

Minutes

Meeting name	Offshore BMU Configuration Working Group
Meeting number	2
Date of meeting	18 th October 2011
Time	11:00 - 15:00
Location	St. Catherine's Lodge, Wokingham, RG41 5BN

Attendees

Name	Initials	Company
Graham Stein (Chair)	GS	National Grid
John Towie (Technical Secretary)	JT	National Grid
Steve Curtis	SC	National Grid
Tim Truscott	TT	National Grid
John Norbury	JN	RWE
Jane McArdle	JM	SSE
John Lucas (Dial In - Part)	JL	Elexon

Apologies

Name	Initials	Company
Mick Chowns	MC	RWE
Sarah Graham	SG	ScottishPower Renewables
Hannah McKinney	HM	EDF Energy

1 Introductions & Apologies for Absence

1. Mick Chowns, Sarah Graham and Hannah McKinney sent their apologies.
2. John Lucas was not available to attend the meeting, however, dialled in to discuss his specific actions.
3. Tim Truscott, of Transmission Requirements - National Grid, was in attendance at the request of SC.

2 Agreement of Previous Meeting Minutes

4. The minutes from the previous meeting, held on September 8th, were briefly discussed. All attendees agreed on the minutes of the first Working Group meeting.

3 Review of Progress Against Actions

Action: National Grid to confirm that no STC representative was available.

5. GS confirmed that an STC member did not step forward for inclusion in the Working Group, hence why an STC representative was not in attendance. The opportunity for an STC representative to join the Working Group will be given at the next STC meeting.

Action: SC & SG to investigate specific onshore configuration examples for the group to consider

6. SC still following up on action. SG was not available to discuss at the meeting.

Action: SG to circulate findings to Working Group - see Post Meeting Notes.

Action: GS to refine sections 7 & 10 of scope and circulate for comment.

7. A refined scope was circulated to the Working Group members by GS for discussion at the meeting.

Action: JL to circulate note on switching groups to Working Group.

8. JL circulated a note to the Working Group prior to the meeting titled 'Possible Issues with P240 Solution', which highlighted and briefly detailed two separate issues.

Action: Generator representatives to investigate standard configurations further, including;

- **How often reconfiguration (maintenance) occurs & the length of time it takes to reconfigure.**
- **The effect shifting turbines has on transformers (ratings).**
- **How paralleling is managed by a generator.**

Action: GS to clarify National Grid's interpretation of the 'no paralleling' criteria.

9. JM confirmed that, through discussing with Operations Manager Stephen Rose and using Greater Gabbard as an example;
 - WTG's will be reconfigured across different BMUs every 2 years and each 5 years in line with the current maintenance plan that revolves around electrical maintenance and protection testing both onshore and offshore. Each module would be reconfigured for 3 days within May/June.
 - The Power Park controller would constrain turbines to ensure that transformers would not be overloaded as a result of shifting turbines.
 - Interlocking of switchgear and SCADA is utilised to ensure that risk of paralleling with the MITS doesn't exist.

10. JM enquired as to how much National Grid would need to know in order to feel comfortable that paralleling would not occur. GS stated that with interlocking in place, National Grid is likely to feel comfortable that paralleling is not an issue.
11. See Post Meeting Notes for SG input.

Action: GS to quantify impact of reconfiguration on fault levels & whether it is therefore a valid concern.

12. GS clarified that as fault levels can vary with reconfiguring turbine arrangements, the system operator would need to know the likely resulting fault level in order to fulfil its obligations to the TOs and meet its own statutory requirements.

Action: SC to confirm whether CEC is applied to BMU or PPM.

