

Grid Code Review Panel Meeting – DRAFT

Minutes and Actions Arising from Meeting No. 50 Held on 7th July 2011 at AEP Offices, London

Present:

David Smith	DS	Panel Chair
Thomas Derry	TD	Panel Secretary

National Grid

Graham Stein	GS	Member
Steve Curtis	SC	Member
Tom Ireland	TI	Member

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

Alastair Frew	AF	Member
John Morris	JM	Member
John Norbury	JN	Member
Garth Graham	GG	Presenter

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

None

Generators with Small and Medium Power Stations Only

Barbara Vest	BV	Member
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Network Operators in England and Wales

Mike Kay	MK	Member
Alan Creighton	AC	Member

Network Operators in Scotland

Dave Carson	DC	Member
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Relevant Transmission Licensees

None

Generators with Novel Units

Guy Nicholson	GN	Member
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Ofgem Representative

Steve Brown	SB	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

1769. The Chair opened the meeting by welcoming the members to the July GCRP. Apologies were received from:

Members	Alternates
Tom Davies	Jim Barrett
Bec Thornton	Alan Michie
Brian Punton	Neil Sandison
Alan Kelly	Guy Phillips

2. New Grid Code Development Issues

Sub-Synchronous Resonance (pp11/34)

1770. GS explained that his paper requests an Industry Consultation is undertaken to enable the information exchange required to facilitate future assessment of Sub-Synchronous Resonance (SSR). The Grid Code currently does not have any specific requirement for this information to be provided.
1771. AF noted that there had been requests for information on existing plant via a letter from National Grid but that the proposed modification is only going to apply to new plant. The difficulty and cost of obtaining this information for older units was noted. AF questioned how this information would be used and whether there was any additional background that could be included in the paper.
1772. JN questioned what options are possible for dealing with SSR. GS noted that there are a number of options, such as changing series compensation parameters, using Thyristor controls or intertrip arrangements for example. Whilst there are a number of options to resolve potential problems, issues need to be examined before an appropriate solution can be evaluated.
1773. AF questioned who is responsible if the generator or the shaft fails as a result of SSR as SSR is not monitored at the minute and the issue only becomes apparent after damage occurs. JM noted that South Africa has monitoring equipment and that this could form part of a future requirement. GS confirmed that liability would be managed under the terms of the CUSC and that risks would be managed using the same processes as are used to deal with other technical challenges. AF noted that other risks are described and limited through the Grid Code but there is currently no wording around SSR, its associated risks and what needs to be done to prevent it.
1774. GS noted that there is no evidence of an SSR risk to detect on the transmission system but that National Grid needs to gather the data to do its job of designing the system.
1775. The group also questioned what would happen if HVDC systems were installed and then a new power station was built nearby: would this lead to restrictions on the generator to ensure the SSR issue was not exacerbated? GS confirmed that there was be a need to implement appropriate damping controls within any HVDC installation but that generator information may be required to develop an appropriate control solution. GS noted that there is currently an onus on HVDC owners to prevent any SSR on the system, generators are now being asked to provide data rather than take on obligations which would impact on plant design..
1776. GN noted that there was an issue with SSR a number of years ago with wind turbines on the Scottish network and that there was some modelling done at the time. Some data may be available for existing sites.
1777. AF noted that by changing the configuration of the transmission network you can impact on the resonance of the system. GS explained that any SSR assessment would need to take account of the full range of operational scenarios.

1778. JN suggested that changing the legal text to enable users to participate in the assessment process would be useful.
1779. JM questioned whether the SSR assessment should be tested for at the compliance stage as it is the manufacturer that provides the turbine data. GS confirmed that providing the data should be sufficient and that compliance testing has not been considered at this stage.
1780. DC questioned how often assessment may need to be carried out for SSR. GS confirmed that assessment should only need to be done at time of a new connection.
1781. The Panel approved this issue to progress to Industry Consultation and that findings should be reported to the GCRP following the closure of the Consultation to discuss next steps.
1782. **ACTION: GS** To include a section on the background of the SSR issue in the paper and publish an Industry Consultation in October 2011 for a period of 20 business days.

