Draft URGENT MODIFICATION REPORT for Modification Proposal P135

Marginal System Buy Price During Periods of Demand Reduction

Prepared by: Pricing Issue Standing Modification Group

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This document has been distributed in accordance with Section F2.1.10[1] of the Balancing and Settlement Code.

RECOMMENDATIONS

On the basis of the analysis, consultation and assessment undertaken in respect of this Urgent Modification Proposal during the Modification Procedure, and the resultant findings of this report, the Pricing Issues Standing Modification Group recommends that:

- **[Proposed Modification P135 should be / should not be made**
- **The P135 Implementation Date should be …**

***pending deliberation*]**

[1] The current version of the Balancing and Settlement Code (the 'Code') can be found at www.elexon.co.uk/ta/bscrel_docs/bsc_code.html

I CONTENTS TABLE

II DOCUMENT CONTROL

a Authorities

Version	Date	Author	Signature	Change Reference
0.1	15/08/03	Mandi Francis		
0.2	18/08/03	Mandi Francis		
0.3	19/08/03	Change Delivery		

b Distribution

Name	Organisation
Each BSC Party	Various
Each BSC Agent	Various
The Gas and Electricity Markets Authority	Ofgem
Each BSC Panel Member	Various

Energywatch	Energywatch
Core Industry Document Owners	Various

c Related Documents

Reference	Document
Reference 1	Modification Proposal P135 'Marginal System Buy Price During Periods of Demand Reduction' (National Grid Transco, 1 August 2003)

SUMMARY OF IMPACTED PARTIES AND DOCUMENTS

As far as BSCCo has been able to assess the following parties/documents have been initially identified as being potentially impacted by Urgent Modification Proposal P135.

Parties		Sections of the BSC		Code Subsidiary Documents	
Suppliers	☒	A	☐	BSC Procedures	☐
Generators	☒	B	☐	Codes of Practice	☐
Licence Exemptable Generators	☒	C	☐	BSC Service Descriptions	☒
Transmission Company	☒	D	☐	Service Lines	☐
Interconnector	☐	E	☐	Data Catalogues	☐
LDSOs[2]	☐	F	☐	Communication Requirements Documents	☐
Party Agents		G	☐	Reporting Catalogue	☐
Data Aggregators	☐	H	☐	MIDS	☐
Data Collectors	☐	J	☐	**Core Industry Documents**	
Meter Operator Agents	☐	K	☐	Grid Code	☐
ECVNA	☐	L	☐	Supplemental Agreements	☐
MVRNA	☐	M	☐	Ancillary Services Agreements	☐
BSC Agents		N	☐	Master Registration Agreement	☐
SAA	☒	O	☐	Data Transfer Services Agreement	☐
FAA	☐	P	☐	British Grid Systems Agreement	☐
BMRA	☐	Q	☐	Use of Interconnector Agreement	☐
ECVAA	☐	R	☐	Settlement Agreement for Scotland	☐
CDCA	☐	S	☐	Distribution Codes	☐
TAA	☐	T	☒	Distribution Use of System Agreements	☐
CRA	☐	U	☐	Distribution Connection Agreements	☐
Teleswitch Agent	☐	V	☐	**BSCCo**	
SVAA	☐	W	☐	Internal Working Procedures and Systems	☒
BSC Auditor	☒	X	☐	**Other Documents**	
Profile Administrator	☐			Transmission Licence	☐
Certification Agent	☐				
MIDP	☐				
TFLA	☐				
Other Agents					
SMRA	☐				
Data Transmission Provider	☐				

[2] Licensed Distribution System Operator

1 SUMMARY AND RECOMMENDATIONS

1.1 Recommendation

On the basis of the analysis, consultation and assessment undertaken in respect of this Modification Proposal, and the resultant findings of this report, the BSC Panel recommends that:

[Pending Deliberation]

1.2 Background: Process and Timetable

Modification Proposal P135 'Marginal System Buy Price During Periods of Demand Reduction' (P135, Reference 1) was raised by National Grid Transco on 1 August 2003. P135 seeks to amend the Energy Imbalance Price calculation such that the System Buy Price is derived from the most expensive Offer Acceptance remaining in the Net Imbalance Volume, but only during times where demand control has been instructed by the Transmission Company (in accordance with OC6.1.2(c), (d) and (e) of the Grid Code) (see section 3 for a more detailed description of the Modification Proposal).

The Proposer requested that this Modification Proposal be treated as Urgent on the grounds that P135 is seeking to address a defect in the current trading arrangements that could lead to issues regarding security of supply this winter. Implementation of P135 is required in time for the start of winter, as a means to prevent the disconnection / reduction of demand under demand control (as a consequence of insufficient generation).

The Panel agreed with the Transmission Company's recommendation that P135 be treated as urgent, and consequentially the Panel requested the Authority to grant Urgent status. The Authority granted urgency on 4 August 2003 and agreed that P135 should be progressed to the following timetable by the Pricing Issues Standing Modification Group (PSMG):

- Week commencing 4 August 2003: Modification Group Meeting (6 August 2003);
- Week commencing 11 August 2003: Modification Group Meeting (13 August 2003);
- Weeks commencing 18 & 25 August 2003: Industry consultation and ELEXON consideration of solution;
- Week commencing 1 September 2003: Modification Group Meeting (2 September 2003) and Panel Paper/Urgent Report drafted (5 September 2003);
- 11 September 2003: Panel Meeting - Consideration of Urgent Report;
- 12 September 2003: Urgent Report provided to Authority for decision.

The PSMG met on 6 August 2003 to commence the assessment of P135. The PSMG reviewed the Urgent timetable associated with the Modification Proposal and considered the issues / defects set out in the Modification Proposal. The PSMG reviewed the assessment criteria associated with P135, to be used in determining whether P135 better facilitates the Applicable BSC Objectives.

The PSMG met again on 13 August 2003 to continue the assessment of P135. The PSMG further considered the issues / defect set out in the Modification Proposal and continued their assessment as to whether P135 addresses these defects, specifically in relation to the assessment criteria. The PSMG also agreed the format of the consultation on P135, and the requirements of the technical solution for P135. The results of the PSMG deliberations are set out in the remainder of this report.

The PSMG agreed that the documentation for the consultation on P135 should take the form of the draft Urgent Modification Report, and this was issued for industry consultation (following PSMG review) on Tuesday 19 August 2003, with responses requested by 8:00 Monday 1 September 2003. It should be noted that the request for Transmission Company analysis will be issued at the same time as the consultation.

[*The PSMG met on 2 September 2003 to consider the responses made in respect of the consultation on P135 and to finalise the assessment of P135, and to agree their recommendations in respect of P135. … pending deliberation*]

1.3 Rationale for Recommendations

[*Pending deliberation and conclusion by the PSMG*]

The following is a summary of the deliberations / considerations of the PSMG in respect of the issues agreed by the PSMG as the key issues for consideration in the assessment of P135. The deliberations are set out in full in Section 4 of this report.

It should be noted that there are no implied weighting on these arguments, nor have the PSMG reached any conclusions in respect of these issues. This summary of the deliberations of the PSMG is included in order to provide some context and supporting information for respondents to the consultation.

1.3.1 Marginal Price Assumptions

The PSMG noted that no accurate assessment of the likely System Buy Price during demand control periods can be undertaken, as it is impossible to determine behaviour at times of system stress, and the price will depend on many factors that cannot be assessed in advance. However, the PSMG did feel that there is a likelihood that a marginal SBP would be an order of magnitude higher than that of the current SBP, for example potentially thousands of pounds as opposed to hundreds.

1.3.2 Incentives to Balance

Does P135 incentivise Parties to further balance their position ahead of Gate Closure?

YES:

- Marginal System Buy Price during times of demand control sends a stronger signal to Parties to be able to balance, in particular not go short and be exposed to SBP;

- Even where a Supplier is directly affected by the reduction of their metered demand under demand control (say in one GSP Group), their overall 'pre-demand control' imbalance position is unlikely to be changed significantly by demand control, as it is not applied nationally. Therefore a Supplier's imbalance position is unlikely (except in marginal cases) to be 'flipped' from short to long by the application of demand control; and

- Furthermore, a Supplier is unlikely to be aware in advance as to where and how demand control will be applied and thus is unlikely to take the risk of deliberately going short in the expectation that their (short) imbalance position is ameliorated by the demand control.

NO:

- Marginal System Buy Price during times of demand control could incentivise certain types of Generator to withhold generation from the market in case of trip;

- Marginal System Buy Price only during times of demand control means that the signal of system stress, and the associated incentive to balance comes, in the long term too late for getting plant into service for the winter, and in the shorter term, too late to enable parties to react by contracting ahead of Gate Closure;

- Demand control that does not have a volume reflected in the Net Imbalance Volume may be outweighed by Bids taken to match generation to demand following demand reduction. This may send the market long, weakening the price signal / creating perverse incentives, as the System Sell Price becomes the main Energy Imbalance Price;

- Demand control that is not reflected in Suppliers imbalance positions may have the effect of sending short Suppliers long, and long Suppliers longer, thus exposing them to System Sell Price and so reducing the incentives on Suppliers to balance ahead of Gate Closure; and

- A marginal imbalance price only in one direction will incentivise length, not balance. Even with an average price, the risk averse strategy is to go long to avoid exposure to System Buy Price, a marginal SBP may just have the effect of increasing that length.

