Medium Voltage Switchgear Condition Assessments

Siemens has a strong heritage of expertise across Transmission and Distribution equipment. Our audit tools have been specifically developed for the performance of objective, transparent and comparable condition assessments.

Siemens condition assessments provide the basis for a targeted maintenance strategy of critical substation assets like high voltage gas insulated switchgear (GIS), high voltage circuit breakers, power transformers and medium voltage switchgear.

The results of our assessments are properly documented with multilingual audit reports.

Each report includes a graphical representation of the medium voltage switchgear condition, comprehensive audit information as well as recommendations for condition based maintenance.

Audits for Transmission and Distribution equipment

Siemens audits for medium voltage switchgear suits to electricity companies as well as industrial companies and are structured as follows:

- Gathering of medium voltage switchgear historical- and technical information like maintenance procedures, major faults, modifications, retrofit, etc.
- Medium voltage switchgear Visual Inspection with the medium voltage switchgear in operation to evaluate the external condition, to measure values of built-in indicators and to identify ageing factors, as well as malfunction of operating mechanisms, secondary system, etc.
- Actual personal Safety regulations have to be observed strictly during performing an audit as switchgears and substations are subjected to modifications during their lifetime.
- Optional functional checks and measurements are included in the Extended Diagnostic such as applicable SF₆ analysis, PD measurements, thermography, electrical measurements, etc.

Comprehensive Medium Voltage Switchgear condition assessments

Transmission & Distribution Services
Asset Services

Answers for energy.
Assessing the Condition of Medium Voltage Switchgear

A medium voltage switchgear condition assessment with our audits tools can include the following activities:

**General Information**
- Gathering of key data like technical – and historical information, years of operation, performed maintenance procedures, major faults, short circuits, customer remarks, etc.

**Visual Inspection**
- **External condition**
  - Assessment of installation area
- **Building**
  - Investigation inside and outside the building and its facilities like pressure releases, cable channels, etc.
- **Switching devices**
  - Assessment of switching devices like circuit breakers, load break switches, disconnectors and earthing switches, withdrawable units, trollies, interlocking devices, etc.
- **Components**
  - Analysis of the condition of components like post insulators, bushings, bus bars, current – and voltage transformers, surge arresters and surge limiters
- **Switchgear Accessories**
  - Assessment of tools and instruments like SF6-gas maintenance unit, if applicable, voltage detectors, earthing equipment, etc.
- **Master control cubicles**
  - Assessment of control cubicles, condition of sealing, terminal blocks, terminal strips, labelling and contact position indicators

**Safety**
- **Personnel Safety**
  - Assessment of personnel safety such as electrical insulation, internal arc protection, protection during operation as well as considering country specific standards
- **Extended Diagnostic**
  - **SF6 gas analysis**
    - Measurements of dew point, decomposition products and volume percentage. Search for gas leakage
  - **PD Measurements**
    - Acoustic measurements, UHF measurements or classical PD measurements according to IEC 60270
  - **Thermography**
    - Thermographic scanning to locate hot spots

**Circuit breakers**
- Electrical and mechanical functional check of operating mechanisms

**Switching devices**
- Electrical and mechanical functional check of operating mechanisms and inspection of contact systems

**Secondary system**
- Assessment of relays, protections, interlock-units, contactors, batteries and charging system

For more information please contact your local Siemens sales representative.