reached, the incentive for us to stretch ourselves is effectively weakened. We have considered the scope to reduce shrinkage costs, paid by shippers, that could potentially be achieved if stretch performance could be realised in all areas of influence. We believe the potential scope of these savings²⁰ could be £20m and at a sharing factor of 25% would imply a £5m cap. Therefore we are proposing an increase to the cap of the scheme from £4m to £5m.
132. We also recognise that passing through UAG volumes reduced the risk around this volume component of the incentive and therefore propose an increase to the downside collar from £-3m to £-4m.

Sharing Factors

133. The sharing factors dictate National Grid's share of cost reductions delivered or additional costs incurred. We are not proposing any changes to the sharing factors as we believe there are no strong arguments to justify a change.

Quarterly vs Annual

134. The 2008/9 scheme operates on a quarterly basis with the quarterly caps and collars adding up the annual cap and collar. The quarterly nature of the scheme was introduced due to Ofgem's concerns around the compressor fuel forecast at the time. Given this year's review of the approach to compressor modelling and the associated improvements that have been made to the compressor forecast this year, National Grid believes it is appropriate to consider reverting back to annual caps and collars.
135. Through this year's consultation it has been established that the objective of the Shrinkage Incentive should be to minimise the costs passed through to the commodity charge. Being as these are annual costs it would appear sensible to measure incentive performance on this basis.
136. For example should the collar be exceeded (with little chance of recovering performance) in one individual quarter, there is no incentive to try and improve performance further in this quarter. This would not happen under an annual scheme, where all quarters would continue to affect the total costs borne by the community.
137. National Grid recognises that parties may still see benefits in some form of quarterly performance measure. The proposals for a Shrinkage Incentive therefore include an option with quarterly caps and collars, however these are wider than those under the existing scheme as this would allow a limited amount of under or over performance to be carried forward to the subsequent quarters. In this way all quarters would continue to impact on overall annual

²⁰ We cannot guarantee to achieve these savings, this is simply indicating that a scenario exists where this could be possible, but would involve risk.

performance and the risk of an individual quarter effectively becoming un-incentivised is reduced.

138. The two proposed schemes, compared to the existing scheme are summarised in the table below. The first option is a pure annual scheme, the second option is the same annual scheme but with quarterly caps and collars added.

	Upside share	Downside share	Quarter Cap (£m)	Quarter Collar (£m)	Annual Cap (£m)	Annual Collar (£m)
Current	25%	20%	0.8 (S) 1.2 (W)	-0.6 (S) -0.9 (W)	[4]	[-3]
Option 1 Annual Scheme	25%	20%	-	-	5	-4
Option 2 Quarterly Scheme with overall Annual Cap/Collar	25%	20%	1.5 (S) 2 (W)	-1.5 (S) -2 (W)	5	-4

Note: S denotes the summer quarters (Q2 2009 & Q3 2009) and W the winter quarters (Q4 2009 & Q1 2010)

Table 8: Proposals for a Shrinkage Incentive

139. **Option 1** is an annual scheme. In line with the industry’s desire for cost minimisation this scheme has the clear objective of minimising the overall annual cost of shrinkage to the industry.
140. **Option 2** is similar to option 1 but does include quarterly caps and collars. This type of scheme would allow a limited amount of under or over performance to be carried over to the subsequent quarters and to hit the annual cap or collar would require consistent under or over performance throughout most of the year. However, as with any quarterly scheme, the introduction of quarterly caps and collars potentially weakens the incentive to focus on the annual cost reduction target as the sole objective of the scheme.
141. Either of the proposed schemes could be set on for a single or multiple years. National Grid welcomes views on the duration that any scheme should be set for.

Consultation Questions

Question 13	Do you agree that the outturn UAG volumes should be passed through this scheme?
Question 14	Do you have a preference between an annual or quarterly scheme (as described in options 1&2)? Under a quarterly scheme how should quarterly caps and collars be set?
Question 15	Do you have any comments on any of the parameters (e.g. caps, collars, sharing factors) of the scheme and the duration that the scheme should be set for (e.g. 1,2 or 3 years)?

