



National Grid

GRID CODE CONSULTATION DOCUMENT

Grid Code Implications of CUSC Amendment Proposal No 2 (CAP002) to clarify clause 6.5.1

The purpose of this document is to consult on the above Grid Code Modification Proposal with authorised electricity operators liable to be materially affected by the proposed changes

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DISTRIBUTION

Name	Organisation
AEO's	Various
GCRP Members/Alternates	Various
Interested Parties	Various
National Grid Industry Information Website	

A. Introduction

1. The National Grid Company plc ("National Grid"), in accordance with its obligations under paragraph 2 of Condition 7 of the Transmission Licence, believes that the time has come to review, in consultation with authorised electricity operators liable to be materially affected thereby, the Grid Code and its implementation in certain respects.
2. This review is concerned with necessary changes to the Grid Code arising from a proposed amendment to the Connection and Use of System Code (CUSC) which will have the effect of rendering certain provisions of the Grid Code unenforceable. The proposed changes to the Grid Code were discussed at the Grid Code Review Panel meeting held on 21st February 2002. National Grid indicated that, subject of the outcome of discussions to be held with the DTI, Ofgem and Network Operators, it was its intention to issue a Consultation Paper.
3. Following receipt of comments from those authorised electricity operators which it has consulted by this Paper, National Grid intends, in accordance with paragraph 2 of Condition 7 of the Transmission Licence, to send to the Authority :-
 - (a) a report on the outcome of its review, including this consultation process;
 - (b) the proposed revisions to the Grid Code which National Grid (having regard to the outcome of such review) reasonably thinks fit for the achievement of the objectives of the Grid Code referred to in sub-paragraph (b) of paragraph 1 of Condition 7 of the Transmission Licence; and
 - (c) any written representations or objections from authorised electricity operators (including any proposals by such operators for revisions to the Grid Code not accepted by National Grid in the course of the review) arising during the consultation process and subsequently maintained.
4. The revisions to the Grid Code proposed by National Grid and sent to the Authority then require approval by that body and will, if approved, come into force on such date (or dates) of which you will be notified by National Grid, in accordance with the Authority's approval.

B. DESCRIPTION OF THE PROPOSED AMENDMENTS AND THEIR EFFECTS

5. A licensed Generator with an Embedded Medium Power Station is currently bound to comply with the Grid Code as a result of a condition in its licence. However, a licence may not be required for new Embedded Medium Power Stations as a result of the licence exemption arrangements introduced by the DTI and so there would be no licence obligation on a new Generator with an Embedded Medium Power Station to comply with the Grid Code. Certain Generators with existing Embedded Power Stations have Bilateral Agreements with National Grid under the CUSC (previously MCUSA) which have the effect of binding the Generator by contract to comply with the Grid Code. There is a proposal to amend the CUSC to clarify the position on new smaller embedded Power Stations. This will make it is clear there must be co-ordination on their connection to the Distribution System but will also to remove any suggestion that the relevant Network Operator must ensure that the Generator has a direct agreement with National Grid. In the context of this and recognising that there may no longer be a direct agreement for all Embedded Power Stations, changes are required to maintain National Grid's ability to obtain appropriate data in relation to those Embedded Medium Power Stations who are not required to have such an agreement. National Grid will still require certain data in order to meet its licence requirements in respect of the Grid Code and System Security and Quality of Supply generally.

