Summary of Meeting and Actions

Meeting Name	Grid Code Power Park Modules and Synchronous Generating Units Working Group
Meeting No.	2
Date of Meeting	Tuesday, 9th May 2006
Time	10:00am – 2:30pm
Venue	National Grid Offices, Windsor Street, Birmingham

This note outlines the key action points from the second meeting of the Grid Code Power Park Modules and Synchronous Generating Units Working Group

1) Minutes from the Previous Meeting

The minutes of the first working group meeting held on 31st March 2006, were agreed subject to the following amendments:

Paragraph (e) – Power Park Module Extensions: incorrect date stated, replace 'before 2001' with 'before December 2002'.

Paragraph (f) – Power Available Monitoring Signal: delete sentence 'P-Available would be used as a post-event check of the response delivery'.

Paragraph (i) – Provisions of Reactive Capability by Embedded Generators: Last sentence of paragraph beginning with NS - add 'and coordination' between 'sanction' and 'of'.

In relation to JG's comment on applicability of unity power factor before 1 January 2006 to all ongoing projects in Scotland, NT clarified that SB2002 in Scotland required non-synchronous generating units to be capable of a reactive range and this was submitted to Ofgem in Dec 2002. HD confirmed that projects in Scotland had been required to have such a reactive range since then and even for a while before. NT also added that H04, dated June 2004, introduced the requirement in E&W for unity power factor for projects with a completion date before 1 January 2006 and this was intended for new projects but not those that commisioned in Scotland before 1 January 2006.

HG to clarify the precise application of the requirement for unity power factor capability in Scotland with JG outside the meeting.

Action: HU

2) Actions from Previous Meeting

NT informed the group that the actions from the previous meeting were extensive and whilst most have been completed, a few will be completed for the next meeting. He apologised for not circulating a copy of the draft legal text prior to the meeting and stated that the proposed text is for discussion with and to receive comments from all WG members. He also stated that the text 'on the table' still required further refinement and approval of National Grid's legal department.

a) *Relaxation of Fault Ride Through Recovery Requirement*

The Working Group reviewed the proposed legal text which would permit a relaxation to the current provisions to allow subsequent oscillations in output power, provided that the integral of the Active Power output during the oscillations is at least equal to that which would have been achieved had there been no oscillations, and that the oscillations are sufficiently well damped. It was agreed the use of 90% level is preferred as it is clearer to "had there been no oscillations". NT stated that the damping part will be addressed prior to the next meeting.

National Grid will review the text that is still subject to a legal review.

Action: National Grid

b) *Fault Infeed and Turbine Data*

The Working Group reviewed the proposed legal text which would provide National Grid with the necessary data to carry out the relevant studies.

The Working Group noted that the text was drafted such that there was the flexibility for the user to specify the most appropriate 2-mass model in its data submission.

It was acknowledged that some of the information may not initially be available but should be submitted to National Grid once it has been received.

It was noted that the symbol for measurement units for Average Site Air Density used within the legal text did not use the correct formatting.

DW indicated that there could be occasions when it would be necessary to provide a 2-mass model for Synchronous Generating Unit in order to complete studies. Due to the nature of the synchronous plant connected to the GB Transmission System, this is not actually required in practise. However it would not be unreasonable for National Grid to ask for such data when necessary. Similarly it is therefore not unreasonable for National Grid to request such data for Power Park Modules. NT agreed and stated that multiple-mass (more than 2) models for synchronous units would be required for studies of subsynchronous resonance (e.g. associated with the planning of series capacitor installations).

It was noted that Met Office data would be acceptable for air density. The Working Group was informed that there is a possible 10% variation in the data received.

National Grid stated that the developers were best placed to provide the air density data. It would be too complex a task for National Grid to be responsible for the data collection due to the numbers of Power Park Modules scheduled or planning to connect in GB.

Working Group members questioned:

- the need for the data
- the need for an update every year
- the need for every site to submit (appreciating that air density varies with temperature and altitude)
- what National Grid considered to be an appropriate data source

MP confirmed that National Grid would use the week 24 data submitted for air density for short term planning assumptions i.e. for the following financial year.

