

**Minutes and Actions Arising from Meeting No. 44  
Held on 23<sup>rd</sup> September 2010  
at National Grid House, Warwick**

**Present:**

David Smith	DS	Panel Chairman
Stewart Whyte	SW	Panel Secretary

**National Grid**

Graham Stein	GS	Member
Steve Curtis	SC	Member
Tom Ireland	TI	Member
Tom Derry	TD	Presenter (Item 13, AOB)
Neil Rowley	NR	Presenter (Item 6 – EDL)

**Generators with Large Power Stations with total Reg. Cap.> 3GW**

John Morris	JM	Member
John Norbury	JN	Member
Campbell McDonald	CMc	Member
James Anderson	JA	Alternate Member
Guy Phillips	GP	Alternate Member
Jim Barrett	JB	Alternate Member
Garth Graham	GG	Observer

**Generators with Large Power Stations with total Reg. Cap.< 3GW**

**Generators with Small and Medium Power Stations Only**

Barbara Vest	BV	Member
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**Network Operators in England and Wales**

**Network Operators in Scotland**

Neil Sandison	NS	Member
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**Relevant Transmission Licensees**

**Generators with Novel Units**

Guy Nicholson	GN	Member
Sigrid Bolik	SB	Alternate Member

**Ofgem Representative**

Bridget Morgan	BM	Alternate Member
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**Non Embedded Customers**

Alan Barlow	AB	Member
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**BSC Panel Representative**

John Lucas	JL	Member
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## 1. Introductions/Apologies for Absence

1412. Apologies for absence were received from Alan Creighton, Mike Kay, Dave Ward, Chandra Trikha, Alan Michie and Graham Vincent.

## 2. Minutes of Previous Meeting

### GCRP – 20/05/2010

1413. TI updated the Panel on two comments received by National Grid on the May minutes. One from Dave Ward on 1363 regarding his comments on the constant terminal voltage which were incorporated as per David Wards comments.
1414. Other amendments requested at the meeting were by SB, who made SW aware that her name had been incorrectly spelled, which was agreed to be corrected. CMc stated that he was the member not an alternate member of the Panel. Both of these changes have now been made.
1415. The minutes were approved as an accurate representation of the May GCRP meeting by the Panel.
1416. The Technical Secretary reminded the Panel that currently the Constitution and Rules for the GCRP state that National Grid have 10 working days to produce the minutes. Also stated is that members have 15 working days to then comment on the minutes. This is not currently rigidly enforced however SW asked the Panel to be mindful of this requirement as after this 25 day duration it is intended to publish the minutes, in draft form only on the GCRP website. This should allow the rest of the industry better visibility of the pertinent discussions taking place at the GCRP before the conclusion of the next meeting. SW made the Panel aware that he still intends to seek formal final approval of the minutes at the subsequent GCRP meeting.

## 3. Review of Actions (pp10/18)

1417. GN asked if enquired if the Significant System Incident report should have been presented at this meeting and therefore be on the agenda. TI believed that it was the November panel but conceded that it may have been this meeting. However, it will now appear at the November panel meeting regardless.
1418. The majority of the actions from the previous meetings were the subject of agenda items, except for:

- (Minute 1363) Simultaneous Tap Changing

A one page guidance document shall be circulated to GCRP members, initially in draft form for comments before being issued to GCRP members for forwarding to their power station sites. A presentation may be an option at a future Ops Forum. JM sought reassurance from SC that the instructions will not be sent until the power stations are in receipt of the guidance. SC confirmed that instructions would not be sent.

**Action: National Grid(SC)**

- (Minute 1363) E3C

CMc asked as a consequence of the E3C Frequency Setting for Small Generators Working Group's work were the embedded generators aware of the new frequency range that they must operate under. TI confirmed that the recommendations were being implemented as changes to the Distribution Code document G/59 and that he would seek an update on this change proposal.

**Action: National Grid (TI)**

- (Minute 1365) – Protection Fault Clearance Times and back-up protection - ongoing.
- (Minute 1368) – Time Tagging of Dynamic Parameters and NTO/NTB

DS made the Panel aware that a BM consultation is due out next month. The functionality and capability of the new BM software shall be documented. Should the BM replacement require changes to be made to the Grid Code, National Grid shall come back to the GCRP.

- (Minute 1370) – Codification of Generic Requirements currently included in the Bilateral Connection Agreements

National Grid reported that efforts have been focused on other key areas of work and therefore further progress has not been achieved in the area. When this matter was originally raised there were a number of specifications that could be considered “generic” particularly on excitation system specifications. CC.A.6 was created as a result of D/08. NG recognise their may still be others but believe that the urgent issues have been addressed and an assessment of the remainder will be brought to a future Panel meeting.

