DRAFT Minutes

Meeting Name	NETS SQSS: GSR016 Embedded Generation Assumptions
Meeting Number	9
Date of Meeting	06 July 2016
Time	10:00 – 14:00
Location	Holiday Inn Leamington Spa Warwick and Teleconference

Attendees

Name	Initials	Representing
Xiaoyao Zhou	XZ	Chair
Tingyan Guo	TG	Technical Secretary
Bieshoy Awad	BA	National Grid SO
Richard Proctor	RP	National Grid SO
David Adam	DA	SPT
Cornel Brozio	CB	SPT
Bless Kuri	BK	SHET
Alan Creighton	AC	NPG

Apologies

Name	Initials	Representing
Mihai Draganescu	MD	National Grid TO
Peter Stanton	PS	National Grid TO

1 Introductions & Apologies

1. XZ started the meeting and all attendees introduced themselves. XZ introduced that the workgroup originally started in 2013 and lost momentum. Now it is important to kick it off again as the installed capacity of embedded generation is increasing at a very high rate.

2 Discussion Items

2. BA started the presentation by introducing the background and scope of the meeting. He introduced that in 2013 the initial scope of the workgroup was to make sure that embedded generation is represented when looking at boundary capabilities and to resolve the issues that arise when applying the economic background assumptions with the output of directly scaled plants being in excess of demand. Another SQSS paper was submitted to the SQSS Review Panel to look in more details at the security and economy background assumptions. BA clarified what the issues are and how it is proposed to divide the scope of the works such that different modifications do not interact with each other.

3. The two questions that need to be addressed by GSR016 are:

    1) How to ensure that small and medium embedded power stations are appropriately accounted for in the investment planning studies
    2) How to ensure that system is operable with an increased capacity of generation that is not a part of the Balancing Mechanism (BM).

Question No.1: Modelling of Embedded Generation for Investment Planning Studies

4. BA presented that the assumptions made for this workgroup are: the current methodology in SQSS produces the most economic transmission solution; and there is no evidence that the operational regime will differ between a large and a small power station of the same technology.

5. The workgroup discussed the latter assumption, noting that there could be a difference between the pattern of large and small generation (of the same technology) due to the System Operator actions. The question becomes would a small or medium power plant operate in the same pattern as a large one if the latter has not been BOAed by the System Operator or not. It is generally agreed that from the resource availability point of view it is likely that they are going to have similar unconstrained behaviour.

ACTION 1: BA to prepare a list of data necessary to validate this assumption.

ACTION 2: BK, AC, and CB to provide the data required.

ACTION 3: BA to check with FES team to understand their assumptions on the output patterns for small and medium embedded generation.

6. The workgroup then discussed whether it is right to reinforce the transmission system to accommodate embedded generation or not, how much the embedded generation should be modelled when looking at the reinforcement of a boundary. It was noted that generation that does not pay transmission charges could end up triggering significant reinforcements that other Users will have to cover. However, it was pointed out that, unless we have right to curtail all this generation at zero cost, we will be incurring significant constraints costs that other Users pay for anyway. There is a CUSC modification looking at these commercial issues.

7. AC comments that it would be difficult to have a pure technical discussion about the transmission capability without involving cost in it. If there is any change to the SQSS the question would be asked that would this cost somebody some more money.

8. BA noted that we could look at the change in the required capability at all boundaries as a part of the impact assessment and, if possible, check the impact on investment. However, the assumptions could change based on GSR022 and we should not delay the conclusion until

then. We also should not try to increase the scope of the workgroup otherwise we risk delaying the conclusion. He suggested that GSR16 is about agreeing whether we should treat embedded generation the same as large and if the workgroup can conclude this and send to Ofgem. GSR22 will look at the scaling criteria for different types of generation under the security and economic background. Ofgem can then decide whether to approve each modification on its own or delay till the conclusion of all the work.

9. CB and BK comments that Ofgem may question about the scaling factor so it might be better to wait until the workgroup come up with a number to submit. But this takes time. AC mentions that there is also a concern about the engagement with stakeholders. CB also comments that before the workgroup can agree a particular factor to use, it would be useful to have some numbers.

