



Direct Dial: 020-7901-7412

28 July 2003

National Grid Company, CUSC Signatories and  
Other Interested Parties

Your Ref: CAP045

Our Ref: IND/COD/CUSC/CAP045

Dear Colleague

**Amendment to the Connection and Use of System Code ("CUSC") - Decision and Direction in relation to Proposed Amendment CAP045: "Cost reflective reactive power default payment rate indexation".**

The Gas and Electricity Markets Authority (the "Authority"<sup>1</sup>) has carefully considered the issues raised in the Amendment Report<sup>2</sup> in respect of Proposed Amendment CAP045 "Cost reflective reactive power default payment rate indexation".

National Grid Company plc ("NGC") recommended to the Authority that Alternative Amendment (B) be approved.

Having carefully considered the Amendment Report and NGC's recommendation and having regard to the Applicable CUSC Objectives and the Authority's wider statutory duties<sup>3</sup>, the Authority has decided to direct that the CUSC should be modified in respect of Alternative Amendment (B), as set out in the Amendment Report.

This letter explains the background to Proposed Amendment CAP045, as set out in the Amendment Report, and sets out the Authority's reasons for its decision. In addition, this letter contains a direction to NGC to modify the CUSC in respect of Alternative Amendment (B).

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

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

<sup>2</sup> CAP045 Amendment Report dated 13 May 2003.

<sup>3</sup> Ofgem's statutory duties are wider than the matters that NGC must take into consideration and include amongst other things social and environmental guidance provided to Ofgem by the government.

## Background

As part of the Grid Code<sup>4</sup>, all generators are required to provide and must be capable of providing Mandatory Balancing Services if the system is to operate safely and reliably. The Grid Code requires generators to provide frequency response<sup>5</sup> and reactive power<sup>6</sup> to specified capabilities. The mandatory reactive power service is referred to as the Obligatory Reactive Power Service in Schedule 3 of the CUSC.

All providers of the Obligatory Reactive Power Service are paid utilisation payments via a default mechanism in accordance with Schedule 3 of the CUSC. Prior to the introduction of the CUSC, these payment rules were detailed in the Master Connection and Use of System Agreement ("MCUSA"). Under the MCUSA, indexation of the default payment for Obligatory Reactive Power Service was frozen from 31 March 2001. The Reactive Power Market Working Group conducted a review of the indexation factor to apply from this point on. The review was completed in September 2000 and its recommendation was to continue to index the default payment rate for reactive power in line with the Retail Prices Index ("RPI"). In March 2001, at the request of the Transmission Users Group, NGC referred to Ofgem for determination a variation to the MCUSA in order to implement this proposal. The proposed MCUSA variation sought to continue RPI indexation of default payment rates for reactive power for a further two years (i.e. until 31 March 2003). In June 2001, Ofgem concluded that default payments for the provision of Obligatory Reactive Power Service should continue to be indexed in line with the proposed MCUSA variation.

In making this determination Ofgem stated the view that RPI indexation of reactive power default payments was not an appropriate long-term solution. Ofgem accepted that the costs of reactive power relate to an increase in maintenance requirements and a reduction in overall efficiency. Ofgem concluded that whilst costs associated with maintenance may be linked to RPI, additional fuel costs associated with lower efficiency are not directly linked to RPI. Ofgem suggested that if indexation were to be applied, it would be more appropriate to use a basket of indices that better reflect the costs of providing reactive power. Ofgem considered that the extension of the indexation arrangements for a further two years would allow sufficient time to review the indexation issue and introduce enduring arrangements through the CUSC amendment process.

The CUSC Panel agreed at its first meeting on 21 September 2001 that the Balancing Services Standing Group ("BSSG") should be established. The Panel agreed that the terms of reference

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<sup>4</sup> Stated in Connection Condition 8.1 of the Grid Code.

<sup>5</sup> Frequency response is used to balance the continuously changing system frequency that is determined and controlled by the balance between system demand and total generation. National Grid has a statutory obligation to maintain system frequency within 1% of 50Hz.

<sup>6</sup> The requirement for reactive power is primarily driven by the interaction of real power flows on the transmission system with the complex impedances of the various elements that make up the network together with the demand at the lower voltage system interfaces. NGC is required to maintain the real and reactive power balances between sources of generation and points of demand. Without the appropriate injections of reactive power at correct locations, the voltage profile of the transmission system will exceed statutory planning and operational limits.

should include an item for the BSSG to consider and develop enduring arrangements for the reactive power default payment rate.

