CIGRE Study committe A2

PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP

WG A2.83

NAME OF THE CONVENOR
SCHREITER Sebastian (GERMANY)

TITLE
Dry Type Transformers Life Cycle Management

THE WG APPLIES TO DISTRIBUTION NETWORKS: YES

ENERGY TRANSITION
5 / Grids and Flexibility
6 / Solar PV and Wind

POTENTIAL BENEFIT OF WG WORK
1 / commercial, business, social, economic benefits

STRATEGIC DIRECTION
2 / Making the best use of the existing systems

SUSTAINABLE DEVELOPMENT GOAL
7 / Affordable and clean energy

BACKGROUND :

The majority of power transformers worldwide have a rated power below 20 MVA. In this area three types of transformers can be distinguished: liquid insulated transformers, dry type transformers and gas insulated transformers, the latter having a negligible share. Due to the energy transition worldwide especially in wind and solar applications the number of these low voltage transformers is increasing drastically. Therefore, the demand for both liquid and dry type transformers will increase as well, which will continue for the next decades. Furthermore, in addition to their use in electrical grid, dry type transformers are installed today in many different areas like rolling stock, industrial applications, energy storage systems, and others. However, in contrast to liquid filled transformers there are almost no guidelines for the life cycle management of dry type transformers available, although they are becoming more and more important. Therefore, it would be helpful for current and future operators to get comprehensive information on both basic knowledge and experiences for the different life stages of dry type transformers, using epoxy resin as main insulation system, from procurement to disposal.

PURPOSE / OBJECTIVE / BENEFIT OF THIS WORK :

The goal of this working group is to prepare a guide for the whole life cycle of dry type transformers. This new Working Group will foster the exchange of knowledge and best practices, with the aim of helping operators better understand how dry-type transformers can be used. This may likely result in higher efficiency and reliabilty in their operation, leading to improved grid performance. Building on this guide, future discussions between users and manufacturers may lead to optimized designs, longer service life and higher sustainability of dry-type transformers.

SCOPE :

The focus will be on transformers with epoxy resin insulation systems, considering the following aspects:

Comparison dry type vs. liquid filled transformers:

- Advantages/Disadvantages
- Typical applications
- Requirements for the installation site

- Environmental aspects/CO_2-Footprint
- Efficiency and TCO (total costs of ownership)

Specification and procurement
Design and production (also different categories of dry type transformer)
Quality aspects and factory acceptance test (FAT)
Transportation and SAT
Installation and commissioning
Operation:

- Environmental conditions
- Overload and overvoltage stress
- Stress by current and voltage harmonics and transients
- Mechanical stress by highly fluctuating loads
- Ageing
- Condition Assessment and monitoring
- Typical failures - Detection and Analysis

(Preventive) maintenance and repair
Spare parts management
Asset Management Strategies
De-commissioning and scrapping
Recycling / upcycling

Reference documents:

IEC-60076-11: Power transformers - Part 11: Dry-type transformers
CIGRE TB 962 Guide for Transformer Maintenance

DELIVERABLES AND EVENTS

Deliverables Types

Annual progress and activity report to Study Committee
Electra report
Technical Brochure and Executive Summary in Electra
Tutorial
Webinar

Time schedule

Q4	2026	Recruit members (National Committees, WiE, NGN)
Q1	2027	Develop final work plan
Q3	2029	Draft Technical Brochure for Study Committee review
Q4	2029	Final draft Technical Brochure
Q2	2030	Tutorial
Q2	2030	Webinar

APPROVAL BY TECHNICAL COUNCIL CHAIRMAN:

Rannveig Loken
July 15th, 2026