13. SC confirmed that CEC is applied to PPM.

Action: All to review the paper draft consultation on Offshore BMU configuration as presented to the GCRP in September 2010

14. Paper considered during meeting.

4 Working Group Discussions

Lack of Clarity in BSC Definition of Switching Group

15. JL dialled in to the meeting to lead discussion on his 'Possible Issues with P240 Solution' note. The document is a review of the P240 text against example configurations from both this Working Group and the P240 Working Group.
16. The Working Group discussion of the document summarised the 2 possible issues with the P240 definition of Switching Group as follows;
 - The BSC is not entirely clear on whether PPMs in a single BMU can belong to different Switching Groups. JL explained that at the time of drafting P240, it was '1 PPM per BMU' which could be a cause of the ambiguity. It was concluded that this is not a material issue, and the legal text could be clarified to address this.
 - Paragraph K3.1.4B of P240 is believed to be too restrictive for more complex configurations and may actually prevent the intended benefits of P240 from being realised. The Working Group questions whether the switching group 'rules' would work with a complex windfarm configuration and would need further consideration.
17. The Working Group briefly discussed the registering of each Power Park string as a BMU as a possible solution. JN expressed that metering was an issue as Users wouldn't want the expense of a meter on each string - preference would be to have a meter at the LV side of each 132/33kV transformer and with the contribution from each string aggregated. TT replied that if each string was a separate BMU then a single infeed into the system would comprise of multiple BMUs, thus if NGET wanted to vary that infeed then we would need to issue BOA's to multiple BMUs. Furthermore, if one BMU consisted of more than one string and metering was on each string, then if the BMU configuration changed (e.g. under a switching group) then the metering algorithm would need to be changed also.

18. JL added further comment that, from a BSC perspective, metering against each BMU doesn't fit collectively with many BMU units and introduces broader implications with settlement such as non delivery charges. The discussion concluded with JN expressing that he wouldn't like 'strings as BMUs' to be discounted.
19. Clarity was sought by GS regarding paragraph 6.3 of the note, in that he believed PPM3 could indeed be switched into PPM5 for this particular example. TT provided clarity by stating that this was not the case as the turbine string connecting PPMs 4 & 5 was not busbar rated.
20. Referring to paragraph 3.2 of the note, SC enquired as to whether a failure to register Plant & Apparatus to a Switching Group had a consequence (i.e. practical implications). TT and JL explained that it would constitute a compliance issue against the code, however, there was no way to monitor it - i.e. not visible to Elexon that there has been a breach of code.
21. SC explained that as a result of this, there is a danger of not knowing at any point in time what Plant & Apparatus forms which BMU. If someone did choose to reconfigure, this would not be realised as a breach of code and as a result of the flexibility P240 tried to introduce, there was essentially no confidence in a fixed BMU. SC further expressed that this did not address 'system operator issues'.
22. JL concluded by stating that there was error in the P240 drafting and this would need revising under BSC governance. Expanding on this, JL indicated that this revision and the 'Grid Code issues' (communication of configuration data etc) seem to be separate and that he would deal with issues surrounding the drafting of P240 whilst the Working Group focus remained on 'Grid Code issues'.

Placement of Switching Group Definitions

23. Discussion of 'Possible Issues with P240 Solution' led into deliberation as to the correct place to define Switching Groups - whether it should remain within the BSC or be moved to the Grid Code.
24. SC initially suggested creating a construct within the Grid Code to hold the definitions for Switching Groups as a point of discussion, due to uncertainties over how the BSC is able to enforce in this regard and lack of clarity arising from being split across several codes. JL suggested that creating a situation where the BSC relied on the Grid Code would be complicated; stating that the BSC must consider smaller embedded generation that the Grid Code wouldn't as an example. Therefore he wouldn't be comfortable removing the Switching Group definitions from BSC and placing all in the Grid Code.
25. GS suggested that the Working Group focus on looking at the Grid Code requirements with respect to the Switching Groups, with JL responsible for reflecting within the BSC definitions.

Discrepancy between Current Terms of Reference & Original Consultation Document

26. The Working Group identified that there is a fundamental clash in its purpose as described in the Terms of Reference - Scope and the original GCRP Consultation Document.
27. The Consultation Document states that the Working Group should be investigating a mechanism for National Grid to instruct the Generator, on all timescales, what configuration to take when applicable. Whereas the Terms of Reference implies that a mechanism for the Generator to reconfigure and provide the reconfiguration data to National Grid is required.
28. GS stated that for now the Working Group should assume the information flow goes both ways, to which agreement was reached. The boundary point, dictated by the OFTO, was assumed to primarily determine the main flow of information.
29. The Working Group arrived at establishing an effective means of communication, between National Grid and Generator, as its next action.