10. DA suggests that it is necessary to push a member from Ofgem to join the workgroup.

ACTION 4: XZ to raise the issue at the SQSS Review Panel to see if Ofgem would be interested in joining the workgroup.

11. BK raised the issues that under economic background there are situations in which a lot of wind power is directly scaled and variable scaling factor becomes zero or sometimes even negative. He proposes the question that whether embedded generation should be treated in the same way under this situation. BA suggests that this should also be considered in GSR22 as this is not triggered by the level of connection or the contractual arrangement. In GSR16 the workgroup could capture the potential problems but might not solve them.

12. BA supplements that in the case of missing data, the workgroup would come to a position to say what it is that's available. They should consider how they can best use what they currently have whilst trying to get better data from others.

13. Regarding the Terms of Reference (ToR) GSR16 the workgroup agree that:

1) The title is appropriate to be "Small and Medium Embedded Generation Assumptions" instead of "Embedded Generation Assumptions".
2) In the first and third bullet point of Point 7, it should be "SQSS Section 2 and Section 4".
3) An extra point could be added in Point 7 that "Identify opportunities using existing datasets and then provide additional data to do more re-assessment later".
4) Point 8 should be referred to GSR22.
5) The second bullet point in Point 9 should be "Draft, prioritise and recommend any changes required …"
6) The time scale is 9 months.

ACTION 5: BA to incorporate the modifications in the ToRs and circulate it before submitting it to the next SQSS Review Panel meeting.

14. The workgroup discussed how embedded generation is currently accounted for. A simple example was presented to show what discrepancy could arise due to the way the SQSS is worded. It was also mentioned that this discrepancy is reduced by NGET providing two different demand sets for security and economy backgrounds.

15. The workgroup then went through the changes proposed to the legal text. It was noted that the changes sounded reasonable but workgroup members wanted some more time to provide feedback.

ACTION 6: Workgroup members to review the legal text and provide feedback ahead of the next workgroup meeting.

Question No.2: System Operability Implications

16. BA starts the second topic by presenting why it is necessary for the SO to constrain generation. This includes balancing generation and demand and facilitating the provision of ancillary services like frequency response, system inertia and voltage control. The more small

and medium embedded power stations and the more BELLAs we have, the less likely the system operator will have access to controllable generation to constrain. However this part of problem is probably not a SQSS problem so can be solved somewhere else. Another reason to constrain generation is to make sure the system is still operable after a fault. The system operator needs to have access to some generation to do this.

17. Details of examples are given by BA and discussed by the workgroup in which the system has problems to be operated due to lack of generation in Balancing Mechanism (BM).

18. BA explains that they are trying to do some analysis about how big the problem is for specific boundaries. There are a certain boundaries that might have problems. It is needed to check if there is any in SPT area or E&W as well.

19. It was discussed that this operability issue might not require a change to the SQSS but the workgroup will need to confirm this. If no change is required, a policy may need to be agreed amongst Transmission Licensees and potentially documented within the workgroup report

ACTION 7: TOs to review critical boundaries that have a lot of embedded generations. BA to talk to Peter Stanton about critical boundaries in National Grid.

20. The options to solve the problem are to invest/intertrip/require the embedded generation to be part of the BM. At the moment it is not clear what may be commercially feasible. The actual solution of the problem may be out of the scope of this workgroup but the concern is that the risk is not identified by the studies and need to be analysed.

21. Discussions are carried out by the workgroup about how to decide the right option to solve the problem and needs to be carried on in the next meeting.

