



National Grid

AMENDMENT REPORT

CUSC Proposed Amendment CAP046

Mandatory Frequency Response

(Calculation of Volumes)

The purpose of this report is to assist the Authority in their decision of whether to implement Amendment Proposal CAP046

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Prepared by	National Grid

I DOCUMENT CONTROL**a National Grid Document Control**

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0.1	20/3/03	National Grid	Draft for Industry comment
1.0	28/3/03	National Grid	Formal Version for submission to the Authority

b Document Location

Nation Grid Website:

<http://www.nationalgrid.com/uk/indinfo/cusc>

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Name	Organisation
The Gas and Electricity Markets Authority	Ofgem
CUSC Parties	Various
Panel Members	Various
National Grid Industry Information Website	

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1.0 SUMMARY AND RECOMMENDATIONS

- 1.1 CUSC Amendment Proposal CAP046 proposes to improve the mechanism for the approximation of calculating the response energy volume that occurs, as a result of the provision of mandatory frequency response.
- 1.2 CAP046 was proposed by National Grid with the recommendation that it be treated as an Urgent Amendment Proposal and submitted to the Amendments Panel for consideration at their meeting on 21st February 2003. The Amendments Panel determined that CAP046 was a valid Amendment Proposal and should be given Urgent status, subject to approval by the Authority, which was gained on 25th February 2003. The Panel agreed that CAP046 should proceed directly to an expedited period of wider industry consultation by National Grid. The CAP046 Consultation Document was circulated to CUSC Parties, Panel Members and interested parties on 28th February 2003, with comments requested by close of business on 14th March 2003. In response to the consultation 5 representations were received, one of which put forward an Alternative Amendment which is detailed in this report.

National Grid Recommendation

- 1.3 National Grid recommends that Proposed Amendment CAP046 as detailed in this Amendment Report is approved for implementation in line with the timescales set out Section 5 of this report.

2.0 INTRODUCTION

- 2.1 This Amendment Report has been prepared and 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 concerning an improved mechanism for the approximation of calculating the response energy volume that occurs, as a result of the provision of mandatory frequency response.
- 2.2 Further to the submission of Amendment Proposal CAP046 (see Annex 1) and the subsequent wider industry consultation that was undertaken by National Grid (in accordance with 8.17.12(b)), 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 CAP046 or the Alternative Amendment.
- 2.3 This document outlines the nature of the CUSC changes that are proposed. It incorporates recommendations from National Grid and members of the Amendments Panel. Copies of all representations received in response to the consultation have been also been included and a summary of the representations received is also provided. Copies of each of the responses to the consultation are included as Annex 4 to this document.
- 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.nationalgrid.com/uk/indinfo/cusc>

3.0 BACKGROUND

- 3.1 National Grid considers that the CAP046 Amendment Proposal better facilitates achievement of the Applicable CUSC Objectives as against the existing CUSC. This “background” section is intended to provide some context as to the circumstances in which CAP046 was raised, and should be read as such. It in no way detracts from the fact that the Proposer of CAP046 (National Grid) is of the opinion that CAP046 better facilitates achievement of the Applicable CUSC Objectives.
- 3.2 All licensed generators are required to provide the ancillary service of mandatory frequency response as set out in CC.8.1 of the Grid Code. The payments associated with this service are described in Section 4 of the CUSC. Prior to the introduction of NETA it was recognised that generators would incur imbalance charges under the BSC when providing mandatory frequency response. A mechanism was introduced at NETA Go-live that was intended to compensate generators for this imbalance exposure. This mechanism was implemented via the NETA Implementation Scheme in the Mandatory Services Agreements (MSA) and subsequently codified into the CUSC.
- 3.3 First Hydro Company submitted CUSC Amendment Proposal CAP009 on 1 November 2002. This proposed changes to the methodology used for calculating imbalance volume. The Amendment was proposed by First Hydro as they believed that the current mechanism in CUSC did not accurately reflect the actual volume of mandatory frequency response delivered.
- 3.4 The frequency response tables contained in Mandatory 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.
- 3.5 At their meeting on 9th November 2001, the Amendments Panel actioned the Balancing Services Standing Group (BSSG) to act as a Working Group (in accordance with Paragraph 8.17.1 of the CUSC) to consider CAP009. Terms of Reference were agreed for the BSSG (in respect of CAP009) and further to three meetings, associated debate and correspondence, it was the combined view of the BSSG that the 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 Data 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 Data Tables should aim to mimic response energy delivered by the generator; and
 - (iii) It should be possible for service providers to default to the extant methodology. Therefore the initial values in the Power Delivery Data Tables should be derived from the existing frequency response tables.

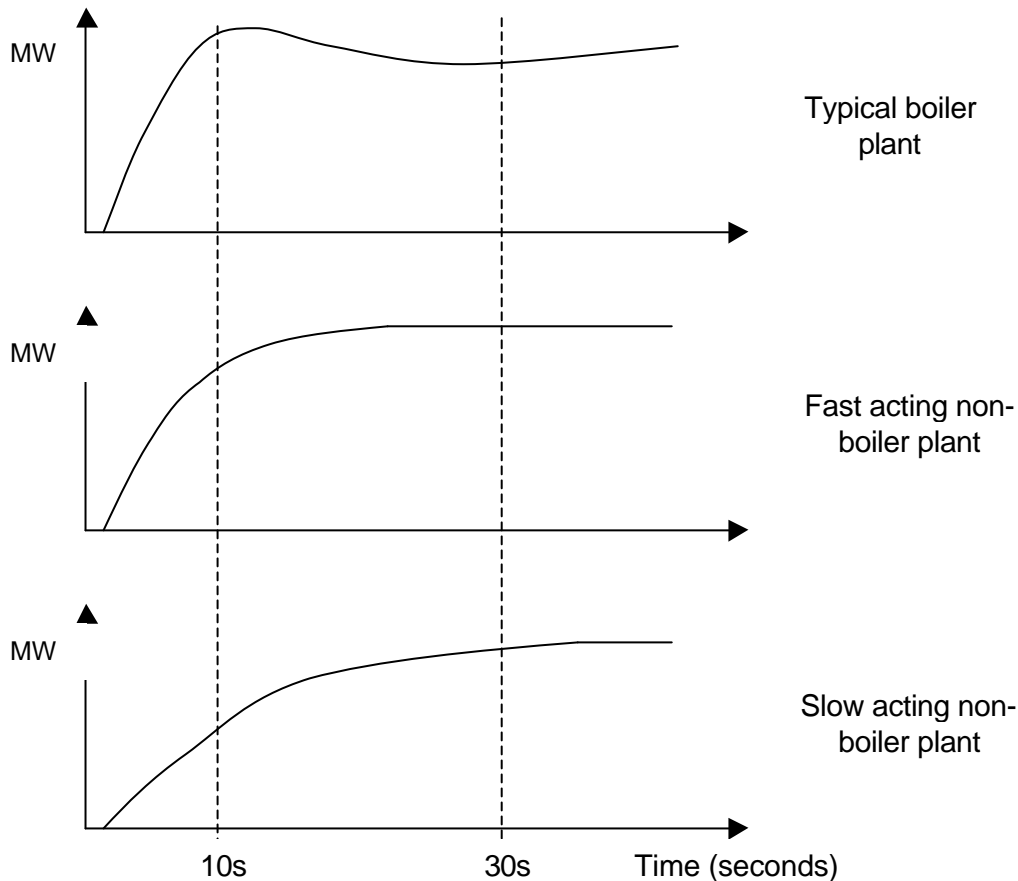
Subsequently changes to these values can be requested, by either party, in line with existing arrangements.