6. Background

Current Position and the effect of the proposed CUSC Amendment

- 6.1 The Electricity (Class Exemptions from a Requirement for a Licence) Order 2001 provides that no licence is required by a person operating a new small generating station that is capable of providing no more than 50MW. In addition, Generators without existing connections whose plant will not provide more than 100MW of power to the total system may apply for an individual exemption. In deciding whether to grant such an exemption the Secretary of State is required to consult Ofgem, National Grid and the distribution licence holder to whose network the generator proposes to connect.
- 6.2 The consultation referred to in the previous paragraph provides an opportunity for National Grid to request that a condition of any exemption granted is that the Generator will be bound to conditions equivalent to some of those currently in the Grid Code relating to the design of the Power Station or to become a CUSC Party and enter into a Bilateral Agreement binding them to the Grid Code.
- 6.3 The proposed changes to the CUSC will introduce a requirement for Network Operators to provide National Grid with limited details of Embedded Power Stations above a certain size (30 or 50MW, depending on the decision to be made by the Authority) such that National Grid can assess whether any work is required on the Transmission System to accommodate the new Power Station. However, a consequence of the proposed CUSC amendment is to remove any obligation on the Network Operator to ensure that there is in place a contractual link binding a new Generator with an Embedded

Medium Power Station directly to National Grid. Hence there will be no means through the CUSC itself by which National Grid can bind the Generator to comply with the Grid Code.

- 6.4 In the context of this, there is a need for National Grid to put in place a revised approach in its Grid Code in order to reflect its licence obligations in relation to the Grid Code and to meet System Security and Quality of Supply requirements generally. As any conditions attached to a licence exemption will only deal with plant design aspects, there is a need to ensure that National Grid can obtain information about the relevant Power Station as currently laid out in the Grid Code.

Future Developments

- 6.5 The DTI have indicated that until a more enduring solution is put in place, the existing licence exemption arrangements will remain in place and that appropriate conditions will continue to be placed in any licence exemptions granted. The DTI is aware that discussions between National Grid, distribution licence holders and others have led to the CUSC Amendment Proposal with the aim of permitting National Grid to prepare for new connections of plant in the less than 100MW category (Embedded Small or Medium Power Stations) and to provide for a "one stop shop" for embedded generators seeking a connection. The DTI have indicated that once the CUSC (and any other industry documents requiring consequential change) have been amended, they would wish to see the licence exemption limit raised to 100MW, with no conditions attached.
- 6.6 It is anticipated that changes will be made to other industry documentation, possibly the Distribution Code, to introduce additional provisions relating to the connection of Embedded Medium Power Stations and to the provision of appropriate data to National Grid to replace those requirements currently residing in the Grid Code. However, the introduction of these changes will be dependent on the outcome of a cross-industry review of the provisions deemed to be necessary to ensure that they appropriate for this type of Generator.
- 6.7 It is the view of National Grid that these issues may take some time to resolve and that the Grid Code changes proposed in this paper do not provide a satisfactory long-term solution. Hence, National Grid will be seeking to expedite the cross-industry review referred to in the previous paragraph with a view to the implementation of other documentation changes and further Grid Code changes as soon as possible.
- 6.8 In the meantime, National Grid believes that if the proposed changes to the CUSC are implemented then it will be necessary to introduce some interim Grid Code changes at the same time to ensure that National Grid can continue to meet its licence obligations until the wider review is completed.

7. Proposed Changes to be effective from the implementation date of the CUSC 6.5.1 Amendment (proposed or alternative)

7.1 Planning Code (PC)

Changes to the Planning Code are proposed so that the provisions relating to Embedded Medium Power Stations become similar to those applicable to Embedded Small Power Stations. The effect of the changes will be that details about these power stations will no longer be required on a routine basis and they will be accounted for in generalised data provided by Network Operators. However in a case where National Grid believes that the effect of an individual Embedded Medium Power Station may have a significant effect on the NGC Transmission System, the Network Operator may be requested to provide detailed data relating to specific Embedded Power Stations. This proposal for change has been formulated to minimise the workload burden imposed on Network Operators.

