Modification proposal:	**Balancing and Settlement Code (BSC) P205: Increase in PAR level from 100MWh to 500MWh**		
Decision:	**The Authority[1] directs that this proposal be made[2]**		
Target audience:	National Grid Electricity Transmission Plc (NGET), Parties to the BSC and other interested parties		
Date of publication:	20 October 2006	Implementation Date:	2 November 2006

Background

The electricity cash out arrangements will be changing on 2 November 2006. This follows the approval of BSC Modification Proposal P194 by the Authority earlier this year. From November electricity cash out prices will be calculated using the average of the most expensive 100MWh of energy that the system operator (SO) buys or sells in its role of ensuring that the overall supply and demand of electricity is in balance. This methodology is called PAR 100.

In the Authority's decision letter on P194 we set out several areas of concern with the current cash out arrangements and our view that a more fundamental review of cash out in electricity is required.[3]

Following our decision, a number of modifications proposals have been raised on electricity cash out. To date no further amendments to electricity cash out have been approved.[4]

The modification proposal

Good Energy (the proposer) raised Modification Proposal P205 (the proposal) in July. It seeks to change the methodology for setting electricity cash out prices so that instead of using the most expensive 100MWh of volume, the most expensive 500MWh are used instead (so called 'PAR 500')[5].

The proposer considered that the modification would better facilitate the achievement of the relevant objectives because:

- parties already do everything that they can to balance;
- the proposal provides less incentive to take a long position;
- there would be fewer negative system sell prices (SSP) that occur due to problems in the tagging mechanism;

[1] The terms 'the Authority', 'Ofgem' and 'we' are used interchangeably in this document. Ofgem is the Office of the Gas and Electricity Markets Authority, the regulator of the gas and electricity markets in Great Britain.
[2] This document is notice of the reasons for this decision as required by section 49A of the Electricity Act 1989.
[3] "P194: Revised derivation of the main energy imbalance price", Ofgem, March 2006. This can be found here: http://www.ofgem.gov.uk/ofgem/work/index.jsp?section=/areasofwork/elecgov/egov01
[4] Since our decision to approve modification P194 there have been two other proposals to modify elements of P194. These were Modification P201 "Energy Imbalance Tolerance Band" and Modification P202 "Energy Imbalance Incentive Band". These decisions are published here: http://www.ofgem.gov.uk/ofgem/work/index.jsp?section=/areasofwork/elecgov/egov01
[5] For the purpose of clarity, the proposal (P205) will introduce a PAR 500 mechanism. The baseline against which we are considering the proposal is a PAR 100 mechanism (P194). Given P194 will not be implemented until 2 November 2006 we also refer to the 'current arrangements' for which a weighted average price (WAP) mechanism is used. A detailed description of the PAR mechanism and the cash out arrangements that form the baseline for comparison to the proposal can be found in the P194 decision letter sourced in footnote 3.

- it would lessen the impact on smaller parties (particularly renewables); and
- market liquidity creates difficulties to balance, particularly for small parties.

Given the implementation of P194 in November, the Authority granted urgency to Good Energy's proposal on 7 August 2006. The modification has followed the process as set out by the Authority.

BSC Panel[6] recommendation

The BSC Panel met to consider P205 on 14 September 2006. It voted by majority to accept the proposal.

Impact assessment

We have given consideration to completing an impact assessment and concluded that this was not appropriate given the desire to reach a decision in time for the proposed implementation date of 2 November 2006.

The Authority's decision

The Authority has considered the issues raised by the modification proposal and the Final Modification Report (FMR) dated 15 September 2006.[7] The Authority has considered and taken into account the responses to Elexon's[8] consultation which are attached to the FMR[9]. The Authority has concluded that:

1. implementation of the modification proposal will better facilitate the achievement of the relevant objectives of the BSC;[10] and
2. directing that the implementation be made is consistent with the Authority's principal objective and statutory duties.[11]

Reasons for the Authority decision

In this section we set out the reasons for our decision in the context of our assessment of the proposal against the relevant objectives. We considered the effect of the proposal against all applicable BSC objectives, but we agree with the Panel that the proposal will have no material impact on BSC objectives (a) and (d). We have therefore set out our assessment against applicable objectives (b) and (c).