Operational Metering requirements on Small Embedded Power Stations (pp11/35)

1783. JL explained that this paper follows on from the issue that was raised by JN at the May 2011 GCRP regarding one of the stations that he represents. The paper is requesting that this issue progress to a Working Group.
1784. JL confirmed that a meeting between himself SC and JN took place to discuss the issues raised and that a way forward was identified for the wind farm in question at the May GCRP. However, it was recognised that there are potentially different ways to interpret the wording within the Grid Code and none of the interpretations seem satisfactory.
1785. JL explained options 1 and 2 that a Working Group could consider and that option 1 could be adopted on an interim basis until an enduring solution can be put in place. SC noted that options 1 and 2 are not mutually exclusive and could form a solution together.
1786. JN noted that this paper highlights a material issue for Embedded Small Power Stations as the impact for installing operational metering may typically be in the region of £500k.
1787. MK noted that there may be an ability to request operational metering data through the DNO MK noted that option 2 may not pragmatic going forward as there could be a growth of Embedded Small Power Stations in the future.
1788. The Panel agreed on the use of the interim solution identified in the paper submitted and that a Working Group will commence in quarter 4 of 2011. The Working Group Terms of Reference are to be brought to the September GCRP. AF requested that a review of clause CC.3.1.A. and what the legal interpretation is be included in the Terms of Reference.
1789. **ACTION: JL/SC** To create Terms of Reference for and submit to the September GCRP.

Offshore Wind Farms Not Connected to an Offshore Transmission System (pp11/36)

1790. JL presented a paper which highlights an unintended consequence of the Offshore drafting within the Grid Code. The paper requests that this issue is progressed to an Industry Consultation.
1791. The issue is regarding the definition of a Power Park Module (PPM) which was replaced at Offshore Go-Active. The revised definition prevents certain offshore wind farms from being considered PPMs which results in some Grid Code provisions not

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strictly applying.

1792. JL noted that the proposed solution is to amend the definition of PPM and that it is more of an issue for the Grid Code than the BSC.

1793. GN questioned if there would be an impact from changing the definition to revert these wind farms back to a pre-Offshore status. It was suggested that this could be included in the Industry Consultation.

1794. The Panel agreed for the paper to progress to an Industry Consultation.

1795. It was proposed to circulate the consultation around the Panel for approval via email ahead of wider circulation.

1796. **ACTION: SC** To draft proposed legal text and an Industry Consultation for circulation to the Panel for comment and approval ahead of September GCRP. Once the Panel approve the consultation, it will progress to industry consultation for a period of 20 business days.

3. Working Group Reports

1797. There were no Working Group Reports to consider at the July GCRP.

4. Working Groups in Progress – Update

Frequency Response & Technical Sub Group

1798. TI gave a presentation¹ on the history and current progress of the Working Group.

1799. The next Frequency Response and Technical Sub-Group Meetings are both planned for early August. The first draft of the Technical Sub-Group Report is planned to be examined at the Frequency Response meeting. The target conclusion of the Technical Sub-Group is September 2011.

1800. GN questioned if the proposed models were being progressed equally. TI confirmed that one option has progressed further than the other two as it has been identified as an interim solution compared to the other options. The industry options still need further refinement.

Harmonics (G5/4)

1801. GS noted that an update is still on track for the September GCRP.

BMU Configuration of PPMs Offshore

1802. TI informed the Panel that nominations for the Working Group have been received and the first meeting is being arranged.

Revision of CC7.7 Maintenance Standards

1803. TI informed the Panel that an invite is due to be sent out shortly for the first meeting which is organised for July. After an initial consideration of the issue by National Grid and considering bilateral conversations with the proposer, TI indicated that there might not be a need for changes to the Grid Code after all, but the STC may need clarification or amendment. This is to be determined at the first Working Group meeting.

Electricity Balancing System Group

1804. TI noted that the first meeting was held on 30th June. It was also noted that the technical staff for the commissioning of the new system will have a sub-group once

¹ <http://www.nationalgrid.com/uk/Electricity/Codes/gridcode/reviewpanelinfo/2011/7+July/>

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there is more certainty about what the system will be.

LEEMPS Draft Terms of Reference (pp11/37)

1805. MK provided an update to the Panel on the Terms of Reference and noted that the DCRP have agreed for this to be taken forward.
1806. NGET is to provide a secretary and the group will be chaired by MK (following nominations in the Panel meeting today by BV and GN).
1807. The membership could comprise of NGET, DNOs, a few generators and Ofgem. It was noted that Ofgem could be involved through correspondence rather than physical attendance. GG noted that the group should take account of CUSC issues and TI questioned if there should be a DCUSA member. MK confirmed that DNO representatives would cover the DCUSA elements.
1808. MK noted that these Terms of Reference should be read in the context of the paper submitted to the May 2011 GCRP. The target is for this Working Group to conclude in a year as we need to understand the European Network Code changes as part of this.
1809. **ACTION: MK/TI** To update Terms of Reference and bring to the September GCRP.

