

NATIONAL GRID COMPANY plc

GRID CODE REVIEW PANEL

HIGH FREQUENCY TRIP SETTINGS ON SMALL EMBEDDED PLANT

I. Background

1. For generating plant at or above 50 MW, the Grid Code requires it to remain connected to the System unless the frequency is above 52 Hz. Engineering Recommendation G59/1 recommends plant at or below 5 MW to be disconnected from the System at 50.5 Hz.
2. For plant rating below 50 MW but above 5 MW, G75 applies but it is unclear what setting it recommends. A setting recommended by G59/1 is likely to be adopted in practice.

II. Key Issue

3. Given the expected trend of rapid increase of below 50 MW embedded stations, an instantaneous loss of them at 50.5 Hz could have a significant impact on System performance.
4. It is also important to note that a severe low frequency incident is often preceded by a high frequency event. The loss of a large volume of small embedded plant at 50.5 Hz under such an incident could impose additional stress on the System leading to possible unnecessary demand disconnection and delayed System recovery.
5. This may not be a problem at present but will be in future as the volume of this category of plant increases. An increase of setting to above 50.5 Hz and possibly staggering the trip level up to 52.0 Hz for different categories of stations could help to ease the above future problems.
6. The issue has been mentioned at the Distribution Code Review Panel and the Technical Steering Group this year and it was agreed that this is an important issue and suggested that the case for its resolution needs to be made in the GCRP. Subject to this case being made, and with the agreement of the DCRP, it seems appropriate to address the issue through joint GCRP/DCRP work.

III. Recommendations

7. The Grid Code Review Panel is invited to:
 - a) Note the potential impact on System performance if the setting remains at 50.5 Hz,
 - b) Support the setting up of a Working Group with DCRP to agree a way forward in resolving the issue.