- 3.6 The Amendments Panel endorsed the findings of the CAP009 Working Group on 22nd February 2002 as set out in Working Group Report and determined that the proposal proceed to industry consultation. Following closure of the consultation and in accordance with the provisions of the CUSC, the CAP009 Amendment Report was submitted to the Authority on 10th May 2002. The Amendment Report contained a recommendation to approve the implementation of CAP009, and it was National Grid's recommendation that the proposal should be implemented co-incident to BSC Modification P34/P36 or similar (e.g. P71). 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 Data Tables.
- 3.7 On 22nd November 2002 the Authority directed that BSC Modification P71 (and separately, CAP011) should be implemented with effect from 25th February 2003 (the implementation of P71 and CAP011 was subsequently delayed, and both were implemented on 11th March 2003). It was indicated in the P71 decision letter that the Authority was minded to approve CAP009 with an effective implementation date on or after 25th February 2003.
- 3.8 Following the "minded to approve" indication for CAP009, it became apparent to National Grid that the baseline CUSC, upon which the legal text in the CAP009 Amendment Report had been drafted, had been changed by the implementation of CAP016 and furthermore would be changed again on 11th March 2003 by the implementation of CAP011. Due to interactions between CAP009, CAP011 and CAP016, the legal drafting for CAP009 was no longer compatible with the new CUSC baseline.
- 3.9 After consideration of the effects of these interactions, it was the opinion of National Grid that the legal drafting to give effect to CAP009 inadvertently prevented the intent of CAP009 from being realised and therefore CAP009 did not better facilitate achievement of the Applicable CUSC Objectives. National Grid therefore raised a new Amendment Proposal (CAP046) and recommended that it be approved as an Urgent Amendment Proposal as provided for by CUSC. The intention was to implement the true *intentions* behind CAP009 as soon as possible after implementation of BSC Modification P71, and also to ensure that the *intentions* of CAP011 and CAP016 were preserved consistently in Section 4 of the CUSC going forward. It was believed (and accepted by the CUSC Panel) that because the effect of CAP046 was different from that of the flawed CAP009 legal text, it was accepted that CAP046 was a valid Amendment Proposal. Ofgem subsequently rejected CAP009.

4.0 DESCRIPTION OF THE PROPOSED AMENDMENT

- 4.1 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).

- 4.2 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 in-feed of generation or demand i.e. to contain and recover large frequency deviations.
- 4.3 It is a Grid Code requirement that all licensed 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:



- 4.4 The use of primary and secondary response values to calculate the response energy delivered over a period of time can therefore 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.
- 4.5 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 Data Tables are contained in the MSA and used in the response energy payment calculation. The values in these tables

should aim to mimic the energy delivered by the generating unit when following frequency deviations. The mechanism will continue to use the per-minute, dual linear interpolation methodology as introduced by CAP001.

- 4.6 It is intended that this proposal will establish Power Delivery Data Tables, which will initially contain values derived from the existing low frequency and high frequency response tables. For the avoidance of doubt this proposal will separate the power delivery data for low frequency into two tables – one for Primary Response and one for Primary and Secondary Response. The power delivery data for high frequency will be contained within a third table for High Frequency Response.
- 4.7 Initially the default values in the Power Delivery Data Tables will be derived as follows:
- The Primary Response Power Delivery Data Table shall initially be populated with Primary Response data values (for corresponding frequency deviation and generator de-load) from the existing Low Frequency Response table;
 - The Primary & Secondary Response Power Delivery Data Table shall initially be populated with the average of the Primary and corresponding Secondary Response data values (for corresponding frequency deviation and generator de-load) from the existing Low Frequency Response table; and
 - The High Frequency Power Delivery Data Table shall initially be populated with the High Frequency Response data values (for corresponding frequency deviation and generator de-load) from the existing High Frequency Response table.

Thus after implementation there will be no change to the response volume as calculated by the existing process. The methodology allows for the service provider or National Grid to propose revisions to the values in the Power Delivery Data Tables, in light of experience, in accordance with the existing amendment provisions set out in the CUSC.

- 4.8 CAP046 is identical in all respects to CAP009 apart from the fact that it correctly incorporates changes to the CUSC that have been made and implemented (CAP011 and CAP016) since CAP009 was originally raised.

5.0 IMPLEMENTATION AND TIME-SCALES

- 5.1 If the Authority is minded to give approval to the Proposed Amendment, implementation should take place 10 business days after the Authority decision.

6.0 IMPACT ON THE CUSC

- 6.1 The Proposed Amendment would require amendment of Section 4 (Balancing Services) of the CUSC. The Mandatory Services Agreements are also affected by the Proposed Amendment.
- 6.2 The legal text required to give effect to the Proposed Amendment is contained as Annex 2 of this document.

7.0 ASSESSMENT AGAINST APPLICABLE CUSC OBJECTIVES

- 7.1 The Applicable CUSC Objectives are set out in Paragraph 1 of Condition C7F of the Transmission Licence. CUSC Amendments Proposals 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;
 - (b) and 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.
- 7.2 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.
- 7.3 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 be more accurately calculated. This will ensure that the most economic sources of Mandatory Frequency Response continue to make their full capacity available for despatch by National Grid.

8.0 IMPACT ON CUSC PARTIES

- 8.1 There will be a requirement for all licensed generators to enter into Amending Agreements in respect of the Mandatory Services Agreements to incorporate the new Power Delivery Data Tables.

9.0 IMPACT ON CORE INDUSTRY DOCUMENTS

- 9.1 The Proposed Amendment will not impact on Core Industry Documents or other industry documentation.

