



National Grid

AMENDMENT REPORT

CUSC Amendment Proposal CAP009

(Mandatory Frequency Response)

The purpose of this report is to assist the Authority in their decision of whether to implement Amendment Proposal CAP009

Amendment Ref	CAP009
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Name	Organisation
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1.0 SUMMARY AND RECOMMENDATIONS

Summary

- 1.1 All licensed generators are required to provide the service of mandatory frequency response as set out in CC.8.1 of the Grid Code. Prior to the introduction of NETA it was recognised that generators would incur imbalance charges under the BSC when mandatory frequency response was provided. A mechanism was introduced at NETA Go-live that was intended to compensate generators for this imbalance exposure due to providing response. This mechanism was implemented via the NETA Implementation Scheme in the Mandatory Services Agreements (MSA) and codified into the CUSC.
- 1.2 Under NETA, imbalance charges arise for a number of reasons, frequency response provision being just one of them. However, following the introduction of NETA, a number of providers raised concerns that the level of imbalance compensation as calculated by the mechanism did not adequately reflect the actual imbalance charges incurred as a result of providing frequency response. In order to address these concerns, the arrangements were reviewed by an informal, pre-CUSC Working Group and resulted in the submission of CUSC Amendment Proposal CAP001 by National Grid. The Amendment proposed changes to the calculation methodology in order to provide a better approximation of the assumed energy imbalance used to calculate compensation payments. CAP001 followed the Urgent Amendment Procedure and was approved by the Authority on 15 November 2001 with an effective implementation date of 21 September 2001.
- 1.3 Prior to Authority approval of CAP001, First Hydro Company submitted CUSC Amendment Proposal CAP009 that proposed further changes to the methodology used for calculating response volume. The Amendment was proposed by First Hydro as they believed that neither the mechanism put in place at NETA go-live nor that proposed in CAP001 accurately reflected the actual volume of mandatory frequency response delivered.
- 1.4 The frequency response tables contained in Ancillary Services Agreements contain tested values of response capability relative to a ramped change in frequency. First Hydro suggested that for certain types of plant (whose output continues to increase after the 10 second cut-off in Primary and High frequency response tables) the Primary, Secondary and High frequency table approach was inappropriate for calculating the volume of energy delivery over a period a time. The amendment therefore proposed to include an additional set of tables in the Mandatory Services Agreement that describes the response delivery for generators during normal 'frequency following'. This data

would then be used in the calculation of delivered frequency response volume.

- 1.5 The CUSC Amendments Panel, at their meeting on 9 November 2001, actioned the Balancing Services Standing Group (BSSG) to act as a Working Group (in accordance with CUSC 8.17.1) to consider Amendment Proposal CAP009. Terms of Reference were agreed for the BSSG (in respect of CAP009) and further to three meetings and associated debate and correspondence, it was the combined view of the BSSG that the current mechanism for frequency response imbalance compensation should be modified as follows:
- (i) The response energy calculations set out in the CUSC should refer to a new set of Power Delivery tables to be included in the Mandatory Services Agreements (MSAs);
 - (ii) When used in the imbalance compensation calculations, the values in the new Power Delivery tables should aim to mimic response energy delivered by the generator; and
 - (iii) The values in the Power Delivery tables should be submitted by service providers and bilaterally agreed with National Grid. Changes to these Power Delivery values can be requested by either party in line with existing arrangements.
- 1.6 The BSSG considered it was appropriate that CAP009 be initially implemented by defaulting numbers in the new Power Delivery tables from the existing matrix values. The BSSG also agreed that, should the Authority decide to approve CAP009, the determination should include appropriate wording such that National Grid is directed to make such amendments to the extant MSA's.
- 1.7 In the BSSG debate, National Grid and another member argued that implementation of CAP009 should only be approved if BSC Modification P34/P36 (or similar) were implemented. This was on the grounds that such a BSC Modification would provide the correct incentives on service providers to submit accurate values in their Power Delivery tables.
- 1.8 The Working Group Report was presented to the CUSC Amendments Panel on 22 February 2002. At the meeting, the Amendments Panel endorsed the Working Group Report and agreed that the specific terms of reference for the Group had been met. The Amendments Panel also agreed that the issue should proceed to wider consultation by National Grid (in accordance with CUSC 8.19.1)
- 1.9 As a result of the above, National Grid circulated a Consultation Document to CUSC Parties and Panel Members (and other interested Parties) on 8 March 2002. Comments were requested by no later than close of business, 5 April 2002. Following the consultation, and in

accordance with 8.20.3, a draft of this Amendment Report was circulated for comment on the 1 May 2002. Comments were requested by close of business, 9 May 2002.

- 1.10 This Amendment Report (Issue 1.0) was submitted to the Authority on 10 May 2002. The purpose of this document is to assist the Authority in their decision of whether to implement Amendment Proposal CAP009.

Recommendations

National Grid Recommendation

- 1.11 National Grid believes that Amendment Proposal CAP009 must only be implemented coincident with either BSC Modification P34 (or P71) or P36. The CAP009 proposal is based on the introduction of a new table of response values, which will be submitted by service providers and be untested. CAP009 alone will not provide the correct incentives on National Grid or service providers to agree accurate values. Service providers could be encouraged to overstate these values to increase compensation payments whilst National Grid could be encouraged to minimise payments. Submitted values will be difficult to validate and with these perverse incentives could lead to a number of disputes being raised.
- 1.12 However, National Grid believes that if CAP009 is implemented coincident with either BSC Modification P34 (or P71) or P36 then it would place the correct incentives on service providers to submit accurate values. This is because under P34 (or P71) or P36 the volume of energy delivered would be transferred from the service provider's energy account. If this volume is incorrect then the service provider could be exposed to imbalance.
- 1.13 It is National Grid's view that CAP009 implemented coincident with P34 (or P71) or P36 will better facilitate achievement of the Applicable CUSC Objectives set out in Condition C7F. This is on the grounds that CAP009 in conjunction with P34 (or P71) or P36 would more closely align payments made with the actual costs incurred because the delivered energy volume would be more accurately calculated. This in turn would ensure that the most economic sources of mandatory frequency response continue to make their full capability available for despatch by National Grid.

Working Group Recommendation

- 1.14 The BSSG (who were actioned to act as a Working Group to consider CAP009) believed that Amendment Proposal CAP009 better facilitated achievement of Applicable CUSC Objectives set out in Condition C7F. This was on the grounds that the Transmission

Licence obligates National Grid to purchase ancillary services from the most economical sources available to it having regard to the quantity and nature of the ancillary services. The proposed amendment would better facilitate the efficient discharge of this Licence Obligation by aligning more accurately payments made with costs incurred, as the volume would now be more accurately calculated. This in turn would ensure that the most economic sources of mandatory response continue to make their full capability available for despatch by National Grid.

- 1.15 National Grid and another member of the BSSG believed that Amendment Proposal CAP009 could only better facilitate achievement of the Applicable CUSC Objectives if implemented coincident with BSC Modification P34/P36. These members suggested without P34/P36 the incentives upon service providers and National Grid would not be correct (as described in paragraph 4.3.6 of the Working Group Report) and therefore compensation payments would not align with costs incurred by providers.

2.0 INTRODUCTION

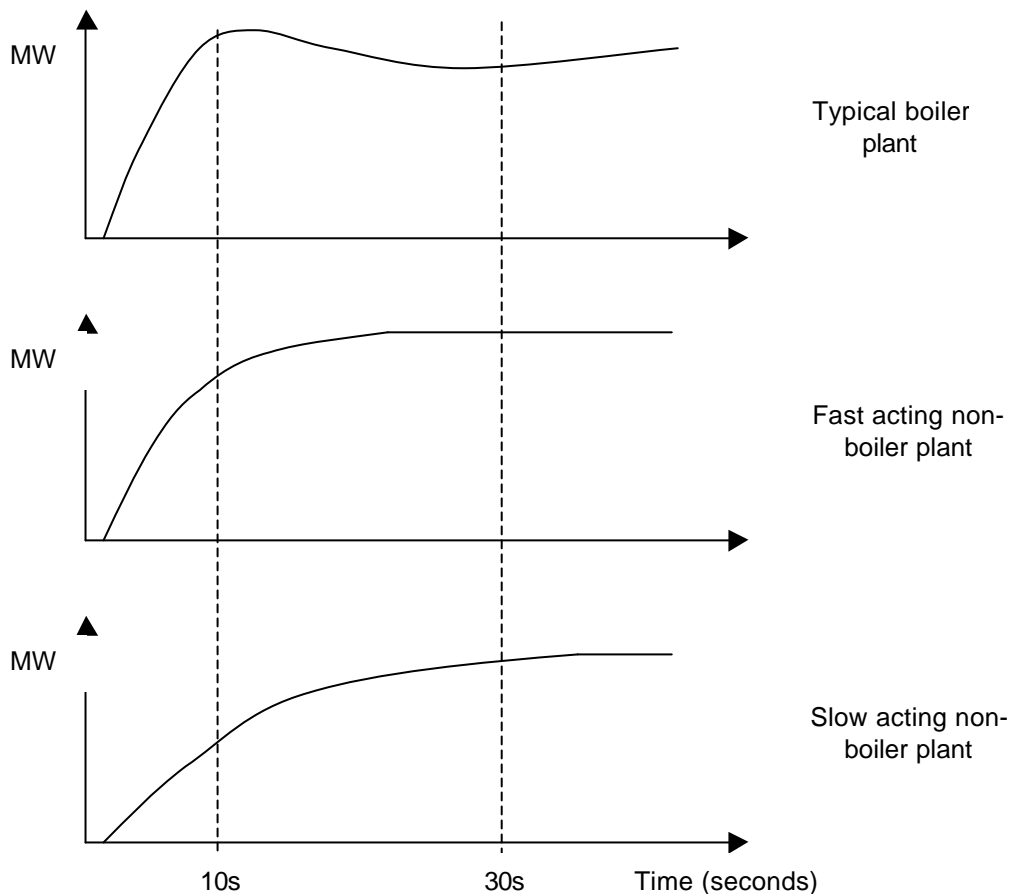
- 2.1 This Amendment Report has been issued by National Grid under the rules and procedures specified in the Connection and Use of System Code (CUSC) as designated by the Secretary of State. It addresses issues associated with the Mandatory Frequency Response provisions set out in Section 4 of the CUSC.
- 2.2 Further to the submission of Amendment Proposal CAP009 (see Annex 1), the consideration of the Amendment Proposal by the Balancing Services Standing Group (BSSG), and the subsequent wider industry consultation that was undertaken by National Grid, this document is addressed and furnished to the Gas and Electricity Markets Authority (“the Authority”) in order to assist them in their decision whether to implement Amendment Proposal CAP009. Such an amendment would result in changes to Section 4 of the CUSC (as detailed in Annex 2).
- 2.3 This document outlines the nature of the CUSC changes that are proposed for implementation. It indicates any relevant issues that arose in the BSSG discussions and also incorporates National Grid’s and the Amendments Panel’s recommendations to the Authority concerning the Amendment. Copies of all representations received in response to the consultation have been included. Furthermore, a ‘summary’ of the representations received is also provided.
- 2.4 This Amendment Report has been prepared in accordance with the terms of the CUSC. An electronic copy can be found on the National Grid website, at <http://www.nationalgridinfo.co.uk/cusc>.

