

National Grid Electricity Transmission plc,  
BSC Signatories and Other Interested Parties

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Dear Colleague,

**Balancing and Settlement Code (BSC) Modification Proposal P194  
"Revised Derivation of the Main Energy Imbalance Price" - Decision and  
Direction**

The Gas and Electricity Markets Authority (the Authority)<sup>1</sup> has considered the issues raised in the final modification report,<sup>2</sup> and the responses to Ofgem's Impact Assessment (IA)<sup>3</sup> in respect of Balancing and Settlement Code (BSC) Modification Proposal P194, "Revised Derivation of the Main Energy Imbalance Price" (the proposal), and having regard to the principal objective and statutory duties of the Authority,<sup>4</sup> has decided to direct implementation of the proposal.

Ofgem considers that Modification Proposal P194 would better facilitate the achievement of the relevant objectives of the BSC, as set out in Standard Condition C3 (3) of National Grid Electricity Transmission (NGET)'s Transmission Licence.

In this letter, Ofgem:

- (i) Explains the background to the proposal (page 2);
- (ii) Summarises the proposal and the modification process to date (page 4);
- (iii) Summarises the views of respondents in respect of the draft modification report and the views of respondents to Ofgem's IA on the proposal (page 7); and
- (iv) Sets out our views on the proposal and gives reasons for our decision (page 12).

This letter constitutes notice by the Authority under section 49A of the Electricity Act 1989 in relation to the direction.

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<sup>1</sup> Ofgem is the office of the Authority. The terms "Ofgem" and "the Authority" are used interchangeably in this letter.

<sup>2</sup> ELEXON document reference P194RR, Version No. 1.0, dated 9/12/2005.

<sup>3</sup> BSC modification proposal P194 "Revised Derivation of the Main Energy Imbalance Price", Impact Assessment, Ofgem, January 2006.

<sup>4</sup> Set out in the Electricity Act 1989, as amended.

## **Background to the proposal**

### *What are the electricity cash out arrangements designed to achieve?*

The electricity cash out arrangements are designed to provide generators, suppliers and large customers with commercial incentives to balance electricity supply and demand as efficiently as possible. They aim to provide incentives on market participants to balance their own positions to the best of their ability wherever it is efficient for them to do so. While there will always be a role for the System Operator (SO) as residual balancer, which is discussed below, if participants can balance their own positions more cheaply themselves, they should be provided with appropriate incentives to do so. The cash out arrangements are ultimately intended to provide the commercial incentives for generators and suppliers to maintain security of supply in the most efficient manner.

### *NGET's role as SO*

National Grid Electricity Transmission (NGET) as SO is responsible for operating the high voltage transmission system and keeping supply and demand balanced within safe technical limits. NGET buys or sells electricity from generators and suppliers (or large customers who are able to quickly reduce their demand) to bring it back into balance. NGET also contracts with generators and large suppliers to hold a 'reserve' to keep the system in balance if, for example, there is a sudden loss of several large generators and/or a sudden, unexpected increase in demand. This is known as energy balancing.

NGET also takes actions (also by contracting with generators, suppliers and customers) to resolve constraints on the transmission system. This could occur, for example, when the electricity supply and demand is in balance nationally but there is not enough transmission capacity to transmit electricity from where it is being generated to where it is being consumed. This is known as system balancing.

### *Commercial incentives on market participants*

The cash out arrangements are designed to target the costs of energy balancing to the parties who create those costs (i.e. the parties whose contracted generation (supply) does not balance with their physical generation (supply) in a given period). They do this by imposing imbalance charges on parties who are not in balance that reflect the costs incurred by the SO in rectifying the imbalance. These imbalance charges are also known as cash out prices.

Cash out prices are designed to provide suppliers with strong incentives to contract with electricity generators to meet their customers' demand, in order to avoid the risk of being exposed to cash out prices and to provide generators with strong incentives to generate to meet their contractual position – and hence to maintain the reliability of their generating stations to avoid being exposed to cash out prices.

Generators and suppliers are not under obligations to balance and can choose to pay the cash out price. But the cash out price should correctly signal to them NGET's cost of balancing. In response to this signal, generators and suppliers should try to balance their own positions if they are able to do so at lower cost than NGET. There are a number of tools available to market participants to enable them to do this. For example, if a supplier predicts an increase in customer demand it can contract for additional supplies. Equally, if a participant is unwilling to bear the costs of balancing its own position on a day to day basis, it can contract with an aggregator to balance its portfolio on its behalf (essentially outsourcing the role).

If the cash out price does not reflect the costs that NGET faces and is either too high or too low, this will distort the commercial incentives on generators and suppliers and inefficiently raise the costs of energy balancing. Customers ultimately pay these energy balancing costs. If the price is too low, generators and suppliers will not devote enough resources and effort to managing the risk of being out of balance. This could also impact on security of supply if, for example, it encourages generators not to invest enough money to maintain reliability or it encourages suppliers not to contract to meet their customers' peak winter demand.

If the price is too high, generators and suppliers will devote too much resource and effort to managing these risks by, for example, investing too much to improve reliability or over-contracting. This may improve security of supply but will do so by raising suppliers' and generators' costs above the efficient level and these additional costs will ultimately be recovered from customers.

#### *Current calculation of cash out price*

The current cash out arrangements consist of a 'dual' cash out mechanism. This means that there are two Energy Imbalance Prices, or 'cash out prices': the System Buy Price (SBP) and the System Sell Price (SSP). These are further defined in any given settlement period as the 'main' cash out price, which applies in respect of imbalances in the same direction as the imbalance of the system, and the 'reverse' cash out price, which applies to imbalances in the opposite direction. For example when the system as a whole is short, the main cash out price will be the SBP and the reverse price will be the SSP.