Defining Relationship between PPMs & BMU

30. TT furthered the discussion by explaining that there is currently no mechanism to define the PPM per BMU relationship. PPM Matrix data, as submitted in Grid Code OC2, gives detail of what is in the PPM, but not the relationship between PPM and BMU.
31. Referring to his 'BMU Data Structure' diagram - attached, TT led a discussion on the relationship between BMU, Power Park Modules and associated Codes, including their links to each other.
32. GS clarified that the User has an obligation to let National Grid know when a PPM configuration change is implemented. National Grid would then require a way of mapping this to the BMU or the meter.
33. The Working Group was in agreement that an ability to determine this relationship, at any point in time, is key and therefore developing a method of defining it was set as the immediate objective.
34. Several possible solutions to define this relationship were briefly discussed;
 - If the Single Line Diagram (SLD) shows settlement metering and metering data is also in BMU Registration, then an implicit link could be determined.
 - At the time of BMU registration, define a default PPM/BMU relationship within registration.
 - Expanding the PPM Matrix to a BMU Matrix which also incorporates PPM data within.
 - Relating hardware & BMU to meter points. A BMU is fixed to a meter through BSC; PPMs can vary - utilise the PPM Matrix to capture meter point.

Action: TT to draw up proposal on linking PPM configuration to BMU for discussion at next meeting.

6 Post Meeting Notes

SG Post Meeting Comments

35. Referring to paragraph 6, SG has circulated a note to the Working Group - dated Friday 21/10/11 - summarising progress against assigned actions

Action: SC & SG to investigate specific onshore configuration examples for the group to consider

36. Onshore configurations are much simpler than offshore as there are generally no provisions for switching generators between PPMs. Non-standard BMU configurations may be requested, to aggregate BMUs for technical/operational reasons, but it is unlikely the configuration of the non-standard BMU would be further modified during operation.

Action: Generator representatives to investigate standard configurations further, including;

- **How often reconfiguration (maintenance) occurs & the length of time it takes to reconfigure.**
 - **The effect shifting turbines has on transformers (ratings).**
 - **How paralleling is managed by a generator.**
37. Maintenance will generally be on an annual basis, or longer, and would be scheduled for the low wind months. The generator may decide not to reconfigure the BMUs and simply have an outage. Reconfiguration is likely to only be required during a long-term outage, which would be a transformer or cable failure.
 38. The switching of generators between PPMs/BMUs or the closure of bus sections is not considered to impact on the fault levels on the offshore/onshore transmission network (assuming ownership boundary is LV side of transformer). The impact on fault levels will be within the wind farm and this will be controlled by the generator. Therefore it would be the

generators decision whether to design the 33kV network to allow all possible configurations of the generators; or whether to include interlocking to prevent certain configurations.

Switching Group Definition

39. Further discussion is required to solve Issue 2 - see Paragraph 16.
40. Referring to the configuration example on slide 15 of SC 'Offshore BMU Configuration' presentation, SG feels a discussion around whether generators would want more flexibility to define Switching Groups should be sought to minimise the risk of the proposed text modifications introducing any additional issues.

5 Agreement of Next Steps

41. Restrict the focus of Working Group to Offshore BMU Configurations until next meeting.
42. **Action: GS & TT to confirm if there is a link between ownership boundary and settlement metering point**
43. **Action: JM & JN to check obligations on respective company regarding use of PPM Matrix to update PPM configuration data.**
44. Completion of individual actions identified.

7 Next Meeting

Logistics

45. Next meeting is due to take place on Wednesday 23rd November. The meeting is to be held at either Warwick or Wokingham dependant on room availability - to be confirmed.

General Actions to be Completed during Next Meeting

46. Discussion of possible solutions to defining the PPM per BMU relationship - as highlighted in paragraph 34.