

Figure 2.1 Main components of power systems.

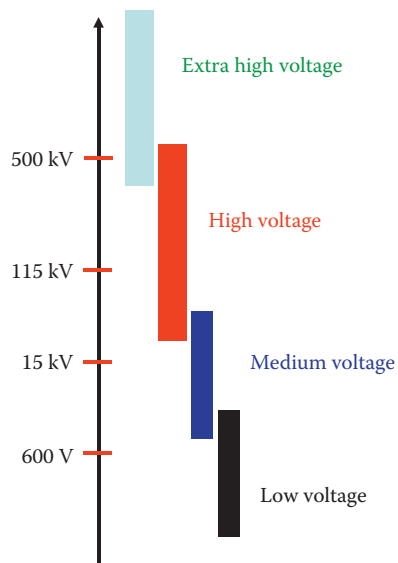


Figure 2.2 Categorization of transmission lines.



(a)



(b)



(c)

Figure 2.3 Power plants (a) nuclear, (b) hydro, (c) thermal.



Figure 2.4 Model of hydroelectric turbine.

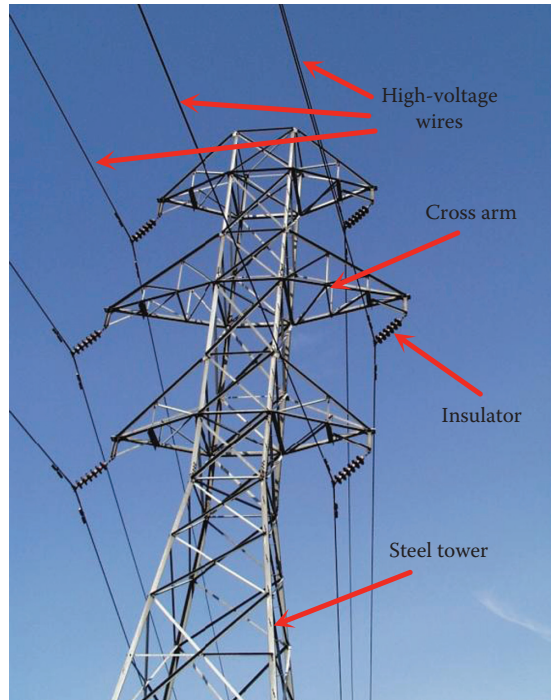
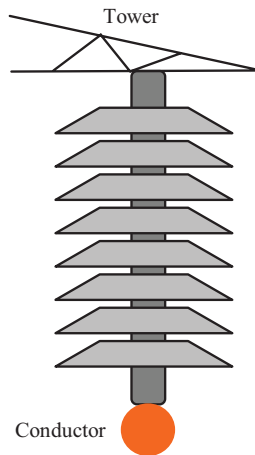


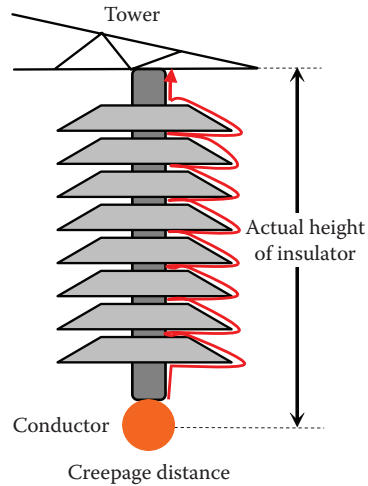
Figure 2.5 Transmission line tower.



(a)



(b)



(c)

Figure 2.6 (a) Insulator, (b) schematic, and (c) flashover path.

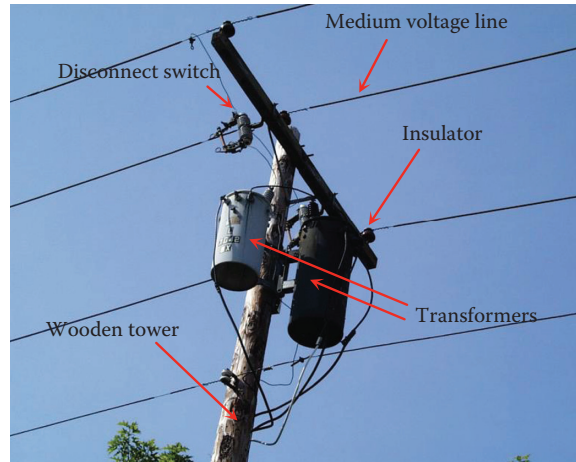


Figure 2.7 Distribution line tower.

