

Minutes

Meeting name	GC0079: Frequency changes during large system disturbances - Phase 2
Meeting number	38
Date	25/01/2016
Time	10.30 – 15.00
Location	Energy Networks Association (ENA), Dean Bradley House, London

Future meeting dates

Meeting Number	Date
38	Mon 25 th January 2016
39	Wed 24 th February 2016
40	Wed 23 rd March 2016
NEW 41	Wed 20 th April
NEW 42	Tues 17 th May
NEW 43	Wed 29 th June

1) Introduction & apologies

MK welcomed KM and GE back to the workgroup, their attendance well-timed given the discussions were wrapping up to compile in a report.

2) Review of minutes/actions

Minutes

Minutes were broadly approved, though MK and GS agreed to respond directly to JD's submitted comments which sought clarification.

Actions

Actions 148, 159, 161, 163, 164, 167, 168 all closed

Re. action 145 – RJW provided a clarification that this was related to NGET's *Enhanced* Frequency Response tender exercise. He provided a link where all the presentation and tender material was uploaded: <http://www2.nationalgrid.com/Enhanced-Frequency-Response.aspx>. The workgroup requested the action remain open so they can see the outcome of the tender.

Re. Action 156 – is this an opportunity to combine change of over-frequency settings with the ROCOF protection work. If so how many sites affected? AH queried whether this would need justification and CBA. MK said that it would, and that it would be worth reviewing the 2009 report that initiated the change for power stations of over 5MW.

Re. action 160 – DNO reps were given until **Friday 12th February** to compile generation data for units of sub-1MW. This is a necessary precursor for action 162.

3) ROCOF Withstand panel paper

GS confirmed GCRP consensus on the movement of the RoCoF withstand work from the GC0079 WG and into the GC0087 WG which is managing RFG Frequency requirements. This is due to the appropriateness of workgroup resources, and the existing knowledge in the group.

Regarding retrospective application of any RfG withstand requirement on existing users, it is not expected that there will be a proposal for such a requirement in Great Britain. JR had concern over compatibility between old and new requirements. Also that the 0.5 secs measuring period for ROCOF protection would indirectly apply a withstand level. MK agreed that he understood the point, although he felt this was not material and should be included in the thinking on withstand requirements. FP also concerned over large generation tripping off (as in Ireland) and whether this was being considered – he volunteered to provide more details of his concerns.

GS reiterated that this topic needed to fit together in context of RFG and SOGL implementation first. It was therefore agreed that GC0079 should definitely not be considering RFG matters however.

[ACTION] FP to provide details of ROCOF event to NGET to provide more detail from SO perspective

[ACTION] GS/RJW to provide NGET GCRP system incident report - Complete



Significant System
Events.pdf

[ACTION] GE mentioned an NGET project on enhanced frequency monitoring - could it provide useful info - GS to investigate when useful information might be available.

GE: <http://www.smarternetworks.org/Project.aspx?ProjectID=1611>

4) Benefits/costs of making changes

GS went through updated slides to take account of revised solar PV sensitivity. Broadly speaking, adjusting the solar PV figures, caused negligible cost increase (as presented in slides 5-6).

MK explained that this analysis was the starting point for assessing the necessary change, but also changes costs/savings timings for a CBA. He also queried with GS whether the costs incurred in some of the scenarios needed to be netted off the overall cost saving, which was agreed. CMD also raised the role interconnectors had to play not only in contributing to the largest loss, but also providing response. It was agreed this needs to be addressed in the report.

There was some confusion on the workings for the financial figures, for example the capacity at risk costs ("At least £23.6k per year per MW at risk at an average price of 30€/MW/h"). GS agreed to confirm these and to show the working behind these and other financial figures.

GE reiterated from an Ofgem perspective that the drafting of this in the workgroup is critical to bring together the argument. He also drew attention to SQSS mod GSR007 for adjusting the Largest Infeed Loss. The report to authority included costs, so we need to check these are compatible:

<http://www2.nationalgrid.com/WorkArea/DownloadAsset.aspx?id=12637>

[Action] GS update slides with tables to explain scenario of savings and settings; calculation of £23.6k cost including assumptions (volumes/load) - bit more narrative. Structure into workgroup report

MK explained his 'Revised Costs of Mitigation' paper of costs for making changes; scale (i.e. the amount of sites affected) is important here, as is the process of making the change. This needs to be considered along with the route for making changes in first phase.

