

DISCUSSION DOCUMENT

**Modification Proposal to the Gas Transmission
Transportation Charging Methodology**

NTS GCD 05:

**Options for an SO Commodity Charge for NTS
Storage Facilities**

25th January 2008

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Executive Summary

This document sets out for discussion options for revising the Gas Transmission Transportation Charging Methodology (the “Charging Methodology”) with regard to the application of an SO Commodity Charge at NTS storage facilities. This paper describes a number of options for the development of a methodology for an SO Commodity Rate that would apply for all NTS storage input and output gas flows. This document is issued by National Grid in its’ role as Gas Transporter Licence holder in respect of the NTS (“National Grid”).

The paper takes forward the development work and Industry discussion that have taken place as part of UNC Modification Proposal 0120V and Pricing Consultation Paper NTS GCM03 that were raised by National Grid. Following Ofgem’s rejection of UNC Mod Proposal 0120 and a number of Industry concerns expressed as part of the consultation of NTS GCM03, it has been decided to issue a discussion paper prior to the raising of any further firm proposals.

This discussion paper:

1. provides the background to previous charging developments for NTS Storage Points,
2. describes the principles of the methodology first proposed in NTS GCM03,
3. summarises the issues and concerns of the proposals in NTS GCM03 expressed by Industry parties and Ofgem,
4. reconsiders the role of storage and costs that could be attributed directly to storage,
5. invites further views on the strengths and weaknesses of the different options, to allow a further proposal to be developed and put forward.

In issuing this discussion paper, National Grid believes that, in principle, Users at NTS storage facilities should not necessarily be excluded from attracting an SO Commodity Charge, however, any proposed charge should reflect the specific costs relating to storage and that the costs of implementation of a charge, which could be of low materiality, should be fully explored.

This consultation has been placed on National Grid’s industry information website: <http://www.nationalgrid.com/uk/Gas/Charges/>

1. Background

Current Arrangements

- 1.1. The present standard NTS SO commodity charge is set so as to recover the SO Maximum Allowed Revenue (MAR), after allowing for the expected income from the St Fergus compression charge and optional commodity. The SO MAR is determined by the SO allowed costs, taking account of the outcome of the SO incentive performance, and any carry over of under/over-recovery (“K”) from the previous financial year.
- 1.2. The SO commodity rate is determined by dividing the forecast of SO MAR, after allowing for the expected income from the St Fergus compression charge and optional commodity by a forecast of system throughput, and is expressed in p/kWh.
- 1.3. At present, at NTS storage facilities Users only incur NTS SO commodity charges in respect of Storage Own Use Gas (i.e. gas that is deemed to leave the NTS at the storage point for purposes such as “boil-off”). For all other storage injection flows and withdrawals, no NTS commodity charge is incurred.

The Role of Storage

- 1.4. In considering the introduction of an SO Storage Commodity charge it is of value to consider the role of storage and why such a charge has not existed to date.
- 1.5. Storage sites provide a means of balancing supply and demand on an annual basis. Storage sites are unique in that the gas that exits the NTS at these sites, other than storage own use gas, will always re-enter the NTS before flowing on to end consumers. As such, storage has been considered to be part of the wider system and has avoided charges that have been placed on Users of the system at system points that physically flow gas into and out of the system.
- 1.6. This was reflected in commodity charges that were levied on exit from the system prior to charging proposal PC73 and then equally at entry to and exit from the system. Whilst the intention was to apply the SO commodity charge to storage sites (from PC70) debate over a ‘cost reflective rate’ has continued.
- 1.7. SO costs (other than compressor fuel and incentive performance costs) are largely fixed and non-locational and are associated with the provision of the system operator functionality. As a consequence, these costs have historically been recovered from the end of the supply chain (i.e. flows to end-consumers) and not from parties within the supply chain.
- 1.8. The recent publication¹ ‘UK Gas Transmission System benefits from Gas Storage’ by Waters Wye Associates has highlighted the potential benefits of storage.

