

**Grid Code Review Panel**  
**Reactive and Frequency Response Fax Form Information**

**Date Raised:** 16 January 2013

**GCRP Ref:** pp13/03

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**Summary**

This paper proposes to introduce changes to BC2 Appendix 3 – Annexure 2 and 3 as well as Appendix 4 – Annexure 1 to add further clarity to the information received within the Reactive Power and Frequency Response fax forms.

**Users Impacted**

**High**

Generators, National Grid

**Medium**

None identified

**Low**

None identified

**Description & Background**

The fax forms in BC2 Appendices 3 and 4 are used by generators to inform National Grid of any changes to their Reactive Power capability and the availability of Frequency Response respectively.

National Grid is replacing its Balancing Mechanism System with the Electricity Balancing System (EBS). Industry responses to EBS Consultation 1 stated that the system should "...remove ongoing reliance on the use of faxes", that "Frequency Response availability submissions and MVAR capability submissions should be carried out electronically" and that "there is an opportunity to improve the accuracy and consistency of information utilised for settlement of ancillary services".

National Grid intends allowing the electronic submission of this data after system go-live, subject to the availability of suitable electronic data communication facilities.

The Grid Code EBS Working Group (EBSG) was established "to consider the changes requested by the industry in response to National Grid's consultations...". At the EBSG meetings in November 2011 and January 2012, revised versions of the BC2 fax forms were used as a vehicle for discussing and agreeing the data that should be exchanged electronically.

**Proposed Solution**

It is proposed to amend BC2 Appendix 3 to simplify and clarify the information that needs to be submitted by the generator.

The proposed changes to the Reactive Power Appendix 3 – Annexure 2 and 3 are as follows:

- To clarify that it is a revision to the data in the relevant Ancillary Service Agreement, rather than the data submitted under OC2.
- To specify the capability in terms of minimum and maximum capability, rather than lead and lag. This removes ambiguity, for example if a generator is constrained to operate in the lead range, at present they must enter the lower of the lead values in the lag column which can cause confusion as to whether the value entered is lead or lag. Such ambiguity can adversely affect the secure, economic and efficient operation of the System and introduce errors in the settlement of the reactive power ancillary service.
- The sections on tap changer restrictions has been removed, as specific information in this area is of low value to National Grid and difficult to communicate in a meaningful way. The fact that it was a tap changer restriction that prompted the change in capability can be noted in the comments field.
- Predicted End Time/Date has been removed as it still required a further fax to be submitted to confirm. Again a predicted end time can be entered in the comments field if known.
- To remove the optional information on the capability at the Commercial Boundary, as National Grid calculates this from the stator terminal data, the Ancillary Service Agreement and week 24 data submissions.

In relation to Annexure 3 only:

- It removes the reference to Power Park Units and replaces it with Power Park Modules as this is the level at which the Mandatory Service Agreement details reactive power capability.
- It removes various options as to the point at which the reactive capability is specified and replaces this with Commercial Boundary (from a metering/settlement point of view, rather than an ownership one).

The proposed changes to the Frequency Response Appendix 4 are as follows:

Fax Form in Annexure 1 of Appendix 4

- Changes to reflect the fact that many generators have multiple frequency response contract modes and that at any one time certain modes may be available where others are unavailable.
- Remove sentence; please provide brief description of reason for unavailability of Frequency Sensitive Mode (e.g. testing, technical problem) – these can still be included in the comments field if appropriate.
- Remove 'If declaring Unavailability Predicted End Time / Date (to be confirmed by re-declaration)' as it still required a further fax to be submitted to confirm. A predicted end time can still be included in the comments field if known.

The proposed legal text to address the issues described above is available within Appendix A of this document.

#### **Assessment against Grid Code Objectives**

***(i) to permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity;***

The proposed changes have a neutral impact on this objective.

***(ii) to facilitate competition in the generation and supply of electricity (and without limiting the foregoing, to facilitate the national electricity 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);***

The proposed changes simplify and clarify the data to be provided by the Generator, thus reducing barriers to entry and facilitating completion.

