

federal

FEDERAL POWER TRANSFORMERS LLC

Trusted Transformer Diagnostic Solutions



Group Companies

 federal transformers co. I.I.C.


Quality Unmatched.



CONTENTS

The Company	1
Services Solution	2
Equipment	8
Satisfied Customers	9

THE COMPANY

Federal Power Transformers LLC is a subsidiary of Federal Transformers Co LLC and Federal Power Transformers LLC, registered in UAE with facilities in Musaffah Industrial Area and ICAD-1- Abu Dhabi, for servicing needs of Power Transformers, Distribution, Dry Type Transformers and Switchgear.

Federal Power have a specialized team of Engineers and Technicians who are well-trained and experts in the servicing of Transformers and Switchgear.

Federal Power team is well trained on HSE and has worked in several on-shore and off-shore sites with high safety records.



SERVICE SOLUTIONS



Transformer Diagnosis & Conditional Assessment

Installation, Commissioning & Site Testing

- Installation & Commissioning
- Testing at Site as per international standards
- Oil filling under vacuum at site

Overhauling, Repair & Refurbishment

- Repair & Refurbishment of Transformers
- Upgrading of Transformers
- Routine and Type testing of Transformers in our subsidiary facilities.
- Refurbishment of Tap-changers

Conditional Monitoring

- Life time Assessment and health checks of Transformers
- Oil Filtration and Testing: DGA, BDV, Degree of polymerization, Moisture content, Oil Chemical Analysis
- Furan Analysis
- Oil Passivation & Regeneration
- Thermography
- Online DGA solutions
- Online Partial Discharge Analysis

Annual Maintenance Contracts

- Annual Maintenance Health Checks
- Preventive Maintenance
- Supply of Spares

Switchgear Conditional Assessment & Maintenance

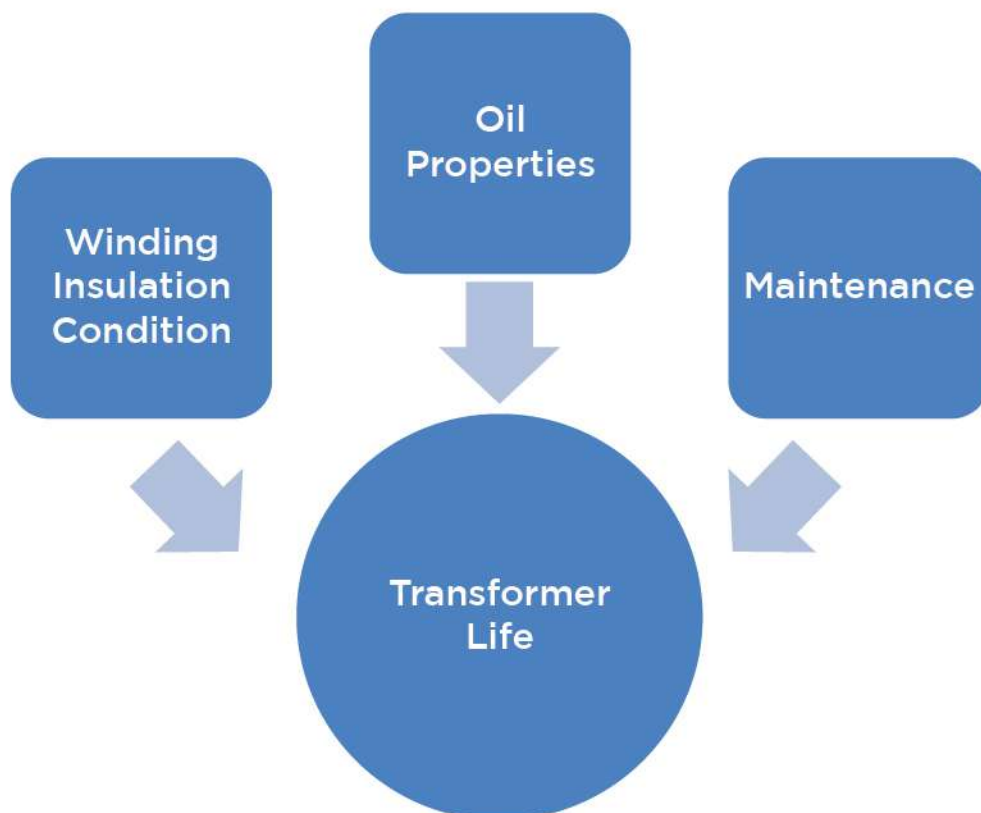
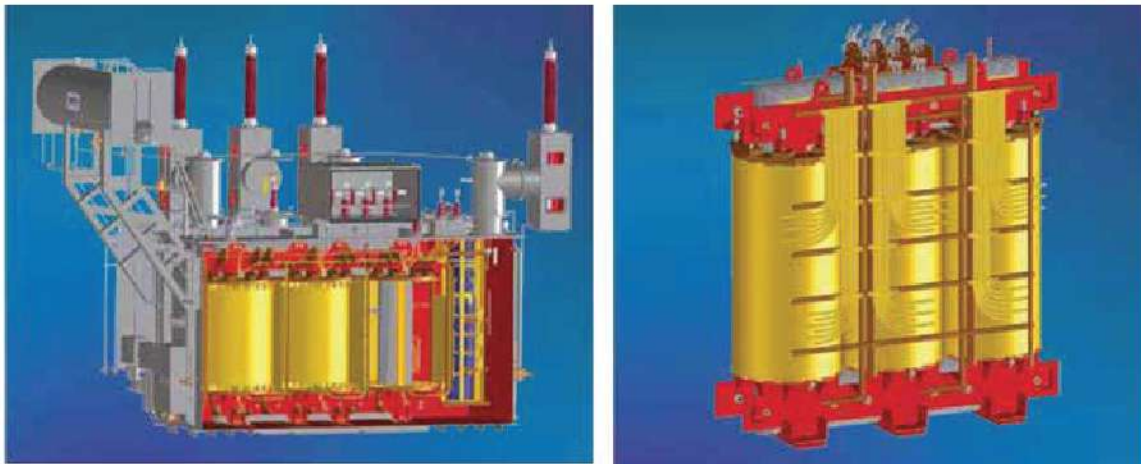
- Installation & Commissioning
- Preventive Maintenance
- Annual Maintenance Contracts
- Site and Commissioning Tests
- Thermography
- Harmonics Analysis.