3.0 THE PROPOSED AMENDMENT PROPOSAL

- 3.1 The current methodology for calculating the actual volume of energy delivered by a generator when it is providing mandatory frequency response is based on the Primary, Secondary and High frequency matrix values contained in the Mandatory Services Agreements (MSAs). The matrix values are determined by ‘Compliance’ testing, witnessed by National Grid in accordance with the Grid Code. These values are based on the response capability of generating units at a period of 10 seconds and 30 seconds after a low frequency incident (referred to as Primary and Secondary Response) and 10 seconds after a high frequency incident (referred to simply as High Frequency Response).
- 3.2 The compliance tests and resultant matrix tables included in the MSAs were devised to enable National Grid to determine the total quantity of frequency response that was needed on the system at any one time. This enables National Grid to instruct enough frequency response to cater for the instantaneous loss of the largest infeed of

generation or demand i.e. to contain and recover large frequency deviations.

- 3.3 It is a Grid Code requirement that all generation is capable of operating in frequency sensitive mode. However, the output characteristics from different types of generating plant can vary quite significantly according to its primary fuel type and control system design. Typically, conventional 'boiler-plant' has a capability for storing significant quantities of energy that can be delivered in a short duration (i.e. primary response from coal or oil fired generating plant). However, in contrast, delivery from Hydro and CCGT generating plant is dependent on the rate of increase of primary fuel flow, meaning that for 'non-boiler-plant', any response energy is typically delivered in a more gradual manner. These typical response delivery characteristics are shown graphically below:



- 3.4 This means that the use of primary and secondary response values to calculate the response energy delivered over a period of time can be inappropriate for certain plant types. From the graphs above it can be seen that the Primary response value can be significantly lower than the steady state response output for slow acting non-boiler plant.

- 3.5 The matrix tables were not designed for the purpose of accurately calculating the volume of response energy produced by a generator over a period of time when it is operating in frequency sensitive mode and responding continuously to minor frequency fluctuations. To overcome this issue it is proposed that an additional set of Power Delivery tables are contained in the MSA and used in the imbalance compensation calculations. These values should aim to mimic the energy delivered by the generating unit when following frequency deviations (Annex 3 illustrates the new Power Delivery tables). The mechanism will continue to use the per-minute, dual linear interpolation methodology as introduced by CAP001.
- 3.6 The values are to be proposed by the service provider and agreed with National Grid. The CAP009 methodology also allows for the service provider or National Grid to propose revisions to the matrix values, in light of experience, in accordance with the existing amendment provisions set out in the CUSC.

4.0 ASSESSMENT AGAINST APPLICABLE CUSC OBJECTIVES

- 4.1 The applicable CUSC Objectives are set out in paragraph 1 of Condition C7F of the Transmission Licence. CUSC amendments should better facilitate achievement of the Applicable CUSC Objectives. These can be summarised as follows:
- (a) the efficient discharge by NGC of the obligations imposed on it by the Act and the Transmission Licence; and
 - (b) facilitating effective competition in the generation and supply of electricity, and (so far as consistent therewith) facilitating such competition in the sale, distribution and purchase of electricity.
- 4.2 National Grid believes that Amendment Proposal CAP009 must only be implemented coincident with either BSC Modification P34 (or P71) or P36. The CAP009 proposal is based on the introduction of a new table of response values, which will be submitted by service providers and be untested. CAP009 alone will not provide the correct incentives on National Grid or service providers to agree accurate values. Service providers could be encouraged to overstate these values to increase compensation payments whilst National Grid could be encouraged to minimise payments. Submitted values will be difficult to validate and with these perverse incentives could lead to a number of disputes being raised.
- 4.3 However, National Grid believes that if CAP009 is implemented coincident with either BSC Modification P34 (or P71) or P36 then it would place the correct incentives on service providers to submit

accurate values. This is because under P34 (or P71) or P36 the volume of energy delivered would be transferred from the service provider's energy account. If this volume is incorrect then the service provider could be exposed to imbalance.

- 4.4 It is National Grid's view that CAP009 implemented coincident with P34 (or P71) or P36 will better facilitate achievement of the Applicable CUSC Objectives set out in Condition C7F. This is on the grounds that CAP009 in conjunction with P34 (or P71) or P36 would more closely align payments made with the actual costs incurred because the delivered energy volume would be more accurately calculated. This in turn would ensure that the most economic sources of mandatory frequency response continue to make their full capability available for despatch by National Grid.

5.0 PROPOSED IMPLEMENTATION AND TIME-SCALES

- 5.1 As discussed in paragraph 4.3.3 of the Consultation Document, CAP009, if implemented, will require a change to the bilateral MSA's between National Grid and each service provider. In view of this, revised MSA's need to be drafted prior to CAP009 becoming effective.
- 5.2 As discussed in paragraph 4.3.4 of the Consultation Document, the BSSG considered it was appropriate that CAP009 be implemented by defaulting numbers in the new Power Delivery tables from the existing matrix values. The BSSG also agreed that, should the Authority decide to approve CAP009, the determination should include appropriate wording such that National Grid is directed to make such amendments to the extant MSA's. Service providers can then request changes to these tables (should they wish to) in line with the existing provisions of the CUSC following implementation of CAP009. These changes would then be bilaterally agreed between National Grid and the service provider. National Grid agreed with this proposed way forward.
- 5.3 The BSSG also agreed that, should the Authority decide to approve CAP009, the effective implementation date should allow a short period of time to allow National Grid to draft revised MSAs. National Grid indicated that this period should be no less than 10 business days.
- 5.4 It is therefore recommended that if CAP009 is approved, the Amendment Proposal should be implemented with effect from 10 business days after the Authority's decision.

6.0 IMPACT ON CUSC

- 6.1 The proposed Amendment Proposal will require the modification of Section 4 of the CUSC. The relevant legal drafting is contained in Annex 2 of this Amendment Report.

7.0 IMPACT ON CORE INDUSTRY DOCUMENTS

- 7.1 Amendment Proposal CAP009 if implemented will impact on Ancillary Services Agreements (the Mandatory Services Agreement is listed as a Core Industry Document). This impact is described paragraphs 4.3.3, 5.1 and 6.1 of the Working Group Report. Sub-Clause 7.2 of the MSA requires that National Grid and the User shall effect any amendment required to be made to the MSA as a result of a change to the CUSC. Should the Authority decide to approve CAP009, the determination should include appropriate wording such that National Grid is directed to make such amendments to the extant MSA's.
- 7.2 It is envisaged that the Amendment Proposal will have no impact on any other key industry documentation.

Changes required & Timescales to be followed to give effect to the Proposed Amendment

- 7.3 See comments made in Section 5.0 above.

Changes or Developments Required to Central Computer Systems & Timescales Involved

- 7.4 In the event CAP009 is implemented, National Grid will need to make modifications to its Balancing Services Settlement Systems. The lead-time required to make the changes is estimated to be some 4 months.

Estimation of Costs

- 7.5 It is estimated that the above changes could be implemented at a cost of some £65K.

8.0 IMPACT ON CUSC PARTIES

- 8.1 If Amendment Proposal CAP009 is implemented, it is envisaged that service providers would need to make changes to their validation systems.

9.0 ALTERNATIVE AMENDMENTS

Description of Alternative Amendment

- 9.1 As outlined in Paragraph 4.2 of the consultation document, in accordance with the Terms of Reference, the BSSG also considered whether any Alternatives to CAP009 existed. Although no formal Alternative Amendments were put forward by the BSSG, National Grid did table a CAP009 'add-on' proposal that built on the work carried out in respect of CAP001 and CAP009. This proposal was termed the 'Metered Volume Approach'.
- 9.2 In spite of the fact that the Metered Volume Approach was not put forward as a formal Alternative, the BSSG did agree that the matter should be highlighted to the Amendments Panel. Following this, the Amendments Panel also requested that the options discussed and debated within the BSSG should be documented in the Consultation Document, thereby providing opportunity for the industry to comment on them.
- 9.3 In view of the above, National Grid included in the consultation document a description of the Metered Volume Approach together with any relevant discussion and debate that had taken place in the BSSG regarding this matter. However, as the Metered Volume Approach was not considered a formal Alternative, it is not considered further in this section of the Amendment Report.

Assessment against Applicable CUSC Objectives

- 9.4 Not applicable as no formal Alternatives have been offered or considered.

10.0 SUMMARY OF VIEWS AND REPRESENTATIONS

Amendments Panel Members Views

- 10.1 On the basis of the consultation and assessment undertaken in respect of CUSC Amendment Proposal CAP009, it was the opinion of those CUSC Amendments Panel Members expressing a view, that the CAP009 Amendment Proposal should be implemented to the time-scales as recommended. The CUSC Amendments Panel members noted National Grid's views that CAP009 should only be implemented coincident with either BSC Modifications P34 (or P71) or P36. However, the majority of CUSC Amendments Panel Members considered that CAP009 should be implemented without the need of any such coincident approval.

Working Group Members

- 10.2 The BSSG (who were actioned to act as a Working Group to consider CAP009) believed that Amendment Proposal CAP009 better facilitated achievement of Applicable CUSC Objectives set out in Condition C7F. This was on the grounds that the Transmission Licence obligates National Grid to purchase ancillary services from the most economical sources available to it having regard to the quantity and nature of the ancillary services. The proposed amendment would better facilitate the efficient discharge of this Licence Obligation by aligning more accurately payments made with costs incurred, as the volume would now be more accurately calculated. This in turn would ensure that the most economic sources of mandatory response continue to make their full capability available for despatch by National Grid.
- 10.3 National Grid and another member of the BSSG believed that Amendment Proposal CAP009 could only better facilitate achievement of the Applicable CUSC Objectives if implemented coincident with BSC Modification P34/P36. These members suggested without P34/P36 the incentives upon service providers and National Grid would not be correct (as described in paragraph 4.3.6 of the Working Group Report) and therefore compensation payments would not align with costs incurred by providers.

Core Industry Document Owners

- 10.4 No views have been received from Core Industry Document Owners.

Respondents

- 10.5 National Grid received a total of 9 responses to the consultation on CUSC Amendment CAP009. In carrying out this exercise, National Grid highlighted three particular areas where views were especially invited. These were:
- Whether CAP009 does provide an improved and more accurate mechanism for approximating the assumed Frequency Response delivery of a generator and thereby better facilitating the applicable CUSC objectives;
 - Whether CAP009 should only be implemented coincident with BSC Modification P34 (or P71) or P36 as recommended by National Grid; and
 - National Grid's proposed alternative to adopt a "metered volume approach" in conjunction with the CAP009 methodology.
- 10.6 Of the nine responses received:
- all 9 respondents outlined their support for CAP009 agreeing that it the proposed Amendment did provide an improved and

- more accurate mechanism for approximating assumed Frequency Response delivery;
- 7 respondents believed that the implementation of CAP009 should not be dependent on the implementation of P34/P71/P36 (the other 2 respondents made no arguments for or against this); and
 - no respondents offered any clear support to adopt a 'metered volume approach' in conjunction with the CAP009 methodology.