Overview

The decision that we have reached is finely balanced. One respondent, EdF, produced some very helpful analysis but overall we found the lack of industry analysis regarding the proposal disappointing. In particular we were disappointed that National Grid did not

[6] The BSC Panel is established and constituted pursuant to and in accordance with Section B of the BSC.
[7] This can be found at under the 'P205 Final Modification Report link' at: http://www.elexon.co.uk/changeimplementation/ModificationProcess/ModificationDocumentation/modProposalView.aspx?propID=223
[8] The role and powers, functions and responsibilities of Elexon are set out in Section C of the BSC.
[9] BSC modification proposals, modification reports and representations can be viewed on the Elexon website at www.elexon.com
[10] As set out in Standard Condition C3(3) of NGET's Transmission Licence, see: http://62.173.69.60/index.php?pk=folder132230
[11] The Authority's statutory duties are wider than matters which the Panel must take into consideration and are detailed mainly in the Electricity Act 1989.

provide more analytical support to the modification process. National Grid clearly has a central role in helping the industry assess the potential impact of any modification proposals affecting cash out through its role as System Operator (SO). One of the key issues raised by this proposal is whether the cash out arrangements send appropriate signals to market participants to balance when the supply/demand balance is tight and when it is not tight. National Grid possess important operational information about how tight the system was at any point in time that can be very important in understanding whether current cash out prices are sending the right signals at the right time. We think that recent proposals have highlighted the need for the industry, including NG, to provide more analytical support and information when assessing these issues.

Having assessed the analysis produced by the modification group we think that the PAR 500 methodology will still provide a strong signal at times of system stress, and is likely to produce prices that better reflect supply and demand conditions on the system across all periods than the current average price methodology.

Having examined the analysis that EdF completed, we share their concern that there are deficiencies in the tagging mechanism which could distort cash out prices. This suggests that under the PAR 100 methodology SO trades taken for system reasons (for example to resolve constraints) could set cash out prices. This effect is reduced under the PAR 500 methodology.

Data available for analysis is inevitably based on the existing pricing arrangements and would therefore not include some secondary impacts, for example behavioural changes, that might have occurred under a PAR 100 or PAR 500 regime. However, we consider the data is still a valuable means of comparison of the likely impact of different price methodologies.

Our view is that the PAR 500 proposal reduces the potential distortions to cash out prices under the PAR 100 baseline. We have therefore considered it is, on balance, appropriate to accept the proposal as these distortions are likely to be detrimental to both the economic and efficient operation of the system and to effective competition.

The analysis carried out in assessing the proposal has strengthened our view that there needs to be a fundamental review of the electricity cash out arrangements. Ofgem will start this work as soon as possible and at the latest in Spring 2007.

Objective (b) – Efficient, economic and co-ordinated operation of the transmission system

The Panel and the majority of respondents considered that the proposal would retain sufficient incentives to balance. Other respondents, including the SO, considered that the proposal would mitigate the benefits of the P194 baseline by not reflecting the marginal cost of energy balancing in cash out prices, and reducing the incentive to balance. Our view is that the benefits of reducing price distortions caused by imperfections in the tagging mechanism outweigh the potential detriment resulting from any reduction in the signal to balance.

