Update to SOP 339 ABB Transformer Restrictions

This Express details an update to SOP 339, which is applicable to 500kVA ABB Dual Ratio Transformers manufactured between 1990 and 2003.

There have been 3 disruptive failures of these transformers in the range, detailed above. In each case, the transformers were energised off load for up to 1hr with no indication of any issues. However, upon connection of load they failed within minutes.

The resultant damage of the failed transformers meant that a definitive root cause could not be established. Furthermore, detailed investigation of other transformers within the range detailed, by independent experts, could not definitively establish the failure modes.



ABB transformer in the affected Range

As all investigations to date have proven inconclusive, a testing regime to ensure that the transformers are free from issues associated with the previous failures has been difficult to establish under site conditions. Therefore, until further notice, transformers in the range detailed cannot have their ratio changed.

Previous mitigation measures have been re-evaluated and the restrictions in place adjusted as follows:

Revised SOP Wording in SOP 339 – OPSAF-16-339

The selected transformer ratio on all affected dual ratio transformers in service **shall not be altered.** If a potentially affected transformer is part of the network where voltage uprating is required, then the units shall be recovered from the network and a replacement dual ratio transformer shall be installed.

Any affected dual ratio transformers recovered may be redeployed, providing the voltage ratio **is not altered.**

Recommendations and action points

- Applicable data range of affected equipment has been reviewed and SOP application corrected.
- Engineering Design and Standards will continue to assess whether a viable test regime can be developed.
- The SOP has been updated and re-applied.