

Grid Code Generic Provisions Working Group

Notes of 5th meeting held at Brandon Hall, Coventry
24 March 2003

Attendance

Present

<u>Name</u>		<u>Company</u>
David Payne	(DP)	National Grid (Chairman)
Nasser Tleis	(NT)	National Grid
Steve Mortimer	(SM)	National Grid
Mark Horley	(MH)	National Grid
Mike Thorne	(MT)	National Grid
John Norbury	(JN)	Innogy
Joe Duddy	(JD)	RES
John Gaffney	(JG)	Innogy
Dave Ward	(DW)	Magnox
John France	(JF)	Powergen
John Morris	(JM)	British Energy
Charlie Zhang	(CZ)	London Power Company
Hamish Dallachy	(HD)	Scottish Power

Apologies for Absence

Ham Hamza	(HH)	Innogy
Francois Boulet	(FB)	RTE
Paul Newton	(PN)	PowerTech
James Glennie	(JG)	BWEA
Elaine Grieg	(EG)	AMEC
Bridget Morgan	(BM)	Ofgem (Observer)
Peter Lang	(PL)	Seeboard

Minutes Of Last Meeting

1. The minutes of the last meeting were agreed as correct.

Actions From Last Meeting

2. Action 4/1 JD reported that BWEA have sought the views of the Danish Wind Turbine Manufacturer's Association.
3. Action 4/2 JD commented that BWEA was disappointed to have only received names from one of the companies that NGC had consulted with. In response to a further question from JD, NT reported that only one company (Bonus) had so far responded. No replies had been received from the other

three manufacturers. JD requested that National Grid continue to seek permissions to release contact names.

4. Action 4/3 DP reported that five responses had been received, the last on the day NGC was sending out the information for the next meeting.
5. Action 4/4 and 4/6 DP reported that NGC were working on these areas as a matter of priority.
6. Action 4/6 MH reported that the phrase “operating at Supergrid Voltage” had been added to the drafting of fault ride through requirements.
7. Action 4/7 BM was not present so could not report on her action. CZ reported that the DTI have issued a consultation document containing a reference to bilateral agreements. JN commented that this was a standalone consultation outside the Grid Code only expected to cover the interim period.
8. DP thanked the Generic Provisions Working Group for their comments noting that the main issues raised were on definitions and reactive power and these would be discussed later in the meeting. JN wished to clarify that the graph of windfarm output had been sent to show variation in short timescales and illustrate Innogy’s view that response could be lost if wind speed fell but accepted that the time scaling was not good. JN offered further data on a better time sampling rate. NT thanked Innogy for the offer suggesting that second or minute spot data for a larger windfarm would be interesting. DP noted that there had been no suggestions for dates for staged implementation of clauses. There was some discussion of Intermittent Power Source and National Grid asked if there were any international definitions that might be useful.

Grid Code Changes

9. DP reported that National Grid had circulated first drafts of the Planning Code, Operating Codes and Balancing Codes as well as updated Glossary and Definitions prior to the meeting.

Glossary and Definitions

10. MT introduced the Glossary and Definitions explaining the terms **Power Park Unit within a Power Park Module** and **Power Park Matrix**. DW noted that the relationship between Non-synchronous Generating Unit, Power Park Module and Power Park Unit ended up as a circular reference and proposed that the link making a Power Park Module a non-synchronous generating unit should be broken. DW supported by other group members felt that more specific reference to Power Park Module/DC Converter would be clearer than Non-synchronous Generation Unit. National Grid agreed to look at this in the drafting.

ACTION 5/1 – National Grid

11. JN questioned the need for a Module Planning Matrix. This was discussed in depth under Balancing Codes. JN raised the situation where two developers might connect two windfarms through a single connection circuit/transformer. Under the proposed definition this would be a single Power Park Module. National Grid’s view was that there would be a single CUSC contract as there

is a single connection to the transmission system and therefore the arrangement should be treated as a single Power Park Module from the view of the transmission system operator. The CUSC connectee would have to sort out the internal management issues of the subletting arrangement.

12. National Grid accepted an action to check that the Power Park Module definition was consistent with CUSC/BSC.

ACTION 5/2 – National Grid.

Planning Code

13. MH introduced the Planning Code drafting noting that since the papers for this meeting had been submitted, National Grid had identified further modifications particularly to the data requirements on DC Converters. The group briefly discussed the data requirements. JD and JG commented that there are pure induction generators with variable slip. National Grid was asked to circulate the updated Planning Code within a couple of days of the meeting with changes from the originally tabled document colour coded. The Generic Provisions Working Group was asked to comment on the data requested and any obvious omissions.

ACTION 5/3 - National Grid to circulate document by 26/03/03.