Grid Code Signatories Consultation

1810. BV, the Chair of this group, updated the Panel on the progress of the Working Group. There have been four meetings to date with a fifth planned for 8th July 2011 at the Elexon offices in London.
1811. The Working Group is going to review the Working Group Consultation responses and draft the Working Group Report. This will include a review of the proposed legal text.
1812. The Panel agreed for the report to come to the September GCRP.
1813. **ACTION: BV/TD** To submit the Working Group Report to the September GCRP

Joint European Standing Group (pp11/43)

1814. This agenda item was brought forward as it is in relation to the 'Grid Code Signatories Consultation' work.
1815. TD explained the purpose of the group and the recommendation of the Joint BSC/CUSC/Grid Code Working Group. DS noted that intention of the first meeting is to establish the group and note that the Connection Conditions may be looked at if the Framework Guidelines have been finalised by ACER.
1816. GN questioned what the meeting on 15th July 2011 was regarding and if this was the first JESG meeting. DS confirmed that this is a following on European Workshop from the one held in January 2011 and not the first JESG meeting.
1817. The Panel approved the creation of the Joint European Standing Group.
1818. **ACTION; TD** Email JL the location of the European Work Plan contained in the Annex of the paper.
1819. **ACTION: TD** Circulate updated Terms of Reference that were approved at CUSC Panel

5. Consultations

B/11 Provision for Communication of System Warnings (previously Operational Broadcast System paper)

1820. SC noted that the consultation closed on 27th June 2011 and five responses were received, all of which were generally supportive. Some general comments that emerged were around costs and time to implement changes. One suggestion was to explain the proposed system in more detail ahead of any Grid Code changes.

1821. The Panel agreed that a Report to the Authority should be drafted.

C/11 PNs from Intermittent Generation

1822. SC noted that the consultation closed on 16th June 2011 and that nine responses were received [post meeting note: eight responses were received], all of which were broadly supportive. One respondent did not agree with Working Group view and another commented about the definition of output useable and the clarity of definition. Some respondents felt that there was no material change whereas others thought there would be a significant change that would impact on MELs.

1823. The Panel agreed that a Report to the Authority should be drafted.

D/11 System to Generator Operational Intertripping Schemes

1824. TI noted that consultation closed on 20th June 2011 and that four responses were received which were all broadly supportive. One respondent identified that a housekeeping change to the CUSC may be needed. TI has raised the issue with the CUSC team who are looking into it. Another respondent suggested provisions for using a TOs circuit breaker could be included in the STC.

1825. The Panel agreed that a Report to the Authority should be drafted.

6. Pending Authority Decisions

A/11 - P231 Consequential Change

1826. SB noted that the paper is currently with the Authority and that a decision should be made within the requisite time.

D/10 - Frequency and Voltage Operating Ranges (FaVOR)

1827. SB informed the Panel that a decision had been made to approve D/10 on 4th July 2011 with an implementation date of 18th July 2011.

7. Outstanding Grid Code Development Issues

Consultation Papers and Development Issues (pp11/38)

1828. TD went through table 1 and 2. No comments were made by the Panel regarding these sections. It should be noted that the only issue for discussion on table 2 was covered by the D/11 update.

Frequency Resilience of the Total System (pp11/39)

1829. GS presented this paper which recommends that the GCRP notes the intention of NGET to bring Terms of Reference for a Rate of Change of Frequency (ROCOF) Working Group to the September GCRP.

1830. GS asked the Panel if they agreed this was the right way forward. MK queried whether right now is the appropriate time for the wider ROCOF debate. AC noted that the government Feed In Tariffs (FIT) are encouraging smaller scale generation and that ROCOF protection is build into this equipment. Could be very difficult to change and replace.

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1831. GS agreed that the problem is not straight forward and that some work is required to scope the problems that need be addressed effectively.
1832. SC noted the interaction with the Frequency Response work and queried if the ROCOF work should be included as part of that work or looked at following the conclusion of the Frequency Response work. GS noted the Frequency Response work needed to draw some conclusions first as it could provide information on the range frequency change rates that we could see in the future.
1833. The Panel supported the recommendation of the paper.
1834. TI noted a piece of work that looks at issues across Distribution and Transmission which should be updated to reflect ROCOF work.
1835. **ACTION: GS** Talk to DNOs regarding ROCOF issues.
1836. **ACTION: GS** Bring Terms of Reference for a ROCOF Working Group to the September GCRP which take into account DNO discussions.
1837. **ACTION: TI** To raise this work at the forthcoming Extraordinary Distribution Code Review Panel meeting on the 14th July.