On 14 March 2002, Innogy raised Amendment Proposal CAP019: "Reactive Power Default Payment Mechanism", proposing to extend the RPI indexation of the reactive power default payment rate for one year until 31 March 2004 to allow additional time to develop an enduring methodology for indexing default reactive power payments. Ofgem approved CAP019 on 31 May 2002. In its decision letter, Ofgem stated that it considered a one-year extension would allow sufficient time to develop an alternative method for indexing the reactive power default payment rate.

Innogy submitted Amendment Proposal CAP045 "Cost reflective reactive power default payment rate indexation" on 13 February 2003 for consideration at the 21 February 2003 CUSC Panel meeting. The Proposer considered the Proposed Amendment would better facilitate achievement of both of the Applicable CUSC Objectives<sup>7</sup> as it would improve the cost reflectivity of the reactive power default payment rate. The CUSC Panel determined that the BSSG should act as a Working Group to consider the Amendment Proposal.

### **The Proposed Amendment**

The original Amendment Proposal seeks to introduce a new methodology for indexing default reactive power payments. The new index would be derived from a composite of indices to reflect the costs associated with providing reactive power. It would also be applied monthly rather than annually and calculated ex-post rather than ex-ante.

The new index would be composed by:

- ◆ 50% weighting of monthly RPI to represent labour costs and wear and tear, and
- ◆ 50% weighting of a monthly wholesale electricity price index to represent lost opportunity and efficiency related costs.

The wholesale electricity price index component would be calculated in the same manner as the Scottish energy price component. It would therefore be calculated using:

- ◆ 20% weighting of the cumulative over the counter month ahead Petroleum Argus index,
- ◆ 20% weighting of the cumulative over the counter month ahead Heren index,

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<sup>7</sup> The Applicable CUSC Objectives are contained in Standard Condition C7F of the licence to transmit electricity treated as granted to NGC under Section 6 of the Electricity Act 1989 (the "Transmission Licence") and are:

- (a) the efficient discharge by the licensee of the obligations imposed upon it under the Act and by this licence; and
- (b) facilitating effective competition in the generation and supply of electricity, and (so far as consistent therewith) facilitating such competition in the sale, distribution and purchase of electricity.

- ◆ 20% weighting of the cumulative over the counter month ahead Platts index, and
- ◆ 40% weighting of the cumulative over the counter Anderson Spectron Power index<sup>8</sup>.

The base period for the wholesale electricity price index is the annual average of the index from October 2002 to September 2003. The baseline for the RPI component would be March 2003.

The BSSG considered the composition of the index. The BSSG agreed that the costs of providing reactive power are related to an increase in maintenance requirements and a reduction in overall efficiency. The increase in maintenance requirements could be represented by labour and wear and tear costs and the reduction in overall efficiency by the electricity price. The Proposer stated that RPI was a good index to account for changes in both labour and wear and tear costs, and that a 50% weighting seemed appropriate.

The BSSG considered the March 2003 baseline for the RPI component to be appropriate, as this would ensure that the payment rate was re-established to the level immediately prior to 1 April 2004. The BSSG also discussed the base period for the wholesale electricity price index component. The BSSG agreed that NGC would carry out further analysis to examine the likely behaviour of the proposed index to aid clarification for the Consultation Document for the Proposed Amendment. The analysis was attached to the Consultation Document.

The BSSG supported a move to monthly indexation as this would more accurately track the cost variations in the provision of the reactive power service across the year. NGC highlighted there would be an additional overhead associated with calculating 12 indices per annum rather than one. However, NGC also informed that no changes to computer systems would be necessary.

The reactive power default rate would not be finalised in advance of the month to which it is applied under the Proposed Amendment. This is because the RPI for a particular month is not published until around the 15<sup>th</sup> of the subsequent month. The BSSG was comfortable with this. NGC was concerned that the reactive power default rate may not be finalised in time to ensure that the final statements reflect the correct rate, and an additional overhead may therefore be incurred to perform a month on month reconciliation.

NGC also noted that additional resource would be required to establish and track the relevant electricity price indices, as no electronic data feed is currently sourced in respect of the data required.