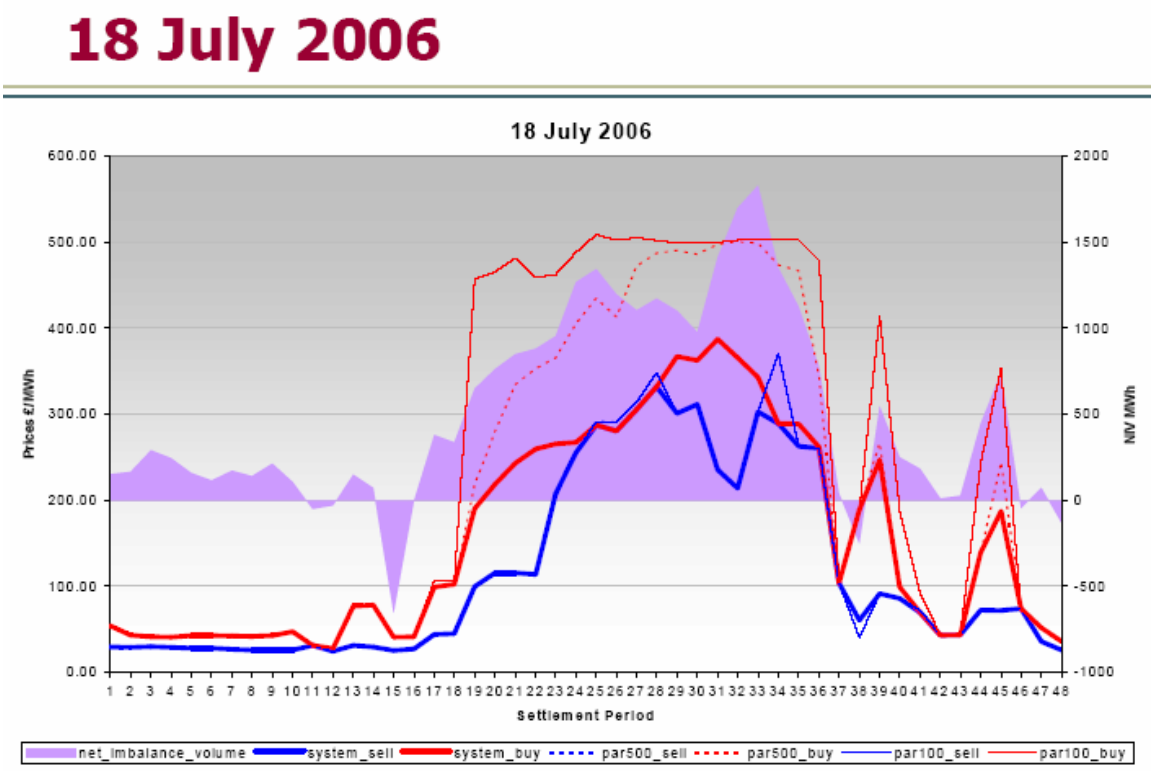
In approving modification P194 we stated that it was necessary for market participants to face cost reflective cash out prices. We considered that this was important for the economic and efficient operation of the system. In accepting P194, we accepted that deficiencies had been demonstrated with the average price methodology which meant that particularly at times of system stress the cash out prices were not fully reflecting the

costs of the actions that the SO was undertaking. The P194 decision document[12] sets out why the evidence suggested that, subject to any external distortions, a more marginal pricing approach will more closely reflect the SO's costs of balancing than weighted average pricing.

During the assessment of this proposal, Elexon completed analysis that showed an increase in the PAR volume from 100 to 500 would reduce the extent to which cash out prices were reflective of the marginal cost of SO energy balancing actions.[13] The analysis showed the number of periods that electricity cash out prices would change under either the PAR 100 or PAR 500 methodology. The PAR 100 methodology would change cash out prices in 83% of periods in 2005/06 whereas the PAR 500 would change cash out prices in 23% of periods.

As P194 was implemented following the SO concerns that the calculation of electricity cash out on an average price basis was not providing appropriate signals at times of system stress, Elexon examined the impact of the different pricing methodologies on a recent day of system stress. On 18 July 2006, lack of generation availability and unusually high demand for the time of year (due to air-conditioning load) led National Grid to issue a notice of insufficient margin (NISM). This was upgraded to a high risk of demand reduction (HRDR) notice, and then a demand control imminent (DCI) notice for the period 11.30 to 17.30. Elexon's 18 July analysis is illustrated in Figure 1 below.