10.7 The following table provides an overview of the representations received. Copies of the representations are attached as Annex 4.

Reference	Company Name	Supportive	Summary of Comments
CAP009-CR-01	Edison Mission Energy	Yes	Supportive of the Proposal. Believes the amendment should be implemented irrespective of P34/P71/P36 or CAP10. Sympathy for the additional National Grid add-on and suggests if National Grid believe it is worthy of consideration, then they are free to propose a subsequent modification.
CAP009-CR-01	TXU Companies	Yes	Supportive of the Proposal. Believes the amendment should be implemented unconditionally. Happy for National Grid to propose its add-on proposal as a separate modification.
CAP009-CR-03	ScottishPower Energy Retail Limited and Scottish Power Generation Limited	Yes	Supportive of the Proposal. Believes the amendment should be implemented without reference to P34 (or P71) or P36.
CAP009-CR-04	PowerGen UK	Yes	Supportive of the Proposal. Do not see a need to delay CAP009 such that it should only be implemented coincident with P34 or P36. Does not support the metered volume approach. Preferred minimum choice would be CAP009 integrated with P36 implementation.
CAP009-CR-05	British Gas	Yes	Will improve on the current baseline. Note proposal is only required if P34, P34A, P36, P36A or P71 is approved and note their support for P36A. Consider it disappointing that CAP009 could not stand alone.
CAP009-CR-06	British Energy	Yes	Believes CAP009 does provide an improved mechanism, particularly for some types of plant.

			<p>Do not think it necessary to coincide the introduction of CAP009 with certain BSC modifications.</p> <p>Acknowledge National Grid's proposed alternative but do not support it at this stage.</p>
CAP009-CR-07	Deeside Power	Yes	<p>Supportive of the CAP009 methodology.</p> <p>The process for agreeing the data seems vague. If CAP009 has a failure, it is this.</p>
CAP009-CR-08	Innogy plc, npower Limited, Innogy Cogen Trading Limited, npower Direct Limited, npower Northern Limited, npower Yorkshire Limited.	Yes	<p>Supports principles of CAP009 as set out in original proposal. However, until the pricing issue is solved, only a partial improvement.</p> <p>Note National Grid concerns, however, if implemented coincident with P34, P34A, P36, P36 A or P71, then incentive is on provider to ensure data is accurate.</p> <p>An alternative CAP009 legal drafting should be developed if CAP009 is approved at the same time or after any of the proposed BSC modifications to allow a provider to request changes that are not subject to National Grid approval.</p> <p>Legal drafting seems flawed.</p> <p>Metered Volume Approach is not appropriate to be considered as an Alternative.</p>

National Grid's Views

- 10.8 National Grid's recommendation regarding this Amendment Proposal is outlined in paragraphs 4.2, 4.3 and 4.4 above.
- 10.9 National Grid has reviewed responses to the consultation on CAP009 and notes the general support for the implementation of CAP009 independent of the implementation of P34/P71/P36. Although National Grid is supportive of the proposal it remains firmly of the belief that it should only be implemented coincident with the implementation of P34/P71/P36.
- 10.10 National Grid believes that CAP009 does not place the correct incentives on either service providers or National Grid to agree accurate values. National Grid notes the comments from some respondents who believe that these values can be easily validated. National Grid believes that it will be difficult to validate the values contained in the new Power Delivery tables because these values will not be based on tested data.
- 10.11 National Grid notes the comments regarding its proposed alternative to adopt a 'metered volume approach' and will reconsider it's position

following Ofgem's determination on CAP009 and other associated BSC and CUSC modifications.

- 10.12 With regards to the comments in CAP009-CR-08 on legal drafting, National Grid's view is that the proposed legal text clearly reflects the CAP009 arrangements and as such, National Grid believes the assertion that the values contained in the new Frequency Response Power Delivery tables are not 'Response data' is invalid. The values are indeed 'not restricted to the temporal definitions of Primary, Secondary and High Frequency Response'. However, because these values reflect the power delivered whilst providing Primary, Secondary and High Frequency Response it does not appear unreasonable to refer to these values as 'Response data'.

Other unresolved comments

- 10.13 Following the publication of the draft of this Amendment Report, Innogy have responded and invited National Grid to review its comments. The proposed legal text uses the terms 'Levels of Response', 'figures for Response' and 'operating capabilities' to describe the values contained in the new Frequency Response Power Delivery tables. Innogy's concern is that these terms are not appropriate. National Grid remains of the view that the proposed text clearly reflects the CAP009 arrangements. Furthermore, National Grid feel that if Innogy believe the proposed text is not appropriate then they should raise a further 'house keeping' modification.
- 10.14 The representation that was received following circulation of the draft Amendment Report is attached in Annex 5 of this report.

Annex 1 – CUSC Amendment Proposal

Amendment Proposal Form

Those wishing to propose an Amendment to the CUSC should do so by filling in this "Amendment Proposal Form" that is based on the provisions contained in Section 8.15 of the CUSC. The form seeks to ascertain details about the Amendment Proposal so that the CUSC Panel can determine more clearly whether the proposal should be considered by a Working Group or go straight to wider National Grid Consultation.

The Panel Secretary will check that the form has been completed, in accordance with the requirements of the CUSC, prior to submitting it to the Panel. If the Panel Secretary accepts the Amendment Proposal form as complete, then he will write back to the Proposer informing him of the reference number for the Amendment Proposal and the date on which the Proposal will be considered by the Panel. If, in the opinion of the Panel Secretary, the form fails to provide the information required in the CUSC, then he may reject the Proposal. The Panel Secretary will inform the Proposer of the rejection and report the matter to the Panel at their next meeting. The Panel can reverse the Panel Secretary's decision and if this happens the Proposer will be informed by the Panel Secretary.

The completed form should be returned to:

Mark Cox
Panel Secretary
Commercial Development
National Grid Company plc
National Grid House
Kirby Corner Road
Coventry, CV4 8JY

Or via e-mail to:

CUSC.Team@uk.ngrid.com

(Participants submitting this form by email will need to send a statement to the effect that the proposer acknowledges that on acceptance of the proposal for consideration by the Amendments Panel, a proposer which is not a CUSC Party shall grant a licence in accordance with Paragraph 8.15.7 of the CUSC. A Proposer which is a CUSC Party shall be deemed to have granted this Licence.)

Proposers Name:

(Name of party making the proposal. An Amendment Proposal may be made by a CUSC Party, a BSC Party or by "energywatch")

First Hydro Company

Proposers Representative:

(The name of the person representing the Proposer (and his alternate) for the purposes of the Amendment Process)

Simon Lord (Alternate - Libby Glazebrook)

Organisations Name and Address:

(Organisation on whose behalf the Amendment is proposed)

First Hydro Company
Bala House
St Davids Park
Deeside
Flintshire
CH5 3XJ

Capacity in which the Organisation Proposes to make an Amendment:

(i.e. CUSC Party, BSC Party or "energywatch")

CUSC Party

Description of the issue or defect which the proposed Amendment seeks to address:

(This should be in reasonable, but not excessive detail)

Neither the current mechanism nor that proposed in CAP001 accurately reflect imbalance volume that occurs as a result of the provision of mandatory frequency response.

For certain types of plant the output of the plant continues to increase after the 10s cut off in the Primary and High frequency response tables. It is these tables that this proposal seeks to modify by cutting the link between the Primary and High frequency response tables and the payment volume. A new set of tables would be produced that would more accurately reflect the energy produced when providing mandatory frequency response.

Description of the proposed Amendment and of its nature and purpose:

(This should be in reasonable but not excessive detail)

Two methods could be used to determine the volume:

- 1) The characteristic curve of the BMU could be used that tracks output with changing frequency.
- 2) An approximation for 1) could be used that produces for each BMU a new pair of tables (for each mode of operation) based on the format of the High Frequency Response table. These tables (High Frequency Volume and Low Frequency Volume) would initially contain the same data as the current Primary and High Frequency Response tables.

The tables would then be re-populated with data based on the stable output that is achieved by the BM unit following a change in frequency. The effect of this would be to move the 10-second cut off for Primary and High Frequency Response to a different time, based on the time to achieve stable output.

It is suggested that method 2) could be used as a step towards the ideal solution detailed in 1).

An indication of those parts of the CUSC which would require amendment in order to give effect to (or would otherwise be affected by) the proposed amendment and an indication of the nature of those amendments or effects.

(This should be given where possible)

Section 4.1.3 – calculation of volume's formulae. Amendment required to reflect revised tables that will be used for calculating the volumes for delivery of energy as outlined above.

Modification of the CUSC Mandatory Services agreement to reflect the inclusion of High Frequency Volume and Low Frequency Volume tables.

Reasons why the Proposer believes that the proposed Amendment would better facilitate achievement of the Applicable CUSC Objectives as compared with the current version of the CUSC with background information in support thereof.

The Transmission Licence obligates National Grid to purchase ancillary services from the most economical sources available to it having regard to the quantity and nature of the ancillary services.

This proposed amendment would better facilitate the efficient discharge of this licence obligation by aligning more accurately payments made with costs incurred, as the volume would now be more accurately calculated.

This in turn will ensure that the most economic sources of mandatory frequency response continue to make their full capability available for despatch by National Grid.

An indication of the impact of the proposed Amendment on Core Industry Documents.

(This should be given where possible)

No impact on BSC, Grid Code or any other core industry document is foreseen.

An indication of the impact of the proposed Amendment on relevant computer systems and processes used by CUSC Parties.

(This should be given where possible)

The proposed amendment will require modification to the payment calculation system (GENRES) used by National Grid to calculate the Frequency Response payments.

A statement to the effect that the Proposer acknowledges that on acceptance of the proposal for consideration by the Amendments Panel a Proposer shall grant a Licence in accordance with Clause 8.15.7 of the CUSC.

(A signature to this effect must be given by a proposer which is not a CUSC Party)

Annex 2 – Proposed Text to Modify CUSC

LEGAL TEXT TO ACCOMPANY CAP009

4.1.3 Frequency Response

Introduction

- 4.1.3.1 Each applicable **User** is obliged to provide (for the avoidance of doubt, as determined by any direction in force from time to time and issued by the **Authority** relieving that **User** from the obligation under its **Licence** to comply with such part or parts of the **Grid Code** or any **Distribution Code** or, in the case of **NGC**, the **Transmission Licence**, as may be specified in such direction) the **Mandatory Ancillary Service of Frequency Response** referred to in **Grid Code CC 8.1** by means of **Frequency** sensitive generation in accordance with the terms of this Paragraph 4.1.3 and a **Mandatory Services Agreement** but subject always to and in accordance with the relevant part or parts of the **Grid Code** applicable thereto.