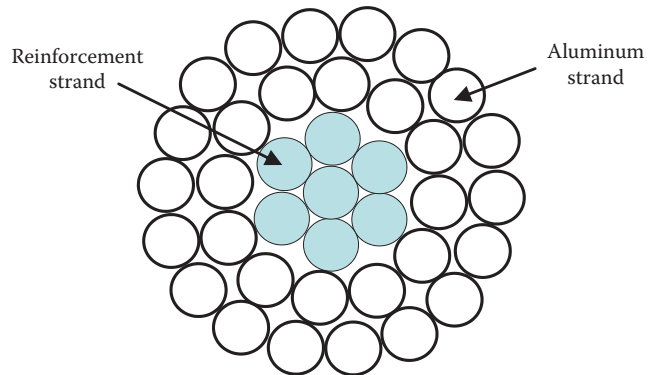


Figure 2.8 Transmission line conductor.

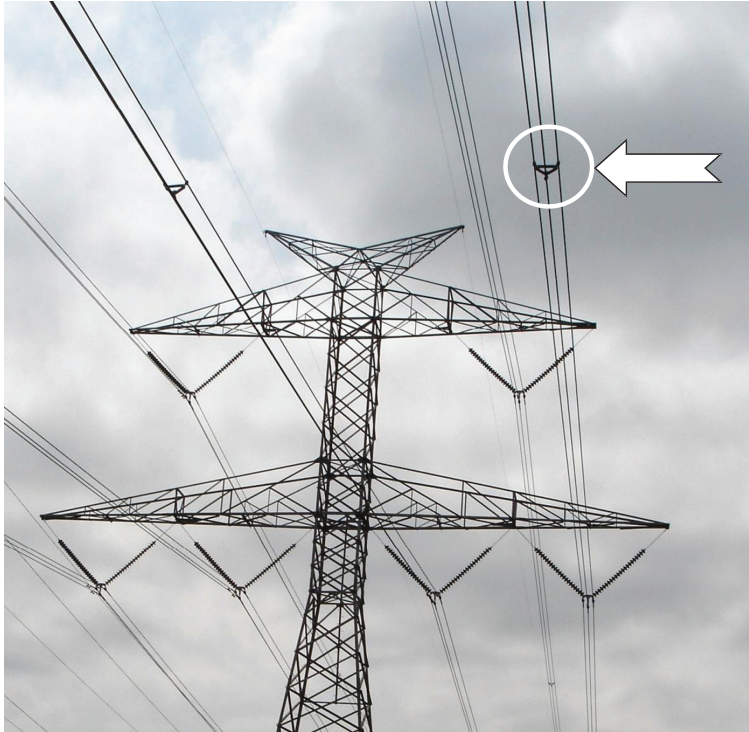


Figure 2.9 Bundled conductors.

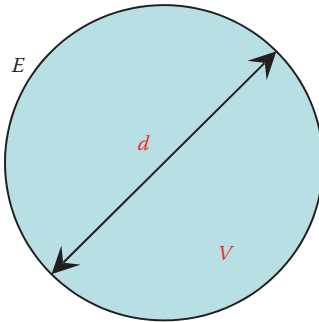


Figure 2.10 Electric field at surface of conductor.

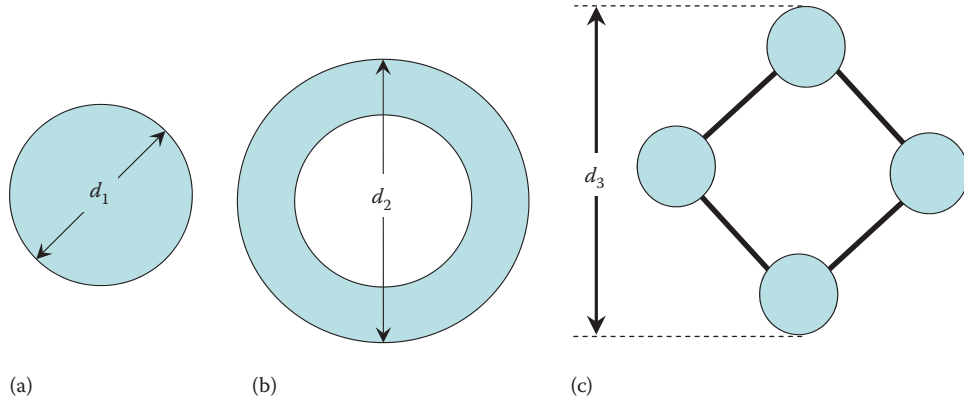


Figure 2.11 Options to reduce electric field strength: (a) solid conductor, (b) hollow, and (c) bundled.

