



Dear readers,

The January edition of Transformer Magazine opens the year with reflection, realism, and a forward-looking perspective. After a period of exceptional growth and sustained pressure across the industry, this issue focuses on what comes next: how the transformer sector adapts its strategies, technologies, and thinking to remain resilient in a more complex and demanding environment.

We are starting the year with reflection, realism, and a forward-looking perspective

We begin with an interview with the managing directors of Maschinenfabrik Reinhausen, who look ahead to the company's next century. Their discussion goes beyond technology to address responsibility, long-term thinking, and the role of manufacturers in enabling the energy transition. Topics such as regional market shifts, capacity expansion, digitalisation, and sustainability are approached with a clear awareness of the balance between innovation and reliability that the industry depends on.

Strategic reflection continues in the new Industry trends column, which examines the period following market booms. Drawing on past cycles and current signals, it explores structural risks now becoming visible, from supply chains and workforce availability to investment decisions and long-term resilience. The question is not whether growth will continue, but how prepared the industry is for its consequences.

Another interview takes a candid look at recent developments in the electrical steel market. Marcel Hilgers of thyssenkrupp Electrical Steel explains the factors behind the temporary shutdowns in Germany and France, placing them in the wider context of global competition, market distortion, and the risk of repeating patterns seen in other energy-related industries. His perspective offers a timely reminder that industrial strength cannot be taken for granted.

Several contributions in this edition address the technical foundations of transformer reliability. Vitaly Gurin and Oleg Svrydenko open a new series on core and frame insulation, tracing the evolution of failure mechanisms from historical bolt issues to today's grounding-related faults. Their analysis high-

lights the importance of systematic data collection and robust grounding design. Zoran Radaković, Marko Novković, Patrick Picher, and Federico Torriano present the first part of their work on dynamic thermal-hydraulic network models, showing how detailed, physics-based modelling can support operational decision-making and act as a thermal digital twin under variable loading conditions.

Recent scenarios underline a hard reality: industrial strength does not sustain itself without deliberate investment and long-term strategy

Condition monitoring and sustainability form another strong theme. Bhaba Das proposes embedding carbon declarations directly on transformer nameplates, arguing that transparency at this level could reshape procurement and sustainability accountability. Traci Hopkins from H2scan presents a case study from the Caribbean that demonstrates how continuous hydrogen monitoring can reveal developing faults far earlier than traditional maintenance intervals allow.

Two contributions address the growing role of artificial intelligence from different angles. Tony McGrail examines the danger of spurious correlations, particularly when amplified by AI tools that appear confident but lack understanding. Douglas Maly's experiment with an AI-written technical paper, rejected through peer review, further illustrates where current systems fall short of professional engineering standards.

We also include insights into practical maintenance through Micafluid's contribution on sustainable oil treatment, a report from My Transfo 2025 highlighting knowledge-driven collaboration, and a preview of CWIEME Berlin 2026, where manufacturing, materials, and power engineering continue to converge.

We hope this first edition of the year offers clarity, perspective, and useful insight as the industry navigates the period ahead.

With best regards,

Mladen Banovic, PhD
Editor-in-Chief, *Transformer Magazine*

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