8. Approval of Minutes from previous meetings

Minutes from May GCRP (pp11/40)

1838. The Panel reviewed the minutes from May and agreed for these to be published as final minutes once the typographical changes identified by JN had been incorporated.
1839. **ACTION: TD** To update the May GCRP Minutes and publish then on the National Grid website.

9. Review of Actions

Review of Actions (pp11/41)

1840. TD went through the Review of Actions paper with the Panel. All actions were completed except for the following:

May 2011 GCRP

(Minute 1627) Voltage Fluctuations

1841. GS noted that the action to bring a revised proposal to September GCRP is ongoing.

(Minute 1651) Frequency Response and Technical sub group

1842. TI noted that the intention was to try and future proof arrangements with wording in BCAs, these words are trying to be put in to be helpful by providing transparency and not there to provide additional obligations.
1843. AF explained that the issue was that they were included as part of the Bilateral Connection Agreements (BCAs) but that the account managers could not tell them how the issues were progressing. In addition users are having to comply with a future requirement that may not be compatible with those systems being installed.
1844. TI agreed that is an issue and suggested that an account manager attends the GCRP to deal with any queries, DS also confirmed that National Grid is proposing to change the words to show that it is more for information than compliance.
1845. JN queried why the wording was in the body of the BCA rather than the covering letter if it is just provided for information. DS noted that there should be an option to

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remove from the body and placed within the covering letter.

1846. **ACTION: TI** To circulate proposed revised wording for the BCAs to the Panel

1847. **ACTION: TI** To write an explanation on the process for moving the wording from the body of the agreement to the covering letter.

(Minute 1661) Reactive Despatch Restrictions

1848. SC informed the Panel that a package of analysis had been sent to NS. Between SC and NS they aim to bring back practical examples to the GCRP and then determine the next steps.

1849. JN highlighted that an invitation to tender had been issued to invite generators to consider operating at or below SEL and questioned this approach. SC stated that he was aware of the tender and explained that National Grid were seeking potential solutions to manage high transmission voltages.

1850. JM questioned whether there could be a compliance issue in utilising units below SEL. SC stated that he could not perceive any issues, but that this would be clarified within NGET.

(Minute 1749) Demand Control Paper

1851. SC confirmed that he had received further detail from AC regarding his analysis and suggest that there could be a workshop to look at demand control.

1852. GG noted that suppliers might wish to be part of that workshop.

1853. **ACTION: SC** To set up workshop and circulate information to the Panel and wider industry.

February 2011 GCRP

(Minute 1523 & 1524) Governance of GCRP

1854. TI explained to the Panel that there are two types of form, one to raise a new issue and one to seek clarification, and that they had been made available on the website. A guide is to be made available explaining how to use these two forms and their purpose (this covers action 1610 from March GCRP).

1855. **ACTION: TI** To produce and publish, on the National Grid website, a guide explaining the forms and their use.

(Minute 1564) Special Actions

1856. SC noted there has been a review of internal processes which has resulted in changes being made.

1857. **ACTION: SC** To bring a revised presentation to the September GCRP.

(Minute 1566) Simultaneous Tap Changing

1858. Although the actions were complete, SC updated the Panel on the result of the test that took place on 30th June 2011. 41 Power Stations received instructions to conduct a simultaneous tap change at 11:03. In Scotland a 3-4 kV change in voltage was seen as a result of the test.

1859. The exercise highlighted deficiencies in the current process and it is proposed to revise it. SC will be sending out a revised process taking into account the key learning points from the exercise. The next test is to be at night over the 21st and

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22nd July.

1860. **ACTION: SC** To circulate revised process for next Simultaneous Tap Changing test

(Minute 1576) Interconnector Update

1861. TI noted that since the circulation of the interconnector update paper on 8th June 2011, the Norwegian interconnector has signed its contract with a connection date of 1st March 2018.

G59 Protection Setting Update (DCRP paper 11_02_03)

1862. TI explained that following the May 2008 Frequency Excursion incident a consequential Working Group made several recommendations. One of which was for protection settings to be amended for the current fleet of 5 – 50MW embedded generators where practicable. The latest update paper shows that there are still some outstanding protection settings to be changed.

1863. MK noted that the outstanding companies have been identified to Ofgem and they are to provide the ENA and the DCRP an estimate of when they suspect 90% of changes will be achieved.

1864. **ACTION: TI** To circulate an update on the progress tracking paper for these G59 protection setting changes from the July DCRP.