7.2 Connection Conditions (CC) and Operating Code No 5 (OC5)

No changes to the Generating Unit requirements part of the Connection Conditions (CC.6.3) nor the Testing and Monitoring provisions (OC5) are proposed at this stage, although it is recognised that there will be no obligation on the part of an unlicensed Generator with an Embedded Medium Power Station to comply with this part of the Code. Equivalent obligations will be applied via the conditions attached to its licence exemptions in the short term, although it is National Grid's view that this does not provide an ideal solution. In the longer term it is anticipated that additional provisions will be included elsewhere and that the Connection Conditions of the Grid Code will be amended to recognise the transfer of requirements. In the interim period National Grid will apply to be derogated against implementing this part of the Connection Conditions (and parts of OC5) in respect of an unlicensed Generator with an Embedded Medium Power Station to avoid major changes to the Connection Conditions at this stage.

7.3 Operating Code No 1 (OC1)

Changes are proposed which have the effect of transferring the flow of data from Embedded Medium Power Stations to National Grid to a route via the Network Operator in whose system the power station is embedded.

7.4 Balancing Codes (BCs)

BC1 and BC2 (and CC.6.5) contain provisions which are applicable to Small and Embedded Medium Power Stations which are BM Units in respect of the submission of data and receipt of Bid-Offer Acceptances. The process for the registration of BM Units (under the Balancing and Settlement Code, Section K, Paragraph 1.2.5) requires that all appropriate Connection Agreements are in place. This includes the CUSC and a Bilateral Agreement in respect of the liabilities for Balancing Services Use of System (BSUoS) and Transmission Network Use of System (TNUoS) charges. In signing onto the CUSC, these Power Stations become bound to the relevant parts of the Grid

Code. Other Embedded Small or Medium Power Stations do not need to comply with these sections and hence, no changes are proposed to BC1 or BC2.

7.5 The changes

The proposed Grid Code changes are shown in Appendix 1 with proposed changes marked against the current Grid Code, additions being double-underlined and deletions struck-through. These changes are similar to those included in the paper to the Grid Code Review Panel in February 2002, but with some provisions deleted to reflect the outcome of discussions since that date.

C. COMMENTS

8. National Grid would be grateful to receive your comments on, or any suggestions you may have in relation to, these proposed amendments to the Grid Code. Comments would be welcomed and should be sent to National Grid by 24th May 2002. The comments will be reviewed and responded to and National Grid will then prepare its report to the Authority.
9. Your formal responses may be:-

Posted to: Mr Geoff Charter
Commercial Development
The National Grid Company plc
National Grid House
Kirby Corner Road
Coventry
CV4 8JY

Faxed to: 024 7642 3298

Emailed to: geoff.charter@uk.ngrid.com

Appendix 1

A Extracts from Planning Code

- PC.3.2 In the case of **Embedded Power Stations**, unless provided otherwise, the following provisions apply with regard to the provision of data under this **PC**:
- (a) each **Generator** shall provide the data direct to **NGC** in respect of **Embedded Large Power Stations**—~~and Embedded Medium Power Stations~~;
 - (b) although data is not normally required specifically on **Embedded Small Power Stations** or **Embedded Medium Power Stations** under this **PC**, each **Network Operator** in whose **System** they are **Embedded** should provide the data (contained in the Appendix) to **NGC** in respect of **Embedded Small Power Stations** or **Embedded Medium Power Stations** if:
 - (i) it falls to be supplied pursuant to the application for a **CUSC Contract** or in the **Statement of Readiness** to be supplied in connection with a **Bilateral Agreement** and/or **Construction Agreement**, by the **Network Operator**; or
 - (ii) it is specifically requested by **NGC** in the circumstances provided for under this **PC**.
- PC.3.3 Certain data does not normally need to be provided in respect of certain **Embedded Power Stations**, as provided in PC.A.1.12.
- PC.4 PLANNING PROCEDURES
- PC.4.1 Pursuant to Supplementary Standard Condition C7G of the **Transmission Licence**, the means by which **Users** and proposed **Users** of the **NGC Transmission System** are able to assess opportunities for connecting to, and using, the **NGC Transmission System** comprise two distinct parts, namely:
- (a) a statement, prepared by **NGC** under the **Transmission Licence**, showing for each of the seven succeeding **NGC Financial Years**, the opportunities available for connecting to and using the **NGC Transmission System** and indicating those parts of the **NGC Transmission System** most suited to new connections and transport of further quantities of electricity (the "**Seven Year Statement**"); and
 - (b) an offer, in accordance with the **Transmission Licence**, by **NGC** to enter into a **CUSC Contract** for connection to (or, in the case of **Embedded Large Power Stations** and ~~other Embedded Medium Power Stations~~ who are **BM Units**, use of) the **NGC Transmission System**. A

