nationalgrid

Minutes

Meeting name	Information on Small Embedded Power Stations and Impact on Demand
Meeting number	2
Date of meeting	30th January 2013
Time	10:00am – 14:00pm
Location	Meeting Room B3.1, National Grid House, Warwick.

Attendees

Name	Initials	Company
Graham Stein	GS	National Grid
Damien McCluskey	DM	National Grid
Vandad Hamidi	VH	National Grid
John Paparistodemou	JP	National Grid
Brian Roberts	BR	National Grid
Djaved Rostom	DR	National Grid
Saeed Ahmed	SA	GTC
Andrew Akani	AA	Western Power
Peter Bolitho	PB	Waters Wye
Ian Fletcher	IF	Northern Powergrid

Apologies

Name	Initials	Company
Joe Dunn	JD	SP Power Systems
Deborah MacPherson	DP	SP Power Systems
Mike Kay	MK	Electricity North West

1 Introductions/Apologies for Absence

1. GS kicked off the meeting by going through the agenda and summarised the actions that have been raised from the previous meeting of the 4th December 2012.

2 Main points of meeting

2. With regards to the minutes of the previous meeting (note number 6), AA clarified that metered data is available on a half-hourly basis even for generators below 5 MW but, these are usually not considered for design purposes.

3. As per action 13 and 14 from the previous Workgroup meeting, VH described the list of items required by National Grid and provided reasons as to why the items could be useful for the design and operation of the transmission system. (Please refer to the table which was sent with the agenda for details of the requirements).

4. The requirement and justification for a unique identifier for each small embedded power station (SEPS) above 1 MW was found to be straight forward. According to the DNO representatives, this information is available and will need to be provided in a format that will have to be agreed upon.

5. VH explained that the fuel type of SEPS is also required in order to predict the likely output of the generators (e.g. output variability of wind/ PV generators with weather). Due to the low comparative penetration of Photo Voltaic (PV) generation currently on the system, AA mentioned that for the design of their networks, Western Power ignores PV for system peak studies. VH explained that National Grid is also required to carry out studies for summer scenarios, where the contribution from PV generation would need to be taken into account. [Post meeting note from BR: There is already 2GW of embedded wind and 1.5GW of Photovoltaic (PV) generation on the GB Electricity System. The intermittent nature of this generation is having a local as well as global impact on the transmission system.]

6. The node on the single line diagram (SLD) where the SEPS connects to is also requested by National Grid. IF provided a spread-sheet as an example of the information that is already given to National Grid (as per to licence condition 25). It was observed that the spread-sheet provided detailed information that was more than required i.e. the connection points were specified to a lower voltage level than the ones present on the single line diagram. BR requested that the connection points should ideally be kept as simple as possible, in line with the nodes shown on the single line diagram and for which the Network Operators are obliged to supply parameter data.

   AA shared a typical example of information that is available from the Long Term Development Statement (LTDS), which contained most of the information requested from National Grid. AA suggested that National Grid examines the information contained in the LTDS and highlights any gaps in information which DNOs would then address, if possible.

7. Reactive power contribution from SEPS was then discussed and BR explained that it would be useful for National Grid to understand the modes (voltage control, Power Factor control) in which generators typically operate in. Understanding the behaviour of SEPS with regards to reactive power could potentially help National Grid better manage the voltage on the system (e.g. if a large number of SEPS always operated in lead or lag power factor mode).

IF was concerned that the information might not be readily available and it would take time and resources from DNOs to provide the information. IF requested that National Grid articulated the case for information about reactive power contributions from SEPS. IF and AA asked that the benefits of such information were quantified before any resource and time is spent in obtaining the additional information.

BR agreed that it was not the best approach to oblige DNOs to provide information about reactive power in all circumstances but suggested that DNOs provide a Reactive Power / Voltage Control information where they can do so reasonably in line with present obligations within the Distribution Code.

8. VH gave a presentation on the impact of SEPS on the design and operation of the network. A reduction in active and reactive power demand was postulated in the presentation and this was because of a growth in embedded generation.