***(iii) subject to sub-paragraphs (i) and (ii), to promote the security and efficiency of the electricity generation, transmission and distribution systems in the national electricity transmission system operator area taken as a whole; and***

The proposed changes reduce ambiguity by helping ensure that the correct data is used in assessing the security of NETS which represents an improvement.

***(iv) to efficiently discharge the obligations imposed upon the licensee by this license and to comply with the Electricity Regulation and any relevant legally binding decisions of the European Commission and/or the Agency.***

The proposed changes have a neutral impact on this objective.

### **Impact & Assessment**

#### ***Impact on the National Electricity Transmission System (NETS)***

The proposed changes are unlikely to have a material impact on the Transmission System.

#### ***Impact on Greenhouse Gas Emissions***

The proposed changes are not likely to have a material impact on Greenhouse Gas Emissions.

#### ***Impact on core industry documents***

The proposed changes are unlikely to affect the core industry documents.

#### ***Impact on other industry documents***

The proposed changes are unlikely to affect any other industry documents.

### **Supporting Documentation**

Have you attached any supporting documentation: YES

If Yes, please provide the title of the attachment: Appendix A

### **Recommendation**

The Grid Code Review Panel is invited to:

Recommend that the Electricity Balancing System Working Group progress this issue to Industry Consultation.

**APPENDIX A - PROPOSED GRID CODE CHANGES**

**BALANCING CODE NO. 2**

The changes to BC2 affect Appendixes 3 and 4, and are shown below.

**APPENDIX 3 - ANNEXURE 2**

To: **NGET** National Electricity Transmission System Control Centre

From: [Company Name & Location]

**REVISED ~~MVA<sub>r</sub>~~ REACTIVE POWER CAPABILITY DATA – GENERATING UNITS EXCLUDING POWER PARK MODULES ~~UNITS~~ AND DC CONVERTERS**

Notification Time/Date:

HRS MINS DD MM YY . / /
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Start Time/Date:

HRS MINS DD MM YY . / /
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GENERATING UNIT* id [for BM Units quote the NG BM Unit id, for other units quote the Genset id used for OC2 Output Usable submissions] <del>/POWER PARK MODULE DC CONVERTER</del>	
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~~Start Time/Date (if not effective immediately)~~

**REVISION TO THE REACTIVE POWER CAPABILITY AT THE SYNCHRONOUS GENERATING UNIT STATOR TERMINALS (at rated terminal volts) AS STATED IN THE RELEVANT ANCILLARY SERVICES AGREEMENT(S):**

	MW	<del>LEAD(MVA<sub>r</sub>)</del> MINIMUM (MVA <sub>r</sub> +ve for lag, -ve for lead)	<del>LEAD(MVA<sub>r</sub>)</del> MAXIMUM (MVA <sub>r</sub> +ve for lag, -ve for lead)
<del>AT RATED MW</del>			
<b>AT RATED MW</b>			
AT FULL OUTPUT (MW)			
AT MINIMUM UTPUT(MW)			

**~~GENERATING UNIT STEP-UP TRANSFORMER DATA, WHERE APPLICABLE~~**

<del>TAP CHANGE RANGE</del> (+%, -%)	<del>TAP NUMBER RANGE</del>

**~~OPTIONAL INFORMATION (for Ancillary Services use only) – REACTIVE POWER CAPABILITY AT COMMERCIAL BOUNDARY (at rated stator terminal and nominal system volts)~~**

	LEAD (MVARr)	LAG (MVARr)
<b>AT RATED MW</b>		

~~Predicted End Time/Date (to be confirmed by redeclaration)~~

**COMMENTS** e.g. generator transformer tap restrictions, predicted end time if known

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Redeclaration made by (Signature)

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Receipt Acknowledgement from **NET**

Legible (tick box)		Illegible (tick box)	
Explanation:			
Time:			
Date:			
Signature:			

**Generating Unit** has the meaning given in the Glossary and Definitions and is not limited by BC2.2.

\* For a CCGT Module or a Cascade Hydro Scheme, the redeclaration is for a **individual CCGT** Generating Unit within a CCGT Module or Cascade Hydro Scheme **and not the entire module**.