Bilateral Agreement is to be entered into for every **Connection Site** (and for certain **Embedded Power Stations**, as explained above) within the first two of the following categories and the existing **Bilateral Agreement** may be required to be varied in the case of the third category:

- (i) existing **Connection Sites** (and for certain **Embedded Power Stations**, as detailed above) as at the **Transfer Date**;
- (ii) new **Connection Sites** (and for certain **Embedded Power Stations**, as detailed above) with effect from the **Transfer Date**;
- (iii) a **Modification** at a **Connection Site** (or in relation to the connection of certain **Embedded Power Stations**, as detailed above) (whether such **Connection Site** or connection exist on the **Transfer Date** or are new thereafter) with effect from the **Transfer Date**.

In this **PC**, unless the context otherwise requires, "connection" means any of these 3 categories.

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APPENDIX A

PLANNING DATA REQUIREMENTS

PC.A.1.2

- (d) The routine annual update of data, referred to in (a)(iii) above, need not be submitted in respect of **Embedded Medium Power Stations or Small Power Stations** (except as provided in PC.3.2.(b)), or unless specifically requested by **NGC**, or unless otherwise specifically provided.

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PART 1

STANDARD PLANNING DATA

PC.A.2 **USER'S SYSTEM DATA**

PC.A.2.1 Introduction

PC.A.2.1.1 Each **User**, whether connected directly via an existing **Connection Point** to the **NGC Transmission System**, or seeking such a direct connection, shall provide **NGC** with data on its **User System** which relates to the **Connection Site** and/or which may have a system effect on the performance of the **NGC Transmission System**. Such data, current and forecast, is specified in PC.A.2.2 to PC.A.2.5. In addition each **Generator** with **Embedded Large Power Stations or Embedded Medium Power Stations** ~~connected to the Subtransmission System,~~ shall provide **NGC**

with fault infeed data as specified in PC.A.2.5.5. **Each Network Operator shall provide such fault infeed data in respect of Embedded Medium Power Stations connected to the Subtransmission System forming part of its User System if requested by NGC.**

PC.A.2.1.2 Each **User** must reflect the system effect at the **Connection Site(s)** of any third party **Embedded** within its **User System** whether existing or proposed.

PC.A.2.1.3 Although not itemised here, each **User** with an existing or proposed **Embedded Small Power Station** or **Medium Power Station** in its **User System** may, at **NGC's** reasonable discretion, be required to provide additional details relating to the **User's System** between the **Connection Site** and the existing or proposed **Embedded Small Power Station** or **Medium Power Station**.

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PCA.2.5.5 Data from **Generators**

PC.A.2.5.5.1 For each **Generating Unit** with one or more associated **Unit Transformers**, the **Generator** (or **Network Operator** as provided in PC.A.2.1.1) is required to provide values for the contribution of the **Power Station Auxiliaries** (including **Auxiliary Gas Turbines** or **Auxiliary Diesel Engines**) to the fault current flowing through the **Unit Transformer(s)**.

The data items listed under the following parts of PC.A.2.5.6(a) should be provided:-

- (i), (ii) and (v);
- (iii) if the associated **Generating Unit** step-up transformer can supply zero phase sequence current from the **Generating Unit** side to the **NGC Transmission System**;
- (iv) if the value is not 1.0 p.u;

and the data items shall be provided in accordance with the detailed provisions of PC.A.2.5.6(c) - (f), and with the following parts of this PC.A.2.5.5.