JN commented that as well as removing the old generic requirements National Grid should also limit the introduction of new requirements. JN continued that he believed additional wording had been added recently to new Bilateral Condition Agreements (Appendix F) relating to the current consultation A/10 (Compliance). From these clauses it appeared that if the Consultation proposals are not agreed by the Authority then the proposals will be implemented via the BCA anyway. TI said that he would look into this with those responsible for drafting new contracts.

**Action: TI (National Grid)**

- (Minute 1371) – System to generator intertripping schemes

This issue is a direct consequential action of F/08 and effects offshore generation only. The Grid Code states that the breaker to be tripped for an intertrip should be the PPM CB. There was a belief at the time of the development of F/08 that many offshore intertrip schemes will in actual fact trip the OFTO/ONTO breaker. TI confirmed that National Grid are currently checking all the F3s for offshore generators and will respond to the Authority shortly, confirming the position.

**Action: TI (National Grid)**

- (Minute 1382) – PNs from Intermittent Generation

The PNs from intermittent generation final report was not submitted at the September Panel, which required an extension to the Working Group’s Terms of Reference. The GCRP Chair stated his intention to feedback the timing concerns to the chairman of this Working Group.

**Action: DS (National Grid)**

- (Minute 1386) – Frequency and Voltage Operating Range – Complete

The draft Consultation has been changed to include the legal text for the alternative option proposal and the Consultation period has ended with five responses received.

- (Minute 1390) – Multi Unit BMU Update - Complete

SC confirmed that the Multi Unit BMU update functionality will be included in the pending BM replacement. JN suggested this could be the opportunity to remove the use of faxes from the process and make the information transfer electronic.

## Grid Code Review Panel Meeting – FINAL

- (Minute 1394) – BESC

As a result of the discussions at the last Panel meeting Steve Bath had an action to discuss the Panels concerns within National Grid and reply to the Panel once again on BESC. Steve Bath provided a letter to Panel members of the 13th September with the intent of allaying their concerns on a number of matters associated with the changes to NSI 30. National Grids position remains on BESC that any user wishing to adopt National Grid safety rules to work on their assets, within National Grid substations should meet the full requirements of NSI 30. In the letter Mr. Bath states that a user, giving due notice, can work under their own safety rules.

GCRP members are concerned that the letter still does not address the recognition of Genco's safety training schemes as being an equivalent to BESC. The major issue facing the Generator is that yes they can work under their safety rules but without having undertaken the BESC course they cannot gain access to the substation itself.

Members of the GCRP feel that National Grid has again merely reaffirmed there position on this matter without due consideration for the sensible comments that they have made on this issue. Members once more expressed that while they recognise that National Grid has an obligation, to make sure that anyone who enters their premises is trained to a set standard they would like National Grid to recognise that they also have HSE obligations. Meaning that they must train there staff to the relevant standard for any work they wish them to carry out. JN also expressed concern with the accompanying AP Refresher Training, which is now required to be carried out annually as opposed to every 3 years. Problems encountered to date by RWE included individual's home address being required, 1 day late for Refresher training requiring full re-authorisation, high cost of training, unavailability of CBT facilities, etc. JN suggested that it would not be unreasonable for the Grid Code to contain a few high level principles regarding Generator access to their assets in NGET's substations. DS is going to look to progress this issue bilaterally for the next Panel meeting.

**Action: DS (National Grid)**

- (Minute 1402) – ENTSO – E and Third Package - Complete

BV has set up a cross party forum for information coming out of the EU.

- (Minute 1409) – A.O.B

TI indicated that the intention was to include the OC2 chart reformatting change into the next housekeeping amendment. JN demonstrated to the Panel, how the diagram had been altered from a landscape to a portrait format and how this had decreased the size and readability of the chart. JN suggested that this should not require a formal housekeeping change as the content was not changing just the page orientation, to which the Panel agreed. TI agreed such an ad-hoc amendment to the Grid Code could be made, which could be communicated at the time of the issuing of the next Implementation Pack. JN also stated that while National Grid was amending the OC2 performance chart they may also change the miss spelling of Power Park Module as Power Part Module, in BC2.3.