10.0 ALTERNATIVE AMENDMENT

Description of Alternative Amendment (Proposed by British Gas Trading)

- 10.1 The Alternative Amendment was proposed as a response to the industry consultation for CAP046. The proposer believes that the legal drafting should be amended for form an Alternative Amendment in order to provide a better solution. The legal text to give effect to the Alternative Amendment in accordance with the detailed comments made in the consultation response is set out in Annex 3.
- 10.2 The proposer of the Alternative Amendment noted the following changes to the legal text for the Proposed Amendment:
- (1) Schedule 2 Exhibit 4 (MSA) – Amend Paragraph 4.3.1(e) as follows:
 - (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**, **Primary and Secondary Response** and **High Frequency Response** referred to therein; and”

- (2) The missing values in [] in Paragraphs 4.4 and 4.5 to be added dependent upon the date of any Ofgem approval of the Amendment Proposal.
- (3) In Paragraph 4.6 the “[]” surrounding the text to be removed.
- (4) Appendix 1, Section B, Part 4; extend tables to include values up to and including a Frequency Deviation of +/-0.8 (depending on type of response) to match the data provided in Part 1.

Assessment Against Applicable CUSC Objectives

- 10.3 British Gas Trading considers that changes to the legal drafting for the Proposed Amendment as described above would be a better solution than that provided by the original Amendment Proposal.

Implementation and Timescales

- 10.4 If the Authority was minded to approve the Alternative Amendment, the date of implementation would need to build in appropriate timescales to allow National Grid to carry out both settlement system and contractual changes which would be approximately 4 months. This is because the National Grid systems have been developed and specified to model Power Delivery Data Tables to a maximum deviation of 0.5Hz rather than the 0.8Hz in the Alternative Amendment Proposal. Additionally, Amending Agreements to the Mandatory Services Agreements have also been prepared which are consistent with the original Amendment Proposal, and the adoption of the Alternative Amendment would require all of these to be changed.
- 10.5 The timescales for implementation of the Alternative Amendment would therefore be 4 months after the Authority decision.

Impact on CUSC Parties

- 10.6 There will be a requirement for all licensed generators to enter into Amending Agreements in respect of the Mandatory Services Agreements to incorporate the new Power Delivery Data Tables.

Impact on Core Industry Documents

- 10.7 The Alternative Amendment will not impact on Core Industry Documents or other industry documentation.

11.0 VIEWS AND REPRESENTATIONS

This Section contains a summary of the views and representations made by consultees during the consultation period in respect of the Proposed Amendment.

Summary of Views of Panel Members

- 11.1 On the basis of the consultation and assessment undertaken in respect of CUSC Amendment Proposal CAP046, it was the opinion of those CUSC

Amendments Panel Members expressing a view, that the Proposed Amendment should be implemented to the time-scales as recommended.

- 11.2 One Panel member reiterated his view given in the CAP009 Amendment Report that CAP009 (CAP046) should be implemented without the need of any coincident approval with any BSC Modifications (it should be noted that the BSC Modifications to which this comment refers (P34, P36 & P71) have either been rejected or approved and implemented and so coincident implementation is no longer an issue).

View of Core Industry Document Owners

- 11.2 No responses to the CAP046 Consultation were received from Core Industry Document Owners or owners of other Industry documents.

Responses to Consultation

- 11.3 The following table provides an overview of the representations received. Copies of the representations are attached in Annex 4.

Reference	Company	Supportive	Comments
CAP046-CR-01	British Gas Trading Limited	Support principle	Respondent supports principle of the Proposed Amendment but propose an Alternative Amendment as described in Section 10 of this report.
CAP046-CR-02	Innogy plc, npower Limited, Innogy Cogen Trading Limited, npower Direct Limited, npower Northern Limited, npower Yorkshire Limited	Support principle	Supports principle of CAP046 as an improvement in the calculation of expected response energy. Also supports the recommendation that the Proposed Amendment be implemented as soon as practicable. Raise a number of detailed issues which are set out below, without which they believe the Proposed Amendment provides only a partial improvement of the imbalance compensation payments, and that the legal drafting is flawed.
CAP046-CR-03	LE Group	Yes	Supportive of Proposed Amendment as better facilitating achievement of the Applicable CUSC Objectives.
CAP046-CR-04	Powergen UK plc	Support principle	Identifies that a change to the legal drafting for the Proposed Amendment regarding the use of the defined term "Response".
CAP046-CR-05	Scottish Power Generation plc & ScottishPower Energy Retail Limited	Yes	Believe that the Proposed Amendment provides an improved and more accurate mechanism to measure the mandatory frequency response actually delivered by service providers and hence helps to met the Applicable CUSC Objectives. Also note that the legal drafting appears to be appropriate.

- 11.4 National Grid received a total of five responses to the consultation on CUSC Amendment Proposal CAP046. All respondents were supportive of the principle of the Proposed Amendment and two respondents felt that it better facilitated achievement of the Applicable CUSC Objectives (LE & SP). Two respondents (Innogy and PG) noted that they believed there were issues concerning the legal drafting for the Proposed Amendment in which changes would be beneficial. One respondent (BG) supported the principle but proposed an Alternative Amendment.

- 11.5 Whilst supporting the principle of the Proposed Amendment, one respondent raised specific issues concerning the legal drafting and has put forward an Alternative Amendment. The proposer of the Alternative Amendment noted that Paragraph 4.3.1(e) of the Mandatory Services Agreement should be amended to refer to “*Primary and Secondary Response*”. Another respondent believed that a similar amendment to Paragraph 4.3.1(f) would be appropriate since the second of the new tables relates to the power delivered when providing a combination of Primary Response with Secondary Response. The respondent also felt that the reference to “response” in Paragraph 4.3.1(f) should be deleted to aid clarity.
- 11.6 National Grid believe that the legal text provided for the Proposed Amendment supports the Proposed Amendment as better facilitating achievement of the Applicable CUSC Objectives. The issue raised by the respondent in respect of Paragraph 4.3.1(e), and the solution suggested in the Alternative Amendment are flawed as the table referred to in Paragraph 4.3.1(e) contains payment rates for the services of Primary Response, Secondary Response and High Frequency Response respectively, not “Primary and Secondary Response”. No payment rate associated with Primary and Secondary Response is contained within this table. Furthermore, the new term “Primary and Secondary Response” would need to be defined under Section 11 of the CUSC. National Grid further considers that the suggested revisions, by one respondent, to Paragraph 4.3.1(f) of the Mandatory Services Agreement are an aid to clarification only and do not better facilitate achievement of the Applicable CUSC Objectives over the Proposed Amendment, hence National Grid does not support either of the changes suggested.
- 11.7 The proposer of the Alternative Amendment put forward additional changes to amend and remove the square brackets contained in Paragraphs 4.4, 4.5 and 4.6. The use of the square brackets in Paragraphs 4.4 and 4.5 to denote blank values are filled in on agreement of the contract with the counterparty. The values are left blank as the Mandatory Services Agreement is an Exhibit to the CUSC. National Grid believe that changes to the use of square brackets provided by the Alternative Amendment to remove them in the case of Paragraph 4.6 and to add values in the case of Paragraphs 4.4 and 4.5 are not material in enabling the Alternative Amendment to better facilitate achievement of the Applicable CUSC Objectives over the original Proposed Amendment. Furthermore, these changes have not been specifically debated and consulted on as part of the CAP009 or CAP046 processes and therefore would be more appropriately taken forward by a separate Amendment Proposal.
- 11.8 Two respondents made comments on the Frequency Deviation Range in the Power Delivery Data Tables. They noted that the tables should be extended to include a Frequency Deviation of +/-0.8Hz to reflect the true volume of energy delivered for frequency response and to match the data provided in Part 1 of Appendix 1 to the Mandatory Services Agreement. National Grid would have no objection in principle to such a change, however historically as a deviation of greater than 0.5Hz has not occurred in the last 6 years and National Grid’s systems have only been specified to store up to 0.5Hz, National Grid does not consider it appropriate to extend the Frequency Deviation Range as proposed. The CAP046 Alternative Amendment also specifically includes a change to the legal drafting to extend the tables to 0.8Hz deviation. As stated above, National Grid does not believe this is necessary and in addition the implementation date for the Alternative

