Transformer life management
Gain insight into equipment condition and optimize asset maintenance and budgets

Aging assets and budget constraints are current issues that raise reliability concerns. The challenge is to identify the biggest risks and minimize them. ABB transformer life management service provides in-depth knowledge of equipment condition which can help identify the maintenance decisions needed to ensure reliability.

ABB’s transformer life assessment offering is design-based. By using the original design data in combination with today’s advanced design tools we can re-evaluate the critical parameters that impact the life of the transformer. With this detailed design-based approach we then re-calculate the thermal, mechanical and electrical condition of key components of the transformer. This evaluation, when combined with the service duty history and environmental conditions greatly increases the accuracy of the continued life expectancy of the unit by determining the remaining insulation life and overall reliability of the transformer.

**Diagnostic techniques**
The goal of diagnostic testing is to identify the necessary maintenance actions that improve the efficiency and reliability of transformer assets, while controlling costs. The diagnostic techniques include:

1. Winding resistance
2. Capacitance and power factor/dielectric losses for windings
3. Capacitance and power factor/dielectric losses for bushings
4. OLTC static and dynamic resistance measurements
5. Transformer excitation currents and short circuit impedances
6. Thermography
7. Transformer turns/voltage ratio
8. Advanced Dissolved Gas Analysis (ADGA) and oil tests
9. Sweep Frequency Response Analysis (SFRA)
10. Dielectric Frequency Response (DFR, FDS) both for bushings and windings.
11. Partial Discharge tests (PD)

**Online monitoring**
Offline historical data can help to develop a good understanding of the condition of the transformer. In addition, online monitoring solution provides continuous monitoring of mission-critical transformer condition. The system performs a complete evaluation of current and historical operating conditions that can predict potential failures and thus allow for preemptive measures to be taken. In addition, it can simulate different load conditions and forecast the impact on transformer life expectancy, which allows for optimization of asset performance.