

# SERVICES FOR HV OIL INSTRUMENT TRANSFORMERS

Internal dielectric strength degradation is the main risk affecting the lifetime performance of an instrument transformer. Contributing to 70% of the failures, it can ultimately cause a fire or explosion that can damage nearby high voltage assets. The degradation can be due to overheating, short circuit, oil leakage from gasket deterioration caused by tough environmental conditions, or the humidity contained in oil-impregnated cellulose insulation. An efficient maintenance plan customized to the type and age of the instrument transformers fleet limits its premature aging and reduces the cost of ownership.

## GE Vernova's Solution

GE Vernova provides a full fleet performance management service to assess, secure and maintain high voltage instrument transformers at high performance. The services include:

- **Preventive maintenance** on powered equipment: GE Vernova field specialists perform regular visual inspection coupled with infrared thermography to identify oil leakage and hot spots. The minor defects detected can be repaired before they cause a major failure.
- **Condition assessment:** The humidity level in the cellulose is evaluated through oil analysis and infrared thermography. GE Vernova experts provide analysis of the results and recommendation for arbitrage between maintenance and replacement.
- **Refurbishment** with replacement of flexible membrane, oil level indicator and addition of molecular sieve.
- **Spare part stock** dedicated to each design of oil-filled high voltage instrument transformers.
- **Replacement** GE Vernova's state of the art high voltage instrument transformers to benefit from the latest technological advances and decommissioning solution with oil disposal.
- **Technical training** with hands-on sessions encompassing installation, commissioning, maintenance and repair of GE Vernova instrument transformers. The courses can be delivered at customer site or in a GE Vernova Training Center.

## Applications

The refurbishment and spare parts management services are applicable to legacy GE Vernova oil filled instrument transformers from Walter, Compagnie des Compteurs, Compteurs Schlumberger, Enertec, Balteau, Balteau Enertec, GEC Alsthom, Alsthom, Alsthom Savoienne, Alsthom Unelec, Alsthom Atlantique, GE Vernova, CGS, Ritz, Areva.

Replacement, condition assessment and preventive maintenance services are applicable to GE Vernova and other manufacturer instrument transformers including voltage transformers, current transformers and combined metering units.



## Cost Effective

- Increase equipment availability with condition based maintenance
- Optimize the frequency of interventions
- Leverage the maximum from instrument transformer fleets to avoid premature replacement that requires adaptation and civil work

## Extended Lifetime

- Expand instrument cell lifetime up to 10 years with refurbishment
- Reduce the risk of explosion with an accurate diagnosis of equipment condition based on oil analysis

## Proven Expertise

- GE Vernova services 400,000+ high voltage instrument transformers installed worldwide
- Over 50 years of experience in instrument transformers fleet management and oil analysis



GE VERNOVA

## Condition Assessment Services

### Oil Analysis

The quality of the oil is critical in preventing premature ageing of the transformer and extending service life.



Oil samples are collected on site and analyzed by experts in our GE Vernova laboratories or by a local partner. Dissolved gas analysis on standard gases and complementary ones including oil quality, dielectric breakdown voltage, furans, moisture, and acidity can be performed. A report is generated that includes remedial actions and condition severity as per IEEE® or IEC® standards. Data can also be automatically transferred to the enterprise asset performance management system.

### Fleet Performance Management

GE Vernova's Asset Performance Management solution helps maximize the value and reliability obtained from instrument transformer fleets.

Based on the condition data collected via site inspection, oil analysis, tangent delta measurement or thermography, GE Vernova's advanced software platform for asset performance management provides key analytics such as Asset Health Indices (AHI), end-of-life calculations or risk assessment based on models developed by GE Vernova experienced field experts.

The analytics are used to establish priorities for an action plan to optimize maintenance and instrument transformer replacement.

### Infrared Thermography

During operation, the instrument transformers can be inspected with infrared thermography, a safe and non-intrusive method.



Hot spots generated by temperature increase due to electrical or insulation failure can be rapidly localized, even when the access is difficult. Therefore, remedial action of maintenance can be taken before the equipment might be damaged.



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