The BSSG agreed with the Proposer's assessment that the Proposed Amendment would better facilitate achievement of both of the Applicable CUSC Objectives:

- ◆ By improving the cost-reflectivity of the reactive power default payment rate the Proposed Amendment will facilitate the choice of the most economic source of reactive power, thereby facilitating the efficient discharge by the licensee of the obligations imposed on it under the Act and by the transmission licence,

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<sup>8</sup> This index has since been renamed the Deloitte Touche Spectron Power Index

- ◆ By improving the cost-reflectivity of the reactive power default payment rate the Proposed Amendment will encourage competition in the reactive power market, thereby facilitating competition in the generation and supply of electricity.

NGC issued a consultation paper on 1 April 2003 inviting responses by 22 April 2003. Two respondents proposed Alternative Amendments in their response to the consultation.

#### **Alternative Amendment (A)**

London Electricity Group plc proposed Alternative Amendment (A) in its response to the consultation. Alternative Amendment (A) is different to the Proposed Amendment in the following respects:

- ◆ The indexation would be annual rather than monthly. This is because the Proposer considers it would be inefficient to calculate prices on a monthly basis and that annual indexation is adequate.
- ◆ The reactive power default rate would be calculated ex-ante rather than ex-post. This is to provide greater certainty in the provision of reactive power services and to minimise any practical difficulties in respect of settlement. The Proposer also highlighted that the reactive power default rate would be available at the time of the tender round assessment which would enable more economically efficient decisions to be made.
- ◆ The wholesale electricity price component of the index would be calculated by the mean average of the forecast summer and winter forward prices given by the wholesale electricity price indices as in the Proposed Amendment. The weighting of the components of the wholesale electricity price index would be the same as in the original Amendment Proposal.
- ◆ The RPI component of the index would be applied on a forecast basis.

#### **Alternative Amendment (B)**

NGC proposed Alternative Amendment (B) in response to the consultation. The only difference compared to the original Amendment Proposal is that the RPI element of the index is calculated on an ex-ante rather than ex-post basis. Forecast RPI figures will also not be replaced with actual figures when these are available. This is to minimise any practical difficulties in respect of settlement.

NGC highlighted that actual RPI data is not published until around the 15<sup>th</sup> – 18<sup>th</sup> day of each month and that this may lead to reactive power payments not being finalised in time for the 18<sup>th</sup> business day of the month, as required by the CUSC.

## **Respondents' views**

NGC received six responses to the consultation in respect of the Proposed Amendment CAP045. Four of these supported the Proposed Amendment, one raised and supported Alternative Amendment (A) and one raised and supported Alternative Amendment (B).

All respondents supported the 50:50 weighting of monthly RPI and monthly wholesale electricity price for the new indexation method for the reactive power default payment rate. All respondents also supported the proposed composition of the monthly wholesale electricity price component of the index.

One respondent did not support the use of monthly indexation, whereas the remaining five respondents supported this. Two respondents commented that the use of a monthly indexation of the reactive power default payment rate would take account of short-term price movements and will increase the cost-reflectivity of the provision of the service.

Three respondents specifically supported ex post calculation and application of the indexation of the reactive power default payment rate. One of these respondents considered that this would only create a minor difficulty for submitting reactive power tenders as wholesale electricity price forward curves and RPI forecasts will be readily available to enable the index to be forecast with a considerable certainty. One respondent was opposed to ex-post application as it considered that an ex-ante application would provide greater certainty in the provision of reactive power services and pose fewer practical difficulties in respect of settlement.

Four respondents were opposed to using a forecast value for RPI, whereas one respondent supported this. One respondent stated a preference for having payments deferred rather than using forecast RPI to be able to complete the calculation of the indexation of the reactive power default payment rate. Another respondent said it would be better to change the CUSC to delay the date for payments for default reactive power provision.

The respondents' views are summarised and contained in the Amendment Report in respect of the Proposed Amendment.

## **Amendments Panel Members' views**

No members of the Amendment Panel expressed a view during the consultation.

Charles Davies wrote to Ofgem on behalf of both NGC and the Amendments Panel on 24 April 2003 under clause 8.16.4(e) of the CUSC to ask if Ofgem had any objection to extending the timetable for submitting the Amendment Report from 6 May 2003 to 13 May 2003. This was to allow proper assessment of the Alternative Amendments which had been proposed in response to the consultation and to prepare legal drafting for the Alternative Amendments. The Authority replied to the letter on 24 April 2003 and did not object to the extension of the timetable.