¹ A copy of the publication ‘UK Gas Transmission System benefits from Gas Storage’ by Waters Wye Associates can be found on the National Grid website in the Gas Charging section under the 6th November 2007 TCMF meeting at <http://www.nationalgrid.com/uk/Gas/Charges/TCMF/2007meetings/>

Charging History

- 1.9. In 2002, Transco raised a Pricing Consultation Paper PC73 (“Structure of the SO Commodity Charge”) that was subsequently not vetoed by Ofgem. PC73 provided for the SO Commodity Charge to be levied on all entry and exit flows, including storage, from October 2003. However, the associated “enabling” Network Code modifications (532, 545, 547)² were all vetoed by Ofgem³ on the basis that Users at storage sites should not be expected to incur the full SO Commodity Charge since gas flows already attract the SO Commodity Charge on both entering and exiting the system.
- 1.10. In their decision letter to Modification 0532, Ofgem suggested that “storage users should not bear an unreasonable share of the overheads associated with the operation of Transco’s system through the SO commodity charge merely as a consequence of storing their gas.” Hence, Ofgem suggested that they would wish to see a cost-reflective charge developed that sought to recover the costs associated with physical flows onto the NTS from storage and out of the NTS into storage. They stated in their decision letter that “...in principle, storage flows should not be excluded from the application of the SO Commodity Charge ..” and that “...consideration could be given to applying a discounted SO Commodity Charge to storage users so as to minimise the potential for double charging.”
- 1.11. In October 2006, National Grid raised Pricing Consultation Paper NTS GCM03⁴ (“Introduction of an SO Commodity Charge for NTS Storage Facilities”) that proposed the introduction of an SO commodity rate to be applied to all NTS storage input and output gas flow allocations (the “Storage SO Commodity Rate”) at a lower rate than currently applicable for all entry and exit gas flow allocations (the “Standard SO Commodity Rate”). The rate had been derived by excluding relevant SO costs in respect of compressor gas and Operating Margins that are included in the Standard Commodity Rate but are not driven by the operation and ongoing support of NTS storage facilities and would hence minimise the potential for double charging.

Licence & UNC requirements and EU regulation

- 1.12. In order to introduce the proposed charge to UNC, National Grid also raised a Modification Proposal (0120 – “Introduction of an SO Commodity Charge for NTS Storage Exit Flows”). As the UNC presently provides for an SO commodity charge in respect of all NTS system entry flows, a change to the UNC was deemed necessary in respect of NTS storage exit flows only. Ofgem rejected the Modification Proposal on the basis that it may not be cost-reflective in that the proposed charge would apply to commercial flows, rather than physical flows, a view that was shared by many respondents.
- 1.13. As with GCM03, any further proposal to introduce an SO Storage Commodity charge would need to be reflected in the Uniform Network Code (UNC). Such changes would need to be progressed under separate governance processes to any charging methodology proposals.

² “Application of SO Commodity Charges to all NTS Loads”, “Application of SO Commodity Charges to Storage Facilities”, “Reconciled SO Commodity Charges at Storage Facilities”

³ In Ofgem’s decision letter No. 0532

⁴ The details of proposal NTS GCM03 are included in Appendix A.

- 1.14. A number of parties have questioned the legitimacy of proposing differential SO commodity charges at different classes of NTS exit points, and make reference to EU gas regulation 1775/2005 and an explanatory note issued by DGTREN which states that tariffs for identical services offered by individual TSO's should be identical. A counter view has also been offered based on legal advice that where classes of NTS Users are not materially comparable, different treatment can be appropriate. It could be considered that the service provided to Users is transportation from entry point to exit point with the precise route in between being immaterial. Users are not receiving a different service if gas travels via storage. Alternatively it could be considered that the service being provided is ' the service to flow gas at storage sites' which is not the same service as flowing from entry terminal to exit point.

2. SO Costs

2.1. In formulating an SO Storage Commodity Charge, the costs components that make up the standard SO Commodity charge need to be considered. In reaching a view as to whether each component should be included or excluded, the question “Does the use of NTS Storage facilities increase SO costs” needs to be answered. The table below summarises the arguments put forward for inclusion or exclusion of each cost within a storage charge.

