GB Grid Code

March 2006 Monthly Report

Econnect Project No: 1484

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1 Scope

Econnect is carrying out work for the British Wind Energy Association (BWEA) funded under a contract agreement between the Secretary of State for Trade and Industry and the BWEA.

A key deliverable of this contract is a monthly report to the BWEA members on key Grid Code issues and developments. The latest of these monthly reports is presented in Appendix A in a format suitable for dissemination by the BWEA to its members.

2 Appendix A – GB Grid Code Development Report for March 2006

2.1 Grid Code Review Panel Meeting on 23rd February 2006

The 22nd meeting of the Grid Code Review Panel was held on 23rd February 2006 at the National Grid office at Lakeside House, Northampton. The following issues are noteworthy for BWEA members:

2.1.1 Proposed Changes to Appendix 5 of the Connection Conditions concerning low frequency relays

A paper by National Grid was presented, on proposed amendments to Appendix 5 of the Connection Conditions of the Grid Code. The proposed amendments concerned the technical requirements for low frequency relays used as part of the automatic low frequency demand disconnection scheme specified under Operating Code OC6.6. The proposed change seeks to ensure that the Grid Code requirements are consistent with those contained in Energy Networks Association Technical Specification 48-6-5 Issue 1, 2005. National Grid will initiate a wider consultation on the proposed change following receipt and consideration of comments from the Panel regarding the associated legal text.

2.1.2 Proposed Changes to Technical Requirements for Power Park Modules

A paper by National Grid was presented, concerning proposed amendments to the Grid Code relating to the requirements of Power Park modules. In response to this, members of the Panel raised the issue of reactive power output restrictions imposed by host Distribution Network Operators (DNOs), because it is believed that such operating restrictions conflict with Grid Code requirements because the reactive capability required by the Grid Code cannot be practically utilised. The Panel agreed to National Grid's recommendation that a Working Group be established to discuss the issues which have been identified as well as possible areas of improvement to the Grid Code, including dynamic voltage performance and reactive capability requirement for Embedded Generators.

2.1.3 Regional Differences Working Group

National Grid presented to the panel an overview of the Working Group discussions and recommendation concerning Regional Differences (to the requirements of the Grid Code).

It is proposed that there will be Grid Code changes in the following areas:

- Small, Medium and Large Power Station definitions
- Threshold for the submission of Demand PNs
- Frequency Response Capability of Power Park Modules in Scotland
- Classification of Embedded Small, Medium and Large Power Stations at the boundary between TO areas

The main proposal concerning Small, Medium and Large Power Station definitions in SHETL's area is the proposed change of the existing Small-Large threshold from 5MW to 10MW.

The proposed changes within SPT's area are twofold:

a) Elimination of Medium Power Station band (consistent with SHETL)
b) Increase in Small Power Station threshold to 30MW (from 5MW)

There is no proposed change to the Large Power Stations threshold.

The Working Group also recommends that the thresholds for the submission of Demand Physical Notifications (PNs) are aligned with revised Large Power Station definitions in Scotland i.e. SHETL >= 10MW and SPT >= 30MW.

In addition, it is proposed that the frequency response capability currently required from Power Park Modules in Scotland with a capacity over 30MW should apply only to those with a capacity of over 50MW, in order to align the requirements in Scotland with those in England and Wales.

The Panel noted the outstanding issues surrounding Embedded Power Stations near Transmission Owner (TO) area boundaries i.e. that Embedded Power Stations can be geographically located in one TO area, but be connected to a Distribution System whose only/normal connection is to the neighbouring TO's Transmission System.

The Panel agreed that National Grid will initiate a wider consultation on the proposed changes.

2.2 Meeting of "Power Park Units and Synchronous Generators" Working Group

On Friday 31 March 2006, a meeting of the Power Park Units and Synchronous Generators Working Group was held at National Grid House (Warwick). The purpose of the meeting was to discuss issues which Grid Code Review Panel members have previously agreed need to be re-considered in the light of experience. The issues were mainly of a technical nature concerning possible modifications to the technical requirements of the Grid Code in relation to Power Park Modules. Formal minutes of the meeting have yet to be circulated and agreed. However, topics on which NGET are to draft some proposed changes to the Grid Code are as follows:

1. Relaxation of fault ride-through requirements to allow a conditional power swing in active power recovery. This proposal is intended to allow for dips in instantaneous power output of generators following recovery of the voltage once a fault is cleared. The group were generally content with this proposal
2. Additional requirements for submission of fault infeed data and some additional mechanical turbine information for system modelling and study purposes. This proposal is intended to provide NGET with more accurate data for stability studies. The group was generally content with the proposal provided that failure to provide the data would not prevent a connection offer being made
3. Option of allowing voltage control and reactive power range for active power outputs below 20% of rated active power. This proposal is intended to clarify the fact that a generator can provide services over and above the minimum requirements which are currently imposed and which require voltage control and reactive power capability over a certain range. The group was generally content with this proposal
4. Redrafting of Grid Code to consistently require manned control points for BELLA (Bilateral Embedded Licence exemptible Large power station Agreement) power stations where balancing codes apply. NGET explained that a control point need not be at the power station, and also that generators with BELLA agreements and subject to Balancing Codes 1 and 2 will already have control points to manage their Grid Code data submission. The group was generally content with this clarification
5. Application of Grid Code obligations to wind farm extensions. When a wind farm extension takes place, it may take it over a certain capacity threshold which introduces new Grid Code obligations. The proposal is that these new obligations should apply only to the extension.

The group was generally content with this proposal but noted that the definition of “extension” will be critical

6. Inclusion of an additional “Power Available” Monitoring Signal from Power Park Modules which are required to provide frequency response, to improve depth of information available to NGET at any time. The intention is that the signal would be based on real time information, e.g. from a Met. Mast. After clarification by NGET that they would not be using such information for commercial decisions, the group were generally not against providing the information, but there was some concern that the Power Available information could become comparable to the Maximum Export Limit (MEL) relating to other forms of generation. This could be detrimental to Power Park Module owners

7. Clarification of the voltage control requirements of the Grid Code, in relation to both generic guidance on voltage control systems and site-specific requirements. The group expressed a preference for generic guidance in the Grid Code

The following two topics were discussed, but no consensus was reached

8. Harmonization of the point at which voltage control and reactive capability range must be achievable. It was proposed that the point at which the reactive capability range is required be changed to the wind farm point of connection (in many cases 33kV) rather than the HV side of transformers. However, NGET stated that the point at which voltage control is required cannot change. No consensus was reached, and delegates were concerned that requiring provision of voltage control at the point of connection with NGET’s system is discriminatory for wind farms compared with other forms of generation (where the generators are very close to the connection point with NGET’s system). NGET are to provide a paper explaining the reasons for this

9. Relaxation of reactive power capability requirements where the host DNO network cannot allow the required reactive capability to be utilised in practice due to constraints. It can be costly to meet the requirements of the Grid Code. No consensus was reached by delegates. Main issues with this proposal were questions about implementing these relaxed requirements for embedded generators, and how to ensure co-ordination between DNOs and NGET regarding such requirements. Delegates were also concerned about the effect on DNO network development – i.e. how to ensure that DNOs continue to develop and invest in their systems to allow for economic and efficient system operation (which including accommodation of more embedded generation). Relaxation of rules for embedded generation could discourage DNOs from developing their networks

2.3 Authority Decisions

2.3.1 Approval of Changes to Operating Code 2

OFGEM (the “Authority”) has recently approved changes to Operating Code 2 (OC2) of the GB Grid Code, following Consultation H / 05. The changes apply to regulations governing the submission of outage data as required under Operating Code 2 of the GB Grid Code. The changes now require the outage data submitted by Generators in accordance with OC2 to identify the affected Synchronous Generating Units or Power Park Modules within the details of their intended outage program. The data requirements only apply to Large Power Stations (as defined by the current GB Grid Code) or Power Stations directly connected to the GB Transmission System. As individual Generating Units at Large Power Stations can have substantially different operating characteristics, the changes are intended to provide NGET with more accurate data for planning purposes.

2.3.2 Approval of Changes to Grid Code associated with Licence Exempt Embedded Medium Power Stations

OFGEM has recently approved changes to the Grid Code following Consultation D / 05 associated with Licence Exempt Embedded Medium Power Stations (LEEMPS). A joint Grid Code Review Panel and Distribution Code Review Panel Working Group proposed changes to the Grid Code following changes to the generation licence exemption arrangements. The main objective of this Working Group was to consider how existing Grid Code technical obligations relating to medium power stations could be applied transparently to licence exempt power stations without requiring an enduring contractual arrangement between the generator and NGET. The scope of the Working Group's task was limited to applying existing Grid Code obligations as discussed.

