



Testing and Commissioning Services

Support for safe energisation, reliable operation and informed asset maintenance.

September 2026

SERVICES OVERVIEW

Electrical testing, commissioning and condition assessment

Tailored to your equipment, protection philosophy, operational requirements and project specifications.

TESTING ACROSS YOUR ELECTRICAL ASSETS

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FROM COMMISSIONING TO CONDITION ASSESSMENT

Verify

Confirm installation and protection performance before energisation.

Baseline

Establish baseline measurements to guide ongoing maintenance.

Assess

Assess insulation, switching mechanisms and asset condition to support operational decisions.

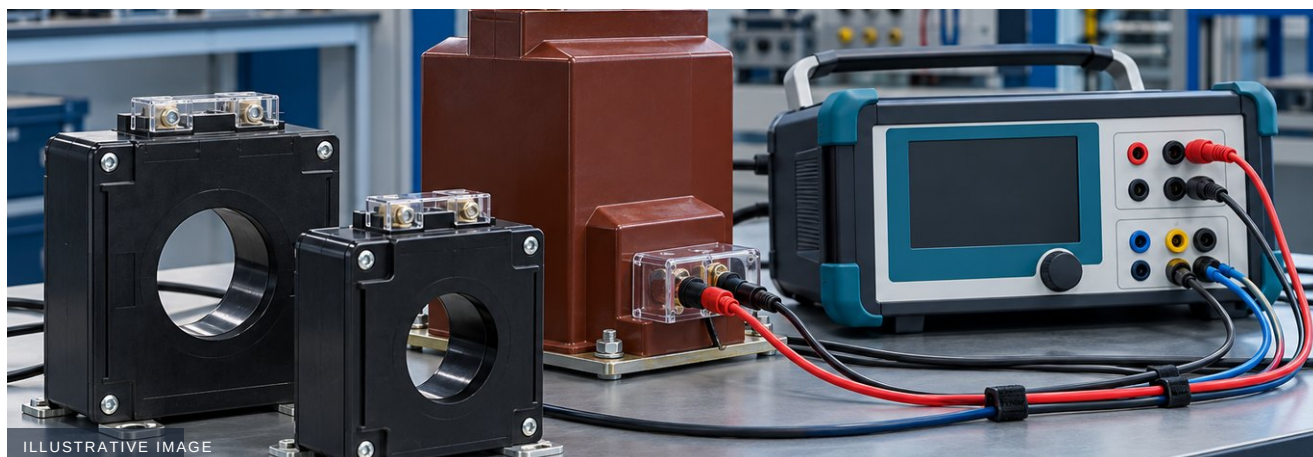
Insulation condition assessment across your asset base

Insulation resistance, polarisation index, dielectric loss angle (tan delta) and partial discharge testing are applied across transformers, instrument transformers, switchgear, breakers, switchboards and cables where applicable.

SERVICES 01 TO 04

Protection and instrument transformers

Verifying the protection chain from instrument transformer to breaker trip.



01 Power system protection schemes

Confirm protection stability and correct operation of the integrated scheme.

Transformer through-fault stability

Checks CT polarity, ratio and phase compensation, relay wiring and restraint performance under through-current conditions.

Bus-zone primary-injection stability

Verifies CT polarity, zone allocation, current summation and stability. Internal-zone operation and trip logic are checked where practicable.

02 Protection relays

Verify relay elements and the protection chain.

Test scope

Pickup/dropout and timing tests by secondary injection; primary injection to verify the integrated current path, CT circuits, relay logic and breaker tripping.

03 Current transformers (HV and LV)

Verify transformation, protection suitability and insulation condition.

Ratio and polarity

Confirms selected taps, transformation ratio and primary-to-secondary phase relationship.

Magnetisation curves and winding resistance

Assesses excitation behaviour, knee-point region, secondary resistance and abnormal variation.

Insulation diagnostics

Insulation resistance, polarisation index where suitable, dielectric loss angle (tan delta) and online/offline partial discharge.

04 Voltage transformers (HV and LV)

Verify voltage transformation and secondary connections.

Ratio, polarity and winding resistance

Checks ratio, taps, phase relationship, winding continuity and connection condition.

Insulation diagnostics

Insulation resistance, polarisation index where suitable, dielectric loss angle (tan delta) and online/offline partial discharge.