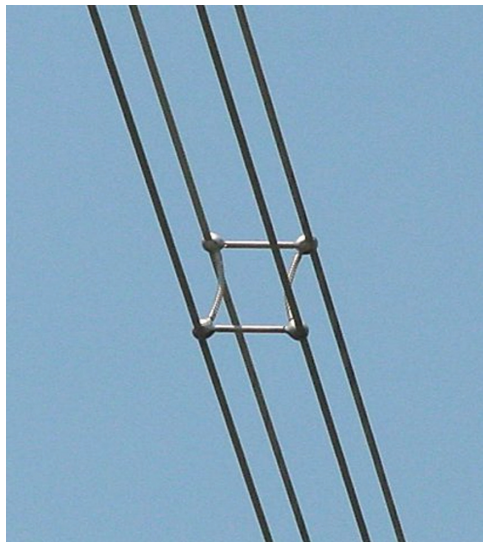


Figure 2.12 Bundled line with four sub-conductors.

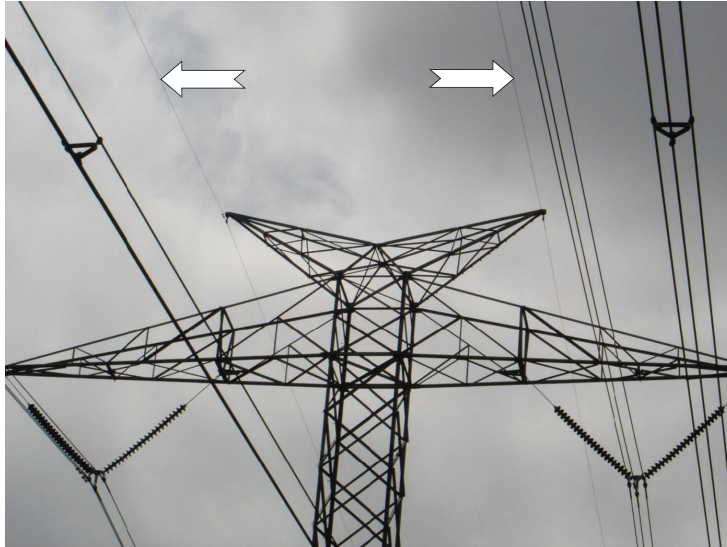


Figure 2.13 Static wires.

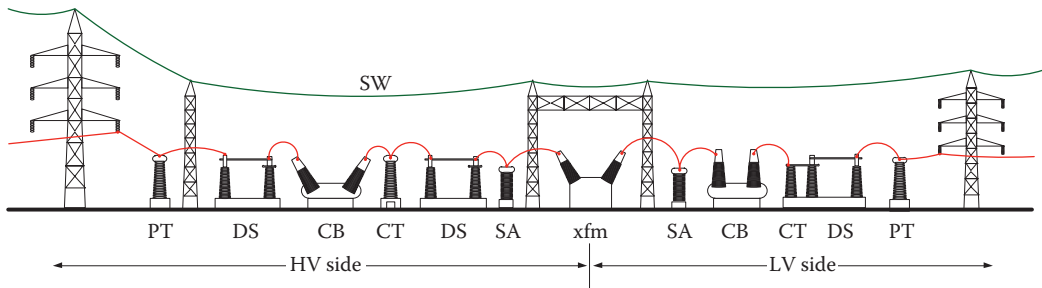


Figure 2.14 Main parts of a substation.



Figure 2.15 Potential transformer.

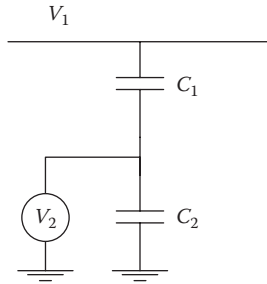


Figure 2.16 Capacitor divider.