1.3.3 Security of Supply

Does P135 improve security of supply? (noting that this issue is heavily related to the issue in respect of incentives to balance).

YES:

- Marginal System Buy Price during times of demand control sends a stronger signal to Parties to ensure that they are able to balance and avoid exposure to SBP. This promotes trading in the forwards markets which will ensure that there is sufficient generation available to meet demand, avoiding the requirement for demand control;

NO:

- The current trading arrangements are adequate in respect of security of supply, i.e. the status quo should be retained;

- Marginal System Buy Price during times of demand control will incentivise Generators to withhold generation from the market in case of trip. This could have the effect of exacerbating the requirement for demand control; and

- Assuming withheld plant, a marginal System Buy Price could incentivise Generators that trip in a period near to / during demand control to breach the Grid Code by bringing on withheld plant to meet their contracted position in order not to be short. This may increase operational issues for NGC.

1.3.4 Other Incentives from P135

Are there any other incentives on Parties that P135 may introduce, and are these beneficial or detrimental, and is there a trade off in any direction?

The PSMG did not believe there to be any further incentives from P135 that have not already been explored.

1.3.5 P135 and the Likelihood of Demand Control

Will the implementation of P135 decrease the likelihood of demand control?

The PSMG noted that the perception of whether P135 is likely to decrease the likelihood of demand control depends on the perception as to whether the pricing signals are strong and timely enough to influence the long term behaviour of Parties (section 4.1.2).

In summary:

- Yes; if Parties respond to P135 by forward contracting and incentivising the availability of more generation; and
- No; if Parties respond to P135 by withholding generation to self insure against the risk of exposure to a marginal System Buy Price if they trip during a demand control period.

1.3.6 P135 as the 'Correct' Mechanism

Is P135 the correct mechanism for dealing with the problem of potential generation shortage this (and coming) winter? Is there a different way of ensuring that generation matches demand?

A number of the PSMG believe that Parties should forward contract in sufficient volumes to cover themselves at times of peak demand (implying more generation comes on in response), and that price signals are the way to achieve the incentive to contract.

In summary – yes, if it is believed that P135 will send sufficiently strong price signals, in a sufficiently timely manner.

No, if it is believed that:

- There are other ways to ensure that generation meets demand, for example by the Transmission Company contracting outside of the Balancing Mechanism for the required generation;
- The price signals from P135 will be too weak and too late to respond by forward contracting;
- The incentives on Parties are such that they will not respond to P135 by forward contracting (for example the perception of risk).

1.3.7 Marginal vs Average Pricing

All Parties in imbalance in the same direction as the system energy imbalance (Net Imbalance Volume) are contributing to the cost of the marginal energy balancing action (as it is not possible / appropriate to determine any energy apportionment), and therefore the Energy Imbalance Price applied should be marginal. Is this true? Or is average pricing more appropriate for the electricity market?

This issue, again, depends on the perception of what the Energy Imbalance Prices are seeking to achieve and whether average or marginal prices send the most appropriate signals to the market. These arguments are set out in previous sections.

1.3.8 Potential for Market Manipulation

Parties could perceive that a marginal pricing methodology would be open to gaming (as was the perception under the Pool), and thus an average methodology would mitigate gaming. Is the potential for gaming present under P135?

The PSMG noted that the perception of gaming under the Pool arose as a consequence of Generators being *paid* the marginal price for generating. Under the current trading arrangements, Parties are paid as bid in the balancing mechanism and pay the marginal SBP. Therefore the opportunity for gaming is reduced. The majority of the PSMG did not believe gaming to be an issue for P135.

1.3.9 Definition of a Marginal Price

Is the definition of a 'marginal' price in the Modification Proposal appropriate, or is a different definition (alternative Modification) more appropriate, and (if appropriate) does the benefit of getting P135 implemented for this winter outweigh any 'purist' arguments with respect to a marginal price?

The view of the PSMG is that the Modification Proposal is quite clear as to the marginal price, namely the most expensive Offer Acceptance (or part of) that remains in the Net Imbalance Volume. The PSMG believe that this is an appropriate mechanism for setting the marginal price for P135, given the limited circumstance of application.

1.3.10 Credit Cover Arrangements

Is Credit Cover under P135 any more of an issue than under the current arrangements?

The potential for Party default as a consequence of 'extreme' Energy Imbalance Prices exist currently. Therefore the majority of the PSMG agreed that their concerns regarding the potential for BSC Parties to be exposed to the consequences of a Party default, in conjunction with the potential for P135 to exacerbate the circumstances under which this may occur, should be highlighted in this report. No further consideration of the implications of P135 on the Credit Cover arrangements will be undertaken as part of P135.

1.3.11 Risk Management: Insurance Products

Will the implementation of P135 increase the availability of new / existing insurance products for covering the risk of exposure to an extreme System Buy Price?

A number of PSMG members noted that there is currently no insurance product available to hedge / address risk associated with events that occur after Gate Closure (only pre-Gate Closure). Therefore, since P135 implements a marginal SBP during periods of demand control, which occur post Gate Closure, a number of the PSMG believe that this may prevent the emergence of appropriate insurance products. Conversely, the implementation of P135 could create a market suitable to the emergence of such insurance products.

2 INTRODUCTION

This Report has been prepared by ELEXON Ltd., on behalf of the Balancing and Settlement Code Panel ('the Panel'), in accordance with the terms of the Balancing and Settlement Code ('BSC'). The BSC is the legal document containing the rules of the balancing mechanism and imbalance settlement process and related governance provisions. ELEXON is the company that performs the role and functions of the BSCCo, as defined in the BSC.

This Urgent Modification Report is addressed and furnished to the Gas and Electricity Markets Authority ('the Authority') and none of the facts, opinions or statements contained herein may be relied upon by any other person.

An electronic copy of this document can be found on the BSC website, at www.elexon.co.uk

3 DESCRIPTION OF PROPOSED MODIFICATION

3.1 Overview of P135

3.1.1 Mechanism for P135

P135 'Marginal System Buy Price During Periods of Demand Reduction' seeks to amend the Energy Imbalance Price calculation, only during periods of demand control and where the system is short, such that the most expensive energy balancing Offer Acceptance remaining in the Net Imbalance Volume (NIV) sets the System Buy Price.

Demand control events are defined in OC6 of the Grid Code, and it is the intent of P135 that demand control, for the purposes of P135, be limited to three demand control types:

- 'Demand Reduction instructed by NGC' (this is the most likely event);
- 'Automatic low frequency Demand Disconnection'; and
- 'Emergency manual Demand Disconnection'.

It should be noted that there are other types of demand reduction, for example, demand reduction instructed by the Secretary of State in accordance with the Electricity Supply Emergency Code. For the avoidance of doubt, P135 does not cover any other types of demand reduction / control than those defined above (namely OC6.1.2 (c), (d) and (e)).

The start and end of demand control will be notified by the Transmission Company (via a System Warning Message on the Balancing Mechanism Reporting Service (BMRS)) as close to real time as is practicable.

Post event, the Transmission Company will define the time period that demand control was active (by a start time and an end time) and notify this as a "Demand Control Period".

During the period of demand control and when the market is short (NIV>0), the System Buy Price for each settlement period that falls within, or partly within, a "Demand Control Period" will be calculated at the price of the most expensive accepted whole (or part) Offer Acceptance in the NIV for that Settlement Period.

The table below summarises which calculation will be affected by P135:

Imbalance Price	**NIV**	**Under normal system conditions**	During a "Demand Control Period"
SBP (Main Price)	**> 0**	Existing BSC methodology	Proposed 'Marginal' Methodology
SBP (Reverse Price)	**≤ 0**	Existing BSC methodology	Existing BSC methodology
SSP (Main Price)	**≤ 0**	Existing BSC methodology	Existing BSC methodology
SSP (Reverse Price)	**> 0**	Existing BSC methodology	Existing BSC methodology

P135 does not change any other aspects of the Energy Imbalance Price calculation, such as the mechanism for NIV Tagging, the derivation of the Energy Imbalance Prices outside of demand control periods and the derivation of the 'reverse' Energy Imbalance (i.e. the Energy Imbalance Price applied to Energy Imbalances in the opposite direction to the system) at times of demand control.

Figure 1 represents the price setting mechanism. The NIV Tagging mechanism derives the 'length' of the system by comparing the Accepted Offer (and BSAD purchase) volume with the Accepted Bid (and BSAD sales) volume. Where the Offer volume exceeds the Bid volume, then the NIV is positive, and the system is considered to have been short (insufficient generation to meet demand) in that Settlement Period.

The current mechanism calculates a volume weighted average price from the Accepted Offers (and Energy BSAD (Balancing Services Adjustment Data) if present) remaining in the NIV (i.e. the volume 'left' when the Accepted Bid volume is netted off the Accepted Offer volume). The NIV represents the volume associated with energy balancing the system. The system balancing actions are those that are netted off by NIV Tagging.

