Frequency Changes during Large System Disturbances Workgroup Meeting 13
16 December 2013 by Teleconference

Attendees

Name	Initials	Company
Mike Kay	MK	Chairman
Robyn Jenkins	RJ	Technical Secretary
Graham Stein	GS	National Grid
John Knott	JK	SP Energy Networks
Mick Walbank	MW	Northern Powergrid
Julian Wayne	JW	Ofgem
Jane McArdle	JM	SSE Renewables
Martin Lee	ML	SSEPD
Joe Duddy	JD	RES
Andy Hood	AH	Western Power Distribution
John Ruddock	JR	Deep Sea Electronics
Greg Middleton	GM	Deep Sea Electronics
Adam Dyśko	AD	Strathclyde University
Alan Mason	AMas	Repower

Apologies

Name	Initials	Company
Paul Newton	PN	EON
Gareth Evans	GE	Ofgem
John Turnbull	JT	EDF Energy
Campbell McDonald	CM	SSE Generation
Mick Chowns	MC	RWE
Alastair Martin	Amar	Flexitricity

Minutes of the last meeting

The Workgroup approved the minutes of meeting 12. RJ noted that these would be published on the National Grid website following the meeting.

Actions

The Workgroup discussed the ongoing actions, details of these discussions are captured in the action log.

Feedback and Actions from DCRP

MK noted that an extract of the DCRP minutes has been circulated. MK explained that the Panel were accepting of the proposal. GS added that feedback from the Panel was a clear steer to progress the proposals.

MK commented that one questions that needed to be addressed was, noting that the proposals are looking at making change retrospectively, but how would plant connecting from this point going forwards be treated? MK added that the Workgroup has not thought particularly about the transitional period. For previous frequency setting changes, the setting was changed applying to everybody going forward and the text was explicit on how it was to apply retrospectively. MK noted that circulated

in the slide pack were some options for how to deal with how to phase the requirements going forwards. JW suggested that Ofgems query was around what the Workgroup are doing to consider all new generators going forwards. JW added that the Industry Consultation did not look at all new generators, only the greater than 5MW plant. JD queried whether that means the Workgroup should disregard both the options looking at lower than 5MW in this phase. MK stated that he had assumed this would apply to all plant going forward and only greater than 5MW plant retrospectively. ML noted that, in his view, the group have only done the research for the above 5MW plant, and that is the only plant which has been accepted as safe. When the group examines complex small or multi machines the risk may become unacceptable and, as the work has not been done, the Workgroup should not be moving forward with that. The Workgroup members agreed with this.

GS noted that the second question is what we do with smaller non-synchronous generators from this point going forwards. AD questioned whether, in the below 5MW category, do we need to see this as 1 package for 1 recommendation, or are there sub-categories adding that it is likely to be difficult to address everything in 1 package due to the variety of plant connected. MK noted that ADs comment is probably true but is more of a phase 2 question at this stage. MK suggested raising this point again when the Workgroup commences phase 2.

The Workgroup continued to discuss the options for implementation and questioned what the column saying “All from 1 April 2016” meant? GM was not sure it matched what was agreed at the last meeting. JW added that he though that column should b labelled “All New”, GS agreed with JW. JR queried how that column is different to the middle column? JM noted that these options do not capture a half change up to 2022. MK suggested that we do not have enough research to say that is a definite requirement. JM suggested that this does not have to be pinned to 2022 but does need to be captured somewhere. GS stated that it will be captured in the report but it may not go into the code. ML suggested that a further problem with specifying a date is we do not know how well things are going to develop and, at an appropriate time, we may have to consult again. MK suggested that future implications needs at least a paragraph to itself in the report.

JR questioned the situation with respect to the use of Vector Shift techniques as on the new equipment you can choose between the two protection types. MK observed that Vector Shift is undesirable in some applications but the group has not done any research to say that it is unsuitable. ML stated that is correct but that research has been done elsewhere which the group is aware of . AD questioned whether it could be part of phase 2 using the existing model. JR questioned whether we need to publish such concerns. MK suggested that this was beyond the group's remit at this stage.

The Workgroup concluded that they will propose option 1 is subject to getting the correct wording.