Figure 1: 18 July prices under Weighted Average Price (WAP), PAR 500 and PAR 100 methodologies



[12] Sourced at footnote 3

[13] In its analysis, Elexon calculated the relative prices for each trading period of the 2005/06 financial year under each pricing methodology.

As can be seen in Figure 1 above, the PAR500 price tracks quite closely the changing net imbalance volume (NIV) value over the day. This means that when the system was not under stress the weighted average price (WAP) and the PAR 500 price converged. However when the system was under considerable stress during the very tight periods in the middle of the day, PAR 500 provided a considerably stronger signal than the WAP. In periods 32 and 33 when the system was shortest, the PAR 500 price was within about £3/MWh of the PAR100 price.

This piece of analysis obviously concentrates on periods over one day which we know to have been a difficult day on the electricity system. Elexon's analysis also looked at a range of other periods which we considered in taking our decision.[14]

On the basis of data from the current regime, it appears that a PAR 500 methodology would only affect cash out prices (compared to a WAP) in about a quarter of all periods, while maintaining a much stronger signal than the WAP at times of system stress. This represents a reduction from the current PAR 100 baseline where the price is affected in 83% of periods.

We note that some respondents considered that P194 would lead to 'excessive' length on the system. Our view remains that as long as cash out prices reflect the costs incurred by the SO in resolving residual energy imbalances, then any system length will simply reflect market participant's view of the right level of length to mitigate the risk of being exposed to cash out prices. We therefore do not agree that 'excessive' system length is a concern if cash out prices reflect the SO's energy balancing costs. We also note that some respondents stated that they already do all they can to balance their positions, which would mean that a stronger signal will not alter their behaviour. However, as we explained in our P194 decision letter, the failure of market participants to balance, irrespective of the reasons, imposes a real cost on National Grid (and ultimately consumers). In sending them a price signal that accurately reflects the cost of actions that National Grid has to take to resolve *energy* imbalance, market participants would expend the right amount of effort to rectify their imbalance now and over the longer term.

We therefore continue to think, consistent with the views of some respondents, including National Grid, that it is important that cash out prices reflect the costs that the SO incurs in balancing the system. Customers will face higher costs if cash out prices are not cost reflective because the SO will have to undertake more actions to resolve energy imbalances and is likely to do so at a higher cost than if market participants resolve imbalances themselves.

In addition, in setting these cost reflective cash out prices it is important that the costs reflect only the costs of the SO resolving imbalances in the supply and demand of energy rather than the costs of managing the transmission system. For example, the costs incurred by the SO in managing congestion on the transmission system should not feed into the calculation of imbalance prices as this will distort the signals sent by cash out prices.

To facilitate this separation of energy from system actions, a number of rules[15] are applied to 'tag out' system trades and remove them from imbalance price calculations.

[14] This analysis can be found under the "P205 Final Modification Report" sourced in footnote 7.

As set out above, EdF Energy carried out analysis for the modification group.[16] This analysis compared an estimate of system margin[17] in each period during the 2005/06 financial year with corresponding cash out prices under calculations for each of the WAP, PAR 100 (P194) and PAR 500 (P205) methodologies. The analysis showed a strong negative relationship between the level of margin and cash out prices under both the PAR 500 and PAR 100 methodologies, with the PAR 100 methodology resulting in a higher frequency of System Buy Prices in excess of £600/MWh.

