

Distribution Code Public Consultation

Frequency Changes during Large Disturbances and their Impact on the Total System

Licensed electricity distribution businesses, or Distribution Network Operators (DNOs) in Great Britain, are obliged under Condition 21 of their licences to maintain a Distribution Code detailing the technical parameters and considerations relating to connection to, and use of, their electrical networks.

This Distribution Code public consultation is seeking the views from industry stakeholders on proposed changes to the Distribution Code, Engineering Recommendations G59 and G83 as recommended by the Joint Panel working group GC 0079. Please note that this applies to Great Britain, Northern Ireland has a separate distribution code etc.

AMPS Technical Committee have been involved in the development of this proposed change to the Distribution Code and the Engineering Recommendations.

On several occasions, it has been suspected that a transmission system fault that did not result in islanding resulted in the inadvertent tripping of embedded generation plants by their Loss of Mains (LoM) protection. A definite event was recorded on 22 May 2016 following a single transmission circuit fault. Further investigation of this event showed that a significant number of embedded generation plants had tripped as a result of the operation of Vector Shift (VS) protection. This event resulted in a loss of infeed and a frequency dip that was bigger than that which was anticipated. Following this incident, a review was performed by the Distribution Code workgroup, resulting in the following proposal:

The Distribution Code workgroup recommends the modification of the Distribution and Planning Code, Engineering Recommendations G59 and G83 to ensure that all embedded generators with a commissioning date on or after the date of implementation of these proposals comply with the following:

- a) That if rate of change of frequency (RoCoF) protection is used as Loss of Mains protection, the applied setting should be 1Hzs-1 with a definite time delay of 500ms.
- b) That all generation (whether using discrete relays or loss of mains techniques included in the overall control scheme for type tested generation) should demonstrate stability for appropriate RoCoF and vector shift disturbances
- c) That vector shift protection technique should not be used as Loss of Mains protection.

This is proposed to apply to embedded generation of registered capacity below 5MW commissioned on or after 1 February 2018 and that that type tested generators should also comply by 1 February 2018. But please consider the next point:

The workgroup notes that the retesting of type tested generation plant will involve manufacturers in time and expense. If this can be demonstrated to be inappropriate in the

context of other expected changes caused by the implementation of the EU Network Codes, the WG can foresee an option whereby type tested generating plant is excluded from the changes at this point in time. In this case the implementation date should be brought forward to 1 December 2017.

While this consultation is forward looking, the workgroup has yet to determine whether this recommendation should apply retrospectively (i.e. to plant already installed and commissioned) or not.

A comprehensive consultation pack with further details can be downloaded [here](#).

AMPS Technical Committee Grid Code workgroup has created a series of questions and answers to assist members. This can be downloaded [here](#).

Next Steps

Responses to this consultation must be sent to the Distribution Code Review Panel Secretary by 17:00 Friday 1 September 2017, accordingly the AMPS Technical Committee request that any comments from AMPS Members be submitted to them for incorporation in a common response by **17:00 on Monday 28th August 2017**.

There are two “word” documents in the information pack, numbered 8 and 9. No 8 is a proforma response with questions, respondents should insert a response where appropriate. No 9 is for submission of suggested text changes or queries. Please return by email the amended documents, adding the respondents name to the filename.

Please respond to TechSec@AMPS.org.uk

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