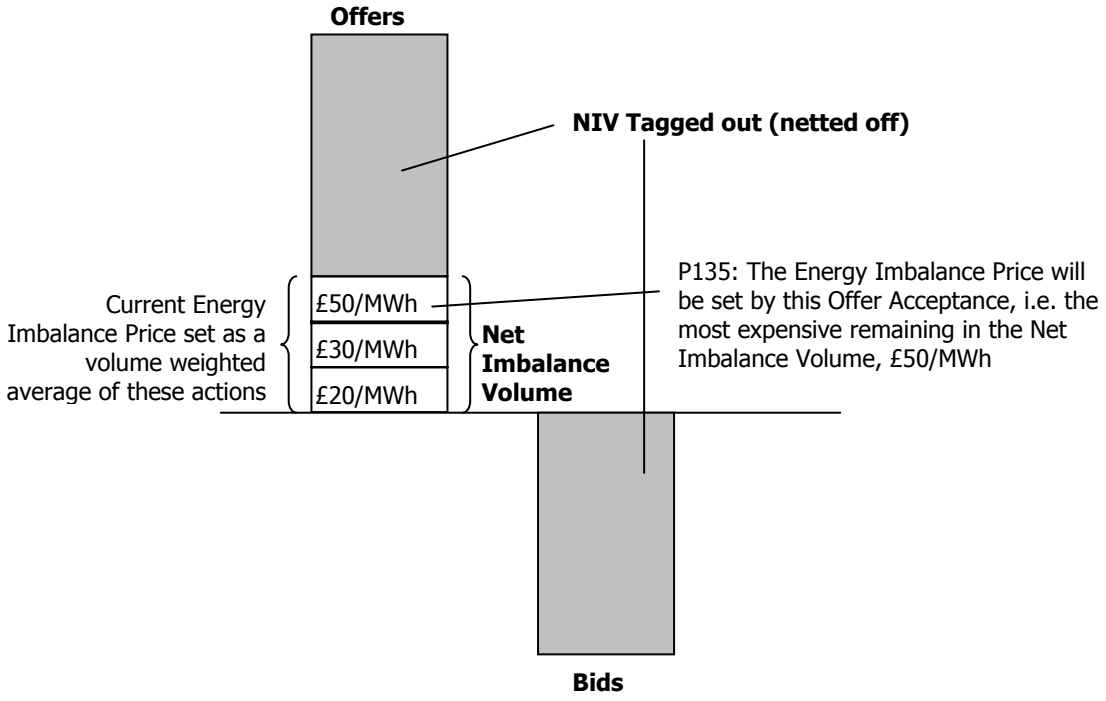

Figure 1: P135 Price setting mechanism during periods of demand control and where the Net Imbalance Volume is positive

3.1.2 Proposer's Rationale for Raising P135

In terms of the justification for P135, the Proposer, in the Modification Proposal, asserts that the experience of imbalance prices to date shows that the average imbalance price can significantly understate the cost of the marginal balancing action. This occurs particularly in times of energy shortage (i.e. high demand and/or low generation availability) when the marginal cost of balancing energy is likely to be high, and the differential between the average price and the marginal price is the greatest.

The Proposer believes that average imbalance prices send weakened price signals to the forward markets which may threaten security of supply this winter. Particularly in times of energy shortage, the averaging price methodology used to calculate imbalance prices means that market participants will not be exposed to the full cost of the marginal balancing action required to energy balance generation and demand. Thus there is insufficient incentive for Parties to contract in the forward markets to mitigate the risk of not being able to achieve a balanced position in all scenarios. During periods of energy shortage this could lead to involuntary customer demand control.

Furthermore, the Proposer asserts that "the calculation of the 'main' energy imbalance price, using a marginal methodology, will provide more appropriate price signals to incentivise Market Participants to contract forward in order to mitigate the risk of not being able to balance at Gate Closure. This is because marginal pricing provides an undiluted signal to the market as to the underlying cost of supplying the last increment of energy required to balance generation and demand. … It is particularly important that imbalance prices provide appropriate signals in times of energy shortage, as weakened signals could threaten security of supply."

The proposed change to the 'main' energy imbalance price calculation is limited to SBP during periods of demand control (as clarified above, demand control instructed in accordance with OC6.1.2(c) to (e) of the Grid Code) only, so that implementation could potentially be achieved as soon as possible. It is anticipated that the risk of exposure to a marginal imbalance price during these periods should improve incentives to market participants to contract sufficiently so as to reduce the risk of such demand control measures becoming necessary.

3.2 PSMG Discussion and Definition of P135

3.2.1 P135 and Demand Control

The Proposer presented P135 to the PSMG at its meeting of 6 August 2003. The Proposer asserts that they raised P135 because they believe that the signals provided to the forwards market from the current average Energy Imbalance Price are inappropriate, specifically during periods of energy shortage, as a consequence of the current average methodology understating the marginal price of energy.

Furthermore, the current indication is that plant margins are reducing, and this is likely to impact on the security of supply for this winter, unless pricing signals / incentives are improved.

P135 proposes a limited scope solution, namely to limit marginal pricing to the System Buy Price at times of demand control. The main reason for this is to ensure that there is a solution in place for this coming winter, i.e. by the end of October 2003.

Demand control is defined in OC6 of the Grid Code, and there are effectively five types of demand control covered by OC6 (defined in OC6.1.2):

(a) "Customer voltage reduction initiated by Network Operators (other than following NGC instruction);

(b) Customer Demand reduction by Disconnection initiated by Network Operators (other than following NGC instruction);

(c) Demand Reduction instructed by NGC;

(d) Automatic low frequency Demand Disconnection; and

(e) Emergency manual Demand Disconnection".

P135 does not cover (a) and (b) as they are Licensed Distribution System Operator initiated. (c), (d) and (e) are instructed by the Transmission Company and are therefore the only ones covered by P135.

The Proposer intended that P135 would not cover any other types of demand control / reduction and these are therefore out of scope of P135.

Demand Reduction instructed by the Transmission Company ((c) above) involves the Transmission Company instructing Licensed Distribution System Operators (LDSOs) to reduce demand by 5% (to a maximum of 40% of demand (OC6.5.4(b)). LDSOs can achieve demand reduction either by voltage reduction, or by customer disconnection. Low frequency demand disconnection ((d) above) occurs automatically, only where the system is close to failure, and emergency manual demand disconnection ((e) above) occurs where the Transmission Company opens the system breakers where the system has failed.

The Proposer believes that OC6.1.2(c) will be the most likely form of demand control instigated in relation to P135.

In terms of how the Transmission Company initiates demand control, where the Transmission Company believes demand control to be required, i.e. there is a shortage of generation to meet demand, the Transmission Company will identify the size of the generation shortfall, based on its near real time demand forecast, and estimate the volume of demand reduction required in order to maintain control of the Transmission System.

The Transmission Company will determine, for each Grid Supply Point (GSP) Group, the system flows and thus the demand for each GSP Group. The Transmission Company will then identify the GSP Group that will be most effective in resolving the mismatch between generation and demand. The Transmission Company then instructs the relevant LDSO to reduce demand in this GSP Group via an Emergency Instruction in accordance with the provisions laid down in OC6 of the Grid Code. Post event, the LDSO will inform the Transmission Company of the MW reduction achieved by demand control. Therefore it can be seen that demand control is not a despatchable 'firm service', but an emergency action of last resort, and that the delivery of demand control is in the hands of the LDSO.

3.2.2 PSMG Discussion and Definition of P135

As the scope of P135 deliberately excluded addressing the issue of how unsupplied demand is treated, the Proposer acknowledges that P135 has limitations. There was a perception amongst some members of the PSMG that, as the unsupplied demand was not treated in the Settlement process, a Supplier with a 'short' position (i.e. under contracted for its demand) will be sent long by the demand control, when metered volume will be removed from the Supplier's metered position by the demand control. However, the Proposer believes that P135 will still provide sufficient incentives, as, in respect of unsupplied demand:

(a) Unsupplied demand is not counted for; demand control could be reducing demand that has not appeared (i.e. been metered), and therefore demand control may not have the effect of reducing metered offtake, it may simply mean that metered offtake does not rise above that prior to demand control; and

(b) Demand control is most likely to be undertaken by one LDSO, on instruction from the Transmission Company, and thus is not national (uniform across all Suppliers). This change in demand is unlikely to represent a significant portion of the Supplier's demand, and may not have a significant effect on the Supplier's overall position and hence the incentive to balance remains.

It was noted that the Transmission Company wish to avoid demand control situations, and furthermore, would not instruct demand control for commercial reasons, only for operational reasons, as it is an Emergency Instruction. It was also noted that all other feasible and relevant balancing actions would be taken (including demand reduction offered as a commercial ancillary service by some BSC Parties / sites), in accordance with the Balancing Principles Statement and that a demand control Emergency Instruction was an instruction of last resort.

A number of PSMG members raised the concern that the volume reduction associated with demand control was not included in the Offer Acceptance 'stack' for inclusion in the NIV. Furthermore, they stated that if the volume of demand control is not taken into account in the derivation of the NIV, and thus the system length, then it could detrimentally impact the Energy Imbalance Prices (by understating the 'length' of the system).