Section 5 Operating Margins

This section provides an overview of the incentive arrangements for Operating Margins and explains the interaction with the OM Contestability Project.

Context

142. Operating Margins (OM) services are purchased by National Grid on an annual basis in line with both the requirements of the UNC and obligations placed on it through its safety case. To date, OM services have been provided by storage facilities due to their strategic location on the extremities of the network, implicit availability and the high deliverability rates which are necessary for OM purposes.
143. At the last Transmission Price Control, National Grid Gas accepted an obligation in Special Condition C25 of its Gas Transporter Licence to use reasonable endeavours to promote competition in the provision of OM by 1 April 2009.
144. Throughout 2008 we have been working to develop a more contestable framework for the procurement of OM. This work has involved consultation with the industry to evaluate the extent to which potential new providers would be both willing and able to offer OM services, and to determine the most appropriate means by which such services could be procured. A key aspect of this work has been the identification of barriers to service provision; we are in the process of addressing those barriers over which we have some influence (such as the changes required to the Uniform Network Code to enable procurement of OM from non-storage sources).
145. We are currently expecting to run an OM procurement exercise in January 2009, through which we plan to invite offers of service provision for periods of up to three years (including part-year service offers). The intention is that both storage and non-storage based offers will be invited. It is expected that all parties will be able to participate freely in the procurement exercise (including National Grid's LNG Storage facilities). However, it should be noted that our ability to accept OM service offers from non-storage providers will be subject to a demonstration of suitability to the Health and Safety Executive (HSE).

Forecast Operating Margins Requirements for 2008/09

146. Requirements for Operating Margins gas are determined through network simulation analysis. The requirement is for the physical delivery of additional gas to maintain safe pressures within the NTS during a System Event, until other measures take effect.

147. Potential System Events are split into three categories:
- Group 1 (Major events) e.g. loss of supply infrastructure, loss of largest sub-terminal.
 - Group 2 (Multiple events) e.g. compressor failures, pipe breaks.
 - Group 3 (Orderly rundown) maintain pressures in the event of a National Gas Supply Emergency (NGSE).
148. With decreasing UKCS supplies and uncertainty over the alternative supply sources there is a small increase in the calculation of the orderly rundown requirement for the next three years.
149. The table below summarises the total OM requirement

Incentive year	Operating Margins Requirement (GWh)
2008/09	1261
2009/2010	1349
2010/2011	1385
2011/2012	1386

Table 9: Forecast Operating Margins Requirement

150. The topology of the NTS dictates that the events covered by OM have varying locational impacts and therefore the proximity of OM held in reserve against these events is a significant factor. For some events OM is required to be held in close proximity as network pressures cannot be maintained for sufficient time to transport OM gas from facilities located further away, due to the transit time of pressure changes across the network. Part of the OM requirement therefore has a locational requirement to cater for specific events. This volume is known as the minimum locational requirement.
151. The minimum locational requirements have decreased slightly this year compared to last due to the commissioning of new NTS infrastructure. The minimum locational requirement for 2009/10 is provided in table 10 below.

Location	Minimum Locational Requirement (GWh)
Scotland	81
North	15
Wales	0
West	99
South	94

Table 10: Forecast Operating Margins Requirement

152. The non-locational requirement can be spread between providers on the network, subject to a number of important criteria such as deliverability and wider proximity constraints.

