Advanced Solution to Transformer Life Cycle Management

Optimize your transformers life time cycle from spec. to scrap through implementation of life management and life extension strategies

29th – 31st October 2018 | Kuala Lumpur, Malaysia

*Don’t trust your Lab’s data  *Don’t trust your standards  *Trust only the logic and the physical truth

Energy1asia.com
This 3-day workshop aims to provide a thorough understanding of transformer life management and life extension strategies. Understanding of transformer characterization and working principle will be the essential foundation before proceeding with development of management strategies. Overview of transformer design and mechanical construction will also be presented to give comprehensive representation of transformer’s features. The trainer will also focus on the cycle from purchasing to commissioning of a new transformer as this will ensure the correct design and quality from beginning.

Following that, various implementations of new diagnostic techniques will be presented. Systematic and detailed studies on each diagnostic technique along with appropriate interpretation of these studies will lead to early detection of transformer failure. Subsequently, a certain degree of preventive actions can be implemented for such condition. This workshop will also include a study of “Substance assessment of transformer”. The relation of the technical assessment and financial assessment will also be covered in this training as engineers nowadays have to look after the financial point.

Delegates will have an opportunity to learn useful methods to assess transformer’s useful lifetime strength. Furthermore, acquisition of latest practical knowledge and application with regards to transformer optimization, i.e. “Optimized Asset Exploitation (OAE)” will also be one of the highlights of this workshop. The course facilitator will attend to specific queries and provide practical recommendations for particular transformer condition. Overall, this workshop will serve as a platform as an advanced course to answer the needs for optimized transformer operation in various industries.

MASTER the necessary knowledge and complexities of:

- **UNDERSTANDING** basics knowledge about transformer design, variations, and types in order to understand the specific background.
- Critical evaluation measurement results for condition assessment
- **MAINTENANCE** strategies time base, event based, condition based in connection to the above the actual ageing condition will be clarified and the ageing behavior of transformers discussed.
- **How to understand and deal** with ageing behavior with preservation schemes and residual life time calculations.
- **ECONOMICS versus ECOLOGY** will be discussed in order to give the attendees also the necessary knowledge to defend the minor investment in monitoring and preservation as necessary effort in order to prevent their company from bigger losses by unforeseen break downs or even fatal catastrophes.
- **IMPROVE** life extension strategies and treatment ageing of transformer
- EXAMPLE: There will show on base of examples and case studies what is possible, what can be done and last not least, what is the profit of a well-planned Transformer population management.

**DURING THE 3 DAY SEMINAR** the trainer will be focusing on 5 crucial points:

- Don ´t trust! Be able to understand right from wrong - [Be able to have your own judgment!]
- Really understanding your transformers condition - [Be on same level, as your partners from the OEM side]
- Optimize the maintenance - [Focus your maintenance on the real important things!]
- Avoid unnecessary actions - [Avoid Aimless activism]
- Focus on the real facts - [Believe is a forbidden word in engineering]

This program is intended for:

This workshop is specially designed for those who are involved in developing and implementing life maintenance strategies of transformers in their plant. These include:

- Maintenance Managers/ Supervisors/ Engineers
- Facilities Managers/ Supervisors/ Engineers
- Utility Managers/ Supervisors/ Engineers
- Plant Maintenance Head
- Plant Supervisors/ Managers/ Engineers
- Electrical Maintenance Managers/ Engineers
- Electrical and Test Managers/ Engineers
- Head of Engineering
- Manufacturing and Production Managers/Supervisors/Engineers
- Operations Managers/ Supervisors/ Engineers
DAY 1

Transformer life cycle management
- How to specify a transformer
- Cooling systems
- The new transformer a risk
- Transformer basics
- Transformer design.

Purchasing transformers:
- Factory audit for prospective manufacturers
- Control points at manufacturing
  - Design control
  - Parts before active part completion
  - Pre-tanking inspection
  - FAT with fingerprints SFRA + FDS

At and after commissioning:
- Control measurements including SFRA + FDS
- Control of gassing behavior
- Control of temperature behavior

DAY 2

Transformers in service and maintenance strategies:
Time based versus condition based maintenance:
- Understanding ageing condition and ageing accelerators like DGA and oil condition development under ageing conditions.
- Don’t trust your Lab
- Understanding measurement results
- Dealing with the ageing accelerators
  - Improving of the life time and the reliability
- Transformer Maintenance
- Transformer treatments

Mapping vs. Assessment
- Corrosive Sulphur PAS
- Water in Transformers
- Oxygen in transformers
- DP profiles
- Critical view on standards and limit values

DAY 3

The case studies are focused on giving examples to the above discussed topics. On real examples will be shown, how wrongly understood limit values can produce false alarms on the one hand and wrongly maintained transformers will give harmless data, even they are found in critical condition.

