

# Transformer Health Packaged Services



888-365-24x7

Having a healthcare plan for your power transformers is important to maintaining reliable performance. Aging factors, such as water, oxygen and high operating temperatures, can create conditions that lead to operational issues and reduced asset life. As a leading transformer manufacturer and provider of transformer services, Prolec GE Waukesha can support your transformer health plans with packaged maintenance offerings designed to keep your assets running optimally.

## ROUTINE VISUAL AND FLUID QUALITY HEALTH ASSESSMENT

This package offers a non-invasive assessment of your transformer without the requirement to take an outage. We recommend this health assessment package be done on an annual basis for transformers with no previously diagnosed operational issues. Activities include the following:

### • Visual Maintenance Checks

- Winding and oil temperatures, including maximum temperature indications
- Oil level detection, including bushings, LTC tanks and main tanks
- Oil preservation system inspection, including checks of breather, pressures and nitrogen supply, if applicable
- Cooling system inspection, including pump, fan, flow gauge and control operation
- LTC inspection, including operation count, operating range and motor drive inspection
- Control cabinet inspection, including heater operation, moisture and oil ingress and any alarm annunciation
- Visual inspection of mechanical condition, including oil leaks, paint finish and signs of electrical tracking
- Verification of proper tank grounding

### • Oil Analysis from LTC and Main Tank (as applicable)

- Dissolved gas analysis
- Particle count
- Moisture content
- Oxidation inhibitor
- Color/Visual exam
- Furanic compound analysis
- Dielectric strength
- Acid number
- Power factor @ 25°C
- Interfacial tension

## ELECTRICAL HEALTH ASSESSMENT

This package offers an electrical assessment of your transformer. Electrical testing will require an outage with the transformer disconnected from the power system. We recommend this health assessment package be done on a bi-annual basis for transformers with no previously diagnosed operational issues. Electrical tests include the following:

- Transformer turns ratio (TTR)
- Core insulation resistance (megger)
- Winding insulation resistance (megger)
- Power factor of windings and bushings (Doble)
- Winding single phase excitation
- DC winding resistance

## LOAD TAP CHANGER HEALTH ASSESSMENT

This package offers a complete visual and mechanical assessment of your transformer's load tap changer (LTC), typically one of the most maintenance intensive components on your transformer. These activities include invasive assessment techniques which require an outage and draining of fluid from the LTC compartment. We recommend this health assessment package be done every 5 years or 100,000 operations, or when other diagnostic techniques indicate a possible operational issue. Activities include the following:

### • Visual LTC Inspection

- Flush and clean all carbonized oil to allow for proper inspection
- Check wear and alignment of all fixed contacts (main, reversing, transfer/diverter, slip, wedge)
- Check wear and alignment of all moving contacts (main, reversing, transfer/diverter, roller)
- Check all seals and gaskets on barrier board or phase moldings
- Operate LTC electrically and via hand crank to verify proper mechanical timing and alignment on all taps
- Identify any contact or other component in need of repair
- Close and bolt LTC compartment door

### • Refill LTC with existing oil through filter press or fill with new oil supplied by customer



### ○ VISUAL & FLUID QUALITY

Non-invasive assessment of your transformer without the requirement to take an outage.

### ○ ELECTRICAL & LOAD TAP CHANGER

Outage required; complete electrical and load tap changer assessment

### LOCATION

Prolec-GE Waukesha, Inc.  
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