**Action: TI (National Grid)**

- (Minute 1410) – A.O.B

A consequence of the CAP169 WG Alternative Amendment 3 being approved by the Authority National Grid are no longer able to utilise the MVAr capability of embedded generators that have any **reactive network despatch restriction**. SC told the Panel that since CAP169 implementation, National Grid has received no notifications of any reactive network despatch restrictions. NS asked if National Grid had despatched MVAr on the DNO network. SC said that yes this can be done however many DNOs have placed restrictions on the MVAr range that can be utilised. SW told the Panel that he was involved with the CAP169 Working Group and that the original proposal National Grid made was consistent the arrangements for large directly connected generators who have a reduced range (100% payment received) or indeed a restriction that prevented them passing through zero (payment reduced to 20%).

### 4. Grid Code Development Issues

#### Grid Code Consultation Update

1419. TI gave a summary of the current status of Consultation Papers. The key highlights being: the implementation of the Short Circuit Ratio (G/09) for generators over 1600MVA, Electronic Despatch Logging (C/10) WG has had its one and only meeting and a WG report is expected to be received by November's GCRP, Grid Code changes relating to BSC Proposal P243 (F/09) are also due to be implemented in November 2010 and the Frequency and Voltage Operating Range (D/10) consultation has closed; the 5 comments received are currently being considered, with support being received for both proposed options.

#### Grid Code Outstanding Issues

##### ▪ **Control Telephony Electrical Standard (Scotland)**

1420. TI informed the Panel that the STC Procedure relating to Control Telephony standards, relates to TO to TO interface equipment rather than TO to User. TI continued that the views of SPT and SHETL had been sought on the issue and the response received was that the Scottish TO regions already have their own Control Telephony Standards which were reviewed by the industry at the implementation of BETTA. BM confirmed that different standards could be applied in different TO regions although there may be benefit in including reference to all Standards in the Grid Code (and not just for England and Wales).
1421. CMc asked whether a standard was required for the OFTO to generator interface. TI believed that such a standard may not be required as offshore generation control was being performed remotely or at the onshore generator rather than at the Offshore point, and would bring confirmation to the Panel.

### 5. New Grid Code Amendments

##### ▪ **BMU Configuration of PPMs offshore**

1422. Flexibility in the electrical connection of offshore PPMs means that the active power delivered at the offshore grid entry point shall not be fixed. SC informed the Panel because of the confusion in these offshore PPM arrangements National Grid require to be kept informed of any change to the offshore network that will result in a PPM changing its active power delivery capability at a particular offshore grid entry point. Some Panel members commented that at present these reconfigurations can be carried out within remote switching timescales e.g. several minutes. GN added that in future the reconfiguration could be carried out in fractions of a second by automatic protection and control systems.
1423. The proposal that National Grid are making is that in planning timescales (1 week ahead) the PPM owners are required to inform National Grid of a change in the offshore network that will result in a change to the size of a PPM. This communication should be made using a standard diagram to show how the operating regime offshore has changed. GV commented that the BSC as a result of the P240 mod is set up to accommodate the transferral of power park strings between BMUs – with a BMU being a PPM as defined in the BSC.
1424. CMc asked about intra day considerations, should a power park owner have a situation that arises that is not planned. JB asked the Panel to consider that this arrangement that had been made for PPMs was discriminatory toward CCGT modules that could also have this flexibility extended to them. SC confirmed that he will look at whether this presents an advantage to windfarms. JN commented that the existing PPM matrix along with the proposed BMU configuration notification may be potentially confusing for operators and additional clarification would be

helpful. He also expressed the view that the Grid Code does not appear to prevent strings moving between BMUs anyway and therefore it was unclear why this change would be required. Following the extensive discussions SC to update and re-circulate the paper.

**Action: National Grid (SC)**

- **Future Frequency Response Service**

1425. National Grid presented a paper on future FR services. This paper came from a request from the BSSG/GC Working Group on FR to put forward a paper to the Panel on synthetic inertia. Synthetic inertia is a requirement that National Grid has been working on to facilitate the integration of wind turbines to the power system to the levels expected in 2020 at the same time catering for a large infeed loss. The paper showed the high level requirements for synthetic inertia that National Grid had developed. Some panel members disagreed with National Grid's view that there was a requirement for synthetic inertia in the Grid Code and proposed that contracts for inertia were an alternative which should be investigated. JN and GN suggested that implementation would also need to be considered and that the development of commercial incentives should be pursued in parallel to the technical considerations. SB requested that the working group also compare the option of operating wind turbines in frequency sensitive mode in order to address the issue. GN requested that the working group confirm that the synthetic inertia capability was not the subject of any patent which would prevent any manufacturer offering such a facility. GN requested that NGET show the impact of system inertia from the analysis of previous system events. SB made the point that the synthetic inertia specification proposed was not realistic taking signal processing into account.

