

TLM 2017

11th TRANSFORMER-LIFE-MANAGEMENT
CONFERENCE



September 18th - 19th 2017

at the SAUERLAND STERN Hotel**** Willingen

Silver Sponsors:





TRANSFORMER-LIFE-MANAGEMENT CONFERENCE

About the Conference

The focus of the Transformer-Life-Management conference (TLM) is safe and dependable transformer operations and optimized service. For over 10 years the TLM is a forum for experts, engineers, manufacturers and exhibitors that exchange information necessary for long operation times, high dependability and low maintenance and failure times of transformers.

Topics are new insulation materials, diagnostic measurements and their interpretation, continuous monitoring and asset management, recent developments in the energy sector as well as research and development. The approx. 20 speakers are operators and manufacturers, that like to share their experience and scientists, that present their research activities in diagnostics and material science. The exhibition with approx. 25 exhibitors provides room for practice-oriented discussions.

This year there is an emphasis on dry type transformers, special diagnostic methods and trends because of the energy transition.

Topics

- **Energy transition in Germany and special transformer applications**
- **News from committees and standardisation**
- **Monitoring and diagnostic measurements**
- **High voltage testing, on location and in the factory**
- **News from research and development**



TRANSFORMER-LIFE-MANAGEMENT CONFERENCE

Program Day1

Monday 18.09.2017

11:00 **Check-in and welcome snack**

Introduction

12:00 **Welcome and Introduction**
Prof. Dr.-Ing. Peter Werle (Leibniz Universität Hannover)

12:15 **How will the the Energy Transition Influence the Service Business?**
Dr.-Ing. Martin Schumacher (ABB, Member of the Board of Directors)

12:45 **CIGRE SC A2: Actual and Future Activities Considering the World Wide Energy Transition**
Symon Ryder (CIGRE A2)

13:15 **Transformer Damages from an Insurance Providers Point of View**
Dr.-Ing. Frank Hillmann (HDI Global SE)

13:45—15:00 **Coffee break and visit of exhibition**

Special Transformers and Asset Management

15:00 **New Trends for Traction Transformers in Railway Applications**
Dr.-Ing. Florian Menius (Stadler Rail AG)

15:30 **Experience with Dry Type Transformers in Industry Applications**
Alexander Hanko (VW-Kraftwerk GmbH)

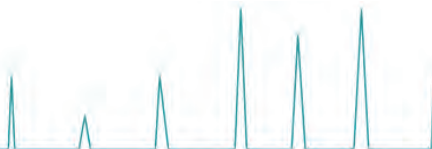
16:00 **Effective Asset Management**
Michael Lukas (Lausitz Energie Kraftwerke AG)

16:30 **Asset Management for Transformers in Marine Applications**
Thomas Völkel (ABB AG)

17:00 **Summary by the Chairman**
Prof. Dr.-Ing. Peter Werle (Leibniz Universität Hannover)

Social Program

18:00 **Visit of Ski Jumping World Cup Hill and Evening Event**





TRANSFORMER-LIFE-MANAGEMENT CONFERENCE

Program Day 2

Tuesday 19.09.2017

Diagnostics and Monitoring

8:00 **Current Status of PD Measurement on Transformers On Site and in the Laboratory**
Dr.-Ing. Jitka Fuhr (AF Engineers + Consultants (AFEC) GmbH)

8:30 **Diagnosis of Dry Type Transformers**

9:00 **High Voltage Test Systems - The next Generation**

9:30—11:00 **Coffee break and visit of exhibition**

Components

11:00 **Operation of Regulated Distribution Transformers with Newest Tap Changer Design**
Werner Hofer (Maschinenfabrik Reinhausen GmbH)

11:30 **Trends in Insulating Fluids; Categorization of HV Behaviour, Required Maintenance & Fault Markers**
Carl Wolmarans (Nynas GmbH)

12:00 **Ester- or Dry Type Transformer ? Applications, Diagnosis and Cold Start Behaviour**
Mark-André Thelen (Cargill Deutschland GmbH)

12:30—13:30 **Lunch**

Research and Development

13:30 **PD Measurement under DC Voltage**

14:00 **Comparison of DGA Interpretation Results by Means of Algorithms in the Multidimensional Space of Fault Gases**
Prof. Dr.-Ing. Stefan Kornhuber (Hochschule Zittau/Görlitz)

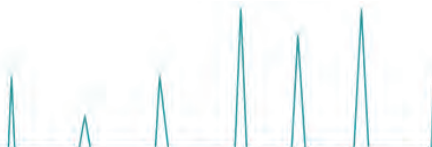
14:30 **Development of a new low-cost DGA System**

15:00 **Diagnosis of Power Transformers: Demand and Reality**
Sebastian Schreiter (HTWK Leipzig)

15:30 **Dry Type Transformers for Medium and High Voltage / Safety Instructions for Factory Tour**
Gaby Luckey (ABB AG, Brilon)

15:50—16:00 **Summary and Discussion**
Prof. Dr.-Ing. Peter Werle (Leibniz Universität Hannover)

