

## **Technology Transfer from NIT Calicut to KEL Cochin**

NIT Calicut transfers the solid state technology for power transformers developed by the Department of Electrical Engineering to M/s Kerala Allied Electrical and Engineering Co. Ltd, Kochi (KEL). The research team consisting of Prof. Ashok S., Dr. Kumaravel S. and Ms. Haritha G. has been focusing on the development of solutions for replacing conventional transformer for power distribution applications with advanced power electronics technology, especially while interfacing renewable energy systems like solar or wind into the distribution grid. The conventional transformer faces power quality issues which degrade the capacity and efficiency when renewable energy resources are connected. Solid State Transformer (SST) is a high frequency transformer based power electronic system that can replace the conventional low frequency transformer. SST has lesser energy loss, higher power quality with integrated protection schemes that ensures better power system reliability. It has lesser size than conventional transformer which allows easier transportation and maintenance. One of the best features of SST is, it can be designed at any capacity, suitable for residential and industrial applications. Also, the modularity in construction enables the easier isolation of the system and replacement of parts if needed. The system can support the reactive power requirement of distribution network which leads to the reduction of transmission-distribution losses. Such benefits will help the utility companies and electricity boards to deliver power with higher quality, uninterrupted and reliable supply.

The research team at NIT Calicut has designed and fabricated laboratory scale prototypes of SST with 1kVA and 3kVA rating and successfully completed the testing and analysis. Kerala Allied Electrical and Engineering Co. Ltd, Kochi (KEL, Kochi) has shown keen interest in the development of SST in connection their product diversification by employing the fast growing power electronics technology. KEL is a multi-product engineering company with 50 plus years of experience and expertise, especially in power transformer design, development and commercialization and already has higher market share in this field. KEL is planning to fabricate an industrial prototype of 100 kVA capacity to do further testing and analysis for product commercialization.

The technical interactions between NIT Calicut and KEL has led to the transfer of technology for the commercial product development of SST. As part of the technology transfer programme, KEL, Kochi has signed an MoU on 3<sup>rd</sup> September 2019 with NIT Calicut for transferring the design and scheme of SST. Prof. Sivaji Chakravorti, Director, NIT Calicut and Col. Shaji M.

Varghese, Managing Director, KEL have officially signed the MoU in the presence of Prof. Ashok S., Dean (R&C), Lt.Col Pankajakshan K (Retd), Registrar , Dr. Sathidevi P. S., Dean (Academic), Dr. Rijil Ramchand, Head (In-charge), Electrical Engineering Department, Dr Jeevamma Jacob, Dean (AA&IA), Dr. Kumaravel S., Assistant Professor, and Ms Haritha Research scholar of Electrical Engineering Department and other deans/faculty members from NIT Calicut. Mr. Sajeev Dev, General Manager, Mr. Giju Peter, Marketing Manager and Ms. Amrutha A. S, Asst. Manager-Design were present from KEL.