Amendment would need to build in timescales of contract changes to re-draft all of the bilateral amending agreements for CAP046 which have already been created with a 0.5Hz deviation; and also for systems changes in order to allow National Grid's systems to store up to 0.8Hz. Such a timescale would be in the order of 4 months as set out in Section 10 of this report.

- 11.9 Two respondents raised the issue of the definition of response. They commented that the defined term "Response" should not relate to the Power Delivery Data Tables which they argue are not restricted to the definition of "Response" in the CUSC, which is "*Primary Response, Secondary Response and High Frequency Response*". National Grid notes that such a change is more substantive than clarification of the legal text in that if Power Delivery were not part of the Response service then it may not be subject to the cost reflective charging principles. National Grid does not agree with this comment, and is of the view that the power delivered when providing Response is part of the service of Response and hence should be subject to the cost reflective charging principles. National Grid considers that the Grid Code definitions of Response services confirm this view.

View of the BSSG

- 11.10 The CUSC Panel, at its meeting on 21st February 2003, requested the Balancing Services Standing Group (BSSG) to review the legal drafting associated with CAP046 to confirm that it was correct.
- 11.11 During this review, a number of detailed issues were raised (all of which have been raised by respondents to the consultation and are explained elsewhere in this report). In summary, the BSSG concluded that the legal text as proposed with CAP046 was appropriate to meet the objectives of the original CAP009 and CAP046 Proposed Amendments. The full report that the BSSG provided to the CUSC Panel on 21st March 2003 is contained within Annex 5.

12.0 NATIONAL GRID VIEWS AND RECOMMENDATION

- 12.1 National Grid believe that the Proposed Amendment better facilitates achievement of the Applicable CUSC Objectives. On identification of the flaws contained within the CAP009 legal text, CAP046 was raised by National Grid to ensure that the intention behind CAP009 is implemented as quickly as possible and was supported by correct legal drafting against the current baseline of CUSC (including CAP011 and CAP016).
- 12.2 National Grid is satisfied that the legal drafting to give effect to the Proposed Amendment as consulted on and as contained in Annex 2 to this report achieves better facilitation of the Applicable CUSC Objectives and also the objective of replicating the intention of CAP009.
- 12.3 National Grid believe that the Alternative Amendment raised by one respondent arising from the consultation does not better facilitate achievement of the Applicable CUSC Objectives over the Proposed Amendment, as some of the changes proposed by the Alternative Amendment are either flawed, or introduce changes that have not been fully debated and consulted on as part of the CAP009 or CAP046 processes.
- 12.4 National Grid recommends that CAP046 Proposed Amendment should be approved and implemented 10 business days after the Authority decision.

13.0 COMMENTS ON DRAFT AMENDMENT REPORT

- 13.1 National Grid received two comments from a CUSC Party on the Draft Amendment Report, copies of which are attached at Annex 6. The comments made are regarding the legal text to give effect to the Alternative Amendment which was proposed by the same respondent to the CAP046 consultation. These clarifications have been incorporated into the legal text contained in Annex 3.

ANNEX 1- AMENDMENT PROPOSAL FORM

CUSC Amendment Proposal Form	CAP046
Title of Amendment Proposal:	
Mandatory Frequency Response (Calculation of Volumes)	
Description of the Proposed Amendment (mandatory by proposer):	
<p>The current mechanism for calculating the response energy volume that occurs, as a result of the provision of mandatory frequency response can be inaccurate. This amendment proposal seeks to improve the mechanism for the approximation of this volume.</p> <p>Two methods could be used to determine the volume:</p> <ol style="list-style-type: none"> (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 (Power Delivery Data Tables, one for High Frequency Volume and one for Low Frequency Volume) based on the format of the High Frequency Response table. These would initially contain the same data as the current Primary and High Frequency Response tables. <p>Method 1, although more accurate, is considered impractical. Therefore Method 2 is suggested for implementation. The Power Delivery Data Tables would be populated with data based on the stable output that is achieved by the BMU 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.</p>	
<u>Note:</u>	
This proposed amendment seeks to implement the intention behind CUSC Amendment Proposal CAP009 as described in the CAP009 Amendment Report and acts as a direct replacement for it. This is explained further below.	
Description of Issue or Defect that Proposed Amendment seeks to Address (mandatory by proposer):	
<p>The current mechanism for reflecting response energy volume that occurs as a result of the provision of Mandatory Frequency Response, can be inaccurate.</p> <p>For certain types of plant the output of the plant continues to increase after the 10 second cut off in the current Primary and High Frequency Response tables. This proposal seeks to cut 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.</p>	
<u>Note:</u>	
National Grid recommends that this proposal is treated as an Urgent Amendment Proposal in order to ensure that the intentions of CAP009, CAP011 and CAP016 are implemented together, as described below.	
CUSC Amendment proposal CAP009 sought to improve the estimation of response energy volume delivered during the provision of Mandatory Frequency Response. After due debate, consultation and consideration the proposal was unanimously supported by the industry.	
However, due to other modifications (CAP016, CAP011) changing the CUSC, the drafting of the proposed CUSC text in the CAP009 Amendment Report is no longer compatible with the new baseline CUSC. National Grid has therefore had to recommend to the Authority that CAP009 be rejected, and has subsequently raised this new proposed amendment as a direct replacement.	
In summary this proposal seeks to ensure that the intentions behind CAP009, CAP011 and CAP016, which have already been debated within the industry and consulted upon, are implemented consistently through CUSC Section 4. This proposal is <u>not</u> intended to introduce material changes or new thinking beyond that described in the original Amendment Reports for CAP009, CAP011 and CAP016.	