The main Energy Imbalance Price is determined using a volume weighted average of all the eligible<sup>5</sup> Electricity Balancing actions taken by the SO to alleviate the Net Imbalance Volume (NIV). The reverse price is derived from a market price based on short-term energy trades made in the forward and spot markets.

#### *Previous consideration of the appropriateness of the current arrangements*

Since NETA Go-Live, in the light of experience gained under the new arrangements, a number of proposed modifications have been made to the way in which cash out prices are calculated. These proposals were mainly as a result of concerns that the rules for calculating cash out prices did not give rise to prices that reflected NGET's costs of energy balancing.<sup>6</sup> The decisions on Modification Proposals P136 and P137 are particularly relevant as these proposals sought to modify the BSC to introduce a fully marginal methodology for the calculation of the main cash out price. The Authority rejected Modification Proposals P136 and P137 based on concerns that a fully marginal methodology could mean that a very small volume of energy accepted by the SO, or a 'system' balancing action could set the cash out price. Ofgem was also concerned that a fully marginal cash out regime could increase the risk that companies could manipulate or game cash out prices. This would lead to cash out prices that did not reflect the costs of energy balancing.

#### *Cash out review*

In May 2004, Ofgem initiated a review of cash out arrangements to consider, among other things, possible improvements to the calculation of the cash out prices. As part of this review, in August 2004 Ofgem established the Cash Out Review Working Group (CORWG) to look at the cash out arrangements in a

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<sup>5</sup> Defined as actions that are not: Bids or Offers which have a Continuous Acceptance Duration of less than 15 minutes; De Minimis accepted Bids or Offers; Arbitrage accepted Bids or Offers; NIV Tagged Bids or Offers; or System actions identified in the BSAD methodology.

<sup>6</sup> Appendix 1 to Ofgem's IA contained a summary of a number of relevant modification proposals and Ofgem's decisions. Ofgem's decision letters are available at:  
<http://www.ofgem.gov.uk/ofgem/work/index.jsp?section=/areasofwork/electradingarrangements>

systematic way. Since then the CORWG sub-groups have conducted analysis relating to potential defects of the current cash out arrangements. The objective of CORWG was to identify defects in cash out, and where appropriate (in line with the industry governance process) for industry parties to bring forward changes to the arrangements. Further details of the work of CORWG, including its conclusions and Ofgem's initial views, can be found on the Ofgem website.<sup>7</sup>

*National Grid's winter outlook report – 2005/06*

NGET expressed concerns that certain changes to cash out rules were needed in time for Winter 2006/07 to ensure security of supply. In its Winter Outlook report (2005/06)<sup>8</sup> National Grid stated that it was important to implement a proposal to deliver a more marginal cash out price calculation so that appropriate arrangements are in place to ensure generation plant availability for next winter and new build going forward.

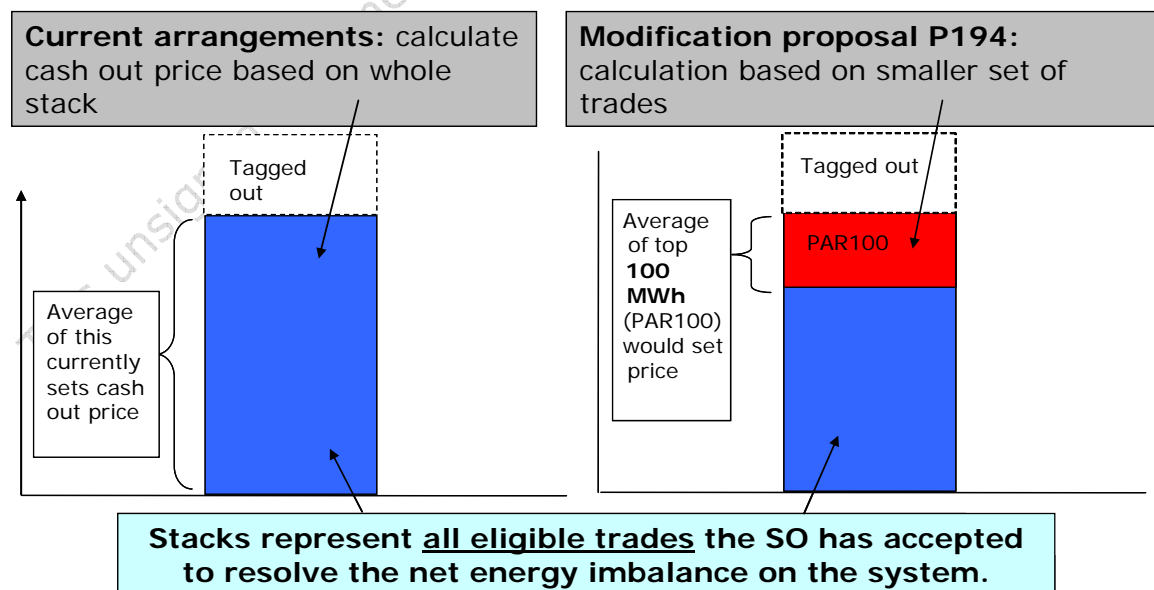
### The Modification Proposal

NGET submitted Modification Proposal P194 "Revised Derivation of the Main Energy Imbalance Price" on 26 August 2005.

As set out above, the Main Energy Imbalance Price is currently determined using a volume weighted average of all the eligible Energy Balancing actions taken by the SO to alleviate the NIV. This proposal seeks to amend the Main Energy Imbalance Price such that only a predefined volume of balancing actions will contribute to the calculation of a volume weighted imbalance price.

This volume would be set to 100MWh (referred to as the 'Price Average Reference' (PAR) 100 Volume) of the most expensive balancing actions remaining following the tagging procedure. 100MWh would represent the maximum volume of the PAR, so that if the NIV is smaller than 100MWh, the whole of the NIV would contribute to the calculation of the volume weighted average price.

