GC0048–T EU Connection Codes Technical Group Headline Report

nationalgrid

Meeting: 2
Date: 09/03//16
Location: National Grid House, Warwick

Overview

The purpose of this meeting was to address the GB implementation of the fault ride through requirements detailed in RfG, including setting of parameters for GB within the allowed ranges.

Fault Ride Through Parameter Setting

AJ presented slides on the following.
- Review of ENTSO-E Generic Voltage against time curves
- Development of Type D Synchronous Power Generating Modules connected at ≥ 110kV voltage against time curves. Table 7.1
- Development of Type B & C and D Synchronous Power Generating Modules connected below 110kV voltage against time curves. Table 3.1
- Development of Type D Power Park Modules connected at ≥ 110kV. Table 7.2
- Development of Type B & C and D connected below 110kV voltage against time curves. Table 3.2

BM presented Voltage against time study cases as presented to the industry within SOF 2015 Webinars. RW summarised that this is a realistic event which generation can expect to stay on ie 'ride through'.

The final corrected slides are attached below.

GC0048_T RfG Implementation- Fault Ride Through _110316.pdf

Review of Actions from previous meeting

The parameters to set are those in tables 3.1, 3.2, 7.1 and 7.2.
Action AJ/RW - Produce initial view to discuss at next meeting.

YA - run studies based on Scottish actual figures. Ongoing

CW, FM, All - Need some more information from alternator manufacturers.

MK queried whether parameters can be revised once initially set. RW confirmed that there was no restriction on changing parameters in the future as long as they remain within RfG limits. There is no three year minimum timescale (like that for RfG banding thresholds).

Action HH Publish headline report from meeting 1.

MK recalled that 'secured fault' definition was not clarified at the last meeting. RW had included a document in previous report with explanation.
Action RW – Expand on the 'transmission system' definition document.

Fault Ride Through Parameter Setting Discussion

CM commented that RfG specifies the minimum requirement and therefore any values set above minimum requirement should be justified.

There was general agreement that Tclear should remain at 140ms to align with current GB operating parameters.

Action AJ to amend graphs to show voltage recovery to 0.9. (Revised slides attached).

CM commented that interconnectors should be included which would mean a larger proportion of non-synchronous in the mix. There is a reactive requirement on interconnectors in HVDC. RW acknowledged this point but highlighted the need to get to parameter setting from where we are today.

SS commented that the scenario described by BM shows the situation at present which is now compliant with SQSS. However, RfG applies to new generation (connecting in three years) and SS queried whether we should codify things on a case by case basis. AJ/BM agreed this would be preferable for transparency but site specific items would need to be written into connection agreements.

GM asked for clarification that a second fault occurring before voltage recovery does not need to be covered here. This was confirmed. It was also confirmed that since unbalanced faults are not addressed in RfG it was envisaged that existing GB code obligations will be retained.

The issue of smaller generation struggling to achieve a Uret value of 0.05 was discussed.
GM confirmed that Type B 1-10MW do not tend to have much inertia and all of the recent developments have been around reducing mass. Achieving capability would be more expensive and difficult to achieve.
CW confirmed that small synchronous plant (ie reciprocating gas / diesel engines) could get down to 30% but no lower if wishing to remain synchronised. Small CCGTs or OCGTs could however be capable of getting further down.

MK queried whether parameters could be set by technology type. RW thought in theory they could but would check with ENTSO-E.

MK queried whether a pragmatic solution could be to go for 30% figure (i.e. the minimum requirement) for all synchronous B-C plant? This could be revised later.

AF commented that there is currently no FRT requirement on type B and C so, even with the minimum requirement, you would still get additional functionality beyond what exists now.

MK also noted that, consideration would need to be given to avoiding conflict with G59 requirements (G59 stage 2, 0.5s, 0.8pu voltage).

Next steps

1. Set the parameters.
2. Draft legal text for next meeting which will then be taken to the coordination group and then to GCRP and DCRP for approval before industry consultation.
3. Following consultation, submit Report to Authority to make the required changes/additions to GB codes.
4. Fast Fault Current injection requirements for Power Park Modules to be addressed. **Action SS** to circulate link Danish Reactive current injection PPMs document.

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See AJ slide 55 for a summary of next steps required.

Evidence required:
YA - Scotland system studies.
BM - material as presented today.
GM/CW - produce some justification of the additional cost or issues caused by less than 0.3 Uret for the small synchronous.

Next Meeting:

Wednesday 6th April, National Grid House
(Day 1 of connection codes 2 day slot)

Useful Links

GC0048 (see 'Workgroups tab'):
http://www2.nationalgrid.com/UK/Industry-information/Electricity-codes/Grid-code/Modifications/GC0048/

JESG: http://www2.nationalgrid.com/UK/Industry-information/Electricity-codes/European-network-code/Joint-European-Stakeholder-Group/

Attendees:

GM	Greg Middleton	Deep Sea Electronics Plc
TM	Tim Moore	UKPN
DD	Dave Draper	Horizon Nuclear Power
AF	Alastair Frew	Scottishpower
CW	Chris Whitworth	AMPS
MK	Mike Kay	ENA
RP	Razvan Pabat-Stroe	SPT
YA	Yash Audichya	SSE
AK	Anne Kensall	NGET
FM	Frank Martin	Siemens
PW	Peter Woodcock	RWE Generation UK
AD	Amir Dahresobh	Nordex
MB	Mick Barlow	S&C Electric Company
CM	Campbell McDonald	SSE Gener ation
SS	Sridhar Sahukari	Dong Energy
AJ	Antony Johnson	National Grid
HH	Honor Hynes	National Grid
RW	Rob Wilson	National Grid
BM	Ben Marshall	National Grid