NGET has explained that the main purposes of the changes are to:

- Place existing obligations relevant to LEEMPS onto the relevant Network Operator when the generator is not otherwise required to have a direct relationship with NGET
- Include additional clauses within the Grid Code which summarize the Grid Code obligations that are relevant to LEEMPS
- Clarify that LEEMPS are not required to provide frequency response (though they may choose to do so), but are required to have capability to provide frequency response
- Clarify within OC5 that the performance of a LEEMPS would be validated other than at a Balancing Mechanism Unit level
- Clarify within OC5 the relationship within OC5 between Network Operator, NGET and the Generator should there be a need for compliance testing of a LEEMPS
- Extend the temporary exemption under General Condition 15 to allow suspension of specific Grid Code obligations until 31st March 2007 for LEEMPS in England, Wales and Scotland

The changes apply to the Planning Code, Connection Conditions, Operating Codes 1,2,5 and 12, as well as the Glossary and Definitions, Data Registration Code and General Conditions. The Chair of the Distribution Code Review Panel has proposed complimentary changes to the Distribution Code. The changes took effect on 1st April 2006.

2.3.3 Approval of Changes to Distribution Code in Respect of LEEMPS and BETTA Consultation

OFGEM has recently approved changes to the Distribution Code in respect of LEEMPS and BETTA. The changes in respect of LEEMPS are associated with the above-mentioned Working Group's recommendations are intended to require generators who are not party to the CUSC to comply with specific Grid Code obligations.

The changes to the Distribution Code in respect of BETTA are limited to definitional changes intended to harmonise the Distribution Code with the Grid Code. The Distribution Code Review Panel (DCRP) considered that these definitions were critical to the interpretation of the LEEMPS related Distribution Code change proposal.

The Chair of the Distribution Code Review Panel explained that the proposed changes are intended to:

- Require generators with Embedded Medium Power Stations to comply with specific Grid Code obligations
- Set out the requirements on generators for demonstrating compliance of an embedded medium power station with Grid Code technical obligations
- Recognize that an NGET requested system test (requested under Operating Code 12 of the Grid Code) could have implications on a LEEMPS
- Reflect the changes to the transmission arrangements that were introduced by BETTA

The changes to the Distribution Code affect Distribution Planning Code 7, Distribution Operating Codes 5 and 12, and (Distribution) Glossary and Definitions of the Distribution Code. The changes took effect on 1st April 2006.

2.3.4 Approval of changes to Operating Code 8B of the Grid Code in respect of Site Specific Safety Instructions

OFGEM has recently approved changes to Operating Code (OC) 8B of the Grid Code in respect of Site Specific Safety Instructions. Prior to these changes, OC8B allowed a user and the relevant Transmission Licensee to agree detailed, site-specific operational procedures for safety co-ordination instead of the Record of Inter-System Safety Precautions (RISSP). For sites in Scotland (for which Operating Code 8B applies) it was usual to refer on the site-responsibility schedules to site-specific procedures which were neither expressly permitted or prohibited by the Grid Code. However, by listing them on the Site Responsibility Schedules, it was essential for both parties to follow these procedures.

The changes are intended to:

- Clarify the distinction between detailed site-specific operational procedures for safety co-ordination and site-specific procedures for the application of safety precautions
- Oblige the user and relevant transmission licensee to record any alternative procedures for safety co-ordination in the site responsibility schedule
- Allow the user and relevant transmission licensee to record site-specific procedures for safety co-ordination that are in addition to and consistent with RISSP procedures
- Oblige the user and relevant transmission licensee to record site-specific procedures in the relevant site responsibility schedule

The changes to Operating Code 8B of the Grid Code explicitly allow the relevant transmission licensee and the user to agree certain site-specific procedures for application of safety precautions. The changes took effect on 3rd March 2006.

2.4 GB Grid Code Revisions

Issue 3 Revision 14 of the GB Grid Code was dated 3 March 2006. The revision includes the changes to Operating Code 8B relating to Site Specific Safety Instructions.

The most recent revision to the GB Grid Code was Issue 3 Revision 15, dated 1st April 2006. This revision includes the changes to Operating Code 2 relating to submission of information about planned outages of generating plant, and the changes associated with Licence Exempt Embedded Medium Power Stations.

2.5 Response to Consultation on Regulatory Arrangements for Offshore Transmission

At present the GB Grid Code only relates to the onshore transmission system, though the *Energy Act 2004* provides new powers for the Secretary of State for Trade and Industry to put in place new regulatory arrangements for offshore electricity transmission. The DTI and OFGEM recently undertook a joint public consultation on the subject of regulatory arrangements for offshore electricity transmission. The consultation period ended on 19 October 2005. The Secretary of State for Trade and Industry has responded to the consultation and has stated that the government intends to extend the current onshore electricity transmission arrangements offshore. This provides clarification as to the direction of the regulatory approach to offshore electricity transmission, but further work will be required to address the issues relating to the GB Grid Code, which is likely to require updating to take into account the special circumstances of offshore wind farms. It will be necessary to clearly define how the GB Grid Code will be applied to new offshore generators, electrical assets and their connections with the onshore transmission system.