

## **Technical and Commercial Loss Segregation**

The loss estimation exercise drives the loss reduction initiatives and therefore correct loss estimation is the starting point for the loss reduction process. Estimation of technical and commercial losses will further enable Discoms to get a better picture of the losses borne by the Discoms assisting in focused loss reduction activities. However, the segregation is a complex exercise and till date most of the state owned utilities have not been able to do it.

### **Pre-requisites to carry to technical and commercial loss segregation**

Undertaking a loss segregation study for the complete network of the utility involves several financial, organizational and logistical constraints. As a first step, a representative sample of the transmission and distribution system is identified to carry out the study.

While selecting such a sample, the following pointers are to be kept in mind:

- One rural and one urban feeder in each circle of the Discom is selected.
- Ensure feeders selected are of nominal length and loading to avoid exceptional cases.
- Energy meters to be installed on all selected sample feeders with facility for downloading data locally or remotely.
- Identify and index all DTs connected to the selected feeders. Record name plate capacity of each DT.
- Ensure metering on LV side of each DT on the selected sample feeders.
- Meters to be checked for accuracy and reliability and defective meters to be replaced before conducting the study.
- Identify and index all consumers connected to each DT on the selected sample feeders.
- Check adequacy and reliability of installed meters at consumer premises. Provide reference meters for unmetered connections and flat rate consumers.
- Line diagrams indicating all the elements from the interface point of 33/11 kV PT onwards.
- Availability of sufficient manpower on the starting and ending date of the accounting period to ensure meter readings of all consumers on the selected sample feeders are taken within one day.

### **Key Data Parameters**

Apart from the above considerations, it is essential to have the following details for the selected feeders in order to undertake load flow studies:

- Network drawings / SLD
- Conductor size
- Length of conductor
- Rating of transformers/distribution transformers
- Peak loading for each feeder/transformer/DTR
- Average loading for each feeder/transformer/DTR
- Power factor for each feeder/transformer/DTR
- Supply hours for each feeder/transformer/DTR
- Other technical specifications of material used in the network of the selected sample

It is essential to conduct the study over a period of several months in order to account for seasonal variations in load and other parameters. In order to have proper energy accounting, it is important to ensure that the meter readings on the starting and ending date of the accounting period i.e. for each month on all meters on the selected sample feeders are taken within one day. During the period of study, vigilance needs to be strengthened in the selected areas to ensure minimum theft or other forms of commercial losses.

#### **Segregation of technical and commercial losses - Wayforward**

The Discom has already taken several steps in the direction of loss reduction and operational improvement. Further, several key activities required to undertake the segregation of technical and commercial losses, as highlighted above, are also in process. A few key measures are as below:

- All feeders upto 11 kV have been metered
- To ensure remote collection of data on the same day for all DTs in the area, DT metering with AMR meters is under process
- Consumer indexing is being updated and is at a level of ~99% as of now
- The details of each asset including transformer capacity, conductor size, rating, etc. are being mapped to enable appropriate load flow studies
- To get consumer meter readings of all connected consumers to the identified feeders on the same day, consumer metering is being strengthened. Also, smart metering has been planned to further assist in timely and accurate data collection.

Once the aforementioned pre-requisites are in place, the Discoms will be in a position to undertake the required studies and segregate technical and commercial losses as per the directions of the Hon'ble Commission.

  
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