Data Exchange between Different Parties

22. BA presents the data exchange process between DNOs, NGET, and relevant TOs. This includes:

1) What data DNOs submit to NGET in W24. Examples of DNO submission were presented. BA thought at the moment the data from DNOs are reasonable enough for National Grid, and asked CB, BK and DA whether these are sufficient for Scottish TOs. AC mentioned that the sum of the transmission demand at peak and the contribution of embedded generation to that demand might not be the actual underlying peak demand. Hence the data could be improved. The workgroup noted that working with the data available should provide some improvement in comparison to what is actually in place. W24 submissions could be reviewed and improved afterwards.
2) What National Grid gives other TOs in Future Energy Scenarios (FES).
3) What National Grid gives other TOs in Construction Planning Assumptions. This doesn't include any embedded generation that doesn't have contact, which means most of the small and medium embedded generation cannot be seen unless for some reason they have a contract.

ACTION 8: TOs to asses if there is any need to request more data either from the SO or from DNOs.

GSR022: Review of Security and Economy Planned Transfer Conditions

23. The presentation then moves on to the new workgroup GSR022, Review of Security and Economy Planned Transfer Conditions. The question in this workgroup is what to do with the available generation and different generation technology. Under security planned transfer there is a problem that if all renewable generation if off there is not enough synchronous generation to meet the demand. Under economic planned transfer it is the background condition that needs to be considered. The workgroup raises the question that whether the interconnector should be taken into account and how it should be considered and modelled in both security and economic plan.

24. BA proposed that there should be two separate work streams as the two issues are separate. The two streams should be started and progressed at the same time but it is expected that the

security side will progress quicker than the economy side because it is an immediate concern and the answer should be easier. The workgroup will exist for two years, with a view to conclude on the Security background within a year and on the economy background at the end of the second year.

25. For security conditions, the big question that needs to be agreed by the workgroup is: when it is predicted that not enough dispatcheable generation is available to meet the peak demand, should we reinforce the network to ensure that the peak demand could be met from generation that may be available somewhere else or not. CB questioned that whether it is the correct approach to assume the wind is not available. Because for the penetration we are looking at now the probability of this happening is very low. This needs to be further explored.

26. The position on an interim solution was discussed and it was agreed that the work could be planned in steps with each step providing an incremental improvement and that these steps, provided that the SQSS Review Panel, the JPC, and Ofgem are happy, can be used ahead of the full conclusion on the final solution.

27. BA then presents the potential questions that work stream 2 needs to look at. He mentioned that project plan is yet to be outlined. Probably more resources will be required. CB comments that one way of doing this is to refresh some of the assumptions on previous analysis and repeat it given different assumptions. The other way is to start the analysis from scratch again.

28. The workgroup then reviewed the draft ToR for GSR022 and did not request any specific change.

ACTION 9: BA to circulate the final draft of the ToR to the workgroup before submitting them to the SQSS review panel.

3 Any Other Business

None

4 Next Meeting

The next meeting is agreed to be scheduled on 31st August 2016. This is due to be in Glasgow and via teleconference. Further details shall be circulated nearer the time.

5 Summary of Actions

Action	Description	Action Owner	Due Date
9.1	BA to prepare a list of data necessary to validate the assumption that “there is no evidence that the operational regime will differ between a large and a small power station of the same technology”.	BA	29/07/2016
9.2	BK, AC, and CB to provide the data required.	BK, AC and CB	Next Meeting
9.3	BA to check with FES team to understand their assumptions on the output patterns for small and medium embedded generation.	BA	Next Meeting
9.4	XZ to raise the issue at the SQSS Review Panel to see if Ofgem would be interested in joining the workgroup.	XZ	Next Meeting
9.5	BA to incorporate the modifications in the ToRs for GSR16 and circulate it before submitting it to the next SQSS Review Panel meeting.	BA	22/07/2016
9.6	Workgroup members to review the legal text and provide feedback ahead of the next workgroup meeting.	ALL	Next Meeting
9.7	TOs to review critical boundaries that have a lot of embedded generations. BA to talk to Peter Stanton about critical boundaries in National Grid.	BK, CA, DA and BA	Next Meeting

9.8	TOs to asses if there is any need to request more data either from the SO or from DNOs.	BK, CA and DA	Next Meeting
9.9	BA to circulate the final draft of the ToR for GSR022 to the workgroup before submitting them to the SQSS review panel.	BA	22/07/2016