SO Cost Component	Arguments for Inclusion	Arguments for Exclusion
Shrinkage: Own Use Gas (OUG) =Compression	It could be argued that storage injection & withdrawal could either increase or decrease compression requirements depending on whether in summer or winter, and location of storage facility (i.e. close to entry point or at extremity of system).	When considering the flow of gas through the system from an entry point to a storage point and then on from that storage point to an exit point it can be seen that a similar route is taken when compared to the storage facility not operating. From this it can be deduced that no additional compression is utilised when taking into account gas flowing in and out of storage compared to flowing straight through the system. The inclusion of OUG in a storage charge would therefore lead to double counting of the costs for Users of storage facilities. National Grid analysis has not shown compressor fuel usage to be strongly correlated with either storage withdrawals or with storage injection. ⁵
Shrinkage: Un-accounted for Gas (UAG)	UAG is largely driven by meter error. A share of the metering inaccuracies may have arisen from metering at storage facilities.	Where single metering is installed, some parties have suggested there may be a degree of “netting off” of metering uncertainty. It can also be seen that by taking into account the quantity of gas held in store and the volumes of gas injected and withdrawn at a site, there could not be a persistent meter error otherwise storage stocks would either unaccountably increase or decrease. ⁶
Internal Costs	The administration of storage sites is comparable to other NTS supply points/CSEPs.	The majority of System Operator costs are fixed and would not increase with either an increase in storage facility numbers or utilisation.
Operating Margins & Constrained LNG (CLNG)	Were storage facilities to inject gas at times of high system demand and system stress then it could be argued that storage facilities were benefiting from these services.	Storage withdrawal and injection is necessary to provide operating margins and constrained LNG. Storage does not receive a benefit from these services which are anticipated to be used at times of high system demand to support the system and therefore storage Users should not pay towards them.
Deemed Interruption	These costs are linked to the exit charges that interruptible supply points would otherwise pay.	Acknowledged that NTS Exit Reform will replace this term and associated foregone revenue. This is the cost of having an interruptible service. At times of high demand (when interruption may be necessary) storage represents entry rather than exit and therefore doesn't benefit from the service.
Outcome of Incentive Schemes	It could be argued that each component of the incentive scheme should be considered to be included/excluded on an individual basis. ⁷	
Under or over-recovery from previous year ('K')	NG NTS has proposed a single combined 'K' mechanism for both proposed SO Storage & SO standard commodity charge. Counter view that any new storage commodity charge should contain its own 'K' mechanism. ⁸	

⁵ See Appendices B1 and B2

⁶ See Appendix B3

⁷ If storage commodity is expressed as a percentage of the standard SO commodity then this will automatically be included but only in relation to those costs included in the composition of the storage commodity rate. See section 5 below.

- 2.2. Based on the arguments in the table above, if there were to be an SO commodity charge for storage, the charge might include only internal costs and a proportion (related to the internal costs) of the incentive and k mechanisms. Following the arguments in the table above, shrinkage (OUG) and (UAG), operating margins and CLNG, and deemed interruption could be excluded.

Cost Allocation

- 2.3. Following consideration of those SO costs to be included in a proposed SO commodity charge, there are a number of options to be considered in respect of deciding upon an appropriate allocation of each cost to the storage commodity charge. In order to ensure cost-reflectivity, it is necessary to understand those factors that drive the costs, and where no single or clear cost-driver exists, consideration needs to be given for a suitable proxy.
- 2.4. On the understanding that the objective of this charging development work is to derive a single flat throughput based charge, then a balance needs to be struck between achieving cost-reflectivity and avoiding unnecessary complexity. For example, if maximising cost-reflectivity is the sole intention, then this could be achieved by deriving an SO storage charge comprising a commodity based component, a capacity based component and a fixed component. Clearly with this approach there would be concern that the complexity and administrative costs resulting from such an approach would be disproportionate to the total revenue generated.
- 2.5. National Grid initially proposed that the portion of relevant costs to be attributed to the proposed charge would be apportioned based on throughput, as it was felt that allocating costs on the basis of cost drivers other than throughput would be inconsistent if the resulting charge was based on throughput i.e. a commodity charge.
- 2.6. This approach would avoid complexity and achieve a discounted SO commodity charge (i.e. between the range of zero and the standard SO commodity rate), however, clearly other options exist that have been presented and discussed at Industry meetings.
- 2.7. Given that a charge made up of cost components attributed to the number of meters, meter size, peak capacity or throughput might be too complex and costly to administer and to maintain consistency with the existing SO commodity charge a simple commodity based charge reflecting the components applicable to storage may be the most efficient approach, however, views on alternatives and their implementation are welcome.