**Figure 1 – Current and P194 price derivation**



<sup>7</sup> <http://www.ofgem.gov.uk/ofgem/work/index.jsp?section=/areasofwork/cashoutreview>

<sup>8</sup> <http://www.ofgem.gov.uk/ofgem/work/index.jsp?section=/areasofwork/securityofsupply>

The proposer put forward the following reasons in support of the proposal:

- ◆ the existing arrangements result in the main imbalance price being too low during certain periods and weaken the signals on market participants to balance, particularly at times of system stress when supplies are tight;
- ◆ the existing arrangements do not produce imbalance charges that fully reflect the costs incurred by the SO in balancing the system; and
- ◆ these weak signals at times of system stress may impact on security of supply.

NGET provided evidence that it suggested showed that if the cash out price had been calculated under the proposed modification methodology the signals to the market would have been strengthened and participants would have had stronger commercial incentives to balance their positions.

NGET also stated that the proposal aims to address the risk that if imbalance prices were set based solely on the cost of the last (marginal) action taken, a very small, very high cost trade that did not reflect the costs of balancing electricity supply and demand on the system in that period could set the main imbalance price. NGET considered it appropriate that the main imbalance price should be set on wider number of trades (i.e. based on the PAR100 methodology).

### **BSC Modification process**

The BSC Panel (the Panel) considered the Initial Written Assessment at its meeting of 8 September 2005 and agreed to submit Modification Proposal P194 to the Assessment Procedure. The Modification Group (the Group) considered the Modification Proposal at three meetings. Elexon issued an Assessment Consultation on 10 October 2005. The Panel discussed the proposal and responses to the Assessment Consultation at its meeting on 10 November 2005, and formulated its provisional recommendation for inclusion in the draft Modification Report (DMR). ELEXON published a DMR on 14 November 2005.

### **Panel's recommendation**

At the BSC Panel meeting on 8 December 2005, the BSC Panel considered responses to the DMR and reached a majority recommendation to the Authority that proposal should not be made.

Its provisional recommendation was that the Proposed Modification should not be made because relative to the current baseline:

- ◆ it considered that the Proposed Modification would have no impact on Applicable BSC Objective (a);
- ◆ it agreed by majority that it could not be illustrated that the Proposed Modification would better facilitate achievement of Applicable BSC Objective (b);
- ◆ it agreed by majority that it would not better facilitate the achievement of Applicable BSC Objective (c); and
- ◆ it agreed by majority there would be no impact on Applicable BSC Objective (d).

Following consultation on the DMR the Panel discussed its final recommendation. As set out in the final Modification Report (FMR)<sup>9</sup>, the main reasons for the Panel's final recommendation were:

- ◆ P194 would have a disproportionate adverse financial impact on some categories of participants and would therefore adversely affect competition both by penalising certain participants and by increasing barriers to entry;
- ◆ Some Panel members thought that the proposal would encourage parties to adopt excessively 'long(er)' positions, which would reduce the overall efficiency the system; and
- ◆ Although some members considered that there may be benefits in terms of stronger incentives to balance and increased efficiency, these would, in their view, be outweighed by adverse effects on competition.

### Ofgem's Impact Assessment

Following submission of the FMR to Ofgem, we published an IA, as we considered the proposal was important.<sup>10</sup> Respondents were invited to respond to the IA<sup>11</sup>.

In the IA, Ofgem carried out analysis which indicated that the current cash out arrangements were giving rise to dampened signals of the costs to NGET of balancing the system, particularly at times of system stress when the supply/demand balance was tight. We identified a number of factors which could be giving rise to cash out prices that do not properly reflect NGET's costs of energy balancing:

- ◆ **NGET's reserve contracting:** the rules that are used to feed the costs of NGET's reserve contracts into cash out prices may not effectively target the costs to the appropriate balancing periods and can have a dampening impact on them;
- ◆ **System balancing costs:** the 'tagging' mechanism that is designed to remove the costs of resolving transmission constraints from imbalance prices may not be effective and these costs may be feeding into the main imbalance price, which could be affecting the appropriateness of the cash out signals; and
- ◆ **repricing of bids and offers:** market participants do not appear to be repricing towards the likely marginal balancing cost when the system is under stress as economic theory suggests they would. As a result the volume-weighted average derivation of the main imbalance price does not appear to be tending to the marginal price at times of system stress. This is reducing the cost reflectivity of the imbalance price and hence the signals to market participants.

The IA noted that these factors are not mutually exclusive. Ofgem considered that the proposal should reduce the impact of reserve contracting on cash out prices, and may improve signals to balance even if companies do not re-price, but

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<sup>9</sup> A full version of the FMR can be found at [www.elexon.co.uk](http://www.elexon.co.uk).

<sup>10</sup> Ofgem's revised guidance on Impact Assessments ("Guidance on impact assessments – Revised guidance", Ofgem, June 2005) sets out Ofgem's considerations in deciding whether an IA should be produced: <http://www.ofgem.gov.uk/ofgem/work/index.jsp?section=areasofwork/corporateplanning>.

<sup>11</sup> Respondents were given four weeks to respond to the IA. We had intended to provide longer than this but we had to undertake the necessary analysis at the same time as completing other, high priority unplanned work such as assessing movements in spot gas prices and dealing with a number of urgent gas modifications for winter 2005/06. As the issues raised by this modification are well known to the industry, particularly after their discussion at the recent series of CORWG meetings organised by Ofgem (see above), we considered that 4 weeks would give interested parties sufficient time to provide informed responses.

it was unlikely to resolve issues relating to system balancing costs feeding into cash out. As such, Ofgem's initial assessment, set out in the IA, was that: (a) the proposal would provide more cost-reflective signals at times of system stress compared with the current baseline; (b) this would improve incentives to encourage the efficient and economic operation of the transmission system and security of supply; and (c) there were marginal benefits in terms of enhancing competition and distributional impacts.

