

Study Committee A2 Poster Session

Time slot: 14:00-16:00, Poster Locations: 1

PS1: Major challenges to the power transformer industry

- Impact of ageing fleet, new operating requirements and climate changes on the design, maintenance and reliability.
- Strategies to mitigate supply chain disruptions and skilled labor shortages.
- Sustainability (with C3) and Life Management: Transformer economics, Life Cycle Costing, Asset management practices, Eco-design. Life Cycle Assessment, circular economy.

PS2: Power Transformer digitalisation Journey

- User experiences, challenges and solutions with transformer data management: data collection, processing, exchange with different stakeholders/systems, confidentiality, and security.
- Innovative digital solutions for monitoring, diagnostics, modeling, designing, manufacturing, testing, maintenance and operation of transformers.

Study Committee A2 Poster Session

Time slot: 16:00-18:00, Poster Locations: 1

PS3: Failure prevention, detection and investigation

- Detailed case histories of failures including examples such as component issues, short-circuits, moisture, dielectric breakdowns, paper degradation, material compatibility problems, etc.
- Guidelines for conducting investigations: Root Cause Analysis (RCA) including testing and troubleshooting procedures.
- Predictive maintenance: Best practices for monitoring, diagnostics, and prognostics.

14:00-16:00 Session

ID	PS	Title	Speaker	Time	Panel Number
10146	PS1	Pilot project with recycled copper from a scrapped transformer	Christophe PERRIER	14:00	1
10148	PS2	Power transformer dry type bushing embarking combined low power instrument transformers. Impact of the mutual influence on the accuracy	Eyman FAKHRI	14:00	39
10149	PS2	Digitalization of transformer data for enhanced lifecycle management	Rémi DESQUIENS	14:00	40
10192	PS1	Reimagining Power Transformer Design: Standardization Strategies to Reduce Lead Times, Mitigate Supply Chain and Labor Challenges	Dharam VIR	14:00	2
10201	PS1	Review of High Voltage failure risks under expanding supply chains: Case of Directed oil flow Transformers	Dr. Govind SRIVASTAVA	14:00	3
10202	PS1	Powering the RE Push: A Strategic Procurement Framework for Transformers and Reactors in India's Energy Transition	Priyanka GUPTA	14:00	4
10205	PS1	Comprehensive Life Cycle Assessment and Carbon Footprint Evaluation of EHV Transformers: A Case-Based Approach	Deo Nath JHA	14:00	5
10207	PS2	Development of a Digital Mirror for Power Transformers and Reactors	Deo Nath JHA	14:00	41
10209	PS2	Leveraging Artificial Intelligence for Transformer and Reactor Health Assessment and Aging Estimation Amandeep SINGH* Richik Manas DAS Gunjan AGRAWAL Abh	Amandeep SINGH	14:00	42
10220	PS2	AI Boosted Transformer Life Management	Luiz CHEIM	14:00	43
10253	PS1	Strategic Acquisition of Transformers and Reactors: Optimizing Delivery Timelines, Managing Supply Chain Risks, and Workforce Constraints	Richik Manas DAS	14:00	6
10270	PS2	Dynamic Transformer Rating (DTR) on large three winding power transformers in the transmission grid of the Netherlands	Roos SCHELLEVIS	14:00	44
10279	PS1	Upgrading a Spare Transformer by Improving its Thermal Performance Using Bio-based Hydrocarbon Oils	Rory LEICH	14:00	7
10385	PS2	Digital Twin for Transformer Moisture Management: Closing the Loop from Sensing to Action	Oleg ROIZMAN	14:00	45
10493	PS1	Redefining Transformer Operating Requirements: A Temperature Based Approach to Mitigate Silver Sulphide	Adam SULEIMAN	14:00	8
10645	PS1	Transformer Life Extension: GSU Transformers at Tucuruí Dam. Case Study Around Vital Role in Sustainability, Resilience and Reliability.	Mario HARADA	14:00	9
10658	PS1	Dielectric Withstand Evaluation for Shunt Reactors due to Disconnect Switching Transients	Juliano MONTANHA	14:00	10
10661	PS1	Analysis of High Frequency Electromagnetic Transients in Transformer Windings through White Box Modelling and Experimental Measurements	Tiago Bandeira MARCHESAN	14:00	11
10706	PS2	A proposed data model for a standardised power transformer nameplate, design and parameter dataset	Carl WOLMARANS	14:00	46
10707	PS2	Leveraging data and metadata for effective deployment of AI/ML in transformer monitoring and diagnostics	Carl WOLMARANS	14:00	47

14:00-16:00 Session

ID	PS	Title	Speaker	Time	Panel Number
10750	PS1	Transformer Loss of Oil Lockout (LOL) Enhancing Grid Resiliency Against Physical Attacks	Sean FITZGERALD	14:00	12
10758	PS1	Innovative Technology of Site Assembly Transformer: Overcoming Transportation Challenges for Large Power Transformers	Masayuki HABUKAWA	14:00	13
10760	PS1	66 kV-20 MVA Gas insulated Transformer Using Natural Origin Gas (N ₂) with Reduced Environmental Load and Improved Maintainability	Naoki NOGUCHI	14:00	14
10761	PS1	Evaluation of Temperature Rise and Insulating Paper Lifetime in Retrofilling Transformer with Natural Ester	Taisei HOMMA	14:00	15
10762	PS2	Development of Transformer Monitoring Device using IoT technology for Condition Based Maintenance	Takayuki KANAMORI	14:00	48
10771	PS1	A South African case study on transformer procurement process optimization for a constrained global supply chain value	Mantsie HLAKUDI	14:00	16
11015	PS1	Real Case Study Assessment of Technical, Environmental, Social and Financial Benefits of Dry-Type Air Core Reactor Technology	Leonardo do N. PEREIRA	14:00	17
11052	PS1	Transformer Load Losses prediction by means of Finite Element Method Simulations and Machine Learning	Lorenzo CANTINI	14:00	18
11053	PS1	Terna requirements for Short Circuit Withstand Test	Simone SACCO	14:00	19
11054	PS2	Power Transformer Digitalisation. Terna approach on BIM	Enrico ROTOLO	14:00	49
11092	PS2	Improving thermal-hydraulic modelling accuracy in CORE-Type transformers: a dynamic THNM approach.	Beatriz OLIVEIRA	14:00	50
11093	PS2	Addressing key design challenges through digital modelling of dissociated phases phase-shifting transformers	Mário MAIA	14:00	51
11094	PS2	Modelling the thermal-hydraulic behaviour of shell-type power transformers: on the influence of fluid properties in OD and ON cooling modes	Sandra COUTO	14:00	52
11355	PS2	Cooling Pattern Optimization for shell-type power transformers	Pedro QUINTANILLA	14:00	53
11422	PS1	Advancements in Resiliency Transformers: Case of a 58/65/93 MVA Reconfigurable Area Station Transformer	Radoslaw SZEWCZYK	14:00	20
11453	PS1	Establishment Method of Correction Factors for Noise Level Prediction about 500 kV Combined Transformers Based on Field Measurement Analysis	Donghui WANG	14:00	21
11489	PS2	Development of a Digital Twin-Based Transformer Partial Discharge Diagnostic System	Byoung-Woon MIN	14:00	54
11659	PS1	Calculation of Winding Eddy Losses in Converter Transformers Based on IEC 61387-1-2011 Formulations and FEM	Erkan AKYÜZ	14:00	22
11723	PS1	From Complexity to Efficiency: Standardized Transformer Procurement to Mitigate Supply Chain Disruptions	Andrés AGUADO	14:00	23
11730	PS1	Optimization Study of the Shear Moduli of Magnetic Foil-Sheet and Its Implication into the Noise Simulation	Lukasz MICHALSKI	14:00	24

14:00-16:00 Session

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11825	PS1	Studying Cold-Start Thermal Response of Oil-Immersed Power Transformers at Low Ambient Temperatures	Mohamed H. A. HASSAN	14:00	25
11828	PS2	Capacitive humidity sensors for transformer ageing monitoring	Henrik ENOKSEN	14:00	56
11862	PS2	Development of Digital Twin Technologies for Power Transformers: A Multi-Disciplinary Initiative at a Large Utility	Patrick PICHER	14:00	57
11865	PS2	Smart Transformers: An Integrated Solution for Grid Visibility and Asset Management in Renewable Energy and Data Center Applications	Luís Fernando SANCHEZ GOMEZ	14:00	58
11885	PS2	Transformer Test Bay Digitalization: Unified Platform for Workflow Automation	Filip RAZUM	14:00	59
11955	PS1	Maintenance Guidelines for Offshore Applications	Tobias STIRL	14:00	26
11985	PS2	Innovative Wireless Monitoring System for Air-Core Reactors – Experience from Field Deployment and Insights for Predictive Maintenance	Christoph KOHLBERGER	14:00	60
11987	PS2	Grid Load Optimization with Transformer Thermal Digital Twin	Fredi BELAVIĆ	14:00	61
12011	PS1	Dynamic Load Analysis of Sealing Mechanisms in Floating Offshore Structures	Genaro ANDREW MORLET	14:00	27
12113	PS1	An improved risk management model for a fleet power transformer through reliability asset condition and probability of failure using weibull analysis	Luis RESTREPO	14:00	28
12240	PS1	Carbon Footprint of Transformer Manufacturing	Bruno BOSNJAK	14:00	30
12241	PS1	Impact of Climate Change on Power Transformer Lifetime	Bruno BOSNJAK	14:00	31
12374	PS1	Advanced dry-type transformer design solution for hyperscale AI-datacenter application	Michal SVOBODA	14:00	32
12378	PS2	Transformer health index calculation using evidence theory and considering online monitoring data and machine learning	Oliver RESING	14:00	62
12405	PS2	Digital Fingerprinting of OLTCS via Vibro-Acoustic Measurements During Factory Acceptance Testing	Martin AUERHAMMER	14:00	63
12412	PS1	Experimental Investigation and Field Validation of a Chemical-Based Oxygen Reduction Method for Oil-Immersed Power Transformers	Mahmoud MOH'D	14:00	33
12418	PS1	World's largest 765 kV ester transformer for enhanced safety and environmental protection in electrical grids	Dejan VUKOVIĆ	14:00	34
12438	PS1	Novel Method for dielectric Integration of Integrated Tap-Changer based on 3D-FEM Simulation for compact transformer design	Sebastian REHKOPF	14:00	35
12493	PS2	Transient Voltage Analysis of a Large 250 MVA Three-Winding Transformer with a Frequency-Dependent Modeling Approach	Morteza ESLAMIAN	14:00	64
12494	PS1	Assessing the impact of low carbon materials on a dry type transformer: Case study of a 1.6 MVA transformer	Diana GONZÁLEZ	14:00	36

14:00-16:00 Session

ID	PS	Title	Speaker	Time	Panel Number
12597	PS2	Measurement-Based Electromagnetic Modelling of Phase-Shifting Transformers with Limited Design Data	Alexander FRÖHLICH	14:00	65
12607	PS1	Modelling No-Load Losses in Distribution Transformers: A Comparison Between Physical and Machine Learning Approaches	Mehrdad KIANI-OSHTORJANI	14:00	37
12616	PS2	Power Transformer Modelling and Advanced Intelligent Techniques for Inrush Current Minimization Studies	Jone UGARTE-VALDIVIELSO	14:00	66
12624	PS1	Electromagnetic design of a Thyristor-Controlled Transformer for Dynamic Reactive Power Control	Alessio SANTACROCE	14:00	38

16:00-18:00 Session

ID	PS	Title	Speaker	Time	Panel Number
10145	PS3	Short-circuit failure experience . Comparison of reliability depending on validation process	Jean-Christophe RIBOUD	16:00	1
10150	PS3	Online monitoring of RIP Bushings for early failure detection	Damien BORTOLOTTI	16:00	2
10238	PS3	Diagnosis of fault in Shunt Reactor attributed to Core Electrostatic Shield: A Case Study Analysis	Sumit S H RAY	16:00	3
10244	PS3	Predictive failure forecast using Exponential Time-Series modelling of Dissolved gases in Converter Transformers	Deo Nath JHA	16:00	4
10248	PS3	Failure detection, investigation and root cause analysis of 420KV Line Reactor in POWERGRID	Rajiv RANJAN	16:00	5
10250	PS3	Failure Analysis of Shunt Reactor during Switching & Line Faults in POWERGRID	Gunjan AGRAWAL	16:00	6
10252	PS3	Predicting Fatigue Damage and Vulnerability of a Shunt Reactor Due to Structural Vibrations	Dr Pramod SHARMA	16:00	7
10255	PS3	Predictive analysis using machine learning modelling of digital twin of a Power Transformer	Reeni Rafi ALAPATT	16:00	8
10272	PS3	Localization of Partial Discharges and Dielectric Disturbances During Factory Acceptance Testing of Power Transformers Using Fiber Optic Acoustic Emission Sensing	Stefan VOETEN	16:00	9
10345	PS3	Failure Analysis and Teardown Inspection of Transmission Shunt Reactor in High Impedance Complex Transmission Network Power System	Mohsin BHATTI	16:00	10
10386	PS3	Demonstrating Moisture as a Major Contributor to Transformer Failures: The Elusive Link Revealed Through Detailed Case Studies	Paul GREY	16:00	11
10497	PS3	Impulse Voltage Distribution and Transferred Surge in Transformer Winding with Series Reactor – a Case Study	Arunkumar BOHRA	16:00	12
10660	PS3	Thermal Performance Assessment of Power Transformer Winding Through Experimental, Analytical and Numerical Analysis	Tiago Bandeira MARCHESAN	16:00	13
10663	PS3	High-Frequency Transient Studies: Modelling Transformers and Reactors from Field Measurements and Design Data	Odirlan IARONKA	16:00	14
10685	PS3	Electromechanical Assessment of Power Transformers Based on Novel Offline Testing Techniques	Diego M. ROBALINO	16:00	15
10763	PS3	Influence of Harmonics and Load Fluctuations on Dissolved Gas Analysis for Oil-Filled Transformers Connected to Photovoltaic Power Generating Systems	Hajime YOSHIKAWA	16:00	16
11028	PS3	Case Studies on Diagnostic Integration: Challenges and Findings in the Condition Assessment of 500 kV Transformers and Reactors	Raúl ALVAREZ	16:00	17
11029	PS3	Guidelines for Root Cause Analysis of Failures in Transformers Connected to Wind Turbines	Raúl ALVAREZ	16:00	18
11095	PS3	Artificial intelligence enhanced online condition monitoring of On-Load tap changers in power transformers based on electrical signature	Gonçalo ABRANTES	16:00	19

16:00-18:00 Session

ID	PS	Title	Speaker	Time	Panel Number
11263	PS3	From Prediction to Reality: Assessing the Predictive Value of Transformer Asset Health Index Models	Marius GRISARU	16:00	21
11269	PS3	Improvement of a tap changer condition-monitoring approach for predictive maintenance purposes	Sidwell MTETWA	16:00	22
11279	PS3	Experience with Transformer and Shunt Reactor Failure Investigation at a Large Transmission Network Operator	Simon RYDER	16:00	23
11357	PS3	Impact of switching transient overvoltages in dry-type transformers	Víctor M. GARCÍA	16:00	24
11487	PS3	Dynamic Calculation Method for Transformer Short-Circuit Considering Cumulative Effects	Peng LI	16:00	25
11508	PS3	Analysis of DGA Data of Wind Farm Transformers Filled with Synthetic Ester	Muhammad DAGHRAH	16:00	27
11627	PS3	Optimum Utilization of Transformer online Monitoring Systems in Electricity Transmission Network (Kahramaa approach)	Zuhair ALSHAIBA	16:00	28
11662	PS3	Case Studies of PD Measurement Experiences on Site Maintenance and in Workshop Fault Investigations of Oil-filled Power Transformers and Shunt Reactors	Mükremin YANAN	16:00	29
11716	PS3	Update of a design pressure equation for power transformers under high-energy arcing faults	Jean-Bernard DASTOUS	16:00	30
11718	PS3	Design and Manufacture of an Arc-resistant 250 MVA, 735 kV Transformer with Reinforced Side Turrets	Samuel BRODEUR	16:00	31
11719	PS3	Transformer Short Circuit Failure Case Histories	Ed TENYENHUIS	16:00	32
11735	PS3	Dynamic Analysis using FEM and SC-Withstand Test for Verification of Short Circuit Withstand Capability of a 600MVA, 405kV Auto-Transformer	Dong-Hyeon KWAK	16:00	33
11893	PS3	Advanced Diagnostics and Failure Prevention in Power Transformers: Dual Case Study Investigations of Magnetic Flux Leakage and Cellulose Insulation Degradation at Samra Electric Power Company (SEPCO), Jordan	Yousef MASHAGBEH	16:00	34
11980	PS3	Phase Shifting Transformer On-Site Testing – Best Practice	Dennis ALBERT	16:00	36
11981	PS3	Avoiding Spiraling Effects on Helical Windings with Appropriate Dynamic Axial Short-Circuit-Force Calculation and Evaluation Methods	Gergely KOCZKA	16:00	37
11984	PS3	Artificial Intelligence and Classical Methods in DGA Interpretation - Hybrid Approaches for Practical Transformer Condition Assessment	Alexander PIRKER	16:00	38
11990	PS3	Power Transformers Operational Safety Improvements	Maciej LECHMAN	16:00	39
11991	PS3	Systematic Approach for Condition Assessment of Dry-Type Transformers based on Partial Discharge Measurements	Bernhard ENGSTLER	16:00	40
12048	PS3	Optimization of reliability and safety in power transformers and reactors through advanced monitoring and data analytics	Elkin CANTOR	16:00	41
12056	PS3	Case Study on Fault Detection in Generator Step-Up Unit Transformers of Mae Moh Coal-Fired Power Plant Unit 14 Using Dissolved Gas Analysis	Jirasak LAOWANITWATTANA	16:00	42

16:00-18:00 Session

ID	PS	Title	Speaker	Time	Panel Number
12093	PS3	Evaluation on VFTO Phenomenon for Shunt Reactor and GIS Connected Transformer Bushing Applications	Soadih NANYAN	16:00	43
12094	PS3	Forensic Analysis on Alligatoring Cracking Phenomenon on Transformer Bushings Polymeric Insulators in Malaysian Power Utility Environment	Gobi Kannan SUPRAMANI AM	16:00	44
12318	PS3	Synthetic ester silver corrosion testing and corrosive sulphur removal demonstrated on power transformer	Jelena LUKIC	16:00	45
12337	PS3	Methods for Direct and Indirect Condition Assessment of Insulating Paper in Transformers	Tobias MUENSTER	16:00	46
12349	PS3	DGA as a Diagnostic Tool During No-Load Tests	Vesna RADIN	16:00	47
12431	PS3	Modern Condition Assessment Techniques for Power Transformers Connected to Renewable Energy Sources	Stefan TENBOHLEN	16:00	48
12432	PS3	Improved Reliability Through Advanced Short-Circuit Force Analysis in Transformer Windings: 3D magnetic field boundary conditions and dynamic effects	Kabir SETHI	16:00	49
12499	PS3	Investigation of a DN400 Large-Diameter Pressure Relief Valve: Design, Simulation, and Arc Fault Test	Jiaxi LI	16:00	50