⁸ As footnote 3

3. Application of an SO Storage Commodity Charge

- 3.1. An area that has attracted significant discussion and comment is the most appropriate method of applying the proposed charge. On the basis that the invoiced amount per User is derived by multiplying the proposed commodity rate by the “chargeable quantity”, then consideration needs to be given to the definition of “chargeable quantity”. Within NTS GCM03, it was proposed that the “chargeable quantity” would be the User’s Daily Allocated Quantity (known as UDQOs for offtakes and UDQIs for inputs), as this would be consistent with billing arrangements at all other system points, and in accordance with one of the principles of the UNC. The UNC defined terms of UDQOs and UDQIs are used for calculating transportation charges and energy balancing charges, and in the case of bi-directional offtakes are allocated by the CSEP operator against each User’s input and output accounting meter, rather than taking a net position. Any proposal to derive a commodity charge based on a net position would introduce a significant inconsistency in the charging arrangements, both between different types of bi-directional offtakes and between how energy balancing charges and transportation charges are generated.
- 3.2. Many Industry parties expressed concern regarding whether the use of contractual allocated quantities was sufficiently cost-reflective, particular in those scenarios where counter nominations in both directions take place within-day. Both Ofgem and Industry parties have argued that it would be more cost-reflective to apply the proposed charge to physical flows.
- 3.3. Introduction of a charge applied to physical flows rather than commercial flows will involve considerable IS cost. If the costs of the required IS changes were mapped onto storage charges this in itself could considerably increase the potential charge.
- 3.4. Some of the costs attributed to storage, and therefore allocated to a SO storage commodity charge, may be related to physical flows or commercial flows. The charge could then be levied on either physical or commercial flows. The decision on whether to levy the charge on physical or commercial flows should therefore take into account the proportion of costs driven by physical and commercial flows.
- 3.5. Although this discussion paper has set out a number of options for deriving a chargeable amount per User, the precise contractual arrangements would be detailed and introduced via a UNC Modification Proposal. However, because it is felt the principles of both the charging methodology and the application of the proposed charge should be considered in the same context, views on both these aspects would be welcomed as part of User’s responses to this Pricing Discussion Paper.

How should the charge be formulated?

- 3.6. The components of SO costs which are considered to be relevant to NTS storage could be used directly to produce an SO commodity charge for storage. The precise level of costs for the relevant components may be difficult to forecast (particularly incentive performance and k).
- 3.7. It would be simpler to use the costs that are relevant to storage and express these costs as a percentage of the total commodity costs (those relating to the standard flows and those relating to storage flows). This percentage could be used when setting both the standard and storage charge and would facilitate charge setting based on actual costs which would reflect k and incentive performance equitably. K and the incentive costs would be included in the storage charge but only in relation to their effects on the costs deemed applicable to storage. This removes the requirements to forecast costs prior to the period to which the charges apply whilst enabling SO revenue recovery to be as close as possible to the outturn allowed revenue.

4. Level and impact of the Charge

- 4.1. An estimate of the level of the charge has been made using the suggestion in 2.2 above.
- 4.2. Based on current estimates of SO costs and annual storage throughput flows for 2008/9, and if a charge based mainly on internal costs applied to commercial flows, the new Storage SO Commodity Rate would be set at 0.0031 p/kWh, and would generate SO revenue of £2.5m for this formula year.
- In order to maintain collectable SO commodity revenue in line with target SO revenue, this would require a lowering of the Standard SO Commodity Rate from 0.0121 p/kWh⁹ to 0.0120 p/kWh.
- 4.3. It is anticipated that the St. Fergus compression charge and the NTS Optional Commodity tariff would be unaffected by the introduction of an SO Storage Commodity Charge.