- Several case studies focusing on the discussions in the first two days.
  - CO/CO2 cellulose destruction – no problem
  - Auxiliary transformers in several Power plants- life time evaluation/extension
  - Transformer failure root cause investigation -how to deal with the other identical units
  - GSU transformer failure understanding defending in front of insurance
  - Power plant auxiliaries health care planning
  - GSU transformers improving life time
  - Grid transformer which method for health care
  - Understanding condition of GSU transformers
- How to manage a transformer population
- EOL (End – of Life) conditions
- Tools and life time improvements
- Final discussion of issues from the attendees

Conclusion

Energy1 is a sub-division of PETRO1 focus on provide trainings & technical Consultancy services. We help decision makers apply high level technical expertise to their daily task and strategic issues across a host of industries and disciplines including energy, manufacturing, maritime, defense, Aviation, Water treatment and chemicals. With this, we had successfully made impact to Energy professional mainly the Top 50 Energy players in the Asia Pacific Region

- Metropolitan Waterworks Authority Thailand.
- Tenaga nasional berhad.
- San Fernando Electric Light & Power co, Inc
- Sarawak Energy
- SP Powergrid ltd.
- Power Seraya
- SMT Technologies
- Star Energy Geothermal
- Perbadanan bekalan air pulau pinang
- Aliran ihsan resources berhad
- Visayan Electrical company
- Glow Company
- Suruhanjaya Tenaga
- Indah Water Konsortium
- Jimah 0&M
- Renesas Semiconductor
- Sandisk Storage
- Muehlbauer
- Dominant OPTO Technologies
- Finisar Malaysia
- Sammina System
- Bose System
- Amkor Technology
- EDMi Electronics
- AUO SUNPOWER
Georg’s expertise

- Veteran expert with over 30 years of working in the transformers sector.
- Pioneer in the field of overaged transformers.
- Area of strength covers specifically in transformers conservation, life assessment, TPM, condition assessment, failure assessment, Root-cause assessment, refurbishment, manufacture audit, DP profile, Residual lifetime management, lifetime extension, lifecycle assessment, Maintenance improvement program and many more.
- Worked with full range from small distribution transformers 6-20/0.4kV 400-3000 kVA to big transformer 220-800kV up to 800MVA in all applications.
- Previously work for some of the major transformer manufacturing company such as Maschinenfabrik Reinhäuser, Siemens, and ABB.

Georg Daemisch has over 30 years of experiences in dealing with transformer management. Currently the Owner and Managing Director of DIDEE GmbH (Daemisch Industriedienstleistungen GmbH) and DTC (Daemisch Transformer Consult) in Germany, he has successful track record in providing transformer consultancy all around the globe. His consultancy services exclusively specialize in the areas of condition assessment, ageing behavior, life enhancement and substance evaluation of medium to very large transformers. For each consultancy service, he conducts specific condition assessment to develop customized life management strategies suitable for the transformer. In various countries, he has provided consultancy services to a large number of transformer fleet owners. Through his roles in these major companies, he has gained comprehensive knowledge on different types of transformer, ranging from small to large power transformers.

**Eurotechcon**

Being a renowned author in this field, Georg has published numerous papers in view of transformer life management. Some of his outstanding works are “The Aged Transformer Diagnosis, Treatment and Life Management, 2003-2004”, “Ageing behavior, substance evaluation and conservation of power transformers, 2005”, as well as “Transformer population Management (TPM), 2006.” He has also been a regular presenter in various prestigious workshop and conferences in this industry, such as Eurotechcon 2009, CIGRE 2009, and many more.

**Early Days:**

Georg was a graduate from Karlsruhe University, Germany as Dipl. Ing. In Electrical Power Engineering. His educational background had supported him in his early career stage and gave him opportunities to be lead sales engineer in major transformer manufacturing companies, such as Maschinenfabrik Reinhäuser, Siemens, and ABB.

After working for several renowned manufacturers on generally international missions, he decided in the 90s of the previous century to pioneer the field of overaged transformers. Based on the general problem of moisture-logging in overaged oil-cellulose systems, he was instrumental in developing an understanding of the entire complex ageing process of these systems and for continuing the development towards a holistic population management. The experience gained from these projects are continuously added to the overall expertise and developed further for the customer’s benefit.

**Georg Involvement in vary type of transformers application:** GSU, Rectif+ Feeder, Grid Coupler, Step up Eolic Parc, Substation, Grid, Furnace, Aux, Distribution, Rect, Distribution industrial, interbus couplet, traction, Power plant auxilleries, Rectifier, CHP, Power plant, Single phase banks, Auto and etc.

**Companies which have benefited from his expertise include:**

**Europe:** ABB, Germany - Pechiney, Greece - Siemens, Germany - Solvay, Belgium - Vattenfall, Germany.

**Middle East and Africa:** ALBA Aluminum, Bahrain - BABCO, Bahrain - Div. El Companies, Egypt - EON Hydropower - Israel Electric Corporation, Israel - Khousestan Steel, Iran - Khuzistan Water and Power Authority (KWPA) Power Plants, Iran - Ministry of Electricity and Water, Dubai - Mobarakhe Steel Plant, Iran - Saudi Electricity Company, Saudi Arabia - Suweihat Power Plant, Abu Dhabi - TAVANIR, Iran

**Asia:** India Div. Power stations + substation transfers - Malakoff, Malaysia - PT April asia Sumatra, Indonesia - PT International Nickel Indonesia Tbk, Indonesia - Tenaga Nasional Berhad, Malaysia - Tuticorin, India.
**Program Details**

Venue: Kuala Lumpur, Malaysia  
Date: 29th – 31st October 2018

**Register 3 and Send the 4th Free**

- Please note that all registrations must be made at the same time to qualify.
- The investment fee includes course materials, tea breaks, and lunch.

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