Definitions

- 4.1.3.2 For the purposes of this Paragraph 4.1.3:
- (i) “**Frequency Response Service**” means the **Mandatory Ancillary Service of Frequency Response** and any **Commercial Ancillary Service of Frequency Response** as may be agreed to be provided by a **User** from time to time;
 - (ii) the **Mandatory Ancillary Service of Frequency Response** shall constitute operation of a **BM Unit** in accordance with **Grid Code CC 6.3.7** and **BC 3.5** (with the exception of **BC 3.5.2**), including, without limitation, under normal operating conditions with the speed governor set so that it operates with an overall speed droop of between 3% and 5% so as to provide the applicable levels of **Response** referred to in Paragraph 4.1.3.7;
 - (iii) the term "instruction" means a communication whether by telephone or automatic logging device or facsimile from **NGC** to the **User** instructing a **User** in accordance with **Grid Code BC 2.8** and this Paragraph 4.1.3 to provide any **Frequency Response Service**, and derivations of the term shall be construed accordingly;
 - (iv) the amendment of an existing instruction shall be deemed to be a new instruction;
 - (v) an instruction will prevail until either it is countermanded by **NGC** or until the **BM Unit** to which the instruction relates is **De-synchronised** (whichever is first to occur).

NGC’s Instructions to provide Mode A Frequency Response

- 4.1.3.3 For the purposes of instructions and calculation of payments, the **Mandatory Ancillary Service of Frequency Response**

as described in this Paragraph 4.1.3 shall be referred to as "**Mode A Frequency Response**".

4.1.3.4 **NGC** may at any time instruct a **User** to operate any one or more **BM Unit(s)** so as to provide the following components of **Mode A Frequency Response** :-

- (a) **Primary Response** ;
- (b) **Secondary Response** ;
- (c) **High Frequency Response** ,

in any of the permissible combinations set out in the relevant table in the **Mandatory Services Agreement**.

4.1.3.5 **NGC** shall not instruct a **User** to provide **Mode A Frequency Response** and any **Commercial Ancillary Service of Frequency Response** simultaneously.

4.1.3.6 In the event that any instruction to provide **Frequency Response** does not state whether the instruction is to provide **Mode A Frequency Response** or any **Commercial Ancillary Service of Frequency Response** , such instruction shall be deemed to be an instruction to provide **Mode A Frequency Response** .

User's Obligation to Provide Response

4.1.3.7 When a **User** is instructed in accordance with Paragraphs 4.1.3.4 and/or 4.1.3.6 to operate a **BM Unit** so as to provide any component(s) of **Mode A Frequency Response** , that **User** shall operate that **BM Unit** so as to provide, for any **Frequency Deviation** and at any level of **De-Load**, at least the amount of **Primary Response** and/or **Secondary Response** and/or **High Frequency Response** set out respectively in the relevant Frequency Response Capability Data tables in the **Mandatory Services Agreement** (as such tables are to be interpreted in accordance with Paragraph 4.1.3.11).

Calculation of Payments

4.1.3.8 The payments to be made by **NGC** to a **User** hereunder in respect of the provision of any **Mode A Frequency Response** from a **BM Unit** shall be comprised of **Holding Payments** and **Imbalance Compensation Payments** and shall be determined in accordance with the formulae in, respectively, Paragraphs 4.1.3.9 and 4.1.3.9A and in accordance with Paragraphs 4.1.3.10 to 4.1.3.12 inclusive.

Payment Formulae - Holding Payments

4.1.3.9 The **Holding Payments** for a **BM Unit** to be made by **NGC** to a **User** referred to in Paragraph 4.1.3.8 shall be calculated in accordance with the following formula:-

$$HP_M = P_M + H_M + S_M$$

Where:

HP_M is the **Holding Payment** to be made to the **User** calculated in £ per minute.

P_M is the payment per minute to be made by **NGC** to the **User** for the **Ancillary Service of Primary Response** provided by the **User** from the **BM Unit** concerned pursuant to an instruction from **NGC** to provide **Mode A Frequency Response**, and is calculated as follows:-

$$P_M = (P_{PR} \times P_{MW} (1 - SF_P)) \times K_T \times K_{GRC} \times \left[\frac{1}{60} \right]$$

H_M is the payment per minute to be made by **NGC** to the **User** for the **Ancillary Service of High Frequency Response** provided by the **User** from the **BM Unit** concerned pursuant to an instruction from **NGC** to provide **Mode A Frequency Response**, and is calculated as follows:-

$$H_M = (H_{PR} \times H_{MW} (1 - SF_H)) \times K_T \times K_{GRC} \times \left[\frac{1}{60} \right]$$

S_M is the payment per minute to be made by **NGC** to the **User** for the **Ancillary Service of Secondary Response** provided by the **User** from the **BM Unit** concerned pursuant to an instruction from **NGC** to provide **Mode A Frequency Response**, and is calculated as follows:-

$$S_M = (S_{PR} \times S_{MW} (1 - SF_S)) \times K_T \times K_{GRC} \times \left[\frac{1}{60} \right]$$

In this Paragraph 4.1.3.9, the following terms shall have the following meanings:-

- P_{PR} = the appropriate payment rate for **Primary Response** set out in the **Mandatory Services Agreement**;
- P_{MW} = the **Primary Response** capability (expressed in MW) for the level of **De-Load** of the **BM Unit** concerned at the end of the minute in which the service is provided;
- H_{PR} = the appropriate payment rate for **High Frequency Response** set out in the **Mandatory Services Agreement**;
- H_{MW} = the **High Frequency Response** capability (expressed in MW) for the level of **De-Load** of the **BM Unit** concerned at the end of the minute in which the service is provided;
- S_{PR} = the appropriate payment rate for **Secondary Response** set out in the **Mandatory Services Agreement**;
- S_{MW} = the **Secondary Response** capability (expressed in MW) for the level of **De-Load** of the **BM Unit**

- concerned at the end of the minute in which the service is provided;
- $K_T =$ the ambient temperature adjustment factor. **NGC** and each **User** acknowledge and agree, as between **NGC** and that **User**, that K_T shall be deemed to be 1 for the purposes of calculating payments until such time as they agree upon an appropriate formula and a suitable method of measuring the ambient temperature on a minute by minute basis which shall be set out in the **Mandatory Services Agreement**. In the event that any agreed method of measuring the ambient temperature on a minute by minute basis should fail following its implementation, then **NGC** and each **User** acknowledge and agree, as between **NGC** and that **User**, that K_T shall be deemed to be 1 until the method of measuring the ambient temperature on a minute by minute basis is restored;
- $K_{GRC} =$ where the **BM Unit** is a **CCGT Module**, the plant configuration adjustment factor set out in the relevant table in the **Mandatory Services Agreement** for the configuration of the **BM Unit** concerned at the time at which the capability to provide the service is carried, otherwise 1;
- $SF_P =$ 0, subject to Paragraph 4.1.3.25 (e);
- $SF_S =$ 0, subject to Paragraph 4.1.3.25 (e);
- $SF_H =$ 0, subject to Paragraph 4.1.3.25 (e).

- 4.1.3.9A *Payment Formulae - Imbalance Compensation Payment*
- (a) The **Imbalance Compensation Payments** for **BM Unit i** in **Settlement Period j** to be made by **NGC** to a **User** referred to in Paragraph 4.1.3.8 shall be comprised of an **Imbalance Energy Payment** and a **Non-Delivery Payment**, and shall be calculated in accordance with the following formulae:-

$$ICP_{ij} = IEP_{ij} + RNDC_{ij}$$

But so that where ICP_{ij} is negative such amount shall be paid by the **User** to **NGC**.

Where:

ICP_{ij} is the **Imbalance Compensation Payment** to be made to or, as the case may be, by the **User**;

IEP_{ij} is the **Imbalance Energy Payment** for **BM Unit i**, in **Settlement Period j**, calculated in accordance with Paragraph 4.1.3.9A (b) below; and

$RNDC_{ij}$ is the **Non-Delivery Payment** for **BM Unit i**, in **Settlement Period j**, calculated in accordance with Paragraph 4.1.3.9A (c) below.

- (b) The **Imbalance Energy Payment** (IEP_{ij}) shall be calculated as follows:-

$$IEP_{ij} = LFIEP_{ij} + HFIEP_{ij}$$

Where:

LFIEP_{ij} is the low frequency response imbalance energy payment for **BM Unit i**, in **Settlement Period j**, and HFIEP_{ij} is the high frequency response imbalance energy payment for **BM Unit i**, in **Settlement Period j**, and are calculated as follows:-

if $IE_{ij} > 0$, then

$$LFIEP_{ij} = |IE_{ij}| * (\text{reference price} - SSP_j)$$

and

$$HFIEP_{ij} = 0$$

otherwise

$$LFIEP_{ij} = 0$$

and

$$HFIEP_{ij} = |IE_{ij}| * (SBP_j - \text{reference price})$$

Where IE_{ij} is the expected imbalance energy for **BM Unit i** in **Settlement Period j** calculated as follows:-

$$IE_{ij} = \int_0^{SPD} FR_{ij}(t) dt$$

Where:

$\int_0^{SPD} dt$ is the integral at times t, over the **Settlement Period** duration.

FR_{ij}(t) is the expected change in **Active Power** output for **BM Unit i**, at time t (resolved to the nearest integer minute), expressed in MW derived from the relevant Frequency Response Power Delivery Data table in the **Mandatory Services Agreement** (as such table is interpreted in accordance with Paragraph 4.1.3.11) by reference to the level of **De-Load** of the **BM Unit** concerned at the end of the minute and the mean **Frequency Deviation** over that minute when that **BM Unit** is providing **Mode A Frequency Response** and zero at all other times.

For this purpose:-

- (i) for a positive **Frequency Deviation** the expected change in **Active Power** output of **BM Unit i** shall be derived from the table entitled "High

Frequency Response Power Delivery – Mode A” set out in the **Mandatory Services Agreement** and shall be signed negative; and

(ii) for a negative **Frequency Deviation**, the expected change in **Active Power** output of **BM Unit i** shall be derived from:

A) the table entitled “Primary Response Power Delivery – Mode A” in the case of a **BM Unit** being instructed to deliver **Primary Response** without **Secondary Response** ;
or

B) the table entitled “Primary & Secondary Response Power Delivery – Mode A” in the case of a **BM Unit** being instructed to deliver **Primary Response** and **Secondary Response** ,

in each case set out in the **Mandatory Services Agreement** and shall be signed positive.

$$\text{reference price} = \frac{(\overline{SBP}_{month} + \overline{SSP}_{month})}{2}$$

Where:

\overline{SBP}_{month} and \overline{SSP}_{month} are the calculated time weighted average of SBP_j and SSP_j respectively (each as defined in the **Balancing and Settlement Code**) for the preceding calendar month in which the service is provided.

