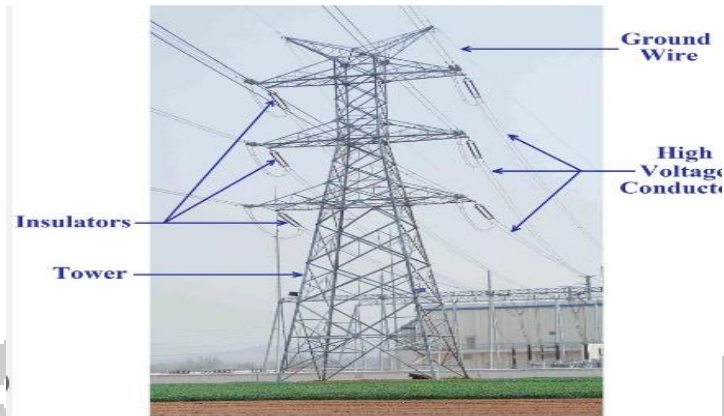


4.5 Polymeric Insulated Cables for Transmission Voltages:



- The operating electrical stresses for polymeric insulation are lower than for FF cables and the insulation thicknesses are therefore greater.
- This leads to the use of a greater volume of material in the cable and the absence of 3-core designs above 33 kV. One advantage is that there is no need for the auxiliary equipment required for pressure-assisted cable systems or for the same arrangements for system maintenance.

Insulating Materials:

- Thermoplastic (linear) polyethylene (PE) and cross linked polyethylene (XLPE) have been the most commonly used polymeric insulants, while ethylene propylene rubber (EPR) has had limited use up to 150 kV.
- The low dielectric losses of polyethylene, both PE and XLPE, make it an attractive proposition at 220 kV and above. The importance of dielectric losses in high voltage.
- This has a significant effect on the relative current ratings.
- XLPE insulated cables are therefore preferred in most countries and are by far the most widely used type of polymeric cable.
- The manufacturing process for PE is simpler, without the complications of cross linking.

Design Of Polymeric Cables:

- As XLPE insulation is by far the most widely used polymeric material it is intended to concentrate on the design aspects of this type of cable. However, many of the areas covered apply equally to cables with LDPE, HDPE and EPR insulation.