16:30—18:00 **Factory Tour, ABB Dry Type Transformers, Brilon**

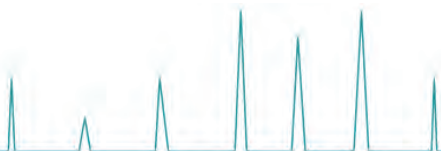




TRANSFORMER-LIFE-MANAGEMENT CONFERENCE

Partners in Exhibition





TRANSFORMER-LIFE-MANAGEMENT CONFERENCE

Registration

Transformer Life Management Conference 2017

September 18th to 19th at the SAUERLAND STERN**** Hotel,
Kneippweg 1, 34508 Willingen (near Brilon)

Please resend to:

E-Mail: info@energy-support.de or fax: + 49 2131403 9608 or

E-Mail: silvia.anton@de.abb.com or fax: + 49 345 5686 120

Company name:

Participant:

Street:

City , ZIP code:

Phone:

E-Mail:

Included in the fee of 695 € + VAT for each Person:

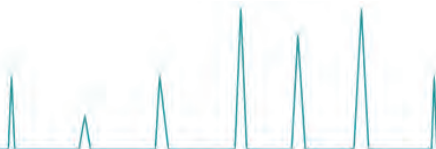
- Colloquium materials
- Welcome drinks
- All Snacks
- Lunches
- Official dinner

Invoice must be paid before conference starts.

I would like to participate in the factory tour of ABB Brilon on Tuesday,

Sept. 19th approx. 5 pm : yes no

Signature:





TRANSFORMER-LIFE-MANAGEMENT CONFERENCE

ENERGY SUPPORT
Experts in providing mobile Solutions

Equipment for Transformer Oil Analysis



Contamination Free Oil Sampling Set

- to get a reliable Oilsample according to IEC/ASTM Standard
- to avoid any misinterpretation of your Laboratory results
- measure the Oil Temperature
- avoid any contamination with ambient air or dirt particles



MobilGC

- Portable DGA Equipment for Analysis 9/11 Gases
- according ASTM D3612/IEC 60567
- direct Analysis of Buchholz gases
- with Partial Vacuumdegassing Unit
- with Software Package Expertsystem

TOP TOGA

- DGA Analysis according to ASTM D3612/IEC 60567
- with Autosampler 16/32 Syringe 50/100ml
- fully automatic Vacuumdegassing
- with Analysis of 11 Gases with high sensitivity
- with Software Package Expertsystem



Breakdown Voltage Measurement

- BA 75/100 KV
- according to all usable Standards
- smallest Breakdown Voltage Analysator
- USB drive, Software controlled
- Battery operated



Pocket TitratorKF

- Water content measurement using Karl Fisher Method
- full automatic with high precision
- measuring low concentrations



TDM 4000

- Automatic Dielectric Constant Tan Delta & Resistivity Measurement
- Heating Chamber with automatic Temperaturcontrol
- automatic drainage of your Oilsample
- with Printer and Calibrator



www.energy-support.de

Energy Support GmbH · Sperberweg 47 · D-41468 Neuss
T +49 (0)2131 40 39 60 7 · F +49 (0)2131 40 39 60 8 · info@energy-support.de



TRANSFORMER-LIFE-MANAGEMENT CONFERENCE

ENERGY SUPPORT

Experts in providing mobile Solutions

Contamination Free Oilsampling Set



Avoid Misinterpretation of your Oilsamples

ENERGY Support developed the Contamination Free Oilsampling Set with temperature control, to avoid any misinterpretation of Oilsamples.

Results are strongly dependent on Temperature and Oil Ageing Conditions.

Temperature in C°	80	15	46
Dielectric Strength (kV/mm)	13	70	45
Water in Oil (mg/kg)	48	10	20

- Where does the water come from?
- Moisture can be in the insulation when it is delivered from factory.
- If the transformer is opened for inspection or has a leak, the insulation can absorb moisture from the atmosphere.
- Moisture is also formed by the degradation of insulation as the transformer ages.
- Additional benefit is the sampling with gas-tight syringes according to standard IEC 60475/ASTM D 923.
- The aim of proper sampling is to ensure that the result of the dissolved gas analysis are not distorted by contamination with ambient air or dirt particles.
- This guarantees a reliable and exact dissolved gas analysis and a solid decision basis for the further treatment of your Transformer.

With this in mind, we organise our TLM Conference 2016. To achieve a stable integrated electricity network, generation, transmission and distribution companies must employ best practice performance methodologies to achieve optimal resilience and a future-proof grid.

Interested in learning more and share your knowledge at Transformer Life Management Conference?

www.energy-support.de

Energy Support GmbH · Sperberweg 47 · D-41468 Neuss
T +49 (0)2131 40 39 60 7 · F +49 (0)2131 40 39 60 8 · info@energy-support.de



TRANSFORMER-LIFE-MANAGEMENT CONFERENCE

Outages Happen 24/7. So Should Monitoring.