(c) The **Non-Delivery Payment** ($RNDC_{ij}$) shall be calculated as follows:-

$$RNDC_{ij} = CND_{ij} - CNDR_{ij}$$

Where:

$CNDR_{ij}$ is a quantity referred to in this Paragraph 4.1.3.9A (c) as the **BM Unit Period Non-Delivery Charge (Revised)** determined as follows:-

In respect of each **Settlement Period j**, for each **BM Unit i**, a quantity referred to in this Paragraph 4.1.3.9A (c) as the **Period BM Unit Non-Delivered Offer Volume (Revised)** ($QNDOR_{ij}$) will be determined as follows:-

$$QNDOR_{ij} = \min \left(\max(QME_{ij} + IE_{ij} - QM_{ij}, 0), \sum_n QAO_{ij}^n \right)$$

where \sum_n represents the sum over all **Bid-Offer Pair Numbers** for the **Accepted Offer Volumes** for the **BM Unit**.

In respect of each **Settlement Period j**, for each **BM Unit i**, a quantity referred to in this Paragraph 4.1.3.9A (c) as the **Period BM Unit Non-Delivered Bid Volume (Revised)** ($QNDBR_{ij}$) will be determined as follows:-

$$QNDBR_{ij} = \max\left(\min\left(QME_{ij} + IE_{ij} - QM_{ij}, 0\right), \sum_n QAB_{ij}^n\right)$$

where \sum_n represents the sum over all **Bid-Offer Pair Numbers** for the **Accepted Bid Volumes** for the **BM Unit**.

Now, in respect of each **Settlement Period j**, for each **BM Unit i**, if the **Period BM Unit Non-Delivered Offer Volume (Revised)** is greater than zero then to determine values of a quantity referred to in this Paragraph 4.1.3.9A (c) as the **Offer Non-Delivery Volume (Revised)** ($QNDOR_{ij}^n$), the **Period BM Unit Non-Delivered Offer Volume (Revised)** will be apportioned across accepted **Offers**, in the following way:-

In respect of each **Settlement Period j**, for each **BM Unit i**, the set of all accepted **Offers** will be ranked in order of decreasing price. The accepted **Offer** with the highest price will be allocated **Non-Delivery Order Number 1**, the next highest priced accepted **Offer** will be allocated **Non-Delivery Order Number 2** and so on until all accepted **Offers** for the **Settlement Period** have been allocated a **Non-Delivery Order Number**. The set of accepted **Offers** $\{QAO_{ij}^{n_1}, QAO_{ij}^{n_2}, \dots, QAO_{ij}^{n_u}, \dots\}$ is then a ranked set of accepted **Offers**.

The **Offer Non-Delivery Volume (Revised)** will be allocated to the first accepted **Offer** in the list first, then, once the first accepted **Offer** has been wholly accepted, to the second accepted **Offer** and so on until the **Period BM Unit Non-Delivered Offer Volume (Revised)** is fully apportioned.

Then the **Offer Non-Delivery Volume (Revised)** for accepted **Offer n**, is:

$$QNDOR_{ij}^n = \min\left(QAO_{ij}^{n_u}, RQNDOR_{ij}^{u-1}\right)$$

where $RQNDOR_{ij}^{u-1}$ is a quantity referred to in this Paragraph 4.1.3.9A (c) as the **Remaining Period BM Unit Non-Delivered Offer Volume (Revised)** determined as:

$$RQNDOR_{ij}^u = RQNDOR_{ij}^{u-1} - QNDOR_{ij}^{n_u-1}$$

and $RQNDOR_{ij}^0 = QNDOR_{ij}$

and $QNDOR_{ij}^{no} = 0$.

Now, in respect of each **Settlement Period** j , for each **BM Unit** i , if the **Period BM Unit Non-Delivered Bid Volume (Revised)** is less than zero then to determine values of a quantity referred to in this Paragraph 4.1.3.9A (c) as the **Bid Non-Delivery Volume (Revised)** ($QNDBR_{ij}^n$), the **Period BM Unit Non-Delivered Bid Volume (Revised)** will be apportioned across accepted **Bids**, in the following way:-

In respect of each **Settlement Period** j , for each **BM Unit** i , the set of all accepted **Bids** will be ranked in order of increasing price. The accepted **Bid** with the lowest price is allocated **Non-Delivery Order Number** 1, the next lowest priced accepted **Bid** is allocated **Non-Delivery Order Number** 2 and so on until all accepted **Bids** for the **Settlement Period** have been allocated a **Non-Delivery Order Number**. The set of accepted **Bids** $\{QAB_{ij}^{n_1}, QAB_{ij}^{n_2}, \dots, QAB_{ij}^{n_u}, \dots\}$ is then a ranked set of accepted **Bids**.

The **Bid Non-Delivery Volume (Revised)** will be allocated to the first accepted **Bid** in the list first, then, once the first accepted **Bid** has been wholly accepted, to the second accepted **Bid** and so on until the **Period BM Unit Non-Delivered Bid Volume (Revised)** is fully apportioned.

Then the **Bid Non-Delivery Volume (Revised)** for accepted **Bid** n , is:

$$QNDBR_{ij}^n = \max(QAB_{ij}^{n_n}, RQNDBR_{ij}^{(n-1)})$$

where $RQNDBR_{ij}^{u-1}$ is a quantity referred to in this Paragraph 4.1.3.9A (c) as the **Remaining Period BM Unit Non-Delivered Bid Volume (Revised)** determined as:

$$RQNDBR_{ij}^u = RQNDBR_{ij}^{u-1} - QNDBR_{ij}^{u-1}$$

and $RQNDBR_{ij}^0 = QNDBR_{ij}$

and $QNDBR_{ij}^{no} = 0$.

In respect of each **Settlement Period** j , for each **BM Unit** i , for each accepted **Offer**, a quantity referred to in this Paragraph 4.1.3.9A (c) as the **Non-Delivered Offer Charge (Revised)** will be determined as follows:-

$$CNDOR_{ij}^n = QNDOR_{ij}^n \times \max((PO_{ij}^n - SBP_j), 0) \times TLM_{ij}$$

In respect of each **Settlement Period** j , for each **BM Unit** i , for each accepted **Bid**, a quantity referred to in this Paragraph 4.1.3.9A (c) as the **Non-Delivered Bid Charge (Revised)** will be determined as follows:-

$$CNDBR_{ij}^n = QNDBR_{ij}^n \times \min((PB_{ij}^n - SSP_j), 0) \times TLM_{ij}$$

In respect of each **Settlement Period** j , for each **BM Unit** i , the **BM Unit Period Non-Delivery Charge (Revised)** ($CNDR_{ij}$) will be determined as follows:-

$$CNDR_{ij} = \sum_n (CDNOR_{ij}^n + CNDBR_{ij}^n)$$

where \sum_n represents the sum over all **Bid-Offer Pair Numbers** for the **BM Unit**.

- (d) In this Paragraph 4.1.3.9A, the following terms shall have the meanings ascribed to them in the **Balancing and Settlement Code**:-

“Accepted Offer Volumes”
 “Accepted Bid Volumes”
 “Bid”
 “Bid-Offer Pair Numbers”
 “BM Unit Period Non-Delivery Charge”
 “CND_{ij}”
 “Non-Delivery Order No.1”
 “Non-Delivery Order No.2”
 “Offer”
 “QAB_{ij}ⁿ”
 “QAO_{ij}ⁿ”
 “QM_{ij}”
 “QME_{ij}”
 “SSP_j”
 “SBP_j”
 “SPD”

- 4.1.3.10 **NGC** and each **User** acknowledge and agree, as between **NGC** and that **User**, that no **Holding Payment** or **Imbalance Compensation Payment** shall be payable except in relation to periods in respect of which instructions have been issued by **NGC** pursuant to this Paragraph 4.1.3.

- 4.1.3.11 *Interpretation of Tables – Levels of Response*
 The figures for **Response** set out in the Frequency Response Capability Data tables and Frequency Response Power Delivery Data tables in the **Mandatory Services Agreements** shall be given in relation to specific **Frequency Deviations** and to specific levels of **De-Load** for a **BM Unit**. Such tables shall, for the purposes of Paragraphs 4.1.3.7 and 4.1.3.9A(b), be construed in accordance with this Paragraph 4.1.3.11. Subject to Paragraphs 4.1.3.11(d) and (e):-

- (a) for a **Frequency Deviation** at a given time differing from the figures given in a table, the level of **Response** shall be calculated by linear interpolation

from the figures specified in the table in respect of **Frequency Deviations**;

- (b) for a level of **De-Load** at a given time differing from the figures given in a table, the level of **Response** shall be calculated by linear interpolation from the figures specified in the table in respect of levels of **De-Load**. For the avoidance of doubt, **Frequency Sensitive Mode** shall not be instructed for any **De-Load** greater than the maximum level of **De-Load** given in the relevant Frequency Response Capability Data table;
 - (c) in respect of any time in relation to which both Paragraphs 4.1.3.11(a) and (b) apply, the level of **Response** shall be calculated by dual linear interpolation from the figures specified in the table in respect of **Frequency Deviations** and in respect of levels of **De-Load**;
- and
- (d) for any **Frequency Deviation** greater than the greatest **Frequency Deviation** given in a table (whether positive or negative), the level of **Response** shall be calculated by reference to the greatest **Frequency Deviation** (positive or negative, as the case may be) given in that table; and
 - (e) for the purposes of calculating levels of **Response** in respect of **Frequency Deviations** lower than those specified in a table, the relevant table(s) shall be deemed to specify a level of zero **Response** for a **Frequency Deviation** of zero.

Interpretation of Tables – Levels of Holding Payment

- 4.1.3.12 The Frequency Response Summary Data table in the **Mandatory Services Agreement** shall set out figures in respect of given levels of **De-Load** for the purposes of calculating payment in accordance with the formulae in Paragraph 4.1.3.9. Where the level of **De-Load** of the **BM Unit** is other than one of the levels given in such table, then the figure for P_{MW} , S_{MW} or H_{MW} as the case may be, shall be calculated by linear interpolation from the figures in such table in respect of levels of **De-Load**.

User's Request to Amend Levels of and/or Payment Rates for Response

- 4.1.3.13 Each **User** shall have the right, as between **NGC** and that **User**, not more than once every two months (or otherwise at any time with the specific agreement of **NGC**) to request in writing an amendment to the levels of **Response** set out in the Frequency Response Capability Data tables and/or the Frequency Response Power Delivery Data tables in the **Mandatory Services Agreement** and/or, provided such request is made in accordance with the relevant charging principles set out in Paragraph 4.4, the payment rates referred to in the Payment Rates table(s) in the **Mandatory Services Agreement**. **NGC's** agreement to such a request shall not be unreasonably withheld or delayed.