## Respondents' views

This section is intended to summarise the principal themes of the respondents' views to the Assessment Consultation, DMR and to Ofgem's IA to set the reasoning for our decision given in this letter in context, and is not intended to provide a comprehensive overview of the responses received, the Panel's views or the responses to Ofgem's IA.<sup>12</sup> Where points substantively similar to those raised during the BSC consultations were also raised in response to Ofgem's IA, we have not duplicated these to avoid repetition.<sup>13</sup>

A total of 25 parties responded to the Assessment Consultation and/or the DMR.<sup>14</sup> In addition to NGET, one trader and three generators were in favour of the proposal. The other twenty respondents (three generators, five suppliers, eight integrated players, two traders and two customers/customer groups) did not support the proposal.

We received 21 responses to the IA. Of these, NGET and two further respondents were in favour of the proposal while 18 respondents were against its implementation.

Parties in favour	Points raised....	
	...at BSC consultation stage	... in response to Ofgem's Impact Assessment
BSC (5) IA (3)		
<b><u>Economic and efficient operation of the transmission system</u></b>	<b>Incentives to balance/ costs of SO</b>	
	Average pricing does not fully reflect the cost of balancing	Increased incentives to balance at times of system stress
	Provides improved incentives to balance by, for example trading ahead of gate closure improving efficiency of the system as a whole	Significantly reduce costs incurred by NGET in balancing the system
	Remove existing effective cap upon forward energy price equivalent to the expected level of the average cash out price	Improved cash out signals, combined with available information re when system would be likely to be stressed, would allow parties to manage better their positions
	<b>System length</b>	

<sup>12</sup> A full version of respondents' views can be found at [www.elexon.co.uk](http://www.elexon.co.uk). Non-confidential responses to Ofgem's Impact Assessment can be found at

<http://www.ofgem.gov.uk/ofgem/work/index.jsp?section=/areasofwork/wholesalemarketmonitoring>

<sup>13</sup> This should not be construed as implying that the summary in this table assumes that the responses to the impact assessment exactly replicated those to the BSC consultation. Rather, we have sought to provide a broad summary of the views raised at the different stages of consultation.

<sup>14</sup> The respondents represent a total of 73 BSC registered parties.

	<p>Proposal would reduce market length at times when system is long and increase length at times of system shortage</p> <p>Any increase in length would be appropriate because the price is cost reflective</p>	
	<b>Gaming</b>	
	Not clear how parties would benefit from small increase in gaming opportunities	<p>Will not increase opportunities for gaming</p> <p>Would increase transparency of any gaming (hence reducing its likelihood)</p>
<b><u>Promotion of effective competition</u></b>	<b>Effect on smaller players</b>	
		<p>Promotes competition by placing cost burden of imbalances upon the parties that contributed to the imbalance</p> <p>No clear correlation between benefit/detriment that the proposal would have and particular classes of market participants</p>
	<b>Liquidity</b>	
	Increased incentives for parties to balance would promote liquidity in energy and reserve products and benefit transparency and performance	Will improve liquidity by providing incentives to balance in the short term
<b><u>Security of Supply</u></b>	Increased incentives on parties to balance would have benefits for security of supply at times of system stress	<p>Heightened incentives on generators to ensure provision of reliable plant and on suppliers to predict demand</p> <p>Long term security of supply would be improved as the balancing signals more appropriately reflect system shortage which would be reflected in the forward curve and provide signals to participants re potential for investment in new build, as well as delaying closure of older plant</p>
<b><u>Environmental impacts</u></b>		<p>Any increase in partloading (caused by generators holding self-reserve) would be offset by a reduction in the level of part loading by the SO</p> <p>Likely to remove excessive length when system is long (by reducing SSP)</p>
<b>Parties against:</b>	<b>...at BSC consultation stage</b>	<b>... in response to Ofgem's Impact Assessment</b>

BSC (20) IA (18)		
<b><u>Economic and efficient operation of transmission system</u></b>	<b>Incentives to balance/costs of SO</b>	
	<p>Increased imbalance charges at times of system stress causing participants to go long and increasing system balancing costs</p>	<p>Current arrangements provide substantial incentives to balance – these will not be improved significantly by the proposal</p> <p>Average weighted cash out price only one of many factors which may be dampening cash out signals</p> <p>Participants unable to respond to short term increased price signals</p> <p>Demand forecasting cannot be improved</p> <p>Demand side response limited so have to resolve short imbalance by purchasing electricity</p> <p>Likely to result in higher bidding within Balancing Mechanism</p> <p>As incentives only apply at times of system stress will not cause participants to invest in balancing their positions in long term</p> <p>Participants cannot necessarily balance more efficiently than NGET as the SO has a more informed view of the market</p> <p>The BM already over-recovers costs and P194 will exacerbate this</p>
	<b>System length</b>	
	<p>Parties would go ‘excessively long’ in order to avoid high SBPs</p>	<p>Overall system length would increase, meaning that NGET’s role would be decreased at times of system stress but increased at all other times as it would be required to sell surplus electricity</p>
	<b>Gaming</b>	
<p>Increased opportunities for gaming</p>	<p>Opportunities for gaming would be increased as well as consequences of such gaming for other parties</p>	
<b>PAR100 pricing</b>		

