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Electrical Testing

Electrical testing 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, rotating equipment, solar PV modules, and inverters. The testing of electrical equipment helps to determine its condition, avoiding service failures and unnecessary preventive action.

THE Applus+ SOLUTION

Through a wide range of different electrical testing solutions, Applus+ can provide top-rate optimization management for any electrical installation during its useful life, including consultancy on inspection, maintenance plans, and root-cause failure analysis. Our electrical equipment testing and electrical installation testing services include:

- **Transformers:** overall insulation; bushing insulation; turns ratio; excitation; winding resistance; FRA; leakage reactance; FDS; and dynamic resistance.
- **Motors/generators:** resistance, polarization index, current absorption/reabsorption; power factor and capacity; online and offline partial discharges, EL CID.
- **Circuit breakers:** passive and dynamic 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 sulfur, etc.).
- **Electrical protection systems:** a review of project engineering; verification of instrument transformers; checking of VAC and VCC power supplies; checking of control and signaling circuits; verification of electrical protection and related circuits; automated and remote-control dispatch testing; and predictive maintenance.
- **Communications system:** Checking the HW/SOFT TC System; testing analog inputs /digital inputs-outputs; optical power attenuation measurement; communication channel tests; release of data and verification of traffic caused.
- **Batteries:** Checking the capacities of the battery system; rectifier-charger check; float charge thresholds, fast charge, exceptional charge, and current limitations, and mono-blocks maintenance.
- **Rotating-equipment vibration analysis:** a 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.
- **Solar PV modules and inverters:** specialized I-V curve testing and inverter efficiency measurements carried out by Enertis Applus+.
- **Others:** assessment of the condition of HV equipment such as surge arresters, capacitors, CTs and PT, earthing systems, etc.

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

Target customers

Our electrical power testing services are 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 services help our clients to:

- Enhance their awareness regarding the condition of their electrical systems, equipment and installations
- Enhance the reliability and availability of their assets
- Minimize costs by avoiding unnecessary procedures
- Optimize asset management throughout their lifespan