Figure 2.17 Current transformer.

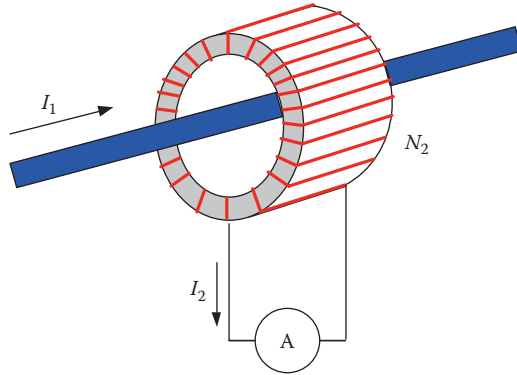


Figure 2.18 Main parts of CT.

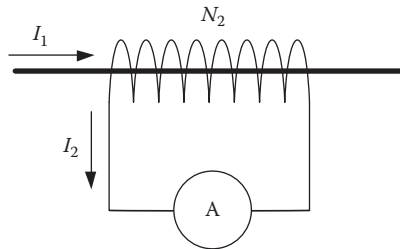


Figure 2.19 Circuit diagram of CT.

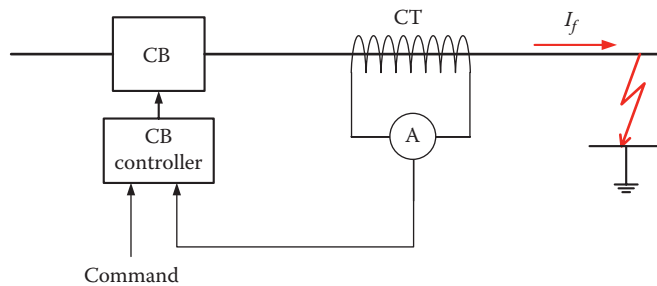


Figure 2.20 CB operation.

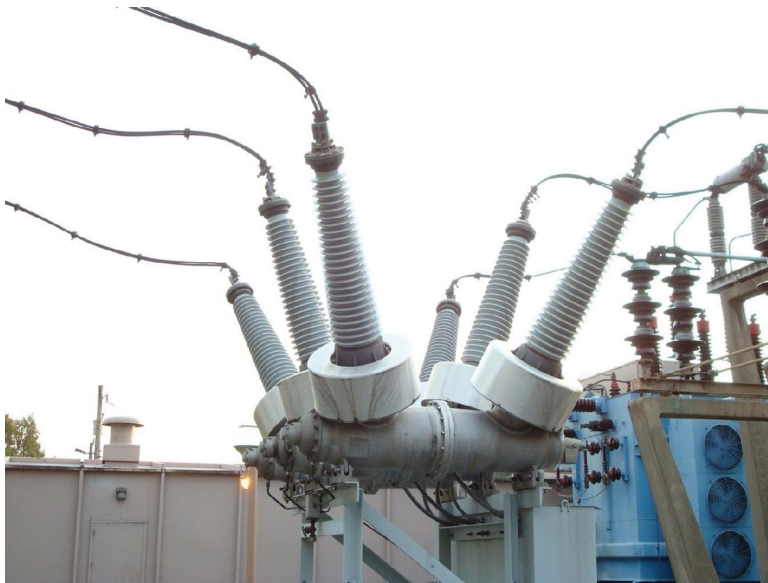


Figure 2.21 SF₆ CB.

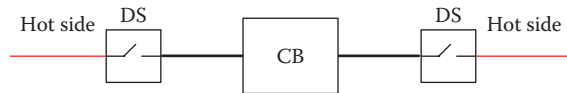


Figure 2.22 An application of DS.



Figure 2.23 Disconnect switch.

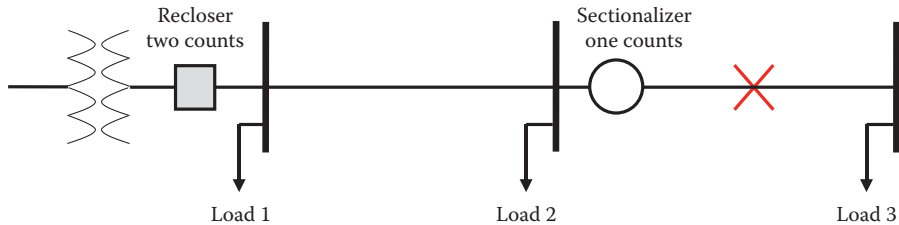


Figure 2.24 Operation of recloser and sectionalizer.

