

Mission – Conservation of Transformers

# TRAFO CARE

7<sup>th</sup> WORKSHOP ON TRANSFORMER

Knowledge Cluster initiative

www.trafocare.org



**MUMBAI - INDIA**

Feb 6-7, 2024

Tuesday & Wednesday



**FLEET  
MANAGEMENT  
RIP / RIS Bushings**

RETROFILLING

**MAINTENANCE  
STRATEGIES**

**ASSET  
MANAGEMENT**

**RESIDUAL LIFE ENHANCEMENT**

**OIL LEAK REPAIR** Scrapping of Transformers

## TRAFOCARE WORKSHOP ON TRANSFORMER

**TRANSFORMER FIRE & SAFETY**

Failure Analysis SWATCHH  
Bushings/OLTC TRAFO ABHIYAN

**ONLINE DRYING PARTIAL**

LIFE ENHANCEMENT DISCHARGE  
ANALYSIS

OGM Mantras

Keep it Tight **DISSOLVED GAS**

Keep it Cool **ANALYSIS**

Keep it Clean **HEALTH INDEXING**

Moisture in Transformers  
Operation & Maintenance

**ON-SITE REPAIRS**

**ESTER DIELECTRIC FLUIDS**

Platinum Sponsor

Gold Sponsors





## INVITATION TO SPEAKERS

We are in the process of requesting – speakers for O&M of power & distribution transformer from various utilities & Industries. After receipt of their confirmations, names will be updated on website and communicated by email.

## ABOUT TRAFOCARE

TRAFOCARE is a mission for conservation of transformers. India has a huge fleet of Transformers worth billions of dollars. Maintaining outside warranty transformers, hundreds or thousands of them, is a task for every utility & Industry. TRAFOCARE is an opportunity to have discussions (Gyansabha) on related topics, case studies, creating awareness, experience sharing on real life transformer issues, clarify doubts and get exposed to knowledge outside the organization.

TrafoCare objective is that the known knowledge is discussed and that should help the end users

- To maintain their outside warranty transformers well
- To maintain their new transformers well
- To decide on specs of buying new transformers

Venue for this general workshop moves within India from West, North, East and South locations for convenience of utilities and industries.

## WHY GENERAL WORKSHOP

At Trafocare delegates are in focus. Queries from delegates have more importance than completing the presentation. Presentations on various subjects are setting the context for discussions. At Trafocare we encourage discussions/interactions "Gyansabha"

Group of expert faculty & delegates from different organizations (utilities, industries, consultants, OEMs, Service Providers, Mentors) under one roof creates a master mind that increases the level of collective intelligence on the subject. General workshops at common places give time saving, cost sharing & Knowledge sharing advantage from outside of the organization.

Queries can continue even after the workshop on a whatsapp group moderated by Spark Group.




- Workshop on Transformers for Generator Transformers, EHV Transformers, Distribution Transformers & Inverter Transformers (Renewables )
- Operation & Maintenance
- 10 O&M Mantras
- Transformer Life Cycle Management
- Transformers failures & analysis
- Analysis of Bushing Failures
- RIP / RIS Bushings
- Role of RIP Bushings in Transformer Safety and Reliability
- Retrofitting Success stories, storage & handling of RIP Bushings
- Know your OLTC - Design, Principle & Maintenance Strategies
- Preventive maintenance
- Partial Discharge Analysis
- Dissolved Gas Analysis
- Moisture in Transformers
- Keep your transformers tight  
10 Stories of Oil Leak Repairs
- Key Diagnostic Tools to evaluate the condition of Transformer & FEMA - Failure Mode Effect Analysis
- Asset Management and Health Indexing of Transformers
- Tactical and Strategic Risk Management
- Transformers Fleet Management
- Impact of Moisture and Temperature on Mineral & Ester Oil.
- Aging of Paper & Mitigation Techniques
- Retrofilling of Transformers with Natural Esters
- Dielectric Fluids - Mineral Oil & Esters
- Onsite Transformer Repairs
- Scrapping of Transformers, relevant Indian Standard
- Role of Transformer in sustainable economy
- Transformer Fire & Safety
- Swachh Trafo Abhiyan
- Residual Life Assessment
- Residual Life Enhancement of Transformers
- Installation, Testing & commissioning
- Transportation - Safety precautions during transportation of transformer from factory to site
- Best practices for handling ( Lifting/ shifting etc.) of transformer during installation
- Storage of transformers
- Storage/ preservations of transformers while not in use / not commissioned
- Pre commissioning testing
- Final commissioning
- Routine Inspection of transformer & it's spare parts
- Case Studies
- Route cause of failure of transformer accessories

## UTILITY / INDUSTRY TX ISSUES

Utility / Industry are requested to send transformer related issues to team trafocare; We will do our best to cover it in respective speakers' topics. Also before and after the workshop, we will continue to work on the respective threads of issues.

Gyansabha is the best opportunity to discuss one problem from all angles of OEM, End user, Field expert, Lab Expert, Transformer component experts. Every problem may not have a quick solution that works for all. Some of the issues may need more involved work, field study n research, involvement of more parties which do not fit in regular course of business. Trafocare is committed to work in the direction of our mission for conservation of transformers, Swachh Trafo Abhiyan, Tx Fire & Safety and other issues highlighted by the utilities, industries and OEMs.

## WHO SHOULD ATTEND

- Engineers & Managers working in operation & maintenance of HV / EHV class Power Transformers, Generating Transformers, Inverter Transformers (Renewables)
- Engineers and Managers from Utilities (Central / State / Pvt).
- Engineers and Managers working Industries looking after any kind of Transformer.
- Asset Manager of electrical equipment, Condition Monitoring, Testing and Commissioning
- Project Engineers, Consultants, Service providers, Energy Auditors.
- Transformer Designers for design optimization
- O&M Engineers from Cement, Sugar, Oil & Gas, Refineries, WTP, Dairy, F&B, Pharma, Textiles, Defence, Chemical, Paper industries.
- O&M Engineers from Metro, Indian Railways, Airports,
- Seaports, Docks
- Research Labs, Testing Labs, CEA, BIS, Academic Institutes, Smart City Planners
- Manufacturers and Suppliers of Transformers / Raw Materials/ Components / Accessories.

## MENTORS OF TRAFOCARE 2024



### MR. SURINDER KUMAR NEGI

President & CEO- SkipperSeil Ltd  
Former Managing Director of GETCO

**Mr. Negi** has been chiefly involved in the transmission and distribution segments of the power sector in both public and private sector companies. He has contributed significantly in the execution of many extra high voltage AC and HVDC stations and transmission lines, in the design and engineering of EHV substations, and in the implementation of project management practices. He established the design and engineering process for ISO 9001-2000 and has been a member of many expert groups including transformer maintenance and cost-effective design and engineering solutions for renovation and modernization in T&D. He played a key role in introduction and implementation of smart grid technologies in T&D sector, namely Process Bus Digital Substation, new generation Conductor, OPGW Communication, polymer insulator, Hybrid Switchgear, Ester oil, Asset Management, PMU's etc.

Before joining Skipper, he was Managing Director of Gujarat Energy Transmission Corporation Limited (GETCO) and also served in NTPC, POWERGRID and Alstom T&D.

#### Mr Ajay Joshi, Director - Knowledge Cluster

With 30+ years of management experience in corporate as well as social level, Mr Joshi mentors team of knowledge cluster team.



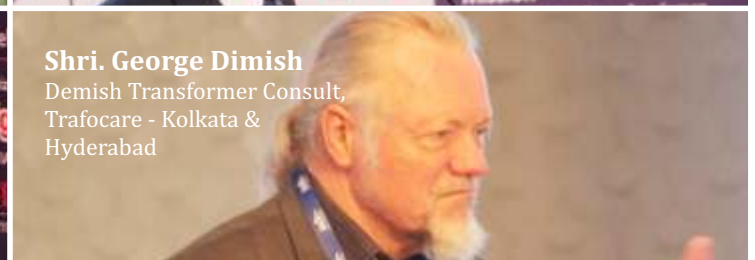
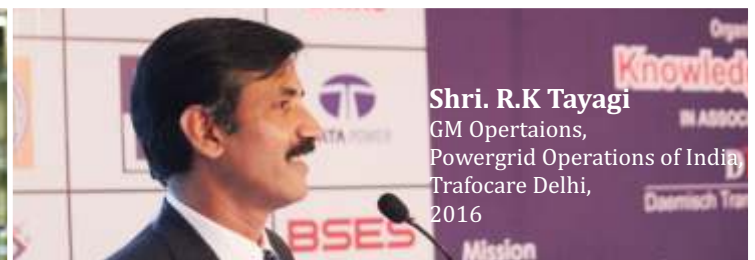
### DR K RAJAMANI

Mentor & Thought Leader

Dr Rajamani is PhD in Power Systems from IITB in 1975, rich Experience of M/s Tata Consulting engineers for 20 years, General Electric, Schenectady USA, M/s Adani Electric Mumbai Ltd (formerly known as Reliance Infrastructure Ltd) as a Chief Consultant since 2003. Dr Rajamani has conducted more than 140 hard core technical courses. His passion is now teaching and mentoring. He has published articles in various international and national journals like IEEE, IEE, IFAC, IEEMA, etc. Dr Rajamani was awarded with Industry Excellence Award by 20th National Power System conference 2018.

Presence of mentors provides exposure to new and different perspectives on issues during Gyansabha / discussions, also for they are thought leaders who gives guidance and direction for future course of O&M, Asset Management, Health Indexing as well as future designs of electrical equipment and systems.

## KEY NOTE ADDRESSES (FROM PAST WORKSHOPS)



## Registration

### Registration Fee:

INR 15,000\* + GST 18%

USD 300 only

(Non-residential - Fees for two days workshop access)

### \*Government Discount - 20%

To allow employees of Central & State Governments / PSU, to take advantage of the unique learning opportunities offered by these workshops, we offer 20% discount of the regular workshop rate. Government discounts cannot be combined with any other discount.

### Group Discount

Group of 5 in Rs. 50,000/- plus 18% GST

Group of 12 in Rs. 1,00,000/- plus 18% GST

### Registration Fee will cover only:

- Participation in the event
- Tutorial Material
- Refreshments & Lunch

## Bank Details

Knowledge Cluster Pvt Ltd.  
ICICI Bank, Thane Branch, 400 602  
A/C No- 003505012280  
IFSC Code - ICIC0000035

**GST Number** -27AAECK7131P1Z3

**PAN No** - AAECK7131P

**Cheque/DD** in the name of "Knowledge Cluster Pvt Ltd, Thane" payable at Thane.

## Event Venue & Dates

Event will be held in Mumbai. Venue address will be intimated to registered candidates two weeks before event date.

FEB 06-07, 2024, TUESDAY & WEDNESDAY

## Contact

Bhavika Dhanwani Palak Sajnani  
**+91 9730135975 +91 9004046563**

Jagdish Sandhanshiv  
**+91 9867976570**

### Office Address :

Unit No: FB 31, First Floor, Highland Corporate Center,  
Next to City Mall, Kapurbawadi, Thane (W) 400 607,  
Maharashtra, INDIA.

**Ph.:** +91 22 4127 6570

**Email:** support@kcluster.com

**Web.:** www.trafocare.org

## About Organizers

TRAFOCARE is organized by a cluster of individuals, associations, manufacturers, service providers and consultants. The organizing team of 7th edition of Trafocare Mumbai is Knowledge Cluster, SPARK Group, SM Systems, Polywater USA, Doble India, Easun MR, LeakXpert, Laxmi Associates, Yash High Voltage, Savita Oil Technologies Ltd, LeakXpert team, Expert Engineers, Consultants etc.

We also invite expert speakers from the utilities and industries to share their expertise in line with the theme of TRAFOCARE.

1000+ engineers from Genco, Transco, Discoms, Renewables, OEMs, Consultants have participated in earlier workshops as delegates at Mumbai, Delhi, Kolkata and Hyderabad.

Idea is not to limit the workshop as an isolated event but to continue threads of trafocare mission from event to event. New thread we are starting in 7th edition of Trafocare is scrapping of transformers, role of transformers in sustainable economy, relevant Indian Standard. This should translate into the message "repairing of transformers is better than scrapping of transformers" Lets see!

## Tentative Workshop Schedule

Two days programs tentative schedule as follows

- Breakfast, lunch and High Tea will be served
- 8 Sessions of 90 minutes each & Four hours of networking time during Lunch and Tea

### Day 1 - Tuesday Feb 6, 2024

TIME	DESCRIPTION
9:00 AM to 10:00 AM	Registration & Breakfast
10:00 AM to 11:30 AM	Session 1
11:30 AM to 13:00 PM	Session 2
13:00 AM to 14:00 PM	Lunch Break
14:00 PM to 15:30 PM	Session 3
15:30 PM to 16:00 PM	Tea Break
16:00 PM to 17:30 PM	Session 4

### Day 2 - Wednesday Feb 7, 2024

TIME	DESCRIPTION
8:30 AM to 9:00 AM	Tea & Breakfast
9:00 AM to 10:30 AM	Session 5
10:30 AM to 11:00 AM	Tea Break
11:00 AM to 12:30 PM	Session 6
12:30 PM to 13:00 PM	Session 7
13:00 PM to 14:00 PM	Lunch Break
14:00 PM to 15:00 PM	Session 7 continued
15:00 PM to 16:30 PM	Session 8
Open House and Concluding Ceremony	



### **DR C. S. NARASIMHAN**

Former R&D Head & Technical Advisor,  
Savita Oil Technologies Ltd

**TOPIC-Impact of Moisture and Temperature on Mineral & Ester Oil.Aging of Paper & Mitigation Techniques Retrofilling of Transformers with Natural Esters**

Dr C. S. Narasimhan is a Ph.D in Chemistry from IIT, Madras. He has over 35 years of experience in industrial research in oils, polymers, rubber chemicals etc in multinational companies.

He has published several papers in IEEE conferences and recently, he published a book titled Transformer Oil Application aspects, published by Merit Media, Croatia. He has

been a member of several IEC and Cigre committees.

He led R&D team in Savita to develop mineral oils for EHV applications and ester oils for special applications. He spearheaded a joint collaborative project between Savita Oil and CG Power and Industrial solutions, a Transformer OEM that led to the development of design guidelines for ester-filled transformers.



### **MR. PRAMOD RAO**

Bushing Expert - Sr. Technical Advisor  
Yash High Voltage Ltd

**TOPIC-Role of RIP Bushings in Transformer Safety and Reliability. Storage Conditions, Handling of RIP Bushings, Retrofitting success stories, OIP Vs RIP, Transformer Life Enhancement**

Mr. Rao is an Electrical Engineer with over 45 years of experience in High Voltage Engineering & Power industry. His experience spans from Engineering & Design, Manufacturing, High Voltage testing & ultimately leading the business as P&L Head for

Bushings & Instrument Transformers business of CG-Global in India. He advises Yash on several technical fronts including Product design & development, Process enhancement & manufacturing excellence.



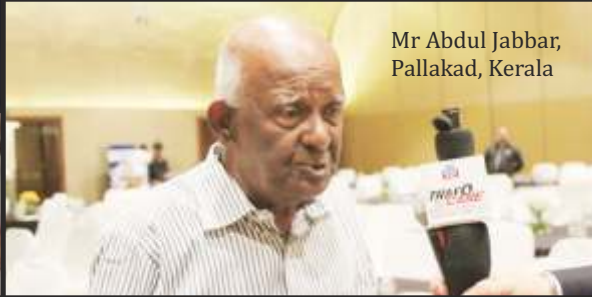
### **MR. CHARLES COLE,**

Vice President-Global Division  
Polywater USA

**TOPIC-10 Stories of Transformer Leak Repair**

Mr Charles has over 34 years of experience providing innovative and effective repair and maintenance solutions to the electrical and communications industries. Mr Cole has written case studies on application of sealants to prevent aging and life enhancement of Transformers and GIS equipments.He travels extensively across the globe having exposure to moisture ingress related issues in transformer and GIS from different

utilities and industries. Charles has participated in 100+ webinars and resolved queries of customers related to use of sealants to prevent moisture ingress in electrical equipments.



**MEMORIES OF TRAFOCARE**



**MR. SIMON RYDER**

Transformer Consulting Engineer  
 Doble Engineering Company

**TOPIC - Case studies on DGA and Partial Discharge Monitoring. Alternately new topic as per need for workshop from my experience**

**Simon Ryder** Graduated from Oxford University in 1996 with a MEng in Engineering Science. From 1997 to 2003 worked for GEC Alstom T&D at Stafford, England and St Ouen, France, as Design and Development Engineer and later as Research Programme Manager. In 2003 joined Doble PowerTest Ltd, and has worked globally on condition

assessment and failure analysis of transformers, including independent expert work. More recently has worked on various procurement aspects, including factory capability assessment, tender evaluations, design reviews and progress inspections. He has considerable transformer experience from MV to EHV, including HVDC projects.



**Dr Aradhana Ray**

Technical Director, Laxmi Associates

**TOPIC - A. Latest trends in Developing Asset Health index (AHI) and Risk Management of Transformer AHI Focuses on methodology for assessing condition-based risk for Transformer in operation & Tactical and Strategic Risk Management. For more details refer website**  
**B. Key Diagnostic tools to evaluate the condition of Transformer & FEMA**

Dr Aradhana Ray is PhD. in Electrical, 28 years' experience with Doble Engineering USA, Omicron, Austria, Short Circuit Test Laboratory ERDA. Consulting third party inspection and Asset

management projects, specification & maintenance manual EHV class power equipment in India, Malaysia, Dubai, OMAN, North America, South Africa and Australia. Recipient of "Dr Vikram Sharabhai Young Scientist Award" Served on technical committees of IEC, IEEMA, CBIP, CIGRE, TIFAC, BIS, CIREC Malaysia Conferences. Worked on implementation of Asset Management project based on ISO 55000 Standards with Sarawak Energy Berhad (SEB), TNB & TAMAS Malaysia. Presently working as one of the Principle member for Development of IEC- ETD 53 on Standardization of the management of assets in power networks.



**Mr. Shrikant Potnis**

OLTC Expert, EasunMR

**TOPIC - Know your OLTC - Design Principle, Operation & Maintenance, Q&A**

**Mr. Shrikant Potnis**, graduated engineer from Walchand college of Engineering and M-tech from IIT Powai, is having 42 years experience in power sector. He was R&D head of Switchgear division in Crompton Greaves Ltd Nashik. He has Presented more than 18 papers on various topics in conferences like Swicon, Switrend, IET, MSETCL, PGCIL etc. He is having 11 patents in various Switchgear/Tap Changer products to his credit. He has worked as member of BIS committee on

circuit breakers, CIGRE working group ET08 India chapter. He has travelled 27 countries for Testing of Switchgear products, Technology Transfer, establishing JV companies, Conferences and customer visits etc. He has worked as CEO of an Indo-German JV company, Easun MR Tapchangers Pvt Ltd manufacturing On Load Tap Changers up to 765 KV.



# Think Transformer Bushings, Think Yash Highvoltage



RIP Bushing installed on a transformer as a replacement to existing OIP Bushing in Y phase with R&B phase operating with the old OIP bushing

## COMPREHENSIVE RETROFIT SOLUTIONS

- ▶ **Transform:** Extend the life of your transformers with our ditto interchangeable transformer bushings to replace legacy designs or out of service bushings of any globally reputed bushing makes.
- ▶ **Upgrade:** Interchangeable solution possible for OIP-to-OIP (Oil Impregnated Paper) up to 245kV, OIP-to-RIP (Resin Impregnated Paper) up to 245kV and OIP-to-RIS (Resin Impregnated Synthetic) bushings up to 245kV.
- ▶ **Guard:** Trust Yash Highvoltage Ltd., having decades of experience and proven track record of product performance globally in 55+ countries and R&S solutions provided to numerous power transmission and distribution companies, national grid operators, private utilities, etc. for your delicate customized requirement.

## MORE FROM YASH HIGHVOLTAGE

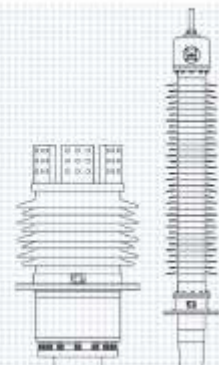
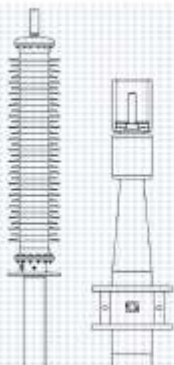
- **Technical Evaluation and Condition assessment:** On-site and off-site technical testing of transformer bushings of any make.
- **Services:** On-site and off-site bushing repairing services of any make.
- **Site Visits:** On-site physical evaluation and measurement services, if drawings are not available.
- **Expert Support:** Engineering consultation with customers' technical team to arrive at interchangeable solutions.
- **Warranty:** Full standard warranty offered on bushings supplied as retrofit solution to existing bushings.

[Solution above 245kV bushings are available from our RIP/RIS technology partner – MGC Moser Glaser AG Switzerland – a Pfaffner company.]



## SPECIALIZED PRODUCT RANGE

- OIP Bushings up to 245kV
- RIP/ RIS Bushings up to 245kV
- High Current Bushings up to 25000A





### **Er. Yogesh V Joshi**

Utility Expert, Mentor  
Former Head of Engineering, GETCO.

Around 40 years of experience in Transmission O&M, Protection, Automation, Testing, commissioning, Engineering, quality assurance, telecommunication, SCADA, EPC, e-Urja (ERP) divisions of GETCO (earlier GEB). Presented 20+ papers on national and international technical platforms & chaired multiple conferences. He was instrumental in creating standardization manual on power transformer by IEEMA, CBIP & Central Electricity Authority of India. He developed algorithm for Health Indexing of EHV class

For more details refer website



### **DR. RAJARAM SHINDE**

Director, Prayog Electricals / Datson  
Electronics & Vikarsh Nano Tech

**TOPIC - Scrapping of Transformers Role of transformer on sustainability economy (Specially end of life) Transformer plays a key role in the power segment, we can**

For more details refer website

Dr Rajaram Shinde thorough Technocrat has over 30 years of Global experience in Transformers. He is also representing our country in IEC as national expert in TC10 & TC14. He is also director on board of ERDA. Being member of various national & international forum/committees (IEC, IEEE, BIS, CIGRE, CIRED, CBIP, IEEMA, ITMA etc.)

For more details refer website



**ER. P. K. PATTANAİK,**  
Senior General Manager (Elect)  
OPTCL Odisha

Mr Pattanaik took initiative to create a Nationwide Technical group named as SPARK with around 6000 engineers all across the nation with 19 Main Groups and 8 Sub-Groups. Expertise in special maintenance to Transformers and EHV equipment on Condition monitoring assessments and fault diagnosis. Publication of around 105 technical papers in different national/international proceedings/ journals. He is the regular author for the journal publications by reputed organizations like CBIP, IEEMA, Electrical Mirror, Electrical India and many other. He is also the author of many

Technical books on electrical technology and awarded in many of the national and international forum. He has

For more details refer website



### **SHRI V. V. PATTANSHETTI**

Former Additional Director & Group  
Head Dielectric Materials Division, CPRI Bangalore

Mr Pattanshetti has over 36 years of experience MTech (equi) IIT Mumbai, has four patents to his credit in CPRI. He has wide experience in condition monitoring of transformers by testing Oil. Various techniques which help in assessing the fault conditions in Power Transformers be it conventional Mineral oil based systems or Natural ester based systems. He held Chairmanship of BIS, Electro Technical Fluids

For more details refer website



Photo of "TrafoCare Kolkata Team"



The Park, Delhi.



The Imperial, Vashi.



The Park, Hyderabad.



**Sanjay Mishra**  
Chairman & Managing Director  
SM Group



# Care4Cable

Workshop on Underground Cables

**Mumbai - India**

Winter 2024



**GYANSABHA**

## TOPICS

- VLF testing & Diagnostic Tech
- Subject experts with case studies
- Cable Fault Location
- DTS- Distributed Temp Sensing
- Partial Discharge Measurement
- Cable Terminations HV case studies
- Innovations
- Market Research
- Utility experiences
- Life Cycle Management

## WE ARE LOOKING FOR



Knowledge Partner



Speakers



Case Studies



Sponsorship



Nominations

Jagdish Sandhanshiv

+91 9867976570

[jagdish@kcluster.com](mailto:jagdish@kcluster.com)

# 10 Stories of

## Transformer Leak Repair

- Bell Tank Leaks
- Turret Leaks
- Welding Leaks
- Gasket Leaks
- Flange Leaks
- Valve Leaks
- Terminal Leaks



Vaishnavi Baviskar  
Powerpatch Team Leader

Leakxpert  
www.leakxpert.com



Charles Cole  
VP Polywater USA

Polywater®  
Solutions at work.  
www.polywater.com



Amol Sandhanshiv  
Director

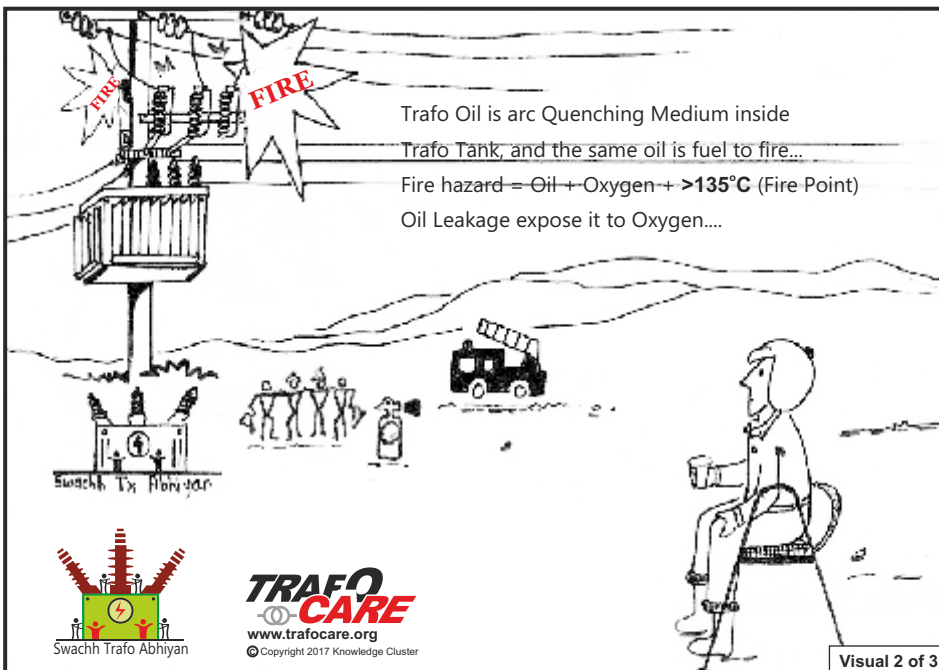
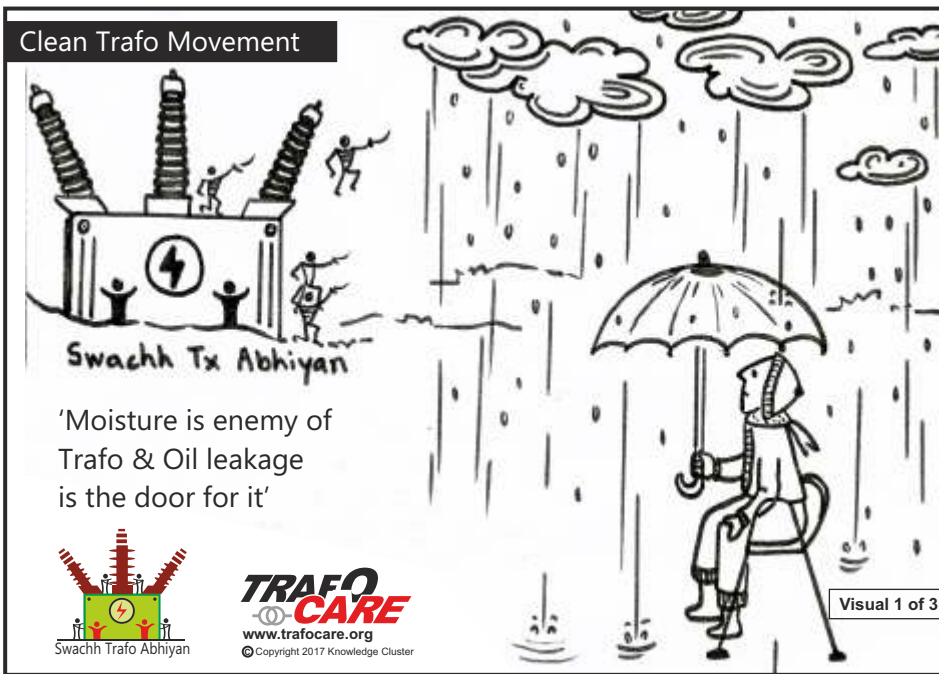
Leakxpert  
www.leakxpert.com

WEBINAR ON DEMAND

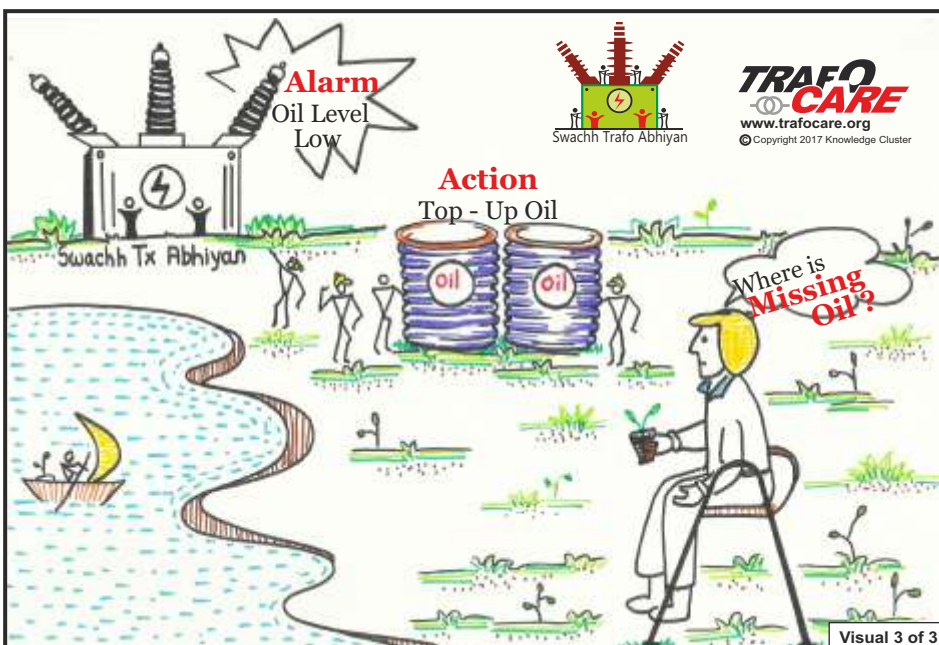


+91 9604916916, +91 9890160315, +91 8237176916  
bss.manmad@gmail.com | leakxpert@gmail.com

## Clean Trafo Movement



Trafo Oil is arc Quenching Medium inside Trafo Tank, and the same oil is fuel to fire...  
Fire hazard = Oil + Oxygen +  $>135^{\circ}\text{C}$  (Fire Point)  
Oil Leakage expose it to Oxygen....



Alarm  
Oil Level  
Low

Action  
Top - Up Oil

Where is Missing Oil?

## Swachh Trafo Abhiyan

From our past experience of workshops, we realized small problems like transformer gaskets/oil leakages are not even considered as technical problems by industry. And utilities/fleet owners are helpless with fleet of thousands of transformers and it is practically not possible to take outage and replace all the gaskets. This has triggered sensitising on this small but significant issue and we started "Swachh Trafo Abhiyan".

### Mission – Swachh Trafo Abhiyan

- Forming Cluster of utilities and industries for experience sharing on this issue.
- Sensitising leakage is not just loss of oil but door for moisture ingress, fire, environment issue.
- Auditing for Housekeeping & Keep it Tight. Keep it Clean. Keep it Cool.
- Existing transformers leaks should be arrested by right material & methods.
- Can we design and manufacture new transformers for our next generation that won't leak during its lifetime?

## "Appeal"

Automobile industry can manufacture an engine that does not leak at high pressure, high temp, heavy impacts & vibrations.

Can India produce power and distribution transformers for our next generation that won't leak for life time?



We are sure that cluster of utilities and industries participating in this mission shall do the experience sharing on specifications, vendor qualifications, Design review, QAP, Inspections, transportation etc.

"Inspired from Swachh Trafo Abhiyan, we have started similar exercise in our O&M of assets"

"Great! I wish you luck for taking this much needed initiative. I trust constantly weeping transformers like Meena Kumari in Mother India will be a thing of the past!!"

Please send us email to participate and subscribe updates on this topic.

[jagdish@kcluster.com](mailto:jagdish@kcluster.com)

# CALISTO<sup>®</sup> R9

## FINALLY, THE DGA MONITOR YOU'VE BEEN LOOKING FOR

Auto-calibration with just water, for accurate DGA over the long haul

Cost and time efficient with no consumables to replace

Feature rich and dependable

Drives timely and informed asset management decisions



Intuitive user interface runs with any common web browser



[DOBLE.COM/CALISTO-R9](http://DOBLE.COM/CALISTO-R9)

PART OF THE CALISTO<sup>®</sup> CONDITION MONITORING PLATFORM FROM DOBLE



# Early Arc Detection for Transformer “Fire Prevention”



The Advanced Nitrogen Injection Fire Prevention System is designed to protect Transformers from explosion and Fire arising from both internal and external faults

**EASUN MR**  
[www.easunmr.com](http://www.easunmr.com)

## Laxmi Associates



Preferred partner of  
major industries and utilities in  
India, Asia and Middle East for

- Asset Management & Health Indexing
- Condition Assessment
- RLA - Residual Life Assessment
- PD / SFRA / Oil Diagnostic
- Testing & Commissioning
- NABL approved Oil test Lab

**System Study & Consulting**  
**Third Party Inspection**

### Training

- Life cycle management courses on Power Transformer
- Electrical Hazard & safety management courses
- General courses on Condition Assessment, RLA

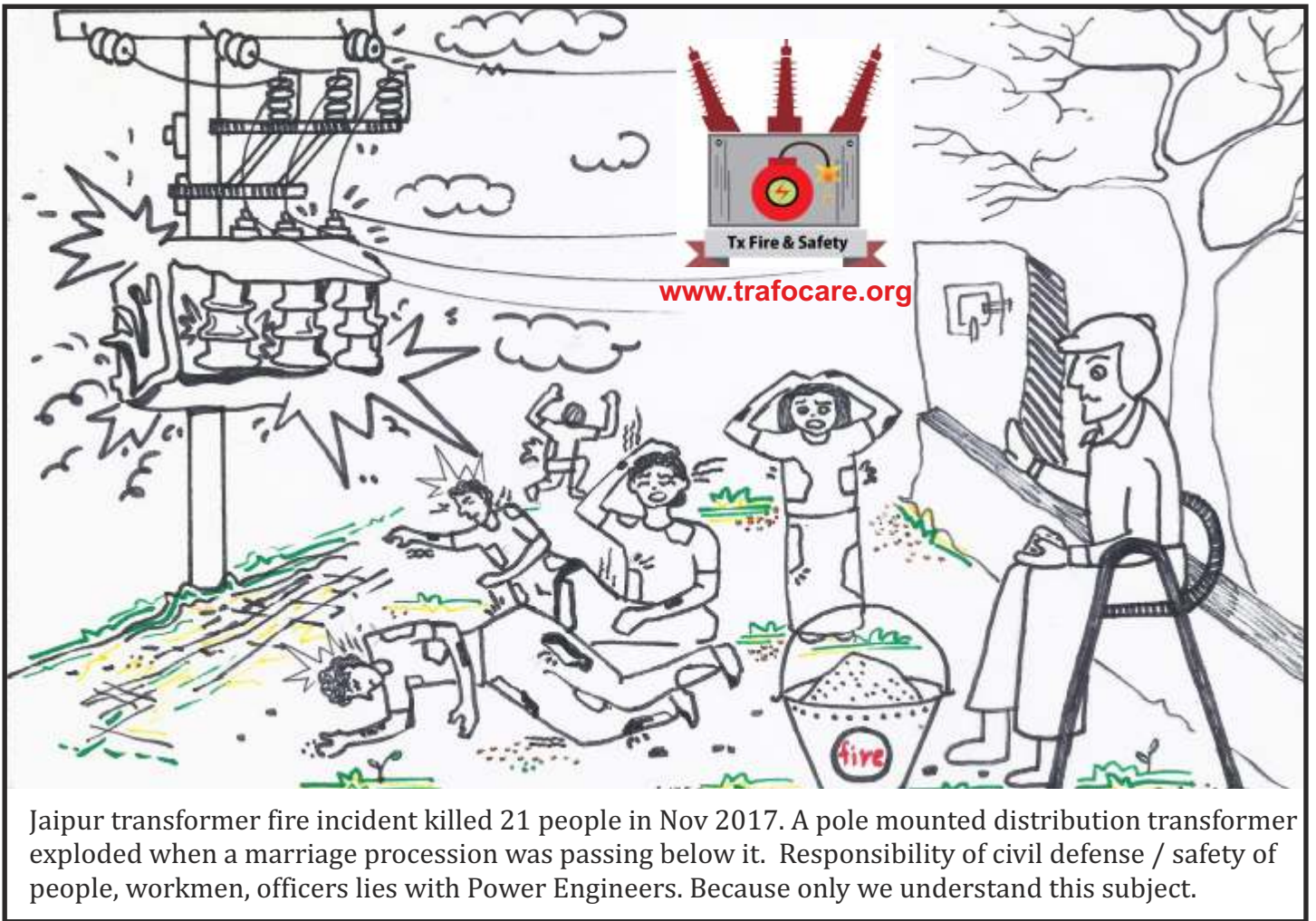


### Laxmi Associates

Corporate Office: 13, 14, 15 'Sun Enclave' Near Sun City Paradise, Manjalpur, Vadodara, Gujarat – 390016

Mobile No: +91-9374076950, 9376446910

E-mail: [lxassociates@gmail.com](mailto:lxassociates@gmail.com) • Website: [www.laxmiassociates.in](http://www.laxmiassociates.in)

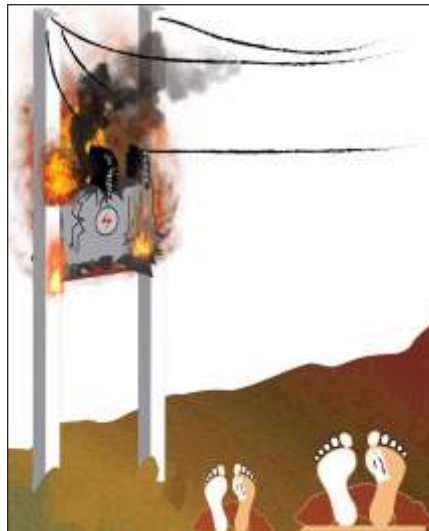


Jaipur transformer fire incident killed 21 people in Nov 2017. A pole mounted distribution transformer exploded when a marriage procession was passing below it. Responsibility of civil defense / safety of people, workmen, officers lies with Power Engineers. Because only we understand this subject.

### Transformer Fire & Safety

Fire incidences in power & distribution transformers are not uncommon. However, recently in the rarest of rare transformer fire accident 21 people died. Hence through the mission for Transformer Fire & Safety, we would like to sensitize all the individuals/stakeholders to work in the direction of 'zero transformer fire accidents and safety to personnel around it'.

Distribution Transformers are installed in the public premises. Such property is subjected to different kind of abuse by public too. The reason for transformer fire are not only technical (OEM or O&M) but are contributed directly/indirectly by the consumers and other elements in society too.



Our aim is this topic is discussed – corrective & preventive actions by other utilities/industries are shared. Already implemented solutions/case studies are shared and "Latest problem statements" are defined. This can be an exercise where additional field study is required. During this discussion process - "problem solving approach" shall be discussed and we make progress in the direction to minimize the issue of Transformer Fire and Safety.

We are also trying to request and invite authorities from CEA & Fire department for experience sharing, discussion and guidance.

### Innovation Appeal

Automobile industry thought of airbags for safety of passengers. Today airbags are also available in a INR 10L rupees car.

R&D engineers should think of innovation to ensure human safety around transformers in public place and solution should be at affordable price for even for distribution transformers.



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Mission – Conservation of Transformers

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