



Polaris Diagnostics & Engineering Ltd has been commissioned by Scottish Hydro Electric Transmission (SHE Transmission), to carry out a Level 1 condition assessment of Tummel Bridge GT2 132/11kV Transformer.



The level 1 condition assessment has been carried out, based on a review and independent assessment of the historic oil data and SSN Report T2BP-ACR-0016 Revision 1.0 dated November 2019, both supplied by SHE Transmission.

Based on the assessment of the historical & current asset condition data, GT2 is in reasonably good condition and there is a low likelihood that the transformer condition will deteriorate by ageing during the RIIO T2 period.

The tap changer is recorded as category 4 (serious deterioration or damage that requires specific action in the short term) which specifically relates to the “mechanism”. The inspection data is not explicit as to the nature of the issue, or if this issue has been addressed.

In order to further assess and manage the condition of this transformer, the following recommendations are made:

- Investigate the reported “Category 4” iSIM score for the tap changer. This may require an intervention depending on the findings.
- Continue with routine oil sampling and analysis of the main tank and tap changer.
- In addition to routine oil analysis, the following tests are recommended to assess the rising DDF – These are Interfacial Tension (IFT), Sediment & Sludge & Particle Count.
- Continue with routine maintenance.
- Continue with routine inspection.
- Detailed load flow monitoring.
- 132kV bushings should be oil sampled for DGA and moisture analysis and assessed by the criteria set out in National Grid TGN 82. In addition the bushing power factor and capacitance should be measured. This would require an outage and the removal of the 132kV and 11kV bushings to facilitate the testing.
- Dielectric Frequency Response (DFR) test to assess the condition of the insulation system. This should be considered following assessment of the additional oil analysis to investigate the DDF. This would require an outage and the removal of the 132kV and 11kV bushings to facilitate the testing.

Author	Issue Authority
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