SERVICE 05

Power transformer diagnostics

Commissioning and condition assessment across insulation, windings, tap-changers and oil-paper systems.



05 Power transformers

Electrical, mechanical and oil-paper insulation diagnostics to support commissioning and condition assessment.

Insulation condition

Insulation resistance, polarisation index, tan delta and capacitance, plus online/offline partial discharge.

Winding and connection checks

Vector group, HV/LV winding resistance, transformer turns ratio and excitation current.

Tap-changer assessment

Dynamic-resistance measurement during on-load tap-changer operation to assess switching continuity and contact behaviour.

Impedance and winding integrity

Short-circuit impedance and leakage reactance measurement, and Sweep Frequency Response Analysis (SFRA).

Oil-paper diagnostics

Dielectric Response Analysis (DIRANA), dissolved gas analysis and furan analysis to assess moisture, fault indicators and cellulose ageing.

SERVICES 06 TO 09

Switchgear, breakers and switchboards

Verifying insulation, current paths, mechanisms, interlocks and protection response.



06 HV switchgear

Verify insulation, current paths and mechanism performance.

Test scope

Insulation resistance; power-frequency dielectric withstand; contact resistance; circuit-breaker timing; undervoltage and shunt-trip coil pickup/dropout; interlock and functional checks.

07 LV switchgear and trip units

Check switching functions and protection response against approved settings.

Test scope

Insulation resistance and contact resistance; interlock and functional checks; trip-unit pickup/dropout where applicable; long-time, short-time, instantaneous and earth-fault timing as fitted.

08 HV and LV circuit breakers

Assess insulation, contact condition, operating sequence and protection interfaces.

Test scope

Insulation resistance; power-frequency dielectric withstand; polarisation index where suitable; contact resistance; static/dynamic measurements; contact timing; dielectric loss angle and partial discharge where applicable.

Protection integration

On-board relay setup using approved settings, plus primary and secondary injection to verify protection and tripping performance.

09 HV and LV switchboards

Verify switchboard operation and assess insulation condition.

Functional and interlock testing

Checks controls, protection, metering, indications, alarms and local/remote operation, including mechanical, electrical and key interlocks.

Online and offline partial discharge

Assesses localised discharge in service or under controlled offline test conditions.

SERVICES 10 TO 12

Cables, earthing and DC systems

Assessing cable integrity, earthing safety performance and battery-system readiness.



10 HV cables

Assess cable insulation, oversheath integrity, joints and terminations.

Test scope

Very Low Frequency (VLF) withstand; sheath integrity; tan delta; insulation resistance; polarisation index where suitable; online and offline partial discharge.



11 Earthing systems

Assess installed earthing performance against project safety criteria.

Soil resistivity

Measurements at selected spacings and locations support the assessment of soil conditions and earth-grid design.

Earth-grid impedance

Assesses impedance to remote earth relevant to fault-current dissipation and earth-potential rise.

Step and touch potential

Measures or derives exposure voltages for assessment against applicable safety criteria and fault-clearing time.



12 DC power and battery systems

Establish battery-system readiness and available capacity.

Battery commissioning

Checks installation, polarity, cell/block voltages, connections, charger settings, alarms, DC distribution and changeover arrangements.

Battery-bank load testing

Controlled discharge monitors bank voltage and individual unit performance against the required duty.

SERVICE 13

Bench testing

Workshop verification of protection and switching equipment before it reaches site.



13 Bench testing

Verify equipment performance under controlled workshop conditions before installation and energisation.

Protection relays and trip units

Pickup/dropout, timing and logic checks by secondary injection, with approved settings applied before the equipment reaches site.

Instrument transformers

Ratio, polarity, magnetisation curve and winding resistance measurements prior to installation.

Circuit breakers and mechanisms

Insulation resistance, contact resistance, contact timing and operating-sequence checks on breakers and withdrawable components.

Settings and functional verification

Relay setup and functional checks against approved settings and drawings, with results recorded as baseline measurements.

SCOPE AND ACCEPTANCE CRITERIA

Confirmed before work begins

Test methods, applied values, acceptance criteria and reporting requirements are confirmed against the following before any work starts.

01

Equipment
manufacturer
instructions

02

Approved drawings

03

Project specifications

04

Applicable standards



GET IN TOUCH

Discuss your testing scope

Tell us about your equipment, protection requirements and project specifications, and we will tailor a testing and commissioning scope to suit.

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