2.2 VOLTAGE REGULATION.

When a transmission line is carrying current, there is a voltage drop in the line due to resistance and inductance of the line. The result is that receiving end voltage (V_R) of the line is generally less than the sending end voltage (V_S). This voltage drop (V_s $-V_R$) in the line is expressed as a percentage of receiving end voltage V and is called voltage regulation.

The difference in voltage at the receiving end of a transmission line between conditions of no load and full load is called voltage regulation and is expressed as a percentage of the receiving end voltage.

$$\% \ voltage \ regulation = \frac{V_S - V_R}{V_R} \times 100$$

2.2.1 Transmission efficiency.

The power obtained at the receiving end of a transmission line is generally less than the sending end power due to losses in the line resistance. The ratio of receiving end power to the sending end power of a transmission line is known as the transmission efficiency of the line

$$\% \ Transmission \ Efficiency, \eta_T = \frac{Receiving \ End \ Power}{Sending \ End \ Power} \times 100$$

$$= \frac{V_R I_R \ cos\phi_R}{V_S I_S \ cos\phi_S} \times 100$$