- 4.1.3.14 **NGC's Requests to Amend Levels of Response**
Where **NGC** reasonably considers in light of operating experience that the levels of **Response** set out in the Frequency Response Capability Data tables and/or the Frequency Response Power Delivery Data tables in the **Mandatory Services Agreement** do not represent the true operating capabilities of a **BM Unit(s)**, **NGC** shall have the right not more than once every two months (or otherwise at any time with the specific agreement of the relevant **User**) to request (provided always that such request be accompanied by a reasonable justification therefor) that the levels of **Response** set out in the relevant response table(s) in the **Mandatory Services Agreement** be reviewed and, if appropriate, amended by agreement with such **User** such agreement not to be unreasonably withheld or delayed.
- Procedure for Amendments to Levels of and/or Payment Rates for Response*
- 4.1.3.15 Any amendments agreed by **NGC** and a **User** pursuant to Paragraphs 4.1.3.13 or 4.1.3.14 or determined by an arbitrator or panel of arbitrators under the **Dispute Resolution Procedure** in the circumstances referred to in Paragraph 4.1.3.16 shall not become effective until (in the case of agreed amendments) a date at least five **Business Days** after an amending agreement is entered into between **NGC** and the **User** in accordance with the **Mandatory Services Agreement** or, in the case of determined amendments, such other date as may be determined by an arbitrator or panel of arbitrators under the **Dispute Resolution Procedure** subject always to Paragraphs 4.1.3.17 and 4.1.3.19.
- Failure to Agree Amendments*
- 4.1.3.16 If **NGC** and a **User** are unable to agree any amendments requested pursuant to Paragraphs 4.1.3.13 or 4.1.3.14 within 28 days of either of them serving on the other notice of its intention to invoke the **Dispute Resolution Procedure** then either party may initiate the procedure for resolution of the issue as an **Other Dispute** in accordance with Paragraph 7.4.
- Dispute Resolution Procedure*
- 4.1.3.17 **NGC** and each **User** acknowledge and agree, as between **NGC** and that **User**, that rule 12.1(p) of the **Electricity Arbitration Association** shall apply to any arbitration proceedings initiated pursuant to Paragraph 7.4 in the circumstances referred to in Paragraph 4.1.3.16, but that the changes determined by any arbitrator or panel of arbitrators shall not apply in respect of any period prior to the date on which the **Dispute Resolution Procedure** is invoked.
- Implementation of Determinations*
- 4.1.3.18 Subject to Paragraph 4.1.3.17, any changes to payment rates determined by an arbitrator or panel of arbitrators under the **Dispute Resolution Procedure** in the circumstances referred to in Paragraph 4.1.3.16 shall apply with effect from the date specified in the determination and consequential adjustments shall be made in the next practicable **Provisional Monthly Statement** issued following the date of

the determination. If any such changes are so determined to apply in respect of any period prior to the date of determination then in respect of such period until actual payment (or, as the case may be, repayment) **NGC** shall pay to the **User** (where such payment rates are determined to be greater than current payment rates) the excess together with interest thereon at the **Base Rate** and the **User** shall repay to **NGC** (where such payment rates are determined to be less than current payment rates) the amount by which **NGC** has overpaid the **User** together with interest thereon at the **Base Rate**.

- 4.1.3.19 Any amendments to levels of **Response** determined by an arbitrator or panel of arbitrators under the **Dispute Resolution Procedure** in the circumstances referred to in Paragraph 4.1.3.16 shall take effect from the date five **Business Days** following the relevant determination.
- Triennial Review*
- 4.1.3.20 Without prejudice to Paragraphs 4.1.3.13 to 4.1.3.19 inclusive, **NGC** and each **User** shall review the payment rates for the **Mandatory Ancillary Service of Frequency Response** set out in each relevant **Mandatory Services Agreement** and shall adjust such payment rates by such amount or in such manner as shall be fair and reasonable (on the basis of the charging principles set out in Paragraph 4.4) on the date specified for such purpose in the **Mandatory Services Agreement** and on each third successive anniversary thereof during the currency of that **Mandatory Services Agreement** ("**Triennial Review Date**").
- 4.1.3.21 **NGC** and the **User** shall meet to discuss and endeavour to agree any such adjustment to the payment rates (which shall be calculated on the basis of the charging principles set out in Paragraph 4.4) no later than five months prior to the **Triennial Review Date**. If **NGC** and the **User** have not agreed the amount of any such adjustment by the date which is one month prior to the **Triennial Review Date**, either of them may initiate the procedure for resolution of the issue as an **Other Dispute** in accordance with Paragraph 7.4. **NGC** and the **User** acknowledge and agree that rule 12.1(p) of the **Electricity Arbitration Association** shall apply to any arbitration proceedings initiated in consequence thereof.
- 4.1.3.22 If any adjustment to the payment rates has not been ascertained (by agreement or determination) by the **Triennial Review Date** in accordance with the provisions of Paragraphs 4.1.3.20 and 4.1.3.21, **NGC** and the **User** shall pay to the other for any interval between the **Triennial Review Date** and the date when such payment rates have been ascertained as aforesaid any sums due to that other party for the **Mandatory Ancillary Service of Frequency Response** calculated at the corresponding payment rates applicable during the period immediately preceding the **Triennial Review Date** without indexation. Upon any adjustment to the payment rates (or any of them) being ascertained as aforesaid, any additional amount or reduced amount payable or repayable for the period commencing on the **Triennial Review Date** and ending on the date when the payment rates shall have been ascertained, shall be paid or

repaid by the party liable for such payment or repayment together with interest on the additional amounts which would have been payable (or the amounts by which the payments would have been reduced as the case may be) had the adjustment been ascertained at the **Triennial Review Date** at the rate applicable to overdue payments provided in Paragraph 4.3.

Paragraphs 4.1.3.23 to 4.1.3.27 remain unchanged by this Amendment Proposal.

**Annex 3 – Proposed Changes to Schedule 2- Exhibit 4 of the CUSC
(Mandatory Services Agreement)**

4. FREQUENCY RESPONSE

4.1 Paragraph 4.1.3 of CUSC

The provisions of this Clause 4 give effect to the provisions of Paragraph 4.1.3 of the **CUSC** in respect of the provision by the **User** from the **BM Units** of the **Mandatory Ancillary Service of Frequency Response** and the payments to be made by **NGC** to the **User** in respect thereof.

4.2 Term

4.2.1 The provisions of this Clause 4 shall be deemed to have applied in relation to each **BM Unit** with effect from 00.00 hours on the [date hereof] [**Commencement Date**] and shall continue thereafter unless and until this **Mandatory Services Agreement** is terminated. For the avoidance of doubt, in the event this **Mandatory Services Agreement** is terminated in relation to any individual **BM Unit**, the provisions of this Clause 4 shall terminate in relation to that **BM Unit** only.

4.2.2 Termination of this Clause 4 shall not affect the rights and obligations of **NGC** and the **User** accrued as at the date of termination.

4.3 Provision of Frequency Response

4.3.1 The **Parties** agree that:-

- (a) [subject always to Sub-Clause 4.6,] for the purposes of Paragraph 4.1.3.7 of the **CUSC**, the figures set out in the response tables in Appendix 1, Section B, Part I represent the amount of **Primary Response**, **Secondary Response** and **High Frequency Response** referred to therein;
- (b) [subject always to Sub-Clause 4.6,] for the purposes of Paragraph 4.1.3.9 of the **CUSC**, the figures set out in the summary response table in Appendix 1, Section B, Part II represent the capabilities in respect of **Primary Response**, **Secondary Response** and **High Frequency Response** at given levels of **De-Load** referred to therein;
- (c) for the purposes of Paragraph 4.1.3.4 of the **CUSC**, the table in Appendix 1, Section B, Part III shows the permissible combinations of **Primary Response**, **Secondary Response** and **High Frequency Response** referred to therein;
- (d) for the purposes of Paragraph 4.1.3.9 of the **CUSC**, the figures (if any) set out in the plant configuration table in Appendix 1, Section B, Part II represent the plant configuration adjustment factors referred to therein to be applied where the **BM Unit** is a **CCGT Module**;
- (e) for the purposes of Paragraph 4.1.3.9 of the **CUSC**, the payment rates in Appendix 2, Section B constitute the payment rates in respect of **Primary Response**, **Secondary Response** and **High Frequency Response** referred to therein; and

- (f) [subject always to Sub-Clause 4.6,] for the purposes of Paragraph 4.1.3.9A(b) of the **CUSC** in respect of calculation of the **Imbalance Energy Payment**, the response values in Appendix 1, Section B, Part IV represent the Frequency Response Power that is deemed to be delivered in respect of **Primary Response**, **Secondary Response** and **High Frequency Response**.

4.4 Indexation

The payment rates set out in Appendix 2, Section B are specified at April [] base, and shall from 1st April each year be indexed in accordance with Paragraph 4.5 of the **CUSC**.

4.5 Triennial Review

For the purposes of Paragraph 4.1.3.20 of the **CUSC**, the first **Triennial Review Date** shall be [].

4.6 [Commissioning and Provisional Response Levels

Without prejudice to Paragraphs 4.1.3.13 and 4.1.3.14 of the **CUSC**, the **User** acknowledges that the levels of **Response** set out in the response tables in Appendix 1, Section B, Parts I, II and IV are indicative figures only during the period in which the relevant **Generating Unit(s)** is being commissioned and the **User** hereby undertakes to use its reasonable endeavours to forward to **NGC** levels of **Response** which represent the true operating characteristics of such **Generating Unit(s)** for inclusion in Appendix 1, Section B, Parts I, II and IV as soon as possible following completion of commissioning.]

APPENDIX 1 – DATA (Cont.)
SECTION B (FREQUENCY RESPONSE)
Part I - Frequency Response Capability Data

Station:
BM Unit Nos.

Table 1		Low Frequency Response – Mode A					
Genset De-Load (MW)	δf_p (Hz)	Primary Response (MW)	Secondary Response (MW)				
			$\delta f_s = -0.1\text{Hz}$	$\delta f_s = -0.2\text{Hz}$	$\delta f_s = -0.3\text{Hz}$	$\delta f_s = -0.4\text{Hz}$	$\delta f_s = -0.5\text{Hz}$
	-0.1						
	-0.2						
	-0.3						
	-0.4						
	-0.5						
	-0.6						
	-0.7						
	-0.8						
	-0.1						
	-0.2						
	-0.3						
	-0.4						
	-0.5						
	-0.6						
	-0.7						
	-0.8						
	-0.1						
	-0.2						
	-0.3						
	-0.4						
	-0.5						
	-0.6						
	-0.7						
	-0.8						
	-0.1						
	-0.2						
	-0.3						
	-0.4						
	-0.5						
	-0.6						
	-0.7						
	-0.8						
	-0.1						
	-0.2						
	-0.3						
	-0.4						
	-0.5						
	-0.6						
	-0.7						
	-0.8						
	-0.1						
	-0.2						
	-0.3						
	-0.4						
	-0.5						
	-0.6						
	-0.7						
	-0.8						

Station:
BM Unit Nos:

Table 2	High Frequency Response (MW) - Mode A				
Genset De-Load (MW)	Frequency Deviation from Target Frequency				
	$\delta f_h = +0.1$ Hz	$\delta f_h = +0.2$ Hz	$\delta f_h = +0.3$ Hz	$\delta f_h = +0.4$ Hz	$\delta f_h = +0.5$ Hz

[In relation to the levels of **Response** capability pursuant to Paragraph 4.1.3 of **CUSC** and Table 2 above it is agreed that for low operating outputs, the **High Frequency Response** capability will be limited such that the generation level will under normal operating conditions not be caused to drop below [] MW.]