NGC circulated a draft Amendment Report on 1 May 2003 and invited further comments by 12 May 2003. NGC submitted the final Amendment Report to the Authority on 13 May 2003.

### **Respondents' views on draft Amendment Report**

NGC received two responses to the draft Amendment Report. These identified a number of administrative errors which were addressed in the Final Amendment Report.

### **Amendments Panel Members' views on draft Amendment Report**

No members of the Amendment Panel expressed a view on the draft Amendment Report.

### **NGC's recommendation**

NGC recommended that Alternative Amendment (B) be approved. It was recommended that if the Authority approved the Proposed Amendment or one of the two Alternative Amendments, implementation should be on 1 April 2004.

NGC supported the principles of the Proposed Amendment. However it recommended Alternative Amendment (B) on the basis of its concerns over the settlement of payment for reactive power services given that this may only take place once the index is finalised.

NGC considered Alternative Amendment (B) would better facilitate achievement of the Applicable CUSC Objectives compared to the Proposed Amendment by enabling NGC to fulfil the obligations imposed on it under the Act and by the transmission licence without reducing the benefit of the improved cost-reflectivity of the reactive power default payment rate

NGC did not support Alternative Amendment (A).

### **Ofgem's view**

Ofgem considers, having had regard to the Applicable CUSC Objectives and its statutory duties, that Alternative Amendment (B) would better facilitate achievement of the Applicable CUSC Objectives. Ofgem also considers that Alternative Amendment (B) would better facilitate achievement of the Applicable CUSC Objectives compared to the Proposed Amendment and Alternative Amendment (A).

Ofgem considers that it would be desirable to introduce market based arrangements for all services that NGC use in balancing the transmission system, where competitive arrangements for the provision of these services can be demonstrated. Ofgem therefore fully supports the work currently under way by the BSSG to consider all the issues that need to be resolved to be able to develop a market mechanism for the current mandatory service. Ofgem encourages all Users to as actively as possible take part in this important work by the BSSG.

However, in the absence of a fully market based approach to reactive power provision, it would be desirable to have in place some form on indexation of the default payment rate for the service to ensure that service providers are remunerated for the costs they incur. Ofgem therefore

consider it appropriate to implement a new indexation method for the default reactive power payment rate from 1 April 2004, when the current indexation method expires.

Applicable CUSC Objective (a) the efficient discharge by the licensee of the obligations imposed upon it under the Act and by this licence.

NGC has a range of statutory duties and licence obligations which include ensuring the efficient, economic and co-ordinated operation of the System, the facilitation of competition<sup>9</sup> (addressed below) and non-discrimination<sup>10</sup>. Ofgem considers that Alternative Amendment (B) will enhance NGC's discharge of these obligations.

Ofgem considers that one element of the cost of providing reactive power relates to the decrease in overall efficiency in operating the generation station. Ofgem considers that the costs related to the decrease in overall efficiency when providing reactive power would be more accurately represented by the inclusion of a wholesale electricity price element in the index for the default payment for reactive power provision.

Ofgem also considers that it is likely that the costs of providing reactive power would vary with seasonal changes in the demand and generation pattern on the transmission system with the resulting seasonal changes in the electricity wholesale price. Ofgem therefore considers that within year adjustments to the indexation of the default reactive power payment rate would lead to a more cost reflective remuneration for the service. For these reasons, Ofgem considers that Alternative Amendment (B) would lead to a more cost reflective remuneration of the mandatory reactive power service compared to the current indexation method which is based purely on an annual RPI indexation.

Ofgem considers that market based arrangements for the provision of all services that NGC use in balancing the transmission system would be desirable. However, in the absence of fully market based arrangements for the mandatory reactive power service, Ofgem considers that better cost reflection for this service would enhance NGC's ability to discharge its licence obligation to ensure the efficient, economic and co-ordinated operation of the transmission system. Ofgem therefore considers that Alternative Amendment (B) would better facilitate achievement of Applicable CUSC Objective (a).

Ofgem considers that the Proposed Amendment and Alternative Amendment (A) would also improve cost reflection of the mandatory reactive power service, as they both include the wholesale electricity price element in the indexation methodology for the default reactive power rate. However, Ofgem considers that Alternative Amendment (B) would better facilitate achievement of Applicable CUSC Objective (a) compared with both the Proposed Amendment and Alternative Amendment (A).