	<p>The PAR value of 100MWh is arbitrary</p> <p>Setting PAR to 100MWh does not prohibit a single action from setting the marginal imbalance price</p>	<p>Under PAR100 pricing the cash out price would be neither marginal nor average and would therefore not give correct signals to balance</p> <p>Concerns with of impact of very high priced 'sleeper bids/offers' under more marginal cash out price</p> <p>The proposal is very similar to marginal pricing, which Ofgem rejected</p>
	<b>Tagging effects</b>	
	Increased impact of current imperfections in the tagging mechanism on imbalance prices	Concern that inclusion of system actions within stack would have a greater potential impact upon imbalance prices
<b><u>Promotion of effective competition</u></b>	<b>Effects on smaller players</b>	
	<p>Increased imbalance charges represent penal charges where particular classes of market participants are unable to improve balancing</p> <p>Increased risk exposure will disproportionately affect smaller parties and represent a barrier to entry</p> <p>Small generators, large end users and small suppliers would be disproportionately affected by implementation of the proposal as they are less able to manage the risk and do not generally have the option of contracting for reserve generation</p>	<p>Exposes small players to large imbalance risks due to difficulties associated with accurately forecasting demand and the current levels of market liquidity</p> <p>Increases barriers to entry and discourage more entry as new players uncertain about customer demand and amendments to cash out will increase uncertainty for new players</p> <p>Could potentially put smaller players out of business and/or encourage consolidation</p>
	<b>Liquidity</b>	
		<p>Generators will retain increased reserve to self insure against plant trips, thereby reducing liquidity</p> <p>Ofgem's view that liquidity would be increased was at odds with the Commission's conclusion that heavy penalisation of imbalances may reduce liquidity and act as an entry barrier</p> <p>May not address the concern that SBP is on occasion lower than the market price - need to look at why generators are willing to price their offers in the BM lower than on APX</p>
<b><u>Security of</u></b>	Increase risk that less reliable plant would	No need for improvement in

<b><u>supply</u></b>	not be made available due to potentially higher imbalance charges in the event of unexpected plant failure	<p>security of supply as NGET has never failed to balance the system</p> <p>Unlikely that plant reliability could be greatly increased</p> <p>Analysis suggests that P194 would have a relatively small impact on the spread of SSP and SBP and hence unlikely to increase investment in generation capacity</p> <p>Unlikely benefit for long term security of supply as cash out signals only impact the front of the forward curve</p> <p>Any increased investment, coupled with increased imbalance charges, would require increased bid prices in the BM</p>
<b><u>Environmental impact</u></b>		<p>Will lead to part-loading of plant with adverse impacts on the environment</p> <p>Lack of central planned reserve would lead to inefficiencies</p> <p>Need to consider effect of the proposal on environmentally friendly Combined Heat and Power facilities</p> <p>Would discourage investment in wind projects which would be inconsistent with government's policy of encouraging renewable generation</p>
<b><u>Other</u></b>		<p>A comprehensive package of measures to address other cash out problems is required</p> <p>Increased volatility may increase contract prices, which will impact customers</p> <p>Implementation costs not justified against the benefits</p>

### Process of the IA

A number of respondents to the IA expressed procedural concerns regarding Ofgem's IA. These included concerns regarding the tight timescales given for

responses to the IA and the fact that much of the analysis contained in the IA relates to timescales preceding the implementation of BETTA.

As explained in the IA, wherever possible and appropriate Ofgem sought to quantify the effects of the impact that would be likely to result from the approval of the proposal. Our baseline for comparison was the current cash out mechanism and most of our analysis concentrated upon differences that would have arisen had the proposal been in place during the period 1 April 2004 to 30 June 2005. This analysis was originally undertaken in Autumn 2005 by NGET for the CORWG, which explains why the analysis does not always include data up and until the present time. However, where we considered it important to use up to date information, the analysis was supplemented with data from more recent periods.<sup>15</sup>

We recognise that the timetable for the IA consultation was shorter than normal, as a result of the Panel's recommended timescale for implementation and other high priority unplanned work at the time (see footnote 11 on page 6). However, as we explained in the IA, we consider that in light of the considerable prior industry involvement and consultation on this issue, the timetable was adequate to give consultees a proper opportunity to provide informed and considered responses to the proposal.

### **Ofgem's views**

Ofgem has carefully considered the views of respondents and the Panel in relation to the proposal. Having regard to its principal objectives and wider statutory and public law duties, Ofgem considers that proposal would better facilitate achievement of the relevant code objectives compared to the existing BSC baseline.

In this section we set out the reasons for the Authority's decision in the context of our assessment of the modification against the relevant objectives and the Authority's Statutory duties.

### ***Efficient, economic and coordinated operation of the transmission system (Objective (b))***

#### *Strength of signal and SO balancing costs*

In considering the proposal, we have undertaken a significant amount of analysis that was published in the IA.<sup>16</sup> From that analysis it appears that the current imbalance prices do not always provide the correct signals to the market at times of system stress. Our analysis concluded that this was a result of a combination of factors, including the use of an imbalance price (based on an average methodology), which tends to dampen signals to market participants. Although economic theory under certain assumptions might suggest that the average cash out price should tend towards the marginal price, the analysis showed that this was not happening in practice. As outlined in the IA, we consider that the dampening effect is a result of a combination of factors including NGET's current procurement of reserve, imperfections in the current tagging mechanism, the lack of re-pricing in the market and the use of average imbalance prices.

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<sup>15</sup> In most instances this is simply to extend the analysis so that there is a larger (more statistically significant) sample of information on which to base the analysis. Where this was not the case, an explanation was given in the IA.

<sup>16</sup> Elexon and NGET also undertook analysis.

The analysis in the IA highlighted that implementation of the proposal would help to address the dampening effect that the use of average imbalance prices currently has on cash out signals. As such, the analysis suggested that a more marginal approach would provide increased incentives for market participants to balance their positions during periods of system stress, to avoid exposure to increased imbalance charges. By ensuring participants face the costs they impose on the system from not balancing their position, participants will be better encouraged to expend appropriate resource in balancing their positions. As such, the role of the SO as residual balancer should be reduced resulting in more efficient balancing, reduced balancing costs and ultimately savings for customers.