Operating Margins Incentives

153. Last year’s OM Incentive consisted of two parts one relating to holding costs (the cost of holding gas in store) and the other to utilisation of this gas. The overall objective of this scheme being cost minimisation.
154. To set a target for holding costs requires a forecast of the volume requirements, a knowledge of the sites that can meet these requirements and a forecast of the costs associated with service from these facilities. With the introduction of the contestable tender in 2009 there is uncertainty in all of these areas.
- **Volume requirement** – In order to prove the capability of any new providers there may be a requirement to over procure against the requirements until the capability of new providers is demonstrated to the satisfaction of the industry and the HSE.
 - **Service Providers** – Until the tender has been held it is not possible to determine which new sites, or even which types of new sites may offer an OM service.
 - **Provider costs** – Until the tender has been held it is not possible to accurately forecast the likely service costs for 2009 onwards as there is uncertainty over whether the current price restrictions that the NG LNG facilities are subject to will be lifted by Ofgem, and the timing of this.
155. For these reasons National Grid is proposing that for 2009/10 the holding/option costs associated with OM should operate on a cost pass through basis, subject to Ofgem scrutiny. National Grid will continue to work with Ofgem prior to Final Proposals and should it be possible to implement an incentive similar to the current scheme during this period, we will work with Ofgem to achieve this.
156. We would hope to be in a position to develop new incentive arrangements for future years once the outcome of the contestability project in terms of new providers becomes apparent in 2009 and there is certainty over the regulatory pricing arrangements applicable to NG LNG storage facilities.
157. Irrespective of the issues associated with contestability, National Grid believes that the utilisation part of the current incentive is relevant for 2009/10. We therefore propose that the existing utilisation scheme should be rolled forward for 2009/10. This has 100% sharing factors, a target of £0.27m, and a collar of £-0.5m.

Consultation Questions

Question 16	Given the uncertainty over the impact of OM contestability, do you support passing through the OM holding costs for 2009/10, subject to Ofgem scrutiny?
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Question 17	If not do you have any suggestions on how OM could be incentivised for 2009/10?
Question 18	Do you support the proposal to keep the existing OM utilisation incentive?

Section 6 Environmental Incentive

This section provides an overview of the environmental incentive around methane venting from NTS compressors, which was introduced this year.

The section then sets out National Grid's proposals for incentives from 1 April 2009.

Context

158. In their Final Proposals document for SO incentive for 2008/09, Ofgem committed to working with National Grid to develop an Environmental Incentive relating to compressor venting²¹ which would apply retrospectively from 1 April 2008. National Grid issued an Initial Proposals consultation on 2 May 2008.
159. Following Ofgem's Final Proposals consultation a direction to implement an environmental incentive relating to methane emissions was issued on 9 September. A summary of the scheme is provided below.
- One year scheme from 1 April 2008 to 31 March 2009
 - The scheme applies to the amount of natural gas vented from gas driven compressor units
 - The target amount of venting (based on average of the last 7 years data) was 2086 tonnes of natural gas
 - Due to concerns over windfall profits or losses a dead-band of $\pm 5\%$ was set around the volume target (1982 - 2191 tonnes)
 - A reference price for any volume vented above or below the dead-band of £437/tonne of natural gas²²
 - The scheme has no sharing factors, caps or collars
 - In the context of this scheme, venting means the release of gas from a gas turbine driven compressor as a result of starting a compressor, purging a compressor, depressurising a compressor and the leakage of gas through a seal around the shaft of a compressor.

²¹ National Grid will continue to work with Ofgem to identify if fugitive emissions can also be incentivised.

²² This price derived from Defra's 2008 shadow price of carbon £26/tCO₂e converted to the methane equivalent by multiplying by a factor of 21 (which relates to the Global warming equivalent) and multiplied by 0.8 (natural gas is 80% methane by weight).

160. The scheme incentives National Grid to make the economic 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.

6.1 Proposed Incentives

161. The incentive consists of three main areas that need consideration. These are the setting of a volume target, setting a reference price to apply to these volumes and the overall incentive structure around these volumes and prices. Each of these three elements is dealt with separately below.

Volume Target setting

162. The current incentive applies to the venting from gas turbine driven compressors which already have the equipment necessary to calculate the amount of venting as a requirement of the Pollution Prevention and Control Regulations.
163. For the gas turbine driven compressors already included in the existing incentive, National Grid's proposal would be to again base the volume target on the historic data available. For a scheme starting 1 April 2009 this would be calendar year data from 2001 to 2008.