Regarding the physical change of settings, it was stated that the DNOs would generally not need to witness just a setting change, although witness testing might be appropriate where a relay was to be replaced. The work should be timed within a generator's outage programme (given the window for change to be set – which could be two years).

Regarding point 3 ('Change RoCoF setting with relay change') – MK confirmed this was an assumption continued from Phase 1 - JR thought the £10k cost was too high and MK welcomed other views on this.

Point 4 – ('More detailed risk assessment') was contingent on the outcome of 1 ('First pass assessment') - modelling would be needed if there was an islanding risk identified.

Point 7 – MK confirmed that Adam Dysko (UoS) is looking into possible risks of extending dead band. It was hoped this could be a cheap mitigation against out of phase reclose.

Following more discussion, it was thought that a 9th option for 'novel' solutions should be included (e.g. satellite data link).

[Action] Workgroup to provide comments on the paper **before next meeting** - then NGET to include in workgroup report CBA

5) Commercial considerations follow-ups

MK gave a background to the paper – setting out the options for the activity to progress settings changes. The expectation was there would be a lot of site visiting needed; engagement with the DNOs key as they have the relationship with generators. Whilst it might be resource intensive to start, the process would become more efficient as it went on.

CMD flagged contractual arrangements to instruct a party to do this work. In particular, indemnity cover for risk assessments was very important as well as quality of work. Again, the funding mechanism was discussed (potentially via BSUoS), which may require a consequential change or at least issue raised under the CUSC.

[ACTION] DNOs continue to assess whether they can do this work (discuss with COG rep)

[ACTION] Workgroup members to review paper and provide comment

6) Voltage control and risk issues

MK explained the research that he had been doing with GS, GM and manufacturers. He will circulate the summary of the agreed position.

[ACTION - MK to circulate]

7) Workgroup report

MK went through his proposal for Section 4 of the workgroup report ('workgroup discussions'). He queried with the workgroup whether anything was missing. The BSUoS funding angle was raised, as was Vector Shift (see next section) and the generation volumes from the Ecofys report.

[Action] Workgroup to review and provide any suggestions/gaps

8) Vector shift

MK presented some initial thoughts on vector shift. ML believed there was on-going work on this by NGET that should be looked into. MK explained the link to Fault Ride Through, and the need to engage with manufacturers to understand what standard of FRT they're building to (if any).

[ACTION] Workgroup to review MK logic on vector shift and check

[ACTION] MK/GS/ML to investigate study work with NGET and what needs to be done before next meeting

9) AOB

MK reviewed the status of the workgroup in line with GS's five month plan (updated in Jan). The plan for the next couple of meetings was agreed, with the priority being report drafting ASAP.

[ACTION] MK asked that the paper describing the methodology for setting system RoCoF was re-circulated to ensure the WG were aware of the latest position

[ACTION] ML to look into installation of relays and provide guidance on the target for changes

GE sought to understand the issue of G/83 generation, and how this factors into the analysis. MK had no major concerns, and explained that about four inverter manufacturers dominate the market and are not impacted by change of settings. GE recommended this is covered off in the report.

GM raised the G59 test procedure from phase 1 and that it should be improved for phase 2. He queried whether GC0079 or a sub-group should look at this. MK suggested GM look into this and come back with recommendations to a future workgroup meeting.

[ACTION] GM to progress

9) Next meeting details

The next meeting will be on Wednesday 24th February at the ENA.

Attendees		
Name	Initials	Company
Mike Kay [Chair]	MK	ENA
Graham Stein	GS	NGET
Richard Woodward [Technical Sec.]	RJW	NGET
Andy Hood	AH	WPD
Campbell McDonald (by phone)	CMD	SSE Generation
Gareth Evans	GE	Ofgem
Greg Middleton	GM	Deepsea Electronics PLC
Frank Parker	FP	GE
John Ruddock	JR	Deepsea Electronics PLC
Ken Morton	KM	HSE
Ioannis Koutsokeras	IK	SP Energy Networks
Martin Lee	ML	SSE Distribution
Miguel Bernardo	MB	UKPN
Sam Turner	ST	NPG

DRAFT