

# Electrical Testing

This service involves the testing and diagnosis, condition-based maintenance (CBM), predictive maintenance and commissioning services for all types of electrical installations and equipment (low-, medium- and high-voltage), including transformers, motors, generators, cables, earthed systems and rotating equipments. The testing of electrical equipment helps to determine its condition, so avoiding service failures and unnecessary preventive action.



## THE Applus+ SOLUTION

Through a wide range of different testing techniques, Applus+ is able to provide top-rate optimisation management for any electrical installation during its useful life, including consultancy on inspection and maintenance plans and root-cause failure analysis.

Our services include:

- Transformers: overall insulation; bushing insulation; turns ratio (at 10kV); excitation; winding resistance; FRA; leakage reactance; FDS; and dynamic resistance
- Motors/generators: resistance, polarisation index, current absorption/reabsorption; power factor and capacity; online and offline partial discharges
- Circuit breakers: passive contact resistance; switch operation times; lengthwise and crosswise synchronism; travel graphics; coil consumption; power reset time; SF6 pressure; and vacuum insulation
- GIS: partial discharge detection

- Cables: location of faults in cover or insulation; withstand voltage testing (surge); power factor and capacitance in MV cables; partial discharge detection in MV cables; cover tests; screen continuity and resistance; and layout of underground lines
- Thermographic testing: inspection of electrical installations from low voltage to 400kV
- Insulating oil analysis (transformers): physicochemical (Oil condition); DGA (gases resulting from internal faults); furanic compounds (remaining-life assessment); and other analysis (PCBs, corrosive sulphur, etc.)
- Electrical protection systems: review of project engineering; verification of instrument transformers; checking of VAC and VCC power supplies; checking of control and signalling circuits; verification of electrical protection and related circuits; automated and remote-control dispatch testing; and predictive maintenance
- Rotating-equipment vibration analysis: study of global vibration value trends for detecting mechanical failures and/or failures in any rotary unit and assessing their severity; and analysis of vibrations in the frequency domain for diagnosis of the anomaly and its origin
- Others: assessment of the condition of HV equipment: surge arresters, capacitors, CTs and PT, earthing systems, etc.

We have more than 20 years' experience in the testing and diagnosis of electrical equipment with proven results.

## Target customers

This service is aimed at power utilities (transmission, distribution and generation), electrical engineering companies and any company that owns industrial electrical equipment that needs to be validated during commissioning, before start-up, or once in service, whether for regular or statutory inspections.

## Key customer benefits

The Applus+ electrical testing service can help our clients to:

- Improve their awareness of the condition of their machines
- Increase the reliability and availability of their equipment
- Reduce their costs by avoiding unnecessary procedures
- Optimise the management of their assets throughout their useful life