Conditional Monitoring Solutions

Life of transformer depends on the condition of insulation system (Kraft paper and oil) with time under impact of:

- Thermal stresses
- Electromagnetic stresses
- Electro-dynamic stresses
- Contamination and natural ageing processes effecting the tensile strength of paper
- Rate of deterioration depends upon the operating conditions - loading pattern, incipient faults, maintenance
- Condition monitoring also enables to estimate the residual life of the transformer.
- Poor Quality of Design or Materials or Production or Maintenance or Processes results in failure of transformer.



LOW VOLTAGE TESTING

Transformer life can be analyzed through electrical testing which can guarantee us the proper & smooth functioning of the transformers.

- ✓ Measurement of Voltage Ratio
- ✓ Vector Group Test
- ✓ Magnetic Balance Test
- ✓ Magnetizing current Test
- ✓ Measurement of windings resistance
- ✓ Insulation Resistance of HV & LV windings, Bushings
- ✓ Functional checks of the protection devices OTI, WTI, PRV, MOLG, Buchholz, Cooling's Fans & Pumps,
- ✓ Functional check of the OLTC/OCTC

Transformers insulation life can be analyzed through the following test at the site so those customers get the knowledge about the degradation of the insulation of the transformers.

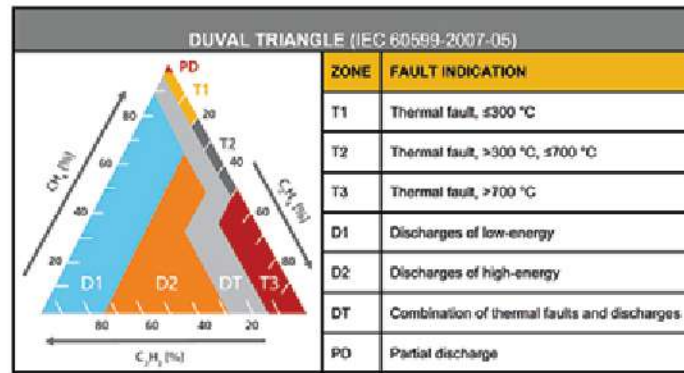
- ✓ Tan Delta Test
- ✓ Dielectric Response Analysis

OIL ANALYSIS:

Transformer oil is like a blood in human body. Oil in the Transformer provides Insulation, Cooling, Arc extinguishes, and Oil dissolved, gases generated by oil degradation, moisture and gases from cellulose insulation, deterioration.