1426. As part of the work done by National Grid on synthetic inertia the 1800MW loss had been evaluated. National Grid's assessment against its current view of the future generation background is that with the existing FR arrangements in the Grid Code it will be difficult for the network to be secured for this loss under certain specific system conditions and proposed this should be considered by a new Working Group. However, the Panel felt that the current Working Group was still an appropriate place for this issue and therefore would like this issue to be discussed at the next meeting of the FR Working Group and to consider adding the work to its Terms of Reference. BM stated that in light of this paper a 'roadmap' should be communicated to Ofgem showing how this issue is to be resolved, which will allow a decision to be made on the 1800MW loss proposal. The Panel agreed that these issues would be put to a WG to consider and develop terms of reference; it was expected that this would be a continuation of the previous working group but a wider membership may be sought.

**Action: National Grid (SW)**

- **Harmonics**

1427. G5/4 sets out industry guidance for the management of harmonics. The objective of the group is to develop recommendations over a range of topics. Two particular issues were highlighted: the allocation of headroom to a number of users at the same location and increasing the requirements of G5/4 to the 100<sup>th</sup> harmonic. The Panel considered and agreed draft Terms of Reference for the joint Grid Code/ Distribution Code Working Group. GN expressed the view that this issue was complex, could be prone to vested interests and therefore needed more resources and that the working group should have a budget to employ and manage consultants to undertake the necessary work. This was particularly important as slow resolution could impact the renewable energy and low carbon targets.

**Action: National Grid (TI)**

## 6. Working Groups – In Progress

- **Frequency Response**

1428. TI provided an overview of the progress to date, including the issues as discussed in paragraphs 1426 and 1427 above.

- **Grid Code Requirements for Electronic Communication Facilities between NGET and BM Participants**

1429. An update of the EDL BM Participants was given by NR. The Working Group has had a first and last meeting. Proposals from this meeting that rather than specify a requirement for EDL on a control point it should be specified as a requirement should the generator be required to provide a mandatory service in CC.8.1 of the Grid Code. National Grid agreed to circulate a slide pack on the topic.

**Action: TD (National Grid)**

### **7. Working Group Reports**

- **PNs from Intermittent Generation**

1430. SC provided an update from the Working Group Chair. The Working Group report was due to be submitted to this Panel although as a result of additional comments received at the last meeting, held the previous day, it was requested that the Report was delayed until the November Panel meeting. The Panel agreed to these timescales although commenting that the Report was making slow progress.

### **8. Report Consultation Comments**

- **A/10 – Compliance**

1431. National Grid has listened to the industry comments on the A/10 Consultation and are currently redrafting the A/10 proposals. The two major changes are that the compliance process shall be removed from the CCs and a new section the Compliance Process (CPs) shall be added. The testing shall be moved to OC5. GG asked if another industry consultation day would be held due to the not inconsiderable number of pages likely in the future consultation.

**Action: TI (National Grid)**

### **9. Pending Authority Decisions**

- **B/09 Category 5 intertrips**

1432. The B/09 proposal is still being considered alongside the associated CUSC Amendment Proposal.

- **H/09 DPD**

1433. BM reported that an Authority decision is expected within the KPI timescales of 25 working days of the Report being submitted.

### **10. Voltage Control and Fault Ride Through**

1434. GS presented a paper on Voltage Control and Fault Ride Through of StatComs within a power park module. The paper sought to address two issues surrounding static plant installed at PPMs.

1435. The voltage control element of this paper was focused on the hybrid Statcom solution's inability to meet the Grid Code requirement for the voltage control device to deliver continuous control. The paper sought to inform the Panel how National Grid intended to interpret the meaning of "continuous" voltage control for projects currently connected or connecting up until January 2013, as set out in the paper.

This will allow these projects that have installed hybrid statcoms to be considered Grid Code compliant.