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Embedded

PC.A.3.1.2 (a) Each **Generator** with an existing, or proposed, **Embedded Large Power Station** ~~and/or an Embedded Medium Power Station connected to the Sub Transmission System~~, shall provide **NGC** with data relating to that **Power Station**, both current and forecast, as specified in PC.A.3.2 to PC.A.3.4.

- (b) No data need be supplied in relation to any **Small Power Station** or any **Medium Power Station**, connected at a voltage level **at or** below the voltage level of the **Subtransmission System** except:-
- (i) in connection with an application for, or under, a **CUSC Contract**, or
 - (ii) unless specifically requested by **NGC** under PC.A.3.1.4,
- in which case it will be provided by the **Network Operator** in whose **User System** the **Small Power Station** or **Medium Power Station** is connected.
- PC.A.3.1.3 (a) Each **Network Operator**) shall provide **NGC** with the data specified in PC.A.3.2.2(c).
- (b) **Network Operators** need not submit planning data in respect of an **Embedded Medium Power Station** or an **Embedded Small Power Station** unless required to do so under PC.A.1.2(b) or unless specifically requested under PC.A.3.1.4 below, in which case they will supply such data.
- PC.A.3.1.4 (a) PC.A.4.2.3(b) and PC.A.4.3.2(a) explain that the forecast **Demand** submitted by each **Network Operator** must be net of the output of all **Small Power Stations** and **Medium Power Stations** and **Customer Generating Plant Embedded** in that **Network Operator's System**. The **Network Operator** must inform **NGC** of the number of such **Embedded Power Stations** (including the number of **Generating Units**) together with their summated capacity.
- (b) On receipt of this data, the **Network Operator** ~~or Generator~~ ~~(if the data relates to Power Stations referred to in PC.A.3.1.2)~~ may be further required, at **NGC's** reasonable discretion, to provide details of **Embedded Small Power Stations** and **Embedded Medium Power Stations** and **Customer Generating Plant**, both current and forecast, as specified in PC.A.3.2 to PC.A.3.4. Such requirement would arise where **NGC** reasonably considers that the **effect of an individual Embedded Medium Power Station** or the collective effect of a number of such **Embedded Power Stations** and **Customer Generating Plants** may have a significant system effect on the **NGC Transmission System**.

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PART 2

DETAILED PLANNING DATA

PC.A.5 **GENERATING UNIT DATA**

PC.A.5.1 Introduction

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Embedded

PC.A.5.1.2 Each **Generator**, with existing or proposed **Embedded Large Power Stations** ~~and **Embedded Medium Power Stations**~~ shall provide **NGC** with data relating to each of those **Large Power Stations** ~~and/or **Medium Power Stations**~~, both current and forecast, as specified in PC.A.5.2 and PC.A.5.3. ~~However, n~~No data need be supplied in relation to ~~those~~ **Embedded Medium Power Stations** if they are connected at a voltage level ~~at or~~ below the voltage level of the **Subtransmission System** ~~except in connection with an application for, or under a, **CUSC Contract** or~~ unless specifically requested by **NGC** under PC.A.5.1.4, in which case the data will be provided in accordance with PC.A.5.1.3 below.

PC.A.5.1.3 Each **Network Operator** need not submit **Planning Data** in respect of **Embedded Small Power Stations** or **Embedded Medium Power Stations** unless required to do so under PC.A.1.2(b) or unless specifically requested under PC.A.5.1.4 below, in which case they will supply such data.