5. Relevant Objectives

Licence Objectives

- 5.1. The National Grid Gas plc Gas Transporter Licence in respect of the NTS requires that proposed changes to the Charging Methodology shall achieve the relevant methodology objectives. Respondents are therefore asked to consider how the different options would best satisfy the relevant objectives as part of their responses to the Discussion Paper.
- 5.2. (1) Reflect the costs incurred by the licensee in its transportation business;
- Section 2 of this paper sets out which of the SO cost components, in National Grid' view, might be included in the SO storage commodity charge based on whether the provision and operation of the NTS storage facilities contributes to each SO cost activity. Clearly, a degree of generalisation is needed when the costs and drivers are examined at lower orders of detail due to avoid complexity and disproportionate degree of analysis that would be required to achieve a true "cost reflective" picture that caters for all system operation scenarios.
- Section 3 explains the different cost allocation approaches.
- 5.3. (2) So far as is consistent with (1) properly take account of developments in the transportation business;
- The increasing importance and number of NTS storage facilities has highlighted the need to reconsider a specific SO storage commodity charge set at a level appropriate to the impact on the relevant SO costs of supporting storage sites.
- 5.4. So far as is consistent with (1) and (2) facilitate effective competition between gas shippers and between gas suppliers.
- The introduction of a charge based on throughput would apply to all storage facilities. Therefore all storage sites would be treated equitably. In developing different options, consideration has to be given to the effect on the final level of charge, and whether the introduction of the charge would be expected to distort shipper behaviour regarding the use of storage facilities, thus hampering shipper/supplier competition.
- 5.5. National Grid is obliged to keep its Charging Methodology under review at all times for the purposes of ensuring that it achieves the relevant objectives.

⁹ Effective from 1st April 2008

EU Gas Regulations

5.6. EC Regulation 1775/2005 on conditions for access to the natural gas transmission networks (binding from 1 July 2006) is summarised as follows; the principles for network access tariffs or the methodologies used to calculate them shall:

- Be transparent
- Take into account the need for system integrity and its improvement
- Reflect actual costs incurred for an efficient and structurally comparable network operator
- Be applied in a non-discriminatory manner
- Facilitate efficient gas trade and competition
- Avoid cross-subsidies between network users
- Provide incentives for investment and maintaining or creating interoperability for transmission networks
- Not restrict market liquidity
- Not distort trade across borders of different transmission systems.

6. Questions for Discussion

This paper has discussed the issues and the views of National Grid relating to the development and introduction of an SO Storage Commodity Charge, and the different options that need to be considered in developing a charging methodology that would best meet National Grid's relevant objectives.

We would be pleased to receive views on the following areas discussed in the paper to inform the development of a charging methodology, as follows:

- Q1. Should storage continue to avoid an SO commodity charge?
- Q2. Which SO costs should be included within an SO Storage Commodity Charge?
 - Shrinkage: Own Use Gas (OUG) = Compression
 - Shrinkage: Un-accounted for Gas (UAG)
 - Internal Costs
 - Operating Margins
 - Constrained LNG (CLNG)
 - Deemed Interruption.
 - Outcome of Incentive Schemes
 - Under or over-recovery from previous year ('K')
- Q3. Should the charge apply to physical or commercial flows?
- Q4. If a charge were based on physical or commercial flows what are the estimated systems costs to Users and the industry? Please give details for the two possibilities?
- Q5. Would it be unduly discriminatory to have a different commodity charge for storage Users?
- Q6. Are there any other possible approaches or issues that have not been discussed in the discussion document but warrant further consideration?

The closing date for submission of your responses is **22nd February 2008**.