The rationale supporting this belief is that, where demand control is exercised, all possible commercial and balancing actions have been taken, and specifically, all Offers have been exhausted. Thus where demand control is instructed, there may be an increase in the Bids taken in the Balancing Mechanism, in order to meet the new demand levels. Therefore, if demand control is not seen as a volume on the Offer stack for the NIV Tagging, then the NIV may end up negative (Bids > Offers) for the Settlement Period, with the System Sell Price as the main price (not System Buy Price).

Concerns were raised at the PSMG meeting, with regards to the further implications on the Energy Imbalance Price to be applied in the Settlement Period; if there are fewer Offer Acceptances as a result of the demand control, then provisions for the most applicable Offer Acceptance to be used as the Energy Imbalance Price may be needed. For example, a freeze on the Energy Imbalance Price, (e.g. the price associated with the last (energy) Offer Acceptance taken before demand control was instructed) for the duration of the demand control, to ensure that the correct pricing signals are getting through.

The Proposer confirmed that the issue of inclusion of demand control volumes in the NIV derivation had been considered during the development of P135, but had been excluded due to the need for urgent implementation. The Proposer noted that actual volumes associated with demand reduction would be difficult to derive (and more difficult to allocate to specific BM Units / BSC Parties), and furthermore the derivation of the associated price (for placing the 'action' into the stack) could be considered to be even more complex / problematical, although this would only be an issue where the action was for energy balancing. Thus making this aspect infeasible for inclusion in P135[3].

A question was raised as to whether the Transmission Company would instruct demand control for the purposes of creating margin / operational headroom. The Transmission Company responded that in a demand control situation, all reserve would have been used, but there is always a requirement to maintain an appropriate level of frequency response to maintain system security.

[3] It should be noted that Modification Proposal P138 has since been raised, which seeks to reflect the volumes associated with demand control into the Energy Account of the relevant BSC Party and compensate for the loss of that demand, and to include the volumes in the Net Imbalance Volume derivation. The Panel will consider the Initial Written Assessment at its meeting of 12 September 2003.

A question was raised as to why the Proposer has limited the implementation of the marginal System Buy Price to periods of actual demand control, rather than to periods encompassing warnings of demand control where it could be argued that 'better' price signals providing a signal around the period of system stress, allowing Parties to react to that signal before demand control is instructed.

The Proposer stated that the limitation was to avoid the perception that the Transmission Company may declare a system warning in order to set a marginal price. A number of PSMG members noted that this feature may have some benefit, as Energy Imbalance Prices should be high at times of stress.

Furthermore, the Transmission Company noted that they were concerned with implementing P135 for this winter, and noted that system warnings would / could occur often. The Transmission Company therefore considered that the limitation of P135 to periods of demand control, which would occur less frequently than system warnings, would enable a quicker implementation and not endanger implementation for this winter. Furthermore, the Transmission Company noted that marginal pricing during periods of demand control sends a warning signal to the market at times of system stress, such that Parties are more strongly incentivised to balance ahead of Gate Closure.

3.3 Technical Solution for P135

Given the urgency of P135, the intent is to identify a solution that can be implemented in time for winter 2003 (by the end of October 2003). Furthermore, given that P135 applies to very limited circumstances, there is a trade off between developing a BSC System solution (as opposed to a manual workaround), and the cost of getting the mechanism into the BSC Central Systems in time. The time constraints associated with including BSC System changes in the next available release, the November BSC Systems Release, are compounded by the November release being:

a) Finalised;

b) A full, complex and relatively high risk release (containing the amendments required for Transmission Loss Factor implementation (Approved Modification P82), complex amendments to the registration system for amended Supplier and Exempt Export arrangements with regards to Trading Units (Approved Modification P100); and

c) Past the required date for implementation of P135;

The cost of any BSC System change is likely to be high, because of the limited timescale for implementation and the potential for the requirement for implementation outside of an existing systems release.

Therefore, it is proposed that P135 be implemented as a workaround, with a view to making it as robust as possible.

The following process is proposed:

1. Where the Transmission Company instructs demand control in accordance with the Grid Code OC6.1.2 (c), (d) or (e), where such demand control is required for the purposes of insufficient generation to meet demand in real time (and under no other circumstances), the Transmission Company will send, as soon as practicable after the instruction is issued, a System Warning Message to the Balancing Mechanism Reporting Agent (BMRA), stating the time that demand control was instructed (the start of the demand control period), and the GSP Group affected by the demand control;

2. The BMRA will publish the System Warning within five minutes of receipt (current service levels) on the 'System Warnings and other Messages' screen;

3. When the period of demand control completes, the Transmission Company will send, as soon as practicable after the demand control period finishes, a System Warning Message to the Balancing Mechanism Reporting Agent (BMRA), stating the time that demand control finished (the end of the demand control period);

4. The BMRA will publish the System Warning within five minutes of receipt (current service levels) on the 'System Warnings and other Messages' screen;

5. The Transmission Company will also provide a message to BSCCo, as soon as is reasonably practicable following the end of the demand control, informing BSCCo of the demand control period, and providing the start and end time of the demand control;

6. The BMRA will calculate the Energy Imbalance Prices **by the current method** at the end of the Settlement Period (as normal) and will report the Indicative Net Imbalance Volume (INIV) and Indicative Energy Imbalance Prices (ISBP and ISSP).

   For the avoidance of doubt, where the Settlement Period falls within a demand control period, and where the INIV is positive, ISBP will be the main price, ***but will have been derived via the current average methodology and will not be marginal****.*

7. For the relevant Settlement Periods, an indicative marginal price be derived and calculated as soon as practicably possible following the Settlement Period, (preferably to the same timetable as BMRA publication of the Indicative Energy Imbalance Prices).

   The PSMG have stressed the importance of real time prices at this time of system stress and ELEXON are currently exploring the feasibility of this approach;

8. Outside of real time, in preparation for the Settlement Runs, BSCCo will determine what the actual (marginal) System Buy Price would have been for the Settlement Period(s) comprising the demand control period.

   It should be noted that this requires a complete set of the data required to calculate the Energy Imbalance Prices (BSAD, Bid – Offer Acceptances), which is not usually available to BSCCo until after the Interim Information Settlement Run;

9. BSCCo will amend the System Buy Price to be used in the Settlement Run to the correct price derived at (8) above.

   ELEXON are exploring the feasibility of being able to feed the Energy Imbalance Price derived at (8) into the Interim Information Settlement Run, such that there is early sight of the potential Imbalance prices and associated trading charge liabilities.

   Furthermore, the Energy Indebtedness calculation uses data from the Interim Information Settlement Run (not the Initial Settlement Run) to derive the Energy Indebtedness for BSC Parties. If the correct Energy Imbalance Price is not used in the Interim Information Settlement Run (i.e. the average SBP, calculated under the current methodology is used), and the discrepancy between the 'correct' marginal SBP and the 'incorrect' average SBP is large (with the marginal much higher), then there is a risk that the Energy Indebtedness will be vastly understated for Parties that were short. This may potentially increase risk to other Parties from any subsequent default.

   However, it may not be possible to get the 'correct' SBP into the Interim Information Settlement Run, and in this case, ELEXON will need to explore the impact on the Energy Indebtedness calculation, and potentially derive a workaround for that aspect.

10. For each Settlement Run for a Settlement Day on which a demand control period fell, BSCCo will determine what the actual (marginal) System Buy Price would have been for the Settlement Period(s) comprising the demand control period, using all available data at the time of the Settlement Run; and

11. BSCCo will amend the System Buy Price to be used in the Settlement Run to the correct price derived at (10) above.

ELEXON are currently exploring the most appropriate, robust, efficient and cost effective way of meeting the requirements set out above. Furthermore, ELEXON will highlight to BSC Parties any potential impacts.

3.4 Draft Code Amendments for P135

The following is an example set of legal drafting for P135, provided only in order to indicate the intent of P135 and the type and scope of the requisite amendments to the Code to give effect to P135. It should be noted that this drafting has not been through any (legal) review, and therefore is likely to change.

The indicative amendments are limited to paragraph 4.4 of Section T 'Settlement and Trading Charges', and therefore only this section has been provided.

EXTRACT FROM BALANCING AND SETTLEMENT CODE – SECTION T, V11.0

4.4. Determination of Energy Imbalance Prices (SBPj and SSPj)

4.4.1 In respect of each Settlement Period, the System Total Accepted Offer Volume will be determined as follows:

$$TQAO_j = \sum^i\sum^n QAO^n{}_{ij}$$

where $\sum^i$ represents the sum over all BM Units and $\sum^n$ represents the sum over all Bid-Offer Pair Numbers for the BM Unit.

4.4.2 In respect of each Settlement Period, the System Total Accepted Bid Volume will be determined as follows:

$$TQAB_j = \sum^i\sum^n QAB^n{}_{ij}$$

where $\sum^i$ represents the sum over all BM Units and $\sum^n$ represents the sum over all Bid-Offer Pair Numbers for the BM Unit.

4.4.2A In respect of each Settlement Period, some of the accepted Bids and accepted Offers may be defined as De Minimis Accepted Bids and De Minimis Accepted Offers respectively in accordance with the provisions in Annex T-1, and all such De Minimis Accepted Bids and De Minimis Accepted Offers shall be disregarded for the purposes of the calculation of energy imbalance prices.

