DRAFT Minutes

Meeting Name	NETS SQSS Sub-Synchronous Oscillations (SSO) Working-Group
Meeting Number	1
Date of Meeting	21 July 2014
Time	10:00 – 14:00
Location	B3.4, National Grid House, Warwick and Teleconference

Attendees

Name	Role	Initials	Representing
Graham Stein	Chair	GS	-
Nick Martin	Secretary	NM	-
Bieshoy Awad	Member	BA	National Grid SO
Andrew Dixon	Member	AD	National Grid SO
Cornel Brozio	Member	CB	SPT
David Adam	Member	DA	SPT
Yash Audichya	Member	YA	SSE
Alastair Frew	Member	AF	Scottish Power
Phillip Jenner	Member	PJ	RWE
Ankit Patel	Member	AP	SSE

Invitees

Name	Role	Initials	Representing

Apologies

Name	Role	Initials	Representing
Danson Joseph	Member	DJ	National Grid TO

1 Introductions & Apologies

GS opened the meeting by thanking all of those in attendance. Special consideration was given to those that had travelled from afar. The apologies were also noted.

2 Approval of Minutes

Working-Group meeting minutes shall be written and circulated to all working-group members shortly after each meeting. These shall then require working-group approval at the next meeting prior to their publication on the National Grid NETS SQSS Website.

3 Review of Actions

a) New:

Action	Description	Action Owner	Due Date
1.0	Determine the reference number of the "other" Grid Code issue that concerns SSO phenomena and share this information with the working-group as required.	GS	ASAP
1.1	Provide a written definition / explanation of SSO phenomena and share this with the working-group.	AD / BA	Sept 2014
1.2	Produce a paper and / or presentation that identifies several versions of proposed NETS SQSS wording to incorporate SSO phenomena into the standards; determines where best to position these within the standards; and determines whether or not these proposals would drive any new investment by the TO.	AD / BA	Sept 2014
1.3	Circulate a doodle poll to determine the most appropriate date for the next working-group meeting.	NM	ASAP

4 Background

a) Review of Workshop: 17/02/2014:

GS explained that the issue of sub-synchronous oscillations (SSO) were brought to the NETS SQSS Review Panel because SSO risks need to be managed in the deployment of series compensation and HVDC technology, both of which are within scope of the transmission companies' future plans. GS further explained that this issue is also currently being discussed on the Grid Code Review Panel and paper PP13/54 has raised questions regarding how transmission licensees address these issues and whether or not more explicit NETS SQSS obligations are required.

GS explained that at the request of the NETS SQSS Review Panel, a teleconference was held on Monday 17 February 2014, to which all NETS SQSS Review Panel members were invited to attend or to nominate someone in their place, to best determine the way forward. As a consequence of this, the decision was taken to propose a formal work-group to determine: how best to include SSO within the NETS SQSS; which SSO phenomena should be considered; what is to be considered acceptable and unacceptable; and to provide clarification on the operating conditions and secured events for which acceptable or unacceptable SSO conditions should be assessed.

b) Relevant Grid Code Issues:

GS moved on to identify a number of relevant Grid Code issues including: Grid Code Paper A12, which was proposed in 2011 and concerns retrieving necessary information from generators that transmission companies require such as shaft data. This paper has been approved and the change implemented. Therefore, there is now an obligation on all new generators to provide this necessary information. However, it is not retrospective and therefore doesn't apply to older generators.

Another Grid Code issue identified was: GC0077, proposed by EDF Energy. This states that any connection to the transmission system should not see any SSR issues occurring at their connection site arising from the installation of series compensation. It was this proposal that questioned whether SSO phenomena should be considered by the NETS SQSS. For information, GC0077 was recently released for industry consultation and is open for comment until 15 August 2014.

GS also made reference to another relevant Grid Code issue that he believed was under investigation, although possibly only logged on National Grid's internal work-list at present. GS did not have information with respect to this issue to hand but promised to share this with the working-group as soon as possible.

ACTION: Determine the reference number of the "other" Grid Code issue that concerns SSO phenomena and share this information with the working-group as required.

Subsequently a discussion developed concerning how in theory what one party does can have implications for and potentially damage another party's plant and apparatus. AF emphasised that according to the Grid Code, if you own an HVDC converter, you should not cause SSO phenomena. CB declared that this has certainly been considered as part of the detailed design phase of the Western HVDC Link, although not necessarily in the way prescribed by the Grid Code. CB moved on to question whose responsibility would it be to analyse and protect against SSO phenomena if a new generator connected next to an existing HVDC converter. No immediate answer was forthcoming.

GS then moved on to explain how the SO-TO Code (STC) will also capture the control of SSO phenomena (if Grid Code changes progress) by listing a number of sections of the Grid Code within the STC that Transmission Owners must comply with.

The discussion again evolved and CB raised the concern that TOs are potentially handling information that isn't theirs to control and disseminate (i.e. asking generators to share their technical information with their competitors). CB did however state that this is not necessarily an NETS SQSS issue. AF reinforced this by declaring this to be a significant issue of concern, adding that all of the detailed analysis seems to be having to be done by HVDC owners, but conceded that this is most likely to be a Connection and Use of System Code (CUSC) issue.

c) Modification Proposal:

GS then presented the modification proposal that had been previously submitted to and approved by the NETS SQSS Review Panel. GS also provided a high-level summary of the NETS SQSS stating that these are a set of criteria and methodologies that transmission licensees are required to use to plan and operate the National Electricity Transmission System and cover issues such as: generation and demand connections; design within the transmission network; and operation of the onshore and offshore transmission networks.