Your response should be e-mailed to debra.a.hawkin@uk.ngrid.com or alternatively by post to Debra Hawkin, Regulatory Frameworks, National Grid, NG House, Gallows Hill, Warwick, CV34 6DA. If you wish to discuss any matter relating to this charging methodology consultation then please call ☎ 01926 656317.

Responses to this consultation will be incorporated within National Grid's conclusion report. If you wish your response to be treated as confidential then please mark it clearly to that effect.

Appendix A. - Proposal NTS GCM03

- 6.1. NTS GCM03 proposed a methodology for a new SO Storage Commodity rate based on identifying which of the relevant SO costs, reflected within the standard SO commodity rate, are incurred as a result of the provision and use of NTS storage facilities. The methodology apportioned any relevant costs in a way that sought equitability between Users at all entry and exit points and ensured the avoidance of any price distortions.

Issues with Final Proposals in NTS GCM03

- 6.2. Following the submission to Ofgem of the GCM03 Final Proposals, Ofgem decided to veto the proposals and explained its reasons for this decision in its decision letter¹⁰.

Ofgem's Views

- 6.3. Cost Reflectivity - Ofgem stated that it was not convinced that the proposed application and the proposed calculation of the storage SO commodity rate would result in a more cost-reflective charge. In particular it noted that the main components of the proposed charge are internal costs and deemed interruption, neither of which is related to commercial flows. Ofgem also questioned why compressor costs should be excluded, in that there may be occasions in the winter when the injection into storage might trigger compression. Consequently, Ofgem felt that certain Users would face a disproportionate and unjustifiably large share of the SO costs.
- 6.4. Transparency - Ofgem agreed with a number of respondents that the consultation process had not been sufficiently transparent and that further information could be made available to interested parties.
- 6.5. General - Ofgem stated that it continued to believe that, in principle, storage flows should not be excluded from the application of the SO commodity charge and that any particular benefits provided by storage sites to NTS as system operator should not be factored into the calculation of the SO commodity charge. It further suggested that as storage flows are likely to increase in the future, it would be increasingly important to ensure that storage Users bear some of the costs associated with system operation.

Views from Industry

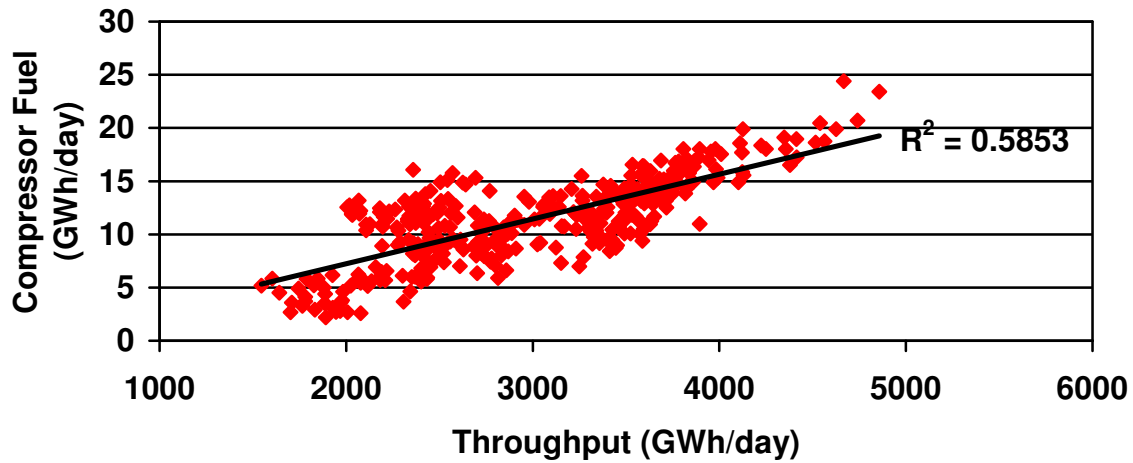
- 6.6. Cost Reflectivity - A number of parties suggested that a number of the relevant SO costs were not related to commercial flows but were driven by other factors, e.g. internal costs being affected by number of meters. Other parties suggested the charge should be applied to physical flows rather than commercial flows.
- 6.7. Transparency - Many respondents expressed concern at the lack of transparency and lack of underlying data and analysis, which it made it difficult to assess whether cost elements had been appropriately included.
- 6.8. Potential Discrimination - A number of parties have questioned the legitimacy of proposing differential SO commodity charges at different classes of NTS exit points, and make reference to EU gas regulation 1775/2005 and an explanatory note issued by DGTREN which states that tariffs for identical services offered by individual TSO's should be identical. A counter view has also been offered based on legal advice that where classes of NTS Users are not materially comparable, different treatment can be appropriate.