Oil Analysis can be done by the following test & techniques:

- Physical Appearance (ASTM D1500, D1524)
- Density (ASTM D1298)
- BDV (ASTM D877)
- PPM (ASTM D1533)
- Resistivity of oil (ASTM 1169)
- Interfacial Tension (ASTM D971)
- Kinematic Viscosity (ASTM D445)
- Flash point (ASTM D92)
- Acidity (IEC 60296)
- Degree of polymerization (ASTM D4243)
- Tan Delta (IEC 60247)
- Corrosive Sulphur (ASTM D1275B)
- Neutralization Value
- Oxidation Stability (IEC 61125)
- Furan Analysis (ASTM D5837)
- DGA (ASTM D3612, IEC 60599, IEC 60567, IEEE C57.104) (Working Principal-Gas Chromatography)
- DGA on site testing



THERMOGRAPHY

Abnormal heating associated with high resistance or excessive current flow is the main cause of many problems in electrical systems. Infrared Thermography allows us to see these invisible thermal signatures of impending damage before the damage occurs. Under-sized conductors, loose connections or excessive current flow may cause abnormally high unwanted heating that result in dangerously hot electrical circuits. Components can literally become hot enough to melt. Thermal Imagers enable us to see the heat signatures associated with high electrical resistance long before the circuit becomes hot enough to cause an outage or explosion.



Advantage of Thermography:

- Fault incipient
- Allow scheduling of repairs
- Reduction in disassembling, rebuilding or repair of components
- Reduce outage & operation cost
- Improved & less expensive maintenance
- Fast, reliable & accurate output.

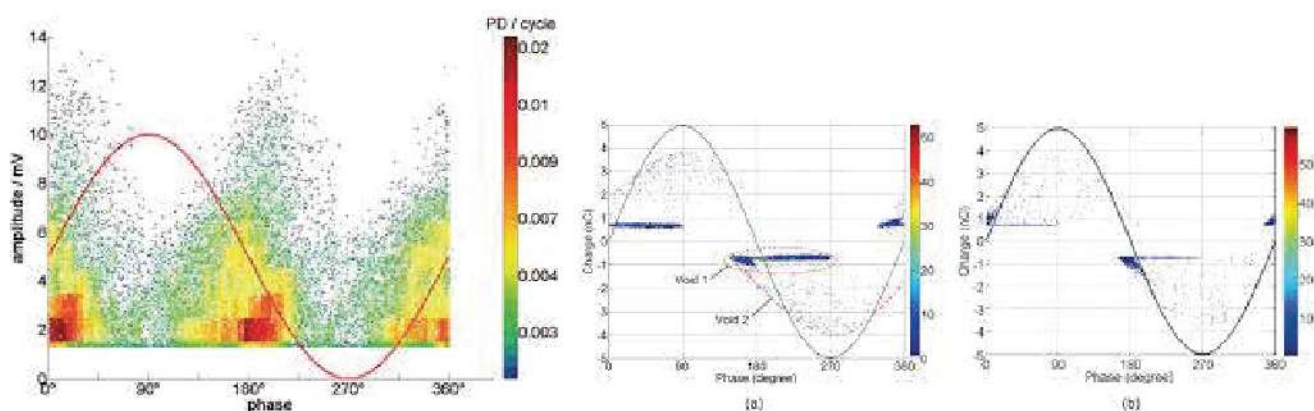
ONLINE PARTIAL DISCHARGE

According to the International Electro technical Commission (IEC) International Standard 60270, Section 3.1 published in 2000, the definition of Partial Discharge is:

“Localized electrical discharge that only partially bridges the insulation between conductors and which can or cannot occur adjacent to a conductor.”

Partial discharge (PD) can damage insulation materials in power transformer bushings and windings. This can lead to their failure and costly outages. PD is observed in power transformer bushings and windings if the insulation material between different voltage potentials is aged, contaminated or faulty.

PD measurement is a reliable and non-destructive method used to diagnose the condition of a power transformer insulation system. It is performed during factory acceptance, on-site commissioning and routine maintenance testing to detect critical defects and assess risks.



EQUIPMENTS

Low Voltage test kit



Thermography kit



Oil filtration Machine-10KL, 6KL & 3KL



SATISFIED CUSTOMERS



Customers served directly & through existing subsidiaries

- ⚡ ADNOC OFFSHORE
- ⚡ ADNOC ONSHORE
- ⚡ ADNOC LNG
- ⚡ ADNOC SOUR GAS
- ⚡ ADNOC REFINING
- ⚡ EMIRATES STEEL
- ⚡ EMIRATES ALUMINIUM
- ⚡ DUBAI NATURAL GAS
- ⚡ FEDERAL ELECTRICITY & WATER AUTHORITY
- ⚡ ABUDHABI DISTRIBUTION COMPANY
- ⚡ TRANSCO
- ⚡ ITM O&M COMPANY
- ⚡ GULF TOTAL TRECTABAL COMPANY
- ⚡ EMIRATES CMS POWER COMPANY
- ⚡ CEMEX
- ⚡ AGGREKO
- ⚡ RS SOLUTIONS



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