

G5/4 Review Group

A Joint GCRP/DCRP Working Group

Notes from 4th Working Group Meeting, 6 September 2011 Held at Honiley Court, Warwick

Present

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| G Stein | National Grid Company (Chair) |
| E Partal | National Grid Company |
| S Scarbro | Western Power Distribution/Central Networks |
| A Barlow | Magnox |
| D Jones | Electricity North West |
| J Morrell | CE Electric |
| D Crawley | ENA |
| L Mackay | UK Power Networks |
| H Dallachy | SP Transmission |
| J Smart | Scottish & Southern Energy |
| G Brown | ABB |
| M Whiteman | Danfoss |
| C Forbes | Danfoss |
| A Shafiu | Seimens/BEAMA |
| J Riley | EDF Energy |

1 Welcome and introductions

The Chairman welcomed Members, who introduced themselves.

2 Notes/actions from last meeting

- a. The notes of the previous meeting were reviewed
- b. Actions: covered by Agenda items.

3 Subgroup Update

3.a Proposal to establish short-term limits for fluctuating loads

LM presented a paper reviewing the short-term distortion at number of sites and indicated that;

- At the majority of sites(including the urban site) the ratio between short-term and long-term distortion was greater than the ratios specified between short-term and long-term compatibility levels in IEC 61000-2-2 and IEC 61000-2-12 for at least one harmonic during at least ten separate minutes during a one week period.

SS has also mentioned that daily 3 seconds measurements for all harmonics would take 65MB storage space.

Action: LM to prepare a full proposal should be prepared and circulated initially to SG and then WG members for further consideration and members to provide their indication to accept it on the following basis:

- a) **Short-term planning and compatibility levels should be proposed for G5/5, using the ratios set for short-term compatibility levels in IEC 61000-2-2 and IEC 61000-2-12;**
- b) **The criterion for acceptance should be the same as that recommended in IEC/TR 61000-3-6**
- c) **A Measurement methodology should be given for determining those cases where there was a risk of short-term planning levels being exceeded, without requiring excessive measurement which will also include ‘practical approach’ on both Long Term & Short Term analysis to predict the 99th percentile of 3 seconds average harmonic currents.**

Note: This proposal should also explain the derivation of the measurements to IEC 61000-4-7 such as what measurements are required & how to use these measurements etc.

3.b Review of G5/4-1 Planning and Compatibility Levels

Revised levels have been proposed by LM. This was to address the following issues:

- a) There are inconsistent margins between planning and compatibility levels for different harmonics
- b) The margins for planning levels between different voltage do not match network configurations; for example there is no margin between 132 kV and 33 kV.
- c) The boundaries between voltage levels for compatibility levels are different from those for planning levels.
- d) For most harmonics there is no margin between planning and compatibility levels for voltages above 33 kV.

*Please note that WG has agreed that specific goal of 'Recommending Compatibility levels for voltages above 33kv' will **not** be covered under this proposal.*

Action: LM to revise the proposal and circulate to WG members as an IFI project (to be submitted as a separate tender package) with required active support and funding details then WG to provide comments on this proposal.

*LM has also informed that draft version of Section 4-7 are being prepared by GB which will included re-drafting of certain sections of G5/4-1 including tables of planning levels, work done by S Scarbro on minimum measurement periods, updating standards references, a new Stage 1 table based on maximum permissible current emissions per MVA of fault level for equipment over 16A/phase, a new paragraph on even and triplen harmonics and deleting reference to harmonics over 25th, "typical/default" fault levels needed re-examination, particularly at 20kV where a more typical level would be 100MVA.

Action: GB & AS to prepare the outline/draft version of section 4-7 of G5/5 and to add guidance on when to consider triplen harmonics (also to be included in future ETR 122)

3.c Proposed IFI work packages(existing);

ENA R&D Committee will not initiate the Work packages 1&2 until they receive the official confirmation from UKPN to support existing IFI project.

Action: D Jones to seek confirmation from UKPN R&D and inform the update to WG members.

3.d Treatment of connection applications where existing network background levels are above Planning Levels but below Compatibility Level;

LM has presented the proposal and asked WG members to indicate their acceptance. SS has suggested that it should also include THD levels and should corporate with guidance.

Action: LM to finalise wording of the proposal and circulate to SG/WG members for their acceptance.

4 Update on harmonic Data Exchanges Discussions

G Stein briefly indicated that he and some NG internal staff had a meeting with RWE to discuss how to take forward the issue of data exchange during A&D process.

RWE's initial view is that NGET should be able to provide both the background harmonic levels and impedance loci within Connection Offer which should be deliverable within a 3 month period. GS has said that providing these data within 3 months is challenging as exact time line is not very clear!

How early NGET could provide required data to Generating Developers and how this to be documented are still in question. More work with regards to preparation & revision of the document to be carried out by National Grid.

Action: G Stein to prepare a document to summarise agreed proposal and to circulate to WG members within two weeks.

5 Discussion: Evaluation of Allocation of Rights Approaches

GS presented the slides and wanted WG to agree how it would be better quantify the value of different approaches at 132kv and above to evaluate by capturing all significant costs including carbon impact and ongoing compliance issues.

GS then suggested a proposal of desktop exercise based on three different situations and explained how to carry out this work. More discussions with WG members are necessary about Modelling & Data provision (engineering time and cost of measurement equipments will also be considered). It is also not very clear how to apply defined approach for Offshore & HVDC connections.

GS has finally confirmed that Desktop exercise will be carried out by NGET...

Action: GS to frame the question about the proposal, required work, sources for cost information etc.

*Additional Note: It seems that only German distribution & transmission owners might be following IEC 61000-3-6 approach fully and further manufacturer feedback from Germany to be obtained.

Action: AS to enquire and feedback to the group on experience of the application of the IEC approach in Germany.

6 Review of WG Progress

- * GS has informed about latest situation in GCRP/DCRP and indicated that no recommendation has been put forward yet.
- * Visibility of the WG activities is the key for both review panels
- * All the agreed activities with WG to be continued as usual

7 AOB

7.1 Title of G5/4-1

The title of "Engineering Recommendation" for G5/4-1; when used outside the industry, this could give a misleading impression that the document was for guidance, rather than one to be complied with.

Members generally agreed with this view and asked for this to be brought to ENA's attention

Action: D Crawley to inform D Whensley, Head of Engineering at ENA and EC members.

7.2 Next SG meeting

Action: EP to confirm the exact date & time of next SG meeting in November 2011.

8 Date of next WG meeting

Agreed as **Thursday, 8 December 2011** in Warwick -exact venue & time: TBC

Action: All members to note.