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Bringing choice and value to customers

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30 April 2009

Dear David

REVIEW OF THE GRID CODE: DECISION AND NOTICE IN RELATION TO CONSULTATION A/09 (Grid Code Requirements for Synchronous Generating Units Exceeding Rated MW)

The Gas and Electricity Markets Authority (the "Authority")[1] has carefully considered the changes that NGET[2] has proposed to its Grid Code as set out in the report to the Authority arising from consultation A/09 (Grid Code Requirements for Synchronous Generating Units Exceeding Rated MW)[3] that has been submitted to it for approval.

The Authority has decided to approve the proposed changes to the Licensee's Grid Code (the "Grid Code") as set out in the Appendix A of the report to the Authority arising out of Consultation A/09. In conjunction, the Authority has decided to direct the amendments to the Grid Code[4] as set out in Appendix 1 of this letter.

This document explains the background to the proposals and sets out the Authority's reasons for its decision to approve these changes to the Grid Code and direct the amendments set out in Appendix 1. This letter constitutes notice by the Authority under Section 49A of the Electricity Act 1989 in relation to these decisions.

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1 Ofgem is the office of the Authority. The terms "we", "Ofgem" and "the Authority" are used interchangeably in this letter.
2 National Grid Electricity Transmission plc
3 Report from NGET – Consultation Reference A/09, Issue 1.0, Date of Issue 27 March 2009. http://www.nationalgrid.com/NR/rdonlyres/B319559D-29BD-470C-8546-9380EBAB73B9/33094/ReporttotheAuthorityA091.pdf
4 As permitted in C14.4

Background to the proposed changes to NGET's Grid Code

NGET reviewed the reactive power capability range requirements for synchronous generating units as defined in the Grid Code. This review was undertaken to address a perceived deficiency in Grid Code requirements. NGET and GCRP agreed that there was a need to define reactive power capability range obligations for synchronous generating units which are operated above the rated MW of that synchronous generating unit. NGET with the assistance of a GCRP working group, reviewed requirements defined in the Connection Conditions ("CC") and Balancing Code 1 ("BC1") of the Grid Code.

NGET proposes changes to the Grid Code:

- Connection Conditions – to specify technical requirements for reactive power capability range requirements at active power output levels other than rated MW.
- Balancing Code 1 ("BC1") – to allow NGET to instruct a generator to resubmit its Physical Notification for a synchronous generating unit operating above rated MWs where required for system needs (for example, if the system requires full reactive support from the generating unit). This instruction would be supported by a Transmission Related Agreement to ensure that NGET (and therefore consumers) is not exposed to any balancing costs associated with the instructions (as long as issued at least one hour ahead of gate closure).

NGET considers that the A/09 Grid Code change proposal will:

- improve the transparency of technical obligations in respect of synchronous generating units where the generator chooses to operate above rated MW;
- alleviate NGET's concerns about system security associated with a generator choosing to operate a synchronous generating unit above rated MW;
- enable generators to operate above rated MW as often as possible, and
- apply consistent, visible operating conditions to all generators seeking to operate synchronous generating plant above rated MW.

NGET explained that this change proposal is intended as an interim solution that will apply to new synchronous generating units and existing synchronous generating units where the generator is seeking a modification to its bilateral agreement with NGET to be able to operate above rated MW. NGET also confirmed that it proposes to establish a new GCRP working group to review the appropriateness of the existing reactive power technical obligations (expected to be initiated in 2009).

NGET received six responses to Consultation A/09 from authorised electricity operators. NGET reported that:

- All respondents were supportive of the proposed Grid Code changes.
- Two respondents provided drafting suggestions that were intended to improve the clarity of the A/09 change proposals.
- One respondent considered that the proposed Grid Code changes were a sensible compromise.

We note that respondents:

- Considered the proposed interim solution that would be introduced by the A/09 Grid Code change proposals to be sensible.
- Sought clarification of the expected duration of this proposed interim solution.

NGET noted in its report to the Authority that it had amended the drafting of the proposed Grid Code changes where possible, to take account of the comments received from respondents relating to the clarity of the drafting.