The analysis also highlighted a number of periods in which the pricing calculation with a PAR 100 value (as in the baseline) would have created negative System Sell Prices (SSPs) when plant margins were not excessively long on the system. This would have the perverse effect that National Grid would have paid parties to turn down their generation or increase their consumption. We have calculated from the EdF analysis the number of occasions in which negative SSP would have occurred under three pricing methodologies, as shown in Table 1:

Table 1. Periods with negative SSP – 1 April 2005 to 31 March 2006

	Current arrangements (WAP)	PAR500 - P205	PAR100 - P194
Negative SSP occurrences	10	17	63

Table 1 above illustrates that under the proposal, negative SSPs would have occurred in 17 trading periods. This compares to 63 occasions under the PAR 100 (P194) baseline, representing a reduction of 73%. EdF argued that these negative prices were due to actions being taken to resolve system constraints, which were therefore not representative of the energy imbalance on the system.

In assessing the proposal, we asked National Grid to examine the settlement periods when the negative SSPs occurred. National Grid confirmed that in 56 of the 63 periods in the PAR 100 data set, they had taken actions to resolve system constraints at the Cheviot boundary. We note that the periods examined result from the current weighted average price methodology arrangements and it cannot be determined with certainty that behavioural differences under a PAR 100 or PAR 500 regime would result in the SO having to take those same actions. However, in our view this provides strong evidence that cash out prices would be polluted by actions taken for system reasons under the PAR 100 methodology.

Although the larger PAR value proposed does not prevent system actions from being included in the pricing calculation, it appears to reduce significantly the number of periods where cash out prices are distorted by system actions.

When discussed in the modification group, National Grid queried EdF's analysis. National Grid's query was not submitted as part of its formal response, but since we found the EdF analysis useful and persuasive, we wanted to make every possible effort to ensure its validity given our reliance on this in our decision making process. We therefore spoke to

[15] Actions that are tagged out are: Bids or Offers which have a Continuous Acceptance Duration of less than 15 minutes; De Minimus accepted Bids or Offers; Arbitrage accepted Bids or Offers; NIV Tagged Bids or Offers; or System actions identified in the BSAD methodology.
[16] This analysis is available from the Elexon website: www.elexon.co.uk
[17] EdF use maximum export limit less demand as an approximation of margin. This approximation therefore includes margin that is not necessarily available to the SO due to ramp rate restrictions.

National Grid to clarify the nature and extent of its concerns. In response National Grid produced some additional analysis. We have not used this analysis as it did not in any way contradict the findings of the EdF analysis that on some occasions system trades were unduly distorting electricity cash out particularly under a PAR 100 methodology. Consequently, we continue to consider that EdF's analysis is valid and is helpful in our assessment of the proposal. To ensure transparency we have attached the National Grid analysis to this letter. The National Grid analysis may well also be useful for the industry to consider as part of a wider cash out review.

Ofgem's view against relevant objective (b)

We think that, on balance, the benefits of reducing price distortions caused by imperfections in the tagging mechanism outweigh the potential detriment resulting from any reduced price signal. We therefore think that on the basis of the evidence and analysis available to us, that the proposal will better facilitate the achievement of the efficient, economic and coordinated operation of the transmission system.

Objective (c) - Promoting effective competition in the generation and supply of electricity, and (so far as consistent therewith) promoting such competition in the sale and purchase of electricity

The proposer, Panel and certain respondents consider that the proposal will increase competition because it will decrease the impact of tagging imperfections on imbalance prices and would also reduce barriers to entry that may result from penal prices. Other respondents said the dampened cash out prices would reduce liquidity and that 'less marginal' prices would send inefficient entry signals. In this section we set out our views against the key issues raised.

As we have set out above under relevant objective (b), we have concluded that the PAR 500 methodology reduces the risk that a system balancing action will distort the electricity cash out price. In addition to promoting the economic and efficient operation of the system this should also help to promote effective competition.

As we highlighted in our P194 decision letter, targeting costs on parties who are out of balance is consistent with the promotion of competition in that generators and suppliers that are better at balancing their inputs and off takes from the system, particularly at times when system margin is tight, should be able to gain a competitive advantage over their rivals. We therefore agree with some respondents that cash out prices that better reflect the costs imposed on the SO in energy balancing will enhance competitive incentives to act efficiently and improve incentives on market participants to resolve imbalances themselves. The inclusion of system actions within imbalance charges could disadvantage market participants facing those charges. This is because those parties will face potentially high costs of alleviating system constraints which are not attributable to the imbalance position of the affected parties.