10. Standing Items

European Network Codes

1865. DS provided the Panel with an update on the European Networks Codes. DS informed the Panel that he has joined the Markets Committee in ENTSO-e. DS noted that whilst the Markets Committee is not directly linked to Grid Code issues it will provide him with useful links to the ENTSO-E secretariat to discuss concerns raised from GCRP on other issues.

1866. The Transparency Guidelines, being led by the European Commission, are progressing. They are due to consult in July and this is the final consultation. The Panel questioned at what level this consultation would be - regional, national or European, DS noted his understanding was this consultation would be at a European level.

1867. The Network Connections Framework Guidelines (FGs) are due to be published imminently. ENTSO-e are not currently drafting anything in relation to this, just preparing for the release of the FGs. There is going to be a stakeholder (trade association level) workshop once the FGs come out. The Panel questioned if experts can be seconded onto the drafting teams at the ENTSO-e level.

1868. GN noted that the European Wind Energy Association (EWEA) met with the drafting team and the feedback is once it gets written into law it will be virtually impossible to change and so they are looking to the future for their drafting. GN also noted there was a list of FAQs that ENTSO-e has published. European Commission currently want any change to go through comitology.

1869. MK noted that there was a meeting of drafting team for Demand Connection Code on 6th July 2011 and we should see something before December 2011.

1870. **ACTION: DS** To confirm if experts from the industry can be seconded on to the ENTSO-e drafting team.

ACTION: GN To circulate the ENTSO-e FAQs to the Panel

11. Issues

Two Shift Limits (pp11/42)

1871. SC presented an updated paper on Two Shift Limits (TSLs) to the Panel. It was noted that a meeting was held on 1st June to seek a way forward on this issue. The key issue is how a generator should indicate multiple synchronisations in one day.
1872. At the meeting it was recognised that there is a future requirement for plant to be more flexible and the paper highlights a number of options. The group agreed that generators should use Bid Offer Acceptance or dynamic parameters to indicate their willingness to two shift.
1873. SC also informed the Panel that the issue of TSLs has been included in the Terms of Reference for the EBSG. A paper is to be published that will provide guidance for a generator to indicate their willingness to the two shift.
1874. JN suggested that the definition of TSL could be changed, as a potential solution, from being the maximum number of times a Genset may desynchronise in an operational day to the maximum number of times a Genset may synchronise in an operational day. SC noted there would still be issues around the interpretation of TSL but that this could be considered by the EBSG when examining TSLs.
1875. BV thanked National Grid, and in particular Mark Duffield, for the work that had been done on trying to come to a resolution on the issue.
1876. The Panel agreed for the recommendations identified in the paper to be taken forward.

12. Impact of Other Code Modifications or Developments

CUSC

1877. DS noted that Gas Insulated Switchgear (GIS) was to be submitted to the July CUSC Panel. GIS has progressed through a Working Group Consultation and Code Administrator Consultation.

BSC

1878. JL noted that there had been a meeting of the Issue 42 (Black Start Generator - Defining a 'local' shutdown) group and a paper is due to be written and taken to the BSC Panel.
1879. JL informed the Panel that there is a 'BMRS Zones Review' consultation which closes on 22nd July 2011. Current thinking in the BMRS Review group is that there should be an alignment with the 17 SYS zones.

Cross Code Forum

1880. TD informed the Panel that the next cross codes forum is taking place on 16th September at the Elexon offices. Europe is going to become a standing agenda item due to the interest shown at the previous meeting.

Operational Forum

1881. TI presented slides² from the Operational Forum on Operational issues, these slides covered performance of the network during the Royal wedding.

² <http://www.nationalgrid.com/uk/Electricity/Codes/gridcode/reviewpanelinfo/2011/7+July/>

13. A.O.B

Generator Build

1882. TD informed the Panel that there is a Due Diligence review being conducted for the changes implemented in the CUSC and Grid Code last year. Following the conclusion of this review changes for the STC will be considered with a view to have any changes in place by January 2012.

Geomagnetically Induced Currents

1883. GG gave a presentation on Space Weather and Geomagnetically Induced Currents to the Panel.

1884. The Panel appreciated the update and requested that the issue becomes a standard item and for GG to provide an update at the September GCRP.

GCRP 2012 meetings on Wednesday not Thursday.

1885. TI proposed to hold the 2012 GCRP meetings on Wednesdays rather than Thursdays. The Panel agreed with the proposal.

14. Date of Next Meeting

1886. The next GCRP is 22nd September at National Grid House in Warwick.