**APPENDIX 3 - ANNEXURE 3**

To: National Electricity ~~GET~~ Transmission System Control Centre

From : [Company Name & Location]:

**REVISED ~~MVA<sub>r</sub>~~ REACTIVE POWER CAPABILITY DATA – POWER PARK UNITS MODULES AND DC CONVERTERS**

Notification Time/Date:

HRS MINS DD MM YY . / /
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Start Time/Date:

HRS MINS DD MM YY . / /
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POWER PARK MODULE / DC CONVERTER id	
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~~Start Time/Date (if not effective immediately)~~

**REVISION TO THE REACTIVE POWER CAPABILITY AT THE COMMERCIAL BOUNDARY AS STATED IN THE RELEVANT ANCILLARY SERVICES AGREEMENT(S):**

- ~~• GRID ENTRY POINT (ENGLAND AND WALES); OR~~
- ~~• HV SIDE OF RELEVANT TRANSFORMER (SCOTLAND); OR~~
- ~~• USER SYSTEM ENTRY POINT (IF EMBEDDED) OF THE POWER PARK MODULE; OR~~
- ~~• DC CONVERTER OR THE AGGREGATED CAPABILITY OF THE POWER PARK UNITS AT THE POWER PARK UNIT TERMINALS~~

	MW	<del>LEAD</del> (MVA <sub>r</sub> ) MINIMUM (MVA <sub>r</sub> +ve for lag, -ve for lead)	<del>LAG (MVA<sub>r</sub>)</del> MAXIMUM (MVA <sub>r</sub> +ve for lag, -ve for lead)
AT RATED MW			
AT 50% OF RATED MW			
AT 20% OF RATED MW			
BELOW 20% OF RATED MW			
AT 0% OF RATED MW			

**COMMENTS** e.g. generator transformer tap restrictions, predicted end time if known

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Confirm voltage to which these figures relate

**POWER PARK MODULE OR DC CONVERTER STEP-UP TRANSFORMER DATA,  
WHERE APPLICABLE**

TAP CHANGE RANGE (+%,-%)	TAP NUMBER RANGE

Predicted End Time/Date (to be confirmed by redeclaration)

Redeclaration made by (Signature)

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Receipt Acknowledgement from **NGET**

Legible (tick box)		Illegible (tick box)	
Explanation:			
Time: Date: Signature:			



**APPENDIX 4 – ANNEXURE 1**

To: National Electricity Transmission System ~~GET-Transmission~~ Control Centre

From: [Company Name and Location]

**Submission of availability of Frequency Sensitive Mode**

Notification Time/Date:

HRS MINS DD MM YY .            /    /
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Start Time/Date:

HRS MINS DD MM YY .            /    /
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GENERATING UNIT* id [for BM Units quote the NG BM Unit id, for other units quote the Genset id used for OC2 Output Usable submissions] <del>/POWER PARK MODULE DC CONVERTER</del>	
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~~Notification Time HRS:MIN DD/MM/YY  
: //~~

<b>GENERATING UNIT*</b>	
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~~Start Time / Date (if not effective immediately)~~

The availability of the above unit ~~is unavailable / available~~ to operate in **Frequency Sensitive Mode** is as follows:

**All contract modes: Available / Unavailable** *[delete as applicable]*

or

**Change to the availability of individual contract modes:**

Contract Mode e.g. A	Availability for operation in Frequency Sensitive Mode [Y/N]

**Limited Frequency Sensitive Mode** must be maintained in accordance with BC3.7.2.

**Comments** e.g. reason for submission, predicted end time if known

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Please provide brief description of reason for unavailability of **Frequency Sensitive Mode** (e.g. Testing, technical problem)

<p><b>If declaring Unavailability</b> Predicted End Time / Date (to be confirmed by re-declaration):</p>
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Re-declaration made by (signature) \_\_\_\_\_

\* For a CCGT Module or a Cascade Hydro Scheme, the redeclaration is for a **individual CCGT Generating Unit within a CCGT Module or Cascade Hydro Scheme and not the entire module.**

Receipt Acknowledgement from **NGET**

Legible (tick box)		Illegible (tick box)	
Explanation:			
Time:			
Date:			
Signature:			

< End of BC2 >