

TLM 2018

12. Transformer-Life-Management Conference



September 24th to 25th
Dorint Kongresshotel****
Neuss

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ENERGY SUPPORT



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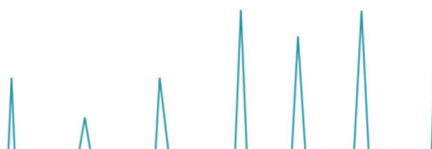
The focus of the Transformer-Life-Management conference (TLM) is safe and dependable transformer operations and optimized service. For over 10 years the TLM is a forum for experts, engineers, manufacturers and exhibitors that exchange information necessary for long operation times, high dependability 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, developers 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 insulation liquids, their properties and applications as well as possibilities for diagnostics and monitoring.

Topics

- **Energy Transition in Germany**
- **News from Committees and Standardisation**
- **Insulation Liquids**
- **Monitoring and Diagnostic Measurements**
- **News from Research and Development**





Program

Day 1: Monday, September 24th 2018

11:00 am - 12:00 pm: Check-in and Welcome Snack

12:00 pm - 2:00 pm: Block I - Introduction

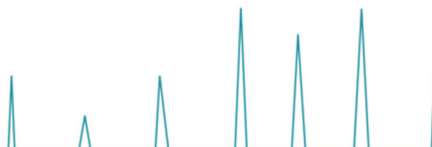
- ▶ **Welcome and Introduction**
Prof. Dr.-Ing. Peter Werle (Leibniz Universität Hannover, Schering-Institute)
- ▶ **Keynote: 40 Years of Transformer Production**
Selim Yürekten (Enpay Group)
- ▶ **SC D1: Activities on the Topic of Transformer Insulation Materials**
Dr. Pietsch (Cigré SC D1 Chairman/HighVolt)
- ▶ **Examples of Transformer Damages / Failures**
Dr. Klaus Scheil (Sachverständigen- und Ingenieurbüro Transformatoren)
- ▶ **New Approaches for Transformer Condition Assessment**
Michael Lukas (LEAG)

2:00 pm - 3:30 pm: Coffee Break and Exhibition

3:30 pm - 5:15 pm: Block II - Insulation Liquids

- ▶ **Experience with the Application of GTL based Transformer Óils**
Dr. Volker Null (Shell Deutschland Oil GmbH)
- ▶ **The Modern Transformer Fleet - Managing Several Insulating Liquids**
Carl Wolmarans (Nynas AB)
- ▶ **Part I: Insulating Oil Treatment and Regeneration - Mobile Solutions for the European Market**
Martin Seipel (HCS Group GmbH - Electrical Oil Services)
- ▶ **Part II: Refurbish not Replace - A Case study**
Glen Evans (Tata Steel UK), Andrew Bartram (HCS - Electrical Oil Services)

Ca. 6:00 pm: Evening Event





Program

Day 2: Tuesday, September 25th 2018

8:30 am - 10:00 am: Block III - Oil and Insulation Monitoring and Diagnosis

- ▶ **Integration of Online DGA Sensors into an Automated Asset - Management System**
Holger Lohmeyer (ABB AG)
- ▶ **Maintenance of Wind Power Plants Considering Insulation Oil Parameters**
Martin Frangen (Koopmann Elektrotechnik)
- ▶ **Intelligent Algorithms or the Assessment of Insulation Oil Parameters**
Sebastian Schreiter (HTWK Leipzig)

10:00 am - 11:00 am: Coffee Break and Exhibition

11:00 am - 12:30 pm: Block IV - Diagnostic Measurements

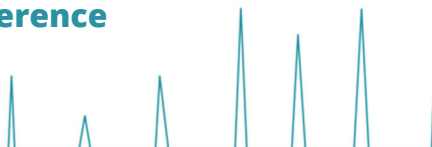
- ▶ **New Experience with Diagnostic Measurements on Transformers**
Dr. Michael Krüger (OMICRON electronics GmbH)
- ▶ **On-load Tap-changer testing Using the DVtest Method and the Advantages of Transformer Demagnetization**
Edis Osmanbasic (IBEKO Power AB, DV Power)
- ▶ **On-Site Diagnosis of Distribution Transformers for Wind Power Plants and Industrial Applications**
Stefan Bergmann (HIGHVOLT Prüftechnik Dresden GmbH)