Impact on the CUSC (this should be given where possible):	
Section 4.1.3 – Calculation of Volumes formulae. Amendment is required to reflect the revised tables that will be used for calculating the volumes for delivery of response energy as outlined above, and to re-instate Configuration Factors in the calculation of response energy.	
Modification of the CUSC Mandatory Services Agreement to reflect the inclusion of Power Delivery Data Tables (one for High Frequency Volume and one for Low Frequency Volume) for each BMU.	
Impact on Core Industry Documentation (this should be given where possible):	
None.	
Impact on 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, preparations for which have already been made.	
Details of any Related Modifications to Other Industry Codes (where known):	
CAP009, CAP011, CAP016, BSC P71	
Justification for Proposed Amendment with Reference to Applicable CUSC Objectives** (mandatory by proposer):	
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 be more accurately calculated.	
This in turn will ensure that the most economic sources of Mandatory Frequency Response continue to make their full capacity available for despatch by National Grid.	
Details of Proposer: Organisation's Name	National Grid Company plc
Capacity in which the Amendment is being proposed: (i.e. CUSC Party, BSC Party or "energywatch")	CUSC Party
Details of Proposer's Representative: Name: Organisation: Telephone Number: Email Address:	Mark Brackley National Grid Company plc 0118 9363364 mark.brackley@uk.ngrid.com
Details of Representative's Alternate: Name: Organisation: Telephone Number: Email Address:	John Greasley National Grid Company plc 024 76423190 john.greasley@uk.ngrid.com
Attachments (Yes/No): If Yes, Title and No. of pages of each Attachment:	

Notes:

- 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 Amendments Panel can determine more

clearly whether the proposal should be considered by a Working Group or go straight to wider National Grid Consultation.

2. 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 Panel Secretary will inform the Proposer.

The completed form should be returned to:

Richard Dunn
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 that is a CUSC Party shall be deemed to have granted this Licence).

3. Applicable CUSC Objectives** - These are defined within the National Grid Company Transmission Licence under Section C7F, paragraph 15. Reference should be made to this section when considering a proposed amendment.

ANNEX 2 - TEXT TO GIVE EFFECT TO THE PROPOSED AMENDMENT

For the avoidance of doubt, the proposed changes are indicated with text shown in **RED**. Coloured underlined text will be inserted, and coloured strikethrough text will be deleted.

CUSC SECTION 4 - BALANCING SERVICES

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 **Response Energy 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).

Payment Formulae - Response Energy Payment

- 4.1.3.9A (a) The **Response Energy 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 calculated in accordance with the following formulae:-

$$REP_{ij} = RE_{ij} \times \text{Reference Price}$$

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

Where:

REP_{ij} is the **Response Energy Payment** to be made to or, as the case may be, by the **User**; and

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

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

$$RE_{ij} = \int_0^{SPD} \left[\max(FR_{ij}(t), 0) \times (1 - SF_{LF}) + \min(FR_{ij}(t), 0) \times (1 - SF_H) \right] \times K_T \times K_{GRC} dt$$

Where:

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

SF_{LF} is equal to SF_P in the case of a **BM Unit** being instructed to deliver **Primary Response** without **Secondary Response** or the mean of SF_P and SF_S in the case of a **BM Unit** being instructed to deliver **Primary Response** and **Secondary Response**.

SF_P , SF_S , SF_H , K_T and K_{GRC} have the meanings ascribed to them in Paragraph 4.1.3.9.

$FR_{ij}(t)$ 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 ~~set out~~ 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 ~~high-frequency response~~ 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”-data in the case of a **BM Unit** being instructed to deliver **Primary Response** without **Secondary Response**; or

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

in each case shown in the low frequency response tables set out in the **Mandatory Services Agreement** and shall be signed positive.

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

Where:

$\overline{SBP}_{\text{month}}$ and $\overline{SSP}_{\text{month}}$ are the calculated time weighted average of SBP_j and SSP_j respectively for the preceding calendar month in which the service is provided.

(b) (not used)

(c) (not used)

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

“ 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 **Response Energy 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.

Interpretation of Tables – Levels of Response

4.1.3.11 The figures for **Response** set out in the ~~response 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 ~~Paragraph 4.1.3.7; Paragraphs 4.1.3.7 and 4.1.3.9A(a)~~, 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 ~~the relevant response tables in the Mandatory Services Agreement, a table~~, the level of **Response required** shall be calculated by linear interpolation from the figures specified in the ~~relevant table(s)~~ in respect of **Frequency Deviations**;

(b) for a level of **De-Load** at a given time differing from the figures given in ~~the relevant response tables in the Mandatory Services Agreement, a table~~, the level of **Response required** shall be calculated by linear interpolation from the figures ~~in the relevant table(s) 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 ~~response tables 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 required** shall be calculated by dual linear interpolation from the figures specified in the ~~relevant table(s)~~

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 ~~the relevant response tables in the Mandatory Services Agreement~~ a table (whether positive or negative), the level of **Response** ~~required~~ shall be calculated by reference to the greatest **Frequency Deviation** (positive or negative, as the case may be) given in ~~the relevant table(s) that~~ table; and
- (e) for the purposes of calculating levels of **Response** ~~to be provided in response to in respect of~~ Frequency Deviations lower than those specified in ~~the response tables in the Mandatory Services Agreement~~ table, the relevant table(s) shall be deemed to specify ~~that a level of~~ zero **Response** ~~is to be provided~~ for a **Frequency Deviation** of zero.

Interpretation of Tables – Levels of Holding Payment

- 4.1.3.12 The ~~summary response~~ 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 ~~, for the purposes of the payment table in the Mandatory Services Agreement,~~ 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 ~~response~~ 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~~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 ~~response~~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 ~~tables~~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.

- 4.1.3.15 *Procedure for Amendments to Levels of and/or Payment Rates for Response*
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.

- 4.1.3.16 *Failure to Agree Amendments*
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.

CUSC SCHEDULE 2 EXHIBIT 4 - 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 ~~4.1.3.8~~**(i)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 ~~4.1.3.8(iv)~~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**; ~~and~~
- (e) for the purposes of Paragraph ~~4.1.3.8(ii)~~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~~therein; ~~and~~

(f) [subject always to Sub-Clause 4.6,] for the purposes of Paragraph 4.1.3.9A(a) of the CUSC in respect of calculation of the Response 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, ~~Part 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, ~~Part 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 Load (MW)	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						

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 ~~required~~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 ~~required~~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						
<u>Frequency Deviation (Hz)</u>	<u>Genset De-load (MW)</u>					
<u>-0.1</u>						
<u>-0.2</u>						
<u>-0.3</u>						
<u>-0.4</u>						
<u>-0.5</u>						

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

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

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 3 - TEXT TO GIVE EFFECT TO THE ALTERNATIVE AMENDMENT

For the avoidance of doubt, the proposed changes are indicated with coloured text only. Coloured underlined text will be inserted, and coloured strikethrough text will be deleted.