In the IA we carried out some analysis regarding the reduction in SO balancing costs that could be expected to be seen if participants' behaviour were to change as a result of P194. We estimated that balancing costs could fall by between £13 and £87m per year. In response to questions raised in IA responses about the materiality of this benefit, as identified in the IA, we have carried out some further analysis in order to satisfy ourselves that the analysis in the IA was valid. This analysis looked specifically at the materiality of the SO undertaking balancing actions at periods of particular system stress (namely days when NGET has issued a Notice of Insufficient Margin (NISM) or a High Risk of Demand Reduction (HRDR)). This analysis suggests that we can expect to see savings of circa £20m in a mild winter, £30m in an average winter and £90m in a 1 in 50 winter. Combined with the estimates in the IA (which did not look at NISM/HRDR periods), the total impact could potentially be up to £120m in an average winter and up to £180m in a 1 in 50 winter.

#### *PAR100 value*

We note concerns expressed by a number of respondents to the modification process consultations and the IA that the use of the PAR100 value to calculate the imbalance charge was arbitrary. We recognise that the PAR100 value is not based on a defined methodology but also recognise that this was selected by the SO, who has considerable knowledge and experience of operating the system, as an appropriate value to achieve a balance between sharpening the price signals to balance and mitigating the potential risks of using a fully marginal cash out price. We consider that the PAR100 value will balance the risks that a small unrepresentative volume may set the imbalance price against the objective of providing an appropriately strong signal to market participants.

#### *System length*

A number of respondents raised concerns that the increased risk of higher imbalance charges at times of system stress could cause participants to adopt a longer position, resulting in increased overall system length and hence increased costs for the SO in balancing the system.

NGET undertook analysis in respect of the effect on system length of the proposal. NGET did not consider that the market length is likely to increase in all periods in response to the higher prices associated with SBP.

As part of the IA, we also requested Elexon to look at the impacts of P194 on incentives to balance. This analysis confirmed that P194 should increase incentives to avoid being either consistently long or consistently short but that market participants would generally have stronger incentives to avoid being short.

Having considered the views of the respondents and the analysis as set out in the IA, we consider that system length should only increase to the extent that it is cheaper for market participants to avoid being short by 'over contracting' than it is for NGET to take a marginal trade (as this is the price that will determine the level of contracting). Therefore, if this is how participants react to PAR100 pricing, it should be cheaper for customers overall (because they are avoiding the higher costs of NGET taking such actions). If prices are appropriate, and parties choose to contract to cover more than their demand, then this will be a more efficient outcome.

#### *Process to remove system trades (tagging)*

As SO, NGET takes some actions to resolve constraints on the system, which are not related to the overall balance of electricity on the system in a given period. The tagging process is designed to remove these trades from the NIV stack so that they are not included in the calculation of the cash out price. However, all parties recognise that the current tagging rules do not work perfectly, so that 'system actions' can sometimes appear in the NIV stack, and 'energy actions' can sometimes be erroneously tagged out.

Ofgem recognises the concerns raised by a number of respondents to the IA and the BSC consultations that the effects of the tagging imperfections could be increased as a result of the implementation of PAR100 pricing. In our IA we recognised that a move from a weighted average to a PAR100 cash out price means that any system actions that appear in the top 100MWh of actions will have a larger impact on the cash out price, since they will form a higher proportion of that stack. In any periods when this occurred, the incentive to balance may be too high (since system actions are typically more expensive than energy actions), increasing costs to consumers above the efficient level.

Our analysis indicated that the PAR100 methodology does not generally appear to increase significantly any potentially distortive effects of tagging when the system is short, although it appears to have some impact when the system is long. There are however specific settlement periods when the proposal could have a material impact in this respect. Our analysis suggests that such periods may occur relatively infrequently, and so the overall (annual) impact on prices would be small.

Furthermore, the PAR100 methodology will mitigate against the full impact of any system trades being included in cash out calculations relative to a fully marginal price, as there will still be an averaging effect. Our analysis also shows that under the P194 methodology, the prices do closely track the overall energy balancing position (i.e. whether the system is long or short). This relationship would be much weaker if system trades were significantly distorting the cash out price.

As such, we recognise that there is a risk that the proposed modification would exacerbate the distortionary impact of system trades in some settlement periods. However, our analysis suggests that the overall impact on prices will be small. Nonetheless, the tagging rules are an aspect of cash out that should be given further consideration by the industry.

#### *Gaming*

We consider that there could be an increased risk that the proposal provides greater opportunity for gaming. Our IA presented analysis on the range of

generators and suppliers that would have set the imbalance price if the P194 methodology had been in place. However, this analysis was necessarily backward-looking. Dynamics of competition mean that this issue is complex. We cannot predict how behaviour might change going forward, although we recognise that a more marginal price may present an increased opportunity for gaming. This heightens the importance of our market surveillance activity but, given the benefits elsewhere, we do not think that the risk and potential costs outweigh the benefits of the proposal.

#### *Sleeper bids/offers*

One respondent was concerned about so-called "sleeper bids/offers", which are posted on the Balancing Mechanism (BM) as high priced trades (as high as -/+£99,999/MWh). If these bids/offers are accepted, this would have a large impact on cash out prices, even in the absence of proposed modification P194, but would on average have a larger impact under P194. We have previously expressed concern about the potential for sleeper bids/offers, if accepted, to distort competition.<sup>17</sup> While we would classify it as a very low probability risk that extremely high priced bids/offers would ever be accepted, our guidance in relation to the application of competition law in the energy sector is intended to help market participants assess their conduct to avoid potential breaches of competition law in this respect.<sup>18</sup>

#### *Ofgem's view against relevant objective (b)*

Overall, Ofgem considers that the proposal is likely to better facilitate the efficient, economic and co-ordinated operation of the GB Transmission System as opposed to the current baseline.

