

Minutes

Meeting name	Frequency changes during large system disturbances workgroup, phase 2 (GC0079)
Meeting number	28
Date	23 March 2015
Time	10.30 – 15.00
Location	Electricity North West Offices, Linley House, Dickinson Street, Manchester, M1 4LF (teleconference option also)

Future meeting dates

Meeting Number	Date
29	22 nd April 2015
30	21 st May 2015
31	24 th June 2015

1) Introduction & apologies

2) Review of previous minutes & actions from meeting 27

The workgroup acknowledged that no comments had been made on the previous minutes and agreed that they could be approved.

The action log has been updated to reflect the changes since the last meeting (see version 23). Some actions did spark further discussion, as described below.

Re action #82 on LFCR requirements, it was agreed that this was covered by the email exchange between CM, GS and JD. There was then a discussion on minimum inertia / maximum RoCoF values for planning. MK felt that inertia itself is not the issue but that it's the result of that behaviour. JD suggested there was a need to encourage increased inertia on the system. MK reminded the group that the ToRs specify the setting of a RoCoF withstand capability for new generators, driven from RfG implementation. There is nothing that mentions inertia limits from ENCs. JD suggested that the frequency response WG might pick this up. ML asked if there is a WG looking at under frequency as he was concerned that it wouldn't take long to see load shedding. JD suggested this might be within the scope of GC0087. JW suggested that we might need to rethink LFDD under the new ENCs. MK noted that the DCC has some basic requirements. GS added that system limits might be suggested in the summer as part of the WG report to the authority. CM suggested that it was important to discuss alignment of other WG's with GC0048 as we need to know they are capturing all the requirements. It was agreed the issue of inter-linked work would be discussed at the next meeting.

Re action #83 on the withstand questionnaire, GS plans to distribute via DCRP, GCRP, WG lists and anyone JR can reach through AMPS. It was agreed that WG members can circulate as they see fit. GS is aiming to send out on the 25th March with a deadline of end of April to respond.

Re action #89, MK wrote a note for Dave Spillett to circulate to consultants requesting their help. DS has been on leave but MK will chase this up.

Action MK: Follow up with Dave Spillett to see if any response has been received from those consultancies most often involved in the small generator commissioning process

3) Phase 1 update

MK noted the latest summary of changes that was circulated prior to the meeting. JW suggested adding an extra column for 'MW complied with phase 1 changes' as this was useful for the TSO. It was noted that most changes would likely be made over the summer outage season. ML advised of the poor response SSEPD has received thus far from generators. ML plans to write a follow up letter reminding generators of the requirements to make the changes as only five responses have been received to date. JD queried whether the generators understand what is required. MK noted that the ESQCR requires generators to employ someone competent to manage their equipment and make simple changes such as this. MK also noted the responsibility of the DNOs to chase the generators to show they have made every effort to enforce the changes. JW noted that if implementation of phase 1 changes was problematic, then this may impact the approach to approving any phase 2 changes as phase 1 was expected to be relatively straightforward. JW added that if changes aren't made, Ofgem will have to scrutinise the level of DNO engagement with generators. JW also added that Ofgem would welcome the sharing of DNO best practice in this area. ST added that NPG had received a low response rate and sent engineers to visit individual sites to explain the changes, which had a positive outcome. MK advised DNOs to utilise the HSE letter when contacting impacted parties as this further highlights the importance of the changes. AH advised the group that WPD would start calling generators who had not responded later this week. JA did question the circulation of the letter as he was aware of two sites in the same DNO patch, both under his responsibility and geographically very close together but he had only received correspondence for one of the two sites. ML noted that the letter is usually sent to the contact specified in the connection agreement but this can sometimes be company solicitors. MK added that this process was always expected to be difficult. JR asked how we could escalate in the event of continued lack of success contacting generators. MK responded that DNOs have to make every effort to contact affected generators. AH asked if DNOs had a legal right to disconnect for non-compliance. MK responded that this had been explored for the over frequency changes. AH added his view that phoning around was the most effective way to contact non-responsive generators.

4) Phase 2 update

4a) Ecofys

KB provided an update. KB intends to process all comments on the report this week and will send the latest version of the report with the content referring to German and US practices on or about 25 March. The workgroup is requested to provide comments. The final report will then be prepared before Easter for final workgroup review. KB added that the stakeholder workshop on Friday provided some interesting discussions and suggests these are integrated into the report. KB therefore requests that the workgroup note the new material that may be present in the final report and provide final comments accordingly. There was a discussion around the data used in the Ecofys report. KB advised he'd provide AD with the raw data in the form of a database once it has been translated into English. AD has so far used WPD data and scaled across GB. AD would like to see the more granular data to try and test some of the scaling assumptions. KB noted that postcodes were provided in the data but not to expect the data to be very granular. MK summarised that from the data we aimed to try and characterise GB generation <5MW such that AD can be equipped with most representative set of hardware to test. AD realises that the grouping is important which he needs from the data. KB offered to discuss offline with AD once the database has been sent. MK noted that from DNO information provided to KB it would generally be possible to infer connectivity but to what extent is unknown. MK suggested that KB advises the WG of the data sources that have been used from each DNO. GS summarised that seeing this data behind the report is key and that the workgroup should comment on the final report when ready.