*The original text to give effect to CAP046 Proposed Amendment is shown in **RED** text. The changes to give effect to the Alternative Amendment are shown in **BLUE** text.*

CUSC SECTION 4 - BALANCING SERVICES**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 **Response Energy 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).

Payment Formulae - Response Energy Payment

- 4.1.3.9A (a) The **Response Energy 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 calculated in accordance with the following formulae:-

$$REP_{ij} = RE_{ij} \times \text{Reference Price}$$

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

Where:

REP_{ij} is the **Response Energy Payment** to be made to or, as the case may be, by the **User**; and

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

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

$$RE_{ij} = \int_0^{SPD} \left[\max(FR_{ij}(t), 0) \times (1 - SF_{LF}) + \min(FR_{ij}(t), 0) \times (1 - SF_H) \right] \times K_T \times K_{GRC} dt$$

Where:

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

SF_{LF} is equal to SF_P in the case of a **BM Unit** being instructed to deliver **Primary Response** without **Secondary Response** or the mean of SF_P and SF_S in the case of a **BM Unit** being instructed to deliver **Primary Response** and **Secondary Response**.

SF_P , SF_S , SF_H , K_T and K_{GRC} have the meanings ascribed to them in Paragraph 4.1.3.9.

$FR_{ij}(t)$ 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 ~~set-out~~ 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 ~~high frequency response~~ 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’-data in the case of a **BM Unit** being instructed to deliver **Primary Response** without **Secondary Response**; or

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

in each case shown in the low frequency response tables set out in the **Mandatory Services Agreement** and shall be signed positive.

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

Where:

$\overline{SBP}_{\text{month}}$ and $\overline{SSP}_{\text{month}}$ are the calculated time weighted average of SBP_j and SSP_j respectively for the preceding calendar month in which the service is provided.

(b) (not used)

(c) (not used)

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

“ 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 **Response Energy 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 ~~response 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 ~~Paragraph 4.1.3.7, Paragraphs 4.1.3.7 and 4.1.3.9A(a)~~, 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 ~~the relevant response tables in the Mandatory Services Agreement, a table~~, the level of **Response required** shall be calculated by linear interpolation from the figures specified in the ~~relevant table(s)~~ in respect of **Frequency Deviations**;
- (b) for a level of **De-Load** at a given time differing from the figures given in ~~the relevant response tables in the Mandatory Services Agreement a table~~, the level of **Response required** shall be calculated by linear interpolation from the figures ~~in the relevant table(s) 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 ~~response tables 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 required** shall be calculated by dual linear interpolation from the figures specified in the ~~relevant table(s)~~

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 ~~the relevant response tables in the Mandatory Services Agreement~~ a table (whether positive or negative), the level of **Response** ~~required~~ shall be calculated by reference to the greatest **Frequency Deviation** (positive or negative, as the case may be) given in ~~the relevant table(s) that table~~; and
- (e) for the purposes of calculating levels of **Response** ~~to be provided in response to in respect of~~ **Frequency Deviations** lower than those specified in ~~the response tables in the Mandatory Services Agreement~~ a table, the relevant table(s) shall be deemed to specify ~~that a level of~~ zero **Response** ~~is to be provided~~ for a **Frequency Deviation** of zero.

Interpretation of Tables – Levels of Holding Payment

4.1.3.12

The ~~summary response~~ 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 ~~, for the purposes of the payment table in the Mandatory Services Agreement,~~ 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 ~~response~~ 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~~ 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 ~~response~~ 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 tables ~~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.

- 4.1.3.15 *Procedure for Amendments to Levels of and/or Payment Rates for Response*
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.

- 4.1.3.16 *Failure to Agree Amendments*
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.

CUSC SCHEDULE 2 EXHIBIT 4 – 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 ~~4.1.3.8(i)~~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 ~~4.1.3.8(iv)~~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**; ~~and~~
- (e) for the purposes of Paragraph ~~4.1.3.8(ii)~~4.1.3.9 the **CUSC**, the payment rates in Appendix 2, Section B constitute the payment rates in respect of **Primary Response**, Primary and Secondary Response and **High Frequency Response** referred to ~~therein~~therein; ~~and~~
- (f) [subject always to Sub-Clause 4.6,] for the purposes of Paragraph 4.1.3.9A(a) of the CUSC in respect of calculation of the Response 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 ~~1~~ 2001 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 ~~1~~ carried out in April 2002 and every three years thereafter.

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, ~~Part~~ 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, ~~Part~~ 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 Load (MW)	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 required 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 required 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						
<u>Frequency Deviation (Hz)</u>	<u>Genset De-load (MW)</u>					
-0.1						
-0.2						
-0.3						
-0.4						
-0.5						
-0.6						
-0.7						
-0.8						

Primary & Secondary Response Power Delivery – Mode A						
<u>Frequency Deviation (Hz)</u>	<u>Genset De-load (MW)</u>					
-0.1						
-0.2						
-0.3						
-0.4						
-0.5						
-0.6						
-0.7						
-0.8						

High Frequency Response Power Delivery – Mode A						
<u>Frequency Deviation (Hz)</u>	<u>Genset De-load (MW)</u>					
+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 TO CONSUTLATION

This Annex includes copies of any representations received following circulation of the Consultation Document (circulated on 28th February 2003 requesting comments by close of business on 14th March 2003).

Representations were received from the following parties:

No.	Company	File Number
1	British Gas Trading Limited	CAP046-CR-01
2	Innogy plc, npower Limited, Innogy Cogen Trading Limited, npower Direct Limited, npower Northern Limited, npower Yorkshire Limited	CAP046-CR-02
3	LE Group	CAP046-CR-03
4	Powergen UK plc	CAP046-CR-04
5	Scottish Power Generation plc & ScottishPower Energy Retail Limited	CAP046-CR-05

Reference	CAP046-CR-01
Company	British Gas Trading Limited



energy management group

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

Charter Court
50 Windsor Road
Slough
Berkshire
SL1 2HA

Tel. (01753) 758051
Fax (01753) 758368
Our Ref. G: cusc
Your Ref.

For the Attention of Emma
Groves - Commercial

13 March 2003

Dear Emma,

Re: CAP046 – Mandatory Frequency Response (Calculation of Volumes)

Thank you for the opportunity to comment on this Amendment Proposal (AP). British Gas (BGT) agrees that there was a flaw with the previous proposal (CAP009) and that this AP addresses those issues, although we would welcome clarification from NGC as to how they intend to implement these changes and any impact on individual parties. BGT supports the principle of this AP but believes that an Amendment to the Legal drafting along the lines described below would be a better solution and should be raised as an Alternative Proposal.