Concerns were raised about submitting static data within the week 24 submissions given that the information formed the basis of the Seven Year Statement. The Working Group noted that other data submitted as part of Week 24 also remains static on a yearly basis.

JN stated that National Grid needed to be clear as to what information was required i.e. design figure or average figure for year. HU suggested that the guidance notes could provide additional clarity which would avoid the cluttering up of the Grid Code with unnecessary text.

The legal text is to be reviewed and refined. Working Group members to provide comments where applicable.

Action: National Grid and Working Group Members

The Working Group reviewed the proposed legal text which would allow National Grid to calculate the short circuit infeeds from wind farms.

National Grid confirmed that it would require data at the Grid Entry Point and also from Power Park Units to allow short-circuit studies in accordance with British practice embodied in ER- G74.

It was noted that unlike Synchronous Generating Units, some wind turbine generator types can limit or modify their fault current contribution during the fault period. This was a new situation brought about by new technology and was the primary reason for the additional data.

It was acknowledged that group members were in agreement with the general principles of the change but noted that additional clarification and refinement of the legal text was required. Working Group members to provide comments where applicable.

Action: National Grid and Working Group Members

c) *Voltage Control and Reactive Range Capability below 20% Active Power* Output
The Working Group reviewed the proposed legal text which would allow an additional option to continue to provide reactive support below 20% of output. This was noted that this would change the dimension of Figure 1 of CC.6.3.2 (c).

It was acknowledged that group members were in agreement with the general principles of the change but noted that additional clarification and refinement of the legal text was required. It was noted that it may be beneficial to draft a permissive clause rather than specifying limits. Working Group members to provide comments where applicable.

Action: National Grid

d) *Manned Control Points – to be reviewed*
The Working Group reviewed the proposed legal text which would rectify the inconsistency between CC.7.9 and BC2.

National Grid to revise the legal text to reflect the wording used in Grid Code Consultation Documents I/05 (Grid Code Balancing Code Changes associated with Embedded Exemptable Large Power Stations).

Action: National Grid

e) *Power Park Modules Extensions*
The Working Group reviewed the proposed legal text which would specify what technical requirements would apply to a Power Park Module that was constructed prior to the approval of Grid Code Modification Generic Provisions, and was being extended in size.

The use of 'Completion Date' and 'Modification' to be reviewed in order to ensure that there is no confusion regarding the meaning of the terms.

It was agreed that legal text may need to allow for very small extensions not to be caught by the Grid Code but at the same time ensure that the cumulative impact is appropriately considered. It might be appropriate to retain the principle but consider where it would be reasonable not to enforce it subject to a discussion and agreement between all relevant parties.

The legal text is to be reviewed and refined. Working Group members to provide comments where applicable.

Action: National Grid and Working Group Members

f) *Power Available Monitoring Signal*
The Working Group reviewed the proposed legal text for the provision of Power Available Signal (P-Availability).

National Grid reiterated that it is not the intention of replacing MEL with P-Available. P-Available will be purely an operational tool used to manage the system more effectively.

The Working Group noted that MEL and P-Available will be derived from the same data source. However National Grid noted its belief that it was not practical to constantly update MEL due to the IS systems that are in place. In the event of P-Available deviating too far from MEL however MEL should be updated to reflect the value of P-Available.

DMcC indicated that it would be useful to have guidelines on what P-Available actually consists of i.e. the principles behind its construction.

National Grid will review the legal text to incorporate comments from Working Group.

Action: National Grid

g) *Voltage Control for Power Park Modules and Synchronous Generating Units*

National Grid will provide draft legal text for proposed modification.

Action: National Grid

h) *Voltage Control*

The Working Group reviewed the proposed legal text which aims to remove ambiguity regarding the interpretation and to clarify that whilst the control point is specified, the measurement point and location of voltage control system elements including any reactive compensation plant will be selectable by the User.

Legal text to be refined to incorporate comments regarding incorrect referencing and incompatibility of stated dates.