Ofgem considers that by better reflecting the costs to the SO of resolving imbalances, the proposal will be effective in increasing the commercial incentives on parties to balance efficiently, which would in turn be expected to improve the efficient, economic and co-ordinated operation of the GB Transmission System.

#### **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 (Objective (c))**

We recognise that the proposal will target costs more towards those market participants who are out of balance. This is consistent with the premise of competition, that the most efficient generators and suppliers should be able to gain a competitive advantage over their rivals.

We also consider that the increased incentives on players to manage their positions should increase participation in the forward markets and hence have a positive effect on liquidity.

#### *Competition and distributional effects*

A number of respondents raised concerns regarding the effect of increased imbalance prices on small market participants. The analysis set out in the IA does not demonstrate that there is any clear correlation between the size of a

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<sup>17</sup> See for example Ofgem's decision letter for BSC modification proposal P175: [http://62.173.69.60/document\\_fetch.php?documentid=7254](http://62.173.69.60/document_fetch.php?documentid=7254)

<sup>18</sup> Competition Act 1998 – Application in the Energy Sector, OFT (ref.428), August 2004

market participant and whether its net costs/revenues would rise or fall under P194. The available analysis suggests that there is not a persistent benefit or cost to smaller participants. There does not appear to be a trend other than that potential costs and benefits are more dispersed for smaller players relative to larger participants (after taking into account the redistribution of the Residual Cashflow Reallocation Cashflow (RCRC)<sup>19</sup>).

The failure of market participants to balance, irrespective of the reasons, imposes a real cost on NGET (and ultimately customers) and the proposal should act to bring about a change in behaviour by signalling back to market participants these costs more accurately than now. In sending them a price signal related to the more marginal pricing actions that NGET has to take, market participants will expend the right amount of effort to rectify their imbalance. Those facing higher imbalance charges are those that are more out of balance and hence impose more costs on NGET (and ultimately customers) due to being out of balance at gate closure.

Such cost allocation is entirely consistent with the 'polluter pays' principle surrounding NETA. Therefore, to the extent that this proposal levies charges on those parties out of balance, this means that more efficient parties will benefit by not having to pay a share of the costs of inefficient imbalances and thus will gain a legitimate competitive advantage over less efficient balancers.

We consider that there are tools available to assist small players to balance their positions. For example, if a supplier predicts an increase in customer demand it can contract for additional supplies bilaterally or on the over the counter (OTC) market and power exchanges or make use of aggregation service providers who can balance their portfolio on their behalf. The current regime may not provide sufficient incentives on smaller players and/or those parties that are not efficient balancers to fully utilise these tools. We think that the sharper imbalance signals that would exist under the proposal will cause such players to seek more innovative solutions to manage their imbalance risk, rather than leaving it to NGET as SO to undertake this role for them. Currently it is possible that these players would rather incur imbalance charges, particularly at times of system stress, as the average price means that it is cheaper than balancing themselves. This lowers efficiency and raises costs to NGET and ultimately customers.

One respondent highlighted the comments on Directorate General Competition's recent preliminary report for its energy sector inquiry (16 February 2006)<sup>20</sup>. In the report, the Commission highlighted that market participants may be exposed to balancing market prices that in some Member States are highly unpredictable and are reported as (economically) punitive by certain market participants. It also noted that penal imbalance regimes would tend to increase vertical integration thereby reducing liquidity. DG Competition's report noted that further work on balancing regimes will be considered in the next part of the sector inquiry, and therefore has not drawn any conclusions at this stage.

Nevertheless, we would agree with the statement that electricity imbalances should not impose costs inappropriately on market participants that are out of balance. If the cash out price were higher than the costs to the SO of resolving additional energy imbalance, this would be unduly penal and would impose additional costs on market participants. Instead, the cash out price should create incentives to balance based on a price that appropriately reflects the costs

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<sup>19</sup> The process by which the difference between the funds achieved through imbalance charges are redistributed across all market participants.

<sup>20</sup> [http://europa.eu.int/comm/competition/antitrust/others/sector\\_inquiries/energy/pr\\_2.pdf](http://europa.eu.int/comm/competition/antitrust/others/sector_inquiries/energy/pr_2.pdf)

to the SO of resolving that imbalance. European legislation highlights the importance of appropriate signals to maintain the balance between generation and demand<sup>21</sup> and to ensure that imbalance rules are transparent, objective, non-discriminatory and cost-reflective.<sup>22</sup>

#### *RCRC reallocation*

Net differences between the imbalance payments made by parties with short positions and the imbalance payments received by parties with long positions are reallocated via a mechanism known as the RCRC. Some respondents expressed concern over the impact that the proposal could have on competition if this fund were to increase. As any over recovery of imbalance charges is reallocated back in proportion to the size of a market participant's output, there was concern that this could have distortionary effects.

Whilst we recognise that the way in which residual imbalance payments are reallocated back to market participants could distort incentives but there are limited alternative options to deal with this reallocation. Our analysis on distributional impacts took into account the effect on RCRC and this did not suggest a large net impact on smaller players. Therefore, we do not consider that any increase in the RCRC funds that may arise as a result of the implementation of the proposal will cause any significant competition concerns.

#### *Ofgem's view against relevant objective (c)*

On balance, we think on the basis of the available evidence and the analysis undertaken that the proposal will overall better facilitate the promotion of effective competition in the generation and supply of electricity as opposed to the current baseline. Ofgem considers 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.

### **Wider statutory duties**

#### *Security of supply*

We agree with NGET that there will be significant improvements to security of supply arising from this modification proposal. We consider that there will be important long and short term benefits to security of supply.