1) Amend Paragraph 4.3.1.(e) as follows:

(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, Primary and Secondary Response** and **High Frequency Response** referred to therein; and”

2) The missing values in [] in Paragraphs 4.4 and 4.5 to be added dependent upon the date of any Ofgem approval of the Amendment Proposal.

3) In Paragraph 4.6 the “[]” surrounding the text to be removed.

4) Appendix 1, Section B, Part 4; extend tables to include values up to and including a Frequency Deviation of +/-0.8 (depending on type of response) to match the data provided in Part 1.

Should you wish to discuss any of our comments further, please do not hesitate to contact me.

Yours sincerely,

Simon Goldring
Transportation Manager

Reference	CAP046-CR-02
Company	Innogy plc, npower Limited, Innogy Cogen Trading Limited, npower Direct Limited, npower Northern Limited, npower Yorkshire Limited



Innogy's comments on CAP046 Consultation document on behalf of Innogy plc, npower Limited, Innogy Cogen Trading Limited, npower Direct Limited, npower Northern Limited, npower Yorkshire Limited

CAP046

1. Innogy supports the principles of CAP009 as set out in the original proposal and also the principles contained in CAP046. 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. Innogy therefore supports the recommendation that CAP046 should be implemented as soon as practicable. 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. Following implementation of P71, a provider will be cashed out against the difference between the calculated volume and that actually delivered. It is therefore 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) with the minimum of delay. The fine-tuning of the tables will require operating experience, knowledge of the plant and careful monitoring of output data. We therefore believe that the provider should have the freedom to make changes unilaterally, and there should be no need for National Grid to propose changes.
3. The ability for National Grid to propose changes to the Power Delivery Tables may have been appropriate for CAP009 where a decision on P34, P36, P71 and their alternates had not yet been made. However, since P71 has now been approved by the Authority, this requirement no longer exists.

Proposed legal drafting

4. Notwithstanding the comments above, the proposed legal drafting would appear flawed. The comments below were previously made in response to the CAP009 consultation. The response to the comments in the CAP009 Amendment Report was that if the concerns were still held, then Innogy could raise a 'housekeeping' modification. Whilst this is an option that may be adopted, it does not seem an efficient process. We therefore reiterate our comments.
5. 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.
6. **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 values for use in estimating delivered volumes of energy. The data in these new 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.

7. 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.
8. 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.
9. 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.
10. 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.

Reference	CAP046-CR-03
Company	LE Group

From: Judson Rupert [Rupert.Judson@le-group.co.uk]
Sent: 14 March 2003 10:53
To: 'emma.groves@uk.ngrid.com'
Cc: Diccico Tony; Cecil Dick; Zhang Chuan
Subject: CAP046 Consultation Response

Consultation Response - CAP046 Mandatory Frequency Response

Please note the following LE Group response on behalf of all LE Group CUSC parties.

LE Group supports the CUSC Amendment CAP046 as we believe that it provides an improved and more accurate mechanism for approximating the assumed frequency response delivery of a generator and thereby better facilitates achievement of the Applicable CUSC Objectives.

We see no reason why CAP046 should not be implemented as soon as is practicable after BSC Modification P71 and CAP011.

Best regards

Rupert Judson
LE Group

Reference	CAP046-CR-04
Company	Powergen UK plc

Christopher Price
Trading Arrangements



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

March 14th 2003
Reference CAP046 Consultation - Mandatory Frequency Response (Calculation of Volumes)

Dear Emma

Powergen support the proposals outlined in CAP046, as we supported the rejected CAP009.

CAP046 reintroduces the intent of CAP009 which the Authority was minded to approve but rejected because the legal drafting was no longer compatible with the CUSC baseline.

We have identified one area of the draft legal text for CAP046 where we believe that some changes would be beneficial. This concerns the use of the defined term Response in the legal text dealing with Section 4.1.3.11 Interpretation of Tables – Levels of Response.

The defined term Response is defined in the CUSC as Primary Response, Secondary Response and High Frequency Response. Each of the three responses are also defined terms in the CUSC and use the Grid Code definitions. These definitions are specifically aligned to the provision of mandatory response. The intention of CAP 46 is to allow any frequency response values in excess of the mandatory response to be used to calculate the delivered response energy. Thus reference to definitions of delivered response energy should not use terms which specifically define the mandatory requirements for frequency response.

In addition the draft text shows that the Frequency Response Power Delivery Data table only goes to 0.5Hz deviation. It is our understanding that CAP009 was intended to reflect the true volume of energy delivered for frequency response. Therefore this table should include up to 0.8Hz deviation and not truncate the energy delivered to that at 0.5Hz deviation as this is less than the mandatory response tables. The primary objective of CAP046 is to use delivered response data that is reflective of the performance of the plant.

If you have any questions with regard to the comments put forward, please do not hesitate to contact me

Yours sincerely

C Price
Trading Arrangements

Reference	CAP046-CR-05
Company	Scottish Power Generation plc & ScottishPower Energy Retail Limited

CUSC Amendment Consultation

To: Emma Groves
Commercial
National Grid Company plc
National Grid House
Kirby Corner Road
Coventry CV4 8JY

14th March 2003

CAP046: Mandatory Frequency Response (Calculation of Volumes)

Dear Emma,

Many thanks for the opportunity to consider the consultation document in respect of CUSC Amendment Proposal CAP046. This response is provided on behalf of Scottish Power Generation plc and ScottishPower Energy Retail Limited.

CAP046 is an Urgent Amendment seeking to implement the intention behind CAP009, which was recently rejected by the Authority. We note that the reason for rejection appears to rest solely on the basis that the legal drafting for CAP009 had been superseded through a revision to the CUSC baseline resulting from the approval of other CUSC Amendments (CAP011 and CAP016). CAP046 legal text should, therefore, reflect the substance of CAP009 in the context of the revised CUSC baseline.

In our response to the CAP009 consultation, we had indicated our support for implementing the Amendment independently of other BSC Modifications and CUSC Amendments dealing with balancing services provision and under consideration at the time. We therefore support the principle behind CAP046, viz. that it provides an improved and more accurate mechanism by which to measure the mandatory frequency response actually delivered by service providers. In this respect, CAP046 will help to meet the Applicable CUSC Objectives. The legal drafting appears to be appropriate.

It is disappointing that the Authority's decision on CAP009 was not forthcoming soon enough to prevent the legal drafting from becoming out of date. To prevent the reoccurrence of this situation, we consider it appropriate for a CUSC Amendment to be raised to deal with the narrow set of circumstances where the legal drafting of an Amendment awaiting decision is superseded due to changes to the CUSC baseline in the meantime. We would hope to see this matter dealt with in due course.