   It was agreed by the DNOs that SEPS could have an impact on errors in active demand forecasting due to the lack of visibility of the embedded generators. However, AA explained that the impact on reactive power demand could be due to other factors other than embedded generators.

9. BR expressed a preference that DNOs provide National Grid with the gross demand values. With the information about SEPS such as capacity, fuel type etc., National Grid would then make adequate forecasts of net demand. Forecasts from DNOs would also be welcomed as a means for comparison.

   VH mentioned that the actual output of SEPS at specific times would also be useful for design purposes, IF stated that this level of information for each SEPS would be extremely difficult to provide. It was agreed that VH and BR would have a discussion to check whether the actual generation data is required or if only the capacity was sufficient. IF stated that the information in the current week 24 submission contained all the information for National Grid to calculate a “gross maximum demand” on any one grid supply point at all the times required by the week 24 submission. In Northern Powergrid’s case, the demand as seen by the metering at the GSP is reported (albeit adjusted for any abnormal feeding) along with the summated generation export evident at that time. The exception here is that of a combined generator/demand customer i.e. one that has parasitic demand consuming its own on-site generation, for which there is no separate local metering.

10. PB was concerned about commercial issues which can arise with the sharing of sensitive information about generators. PB suggested that the generators should be informed about any additional information requested to check whether they were happy for the information to be shared with National Grid.

11. BR addressed the topic of short circuit contribution from SEPS and explained that the fault in-feed for three phase fault was required at the relevant points on the single line diagram (SLD).

    1) Where the distribution network between a SEPS and the point on the SLD is radial, the fault in-feed at that point should be provided (with reasonable attenuation factors applied).

    2) Where the distribution network between a SEPS and the point on the SLD is highly interconnected, the impedances between the points on the single line diagram also need to be provided to allow National Grid to calculate the fault current contribution from that SEPS to another point on the SLD.

12. IF and AA explained that the aggregated short circuit in-feed data is provided to National Grid for each node shown on the single line diagram via schedule 5 of the week 24 submissions. [Post Meeting Note from BR: This data assumes that all generating units are

synchronised and the network conditions reflect a credible system operating arrangement. Details of the generating units are not provided].

13. BR mentioned that the running arrangements of certain sites had to changed (i.e. split) due to the fault in-feed from the distribution networks. BR explained that in operational timescales many Small Embedded Power Stations will not be synchronised and therefore cannot provide a short circuit in-feed thus reducing the overall fault current. This might mean that the system configuration may not be security or cost optimised. IF suggested that additional information could be sought for those specific sites.

14. BR asked whether DNOs could provide the technical data of generators directly to National Grid. IF questioned this concept, stating that due to the large number of generators involved this exercise would be extremely time-consuming. Although this data is available, IF stated that Northern Powergrid would only provide it if there was a reasonable justification to do so.

15. Active Network Management was then discussed and National Grid requested an acknowledgement that the information on restriction of power output from SEPS would be made available, if required (e.g. where overloads can occur on the National Grid's assets in the case of an exporting Grid Supply Point or where a limit in export impacts on the management of the wider transmission system). This facility is available and was confirmed by IF and AA. IF stated that he thought that any restrictions on generation export relating to a GSP capacity would be highlighted to National Grid during discussions between the DNO and National Grid. [Post Meeting note from IF: this would be picked up via the statement of works process]

16. The workgroup did not have sufficient time to discuss any aspects relating to generators less than 1MW.

3 List of Actions

17. **National Grid** to develop its thinking on discuss on item number 3 from the table of requirements to check whether the actual output data of SEPS at specific times is required in addition to the maximum capacity of the SEPS.

18. **National Grid** to update the table of requirements by the end of February

4 Suggested ways forward

19. Actions will be dealt with by relevant parties prior to the next workgroup meeting.

20. Proposals will be agreed at the next meeting by all parties so that they can be discussed at the Grid Code Review Panel (GCRP) consultation in May 2013.

5 Date of Next Meeting

21. Next meeting will be held in April and will take place at NG House Warwick. The exact date will be confirmed at a later stage.