NGET's recommendation

In its report[5] to the Authority on Consultation A/09 NGET set out the drafting for proposed changes to the Grid Code. It recommended that the Authority approved the proposed changes as NGET considers that the A/09 Grid Code change proposals will promote the security and efficiency of the electricity generation, transmission and distribution system in GB taken as a whole.

Ofgem's view

Grid Code changes require Authority approval under standard condition C14(3) of the Transmission Licence. Having carefully considered the NGET's report on the proposed changes, Ofgem considers that, having had regard to the licensee's obligations[6] set out in condition C14(1)(b) of the Transmission Licence ("the obligations") and Ofgem's wider statutory duties[7], that the proposed changes to the Grid Code should be approved by the Authority. Ofgem's reasons for reaching this decision are outlined below.

We note that the proposed changes to the Grid Code were supported by all respondents to NGET's A/09 consultation. We also note that the proposed Grid Code changes would implement interim arrangements that are consistent with the approach that NGET has been adopting when assessing specific generator requests when a modification to a bilateral agreement is required to permit a synchronous generating unit to operate above rated MW.

We recognise the importance to NGET of the availability of reactive power support when operating the GB transmission system in a secure and efficient manner. We also note that there may be circumstances where a generator is able to operate a synchronous generating unit above rated MW, but with a reactive power output level that is lower than the full reactive power capability range required by the Grid Code. We acknowledge that NGET does not frequently require synchronous generating units to be operated with a maximum reactive power contribution. We consider that the proposed Grid Code changes will facilitate an appropriate balance between NGET's GB transmission system operation requirements and the generator's drivers to improve operating efficiency. We therefore agree with NGET's view that the proposed Grid Code changes will promote the security and efficiency of the electricity systems as a whole.

We note that the proposed changes to the Grid Code will provide generators with more clarity about the reactive power capability obligations applicable to synchronous generating units across the possible operating range for that synchronous generating unit. We consider that this additional clarity will facilitate competition in generation by

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5 As required by C14.2.a

6 The licensee's transmission licence defines the Grid Code objectives as follows:
- (i) to permit the development, maintenance and operation of an efficient, co-ordinated and economical system for the transmission of electricity;
- (ii) to facilitate competition in the generation and supply of electricity (and without limiting the foregoing, to facilitate the GB transmission system being made available to persons authorised to supply or generate electricity on terms which neither prevent nor restrict competition in the supply or generation of electricity); and
- (iii) subject to sub-paragraphs (i) and (ii), to promote the security and efficiency of the electricity generation, transmission and distribution systems in Great Britain taken as a whole.

7 Ofgem's statutory duties are wider than the matters that the NGET has to take into consideration and include amongst other things a duty to have regard to social and environmental guidance provided to Ofgem by the government.

providing existing and potential new entrant generators a clearer idea of the rights and obligations associated with operating a synchronous generating unit.

We received additional comments from a generator representative following the submission of NGET's report to the Authority. This respondent explained that some types of synchronous generating units can be operated above rated MW and be capable of meeting the full reactive power capability range defined in the Grid Code. The respondent observed that the proposed change to BC1 would only allow NGET to instruct the generator to reduce the output from a synchronous generating unit to rated MW. This respondent was concerned that such an instruction could be overly restrictive and proposed alternative drafting for BC1.8.1.

We have reviewed this additional information and consider that the original, proposed change to BC1.8.1 that was set out in the A/09 change proposals could reduce the:

- Reactive support available from a synchronous generating unit at the time when that support is particularly needed by NGET, and
- Efficiency of the generator's operation by more than required for the operation of the GB transmission system.

We acknowledge that comments on Grid Code change proposals are usually made to NGET and considered by NGET before a report to the Authority is submitted. We sought views from NGET on these additional comments. NGET:

- confirmed that it did not envisage that the further changes to BC1.8.1 proposed by the generator representative would compromise the security of the GB transmission system;
- agreed that the original, proposed change to BC1.8.1 included in its report to the Authority may overly restrict a generator's operation and as such was not consistent with the working group's review;
- confirmed that the additional amendment to BC1.8.1 proposed by the generator representative was more consistent with the intent of the A/09 change proposal, and
- also identified a typographical error in BC1.8.1 that it has asked to be corrected.