	Actual total of natural gas vented (tonnes)
2001	2098
2002	1819
2003	2383
2004	1922
2005	2213
2006	2283
2007	1887
2008	Data not available until year end
Target from 1 April 2009	Average of 2001-2008 data

Table 11: Historic levels of natural gas vented from the gas compressors

164. Ofgem has issued a formal information request to National Grid relating to the steps, costs and timescales that would be involved in putting in place equipment, systems and processes to measure the emissions from electrically driven compressor units (for both the existing and future compressors). This information has been requested by 31 December 2008. If it is shown to be appropriate to include electrically driven compressors in the incentive then we believe that any volume target will need to be adjusted appropriately.

Reference Price

165. The existing incentive reference price is based on Defra's 2008 shadow price of carbon adjusted by a factor of 21 to allow for the increased environmental impact of methane compared to CO₂ and a factor of 80% (representing the weight of methane in a volume of natural gas).
166. For 2009 Defra's shadow price of carbon is £27 in 2008 prices, which we have uplifted using an assumed RPI of 2.2% to £27.60 in 2009 prices. Using the same conversion as last year, results in an incentive price for vented methane of £464 per tonne of natural gas vented.
167. In some of the responses to the initial proposals for an Environmental Incentive, parties stated that the reference price should relate to all components of natural gas and not just the methane component. The table below shows the proportion by weight of the main elements of natural gas and their CO₂ equivalence. This table is based on IPCC data²³.

	Component by weight of Natural Gas	CO ₂ equivalence from IPCC data	Tonne of CO ₂ e in a tonne of natural gas
Nitrogen	3%		
Carbon Dioxide	3%	1	0.03
Methane	80%	25	19.93
Ethane	9%	5.5	0.49
Propane	4%	3.3	0.12
Butane	1%	4	0.05
Totals	100%		20.62

Note: IPCC methane equivalence is 25, Defra's value is 21

Table 12: Tonnes of CO₂e in a tonne of natural gas using IPCC Data

Using Defra's shadow price of carbon of £27.60 per tonne (in 2009 prices) and the IPCC data to calculate the CO₂ equivalence of the main components of natural gas would give a cost per tonne of natural gas vented of £570.

Incentive Structure

168. Given the limited amount of new data available since the introduction of this incentive, we believe that the incentive structure should remain unchanged for an incentive commencing 1 April 2009. In summary
- One year scheme from 1 April 2009 to 31 March 2010
 - No sharing factors, caps or collars
 - Dead-band around the target volume of ±5%

²³ <http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-chapter2.pdf>

6.2 Summary of options for an environmental incentive

169. Given that the incentive has not run for a full year, National Grid is only proposing incremental improvements to this incentive.
170. Given the separate information request from Ofgem on the inclusion of electrically driven compressors into the incentive and as there appears to be no justification for changing the incentive structure, the proposals below focus on the reference price options. Respondents are however invited to comment on any aspect of this incentive.

Scheme	Reference price
A	£570 / tonne of natural gas vented. All components of natural gas factored in using (IPCC data)
B	£464 / tonne of natural gas vented. Only methane component of natural gas factored in (Defra data)

171. **Scheme A** ensures that the environmental costs associated with all gases vented from a compressor unit are fully factored into National Grid's decision making process.
172. **Scheme B** is effectively a roll forward of the existing incentive. The only change would be the resetting of the volume target for 2009/10. This option does not fully reflect the environmental costs associated with all gases vented but may be viewed as an acceptable alternative given that the incentive has not yet run for a full year.

Consultation Questions

Question 19	Do you agree with the proposal for the continuation of the existing historic average approach for setting a volume target for gas turbine driven compressors?
Question 20	Which option do you support to best reflect environmental costs associated with the venting of natural gas?

