

Consulting and Testing Services

Power Transformer Services Overview

- Expert consulting services
- Condition assessment services
- Laboratory services
- Forensic Analysis
- DVtest Analysis
- TC College seminars and workshops



Description

DV Power business proposition includes consulting, testing and laboratory services for expert, unbiased diagnosis and assessment of critical assets leading to a complete diagnostic solution.

Our scope of service combines three elements:

- diagnostic test instruments
- expert consulting and testing services
- resource library of test results

Advantages of DV Power consulting and testing services includes the following:

Global Experience

Extensive experience of our consulting engineers in power systems engineering applications will ensure the highest level of consulting services and knowledge-based solutions.

Unbiased Expert Opinion

Unbiased diagnosis and assessment of critical assets are crucial to get the answers to your asset condition problems

DV Power Resource Library

Valuable and comprehensive benchmark data, collected during the years of extensive field testing, will help evaluating test results on your equipment.



Expert Consulting Services

DV Power consulting services enables limited maintenance budgets to be directed toward critical transformers as well as to design effective maintenance program and improvement initiatives.

Independent test witnessing includes creating a fingerprint of new transformers prior to and after installation. Each field service report is reviewed by a team of consulting engineers.



Condition Assessment Services

As an initial step of a condition assessment service process is the overview of past operations, maintenance practices, DGA, loading history and abnormal event service records.

This data will give an overview of transformer condition and provide a basis for additional investigations.

On-Site Condition Assessment includes an external visual inspection and all required off-line tests. The benefit to the customer is a comprehensive report indicating areas of concern and recommendations.

Laboratory Services

DV Power cooperates with independent analytical laboratories and consulting firms specialized in diagnostic testing of oil, gas and other insulating materials used in

transformers, power circuit breakers and load tap-changers. We have joined forces to provide a new “Dual tap changer analysis”. This way, condition assessment of OLTC is brought to the new level - two assessments: operational through a DVtest, and laboratory material oil analysis provide reliable indication of the tap changer repair needs.

Forensic Analysis

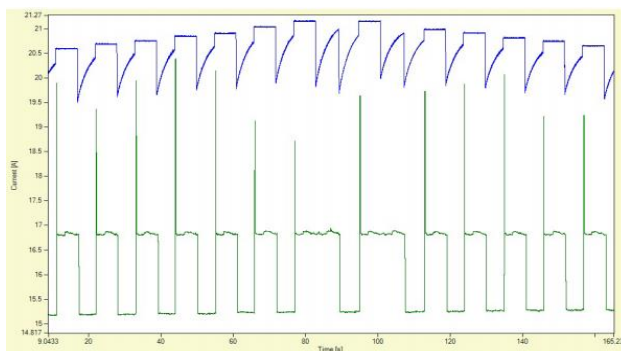
When a power transformer or a tap changer reach their end of life point sooner than expected, it is important to determine the cause of the failure.

Forensic analysis includes operating and maintenance records review, oil analysis, on-site inspections and tests, and infrared analysis. In combination with DV Power Resource Library, the explanation of mechanism failure and root cause are documented in detailed reports.

DVtest Analysis

The dynamic resistance measurement (DVtest) feature enables measuring and recording the test current at high sampling rate during the tap changer transition. The variation of the current represents the change of the resistance in the circuit during the change of tap positions. Tap changer verification can be performed with the DV-Win software or by standalone TWA40D or RMO-T instruments. The standalone instruments detect any open circuit during the tap changer operation.

The dynamic resistance measurement graph is unique, powerful tool providing condition assessment of an OLTC regarding the mechanism itself and its contact wear.



The reliable, trustworthy OLTC analysis requires understanding principles of regulation and OLTC operation. Each type of a tap changer belongs to a group of units operating in a similar manner. As a new method, the test has been used in the past 15 years by utilities in Europe and over the last 6 years, it has been accepted in the USA as applied to the reactor tap changers.

This test may be used to detect problems such as slow transition time, open circuits, problems with contacts, transition resistors, mechanism, energy accumulator, motor control, and much more.

Load Tap Changer Diagnostics: Case examples



Major failures, as a transformer tripping out on the gas relay, or minor failures, such as a problem detected during diagnostic testing and rectified during maintenance, require pinpointing the cause of a problem (for major) or detecting (for minor) prior to causing an environmental disaster. The DRM graph pinpoints an exact location of defects indicated by a high level of gasses, or the Bucholtz operation causing tripping the transformer out of service.

Tap Changer College

This technical event is structured for substation engineers, plant engineers and equipment reliability specialists who want to learn about on-load tap changer principles of operation and discuss about transformer and tap changer maintenance and testing methods. This provides a unique opportunity to learn how to investigate a tap changer state using a new diagnostic tool for OLTCs condition assessment – the DVtest (Dynamic Resistance Measurement).



DV Power experts, along with the industry's top manufacturers, oil laboratory analyst are on hand to provide answers to your questions, expand your experience with hands-on demonstrations. Please visit <http://www.dv-power.com/support/tap-changer-college/> for more information.