

TOP 10 TIPS

FOR NON-INTRUSIVE ASSESSMENT OF ELECTRICAL SUBSTATIONS

01

Understand the degradation and failure mechanisms of the assets

This will enable the asset operator to identify those units that are at greatest risk of failure and prioritise a condition assessment programme accordingly.

03

Health and safety

All activities should be undertaken in accordance with a risk assessment and by competent and trained personnel to ensure the safety of the operator.

05

Assess the asset condition at the appropriate time

The performance and condition of the asset can be affected by the operational duty; condition assessment is best undertaken under the most onerous operational conditions, such as when loads are at their highest.

07

Examine the external condition of the assets

Valuable information can be gained from undertaking an external examination looking for evidence of degradation such as corrosion, oil/compound leaks, oil levels, gas pressure, and the status of any alarms or indicators.

09

Ongoing monitoring and trending

A programme of ongoing monitoring and trending of results will improve the understanding of the asset condition and monitor the rate of any degradation present enabling action to be taken at the optimum time.

02

Choose the most appropriate condition assessment technique

The techniques employed should be chosen based on the known degradation mechanisms. Oil sampling of transformers, PD surveys and thermal imaging offer a cost effective way to gain a good appreciation of assets; non-invasive methods will enable network security to be maintained, whilst reducing asset down-time and network intrusion.

04

Record asset details and update records

Site visits are a useful opportunity to ensure the asset data held on record is correct and to collect any missing data, asset managers can only be effective if they know what assets they have and where they are.

06

Understand the asset design

The design of the asset can affect the reliability and interpretation of the condition data being collected; understanding the design will ensure accurate information is obtained.

08

Assess the local environment

The local environment and substation condition (temperature, humidity and cleanliness) can greatly affect the condition and performance of electrical assets. Ensure environmental control measures are in place and effective and the building fabric is satisfactory.

10

Take action

Condition assessment is only ever going to be effective if appropriate action is taken to address any issues that have been identified. The findings of the condition assessments should be recorded, stored and communicated effectively. This collated data should then be analysed by experts and a plan implemented to address the issues identified based on the severity of the degradation and the criticality of the asset.