For the purpose of Paragraph 4.1.3.11(a) of the **CUSC** the level of **Response capability** for a **Frequency Deviation** of 0.0 Hz shall be 0.0 MW.

Part II

Frequency Response Summary Data

Station:
BM Unit Nos:

Table 1	Frequency Response Capability Summary - Mode A		
Genset De-Load (MW)	Primary Response @-0.5Hz (MW)	Secondary Response @-0.2Hz (MW)	High Frequency Response @+0.5Hz (MW)
	P _{MW}	S _{MW}	H _{MW}

Table 2	Plant Configuration Adjustment Factor K _{GRC} – Mode A
1 Gas Turbine and 1 Steam Turbine	
1 Gas Turbine	

(or whatever configuration is appropriate)

Part III
Frequency Response - Permissible Combinations

Station:
BM Unit Nos:

Table 1	Mode A Response	
Primary Response	✓	✓
Secondary Response		✓
High Frequency Response	✓	✓

Part IV
Frequency Response Power Delivery Data

Station:
BM Unit Nos:

Primary Response Power Delivery – Mode A						
Frequency Deviation (Hz)	Genset De-load (MW)					
-0.1						
-0.2						
-0.3						
-0.4						
-0.5						

Primary & Secondary Response Power Delivery – Mode A						
Frequency Deviation (Hz)	Genset De-load (MW)					
-0.1						
-0.2						
-0.3						
-0.4						
-0.5						

High Frequency Response Power Delivery – Mode A						
Frequency Deviation (Hz)	Genset De-load (MW)					
+0.1						
+0.2						
+0.3						
+0.4						
+0.5						

The figures for genset deload in the tables shall be taken from the figures for genset deload shown in the tables Frequency Response Capability Data tables in Part I.

Annex 4 – Copies of Representations Received (Consultation Document)

This Annex includes copies of any representations received following circulation of the consultation document (circulated on 8th March 2002 requesting comments by close of business 5th April 2002).

Representations were received from the following parties:

No.	Company	File Number
1	Edison Mission Energy	CAP009-CR-01
2	All 21 TXU Companies which are CUSC Signatories	CAP009-CR-02
3	Scottish Power Energy Retail Limited and Scottish Power Generation Limited.	CAP009-CR-03
4	PowerGen UK, PowerGen Retail Ltd and Cottam Development Centre.	CAP009-CR-04
5	British Gas Trading Ltd	CAP009-CR-05
6	British Energy plc	CAP009-CR-06
7	Deeside Power	CAP009-CR-07
8	Innogy plc, npower Limited, Innogy Cogen Trading Limited, npower Direct Limited, npower Northern Limited, npower Yorkshire Limited.	CAP009-CR-08
9	London Electricity Group	CAP009-CR-09

Reference	CAP009-CR-01
Company	Edison Mission Energy

-----Original Message-----

From: Simon Lord [<mailto:slord@EdisonMission.Com>]
Sent: 12 March 2002 13:52
To: Friend, David
Cc: Libby Glazebrook; Kevin Dibble
Subject: CAP009 Consultation Response

CAP009 Consultation Response Edison Mission Energy 5th April

Whether CAP009 does provide an improved and more accurate mechanism for approximating the assumed Frequency Response delivery of a generator and thereby better facilitating the applicable CUSC objectives;

We believe that the CAP009 approach will provide a much better estimate of the volume of energy provided for frequency response. and therefore better meets the relevant CUSC objectives.

Whether CAP009 should only be implemented coincident with BSC Modification P34 (or P71) or P36 as recommended by National Grid:

We believe that the implementation of CAP009 is not dependent in any way on the implementation of P34/P71/P36/CAP10. It can and should be implemented irrespective of the outcome of the other modifications/proposals.

National Grid's proposed alternative to adopt a "metered volume approach" in conjunction with the CAP009 methodology:

Whilst we have sympathy for the additional NGC add on, the CUSC process will allow additional modifications to be proposed to improve the situation. CAP009 builds on CAP001 and provides a better solution. If NGC believe that the alternative methodology is worthy of consideration then they are free to propose a subsequent modification.

Simon F Lord
Ancillary Services Manager
Short Term Operations, Edison Mission Energy
0870-238-5501 or 07980 793692 Mob

Reference	CAP009-CR-02
Company	TXU Companies

TXU Europe Energy Trading Ltd
Wherstead Park
Wherstead
Ipswich
Suffolk
IP9 2AQ
8th March 2002

David Friend
Commercial Development
National Grid Company plc
National Grid House
Kirby Corner Road
Coventry
CV4 8JY

15^h March 2002

CAP009 Consultation Response

Dear David

We believe that the Proposal as drafted does better facilitate the applicable CUSC objectives. We believe that the proposal should be implemented unconditionally (i.e without reference to P34, P36, P71 or CAP 010).

We would be happy for NGC to propose its Metered Volume approach in a separate Modification and for it to be evaluated on its merits separately from this Amendment Proposal.

Yours sincerely

Philip Russell
Market Development Manager
For and on behalf of the 21 TXU CUSC Parties

Reference	CAP009-CR-03
Company	ScottishPower Energy Retail Limited and Scottish Power Generation Limited

CUSC Amendment Consultation

To: David Friend
Commercial Development
National Grid Company plc
National Grid House
Kirby Corner Road
Coventry CV4 8JY

4th April 2002

CAP009: Mandatory Frequency Response

Dear David,

Many thanks for the opportunity to consider the consultation document in respect of CUSC Amendment proposal CAP009. This response is provided on behalf of ScottishPower Energy Retail Limited and Scottish Power Generation Limited.

CAP009 seeks to improve the accuracy with which the mandatory frequency response actually delivered by service providers is estimated. ScottishPower believes that the proposed amendment does indeed provide an improved and more accurate mechanism for approximating the assumed frequency response of a generator. As such it will reduce the potential for generators to be left out of pocket following the delivery of frequency response and will therefore better facilitate the applicable CUSC objectives.

We believe that CAP009 provides benefits whether or not BSC Modifications P34 (or P71) or P36 are implemented and that CAP009 should therefore be implemented without reference to these BSC Modifications.

If you wish to discuss the content of this response, please do not hesitate to contact me.

Yours sincerely,

Mike Harrison
Commercial Manager (0141 568 4469)

Reference	CAP009-CR-04
Company	PowerGen UK, PowerGen Retail and Cottam Development Centre

Christopher A Price
Strategy & Regulation

David Friend
Commercial Development
National Grid Company plc
National Grid House
Kirby Corner Road
Coventry
CV4 8JY

5 April 2002

Reference: CAP009 Mandatory Frequency Response – Consultation Response

Dear Mr Friend,

Powergen UK Plc submits this response on behalf of itself and the following CUSC Parties; Powergen Retail Ltd and Cottam Development Centre Ltd. We have a number of comments and these are detailed below using the numbering sequence of the BSAD document.

General comments:

Clause 1.1 – notes that prior to NETA, it was recognised that generators would incur imbalance penalties under BSC when response was provided. Also, that a mechanism was introduced for Go-live to compensate Generators for imbalance exposure. However, what 1.1 does not acknowledge is that this current mechanism was *very* approximate and was recognised by NGC and service providers as an “*interim* solution” only, which would need to be reviewed as soon as practicable if imbalance compensation proved inadequate. P34, CAP001, P36, CAP009, CAP010, P71 all demonstrate Generators concern that imbalance compensation remains inadequate.

Specific comments on CAP009.

CAP009 is a prudent and sensible proposal which if adopted would undoubtedly provide some opportunity to both NGC and response providers to improve on the current mechanism and the CAP001 response volume calculations. As such this should reflect somewhat more accurately, although still an approximation, the imbalance volume that *actually* occurs when plant provides frequency response when operating in sensitive mode to any frequency deviations away from Target Frequency.

CAP009 will especially assist with a more accurate volume calculation for those non-boiler plants, e.g. CCGT, which deliver more gradual response which is still increasing at the current cut off time for Primary or High response (both 10 seconds) or Secondary (nominally 30 seconds).

The CAP009 requirement that response service providers submit Power Delivery tables *and* that these data needs to be bilaterally agreed with NGC should give some comfort that only reasonable data will emerge for inclusion in Power Delivery tables. We do not support NGC's concern that CAP009 alone does not provide sufficient incentive on both parties to agree accurate data values.

Powergen believe that both NGC and the service providers will be commercially incentivised to agree to accurate Power Delivery tables. As noted in the CAP009 Consultation Document, NGC have historic test data and operational monitoring data to assist in validating these data.

In conclusion:

- Powergen support CAP009 implementation as a more accurate mechanism for approximating the expected response delivery volume and thereby better facilitating the applicable CUSC objectives.
- Powergen does not see a need to delay CAP009 implementation such that it should only be implemented coincident with P34 or P36.
- Powergen does not support NGC proposed alternative of "metered volume approach". Our preferred minimum choice would be CAP009 as drafted integrated with P36 implementation.

If you require further clarification on any of the issues raised please do not hesitate to contact us.

Regards

C A Price
Strategy & Regulation

Reference	CAP009-CR-05
Company	British Gas Trading Ltd (BGT)

G/transp/elec/cusc



National Grid Company plc
National Grid House
Kirby Corner Road
Coventry
CV4 8JY

For the Attention of Mr D Friend
- Commercial Development

energy management group

Charter Court
50 Windsor Road
Slough
Berkshire
SL1 2HA

Tel. (01753) 758051
Fax (01753) 758170
Our Ref. CAP009
Your Ref.
20 March, 2002

Dear David,

CUSC Amendment Proposal 009: Mandatory Frequency Response

Thank you for the opportunity to comment on this Amendment proposal. British Gas Trading Ltd (BGT) agrees that this proposal will improve on the current baseline. We recognise the concern of some members of the BSSG over validation of data provided by service providers for the new tables.

We note that this proposal is only required should either BSC Modification Proposal 34 (or 34A), 36 (or 36A) or 71 be approved by the Authority. In our responses to each of this modification proposals under the BSC Governance process we have stated that our preference would be for P36A to be implemented. However it is disappointing that CAP 009 could not stand alone. The mechanism for calculation of imbalance volume introduced through the implementation of CAP 001 can be improved upon and CAP 009 offers a way for that to occur. We note NGC's concerns that service providers would only be incentivised to offer accurate values for the response value tables. However we believe a rigorous validation process would overcome this concern.

Yours sincerely

Danielle Lane
Transportation Analyst

Reference	CAP009-CR-06
Company	British Energy Generation, Eggborough Power and British Energy Power and Energy Trading

-----Original Message-----

From: Trott Graham [<mailto:graham.trott@british-energy.com>]
Sent: 05 April 2002 12:05
To: Friend, David
Cc: Capener John; Phillips Steve; Trott Graham
Subject: CAP009 Consultation Paper

David,

Thank-you for the opportunity to comment on the consultation paper relating to CAP009.

