

Summary of Meeting and Actions

Meeting Name	E3C Small Embedded Generation Frequency Obligations Working Group
Meeting No.	2
Date of Meeting	Friday 20 th March 2009
Time	10:00am – 1:30pm
Venue	Conference Room 10, National Grid House, Warwick

This note outlines the key action points from the first meeting of the E3C Small Embedded Generation Frequency Obligations Working Group.

1) Apologies for Absence

Apologies were received from Tim Moore (EDF Energy).

Barbara Vest (AEP) and Ham Hamzah (RWE) joined by conference call.

2) Previous Meetings

The minutes for meeting 1, held on the 22nd January, were reviewed and agreed by the Working Group (all minutes are available on the National Grid Working Group website)

3) Progress Against Actions and Working Group Discussions

National Grid confirmed that the maximum rate of change of system frequency recorded during the 'May Incident' (namely 0.073Hz/sec) should not be high enough to trigger the ROCOF protection which is typically set to operate at or above 0.125Hz/sec as recommended by G59 and the associated documents

National Grid confirmed that the frequency operating range requirements defined in the Grid Code for Medium and Large Power Stations are mandatory while the corresponding requirements for embedded Small Power Stations are set out in the Distribution Code and the associated Engineering Recommendation Documents as the performance of the latter category of plant is the responsibility of DNOs.

The Working Group discussed the previous action on **GN**: "The Working Group agreed that it would be beneficial to understand the distribution system operating practices e.g. technical obligations, performance, current practices etc such that it could inform group discussions. It was agreed that the relevant information would be acquired and reported back to the Working Group." The WG felt that this action was superseded by subsequent actions being developed in the meeting and therefore it can be closed.

DR presented and discussed his paper on Frequency Operating Range Requirements of Small Embedded Power Stations at the meeting. The Working Group members agreed that it was a very comprehensive report. It was agreed that all DNOs will contribute to the paper by providing DR with the relevant information on each specific DNO's current practices on and requirements for frequency operating range of their connected small embedded plant.

Action: DNO representatives

National Grid confirmed that E3C – Small Embedded Generation Frequency Obligations Terms of Reference were reviewed and agreed at the Grid Code Review Panel meeting of the 5th Feb. The GCRP changed the ToR so as to include over frequency regulations. The Working Group confirmed that the Terms of Reference would be completed by the assigned actions. National Grid agreed to re-circulate final Terms of Reference

Action: TI/ KA

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The Working Group questioned whether the annual ROCOF reports were made public. National Grid confirmed they were issued at the GCRP and made available to the public on their website.

The actions assigned to the AEP were discussed and clarified. The working group initially suggested a questionnaire could be sent to a range of developers and manufacturers to seek their views on the frequency operating range of future and existing small embedded generators. Further discussion agreed that a more effective way would be to invite major plant/machine designers and other interest parties to a meeting with the objectives of helping them to better understand the system needs and asking them to provide expert advice on plant capability in supporting the system during short term and extremely rare large frequency excursion events. AEP agreed to circulate a note to their members with the aim of them suggesting company names with contact details of major plant manufacturers, consultants and other interest parties who are likely to give constructive contributions to the meeting. The outcome of the meeting could provide useful feedback to the WG to move the issue forward.

Action: BV/WH

The possibility of presenting the issue/ questionnaire at a developers/ manufactures trade fair was also suggested. E.g. 20-21st May the Scottish Renewables Forum has an event in Aberdeen.

To fulfil item 1 of the TOR, AEP were asked to help to obtain further information from their members regarding more detailed feedback on plant performance during the 27 May incident. National Grid agreed to provide the questionnaire for AEP to include in their call to their members.

Action: WH/BV

AEP reported Duncan Burt of National Grid was at the Electricity Trading Committee invited by AEP regarding data gathering for the 27th May incident. WH/TI agreed to confirm feedback from him.

Action WH/ TI

National Grid commented that Small Embedded Power Stations from ENA data has increased to around 6 to 7 GW and this upward trend will continue. The future growth could include a large volume of domestic/ micro CHP.

National Grid commented that the loss of embedded generation during a falling frequency scenario exacerbates the excursion, potentially increasing the requirement of demand disconnection volumes to arrest the frequency fall and subsequent recovery.

Given the significant volume of embedded generation and the lack of transparency of their operation (current installed capacity of 6 to 7 GW), it will be difficult for National Grid as a System Operator to manage the System in an effective manner and yet maintaining the security and quality of system standards. It is therefore important to explore means of addressing the issue set out in the second part of the item 1 in ToR. The means of obtaining operational information and their frequency capability are to be explored.

As a first step, CM to look at Operational Information flows between Generator and DNO under the Distribution Code.

Action: CM

TI to discuss with the Transmission Access Review team to assess whether any information can be provided

Action: TI

The Working Group discussed that the DNO/User interface protection is currently configured against the risk of undetected islanding rather than to preserve the integrity of

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the grid. If there is a view that these protection settings might change to support the total system integrity, the implications for islanded systems will need to be considered.

A HF setting of 50.5Hz was historically used as a back up for avoiding generation remaining connected on an islanded networks rather than a technical design limit on the rotating plant itself.

It was noted that pre-BETTA the frequency operating range specified in the Grid Code applied to plant rated down to 5MW in the Scottish Hydro area.

Large and Medium Power Park Modules meets the frequency range defined in the Grid Code. These modules are often consisting of small wind turbine units each rated generally in the range of 1 to 3 MW but could be down to sub MW levels and yet comply with the Grid Code requirements.

The above observations indicate that a small generating unit do not necessary have problem of meeting the Grid Code operating frequency range requirements. However, it is accepted that the output of the unit could be reduced at frequency below 49.5 Hz.

6) Next Meeting

It was agreed that the next meeting of the Working Group would be provisionally scheduled for Thursday, 23rd April 2009 commencing at 1pm at National Grid House, Warwick.

The provisional dates for the Working Group meetings are:

- 28th May 2009
- 9th July 2009
- 3rd September 2009
- 19th October 2009

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Appendix 1 – Working Group Attendance

Members Present:

Mark Perry	MP	Working Group Chairperson
Kabir Ali	LM	Working Group Secretary
Tom Ireland	TI	National Grid
William Hung	WH	National Grid
Raj Nagarajan	RN	National Grid
Alan Creighton	AC	CE Electric UK
Hamish Dallachy	HD	Scottish Power
Keith Hodson	KH	Central Networks
Andy Hood	AH	Western Power Distribution
Claire Maxim	CM	E.ON UK
Dan Randles	DR	Electricity North West
Barbara Vest (by phone)	BV	AEP
Ham Hamzah (by phone)	HH	RWE

Apologies:

Tim Moore	TM	EDF Energy
Bridget Morgan	BM	Ofgem