Action KB: Provide raw dataset to AD in the form of a database

Action KB: Provide a summary of the data provided by the DNOs that has been used in the final report

Action KB: Circulate latest version of Ecofys report with addition of two paragraphs covering German and US work

Action All: Provide any final comments on Ecofys report by 1 April (cc SB)

Action KB: Process any final comments received and circulate final Ecofys report to the workgroup by 13 April

4b) University of Strathclyde (UoS)

AD prepared some slides to update the workgroup on his research. Please refer to these slides on the workgroup website.

Re WP1, hardware testing at the Power Networks Demonstration Centre (PNDC), AD advised that this has begun and initial results are being collected. A 3kW Fronius inverter has been tested and four others will be used once purchased. AD discussed some of the tests that have been conducted including the islanding of a 2kW load. The inverter did not sustain the island and ramps down very quickly within four cycles regardless of balance. AD believes that we won't see an island sustained, which was taken as positive news by the workgroup. JW asked what caused the island to disconnect

but AD was unsure at this stage. JD suggested speaking to the manufacturer. GM recommended that AD chart the frequency trace. AD noted that this initial testing was just to establish if it's safe or not. AD advised that for frequency ramping tests, there was no effect on the inverter and it stays connected. KB noted that these initial results are in line with his expectations following discussions with manufacturers. CM queried whether changes to LoM protection can be made without considering the risk to generator plant. ML suggested that protection should not be set tighter than the limits we've asked. CM questioned this. MK noted that there are mitigating examples, such as risk assessment guidance in G59 which proposes inter-tripping or a derogation against these requirements. GM asked if it would be possible to see the data behind the graphs and asked if there would be value in the PNDC attending the next meeting. AD will look into this. AD advised that the installation of new inverters and further testing would be in the second half of April.

Re WP3, data analysis and connections, AD discussed the WPD DG data. There was a discussion around whether solar PV should be used in risk assessments and the difference between domestic and larger PV. ML questioned if tap changes are being recorded in data. It was felt that this did not make a difference. ML raised the need to consider a 66%/33% mix where two types of groups are identified, which are not split 50/50. JW agreed this is an important point and noted the importance that the WPD generation data set is representative of GB. AD suggested he tried to gather one more dataset from DNOs to provide some comparison.

AD advised he might need more time to do the testing as it is more complex than expected and provided an update on data requirements.

Re WP2, the simulation based characterisation of DG, AD discussed the different combinations. ML suggested that we could potentially be doing more than five combinations now. AD responded yes and noted that the group of three is the bigger problem.

Action AD: Provide data behind the graphs in latest UoS update on PNDC testing

Action AD: Establish if PNDC will attend or dial-in to next meeting to assist with UoS update

Action AD: Issue a request to DNOs for final data sample, using WPD dataset as an example, with a view to obtaining a second dataset to ensure most representative characterisation of DG across GB

Action AH: Provide data to AD on the number of circuits in WPD primary substations

Action All: Provide any further comments on UoS research to AD

5) Stakeholder workshop update

MK and GS provided an overview of the workshop held in London on 20 March. JW was supportive of the approach taken.

6) Date of next meeting

22 April 2015. It was agreed this would be a face-to-face meeting but MK cannot attend and so an alternative venue is being sourced. Ofgem is one option, as is National Grid in Warwick. Location will be advised as soon as possible.

7) Summary of actions / next steps

WG Member	Action No.	Action	Due
MK	95	Follow up with Dave Spillett to see if any response has been received from those consultancies most often involved in the small generator commissioning process	22/4/15
KB	96	Provide raw dataset to AD in the form of a database	27/3/15
KB	97	Provide a summary of the data provided by the DNOs that has been used in the final report	22/4/15
KB	98	Circulate latest version of Ecofys report with addition of two paragraphs covering German and US work	25/3/15
All	99	Provide any final comments on Ecofys report by 1 st April (cc SB)	1/4/15
KB	100	Process any final comments received and circulate final Ecofys report to the workgroup by 13 th April	13/4/15
AD	101	Provide data behind the graphs in latest UoS update on PNDC testing	22/4/15
AD	102	Establish if PNDC will attend or dial-in to next meeting to assist with UoS update	27/3/15
AD	103	Issue a request to DNOs for final data sample, using WPD dataset as an example, with a view to obtaining a second dataset to ensure most representative characterisation of DG across GB	27/3/15
AH	104	Provide data to AD on the number of circuits in WPD primary substations	22/4/15
All	105	Provide any further comments on UoS research to AD	27/3/15

Attendees		
Name	Initials	Company
Mike Kay	MK	ENW (Chair)
Graham Stein	GS	National Grid (Alternative chair)
Scott Bannister	SB	National Grid (Technical Secretary)
Adam Dyśko	AD	Uni. Strathclyde
Karsten Burges (T-con)	KB	Ecofys
Julian Wayne	JW	Ofgem
Joe Duddy	JD	RES
Sam Turner	ST	Northern Powergrid
Greg Middleton & John Ruddock	GM / JR	Deep Sea Electronics
Martin Lee	ML	SSEPD
Ioannis Koutsokeras	IK	SP Energy Networks
Jacob Allinson	JA	RWE
Andy Hood	AH	WPD
Campbell McDonald (T-con)	CM	SSE Generation
Miguel Bernardo (T-con)	MB	UKPN
Apologies		
Mick Walbank	MW	Northern Powergrid
Alastair Martin	AM	Flexitricity
Gareth Evans	GE	Ofgem
Paul Newton	PN	EON
John Turnbull	JT	EDF Energy
Ken Morton	KM	HSE
Michael Doering	MD	Ecofys
Lorna Short / Mick Chowns	LS / MC	RWE
Kevin Burt	KEB	UKPN