Minutes

Meeting name	GC0079: Frequency changes during large system disturbances - Phase 2
Meeting number	39
Date	24/02/2016
Time	10.30 – 15.00
Location	Energy Networks Association (ENA), Dean Bradley House, London

Future meeting dates

Meeting Number	Date
~~39~~	~~Wed 24th February 2016~~
40	Wed 23rd March 2016
41	Wed 20th April
42	Tues 17th May
43	Wed 29th June

1) Introduction

MK welcomed the workgroup to the meeting. All attendees were long-standing participants.

2) Review of minutes/actions

Minutes

Meeting 38 minutes were approved. RJW to forward queries from JD in WG37 minutes

Actions

The following discussions were had on open actions:

GM proposal paper to amend G59 Annex 13.3 to cover the new RoCoF requirements was accepted by the workgroup. MK confirmed it would be incorporated within Phase 2 report/legal text.

139 - ToR to confirm treatment of withstand to be agreed/confirmed at March GCRP. The intention is to consider within GC0087, which is responsible for the Frequency requirements in RfG. CMD advised to raise concerns on management of withstand on existing users at the March panel, as GC0087 would only consider future users.

A document to summarise what system operation issues are being dealt with and where was suggested – NGET to consider?

156 - CMD raised the governance needed for any chances considered alongside LoM Protection (in relation to also checking generator's over-frequency settings had been altered to reflect an historic G59 change). ML believed there was an opportunity to do this for sub-5MW - if it can be done at no extra cost. GS felt there was no need to adjust TOR for this, but a CBA may be needed.

162 – JR reiterated that he thought the £10k estimate per user for making the changes seemed high - he suggested it could be as low as £5k. MK proposed a compromise of £7k for assumption purposes.

3) Benefits/costs of making changes

Generator Risk Assessments on Phase 1 changes

JA introduced table on risk assessment for generators from the Phase 1 changes. In particular, he highlighted the concern of machine damage from over-voltage. Even 20 seconds could lead to significant damage to cores, even though this duration is permitted for under-frequency currently in the codes (albeit these events are extremely unlikely from historic experience).

MK confirmed with JA whether this table was created on the basis of a previous version appendix of G59. JA confirmed that he was not aware of an update, so the table will need to be modified to reflect the latest version of G59/3.1. **[ACTION JA]**

[ACTION] Workgroup to review JA paper (once updated) and provide comment

GS stated that the risk assessment aspects of the report need to include all aspects. MK reminded the meeting that UoS risk assessment explains the risk of islanding, although low in individual terms, is of an order of magnitude where it does need to be considered by generator owners. As part of the consultation there was the opportunity to flag this up and to invite manufacturers to consider these risks in their designs of future machines.

GS Paper

GS introduced his updated paper on the CBA for making changes. Some additional clarity was sought on the FES scenarios, used to provide four potential outcomes in future years for generation/demand. JR sought to understand these a little bit more, and it was suggested that for the report a little more information might be needed. JD highlighted that the position on Solar PV generation in future years may now be different to FES 2015 given recent government policy decisions, though GS flagged that there was no massive difference on overall cost when he previously changed the PV sensitivity in his calculations.

The impact of interconnectors was discussed - load and curtailment maybe an issue for increased cost given their impact on the highest infeed loss calculation. The same can be said of Hinkley C, though all scenarios anticipate first generation post-2025.

It was agreed that if the FES can be updated, or the report delayed for FES 2016 (expect in July) this might provide a more accurate assessment. This could however delay the submission to the authority for decision.

[ACTION GS/RJW] FES updates need to be considered depending on when the paper is written/submitted

The need to reassert Phase 1 costs/benefits, then provide Phase 2 costs as an increment was stressed, particularly to ensure no double-counting of benefits.

CMD mentioned the enhanced frequency control capability project (http://www.smarternetworks.org/Project.aspx?ProjectID=1611), and GE reiterated that any outcomes of this group (and any other related work streams) need to be considered so that any recommendation is comprehensive. It should also assist Ofgem with the 'who pays' discussion. GE requested therefore that Ofgem be engaged on this throughout. MK

mentioned the consequential code changes intended to finance the setting change activity also need Ofgem involvement.

GS explained Table 4, which shows the outcome of changing protection settings. The table shows the costs of mitigation, such as holding more frequency response. The coincidence factor reduces impact of generation not running all the time. Generally speaking the £25k cost at 2020/1 suggests we should pursue as many generators as possible, though this does need to tie in with the amount of sub-5MW generators (as per the DNO rep action)

[Action GS] provide working for £25/MWh price for frequency response price in table 4

6) Workgroup report drafting

GS proposed to use the April meeting to review an initial draft of the report. He asked the workgroup to consider what the main recommendation would be. MK and ML agreed the target for settings change should be all sub-5MW apart from sub 30kW PV given the inverters are RoCoF insensitive. The 30kW figure is arbitrary; it might be better to concentrate simply on non-domestic installations. ML also spoke about the complexity of doing the risk assessments for customers, and therefore the recommendations from the UoS report of course need to be referenced.

7) Vector Shift update

In considering the behaviour of vector shift protection, in discussion it was agreed that it is important to establish the likely instantaneous vector shift that would be seen on distribution networks following an event on the transmission system (see also the National Grid project for Enhanced Frequency Control Capability 'EFCC')

Key for this WG is events that include a frequency excursion. However other events could give rise to a vector shift that could trip multiple embedded generators simultaneously. It was noted that this issue was also the subject of investigation and modelling by the GC0048 WG looking at the fault ride through requirements of the RfG. GS agreed that NG modelling of this would be key to understanding the risk of vector shift protection and would appraise the GC0079 WG as soon as any results emerged from the modelling work that is about to start.

8) AOB

The next meeting will be on Wednesday 23rd March at the ENA.

Attendees		
Name	**Initials**	**Company**
Mike Kay [Chair]	MK	ENA
Graham Stein	GS	NGET
Richard Woodward [Technical Sec.]	RJW	NGET
Campbell McDonald (by phone)	CMD	SSE Generation
Gareth Evans	GE	Ofgem
Ioannis Koutsokeras	IK	SP Energy Networks
Martin Lee	ML	SSE Distribution
Sam Turner	ST	NPG
Jacob Allinson	JA	RWE
Joe Duddy	JD	RES
John Ruddock	JR	Deepsea Electronics

Apologies		
Name	**Initials**	**Company**
Andy Hood	AH	WPD
Greg Middleton	GM	Deepsea Electronics
Ken Morton	KM	HSE
Frank Parker	FP	GE
Adam Dysko	AD	University of Strathclyde