GS noted that he is still not clear what we do for asynchronous generators above 5MW before April 2016, do we propose that from the date of the code change they should be using $1Hzs^{-1}$? MK noted that during an appropriate plant shutdown they should make the change. AH queried whether it would be an incremental change for new asynchronous. MK suggested that it does not matter whether they have an incremental change as long as they are at $1Hzs^{-1}$ by 2016. AH suggested it would be simpler to just say "$1Hzs^{-1}$ is the required setting". JW advised the Workgroup that they need to consistency with the consultation to make it easier for Ofgem to approve anything.

Revised CBA.

GS noted that the slides circulated include a summary of balancing costs against savings costs and at the last meeting there were some specific questions to be addressed. The first of those is what is the cost/saving of changing to 0.5Hzs^{-1} for all above 5MW generators and the second, what is the cost/saving of changing to 0.5Hzs^{-1} for all existing above 5MW synchronous generators. GS noted that slide 5 and slide 6 are trying to answer those questions.

GS explained that from looking at the National Grid model for balancing services, there were small cost differences between a 0.5Hzs^{-1} and 1Hzs^{-1} setting, the contingencies that make a difference do not have a great impact if you are only looking at the above 5MW plant but there is a difference in implementation costs are different because there is potential revisit costs. JW noted that the option of future changes to RoCoF settings is a future consideration but, in his view, the report is only making suggestions for changes now at present and should keep away from making suggestions for changes in the future.. ML noted that the consultation responses indicated that 0.5 Hzs^{-1} was a fairly low cost setting, whereas the 1Hzs^{-1} would be substantially higher cost for existing synchronous generators. ML added that if the increased setting is deferred for 8years, then that is a benefit to a large generators rather than paying for it up front, especially as there are no guarantees that the change will be needed with the change in technologies. JW noted that. in terms of cost, Ofgem need the actual costs for next year as they would only be approving that change, not any future changes. GS commented that we cannot ignore the future completely when this affects 20 year lifetime plant.

The Workgroup concluded they are happy with a proposal of 1Hzs^{-1} on all generators except existing synchronous where a 0.5Hzs^{-1} setting will be proposed.

MK stated that he needs to draft the legal text and circulate before Christmas. MK added that he would appreciate Workgroup members critically reviewing the legal text. GS added that he would like to would like to send the Report to the Authority by the end of January 14 so the Workgroup can review on the 22 January.

Development of risk assessment guidance for synchronous generators.

MK explained that, in order for an assessment to be completed, the DNO would have to provide data of trapped load at each switching point and normal load duration curve. The DNO could also provide fault rates for relevant circuits, based on broad long term averages and the range of auto-switching times which the DNO employ upstream.

The Workgroup questioned how you take that information and turn it into a calculation for the risk of a generator surviving. MK queried whether there is a simple package or rule for calculation, or whether there is a service which can be provided, alternatively is it something which generators must do on their own. JD noted that one of the features of ADs research was that is was quite sensitive to fluctuations in demand and a standard deviation of demand could be a better metric. AD noted that there may be some easy answers, but where there is a chance of demand and generation matching frequently we would need the high frequency monitoring. AD added that, to use normalised statistics, we would need to perform a number of similar studies with load profiles at high resolution for a number of different DNOS.

JR questioned whether this is an issue that can be explored in a meeting with an alternator manufacturer. MK noted that we should engage with them anyway. AD added that there are a number of conditions which need to be present to require the further analysis. AH suggested that if the data is missing then you take a more pessimistic approach. MK thanked the Workgroup for some useful suggestions, noting that in most cases the load matching will rule out an island, before the control equipment. Mk noted that there is nothing unique about the modelling and an engineering consultancy with the appropriate modelling tool could work it out.

GS noted that it is useful to capture some guidance, but questioned where it would sit? MK suggested that it could be put it in the report, but a longer term position needs more thought. ML added that it sounds like a good idea for 5MW and above generators, but for smaller/multimachine it is going to be very difficult for any generator to do this analysis and if we are going to do this for bigger generators, then the expectation would be that we would do it for smaller generators. MK added that feels as though we are honour bound to help the generators we are affecting now. GM asked whether DNOs would have to inform generators about other generators within the island. MK noted that there will be a limit to what information DNOs can produce and ultimately the risk to generators comes down to generators. GS commented that the generators are going to approach the DNOs, so should the guidance be pitched at the DNOs rather than the generators. MK suggested it should be aimed at both. Mk agreed to draft the guidance.

AOB

JM commented that the industry is not expecting to see decision from the Irish Regulator before Christmas.

Date of next meeting
RJ noted that the next Workgroup meeting will be the 22 January 2014 in Manchester.