Engineering Staff College of India

Autonomous Organ of The Institution of Engineers (India)

Old Bombay Road, Gachi Bowli, Hyderabad – 500 032. TS, India

POWER & ENERGY DIVISION

Classroom Continuing Professional Development Programme on

Power Cables - Selection, Testing, Laying and Commissioning

08 – 10 October, 2024

at ESCI, Hyderabad

(An IMS Certified (ISO 9001:2015 QMS, ISO 14000:2015 Envtl. Mgmt., ISO 45001:2018 (OH&SM), ISO 50001:2018 EnM), AICTE & CEA Recognized Institution)

Centre for Promotion of Professional Excellence

INTRODUCTION

The transmission sector in the country has grown significantly in the past few years. As of 31.01.2024, the total transmission line length in the country stood at 4,81,326 ckt. km (220 kV and above). With the anticipated increase in renewable capacity, the increase in generation needs to be complemented by a similar increase in the capacity and length of the transmission network. The growth in the transmission network will be accompanied by an upgrade and renovation of ageing transmission assets in order to increase the current-carrying capacity of these ageing assets. However, transmission projects are often delayed and stalled because of land acquisition issues and environmental concerns making it vital for transmission and distribution (T&D) companies to deploy advanced conductor technologies with higher ampacity and lesser right-of-way (RoW) requirements.

In India, aluminium conductor steel reinforced (ACSR) and all-aluminium alloy conductors (AAAC) are commonly used for transmission of power on overhead lines for the T&D system. As per the Central Electricity Authority (CEA), conductors constitute about 30-40 per cent of the total cost of the overhead extra high voltage (EHV) transmission lines and the type of conductor plays an important role in the quantum of power flow, T&D losses, height and design of towers, and span length of the transmission lines. It is, therefore, prudent for utilities to assess their requirement and choose the right conductor technologies.

From an engineering, procurement and construction perspective, the availability of shutdowns on the part of a utility could be a challenge. Secondly, the availability of the existing tower and line profile should be assessed in order to enable optimal conductor choices and validate sag tension calculations. Thirdly, in some cases, the line chosen for reconductoring might be very old. In such cases, there is a need to assess whether the old towers are strong enough to carry out the planned reconductoring exercise. To conclude, reconductoring effectively increases the capacity of existing transmission lines, increases corridor capacity and plays a pivotal role in strengthening the transmission network. It is important that utilities undertake reconductoring procedures as part of their regular plan have a series of uprates in their pipeline and compare it to building a new transmission line. They should also consider reconductoring as an operations and maintenance exercise and take it up based on the actual field situation.

OBJECTIVE

The objective of the course is to provide adequate knowledge to the engineers working in Transmission Utilities to provide knowledge on proper selection of cables also the procedural details in laying of cables, testing, cable jointing and termination. Location of cable faults and use of fault locators will also be covered in the course.

COURSE COVERAGE

- Introduction to Electrical Power Cables
- Manufacture of Power Cables
- Standards for Electrical Cables
- Cable Layout and System Design
- Cable Jointing Kits - Different Types Jointing and End Terminations
- Testing of Cables and Latest Jointing Techniques
- Cable Faults & Fault Locators, Trouble Shooting, Condition Monitoring of Cables & Case Studies
- Commissioning Tips in Laying Cables Underground
- International Experience in Laying of EHV Cables – Case Studies
- Fire incidents on cables, Fire Retarding Cables and remedial measures
- Protection of Cables, Preventive & Condition Monitoring of Cables
  Under Ground & Over Head Cables- Case Studies
- Field Visit

METHODOLOGY
The programme will be conducted in an interactive environment providing greater scope for discussions. Emphasis will be on a highly participative style of learning. The classrooms are provided with latest audio – visual teaching aids. The ambience in the campus and classrooms facilitate in effective learning by participants.

FACULTY
Apart from Core Internal Faculty, Consulting Firms, Government Organizations, Manufacturing, Academic and Research Institutions etc. will share the sessions.

TARGET PARTICIPANTS
Senior Officers of Power Utilities / Corporations / SEB's, Thermal, Hydro, GIS Substations and Distribution Companies, Nodal Agencies, Energy Planners, Private Entrepreneurs, Manufacturers, Industries, Research / Academic Institutions, Construction Companies etc.

PROGRAMME VENUE, DATES & TIMINGS
Engineering Staff College of India (ESCI) Campus, Old Bombay Road, Gachi Bowli, Hyderabad - 500032, Telangana, India.

DATES

08 – 10 October, 2024 (3 Days)

TIMINGS
On the first day registration will commence at 0900 Hrs. On all other days the programme timings will be from 0945 to 1715 hrs with breaks in between for tea and lunch.

ACCOMMODATION
Participants will be accommodated in our Executive Hostel located within ESCI Campus. The accommodation will be on twin sharing basis.

COURSE DIRECTOR

Dr. V. Vidyasagar
Sr. Faculty - Power & Energy Division, ESCI
(Mob: 9421801203)

COURSE FEE
Residential Fee is Rs.16,500/- per participant. Residential fee includes Course Material, Course Kit, and Twin-sharing / Single AC accommodation as per availability, Breakfast, Lunch, Dinner, Tea / Coffee and Snacks.

DISCOUNTS

Non-Residential Fee: 10% discount on course fee is allowed for non-residential participants.

Group Discount: 10% discount for three or more participants if sponsored by the same organization.

(All discounts are applicable only if fee is received at ESCI a week before the commencement of the programme)

GST @18% (as applicable) is to be paid extra over and above the training fee. ESCI's **GST No. 36AAATT3439Q1ZV, PAN Card No. AAATT3439Q**.

The course fee is to be paid in favour of **"IE (I) – ENGINEERING STAFF COLLEGE OF INDIA"** in the form of demand draft payable at Hyderabad.

Alternatively the payment may be made by **Electronic Fund Transfer (EFT) to ESCI – Current A/c No. 33705165550** with The SBI, Manikonda Branch, Gachi Bowli, Hyderabad – 500 032 by **NEFT / RTGS / IFSC Code No: SBIN0011076 – MICR No: 500002107.** While using EFT method of payment, please ensure to communicate us your company name, ESCI invoice reference and programme title.

Online registration is available on ESCI website. To register, manually please send your nominations (**10 days** prior to date of commencement of the programme) giving details of name, designation, contact address, email address, mobile number, telephone and fax number of the participant along with the details of mode of payment of fee, addressed to:

Head, Power & Energy Division
Engineering Staff College of India
Gachi Bowli, Hyderabad – 500 032
Phone: 040–6630 4170 to 4176 ; 040-6630 4173 / 4176, Fax: 040 – 23000336, 66304103
Email:pe.esci@gmail.com / pe@escihyd.org; Website: www.escihyd.org

CERTIFICATE: A certificate of participation will be awarded to each participant on conclusion of the programme.

GENERAL INFORMATION

- ESCI encourages participants to present case studies from their respective organizations.
- For the convenience of the outstation participants ESCI will facilitate pickup and drop from Airport / Railway Station / Bus Stations, if travel plans are received at least 3 days in advance along with mobile number by fax or email. The charges shall be paid by the participants directly to the cab driver.
- ESCI provides complimentary accommodation to participants a day prior to the commencement and after the conclusion of the programme. (Check in at 12:00 hrs a day prior to the commencement & check out at 12:00 hrs a day after completion of the programme)
- Overstay charges of @ Rs.990/- per day / per head (Food will be charged extra).
- Well developed Information Centre and Internet facilities are available to the participants free of cost.