Consequently, cash out would not appropriately reward those who are the most efficient at balancing their position, reducing the incentive on participants to compete with each other on balancing. Therefore, the apparent reduction in the impact of imperfect tagging brought about by the proposal would be beneficial to competition as compared to the baseline.

We did not agree with some of the arguments put forward by the proposer and some respondents relating to relevant objective (c). Consistent with our decision on P194 we

continue to think that it is appropriate for parties to face the true costs of energy imbalances and we believe that it is harmful to competition to socialise these costs in any way. We do not think this raises a barrier to entry - parties with unpredictable or uncertain output will have to use the tools available to them to manage the risk of exposure to cash out prices that simply reflect the costs they impose on the system when they fail to balance.

The proposer is additionally concerned that the wholesale market is illiquid. However, analysis carried out for Modification Proposals P201 and P202 does not support this claim[18]. Whilst we are aware that certain market participants do not think there is sufficient liquidity, no further evidence of market illiquidity has been provided during the P205 assessment phase. As such, our view that such a defect has not been demonstrated has not changed.

A number of respondents raised the potential risk of gaming under P194. In our P194 impact assessment we highlighted that the risk of gaming is small but is likely to increase with a lower PAR volume.[19] This is due to the increased ability for a single BMU or relatively small volume action (relative to demand or the imbalance volume) to be able to set the price by providing all trades within the PAR volume. Therefore whilst the impact is only minor, the risk of gaming is likely to be reduced further under the proposal.

Ofgem's view against relevant objective (c)

On balance, we consider that the reduction in the impact of imperfect tagging should mean that costs are more accurately targeted, and companies are therefore competing on a more appropriate basis, than under the baseline.

Assessment against the Authority's other statutory duties

This section focuses on our wider statutory duties, which are not directly considered in our assessment against the relevant code objectives.

Security of supply

In its response NGET stated that the incentive for parties to cover their contractual positions will be diminished. In our view, the analysis carried out in assessing the mod shows the proposal will continue to provide appropriate, cost reflective cash out prices during periods of system stress As such short term security of supply should improve as market participants are appropriately incentivised to balance.

We agree with NGET that adequate capacity to meet future requirements is a core requirement of meeting long term security of supply. The proposal will continue to provide appropriate, cost reflective prices that will feed into forward price signals that provide the longer term investments decisions and the proposal will therefore have a positive effect on long term security of supply.

Sustainable Development - Renewables

We note that there has been some support from representatives of renewables for this proposal. As we stated in our P194 decision letter, our analysis suggests that most forms

[18] These are sourced in footnote 4.
[19] We refer to the potential of gaming in our P194 Impact Assessment which can be found here: http://www.ofgem.gov.uk/ofgem/work/index.jsp?section=/areasofwork/wholesalemarketmonitoring

of renewable generation (other than wind generation) are as predictable as other forms of generation during the timescales that the balancing arrangements operate. Sending renewables appropriate signals of the costs to balance the system encourages them to develop tools and contract with customers and other generators to manage their risks and costs. We think that renewable generators, like conventional generators, need to manage unpredictability in their load and as such, cost reflective prices would assist them in achieving this. Prices that are the most accurate reflection of cost provide for greater certainty and enable renewables (like other generators) to manage their risks and costs more efficiently.