1436. There was extensive discussion surrounding what the requirement for continuous voltage control was much of which was not the subject of the paper. Some panel members did not agree with National Grid's current interpretation of the Grid Code. SB requested a clarification of the activation of the "continuous" voltage control as differences in timeframe lead to a significant difference in technology. Thereby a distinction between normal and contingency (fault) operation should be made. GN noted that the interpretation of the Grid Code by NGET had evolved over time and that Users had received different treatment. GN stated that he had data collected from sites that proved there was not the level of risk or problems intimated by National Grid. GN felt the document produced by National Grid did not present any data, statistics or evidence to support National Grid's views. GN asked that National Grid brought forward a change to the Grid Code for clarity if they wanted to change their interpretation. GN expressed the view that National Grid was in a powerful position regarding connecting generators as by withholding a FON they could force the issue with new generators who were not in a position to close their contacts and finance without an FON in place.
1437. Some panel members believed there should be no change made to the Grid Code in treatment of this plant as the current interpretation is not clear. NGET was asked to bring forward evidence of the need to adjust the interpretation along with an impact assessment. JN noted (i) the need for cost benefit analysis to be carried out and asked why this issue had not been raised previously, (ii) the proposed implementation date based on 2-3 years contractual lead time was too early since lead times may be nearer 4-5 years, (iii) lack of clarity with the proposed applicability date, i.e. treatment of staged completions and the treatment of delays, (iv) lack of clarity regarding fault infeed requirements. JB commented that it would appear that National Grid merely want wind turbines to "mimic" the performance of synchronous generators with no regard for the cost. DS reminded JB that the Grid Code containing the requirements for all generators was an industry document and that no one party had made up the requirements.
1438. The purpose of the Fault Ride Through paper informed the panel about the need for external equipment to stay connected and support fault events. The panel did not see an issue with the proposed voltage range operational requirements. SB pointed out, that the reactive power during lower voltages is not identical to the maximum reactive power as defined in normal operation and supported the current grid code, which states to export maximum current according to the capability of the unit without causing any damage.

### **11. Active Power Recovery after fault ride through events in respect of Large Power Park Units**

1439. SB presented an item regarding wind turbines active power recovery following a Type A fault as set out in the CC.6.3.15.1. The situation is similar for all larger (e.g. > 3MW) long shafted wind turbines. Type A faults require an active power recovery to 90% of the pre-fault power within 0.5 seconds on recovery of the voltage. The paper presented two actual traces of active power recovery and the large oscillation of the active power due to the stresses on the shaft. GN pointed out that although the recovery was slower for shorter duration faults it was faster than specified for longer duration faults and so was better for the system in a worst case fault scenario.
1440. GS asked if this was an issue post the new Fault Ride Through arrangements for offshore. SB will check if the offshore wording results in this issue not being relevant. GS intends to investigate further the derivation of the 0.5 second criteria and report back to the Panel.

**Action: SB (Novel Generators)**  
**Action: GS (National Grid)**



### 12. Power Park Module Extensions

1441. The paper presented laid out the implication of a post commissioning extension to a Power Park Module that would increase its size over a threshold size (e.g. 50MW). JN commented that proposal would effectively kill any opportunities for developers to add a few extra wind turbines to existing schemes and suggested that it should be possible to put a clause in the Grid Code to enable wind farms to be increased by a percentage capacity subject to NGET's agreement. The Panel's view was that until a User presents an issue where the current Grid Code threshold for sizes prohibits the extension of a PPM this issue was not deemed more urgent than other current work.

### 13. Impact of other Code Modifications or Developments

#### ▪ CUSC

1442. The recently raised CUSC Amendment Proposal 189 concerns the ownership boundaries for future Gas Insulated Switchgear connections and introduces an option to choose between two standard boundaries, one deep and one shallow. The first consultation is expected to be published by early November.

#### ▪ BSC

1443. None

#### ▪ Cross Code Forum

1444. TD made the Panel aware that 6 persons had attended the cross code forum recently. Discussions were extremely positive and the benefit of the group appeared clear.

### 14. A.O.B

#### ▪ Environmental Obligations

1445. TD updated the Panel on a change to National Grid's Transmission License, C14. Ofgem has requested that National Grid considers any necessary consequential Grid Code changes by 31<sup>st</sup> December 2010. A draft Consultation will be circulated around the Panel for comment with an expectation for changes needed to General Condition 4.5. The License change requires future amendments to the Grid Code to be assessed against impact on greenhouse gases.

**Action: TD (National Grid)**

#### ▪ Solar Storm

1446. JM commented that there was a large increase predicted in solar storm activity in 2011/2012 and asked whether the GCRP needed to consider mitigating actions. GG commented that the E3C were indentified as already examining the issue and an updated of their position was to be provided.

**Action: National Grid**

### 15. Date of Next Meeting

1447. It was proposed that the next Panel meeting will be held at National Grid House in Warwick on the 18<sup>th</sup> November 2010. Several Panel members informed National Grid that they were unable to make this date.