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

Yours sincerely,

Abid Sheikh
Commercial Analyst (0141 568 3113)

ANNEX 5 – BSSG REPORT ON CAP046 LEGAL DRAFTING

(Submitted to the March CUSC Panel meeting.)

At the CUSC Panel on 21 February 2003, the BSSG was actioned to review the legal drafting that National Grid had provided with the CAP046 Consultation Document. This paper reports on the outcome of this review.

Executive Summary

National Grid presented the legal drafting contained within the CAP046 consultation document to the BSSG, on 4th March 2003, as requested by the CUSC Panel. The intention of CAP046 was to mirror the solution developed by the CAP009 amendment process - updating the legal text, where appropriate, to reflect subsequent amendments to the CUSC. The BSSG 'page turned' the legal text for CAP046. In summary the legal text proposed for CAP046 **does meet the objectives of correctly implementing the intentions behind CAP009, CAP011 and CAP016 in a manner consistent with the current CUSC.**

Three issues were raised at the BSSG which are either immaterial in effect, or are points which should be made as part of individual responses to the CAP046 consultation. None of these issues would prevent implementation of the legal text included with the CAP046 Consultation Document.

BSSG Discussion

During the checking of the CAP046 legal text, three issues were raised during discussion.

1. Point of clarification

Proposed paragraph 4.3.1 (f)

*[subject always to Sub-Clause 4.6,] for the purposes of Paragraph 4.1.3.9A(a) of the CUSC in respect of calculation of the **Response 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.***

It was suggested that as the second Power Delivery Data Table (PDDT) relates to the power delivered when providing a *combination* of Primary and Secondary Response, this should be reflected in the last part of the proposed paragraph. Therefore, the BSSG were largely of the opinion that the paragraph should be amended to:

*[subject always to Sub-Clause 4.6,] for the purposes of Paragraph 4.1.3.9A(a) of the CUSC in respect of calculation of the **Response 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, Primary Response and Secondary Response and High Frequency Response.***

National Grid has since sought legal advice on this matter. The advice received is that the original paragraph as proposed is correct, and that the change proposed by the BSSG is also correct, but is a change of no substance. National Grid considers that, as this was the only potential change highlighted, and the effect is immaterial, it would not be efficient to propose an Alternative Amendment at this stage to progress this change.

It is National Grid's view that no change to the CAP046 legal drafting is required.

2. Use of the defined term 'Response'

One member of the BSSG raised concerns over the use of the defined term **Response** in this proposal. The issue relates to whether the energy delivery associated with the Frequency Response service is deemed to be part of the Frequency Response service.

This issue has been debated before at the BSSG (most notably in respect of CAP009 and CAP010) and parties will have the opportunity to raise this in response to the CAP046 consultation, as they did for CAP009, or address it by raising a new Amendment Proposal.

It is National Grid's view that no change to the CAP046 legal drafting is required.

3. Frequency deviation range catered for by PDDT's

PDDT's are limited in the range of frequency deviations they cater for (up to $\pm 0.5\text{Hz}$). After a short debate, it was concluded that if any party felt that a change to this range was desirable they had the opportunity to raise this in response to the CAP046 consultation, as they did for CAP009, or address the issue by raising a new Amendment Proposal.

It is National Grid's view that no change to the CAP046 legal drafting is required.

4. Conclusion

The purpose of the BSSG checking the legal drafting of CAP046 was to give comfort to the CUSC panel that the drafting proposed addresses the issues that befouled CAP009, and ensures that the intentions behind CAP009, CAP011 and CAP016 are codified in the CUSC going forward. Following this process the BSSG Chairman can confirm that CAP046 achieves these objectives.

ANNEX 6 – COPIES OF COMMENTS RECEIVED ON DRAFT AMENDMENT REPORT

This Annex includes copies of comments received following circulation of the Draft Amendment Report (circulated on 20th March 2003 requesting comments by close of business on 27th March 2003).

Representations were received from the following parties:

No.	Company	File Number
1	British Gas Trading Limited	CAP046-AR-01

Reference	CAP046-AR-01
Company	British Gas Trading Limited

From: Goldring, Simon [Simon.Goldring@centrica.co.uk]
Sent: 24 March 2003 17:50
To: 'emma.groves@uk.ngrid.com'
Cc: Andy Balkwill (E-mail); Hadlington, Simon; Lane, Danielle; Manley, Mark; Sequeira, Brian

Subject: RE: CAP046

Emma/Andy,

Further to our discussions last week I would confirm BGT's position in respect of the draft report is as follows:

- a) 11.7 - Since the proforma should be a standard document and certainly the indexation should be common between all parties, we believe that it is appropriate to hardwire these details in the CUSC. Since we assume that Ofgem will not implement CAP046 before 1st April then we suggest that "2003" be included in both paragraphs. Similarly it is not appropriate for the "[]" around Paragraph 4.6 of the legal drafting to remain and they must be removed. These changes are seen by BGT to be material.
- b) 11.8 - BGT's intention in proposing that the table ranges should be extended to cover a deviation of +/-0.8Hz is consistency across the document. We therefore believe that the necessary changes should be made. We note that NGC believe they need 4 months to make the necessary system changes but give no supporting evidence to this assertion. Should Ofgem accept this timeframe, to avoid any delays in implementing CAP046, we would accept that for a period of no more than 4 months the existing ranges should be used.
- c) Legal Drafting - see comments in 11.7 above.

We trust that these comments are useful, but if you require any additional information please do not hesitate to contact me.

Regards

Simon Goldring

ADDITIONAL COMMENTS FROM BGT:

From: Goldring, Simon [Simon.Goldring@centrica.co.uk]
Sent: 27 March 2003 16:36
To: Emma Groves (E-mail)
Cc: Andy Balkwill (E-mail)

Subject: CAP046 - Additional Comments

Following discussions with Mark Brackley (NGC) in respect of the comment submitted by ourselves on the 24th March 2003, I offer the following clarification.

- a) 11.7 - The intention of the proposed changes put forward were for a consistent and common approach across all bilateral agreements. Therefore in respect of Para 4.4 (of Sched 2, Exhibit 4) the value in [] should be 2001, to reflect the current practice. For 4.5 the value, recognising that agreements can be signed

at any time the paragraph should read "For the purposes of Paragraph 4.1.3.20 of the CUSC, the Triennial Reviews shall be carried out in April 2002 and every three years thereafter." In respect of the other "[]" contained in Section 4 of the legal drafting, we believe that they should all be removed such that the drafting is consistent and does not need to be amended irrespective of the status of the plant.

- b) 11.8 Our concerns in respect of the inconsistency between the requirement to provide Frequency Response Capability to 0.8Hz (as recorded in Part 1) yet not recognised in Part IV remain.

Regards

Simon Goldring