Regarding the reactive power capability requirement, this applies at the Grid Entry Point or User System Entry Point if embedded e.g. the 132kV side of a 132/33kV transformer. However, in Scotland the Grid Entry Point is commonly the LV side of the 132/33kV transformer because this transformer is usually owned by the Scottish TO. Therefore, the reactive capability requirement applies at 33kV which is now the Grid Entry Point. DMcC noted that the ownership of the generating unit transformer is crucial as to whether there would be a relaxation in the provisions for Scotland. He stated that this change might mean that in practice there is no relaxation in Scotland, and this would need to be highlighted in any associated Consultation Document. NT stated that this proposal on reactive capability is indeed in practice a relaxation should the transformer be owned by the TO because the capacitive reactive capability is reduced due to the fact that the Generator no longer has to supply the 132/33kV reactive power losses.

Grid Entry Point definition and CC.6.3.4 to be reviewed in line with the other proposed changes.

Action: National Grid

National Grid will provide additional background and rationale for the one second response time.

Action: National Grid

i) *Provision of Reactive Capability by Embedded Generators*

The Working Group reviewed a paper which outlined DNO's initial position regarding Reactive Capability.

MK acknowledged that historically this was not an issue that the DNO were concerned about. The Working Group noted that DNOs do not support their systems with generation and because of the need to provide a statutory voltage through P2/5 contingencies, voltage control has generally been provided for planning purposes

entirely from network assets. Going forward this might well change. In the short term this can be dealt with on a bilateral basis, much as P2/6 compliance considerations might have to be. Longer term there will be an argument for codifying generic issues in the Distribution Code.

In the short term, in relation to Embedded Power Stations, in the main these are not sited for DNO system support but to meet the operational necessities of the generator. As such DNOs should remain free to stipulate bilateral control issues as per DPC7.4.2 and to mandate Var despatch or target voltage levels within the capability of the installed plant.

The Working Group discussed the matter in-depth using relevant examples.

It is apparent that there are probably four possible resolutions:

1. Status quo – Generators continue to meet G Code requirements;

2. Modification to Grid Code to allow tripartite discussions between NGET; DNO and Generator on the actual required PF range for an embedded PS (although this might be quadripartite in Scotland as there is TO to take into account too);

3. Modification to Grid Code to allow DNO to apply its own requirements to embedded Medium PS (or embedded Large PS or both), with no reference to NGET;

4. Review the whole operation of DNO networks, technically and commercially, to resolve this issue in a new framework, including the possible trading of reactive power across DNOs' systems.

It was noted that option 4 was completely out of scope for the current WG and would not be discussed further.

In relation to option 1, a possible way forward discussed by the Working Group, given the lack of incentives on the DNOs to reinforce their networks, was to treat each case on a site by site basis with the appropriate party applying for derogation. The transmission companies stressed that the fast dynamic response would always be required, only the steady state component could be considered in this way. Derogations would require a discussion between all relevant parties i.e. the Generator, DNO, National Grid and Ofgem.

National Grid to provide draft legal text for option 1 which would be based upon comments received from the group members.

Action: National Grid and Working Group Members

j) *Unbalanced Faults*
National Grid informed the Working Group of a proposed housekeeping amendment to CC.6.3.15 (c) (ii), which had not previously been discussed by the Working Group.

The Working Group agreed to the proposed changes which would provide additional clarity to the provisions.

3) Next Meeting
The next meeting of the Working Group will be on Tuesday, 11th July 2006, at National Grid Offices, Hinckley Operational Centre, Brick Kiln Street, Hinckley commencing at 10:00am.

Appendix 1 – Working Group Attendance

Members Present:		
Mark Duffield	MD	Chairman
Lilian Macleod	LM	Secretary
Mark Perry	MP	National Grid
Brian Taylor (via teleconference)	BT	National Grid
Nasser Tleis	NT	National Grid
Helge Urdal	HU	National Grid
Neil Sandison	NS	SSE
David Gardner	DG	SSE
Hamish Dallachy	HD	Scottish Power
Damien McCool	DMcC	Scottish Power
Mike Kay	MK	United Utilities
Tim Moore	TM	EDF Energy
Philip Belben	PB	E.ON
Claire Maxim	CM	E.ON
John Gaffney	JG	RWE
John Norbury	JN	RWE
Simon Cowdroy	SC	Econnect
David Ward	DW	Magnox
Bridget Morgan	BM	Ofgem