Section 7

Quality of Information Incentive

Demand Forecasting

This section provides an overview of the Demand Forecasting Incentive and National Grid's proposals for incentives from 1 April 2009.

Context

173. The Demand Forecasting Incentive was initially established in October 2006. In its consultations with Market participants for establishing this incentive, Ofgem highlighted the potential market efficiencies that accurate demand forecasting could generate.
174. We believe the original rationale for establishing this incentive holds on an enduring basis, as accurate demand forecasts have been shown to have an overall benefit to the operation of the wholesale market and should reduce costs to consumers. Given the intrinsic link between residual balancing, market balancing and demand forecasting, we believe that demand forecasting should be considered an integral part of a the overall suite of incentives going forward.
175. The demand forecast that is incentivised is the 13:00 day ahead forecast of total system demand which includes daily metered, non-daily metered, storage injection and interconnector export load.
176. For 2007/8 the incentive scheme was based around a target absolute demand forecasting error of 4%. For 2008/9 the incentive scheme the target was tightened to 3.5%. The current demand forecast performance is running at 2.8% but there is clearly a risk range around where this will be at the end of the incentive year.

Current Incentive Scheme

177. The current scheme parameters derive a target of an absolute demand forecast error of 3.5%, with upside and downside gradients that give a profit or loss of £1.6m for a 5% increase or decrease (respectively) in performance around this target. There is a shallower upside gradient for performance increases above this, with potential losses for worse performance collared at £-1.6m.

New Forecasting Risks for 2009/10

178. There are two market developments which we believe pose a significant new risk to the accuracy of our demand forecasting in 2009/10.
179. Aldbrough is a new mid range storage (MRS) site, which in 2009/10 is expected to have 6 out of its 9 caverns commissioned. These 6 caverns will

have 280mcm of space and 13 mcm/d injection²⁴ rate and 26mcm/d withdrawal rate. With the relatively high ratio between these rates and the available space, this site has the potential to fill and empty a number of times during a year (in both summer and winter) in response to market prices.

- 180. Given the existing max injection of the existing MRS portfolio (23 mcm/d) the Aldbrough site represents an increase of 56% on the total maximum potential MRS demand. This significantly increases the demand forecasting uncertainty associated with this type of site whose operational behaviour is less easy to forecast compared to traditional weather related demands. Predicting the behaviour of this site may also be more difficult compared to other sites given the dual ownership of the site as this could potentially create different drivers in relation to the use of the facility.
- 181. With summer demand levels averaging around 230 mcm/d the Aldbrough site alone could account for ~5% of National demand in the summer and hence for the reasons stated poses a significant new risk on the level of demand forecasting error.
- 182. Flows from the Milford Haven LNG importation terminals are expected in 2009/10. However given the unique shipping related drivers associated with LNG it is difficult to predict on which days LNG would flow and what the impacts of these flows would be on UK prices and demands on the Interconnector. One example being that LNG transits through the NTS into continental Europe through interconnector exports hence changes NTS demand.
- 183. Demand forecasting error could therefore be expected to increase, given the uncertainties on when LNG will flow, whether this LNG will transit the UK, the impact of LNG on UK prices and the associated impact on existing interconnector demands and other price sensitive demands.

Incentive scheme proposal

- 184. National Grid’s proposal is to roll the current scheme structure forward to 2009/10 and to tighten the target.
- 185. Last year the target was tightened by 0.5% from 4% to 3.5%. In the absence of the new risks for 2009/10 we would have proposed to tighten the target again by 0.5% to 3%. The new risks described above are difficult to quantify but could be significant (additional error of up to 0.4%) therefore we believe a target of 3.2% is appropriate.

Consultation Questions

Question 21	Do you support the proposed parameters (including the 3.2% target) for an annual Demand Forecasting Incentive?
Question 22	Should the incentive be set for more than one year?

²⁴ Injection into storage (demand from the NTS)

Section 8

Quality of Information Incentive Data Publication

This section provides an overview of the Quality of Information (Data Publication) Incentive. The section then sets out National Grid's proposal for continuing this incentive from 1 April 2009.