Vaisala Online Measurements for Power Transformers

- Dissolved Gas Analysis
- Hydrogen in oil
- Moisture in oil
- Temperature
- SF6 Density
- Dew point
- Pressure



MHT410 Moisture, Hydrogen and Temperature Transmitter for Online Transformer Condition Monitoring

- Get reliable information of transformer fault situations
- Make educated maintenance decisions
- Minimize unexpected outages



NEW Vaisala Optimus™ OPT100 DGA Monitor for Transformers

- Offers reliable long-term stable measurement - with no maintenance
- Out-of-the-box performance
- Completely eliminates false alarms

www.vaisala.com/DGA
www.vaisala.com/requestinfo

VAISALA



TRANSFORMER-LIFE-MANAGEMENT CONFERENCE



The world's widest range
of premium transformer oils

Keep a cool head when updating solutions for your transformers needs with the help of Nynas Naphthenics. We offer the world's widest range of transformer oils, developed to handle just about every conceivable climate, design and operating condition.

www.nynas.com/transformer-oils

Meet us at our booth and listen to our presentation on the Transformer Life Management Conference 2017 in Willingen.





TRANSFORMER-LIFE-MANAGEMENT CONFERENCE

WIR REGELN SPANNUNG.

Für eine zuverlässige und sichere Stromversorgung.



Die Regelung von Leistungstransformatoren mit Laststufenschaltern ist unsere Kompetenz. Schon heute fließen mehr als 50 % des weltweiten Stroms durch unsere Geräte. Als innovativer Partner bieten wir maßgeschneiderte Lösungen und Dienstleistungen rund um den Transformator. www.reinhausen.com

Maschinenfabrik Reinhausen GmbH
Falkensteinstr. 8, 93059 Regensburg, Germany
Phone: +49 941 4090-0, E-mail: info@reinhausen.com



THE POWER BEHIND POWER.



TRANSFORMER-LIFE-MANAGEMENT CONFERENCE



Wir halten Ihren Trafo auf Spannung.

Transformatoren reparieren und modernisieren
Trafos unterschiedlicher Fabrikate bis ca. 200 t
Gewicht sind für uns kein Problem. Unsere
Werkstatt verfügt über das nötige Equipment,
auch Ihren Transformator zu warten, instand zu
setzen oder wirtschaftlicher zu machen.

Betriebsicherheit durch Isolierölanalytik
Durch die Prüfung der Öle in Ihren elektrischen
Betriebsmitteln können thermische oder elek-
trische Fehler frühzeitig erkannt werden. Die
Bewertungen der Prüfergebnisse helfen Ihnen,
Betriebsausfälle zu vermeiden.

Profitieren Sie vom langjährigen Know-how
unserer Spezialisten, die Ihnen gerne für Ihre
Anfragen zur Verfügung stehen.

innogy.com/netzdienstleistungen





TRANSFORMER-LIFE-MANAGEMENT CONFERENCE



Entdecken Sie unsere leistungsstarken Produkte – gefertigt nach höchsten Qualitätsstandards und modernsten Anforderungen des Marktes. Lassen Sie sich von unseren Experten auf der Transformer Life Management Konferenz beraten.

Wir freuen uns auf Ihren Besuch.

PUCARO

A member of the ABB Group

PUCARO ELEKTRO-ISOLIERSTOFFE GMBH

Pucarostraße 1 | D-74255 Roigheim | www.pucaro.de



TRANSFORMER-LIFE-MANAGEMENT CONFERENCE

+++ SAFETY FIRST +++ SAFETY FIRST +++ SAFETY FIRST +++ SAFETY FIRST +++ SAFETY FIRST +++



Since more than 60 years the EMB GmbH has been developing and producing reliable protection devices for liquid filled transformers, tap changers and chocke coils in Germany. We aspire to fulfill and to exceed the continuously increasing safety requirements of our costumers in more than 100 countries.

EMB SMART Buchholz relay



Capacitive sensor (NM-series):

- For analogue measuring of gas accumulation
- Reliable & continuous monitoring of Buchholz gases starting already at 50 cm³

Temperature sensor:

- For continuous oil temperature monitoring
- Available separately or combined with humidity sensor

Humidity sensor:

- Constant monitoring of humidity in oil
- For early detection & preventive measuring to extend transformer life time

Buchholz relay 3+3



- Buchholz relay with 6 independent contacts
- 3 contacts for alarm & 3 contacts for disconnection
- Also available with mechanical pre-alarm system

Buchholz gas tester BGT 4.2



- Measuring and analysis of Buchholz gas directly on site
- Detection & analysis of H₂, CO, CO₂, C₂H₂, CH₄+
- Enables to decide about the continuous operation of the transformer
- Easy handling via touch display
- Incl. Buchholz gas sampler BGS

Breathing buffer box G3B



- For significant lifetime extension of open type transformers
- Sustained reduction of oxygen in oil through hermetic sealing
- To slow down the aging process of transformer insulating material

Elektromotoren und Gerätebau Barleben GmbH • Otto-von-Guericke-Allee 12 • 39179 Barleben • Germany
Ph.: +49 39203 790 • Fax: +49 39203 5330 • info@emb-online.de • www.emb-online.de • www.buchholzrelay.com

Kooperationspartner
Transformatorgase  GATRON