GS went on to explain that from time to time the NETS SQSS is revised to reflect changes in the British electricity supply industry and technological advances. In order to co-ordinate and recommend changes, National Grid administers an NETS SQSS Review Panel. The panel considers developments to the NETS SQSS and recommends NETS SQSS changes and / or additions to the Authority (Ofgem) as required. The NETS SQSS Review Panel comprises of transmission licensees (National Grid, SPT, SHET, OFTOs) and includes representatives for generators and distributors. At present, the Chair is John West, Electricity Compliance, Modelling and Policy Manager, National Grid and the Technical Secretary is Nick Martin, Technical Policy, National Grid. The NETS SQSS Review Panel meets every other month. The next meeting is scheduled for Wednesday 6 August 2014.

5 Working-Group Terms of Reference

GS explained how that in April 2014 the NETS SQSS Review Panel unanimously approved the working-group terms of reference. These were presented to the working-group for their information. It was discussed how that according to the working-group terms of reference, the work-group should consider and report on the following: how best to include SSO within the NETS SQSS; which SSO phenomena should be considered; what is to be considered acceptable and unacceptable; and to provide clarification on the operating conditions and secured events for which acceptable or unacceptable SSO conditions should be assessed.

At this point, PJ raised a concern that the proposals for the inclusion of SSO phenomena within the NETS SQSS looked considerably more detailed and prescriptive in comparison to those already included within the Grid Code and SO-TO Code (STC). GS and CB allayed this concern by confirming that it is the working-group's decision as to what is put forward for inclusion within the NETS SQSS and identified that this could range from no new requirements at all through to fully detailed and prescriptive requirements if necessary.

BA emphasised that the working-group should not become consumed by the detail of how to implement this but rather capture the requirements as per the NETS SQSS currently does with respect to (in)stability. Finally, CB explained the risk of being too detailed and prescriptive could cause the need for additional, yet unnecessary, expenditure.

Finally, GS went onto explain that it is anticipated that the working-group shall provide a verbal update to each and every NETS SQSS Review Panel and is targeting the April 2015 NETS SQSS Review Panel to present a final working-group report. In addition, the working-group shall provide a written progress update to the October 2014 NETS SQSS Review Panel including details of the programme of work remaining required to meet its target working-group report date.

6 Discussion

The working-group topics of conversation then became slightly more varied to explore the context of the proposals that the working-group had been asked to develop. CB began by stating how the NETS SQSS can be quite prescriptive in certain areas and demonstrated his point by identifying voltage level criteria within the standards. With respect to voltage levels, the standard describes: what you're permitted to design to; what you're permitted to operate to under "normal" operating conditions and what you're permitted to operate to under a range of "abnormal" operating conditions. CB did however warn that the working-group may not wish to be this detailed and prescriptive with respect to introducing SSO phenomena into the NETS SQSS. To further these discussions, BA described how NETS SQSS Chapter 4 prescribes how to design and operate the transmission system for a variety of conditions (i.e. outage conditions) and under year-round conditions to ensure that the system meets specific criteria (i.e. stability, thermal…etc…) However, BA did add that he was unaware of Chapter 4 having a specific influence on generator connections.

The working-group was unanimous that to incorporate SSO into the NETS SQSS, the criteria would need to remain appropriately broad and high-level. AF emphasised that the working-group couldn't be too prescriptive because they were not in a position to be able to provide definitive parameters. AP did however caution that generators might be likely to request specific frequencies that they should avoid though. At this point, DA proposed, as previously discussed, that the working-group expanded the definition of (in)stability to cover torsional instability also. GS queried how different SSO is from (in)stability in terms of the NETS SQSS. CB confirmed that in terms of what is required to be studied, there is a significant difference.

PJ questioned how sensitive sub-synchronous oscillations are to different transmission system network configurations. CB described that resonance does shift about depending upon different transmission system network configurations and generation and demand scenarios and explained that it is the role of the TO to get the balance between the economics of installing SSO protection and managing the risk of SSO phenomena. GS added that surely SSO issues are not isolated to within Great Britain and questioned what other countries were doing to manage these issues. Everyone had heard of SSO incidences across the globe including in Brazil, China, America and South Africa. However, a range of solutions were being employed to manage these circumstances and there did not appear to be a "one size fits all" solution.

In summary, GS proposed that the working-group develops additional wording, similar to the structure used to define system (in)stability, for SSO phenomena into the NETS SQSS. This could give users the confidence that TOs are looking at this serious issue appropriately. CB agreed but added that the proposed wording would need to be quite generic and high-level but that the working-group shall need to be able to adequately describe SSO phenomena. The action was therefore given to draft several versions of proposed NETS SQSS wording and to determine where best to place these within the standards. It should also be considered whether these proposals would drive any new investment by the TO. This should all be conveniently summarised in a paper and / or presentation. CB and DA were also asked to consider how all of this relates to their current work with respect to stability.

ACTION: Provide a written definition / explanation of SSO phenomena and share this with the working-group.

ACTION: Produce a paper and / or presentation that identifies several versions of proposed NETS SQSS wording to incorporate SSO phenomena into the standards; determines where best to position these within the standards; and determines whether or not these proposals would drive any new investment by the TO.

7 Any Other Business

None

8 Next Meeting

The next meeting is scheduled for September 2014. This is scheduled to be at National Grid House, Warwick and via teleconference. Further details shall be circulated nearer the time. Everyone present expressed an interest to remain involved in this working-group.

ACTION: NM to circulate a doodle poll to determine the most appropriate date for the next working-group meeting.