Context

186. The current information publication incentive was established in October 2006 to improve the publication performance of a number of key data items in respect of the timeliness of publication, and availability of publication systems. This incentive was successful in improving the publication arrangements for a small number of key data items which benefited consumers through more efficient operation of the wholesale gas market, and therefore a lower overall cost of gas.
187. Last year National Grid made proposals for further improvements that could be made in the area of data publication. This included the addition of other important reports into the incentive and continued improvements to the timeliness of data publication.
188. Responses to last year's consultation indicated that given the improvements that had already been made, additional investment to further improve data publication was not desired. The proposed schemes based on investing to improve performance were therefore not suitable. Instead responses indicated that a scheme which ensured maintenance of the then current levels of performance was desirable.
189. The scheme implemented had the objective of maintaining the prevailing level of improved performance. Under the scheme National Grid earns £75,000 if it meets the performance benchmarks for timeliness and availability, with a possibility to earn a further £25,000 for additional over-performance up to a 100% improvement. The scheme has a £100,000 penalty should performance fall below the benchmark. The scheme is summarised below.

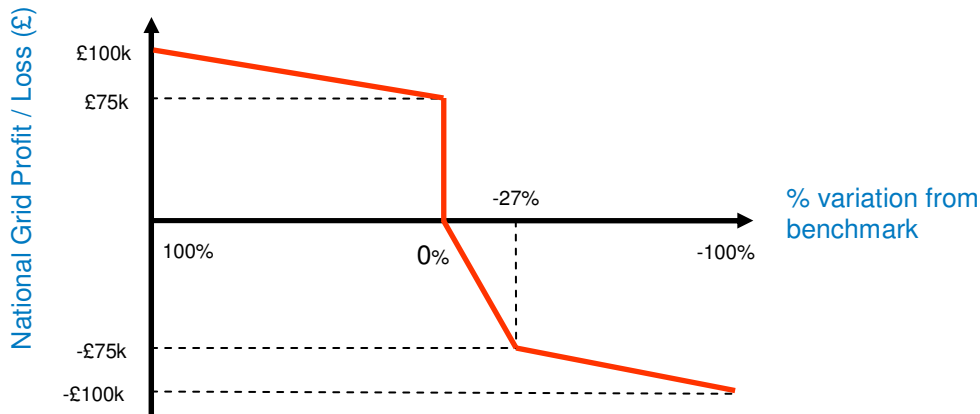


Figure 11: Existing Data Publication Incentive

Proposed Data Publication Incentive

190. As this scheme was established to maintain levels of performance that Shippers were happy with, National Grid believes that the existing incentive should continue unchanged.

Consultation Question

Question 23	Do you agree that the current Data Publication incentive should be rolled forward unchanged?
Question 24	Do you believe this incentive should be set unchanged for the remainder of the price control period (2012)?

Funding Arrangements for upgrading the website

191. Last year Ofgem introduced a separate 1 year scheme to cover the costs of any investments to further improve website performance. Under the scheme National Grid is effectively allowed to recover the costs associated with website improvements provided they deliver the anticipated benefits.

Consultation Question

Question 25	Should the funding arrangements for upgrading the website be made enduring or be removed?
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Section 9

Summary of Questions and Consultation Feedback

This section provides a summary of the questions contained within this document. Responses to these questions are requested by 19 December 2008. If you would like to discuss the issues raised in this document or other SO Incentive issues please contact us using the contact details in Section 10 of this document.