We have reviewed the change to BC1.8.1 proposed by the generator representative and note that additional flexibility would be available to NGET to restrict any instruction to a generator to reduce output from a synchronous generating unit operating above rated MW, to the level required by operating conditions on the GB transmission system. As such we consider that the revised text proposed for BC1.8.1 is more consistent with discussions at the GCRP working group and the intent stated in NGET's A/09 consultation. The revised drafting for BC1.8.1 is included in Appendix 1 to this letter.

We have considered whether the A/09 change proposal is applicable to offshore generators. We note that the focus of this Grid Code review was existing synchronous generating plant where the reactive power capability range obligations apply at the terminals of the synchronous generating unit. We note that this is not compatible with the proposed reactive power capability range obligations that will apply to offshore generators[8]. NGET has confirmed that the A/09 change proposal is intended to be limited to onshore synchronous generating units and that the new GCRP working group (when established) would consider reactive power requirements for onshore and offshore generators.

[8] It is proposed that the reactive power capability range obligations should apply at the point of connection between the offshore transmission and onshore systems.

The Authority's decision

Based on the reasons set out above the Authority has therefore decided to approve the Grid Code changes set out in Appendix A of the report submitted to the Authority arising from consultation A/09 (Grid Code Requirements for Synchronous Generating Units Exceeding Rated MW). In conjunction it has decided to direct the amendments set out in Appendix 1 that better reflect the types of instruction that NGET may need to issue to a generator operating a synchronous generating unit above rated MW where full reactive support is required for the GB transmission system.

The implementation date for these Grid Code changes is 1 May 2009.

Please do not hesitate to contact Bridget Morgan on 020 7901 7080 if you have any queries in relation to the issues raised in this letter.

Yours sincerely

Stuart Cook
Director, Transmission
Signed on behalf of the Authority and authorised for that purpose by the Authority

cc: Richard Dunn, GCRP Secretary

Appendix 1 – Amendment to Changes Proposed in the Report to the Authority Arising from Consultation A/09 (Grid Code Requirements for Synchronous Generating Units Exceeding Rated MW)

Proposed Changes to Balancing Code 1 (Pre Gate Closure Process)

BC1.8 Provision of **Reactive Power** capability

BC1.8.1 Under certain operating conditions **NGET** may identify through its **Operational Planning** that an area of the **GB Transmission System** may have insufficient **Reactive Power** capability available to ensure that the operating voltage can be maintained in accordance with **NGET's** ~~licence standards~~ **Licence Standards**.

In respect of **Synchronous Generating Unit(s)**

(i) that have a **CEC** in excess of **Rated MW** (or the **CEC** of the **CCGT module** exceeds the sum of **Rated MW** of the **Generating Units** comprising the **CCGT module**); and

(ii) that are not capable of continuous operation at any point between the limits 0.85 **Power Factor** lagging and 0.95 **Power Factor** leading at the **Synchronous Generating Unit** terminals at **Active Power** output levels higher than **Rated MW**; and

(iii) that have either a **Completion Date** on or after 1st May 2009, or where its **CEC** has been increased above **Rated MW** (or the **CEC** of the **CCGT module** has increased above the sum of **Rated MW** of the **Generating Units** comprising the **CCGT module**) such increase takes effect on or after 1st May 2009; and

(iv) that are in an area of potentially insufficient **Reactive Power** capability as described in this clause BC1.8.1,

NGET may instruct the **Synchronous Generating Unit(s)** to limit its submitted **Physical Notifications** to no higher than **Rated MW** (or the **Active Power** output at which it can operate continuously between the limits of 0.85 **Power Factor** lagging to 0.95 **Power Factor** leading at its terminals if this is higher) for a period specified by **NGET**. Such an instruction must be made at least 1 hour prior to **Gate Closure**, although **NGET** will endeavour to give as much notice as possible. The instruction may require that a **Physical Notification** is re-submitted. The period covered by the instruction will not exceed the expected period for which the potential deficiency has been identified. Compliance with the instruction will not incur costs to **NGET** in the **Balancing Mechanism**. The detailed provisions relating to such instructions will normally be set out in the relevant **Bilateral Agreement**.