4.4.2B In respect of each Settlement Period, the System Total Un-Priced Accepted Offer Volume will be determined as follows:

$$TQUAO_j = \sum^i\sum^n QAO^n{}_{ij} - \sum^i\sum^n QAPO^n{}_{ij}$$

where $\sum^i$ represents the sum over all BM Units and $\sum^n$ represents the sum over all Bid-Offer Pair Numbers for the BM Unit.

4.4.2C In respect of each Settlement Period, the System Total Un-Priced Accepted Bid Volume will be determined as follows:

$$TQUAB_j = \Sigma^i\Sigma^n QAB^n_{ij} - \Sigma^i\Sigma^n QAPB^n_{ij}$$

where Σ^i represents the sum over all BM Units and Σ^n represents the sum over all Bid-Offer Pair Numbers for the BM Unit.

4.4.3 In respect of each Settlement Period, some of the accepted Bids and accepted Offers may be defined as Arbitrage Accepted Bids and Arbitrage Accepted Offers respectively in accordance with the provisions in Annex T-1, and all such Arbitrage Accepted Bids and Arbitrage Accepted Offers shall be disregarded for the purposes of the calculation of energy imbalance prices.

4.4.4 In respect of each Settlement Period:

(a) some or all of the accepted Bids and accepted Offers may be defined as NIV Tagged Bids and NIV Tagged Offers respectively in accordance with the provisions in Annex T-1;

(b) some or all of the Buy Price Volume Adjustment (Energy) (EBVA) and Sell Price Volume Adjustment (Energy) (ESVA) may be defined as NIV Tagged EBVA and NIV Tagged ESVA respectively in accordance with the provisions in Annex T-1;

(c) some or all of the Buy Price Volume Adjustment (System) (SBVA) and Sell Price Volume Adjustment (System) (SSVA) may be defined as NIV Tagged SBVA and NIV Tagged SSVA respectively in accordance with the provisions in Annex T-1;

(d) some or all of the System Total Un-priced Bid Volume and System Total Un-priced Offer Volume may be defined as NIV Tagged System Total Un-priced Bid Volume and NIV Tagged System Total Un-priced Offer Volume respectively in accordance with the provisions in Annex T-1.

4.4.4A In respect of each Settlement Period, the Net Imbalance Volume will be determined as follows:

$$NIV_j = \{\Sigma^i\Sigma^n QAPO^n_{ij} + EBVA_j + SBVA_j + TQUAO_j\} - \{\Sigma^i\Sigma^n (-QAPB^n_{ij}) + (-ESVA_j) + (-SSVA_j) + (-TQUAB_j)\}$$

where Σ^i is the sum over all BM Units and Σ^n is either the sum over all Accepted Offers that are not De Minimis Accepted Offers and not Arbitrage Accepted Offers, or the sum over all Accepted Bids that are not De Minimis Accepted Bids and not Arbitrage Accepted Bids, as the case may be.

4.4.4B Without prejudice to paragraph 1.5A.4(b) and 1.5A.6(b), if in respect of a Settlement Period j and a Market Index Data Provider s either:

(a) the Individual Liquidity Threshold exceeds the Market Index Volume (QXP_{sj}); or

(b) the Market Index Data Provider fails for whatever reason to submit the Market Index Data in time such that it can be taken into account in the relevant Settlement Run,

the Market Index Volume (QXP_{sj}) and the Market Index Price (PXP_{sj}) for that Market Index Data Provider shall be deemed to be zero.

4.4.4C For the purposes of paragraph 4.4.5(a) and 4.4.5(a1) only, where the Transmission Company instructs demand control in accordance with the provisions Grid Code OC6 [Issue 2, 27th

March 2001], and where such demand control is instructed as defined in the Grid Code OC6.1.2 (c), (d) or (e), and is required for the purposes of insufficient generation to meet demand in real time (and under no other circumstance), the Transmission Company will determine a "Demand Control Period", commencing from the time the demand control instruction is issued, and ceasing on the completion of the demand control action, as notified, as soon as is reasonably practicable following the end of the demand control period, by the Transmission Company to BSCCo [and in the form of a System Warning Message to the BMRS].

4.4.5 In respect of each Settlement Period:

(a) that does not fall, all or part as the case may be, within a Demand Control Period, and if the Net Imbalance Volume is not equal to zero, and is a positive number, and $\{\Sigma^i\Sigma^n \{QAPO^n_{ij} * TLM_{ij}\} + UEBVA_j\}$ is not equal to zero, then the System Buy Price will be determined as follows:

$$SBP_j = \{\{\Sigma^i\Sigma^n \{QAPO^n_{ij} * PO^n_{ij} * TLM_{ij}\} + UEBCA_j\} / \{\Sigma^i\Sigma^n \{QAPO^n_{ij} * TLM_{ij}\} + UEBVA_j\}\} + \{BPA_j\}$$

where Σ^i represents the sum over all BM Units and Σ^n represents the sum over those accepted Offers that are not De Minimis Accepted Offers and not Arbitrage Accepted Offers and not NIV Tagged Offers;

(a1) that falls, all or part as the case may be, within a Demand Control Period, and if the Net Imbalance Volume is not equal to zero, and is a positive number, and $\{\Sigma^i\Sigma^n \{QAPO^n_{ij} * TLM_{ij}\} + UEBVA_j\}$ is not equal to zero, then the System Buy Price will be determined as the maximum of:

(i) the price (in £/MWh) of the most expensive Period Priced Accepted Offer, all or part as the case may be, that is not a NIV Tagged Offer; or

(ii) the price associated with the Untagged Energy Buy Price Volume Adjustment ($UEBVA_j$) (converted to a price in £/MWh by $EBCA_j / EBVA_j$).

(b) if the Net Imbalance Volume is equal to zero, or is a negative number, and / or $\{\Sigma^i\Sigma^n \{QAPO^n_{ij} * TLM_{ij}\} + UEBVA_j\}$ is equal to zero, then the System Buy Price will (subject to paragraph 4.4.6A) be determined as follows:

$$SBP_j = \Sigma^s \{PXP_{sj} * QXP_{sj}\} / \Sigma^s \{QXP_{sj}\}$$

where Σ^s represents the sum over all Market Index Data Providers;

provided that, if the Net Imbalance Volume is a negative number and SSP_j as determined in accordance with paragraph 4.4.6(a) would exceed SBP_j as determined in this paragraph (b), then SBP_j shall instead be equal to SSP_j as determined in accordance with paragraph 4.4.6(a).

4.4.6 In respect of each Settlement Period:

(a) if the Net Imbalance Volume is not equal to zero, and is a negative number, and $\{\Sigma^i\Sigma^n \{QAPB^n_{ij} * TLM_{ij}\} + UESVA_j\}$ is not equal to zero, then the System Sell Price will be determined as follows:

$$SSP_j = \{\{\Sigma^i\Sigma^n \{QAPB^n_{ij} * PB^n_{ij} * TLM_{ij}\} + UESCA_j\} / \{\Sigma^i\Sigma^n \{QAPB^n_{ij} * TLM_{ij}\} + UESVA_j\}\} + \{SPA_j\}$$

where Σ^i represents the sum over all BM Units and Σ^n represents the sum over those accepted Bids that are not De Minimis Accepted Bids and not Arbitrage Accepted Bids and not NIV Tagged Bids;

(b) if the Net Imbalance Volume is equal to zero, or is a positive number, and / or $\{\Sigma^i\Sigma^n \{QAPB^n_{ij} * TLM_{ij}\} + UESVA_j\}$ is equal to zero, then the System Sell Price will (subject to paragraph 4.4.6A) be determined as follows:

$SSP_j = \Sigma^s \{PXP_{sj} * QXP_{sj}\} / \Sigma^s \{QXP_{sj}\}$

where Σ^s represents the sum over all Market Index Data Providers;

provided that, if the Net Imbalance Volume is a positive number and SSP_j as so determined would exceed SBP_j as determined in accordance with paragraph 4.4.5(a), then SSP_j shall instead be equal to SBP_j as determined in accordance with paragraph 4.4.5(a).

4.4.6A Without prejudice to paragraph 1.5A.4(b) and 1.5A.6(b), if for whatever reason (including the submission or deemed submission of zero values or the absence of Market Index Data) in respect of a Settlement Period:

$\Sigma^s \ QXP_{sj} = 0$

where Σ^s represents the sum over all Market Index Data Providers,

then (notwithstanding paragraphs 4.4.5(b) and 4.4.6(b)):

(a) if the Net Imbalance Volume is a positive number, and $\{\Sigma^i\Sigma^n \{QAPO^n_{ij} * TLM_{ij}\} + UEBVA_j\}$ is not equal to zero, SSP_j shall be equal to SBP_j as determined in accordance with paragraph 4.4.5(a);

(b) if the Net Imbalance Volume is a positive number, and $\{\Sigma^i\Sigma^n \{QAPO^n_{ij} * TLM_{ij}\} + UEBVA_j\}$ is equal to zero, each SBP_j and SSP_j shall be zero;

(c) if the Net Imbalance Volume is a negative number, and $\{\Sigma^i\Sigma^n \{QAPB^n_{ij} * TLM_{ij}\} + UESVA_j\}$ is not equal to zero, SBP_j shall be equal to SSP_j as determined in accordance with paragraph 4.4.6(a);

(d) if the Net Imbalance Volume is a negative number, and $\{\Sigma^i\Sigma^n \{QAPB^n_{ij} * TLM_{ij}\} + UESVA_j\}$ is equal to zero, each SBP_j and SSP_j shall be zero; and

(e) if the Net Imbalance Volume is zero, each of SBP_j and SSP_j shall be zero.