¹⁰ GCM 03 - Ofgem Decision Document available on <http://www.nationalgrid.com/uk/Gas/Charges/consultations/CurrentPapers/>

Appendix B1 - Relationship between compression and throughput

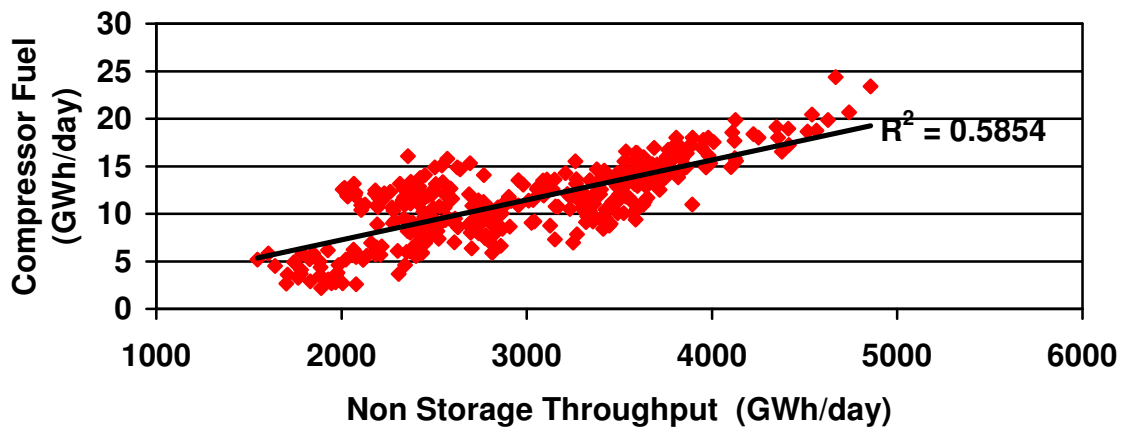
OUG (Compression excl.SF) v Throughput

(April 2006 - March 2007)



OUG (Compression excl.SF) v Throughput (excl. storage)

(April 2006 - March 2007)



The above graphs show a clear relationship between throughput and compressor fuel. Storage throughput makes little difference to the relationship.

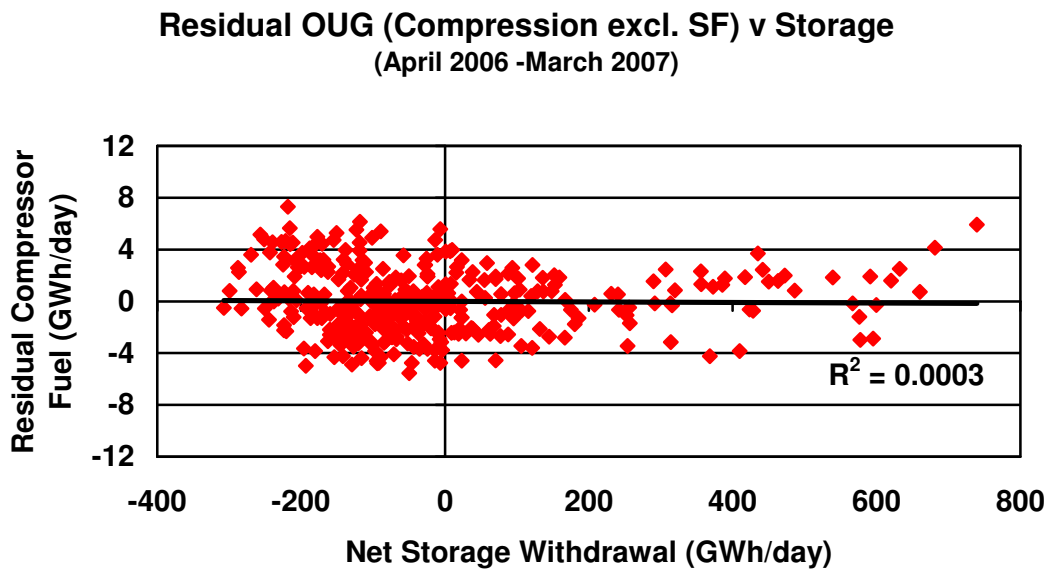
Appendix B2 - Relationship between compression and storage

