



Long Term Programs (LTP)

Customer Services for Transformers

Introduction

Power transformers usually perform their work, humming quietly for decades without any interruption. Owners have thus come to rely on their safe transformer capacity, often performing only minimal maintenance using traditional and reckoned techniques.

Worldwide around over 70% of transformers have been in service for more than 25 years. The average life of power transformers in operation is exceeding the design-life in an increasing number of cases.

Yearly, new units come to the grid to support the increasing demand or replace end-of-life units, and to guarantee the reliability of operations.

The increasing complexity of power systems makes the expansion of transformers' life-time and reliability more important than ever and poses, at the same time, several technical and financial challenges.

Therefore, Siemens developed a technically advanced and cost effective Long Term Service Program to mitigate all operations risks and improve the assets utilization.

Our Long term program includes a broad range of products and is designed to help you plan the long-term maintenance operations of your transformers, with agreed terms and pricing structure.

Benefits

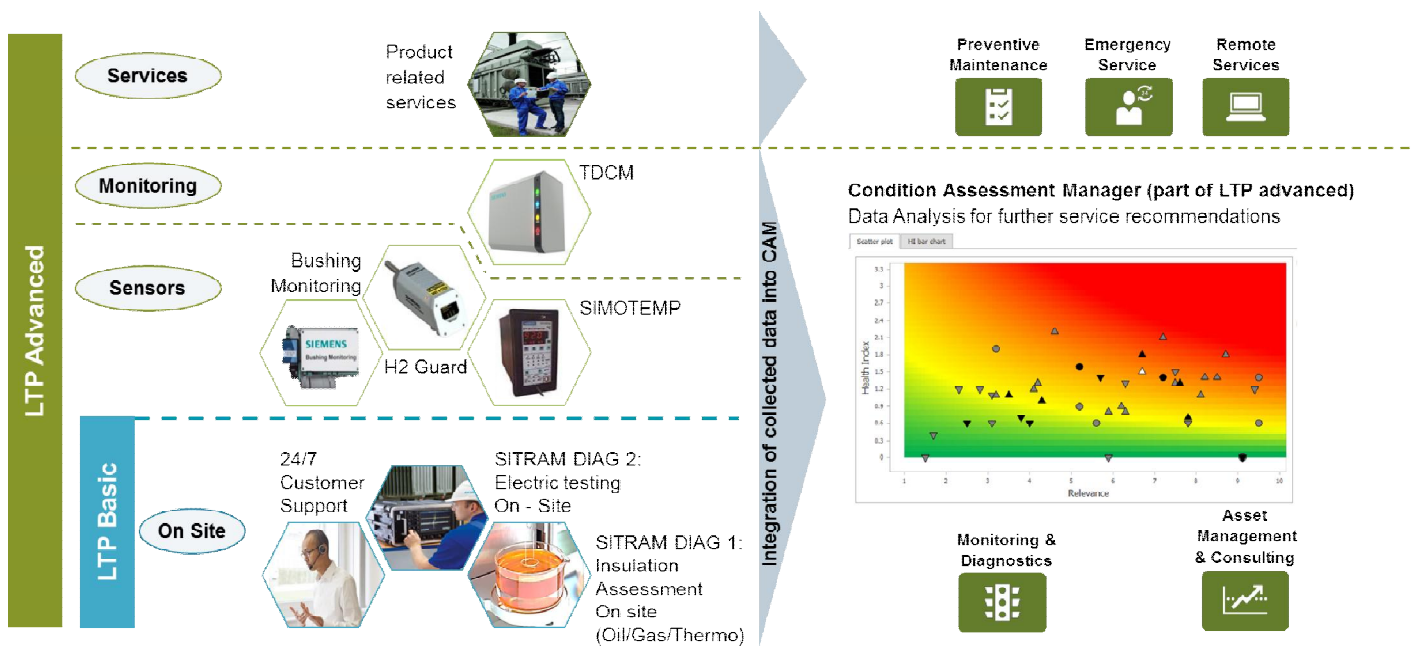
A Siemens LTP provides the following benefits:

- Comprehensive coverage from single unit to complete fleet
- Higher availability and reliability
- Simplified and flexible contract handling
- Predictable service costs
- Life time extension
- Rapid response times.
- 24/7 Emergency service 365 days of the year.

Our comprehensive and unique service portfolio for Transformers

Customer Needs	Our Offering	Scope of Long Term Program			
Transparency Streamline your budget	On-site condition assessment 	Monitoring & Diagnostics 	Remote Services 	Asset Audits 	
Availability Keep your assets up and running	Repair Services 	Preventive Maintenance 	Emergency Service 	Spare Parts 	24/7 Customer Support
Operations Management Apply efficient operations	Training Programs 	Asset Management and Consulting 	Relocation 		
Performance Keep pace with technical developments	Modernization & Retrofit 	Refurbishment 	Upgrade & Uprate 	Lifecycle Extension 	

Our Long Term Programs are tailored to meet your needs and help you plan the long-term maintenance operations of your transformers, with agreed terms and pricing structure.



Features

Siemens Long Term Programs cover various service modules for your transformers in two dedicated levels (Basic and Advanced).

All LTP levels can be fully tailored to suit your specific requirements with agreed terms and pricing structure.

Long Term Program - Basic

The basic level provides the following on-site condition assessment and customer support services:

- § 24/7 Customer Support: Provision of 24/7 helpdesk with transformers expert support via Phone or Email
- § SITRAM DIAG1: Visual inspection, analysis of insulation liquid, determination of relative oil humidity via oil sample, and thermograph scans
- § SITRAM DIAG2: Electrical tests of the transformers such as winding & insulation resistance, phase angle, SFRA & C-tan delta, impedance, losses, and bushing tests (Tan Delta & capacity)

Long Term Program - Advanced:

In addition to all features and benefits of the LTP basic, the advanced level contains the following products and services:

Monitoring System Products:

- SITRAM H2Guard sensor: Enables effective continuous DGA monitoring of hydrogen and moisture
- GasGuard 8 (alternative to H2Guard): Multi gas sensor for 8 gases: Hydrogen, Oxygen, Methane, Carbon monoxide, Carbon dioxide, Ethylene, Ethane, Acetylene, Nitrogen
- Comprehensive Bushing Monitoring system (if applicable): Measures dissipation factor and capacitance deviation by using 5 different analytical methods. The bushing monitoring is applicable for up to 12 condensive bushings of any manufacturer
- SIMOTEMP: Monitors and controls the temperature of transformers
- SITRAM TDCM: provides online transformer data from the comprehensive modules, early faulty diagnostic, with prognoses and recommendations. Our TDCM can also be applied on all transformers, from any manufacturer, of any age
- Condition Assessments Manager (CAM): all data collected via our monitoring system and oil samples (SITRAM DIAG 1 & 2) are integrated into CAM and are evaluated accordingly

Condition Assessment & Consulting:

Based on the data evaluation via CAM, detailed reports are regularly generated and verified by our transformers specialists.

For transformers with critical health conditions, preventive maintenance and customized life-time-extension programs will be recommended.

Therefore, the operational risks will significantly be reduced.

Additional Service Options

The LTP contract set-up is structured in a way that any extra and further services such as spare parts delivery and oil regeneration can be ordered based on the agreed LTP terms and conditions.

This flexible contract set-up allows an easy integration of our major portfolio elements into the service program.

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