PC.A.5.1.4 PC.A.4.2.3(b) and PC.A.4.3.2(a) explained that the forecast **Demand** submitted by each **Network Operator** must be net of the output of all **Medium Power Stations** and **Small Power Stations** and **Customer Generating Plant Embedded** in that **User's System**. In such cases (PC.A.3.1.4 also refers), the **Network Operator** must inform **NGC** of the number of such **Power Stations** (including the number of **Generating Units**) together with their summated capacity. On receipt of this data, the **Network Operator** or **Generator** (if the data relates to **Power Stations** referred to in PC.A.5.1.2) may be further required at **NGC's** discretion to provide details of **Embedded Small Power Stations** and **Embedded Medium Power Stations** and **Customer Generating Plant**, both current and forecast, as specified in PC.A.5.2 and PC.A.5.3. Such requirement would arise when **NGC** reasonably considers that the ~~effect of an individual **Embedded Medium Power Station** or the~~ collective effect of a number of such **Embedded Small Power Stations** and **Embedded Medium Power Stations** and **Customer Generating Plants** may have a significant system effect on the **NGC Transmission System**.

2 Extracts from Operating Code No1 (OC1)

OC1.3 SCOPE

OC1 applies to **NGC** and to **Users** which in this **OC1** means:-

- (a) **Generators,**
- (b) **Network Operators,** and
- (c) **Suppliers.**

In relation to an **Embedded Medium Power Station**, the **Network Operator** to whose **System** it is connected must ensure that it receives sufficient data under its **Distribution Code** to enable it to fulfil its obligations under this **OC1** in relation to such **Power Station**.

OC1.4 DATA REQUIRED BY NGC IN THE OPERATIONAL PLANNING PHASE

OC1.4.1 (a) Each **User**, as specified in (b) below, shall provide **NGC** with the data requested in OC1.4.2 below.

- (b) The data will need to be supplied by:-
 - (i) each **Network Operator** directly connected to the **NGC Transmission System** in relation to **Demand Control** and in relation to each **Embedded Medium Power Station** within its **User System**; and
 - (ii) each **Generator** with respect to the output of **non-embedded Medium Power Stations**.

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OC1.5 DATA REQUIRED BY NGC IN THE PROGRAMMING PHASE, CONTROL PHASE and POST-CONTROL PHASE

OC1.5.1 Programming Phase

For the period of 2 to 8 weeks ahead the following will be supplied to **NGC** in writing by 1000 hours each Monday:

- (a) **Demand Control:**
Each **Network Operator** will supply MW profiles of the amount and duration of their proposed use of **Demand Control** which may result in a **Demand** change of 12MW or more (averaged over any half hour on any **Grid Supply Point**) on a half hourly and **Grid Supply Point** basis;
- (b) **Medium Power Station Operation:**
Each **Generator** (or **Network Operator** in the case of **Embedded Medium Power Stations**) will, if reasonably required by **NGC**, supply MW schedules for the operation of **Medium Power Stations** on a half hourly and **Grid Supply Point** basis.

OC1.5.2 For the period 2 to 12 days ahead the following will be supplied to **NGC** in writing by 1200 hours each Wednesday:

- (a) **Demand Control:**
Each **Network Operator** will supply MW profiles of the amount and duration of their proposed use of **Demand Control** which may result in a **Demand** change of 12MW or more (averaged over any half hour on any **Grid Supply Point**) on a half hourly and **Grid Supply Point** basis;
- (b) **Medium Power Station Operation:**
Each **Generator (or Network Operator in the case of Embedded Medium Power Stations)** will, if reasonably required by **NGC**, supply MW schedules for the operation of **Medium Power Stations** on a half hourly and **Grid Supply Point** basis.

OC1.5.3 **Medium Power Station Output:**
Each **Generator (or Network Operator in the case of Embedded Medium Power Stations)** will, if reasonably required by **NGC**, supply **NGC** with MW schedules for the operation of **Medium Power Stations** on a half hourly and **Grid Supply Point** basis in writing by 1000 hours each day (or such other time specified by **NGC** from time to time) for the next day (except that it will be for the next 3 days on Fridays and 2 days on Saturdays and may be longer (as specified by **NGC** at least one week in advance) to cover holiday periods).‡

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