Areas for further industry review

We note that there are currently no further electricity cash out arrangements modification proposals under consideration or soon to be with Ofgem for decision. Whilst we have decided that the proposal better facilitates the relevant BSC objectives the analysis suggests that there may be scope for further improvements in the cash out arrangements. Although the proposal significantly reduces the impact of imperfect tagging on cash out prices, it appears that actions taken for system constraint reasons can still contribute to the calculation of the price. We note the work carried out to date by industry in assessing these issues but consider that there are fundamental issues remaining with the existing cash out arrangements that need further industry consideration, including the tagging mechanism. We therefore intend to commence a wide-ranging review of cash out arrangements at the latest in Spring 2007 and plan to present our proposed way forward shortly at a BSC Panel meeting.

Decision notice

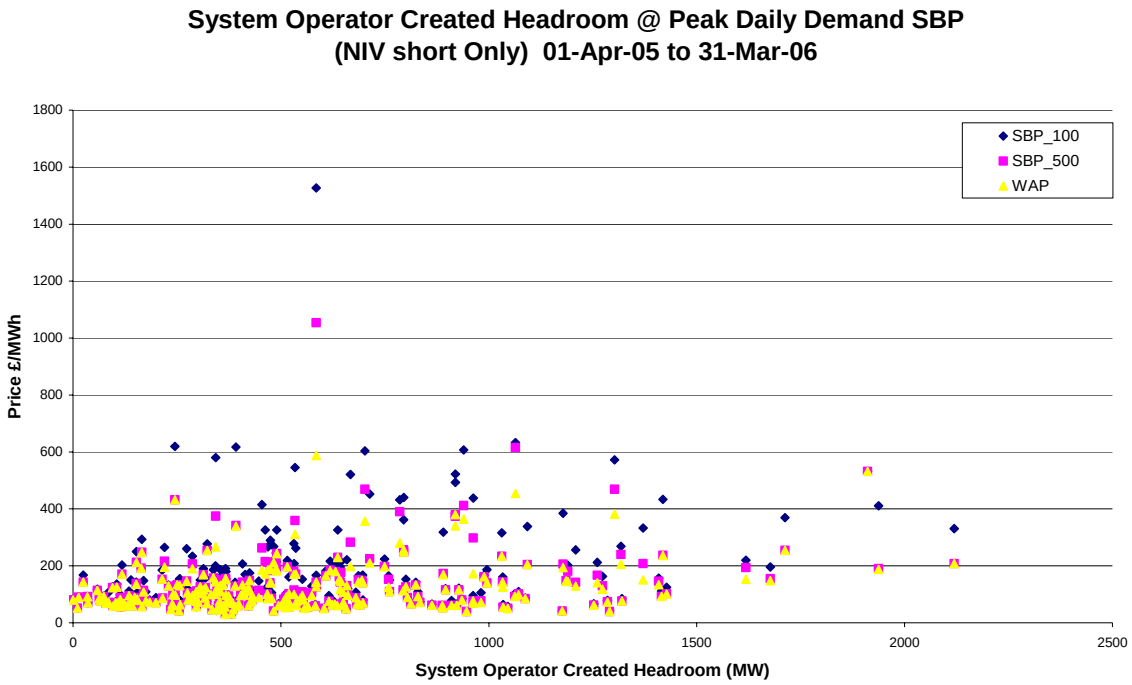
In accordance with Standard Condition C3(5)(a) of NGET's electricity transmission licence, the Authority hereby directs that modification proposal P205: 'Increase in PAR level from 100MWh to 500MWh' be made.

The implementation date for modification P205 is 2 November 2006.

Yours sincerely,

Stephen Smith
Managing Director, Markets
Signed on behalf of the Authority and authorised for that purpose

Appendix 1 – National Grid analysis provided to Ofgem



Please note the following information in regard the data in the graph

- System Operator (SO) created headroom has been used as a proxy for the measure of System Stress
- Only the peak demand periods of the day have been analysed (Reserve is procured against the expectation of the day's highest demand)
- Only periods where NIV is positive are included (SBP is only derived from System Operator actions when the market is short)
- SO created headroom is made up of the following
  (a) Headroom created via BM synchronisation
  (b) Headroom created via PGBT
  (c) Headroom created as a consequence of a warming instruction