4.4.7 In respect of each Settlement Period, the Total Accepted Priced Offer Volume will be determined as follows:

$TQPAO_j = \sum^i\sum^n QAPO^n_{ij}$

where $\sum^i$ represents the sum over all BM Units and $\sum^n$ represents the sum over those accepted Offers that are not De Minimis Accepted Offers and not Arbitrage Accepted Offers and not NIV Tagged Offers.

4.4.8 In respect of each Settlement Period, the Total Accepted Priced Bid Volume will be determined as follows:

$TQPAB_j = \sum^i\sum^n QAPB^n_{ij}$

where Σ^i represents the sum over all BM Units and Σ^n represents the sum over those accepted Bids that are not De Minimis Accepted Bids and not Arbitrage Accepted Bids and not NIV Tagged Bids.

4.4.9 In respect of each Settlement Period, the Total Arbitrage Volume will be determined as follows:

$$TAQ_j = \Sigma^i(\Sigma^{n'} QAPB^{n'}{}_{ij} - \Sigma^{n*} QAPO^{n*}{}_{ij})/2$$

where Σ^i represents the sum over all BM Units and $\Sigma^{n'}$ represents the sum over those accepted Bids that are Arbitrage Accepted Bids and Σ^{n*} represents the sum over those accepted Offers that are Arbitrage Accepted Offers.

4.4.10 In respect of each Settlement Period, the Total NIV Tagged Volume will be determined as follows:

$$TCQ_j = \{\{(\Sigma^i \Sigma^{n'} QAPB^{n'}{}_{ij}) + TTQUAB_j + TESVA_j + TSSVA_j\} - \{(\Sigma^i \Sigma^{n*} QAPO^{n*}{}_{ij}) + TTQUAO_j + TEBVA_j + TSBVA_j\}\}/2$$

where Σ^i represents the sum over all BM Units and $\Sigma^{n'}$ represents the sum over those accepted Bids which are NIV Tagged Bids and Σ^{n*} represents the sum over those accepted Offers which are NIV Tagged Offers.

4 PSMG ASSESSMENT OF P135

The following issues have been agreed by the PSMG as the key issues for consideration in the assessment of P135. These have been taken from the stated aims / results / principles of the Modification Proposal, and from the discussions at the PSMG meetings of 6 and 13 August 2003.

It should be noted that there are no implied weighting on these arguments, nor have the PSMG reached any conclusions in respect of these issues. A summary of the deliberations of the PSMG are included in order to provide some context and supporting information for respondents to the consultation in respect of P135.

4.1.1 Marginal Price Assumptions

The PSMG discussed the likely magnitude of the SBP during demand control periods. The PSMG attempted to assess incentives and likely behaviour of Parties (which will be reliant on their perception of the magnitude of the SBP during periods of demand control).

The PSMG noted that no accurate assessment of the likely price could be undertaken, as it is impossible to determine behaviour at times of system stress, and the price will depend on many factors that cannot be assessed in advance. However, the PSMG did undertake some assessment in order to explore the likelihood of a marginal price set at the maximum Offer price (£100,000 / MWh).

The Proposer provided the PSMG with historical analysis of what the marginal Energy Imbalance Prices would have been had the Energy Imbalance Prices been marginal in the period April 2002 to June 2003, provided in Annex 1a. The Proposer noted that this analysis was limited to historical data, which has the limitation of not being reflective of future behaviour, and furthermore, that the Energy Imbalance Price derivation was approximated by use of a simplified mechanism, and therefore the resultant prices are intended to provide only an indication of the general differences between an average Energy Imbalance Price methodology and a marginal methodology.

The PSMG considered the range of Offer prices that could come into play in a demand control period and noted that the maximum marginal price could be £99,999.9999 (£100,000), i.e. the maximum

allowable in the data item field. The PSMG noted that there is no way of 'turning off' Bid and Offer prices, as once submitted, they must always be submitted as they cannot be set to null. Some Parties are using £99,999 as an indication to the Transmission Company that they do not want the Bid or Offer (at that price) to be taken.

A number of the PSMG expressed the opinion that during the lead up to demand control, a number of these Offers (with 'feasible' dynamics) might be called in order to mitigate the demand control. Furthermore, a number of the PSMG indicated that if there were to be the potential for an SBP of £100,000 / MWh, Parties could offer in at that price in an attempt to offset the potential exposure to imbalance if they tripped whilst delivering the Offer (thus exacerbating the potential for a marginal price of £100,000).

Some PSMG members were concerned that Parties might offer in at £100,000 in anticipation of demand control being imminent, and thus their Offer being taken. However, it was noted that this may mean that the Offer would only be taken during times of demand control. Whereas a decision to offer in a lower price could mean that these Offers are taken far more frequently.

Furthermore, the Transmission Company (between the meetings of the 6 and 13 August) looked at a 'snapshot' of data and confirmed to the PSMG that all the Offers with an associated price of £99,999 were infeasible. This was due to the dynamics provided with the Offer, for example the Notice to Offer was beyond the Balancing Window (i.e. 90 minutes or more), which makes the Offer untenable for the Transmission Company (Balancing actions have to be taken in the Balancing Window, from Gate Closure to the end of the Settlement Period, so the notice to deliver must be 89 minutes or less). The Transmission Company noted that the highest priced Offer with feasible dynamics (i.e. which could be taken) was £5000 / MWh at the time of looking at the data.

4.1.2 Incentives to Balance

Does P135 incentivise Parties to further balance their position ahead of Gate Closure?

The PSMG assumed that the marginal price will be much greater than the average price at times of demand control (noting that, by definition, the marginal price must be equal to or greater than the average price).

A number of the PSMG noted that there is no explicit incentive to balance in the Applicable BSC Objectives, although it was noted that it can be implicitly linked to efficiency, i.e. an assessment as to whether it is more efficient to balance. The PSMG further noted that previous Ofgem decisions on Modifications (for example Approved Modification P78) have indicated that Ofgem's view is that Parties should be strongly incentivised to forward contract to balance their position ahead of Gate Closure.

An integral part of the decision as to what volume to forward contract for is a demand forecast. Suppliers can effectively only average demand over the Settlement Period and therefore cannot really respond to TV pick up, and other very short term events, other than by reflecting that in the Settlement Period average. Therefore the accuracy of the demand forecast that Suppliers are contracting to is paramount. It was noted that on 10 December 2002 (a day where the system was put under stress, and demand control was imminent) the Transmission Company demand forecast (on the BMRA) was 5% under the actual demand, thus understating demand. Supplier demand forecasts are likely to be less accurate than the Transmission Company's, as Suppliers do not have as complete a view of the market as the Transmission Company.

A number of the PSMG stated that a potential effect of P135 would be to incentivise length in the market, i.e. Parties would go (very) long to protect themselves from the risk of exposure to the System

Buy Price, thus creating a level of reserve. This was considered by some to be inefficient, as each individual Party will go long by 5 – 10% (i.e. holding their own reserve), thus collectively over contracting by 5-10%, whereas it could be considered to be more efficient for the Transmission Company to obtain the reserve for Parties, i.e. one body buying the reserve. It should be noted that a number of PSMG believe that the ideal solution would lie somewhere between these two extremes.

Another view of some of the PSMG is that the incentives should be on each Party to 'insure' themselves by forward contracting in sufficient volumes to cover peak periods, with the Transmission Company undertaking the residual balancing in real time. Thus, to achieve this incentive, pricing signals (from the Energy Imbalance Prices into the forwards markets) should be strong enough to indicate what the market is 'doing', i.e. entering a period of stress or surplus.

Furthermore, some of the PSMG believe there to be an issue with Suppliers 'free riding', i.e. a Supplier assuming that all Suppliers will go long, and effectively get the required reserve, so that Supplier goes short saving themselves the cost of the reserve and exposing themselves to a relatively 'neutral' price. P135 seeks to ameliorate the 'free riding' effect, where a number of Suppliers are short, culminating in the system ending up short, and thus address this by attempting to target the costs of being short in a more appropriate manner.

The PSMG noted that incentives to (further) balance will be driven by a number of factors. These are all interrelated, and will all form part of the assessment of a Party as to their incentives and thus resulting behaviour:

- The strength and timeliness of the pricing signal:

  Demand control is not reflected in the NIV, and so an incorrect SBP will be derived as well as there being a potential for an increased number of Bids at the time of demand control (to exactly match generation to demand when demand falls off), which is not offset by an Offer volume representing the level of demand control (discussed in section 3.2).