Alternative Amendment (A) only provides for an annual indexation compared to the monthly indexation in the Proposed Amendment and in Alternative Amendment (B). Ofgem considers

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<sup>9</sup> Section 9 (2) (b) of the Electricity Act 1989.

<sup>10</sup> Condition C7C of the Transmission Licence.

that Alternative Amendment (A) therefore would not be able to reflect within year changes to the cost of providing mandatory reactive power. Ofgem considers Alternative Amendment (B) would lead to better cost reflection in the payment rate for mandatory reactive power and it would therefore better facilitate the achievement of Applicable CUSC objective (a) compared to Alternative Amendment (A).

NGC considered that it would be more efficient to use forecast data for RPI than actual RPI data. This was to avoid problems with making the payments for the mandatory reactive power service on time given the short timescales involved between the publication of the monthly actual RPI data and the date that the CUSC stipulates for payment. NGC also highlighted that by using forecast RPI data it would avoid having an ongoing reconciliation process for the reactive power payments. Ofgem notes the view of some respondents that they would prefer to have payments deferred rather than having it based on forecast RPI figures. Ofgem agrees with NGC that using forecast data for the monthly RPI figure would be more efficient compared to the mechanism under the Proposed Amendment, as it would avoid any complications with final payments for the reactive power service and also avoid an ongoing reconciliation process and any costs associated with it. Ofgem also agrees with NGC's view that forecast month ahead RPI figures are not materially different to actual RPI figures and therefore does not consider that the use of forecast RPI will materially impact on the degree of cost reflection achieved by this indexation method. Ofgem considers that if payments were to be deferred rather than using forecast RPI, another change to section 4 of the CUSC would be necessary. Such a change is not part of the Proposed Amendment or any of the Alternative Amendments and has therefore not been subject to appropriate consultation by interested parties. For these reasons, Ofgem considers that Alternative Amendment (B) would better facilitate achievement of Applicable CUSC Objective (a) as compared to the Proposed Amendment.

Applicable CUSC Objective (b) facilitating effective competition in the generation and supply of electricity, and (so far as consistent therewith) facilitating such competition in the sale, distribution and purchase of electricity.

As explained above, Ofgem considers that the Proposed Amendment and both of the Alternative Amendments would lead to better cost reflection of the mandatory reactive power service, and that the Proposed Amendment and Alternative Amendment (B) could be expected to achieve a higher degree of cost reflection than Alternative Amendment (A). Ofgem considers that there is potential for a beneficial interaction of the improved cost-reflectivity of the mandatory reactive power service with the current competitive tendering process for the reactive power service. Ofgem therefore considers that the Proposed Amendment, and both Alternative Amendments would better facilitate achievement of Applicable CUSC Objective (b). However, as Ofgem considers Alternative Amendment (A) would lead to less cost reflective arrangements compared to the Proposed Amendment or Alternative Amendment (B), Ofgem considers the Alternative Amendment (A) would better facilitate achievement of Applicable CUSC Objective (b) to a lesser extent than the Proposed Amendment and Alternative Amendment (B).

In conclusion, Ofgem considers Alternative Amendment (B) would better facilitate both of the Applicable CUSC Objectives, and it would also better facilitate the Applicable CUSC Objectives compared to the Proposed Amendment and Alternative Amendment (A).

### **The Authority's Decision**

The Authority has therefore decided to direct that Alternative Amendment (B), as set out in the Amendment Report, should be made and implemented.

### **Direction under Condition C7F.7(a) of NGC's Transmission Licence**

Having regard to the above, the Authority, in accordance with Condition C7F.7(a) of the licence to transmit electricity treated as granted to NGC under Section 6 of the Electricity Act 1989 as amended (the "Transmission Licence"), hereby directs NGC to modify the CUSC in respect of Alternative Amendment (B), as set out in the Amendment Report.

The modification is to be implemented and take effect from 1 April 2004.

In accordance with Condition C7F.7(b) of NGC's Transmission Licence, NGC shall modify the CUSC in accordance with this direction of the Authority.

Please contact me on the above number if you have any queries in relation to the issues raised in this letter.

Yours sincerely

A handwritten signature in black ink, appearing to read "Sonia Brown".

**Sonia Brown**

**Director of Electricity Trading Arrangements**

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