[] discussed power and its losses and reasons why unit of electric energy generated by Power Station does not match with the units distributed to the consumers .[] stated that power generated in power stations passes through large & complex networks like transformers, overhead lines, cables & other equipment’s and reaches at the end users. But some percentage of the units is lost in the Distribution network. This difference in the generated & distributed units is termed as Transmission and Distribution loss. Transmission and Distribution loss are the amounts that are not paid for by users.

T&D Losses= (Energy Input to feeder(KWh)-Billed Energy to Consumer(KWh)) / Energy Input kWh x100.

The Transmission and Distribution Losses were classified into two types:

Technical Losses

Non-Technical Losses (Commercial Losses)

**Technical Losses:**

Losses due to energy dissipated in the conductors, equipment used for transmission Line, Transformer, sub- transmission Line and distribution Line and magnetic losses in transformers are known as technical losses. They are normally 22.5%, and directly depend on the network characteristics and the mode of operation. The major amount of losses in a power system is in primary and secondary distribution lines. While transmission and sub-transmission lines account for only about 30% of the total losses. Therefore the primary and secondary distribution systems must be properly planned to ensure within limits. The unexpected load increase was reflected in the increase of technical losses above the normal level. Losses are inherent to the distribution of electricity and cannot be eliminated.

There are two Type of Technical Losses.

 (a)   Permanent / Fixed Technical losses:

(b) Variable Technical losses

The major reasons for technical losses were

* Lengthy Distribution lines
* Inadequate Size of Conductors of Distribution lines
* Installation of Distribution transformers away from load centers
* Low Power Factor of Primary and secondary distribution system
* Bad Workmanship
* Feeder Phase Current and Load Balancing
* Load Factor Effect on Losses
* Transformer Sizing and Selection
* Balancing 3 phase loads
* Switching off transformers

**Non-Technical (Commercial Losses):**

Non-technical losses are at 16.6%, and related to meter reading, defective meter and error in meter reading, billing of customer energy consumption, lack of administration, financial constraints, and estimating unmetered supply of energy as well as energy thefts. The reasons for non-technical losses were:

* Power Theft
* Metering Inaccuracies
* Unmetered Losses for very small Load
* Unmetered supply
* Error in Meter Reading
* Billing Problems: