



SEMINAR ON “RELIABILITY AND ENERGY EFFICIENCY IN DISTRIBUTION TRANSFORMERS AND OTHER RELATED ISSUES ” HELDON 2ND NOVEMBER 2018 ATMUMBAI, ORGANIZED BY BIS, ITMA AND ICAI AND IN ASSOCIATION WITH CEA, BIS,BEE, I.E&L DEPTT., GOVT OF MAHARASHTRA , ADANI POWER,BEST, MAHADISCOM, ERDA AND EVENT SUPPORTED BY HIGH-VOLT ELECTRICALS PVT. LTD., MUMBAI.

With an aim to encourage the power industry to improve reliability in power supply and enhance energy efficiency while promoting technical loss reduction for sustainable development, Indian Transformer Manufacturer's Association (ITMA), International Copper Association India (ICA India), in association with Bureau of Indian Standards (BIS) organized a seminar on “Reliability and Energy Efficiency in Distribution Transformers and other related issues” in Mumbai on 2nd November 2018.

Distribution Transformers (DTs) are key assets for any distribution network thus, their dependability and efficient operation can result in long-term benefits for the power distribution utilities. The objective of the seminar was spreading awareness among power utilities and manufacturers in Maharashtra to adopt energy efficient distribution transformers. Shri. Chandrashekhar KrishnaraoBawankule, Hon'ble Minister of Energy, New and Renewable Energy, Government of Maharashtra was the Chief Guest who shared his message with participants, as he could not be present due to some pressing engagement. In his message to the participants he mentioned “I acknowledge with thanks receipt of your invitation to inaugurate the Seminar on "Reliability and Energy Efficiency in Distribution Transformers and other related issues " as Chief Guest, which is to be held on 2nd November 2018 at IMC Chamber of Commerce and industry, IMC Building, IMC Marg, Churchgate, Mumbai.

Distribution spending is one of the largest costs for most utilities also cause of concerns as network increases day by day along with the increasing power demand. Utilities are constantly looking forward to increase productivity in the distribution system. I hope this seminar will enlighten awareness on quality, reliability and energy efficiency in Distribution Transformers.

Due to earlier appointments on the same date, I will not be able to attend this inauguration function. Please be assured that my best wishes are with you all “. The seminar was also graced by Shri R J Singh, Deputy General Manager BEST Undertaking, Maharashtra and Shri S G Patki, Former Sr. Technical Advisor, Tata Power Company, Ltd. as special guests.

Sustainable Energy, ICA India gave the welcome speech on the immediate need for energy efficient alternatives and how distribution transformers, pumps and motors are key equipment used in the electricity sector for energy delivery and have a huge role to play both in terms of reliable energy distribution as well as efficient energy access. The DT failure rate in India is high in the order of 12-15% (in State Utilities), as against a global average of less than 1% and the total financial loss to utilities in terms of repairs and replacement due to failed DTs is estimated at INR 1,200 crores each year. National bodies like BIS, CEA have been working for last few years to improve the energy efficiency and reliability of DTs through upgradation of standards and policies. The quality control order issued by Department of Heavy Industries under the advice of BIS paves the way to improved manufacturing and ISI certification thereof. However, there are high technical losses due to insufficient investments in system upgradation as well as unplanned extensions of the distribution system. One of the reasons of the increasing trend of these losses in DTs is poor competence due to unbalanced loading conditions. The DT failure rate is one of the important KPIs for Indian DISCOMs. Any failure of the DT before termination of its designed lifespan results in an unexpected outage, production loss, unavailability of critical services and in most cases huge financial losses to both utilities and customers. Overall, it affects the reliability of the network.

As a platform to establish a dialogue between the end user and supplier besides other key stakeholders ICA India frequently holds seminars along with BIS and ITMA to propagate the need for reliable and energy efficient distribution transformers benefitting the manufacturers as well as the nation through maximized energy output reducing energy loss. ICA India, to address the DTs already in service, has explored the feasibility of reducing technical losses in Distribution Transformers (DT) through Active Repair over the currently prevailing Reactive repair methods. Active repair is a method that primarily focuses on technical loss reduction in DTs through winding compensation, including any change in winding material. This proposed DT active repair enables the Utility Organization to bring down no-load and load losses proactively. The no-load losses can be reduced by 75% and load losses by 40% by using Copper windings in place of Aluminium windings. This is a first-of-its-kind concept in the Country and there is a robust business case for Indian DISCOMs to consider this approach.

Mr. Manas Kundu, Director, Energy Solutions, ICA India, said, “We at ICA India are working towards a common national goal of providing continuous quality power supply to the consumers. There is a need to adopt energy efficiency standards for distribution transformers, as it will save total cost to consumers and help reduce energy consumption. On an average about 10,800 Cr to 14,500 Cr can be attributed to technical losses inside the distribution transformers in India, hence, there is a significant potential to reduce these losses. Through such seminars, we aim at helping the industry to gain mindfulness and adopt new technology advancements thereby increasing skill knowledge. At the same time, we hope that such platform said dialogue between users like Utilities, OEMs, Testing agencies, Standard making bodies, so that issues can be resolved harmoniously towards the betterment of DT ecosystem in the country. This will not only

enhance the quality and reliability in supply but would consequently promote energy efficiency towards sustainable development in the country.”

Shri S G Patki former Senior Technical Advisor Tata Power in his keynote address mentioned “DT failure can be due to various reasons since there are numerous parameters involved. In India, 6-8 Lakhs DTs fail every year resulting in high financial losses to the tune of 7000 Crore. This could be due to poor installation, restricted O&M practices or even electrical fault. Controlling limitations is just one element for getting the best out of important assets like DT. The key to reliability is ensuring quality right from specification to commissioning. There is need to do comprehensive quality management.

There are many modification programs initiated by the Government of India to streamline and improve the distribution network, utility processes and overall financial sustenance of DISCOMs and have also yielded some positive results in distribution loss reduction but at a lower speed. With our efforts towards building an environment to eliminate the energy loss, such seminars act as a catalyst to help spread awareness on distribution network assets.”

“While number of technical challenges like standardization of specifications, operation and maintenance practices etc have been addressed to large extent, focus is now required on Quality Management at all stages of DT life cycle and skill / capability development of utility employees as well as contracted workforce”

Mr. Rajeev P, Head Branch -2, BIS - “Awareness of DT National Standard is crucial in reducing the massive technical losses which lead to enormous monetary losses and failures. We are making national standards, certify or ensure quality through licensing OEMs, and implementing Ministry's directives as per Quality control orders adhering Standards and policies to reduce these losses. We are simultaneously working with ICA India and ITMA to create awareness about national standards and QC Orders”

The speakers at the event were representatives from BIS, Central Electrical Authority (CEA), OEM, ITMA and Testing agencies. ITMA and ICA India is proactively propagating the use of low-loss, high grade materials for the core and winding to result in high-efficiency and Energy Efficient Distribution Transformers (EE DTs). The seminar was well acknowledged by consultants, transformer manufacturers, power utilities, and general industries operating the Distribution Transformers (DT). International Copper Association India has taken up this initiative to improve the situation by advocating for better technological options (EE distribution transformers) in the country.