  Thus where the market remains short (accepted Offer volume > accepted Bid volume), then the increased number of Bids may weaken the marginal price, by tagging more from the Offer stack leaving less expensive Offers. In more extreme cases, the market may in fact go long under these circumstances, where accepted Bid volume > accepted Offer volume, and the price signal may be removed in entirety, as the System Sell Price becomes the main price, which is derived by an average.

  In order to determine the likely magnitude of the impact of demand control on Suppliers imbalance positions and metered volumes, the PSMG requested that ELEXON undertake some quantitative analysis of a 5% reduction in metered volume for the largest and smallest GSP Group (i.e. to give an idea of the extremes), using Settlement Period 35 (17:00 to 17:30) of 10 December 2002 (the Settlement Period with the peak demand last winter). This analysis will be included in Annex 1 of this report when completed.

  Furthermore, a number of the PSMG believe that if a marginal price is used only during periods of demand control, that the associated price signal is lost. They assert that if marginal prices are limited to periods of demand control only, then the market will discount the potential for high imbalance prices by the extremely low probability of those prices actually being realised, and thus the relevant market signal will not emerge in a timely manner.

  This could mean that Parties would not respond to the signal of impending shortage (as it is not there), or that when the signal does emerge, it is too late to respond to it, as demand control

occurs in the Balancing Window. Thus if demand control occurs, Parties could be exposed to a marginal price when it is too late to react and contract ahead of Gate Closure.

In terms of the (longer term) strength of the pricing signals from P135, a number of the PSMG raised the question as to how much the Energy Imbalance Price will have to rise to incentivise forward contracting, in turn raising prices on the forwards markets sufficiently to incentivise generation to come on.

It could be argued that if demand control periods are short and the effect of demand control is limited, then the effect on the forward curves will be small, and the requisite price signal could be muted / not in evidence, and the requisite effect of P135 is lost. Conversely, if the effects of demand control are considered to be large, then the forward curves will reflect this effect, with the price signal clearly in evidence, having the required effect. A number of the PSMG believe the former to be the most likely outcome of P135, with the marginal price only in times of demand control having no effect in the forwards curve and thus failing to incentivise forward contracting and plant to come on.

The PSMG noted that a marginal price over the entire winter peak could have sufficient effect on the forwards curves, to create the incentive for plant to return to service. Furthermore, it was the view of some PSMG members that long term price signals are required (i.e. signals now) to get Parties contracting at the required levels to cover the winter peak, as they raised concerns that P135 introduces only short term signals that will come too late to get the forward contracting going, and plant on the system for the winter peak. The Transmission Company can only instruct to the level of available physical generation, and thus if there is insufficient generation, there will be a problem for the Transmission Company balancing the system. Thus it could be argued that the incentives to get more generation on the system must be there over the long term.

It was noted that an associated issue is the type of plant that is showing as unavailable for this winter. P135 may benefit reliable peaking plant, and incentivise that sort of plant to come on this winter (assuming the incentive is there). However, if the unavailable plant is not reliable peaking plant, then the issue of insufficient generation may persist.

- The perception of the risk of demand control – if a BSC Party believes the risk of demand control occurring / being short during a period of demand control, to be small, then their incentives will be different to a Party that believes the risk is higher.

  One PSMG member noted that the perception of risk, and the associated incentives could be driven by the type of demand reduction initiated. The PSMG member noted that if other types of demand reduction (besides demand control under OC6.1.2(c), (d) and (e)) were utilised (such as those under the Electricity Supply Emergency Code)in response to (relatively long term[4] in comparison to demand control under OC6.1.2 (c), (d) and (e)) indications that there is insufficient generation to meet demand, then the marginal SBP associated with demand control under P135 would not apply to these other types of demand reduction. This will incentivise Parties differently to when demand control (covered by P135) is initiated by the Transmission Company.

- The perception of the risk of exposure to Imbalance charges - Parties may take a view that the risk of exposure to a marginal price at times of demand control could be offset by any return via Residual Cashflow Reallocation Cashflow (RCRC). The assumption is that where there is a high marginal price (and Parties are, in general, short), the BM cashflows will be over recovered, and

[4] i.e. not within the Balancing Window of 90 minutes, but perhaps in response to indications of a more pervasive shortage.

the residual cashflow will be high. This could mean that Parties may recover a 'lump' of the exposure to imbalance paid at SBP back from RCRC, reducing the overall cost of imbalance.

However, some of the PSMG noted that RCRC could be considered to be a side effect of the Settlement calculations. Furthermore, one which is unpredictable as even when the market is generally short, the relative sizes of the SSP and SBP could lead to the RCRC being a debit, rather than a credit. Therefore, the inability to predict the RCRC may mean that it has little influence on Parties incentives.

Thus, in summary:

YES:

- Marginal System Buy Price during times of demand control sends a stronger signal to Parties to be able to balance, in particular not go short and be exposed to SBP;

- Even where a Supplier is directly affected by the reduction of their metered demand under demand control (say in one GSP Group), their overall 'pre-demand control' imbalance position is unlikely to be changed significantly by demand control, as it is not applied nationally. Therefore a Supplier's imbalance position is unlikely (except in marginal cases) to be 'flipped' from short to long by the application of demand control; and

- Furthermore, a Supplier is unlikely to be aware in advance as to where and how demand control will be applied and thus is unlikely to take the risk of deliberately going short in the expectation that their (short) imbalance position is ameliorated by the demand control.

NO:

- Marginal System Buy Price during times of demand control will incentivise certain types of Generator to withhold generation from the market in case of trip;

- Marginal System Buy Price only during times of demand control means that the signal of system stress, and the associated incentive to balance comes too late for parties to react by contracting ahead of Gate Closure;

- Furthermore, lack of timely/ sufficiently strong pricing signals to Parties (i.e. well in advance of times of system stress) will not provide price signals sufficient to incentivise plant to return to service in time to meet the peak demand;

- Demand control that does not have a volume reflected in the NIV will result in an incorrect NIV and thus SBP derivation, and without it, NIV may be lessened / outweighed by Bids taken to match generation to demand following demand reduction. This may send the market long, further weakening the price signal / creating perverse incentives, as the System Sell Price becomes the main Energy Imbalance Price;

- Demand control that is not reflected in Suppliers imbalance positions may have the effect of sending short Suppliers long, and long Suppliers longer, thus exposing them to System Sell Price and so reducing the effect of a marginal SBP and incentives on Suppliers to balance ahead of Gate Closure; and

- A marginal imbalance price only in one direction will incentivise length, not balance (noting that even with an average price, the risk averse strategy is to go long to avoid exposure to System Buy Price, a marginal SBP may just have the effect of increasing that length).

4.1.3 Security of Supply

Does P135 improve security of supply? (noting that this issue is heavily related to the issue in respect of incentives to balance).

One PSMG member believed that, in order to understand the requirement for P135, and its impact on security of supply, the 'do nothing' situation needs to be understood. A number of PSMG members questioned why the Transmission Company is not buying reserve for this winter, as they felt that this would be a solution to the issue of pending demand control, within the current arrangements.

However, the Transmission Company assert that their role is as *residual* balancer of the system, and therefore it is not their role or responsibility to buy reserve to cover the (long term) imbalance position of Parties. The Transmission Company therefore believe that the most appropriate instrument to ensure that generation meets demand this winter (and coming periods of peak demand), and thus to assist in securing supply with respect to energy balancing, is appropriate pricing signals, thus ensuring that Parties can respond and cover their positions.

However, a PSMG member noted that the Transmission Company is unaware of the imbalance positions of BSC Parties, and that the role of the Transmission Company is perceived to be one of matching generation to demand in real time. Thus there is a perception that the Transmission Company procuring / obtaining greater levels of reserve would ameliorate the defect that P135 is seeking to address.

Thus this issue relates to the arguments made in 4.1.2 (as to the behaviour of Parties as a result of P135 price signals). If Parties are incentivised to forward contract to cover themselves at times of peak demand, thus making more generation available than is currently forecast, then it could be argued that security of supply is improved.

However, if the perceived risk of exposure to extreme marginal SBP during periods of demand control is too high, then generators may 'self insure' by withholding generation to insure against trip, thus exacerbating the shortage of generation, potentially degrading security of supply.

It was noted that at times of system stress plant may be more likely to trip. For example where the plant is responding to an Offer from the Transmission Company, close to maximum generation capacity with the plant under stress. If the plant trips, not only does the plant incur non delivery on the accepted Offer(s), but it will incur SBP for the full extent of the contracted volume that plant was generating to meet (all or part of). Where the SBP is high, this could have a major effect on the generator.

The perception of this risk may be factored by the generator into the associated Offer price at that time. However, the risk may be considered to be too great by some.

Other factors, discussed in 4.1.2, will also influence security of supply, namely the behaviour of Parties in responding to the incentives of P135.

In summary:

YES:

- Marginal System Buy Price during times of demand control sends a stronger signal to Parties to ensure that they are able to balance and avoid exposure to SBP. This promotes trading in the forwards markets which will ensure that there is sufficient generation available to meet demand, avoiding the requirement for demand control.