Balancing Code 1

14. MT introduced the drafting for Balancing Code 1. The concept of the matrix was discussed at length. While all round the table could see the need for National Grid to know how many turbines were running for operational capability and fault level reasons the drafted form was inappropriate. The meeting proposed that there should be a "Power Park Module Availability Matrix" that would indicate the number and type of machine that the Generator was intending to run. National Grid was asked to redraft accordingly and also consider the wording used particularly in BC.1.A.1.7.4. JN suggested Balancing Code 1 should identify that one Power Park Module was a Balancing Mechanism Unit.

ACTION 5/4 – National Grid to redraft.

Balancing Code 2

15. MT introduced the drafting for Balancing Code 2. During the discussion a number of points were raised. DW pointed out that National Grid needed a manned control point for Large Power Stations to receive instructions.
16. HD raised the issue of ramp rates for wind farms. National Grid noted that the existing maximum ramp rates already listed in BC1 would be retained but agreed these might need to be reviewed in the light of operational experience.
17. DW asked about wind farms switching off at high wind speeds. JD commented that the protection on individual turbines normally used a 10 minute average wind speed plus gusting wind speed algorithm that would in practice give some diversity on turn off so a whole wind farm should not shut down instantaneously. DW asked about cut in and cut out wind speeds. HD reported that in Scotland the transmission operator gets an indication of wind

speed from Large wind farms as well as notice when the wind speed has reached 90% of the shutdown level.

18. JN asked if National Grid was expecting to re-declare the Maximum Export Level as wind speed varied.

ACTION 5/5 – National Grid to consider issues raised.

Balancing Code 3

19. MT introduced the drafting for Balancing Code 3 noting that modifications were minor however some additions would be required for DC Converters and these would be taken from the HVDC Working Group report.

ACTION 5/6 – National Grid to develop drafting further.

Operating Code 2

20. MT introduced the drafting for Operating Code 2 prompting some discussion on performance charts and particular the upper MW boundary. JD commented that manufacturers quote the 10 minute active power output for windfarms derived in accordance with IEC:614-00-21 section 8. This IEC also includes 1 minute and 0.2 second values. MH tabled a paper illustrating how performance charts might look.

ACTION 5/7 – National Grid to circulate electronic copy of diagram by 26/03/03.

21. Power Park Module Planning Matrices were also briefly discussed. The drafting should be amended in line with the proposals for BC1. MT raised the issue that there may be some capability to swap individual turbines between Modules in a large wind farm that needs to be catered for.
22. JN asked about the definitions of Maximum Export Limit and Physical Notifications for windfarms. MT agreed to investigate.

ACTION 5/8 – National Grid.

Operating Code 5

23. MH introduced the drafting for Operating Code 5. Modifications are mainly in the table of requirements to reflect the revised terminology for Power Parks. Also some general wording added for signals for on-site monitoring.

Connection Condition Issues

24. MH tabled minor revisions to the Connection Condition draft at the meeting. The changes were the clarification to the fault ride through wording described above under actions and the new suggestion for reactive capability from Powergen. CZ suggested that unity power factor should not be the limit. SM responded that this would make the requirement site specific and therefore not transparent to users.
25. MH reported that National Grid was still working on fault recovery requirements investigating system performance through study work. JN asked

if any manufacturers could meet the fault ride through requirements. DW pointed out that an article in the IEE Power Engineering on Horns Rev stated that riding through transmission system faults was a requirement. NT acknowledged that this is a major issue for both developers and National Grid.

Work plan

26. DP outlined progress against the work plan noting that progress was generally on target although the Connection Conditions were still not finalised.
27. DP outline the future work plan as follows:
- Comments to National Grid by end of Friday two weeks hence i.e. before 07/04/04.
 - National Grid to circulate draft Grid Code Review Panel Paper and Grid Code drafting on 17 April.
 - Next Generic Provisions Working Group meeting on 28 April.
 - Grid Code Review Panel Meeting 22 May.

ACTION 5/9 – ALL to provide comments on draft text discussed at this meeting and revisions as discussed by no later than close of play on Friday 4th April 2003.

Any Other Business

28. NT raised the issue of apparent zero inertia of DFIG technology. This may become an issue requiring a Grid Code development in the future. JD commented that this may not be a pure control system modification as restoring the inherent inertia could have implications on the design of the drive train.

Next Meeting

29. The next working group meeting will be held at Brandon Hall on **28th April 2003**, starting at 10.30am.

Summary of Actions

No.	Name	Action
5/1	NGC	Re consider use of Power Park Module term in draft text.
5/2	NGC	Check that the Power Park Module definition was consistent with CUSC/BSC
5/3	NGC	Circulate updated planning code as discussed at the meeting
5/4	NGC	Reconsider draft text of BC1 in the light of comments received at the meeting
5/5	NGC	Consider issue of Maximum Export Level and possible variation with wind speed.
5/6	NGC	Further develop BC3 drafting
5/7	NGC	Circulate copy of performance chart diagram
5/8	NGC	Investigate the definitions of Maximum Export Limit and Physical Notifications for windfarms.
5/9	ALL	Provide comments on draft text by no later than close of play on 7th April 2003