Summary of Consultation Questions

Question 1	Do either of the two residual balancing schemes presented better reflect an appropriate balance between driving minimal residual balancing and correct allocation of costs?
Question 2	Do you have any comments on any aspects of the scheme(s) features or parameters (including the performance target, the daily caps/collars, the balance between the strength of the LM compared to the PPM) ?
Question 3	Should this incentive be reviewed periodically (e.g. annually) or only when there is a specific need to?
Question 4	Do you think it is appropriate to have a separate incentive on UAG? Do you agree that this should be a long term incentive?
Question 5	Do you agree with the proposed UAG incentive and do you have any comments on the specific proposals outlined (including whether a scheme should be based around gross UAG and whether the proposed target and incentive value are appropriate)?
Question 6	Do you believe that any limits should be applied to the proposed scheme? Please describe how best to achieve this e.g. by suggesting a deadband, cap or method for resetting the target?
Question 7	Do you believe there is an alternative proposal that would better incentivise reduction of UAG volumes?
Question 8	Do you agree with the shrinkage volume forecasts? Do you have any comments to make?
Question 9	Do you support using outturn flows at St Fergus as a target driver for the compressor fuel forecast?
Question 10	Is there still a requirement to have bands around the compressor fuel volume target or should the continuous relationship be used?
Question 11	Do you believe it is appropriate to review the GCRP uplift?
Question 12	On what basis do you believe the GCRP Uplift should be set for 2009/10 (e.g. storage based or market based)?
Question 13	Do you agree that the outturn UAG volumes should be passed through this scheme?
Question 14	Do you have a preference between an annual or quarterly

	scheme (as described in options 1&2)? Under a quarterly scheme how should quarterly caps and collars be set?
Question 15	Do you have any comments on any of the parameters (e.g. caps, collars, sharing factors) of the scheme and the duration that the scheme should be set for (e.g. 1,2 or 3 years)?
Question 16	Given the uncertainty over the impact of OM contestability, do you support passing through the OM holding costs for 2009/10, subject to Ofgem scrutiny?
Question 17	If not do you have any suggestions on how OM could be incentivised for 2009/10?
Question 18	Do you support the proposal to keep the existing OM utilisation incentive?
Question 19	Do you agree with the proposal for the continuation of the existing historic average approach for setting a volume target for gas turbine driven compressors?
Question 20	Which option do you support to best reflect environmental costs associated with the venting of natural gas?
Question 21	Do you support the proposed parameters (including the 3.2% target) for an annual Demand Forecasting Incentive?
Question 22	Should the incentive be set for more than one year?
Question 23	Do you agree that the current Data Publication incentive should be rolled forward unchanged?
Question 24	Do you believe this incentive should be set unchanged for the remainder of the price control period (2012)?
Question 25	Should the funding arrangements for upgrading the website be made enduring or be removed?
Question 26	Do you believe that the package of incentives are designed to drive the desired behaviours from the System Operator, providing the right balance between risk and reward?
Question 27	Do you have any other comments on SO Incentives?

Consultation Feedback

192. National Grid is keen to receive feedback from the industry on the quality of the consultation process this year. This information is being requested to help National Grid improve any future consultations it may run.
193. As we would like to keep views on the consultation process separate to any views on the proposals contained within this document, a separate Consultation Process Feedback Form is available on the National Grid website²⁵. We would very much appreciate it if you would complete and return the feedback form with your consultation response.
194. Completed Consultation Feedback forms are requested by 19 December 2008.

²⁵ <http://www.nationalgrid.com/uk/Gas/soincentives/docs/>

Section 10 Contact Details

If you would like to discuss any issue on SO Incentives, please contact us via the contact details below.

To register your interest in receiving future communications on this consultation process please email: SOIncentives@uk.ngrid.com

On the web:

New dedicated web pages for this process are available at the following addresses:

Electricity SO Incentives: <http://www.nationalgrid.com/uk/Electricity/>
Gas SO Incentives: <http://www.nationalgrid.com/uk/gas/>

Talk to us:

Gas

John Perkins	Tel: 01926 656337	john.perkins@uk.ngrid.com
Mark Brackley	Tel: 01926 656024	mark.brackley@uk.ngrid.com

Electricity

Malcolm Arthur	Tel: 01926 654909	malcolm.arthur@uk.ngrid.com
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General enquiries: SOincentives@uk.ngrid.com