12:30 pm - 1:30 pm: Lunch and Exhibition

1:30 pm - 3:30 pm: Block V - Research

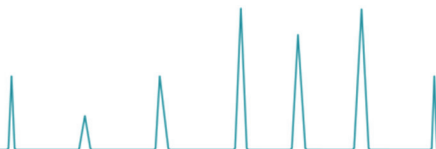
- ▶ **Nano Insulation Liquids**
Mohammad Taghi Imani (Leibniz Universität Hannover, Schering-Institute)
- ▶ **Investigations on the Ageing of Oil-Paper-Dielectrics**
Tobias Kinkeldey (Leibniz Universität Hannover, Schering-Institute)
- ▶ **Advances in FRA Interpretation**
Prof. Dr.-Ing. Michael Hartje (Hochschule Bremen)
- ▶ **Improvement of the Entropie Based Health Index Method**
Prof. Dr.-Ing. Stefan Kornhuber (Hochschule Zittau)

Ca. 3:45 pm: End of Conference





Sponsors



Registration for: Transformer Life Management Conference 2018



September , 24th to 25th at the Dorint Kongresshotel**** Neuss
Selikumer Straße 25, 41460 Neuss

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

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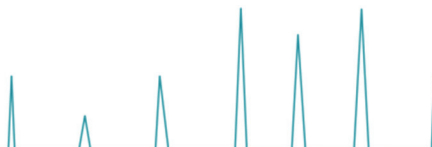
Included in the fee of 695 € + VAT for each Person:

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

Invoice must be paid before conference starts.

Date, Signature, Stamp

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Equipment for Transformer Oil Analysis



Contamination Free Oilsampling 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

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

High-Tech im Werk Tradition und Technik

Mehr als 90 Jahre Erfahrung: Im ABB-Werk Halle werden Transformatoren bis 800 kV überarbeitet und gewartet. Pro Jahr gehen rund 400 geprüfte Betriebsmittel zu ihrem Einsatz in alle Kontinente. Neben der Reparatur bietet ABB Außendienstleistungen und Ersatzteilservice an.

www.abb.de/transformatoren



Plus im Service Analyse und Prüfung

Engineering Solutions als Entscheidungsgrundlage für sinnvolle Maßnahmenplanung: ABB bietet Öldiagnostik, Online-Monitoring und Vor-Ort-Prüftechnik. Zahlreiche Branchenstandards sind ABB-Entwicklungen. Ein Beispiel dafür ist der mobile Stoßspannungsgenerator.

