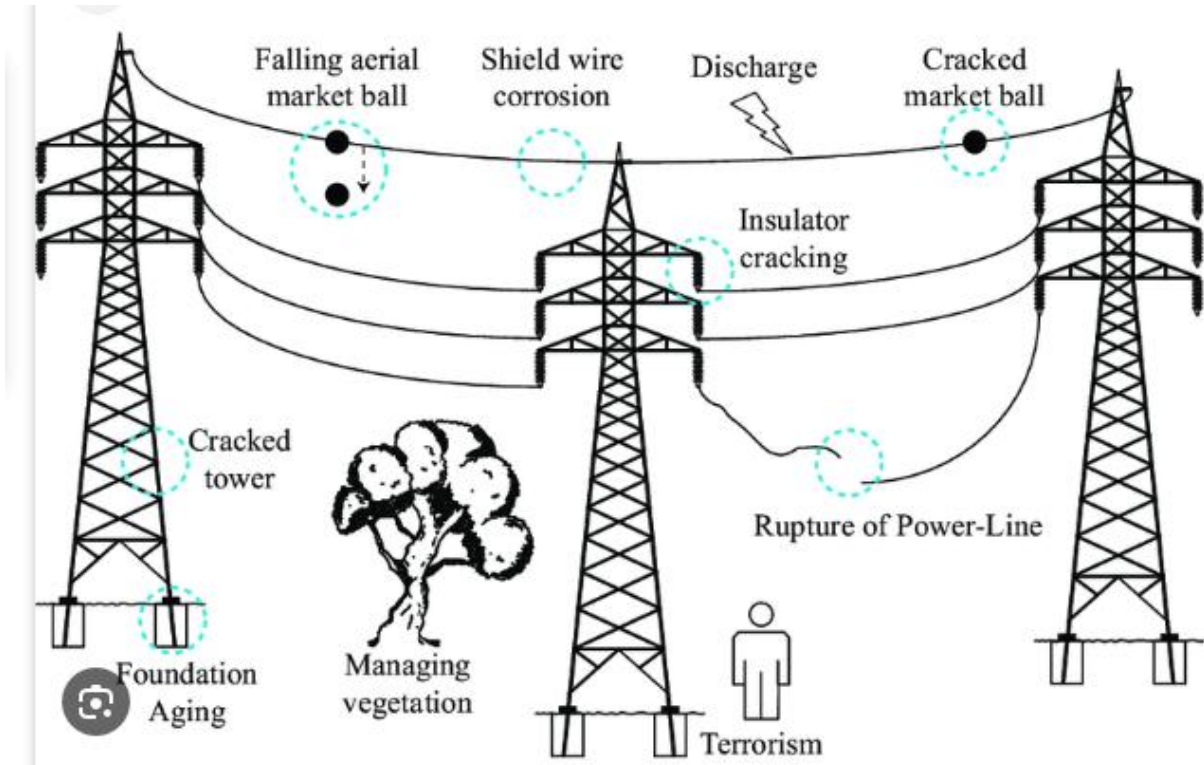


## 5.1 Installation of Transmission Cables:



The installation situations in which cables are used at transmission voltages fall into five main categories:

- (a) For the interconnection of substations within urban areas where the use of overhead transmission is neither environmentally acceptable nor practical.
- (b) To form part of a circuit in rural areas where the use of an overhead line is environmentally unacceptable.
- (c) To span obstructions within a circuit, such as bridges, rivers, estuaries and in some cases towns.
- (d) To replace overhead line connections in the vicinity of a new substation or power station, thereby improving the overall environmental acceptability.
- (e) Inside power stations or substations to provide more compact and less obtrusive connections than bus bar or overhead lines.
  - The first category is the most common for transmission cable, although most of the considerations discussed below apply to each group.
  - Some interesting trends in installation techniques are emerging.

- Thereby avoiding the problems of route planning and of disruption to vehicular traffic.
- In rural areas the trend is to develop methods of mechanical trenching and cable laying, thereby reducing the cost disadvantage of cables to overhead lines.
- Owing to the high cost per unit length of the transmission cable and the great diversity of types and sizes manufactured, it is relatively rare for a manufacturer to be able to supply any new requirements from stock.
- The more commonly used approach is first to determine and clear a substantial part or preferably all of the cable route.
  - (a) local restrictions on the length of continuous trench that can be opened;
  - (b) manufacturing length;
  - (c) transportable length on one drum;
  - (d) handling limitations at the site of installation;
  - (e) induced voltage in the cable sheath;
  - (f) balancing of minor section lengths on cross-bonded systems;
  - (g) positioning of joint bays.

In fluid-filled cable installations, the need to install stop joints instead of simple straight through joints is identified and all the materials are then put into manufacture, each drum of cable being manufactured to a specific predetermined length.

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