The impact of throughput can be removed by fitting a linear model and looking at the residuals.

-If compressor fuel increased with storage withdrawal we would expect to see a **positive** relationship.

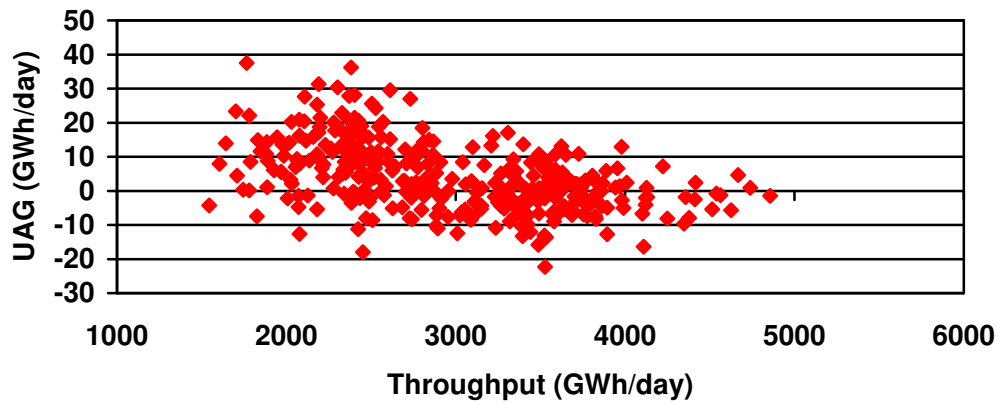
-If compressor fuel decreased with storage withdrawal we would expect to see a **negative** relationship.

-If compressor fuel increased with storage withdrawal we would expect to see **no** relationship.

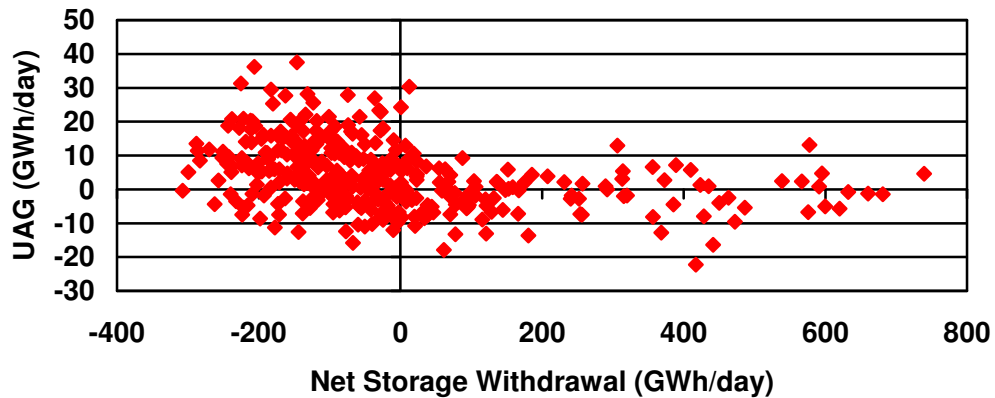


The graph above shows an almost negligible R^2 value and therefore there is no relationship between compressor fuel usage and net storage withdrawal.

Appendix B3 - Relationship between UAG and throughput



UAG v Storage Throughput
(April 2006 - March 2007)



The graphs above show that there is no positive relationship between UAG and throughput or storage flows.