British Energy supports CAP009 as proposed. We acknowledge NGC's proposed alternative (the Metered Volume Approach) but do not support such a move at this stage.

My specific comments are as follows:

1. We believe that CAP009 does provide an improved mechanism for estimating a generator's delivered frequency response, particularly for certain types of plant, and therefore better facilitates the applicable CUSC objectives. Furthermore, since it appears that some providers, due to the dynamics of their plant, may be perfectly happy with the extant CAP001 methodology, we agree that the initial data for the proposed new power delivery tables should be taken from the existing MSA response tables thereby ensuring that the CAP001 methodology remains the 'default' position. This will also ensure that service providers have the option of agreeing alternative values for the new matrices.
2. We do not think it is necessary to coincide the introduction of CAP009 methodology with certain BSC modifications. As discussed at the BSSG, the interactions between proposed changes to industry documents does need to be understood, but until the overall governance issues/conflicts are resolved, a proposed CUSC modification should only be considered against the applicable CUSC objectives.
3. We believe that CAP009, as proposed, should be given the chance to meet the needs of the industry and we should avoid trying to resolve additional problems that are only perceived to be there. If, following implementation, CAP009 still fails to deliver a suitably accurate estimation of delivered response (and the brief analysis that NGC kindly undertook via the BSSG suggests that it shouldn't fail) then that will be the time to reassess the methodology. Accordingly, whilst we acknowledge NGC's proposed alternative (the Metered Volume Approach) we do not support such a move at this stage as CAP009 provides a simple, and seemingly accurate, solution to the problem.

We will comment on CAP010 before the April 12 deadline.

Regards,

Graham

For British Energy Generation Ltd
Eggborough Power Ltd
British Energy Power and Energy Trading Ltd

Reference	CAP009-CR-07
Company	Deeside Power

-----Original Message-----

From: Graham Beale [<mailto:GRAHAM.BEALE@natpower.com>]

Our ref. H:/Comments on CAP011

Your ref. CAP011

Sent: 05 April 2002 13:39

To: Friend, David

Cc: Tony Concannon; John Morgan; Ian Shinwell

Subject: CAP009 Consultation Process

David

Please find Deeside Power's response to the CAP009 proposal put out for consultation. Thank you for the opportunity to comment.

Deeside's view has not changed since the introduction of CAP001. Our aim is that as a generator, when asked to provide mandatory frequency response we should be properly remunerated and held harmless against BM imbalance charges as a result of providing that response. Looking at the CAP009 Working Group Report, Annex 4 the CAP009 results given for the sample CCGT station are a significant improvement over the CAP001 methodology. Clearly this is plant response specific but having looked into it further we support the methodology.

The process for agreement of the Frequency Response Power Delivery Data seems vague. The CAP009 methodology relies heavily on these data sets being correct. If CAP009 has a failing then in our view this is it. Testing witnessed by NGC would alleviate this weakness.

Graham Beale

Production Controller - Deeside Power Station

Reference	CAP009-CR-08
Company	Innogy plc



**Innogy's comments on CAP009 Consultation document on behalf of Innogy plc,
npower Limited, Innogy Cogen Trading Limited, npower Direct Limited, npower
Northern Limited, npower Yorkshire Limited**

CAP009

1. Innogy supports the principles of CAP009 as set out in the original proposal irrespective of the implementation of proposed changes to the BSC. Any improvement in the calculation of expected response energy will reduce the risk of providers facing unrecoverable costs in the BM and will thus encourage competition in the generation of electricity. However, until the issue of the pricing of response energy is solved, this will be only a partial improvement of the imbalance compensation payments that rely both on a volume and a price calculation.
2. We note NGC's concerns regarding the incentives on providers when proposing changes to the new tables under the current arrangements. However, it is clear that were P34, P34A, P36, P36A or P71 to be implemented, then the incentive on the provider would be to ensure that the tables give as accurate an estimate of delivered volumes as possible.
3. In the event that P34, P34A, P36, P36A or P71 were implemented, then the provider should have the freedom to make changes unilaterally, and there should be no ability for NGC to propose changes. However, pending the implementation of any of the BSC modifications it may be reasonable for changes to be made subject to NGC's agreement with the appropriate safeguards of the usual dispute resolution procedures.
4. Following implementation of one of the BSC modifications a provider will be cashed out against the difference between the calculated volume and that actually delivered. It is then essential that the provider should be able to make changes to the power delivery tables (subject to a reasonable limit on the frequency of such changes). The fine-tuning of the tables will require operating experience, knowledge of the plant and careful monitoring of output data.
5. An alternative CAP009 legal drafting should be developed and implemented if CAP009 is approved at the same time or after any of the proposed BSC modifications mentioned above. This alternative drafting would allow a provider to request changes that are not subject to NGC's approval and would not enshrine NGC's right to propose changes. This would address NGC's concerns under the current arrangements whilst allowing a provider to act quickly to improve the accuracy of the tables in the light of operating experience following changes to the BSC.

Proposed legal drafting

6. Notwithstanding the comments above, the proposed legal drafting would appear flawed.
7. Section 4.1.3.11 refers to 'figures for **Response**' (4.1.3.11) and 'level of **Response**' (4.1.3.11(a), (b), (c) and (d)) when referring to the new Frequency Response Power Delivery Data tables. However, this table does not contain **Response** data.

8. **Response** is defined as '**Primary Response , Secondary Response and High Frequency Response** or any of them as the case may be'. The new Frequency Response Power Delivery Data tables have been developed specifically because of the inappropriateness of Primary Response, Secondary Response and High Frequency Response for use in estimating delivered volumes of energy. The data in these tables are not restricted to the temporal definitions of Primary, Secondary and High Frequency Response and so the use of the term 'Response' in relation to these tables is inappropriate.
9. A similar reference is made in 4.1.3.14, which also suggests that the Frequency Response Power Delivery Data tables should represent 'the true operating capabilities of a **BM Unit(s)**'. The new tables are not intended to be representative of any 'capability' but rather reflect the expected power variation in response to changes in Frequency over settlement period time-scales.
10. Paragraph 4.1.3.19 may also require amendment for similar reasons, although our view is that it would be inappropriate for changes to the new tables, proposed by a User, to be the subject of a dispute.
11. The proposed paragraph 4.3.1(f) of the MSA also refers to 'response' although not as a defined term. For the purpose of clarity, it may be better to delete the word.
12. The same paragraph should refer to '**Primary Response , Primary Response with Secondary Response and High Frequency Response**' since the second of the new tables relates to the power delivered when providing the combination of Primary and Secondary Response.

Metered volume approach

13. Since the proposed approach is neither dependent on CAP009 nor a modification of CAP009, but rather an add-on, it is not appropriate for this to be considered as an Alternative to CAP009. If the metered volume approach is to be progressed, then it should be as a separate proposal to be considered in detail by a Working Group.
14. The introduction of tolerance bands in one specific area of the electricity market should only be done after careful consideration, if at all. The application of such an approach would impact not only CUSC parties but also BSC parties through effects on RCRC payments.
15. Any tolerance would have to be arbitrarily selected and would reduce financial incentives to ensure that plant is able to deliver expected levels of energy. Whilst residual volume remains with providers and needs to be addressed, the appropriate method for dealing with the risk is for providers to assess it and reflect it in the price of the delivered energy.
16. This would be possible with the introduction of CAP010 or P36 and would encourage providers to deliver the expected volumes. The system operator would then be able to schedule responsive plant using the correct pricing information, which should deliver the most efficient provision of response energy.

Reference	CAP009-CR-09
Company	London Electricity Group

-----Original Message-----

From: Cecil Dick [<mailto:Dick.Cecil@le-group.co.uk>]
Sent: 05 April 2002 16:46
To: Friend, David
Subject: Consultation Response -CAP009 Mandatory Frequency Response

Consultation Response -CAP009 Mandatory Frequency Response

This response from London Electricity Group is on behalf of all the groups CUSC Parties. We are in favour of CAP009. We consider the CUSC Objectives would be better met with the addition of CAP009.

Specific questions consulted upon.

We consider that CAP009 does provide an improved and more accurate mechanism for approximating the assumed Frequency Response delivery of a generator and therefore the applicable CUSC objectives.

We consider that CAP009 should be implemented as a stand alone Amendment to CUSC. We agree with the majority clearly expressed view of the BSSG that CAP009 can and should be implemented independently of the outcome of BSC Modification P34 (and now also P71) or P36. We consider that regardless of P34, 36 or 71, an accurate response volume calculation is in the interest of all parties (inc NGC and service providers). We consider NGC's argument on this is not a valid one. We are of the opinion that there is no reason for a service provider to intentionally overstate the levels of response. This is because, on one hand, it is not feasible to revise the response tables daily or monthly; and on the other hand, freq. resp is a dynamic and automatic process. No service provider can accurately predict when and what response (i.e. high or low freq. resp) will be required. Furthermore, the difference between the reference price and SSP and SBP is also unpredictable. So overstating the response levels can be either beneficial or punitive from time to time.

We do not object to NGC's proposed alternative to adopt a "metered volume approach" in conjunction with the CAP009 methodology, however, we do not consider it necessary.

Consultation Document wording

We noticed in the text of the Consultation some wording that we consider should be revised before it is considered by the Authority. In the 'Executive Summary' "mandatory" should be deleted in the first sentence of 1.1.

Also in the 'Executive Summary' "imbalance" should be replaced by "response" in the first sentence of 1.3.

We consider 4.3.4 will become clearer and more accurate if in the bracketed section of the first sentence "if the power delivery values are not available".

Conclusion

We consider the CUSC Objectives would be better met with the addition of CAP009 and that the Amendment does not need coincident implementation of the related but independent BSC Modifications P34 or P71 or P36.

Dick Cecil
London Electricity Group

Annex 5 – Copies of Representations Received (Draft Amendment Report)

This Annex includes copies of any representations received following circulation of the draft Amendment Report (circulated on 1 May 2002 requesting comments by close of business 9 May 2002).

Representations were received from the following parties:

No.	Company	File Number
1	Innogy plc	CAP009-AR-01

Reference	CAP019-AR-01
Company	Innogy plc

-----Original Message-----

From: Raoul Thulin [<mailto:RAOUL.THULIN@innogy.com>]
Sent: 08 May 2002 16:42
To: Friend, David
Subject: CAP009 Amendment Report comments

David,

In paragraph 10.12 of the report (National Grid's views on Innogy's comments regarding legal drafting), it states that 'it does not appear unreasonable to refer to these values as 'Response data''. The drafting does not refer to 'Response data' but rather to 'Levels of Response' and 'figures for Response'. As stated in our response, it is these references that we feel do not apply to the new tables due to the very strict definition of Response.

I would ask that you review your comments to reflect National Grid's view on whether Levels of Response' and 'figures for Response' are appropriate terms.

National Grid's response to Innogy's comments does not touch on whether the reference to 'operating capabilities' in 4.1.3.14 of the draft is appropriate. I would be interested in hearing NGC's view on this.

Regards,
Raoul