#### *Short-term security of supply*

While we accept that, as some respondents have observed, NGET has never failed to balance the system, a key question is whether the achievement of security of supply has been efficient relative to a market-based delivery. In general, we think that NGET should ordinarily be able to maintain short-term security of supply. A key concern however is the efficiency of relying on NGET to fulfil this

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<sup>21</sup> Article 5 of the Electricity Security of Supply Directive (Directive 2005/89/EC of the European Parliament and of the Council of 18 January 2006) requires Member States to establish wholesale market framework that provides suitable price signals for generation and consumption.

<sup>22</sup> Article 11(7) of the Electricity Directive (Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003).

role, when market participants may have been able to achieve the same result more efficiently.

The current arrangements are providing dampened signals particularly at times of system stress, thereby increasing the role of the SO and ultimately the costs to customers of maintaining security of supply. Under more extreme conditions where supply is threatened, a lack of incentives on market participants to balance themselves may also increase the potential risks of interruption of firm customers.

Ofgem notes the concerns of some respondents that participants might choose not to contract the output of unreliable generating plants because of the risk that their breakdown could result in the participant being exposed to disadvantageous cash out prices, which could be to the detriment of short term security of supply. However, we think that if the expectation of higher SBPs at times of system stress feed through into spot and forward prices, this will provide an incentive for participants to improve the reliability of their plants so that they can benefit by contracting to provide additional power at these more favourable prices. This is likely to be a benefit for security of supply in the longer term and is discussed further below.

#### *Long-term security of supply*

In the long term, sharper price signals may be expected to have a positive effect on security of supply in that they will provide stronger incentives to bring new peaking plant to market and provide incentives to improve reliability.

In order to encourage investment in 'peaking' plant that might only run for a small number of periods each year sufficiently high price signals are required. To achieve this, the imbalance prices for those short periods need to be sufficiently high to signal to plant that they can recover their costs in only a small number of periods. Analysis of cash out prices over the past two years suggests that these prices would not have been sufficient to signal to a 'peaking' plant that it would be able to recover its costs over only a few evening peak periods for the winter each year.<sup>23</sup> Therefore, sharper signals at times of system stress could help provide the right signals for investment, not only in relation to 'peaking' plant; these signals should also pass to other types of plant.

In addition, the expectation of higher prices should provide an incentive for participants to invest to improve the reliability of their plants. It was notable, for example, that the introduction of NETA, which first targeted balancing costs onto out-of-balance participants instead of socialising the costs, led to an appreciable improvement in the reliability of plant.

#### *Impact on the Environment*

##### *Part loading*

For the same reasons that parties may decide to go longer to hedge against the risk of going short, we recognise the concerns expressed by some respondents that market participants would hold back a proportion of their generation in order to hold reserve generation. This could result in greater inefficiencies as more plant would be held on standby.

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<sup>23</sup> This analysis was not provided as part of the impact assessment or consulted upon, but the IA did highlight the potential for sharper signals to influence investment behaviour.

However, all thermal generation faces relevant incentives to reduce emissions as they have to buy permits associated with any additional emissions. We think however that if there were an increase in 'partloading' over time there would be an offsetting impact because this standby capacity would mean that the SO would need to hold less reserve itself. Accordingly we consider that there would be little or no net impact on the environment resulting from this proposal.

#### *Renewables*

The IA considered issues associated with intermittent generation and noted that this was not an issue that was specific to renewable generation. Available evidence suggests that renewable forms of generation, other than wind generation, are no less predictable than other forms of generation. Renewable generators, like conventional generators, need to manage any unpredictability in their load. By sending them appropriate signals of the costs to NGET of balancing the system, this will encourage them to develop tools and to contract with customers and other generators to manage these risks and costs.

#### **Direction under Condition C3 (5) (a) of NGET's Transmission Licence**

Having regard to the above, the Authority, in accordance with Condition C3 (5) (a) of the licence to transmit electricity granted to NGET under Section 6 of the Electricity Act 1989 (the "Transmission Licence"), hereby directs NGET to modify the BSC.

This modification shall be in accordance with the Proposed Modification P194 as set out in the final Modification Report.

The Implementation Date for the Proposed Modification P194 is 2 November 2006.

In accordance with Condition C3 (5) (c) of NGET's Transmission Licence, NGET shall modify the BSC in accordance with this direction of the Authority.

#### **Possible further work**

The CORWG, which was established in August 2004, demonstrates that we have been looking at cash out arrangements for sometime and as stated in our IA, we have identified a number of potential deficiencies. We intend to draw together the work of CORWG and to try to develop ideas on further reforms to address some of the concerns that have been identified by the group. Given other high priority work and continuing difficulties in recruiting to reach planned staffing levels in the Wholesale Markets team, we have hired consultants to assist us with this work. We intend to publish a report setting out the results of this review and our thoughts on these issues later this year.

Notwithstanding our conclusion that this modification will overall better facilitate applicable objective (c), recognising the concerns expressed by some respondents about some of the potential competitive effects of the proposal, we intend to carry out a review to analyse the impact and effects of the proposal in this area six months after implementation. In any such review we will seek the views of NGET and all market participants.

As indicated above, we also consider that the tagging mechanism is an issue to which the industry may wish to give further consideration.

Both the comments above and the results of any such reviews are without prejudice to Ofgem's discretion in relation to any subsequent modifications in this area, which would be considered in accordance with Ofgem's statutory and other public law duties in the usual way.

If you have any questions, please contact Ben Woodside on 020 7901 7471 or Kevin James on 020 7901 7181.

Yours sincerely,

**Stephen Smith**  
**Managing Director, Markets**

Signed on behalf of the Authority and authorised for that purpose by the Authority

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