

Distribution Code Review Panel

Meeting 64 – 8 June 2017

RoCoF Relays

Paper by Code Administrator

Background

Paper DCRP_17_01_05b explained the problem recently identified with a particular manufacturer's relay used for Loss of Mains protection.

Since then it has been established that the non-compliance, which stems from the use of counting cycles to establish a definite time delay as opposed to a dedicated timer, is essentially theoretical at the levels of RoCoF currently likely to occur on the GB system. At the present time National Grid is managing the frequency deviation to a RoCoF of no more than 0.125Hzs^{-1} . Analysis and testing by SSE and Strathclyde University of the relay types has shown that maloperation is not expected until RoCoF settings and actual levels above 0.300Hzs^{-1} (at least) are encountered. There is therefore no immediate risk of leaving these relays in service

DNOs do not know exactly how many of these relays have been fitted by Generators. The non-compliance exists only for Power Stations of 5MW or greater capacity, as there is currently no requirement for a time delay with Power Stations of less than 5MW capacity. The population of non-compliant relays is therefore limited at worst to the number of Power Stations of this size, ie [DS to insert] and DNOs believe that the actual number is probably less than half of this.

Developments

Assuming GC0079 WG recommends that all RoCoF and VS relays on all Power Stations of any size need to have revised settings, it would seem appropriate to include the replacement of non-compliant relays at this time. Until such a programme is complete, National Grid will not allow the system RoCoF to rise above 0.125Hzs^{-1} .

The relay manufacturer has modified the design of the non—compliant relay. The compliant relay can easily replace a similar non-compliant relay.

Recommendation

It is recommended that :

- In the short term, given the analysis and testing shows that the non-compliance has no effect at current RoCoF levels, it is proposed to note the issue.
- Compliance can be achieved as part of the wider GC0079 retrospective application of new settings in due course.
- If GC0079 proposals do not allow for the existing non-compliances to be addressed, this will have to be picked up in the future as a new initiative.