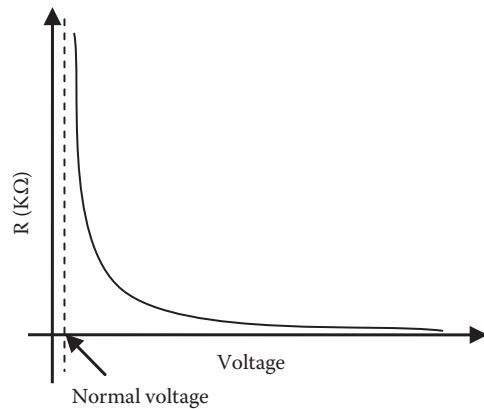


Figure 2.25 Resistance of surge arrester as function of applied voltage.

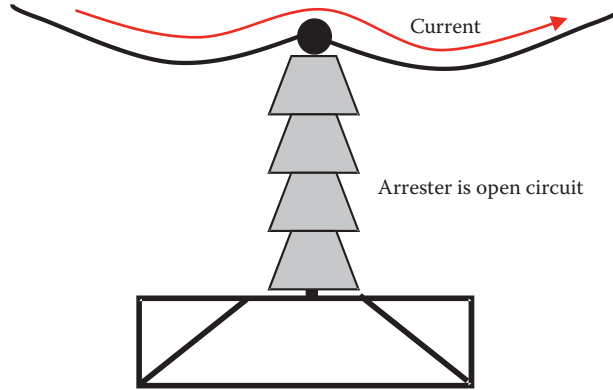


Figure 2.26 Surge arrester during normal voltage.

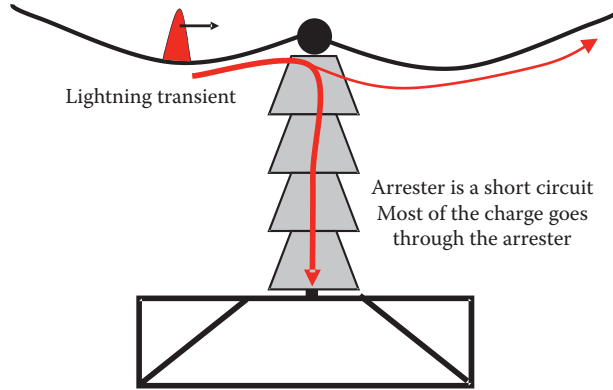


Figure 2.27 Surge arrester during surges.

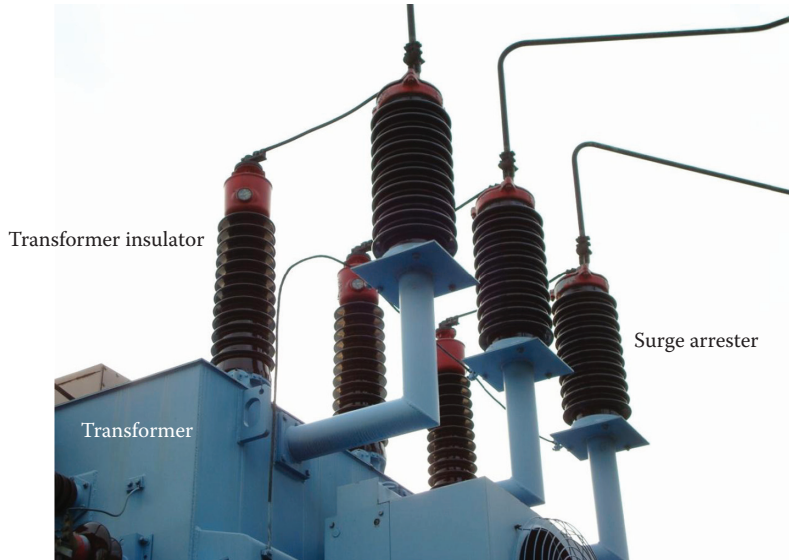


Figure 2.28 Surge arrester mounted on transformer.



Figure 2.29 Control center. (Image courtesy of Alstom Grid, Redmond, Washington.)