NO:

- The current trading arrangements are adequate in respect of security of supply;

- Marginal System Buy Price during times of demand control will incentivise Generators to withhold generation from the market in case of trip. This could have the effect of exacerbating the requirement for demand control; and

- Assuming withheld plant, a marginal System Buy Price could incentivise Generators that trip in a period near to / during demand control to breach the Grid Code by bringing on withheld plant to meet their contracted position in order not to be short. This may increase operational issues for NGC;

4.1.4 Other Incentives from P135

Are there any other incentives on Parties that P135 may introduce, and are these beneficial or detrimental, and is there a trade off in any direction?

The PSMG did not believe there to be any further incentives from P135 that have not already been explored (at 4.1.2).

Some PSMG members reiterated that there may be perverse incentives on Suppliers resulting from demand control, (depending on the effect of the volume reduction), as the removal of metered volume as a consequence of demand control may send a short Supplier long, and a long Supplier longer. Some PSMG members believed that this is a consequence of the (current) treatment of demand control, not the defect in P135.

4.1.5 P135 and the Likelihood of Demand Control

Will the implementation of P135 decrease the likelihood of demand control?

The PSMG noted that the perception of whether P135 is likely to decrease the likelihood of demand control depends on the perception as to whether the pricing signals are strong enough and timely enough to influence the long term behaviour of Parties (section 4.1.2).

In summary – yes; if Parties respond to P135 by forward contracting and incentivising the availability of more generation, and no; if Parties respond to P135 by withholding generation to self insure against the risk of exposure to a marginal System Buy Price if they trip during a demand control period.

4.1.6 P135 as the 'Correct' Mechanism

Is P135 the correct mechanism for dealing with the problem of potential generation shortage this (and coming) winter? Is there a different way of ensuring that generation matches demand?

Covered by previous arguments at 4.1.2 and 4.1.3, namely that Parties should forward contract in sufficient volumes to cover themselves at times of peak demand (implying more generation comes on in response) and price signals are the way to achieve the incentive to contract.

In summary – yes, if it is believed that P135 will send sufficiently strong price signals, in a sufficiently timely manner.

No, if it is believed that:

- There are other ways to ensure that generation meets demand;
- The price signals from P135 will be too weak and too late to respond by forward contracting;
- The incentives on Parties are such that they will not respond to P135 by forward contracting (for example the perception of risk).

4.1.7 Marginal vs Average Pricing

All Parties in imbalance in the same direction as the system energy imbalance (Net Imbalance Volume) are contributing to the cost of the marginal energy balancing action (as it is not possible / appropriate to determine any energy apportionment), and therefore the Energy Imbalance Price applied should be marginal. Is this true? Or is average pricing more appropriate for the electricity market?

This issue, again, depends on the perception of what the Energy Imbalance Prices are seeking to achieve and whether average or marginal prices send the most appropriate signals to the market. These arguments are set out in previous sections.

4.1.8 Potential for Market Manipulation

The perception could be that a marginal pricing methodology could be open to gaming (as was the perception under the Pool), and thus an average methodology would mitigate gaming. Is the potential for gaming present under P135?

The PSMG noted that the perception of gaming under the Pool arose as a consequence of Generators being *paid* the marginal price for generating. Under the current trading arrangements, Parties are paid as bid in the balancing mechanism and pay the marginal SBP, and therefore the opportunity for gaming is greatly diminished. The majority of the PSMG did not believe gaming to be an issue for P135.

4.1.9 Definition of a Marginal Price

Is the definition of a 'marginal' price in the Proposed Modification appropriate, or is a different definition (alternative Modification) more appropriate, and (if appropriate) does the benefit of getting P135 implemented for this winter outweigh any 'purist' arguments with respect to a marginal price?

The view of the PSMG is that the Proposed Modification is quite clear as to the marginal price, namely the most expensive Offer Acceptance (or part of) that remains in the NIV. The PSMG believe that this is an appropriate mechanism for setting the marginal price for P135, given the limited circumstance of application.

4.1.10 Credit Cover Arrangements

Is Credit Cover under P135 any more of an issue than under the current arrangements?

The PSMG noted that derivation of a marginal SBP during periods of demand control could introduce extreme Energy Imbalance Prices, consequentially increasing the risk of Parties going out of business (depending on the magnitude of the SBP and the size of the Energy Imbalance).

A number of the PSMG therefore raised concerns regarding the ability of the current Credit Cover arrangements to protect BSC Parties from a Party default in respect of potentially material imbalance liabilities, which may far exceed the Credit Cover lodged by that Party.

As an extreme example, a single site generator, contracted for 500 MWh, trips during a period of demand control where the SBP is extreme – say £10,000, the generator incurs a £5,000,000 imbalance charge for the Settlement Period, and receives no RCRC to offset this against, as the metered volume was zero for that Settlement Period.

However, the PSMG noted that this is effectively no different to now, in that high Energy Imbalance Prices could occur with a significant impact on certain Parties. However, the PSMG felt that the implementation of P135 had the potential to increase the frequency of an extreme SBP.

It was noted that ELEXON have a requirement to set an appropriate Credit Assessment Price (CAP) used in the calculation of Energy Indebtedness for Parties and that any change to the general trend of Energy Imbalance Prices will require amendment to the CAP. Normally assessment of the CAP is based on operational experience of the Energy Imbalance Prices.

The potential for Party default as a consequence of extreme Energy Imbalance Prices exist currently. Therefore the majority of the PSMG agreed that their concerns regarding the potential for BSC Parties to be exposed to the consequences of a Party default, in conjunction with the potential for P135 to exacerbate the circumstances under which this may occur, should be highlighted in this report. No further consideration of the implications of P135 on the Credit Cover arrangements will be undertaken as part of P135.

4.1.11 Risk Management: Insurance Products

Will the implementation of P135 increase the availability of new / existing insurance products for covering the risk of exposure to an extreme System Buy Price?

A number of PSMG members noted that, since P135 implements a marginal SBP during periods of demand control, there is currently no insurance product available to hedge / address this risk, as a consequence of the event occurring after Gate Closure. A number of the PSMG believe that this may prevent the emergence of appropriate insurance products. Conversely, the implementation of P135 could create a market suitable to the emergence of such insurance products.

5 STATEMENT OF URGENCY

The Modification Proposal states, as justification for the Proposal and for the request for Urgency, that:

"The calculation of the 'main' energy imbalance price, using a marginal methodology, will provide more appropriate price signals to incentivise Market Participants to contract forward in order to mitigate the risk of not being able to balance at Gate Closure. This is because marginal pricing provides an undiluted signal to the market as to the underlying cost of supplying the last increment of energy required to balance generation and demand. It is particularly important that imbalance prices provide appropriate

signals in times of energy shortage, as weakened signals could threaten security of supply. In this respect the modification proposal will better facilitate the applicable BSC objective (b) the efficient, economic and co-ordinated operation by the Transmission Company of the Transmission System.

Times of energy shortage are most likely to be seen over the winter period (starting post October clock change) as this is when the peak demand for electricity is greatest. As the defect to be addressed potentially affects security of supply during these times, Urgent status is requested for this Modification Proposal in order to implement the new methodology and provide more appropriate signals to the forward markets in the shortest possible timescale, lowering the risk that customer demand control measures will be required this winter.

The proposed change to the 'main' energy imbalance price calculation is limited to SBP during "Periods of Demand Reduction" only, so that implementation could potentially be achieved as soon as possible. It is anticipated that the risk of exposure to a marginal imbalance price during these periods should improve incentives to market participants to contract sufficiently so as to reduce the risk of such demand control measures becoming necessary".

6 RATIONALE FOR PANEL RECOMMENDATIONS

[*Pending deliberation - An analysis of and the views and rationale of the Panel as to whether (and, if so, to what extent) the Proposed Modification would better facilitate achievement of the Applicable BSC Objective(s). The rationale will refer to any analysis or impact assessment achieved within the timetable by ELEXON, the Transmission Company, BSC Agents, Core Industry Document owners etc. The details will be attached in annex 1 at the back of the report.*]

7 SUMMARY OF REPRESENTATIONS

[*Pending consultation*]

8 LEGAL TEXT TO GIVE EFFECT TO THE PROPOSED MODIFICATION

[*Pending drafting*]

ANNEX 1 – AVAILABLE SUPPORTING INFORMATION AND DATA

a Indicative Analysis of the Marginal Price (Proposer's Analysis)

Historical analysis of what the marginal Energy Imbalance Prices would have been had the Energy Imbalance Prices been marginal in the period April 2002 to June 2003, noting that this analysis is limited to historical data and is based on a simplified Energy Imbalance Price derivation. Therefore the resultant prices are intended to provide only an indication of the general differences between an average Energy Imbalance Price methodology and a marginal methodology.

This is provided as a spreadsheet attachment to this report, 'UMRP135 Annex 1a'

b Indicative Analysis of the Effect of Demand Control

Analysis of a simulation of demand control - 5% reduction in metered volumes, for the smallest and largest GSP Group for Settlement Period 35, 10 December 2002 (the Settlement Period with the peak demand last winter), to be sent out under separate cover (on completion).

ANNEX 2 - REPRESENTATIONS

[*Pending receipt*]

ANNEX 3 – TRANSMISSION COMPANY ANALYSIS

[*Pending receipt*]