www.abb.de/transformatoren





Fachgebiet

Hochspannungstechnik und Asset Management

Schering-Institut

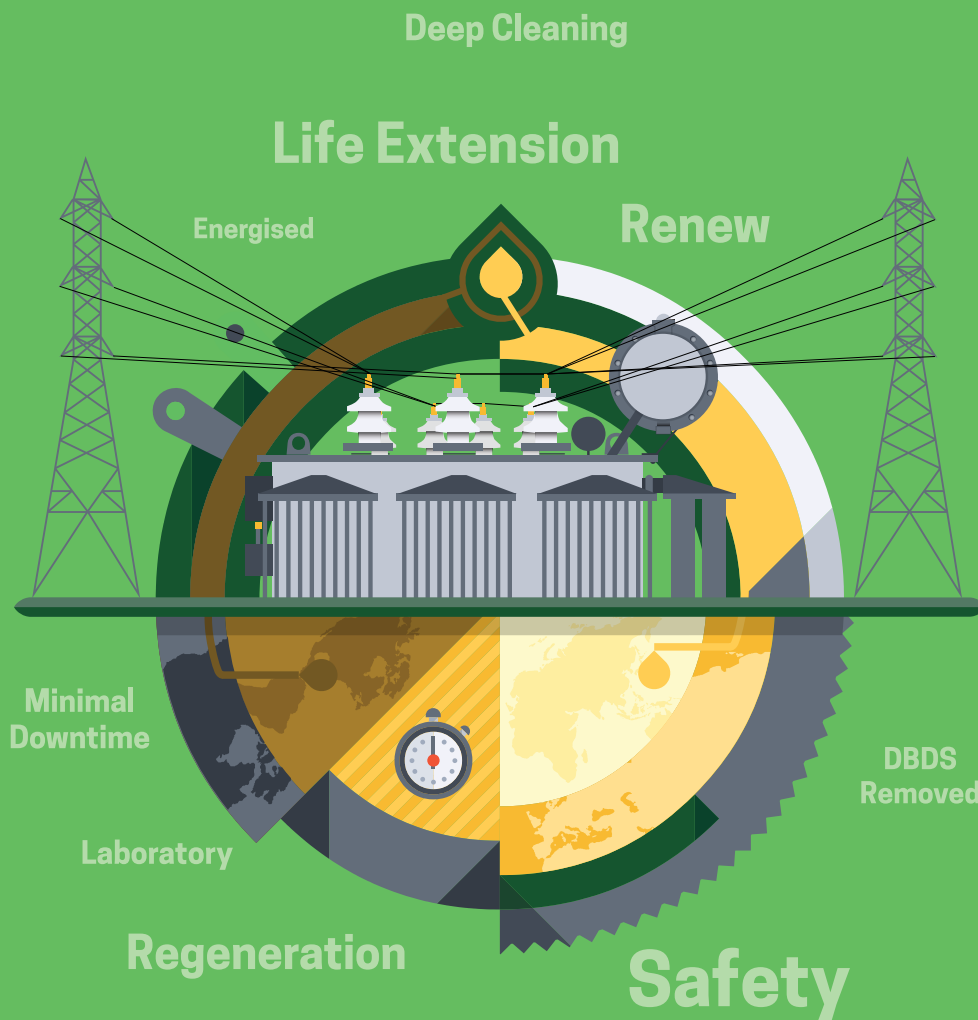
Prof. Dr.-Ing. Peter Werle

Leistungsangebot

- Beratung und Gutachten im Bereich der Hochspannungstechnik
- Begutachtung von Schäden an Hochspannungskomponenten (Transformatoren, Kabel, GIS, Motoren/Generatoren)
- Hochspannungsprüfungen von Geräten und Isolierstoffen
- Unterstützung bei Entwicklungsprojekten
- Prüfung von Isolierstoffen für Motoren (e-Mobility)
- Kolloquien und Seminare

Technische Ausstattung

- Prüfquellen:
 - Stoßspannung 3 MV, 300 kJ
 - Wechselspannung 800 kV, 1A, 50 Hz
 - Stoßstrom 200 kA, 300 kW
 - Gleichspannung 800 kV, 100 mA
- Geschirmte Räume für Teilentladungsmessung und Teilentladungsortung
- Klimatisierte Messzellen für dielektrische Untersuchungen an flüssigen und festen Isolierstoffen
- Verlustfaktormesseinrichtungen: bei Hochspannung (50 Hz) und Niederspannung (10 Hz - 100 kHz)
- Nachbildung direkter und indirekter Effekte von Blitzentladungen
- Dauerversuchsstände für Materialuntersuchungen mit hohen Losgrößen
- Anlagen zur Herstellung von Prüfkörpern mit Kunststoffpressen, Extrudern und Harz-Gießanlage
- Umfangreiches Labor zur Analyse von Isolierflüssigkeiten sowie von gelösten und ungelösten Gasen



eos
TRUSTED PURITY

Extend transformer life with oil regeneration

Avoid long outages and “deep clean” your transformer insulating system (oil and paper) using on-site regeneration to extend asset life. Electrical Oil Services (EOS) is a leading specialist in transformer oil treatment and regeneration, and can offer a complete solution:

- ◊ Vacuum filling of new transformers with oil drying and degassing
- ◊ Transformer life extension with on-site regeneration
- ◊ Reconditioning of transformer oil in service
- ◊ Comprehensive laboratory and technical support
- ◊ Closed-loop model for collecting, storing and reclaiming used transformer oil (including PCB removal) to as-new oil quality (IEC 60296)

For more than 60 years, we have supported the electricity supply industry and large industrial energy users in conserving valuable resources. Purity you can trust.



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



Gas volume sensor (NM-series):

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

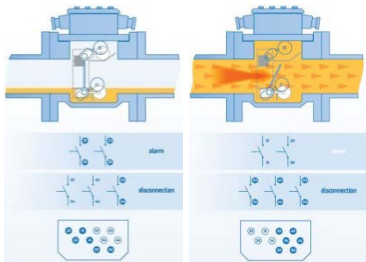
Temperature sensor:

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

Moisture-temperature sensor:

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

BUCHHOLZ RELAY WITH SEPARATE SIGNALS TO IDENTIFY THE DIFFERENT FAILURE TYPES



- Possibility to distinguish between oil loss and oil surge by means of the signals for the end user
- Also available with mechanical pre-alarm system for earlier detection of gas accumulation
- Up to 6 independent contacts for alarm & disconnection

Monitoring relay ÜRF for tap changer with automatic degassing



- Pressure release at tap changers with permanent gas accumulation
- The valve actuates automatic depending on the quantity of gas in the breather
- Up to four independent contacts
- Also available with manual bleeding valve

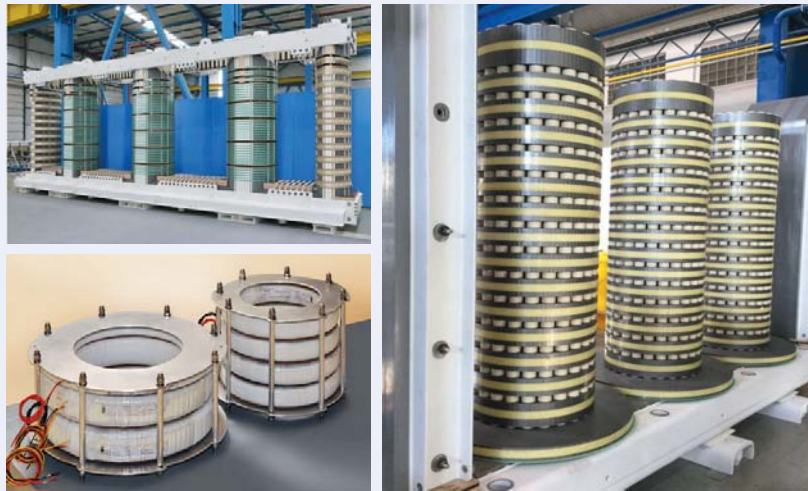
Buchholz gas tester BGT 4.2



- 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

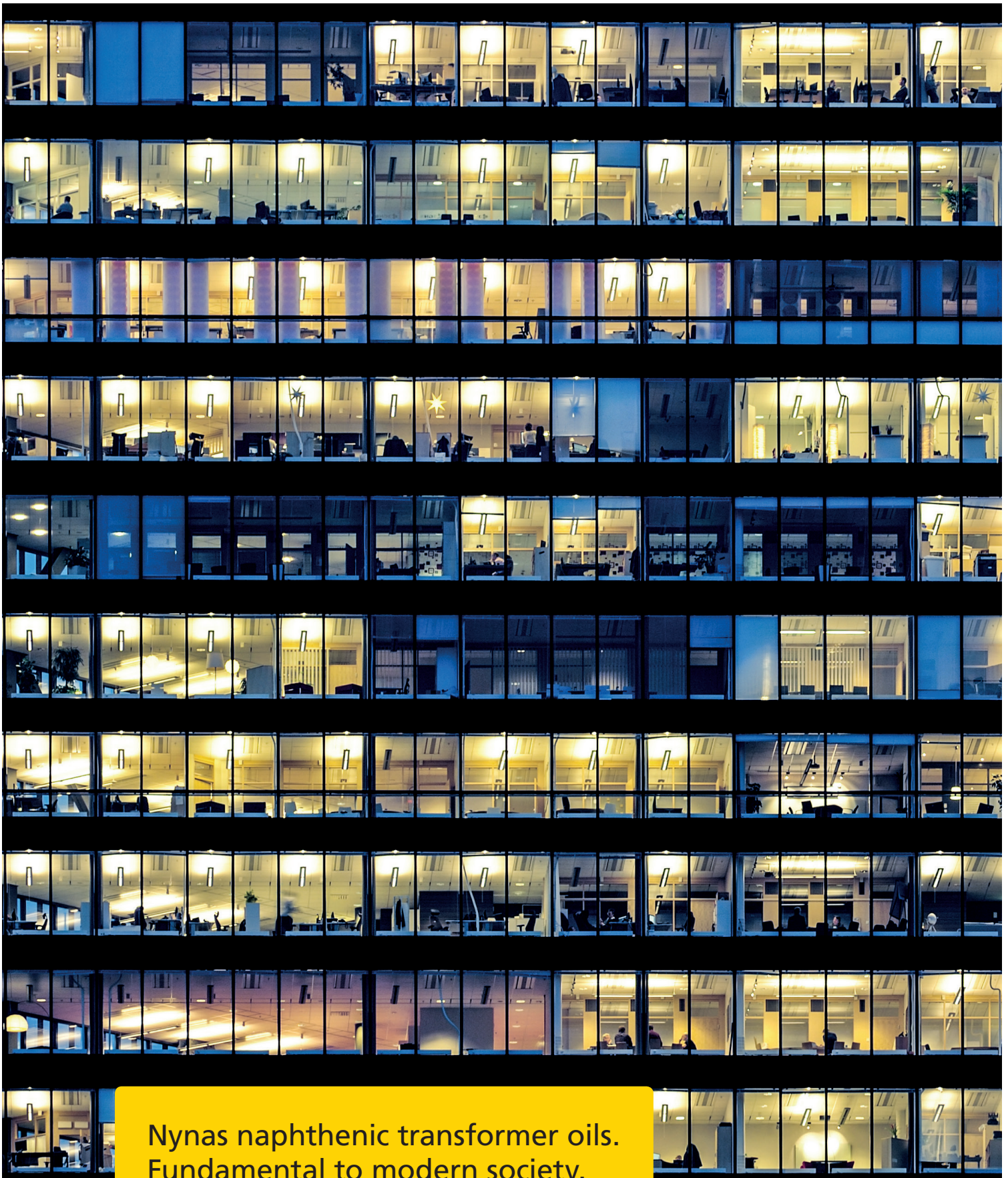
ENPAY TRANSFORMER COMPONENTS

WE'VE ALWAYS BEEN AHEAD OF THE CURVE



ENPAY
Transformer Components **40** YEARS
www.enpay.com

ENPAY is a game-changer in Transformer Industry with its plants located in Turkey, India, Slovakia and Bulgaria. Having a wide range of products enables ENPAY to provide the most forward thinking and innovative solutions to its customers worldwide with an unsurpassed performance.



Nynas naphthenic transformer oils.
Fundamental to modern society.

Continuous operation of the power grid is something we all rely on. With our wide range of reliable and sustainable transformer oils, you can always achieve peak performance for all voltage levels and all locations. Curious to find out more? Visit our website or contact your local Nynas sales office.

www.nynas.com > transformer oils

