



GOKULA KRISHNA COLLEGE OF ENGINEERING

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Behind R.T.C. Depot, SULLURPET, Nellore Dist, A.P. (INDIA) PIN : 524 121

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Report on Industrial Visit to Power Grid 400/220 KV Sub-Station

(POWERGRID CORPORATION OF INDIA LIMITED HASSAN)



पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

No. of days of visit: One day

Date(s) of Visit: 26th September, 2023

Faculty In charges: 3 members

1. Dr.S.Prakash.Professor &HOD.
2. Mr.P.Chaithanyakumar Asst.Prof.
- 3.Mr.M.Sreenivasulu Asst.Prof.

No. of Students: 35 students IVB.Tech EEE (2020 admitted batch)

Reporting Time : 10:00 A.M, 26th September, 2023.

Power Grid Corporation of India Limited (POWERGRID) 400/220KV Substation, Hassan authorities gave the permission for 2020 admitted batch of IV year students to visit the Power Grid in two batches on 26th September, 2023, and accordingly we proceeded to visit the Sub-Station on 25-09-2023 from our college at 8:30 P.M along with 35 students of IVB.Tech Isem EEE as first batch accompanying with HOD & two Assistant Professors of EEE Department Mr.P.Chaithanyakumar, Mr. M.Sreenivasulu reached visiting spot by 10:00 A.M and met Sri. KM.Ananthcswar, Deputy General Manager, Power Grid Corporation of India Limited Hassan.

The Deputy General Manager permitted us at 10:00 A.M and provided two Assistant Engineers for explaining the overview and working of Power Grid and Switch-yard equipment's and their functionality. Firstly, they split us into two groups facilitated

by two Assistant Engineers and take us to total switch yard and substation Automation control Room. They explained about all the essential components of the 400KV/220KV substation. Also, they explained about SCADA and various programming done in the control room i.e., PLC control. The first batch checked out at 2:30 and we came back to college.



The following details were observed during the visit. The first thing which we observe in the substation is electrical equipment's: Power Transformers (ICTs), Circuit breakers, Shunt & Bus Reactors, Line Reactors, Reactive compensation, Instrument Transformers, Isolators, Lightning / Surge Arrestors, Wave traps, Control panels, Protection & Relay panels, P.L.C.C Equipment's, Control & Power cables, Substation Automation, Fire Fighting equipment's and Auxiliary supplies: D.C. Supply- Battery & Battery chargers, D.G Sets, A.C & D.C panels / switch Boards. The increasing demand of electrical power in cities and industrial centres necessitates the installation of compact and efficient distribution and transmission network. The range of application of SF₆ Gas Insulated Switchgear extends from voltage ratings of 72.5kV up to 800kV with breaking currents of upto 63kA, and in special cases upto 80kA.

Capacitor Voltage Transformers convert transmission class voltages to standardized low and easily measurable values, used for metering, protection and control of the high voltage system. Lightning Arresters or Surge Arresters are always connected in Shunt to the equipment to be protected; they provide a low impedance path for the surge current to the ground. Line trap also is known as Wave trap. It traps High-frequency communication signals sent on the line from the remote substation and diverting them to the telecom/tele protection panel in the substation control room(through coupling capacitor tele protection panel in the substation control room(through coupling capacitor and LMU).

Transformers are provided with many types of protections like differential protection, trip coil protection, trouble alarm protection, oil protection, PRV protection, OLTC protection, winding temperature protection, on-load tap changing, over flux, under voltage, HV/LV, E/F protection etc. Relay is used to sense the signals and these signals are send to Circuit Breaker at faulty condition. Relays used in the substation of Distance relays, Buchholz relay etc. Distance Relays are provided for distance protection at feeders. Buchholz relays are present in between the transformer main tank and the conservator tank. These relays are used for transformer protection.

About The Company POWERGRID, A Public Sector Enterprise, is one of the largest transmission utilities in the world. POWERGRID wheels about 45% of the total power generated in the country on its transmission network. POWERGRID has a pan India presence with around 77,000 Circuit Kms of Transmission network and 124 nos. of EHVAC & HVDC sub-stations with a total transformation capacity of 89,000 MVA. POWERGRID has also diversified into Telecom business and established a telecom network of more than 21,000 Kms across the country. POWERGRID has consistently maintained the transmission system availability over 99% which is at par with the International Utilities.

Powergrid Corporation of India Limited(400kV/220kV) in Heggadihalli, Hassan is known to satisfactorily cater to the demands of its customer base. It stands located at Bengaluru Mangaluru Highway, Heggadihalli-573220. The business strives to make for a positive experience through its offerings.



Co-ordinator

HOD