

AGGREGATE TECHNICAL & COMMERCIAL (AT&C) LOSS – FACTS & FIGURES

(Dr .S.R. SIVARASU, BEE Certified Energy Auditor, Lead Auditor: ISO-14001:2015)

I. INTRODUCTION:

- It is inevitable in power system that the energy losses must occur in the process of delivering electrical energy to the consumers due to i) Technical and ii) Commercial reasons. The causes for the technical losses are mainly due to energy dissipated in the line conductors, transformers and other equipment's involved in transformation, transmission, sub-transmission and distribution of power. These technical losses are inherent in the power system; however it can be reduced to conserve energy.
- Electrical energy theft, bypassing meters, defective meters and errors in meter readings are the foremost reasons for the commercial losses. While adding commercial losses to the technical losses; it must be considered as Transmission & Distribution (T&D) losses.
- Further combing the revenue loss in billing collection (non-recovery of the billed amount) leads to Aggregate Technical & Commercial (AT&C) losses.

II. AGGREGATE TECHNICAL & COMMERCIAL (AT&C) LOSSES:

- Estimation of AT&C losses is an appropriate indicators for evaluating the performance for achieving energy efficiency by DISCOMs. The computation of AT&C losses are represented below:

$$\% \text{ AT\&C Loss} = \{1 - (\text{Billing Efficiency} \times \text{Collection Efficiency})\} \times 100$$

Where;

$$\text{Billing Efficiency} = \frac{\text{Total Units Billed}}{\text{Total Units Supplied}}$$

$$\text{Collection Efficiency} = \frac{\text{Revenue Collected (Rs.)}}{\text{Amount Billed (Rs.)}}$$

III. STATE WISE & REGION WISE AT&C LOSSES IN INDIA:

The status of the AT&C losses in India is being represented by Ministry of Power (MoP) UDAY site time to time. The values represented in the site are mostly updated. However the trajectory of the AT&C losses has some slight variations from the represented value. AT&C losses for i) Region wise and ii) state wise are presented in the following graphs. The national average of AT&C losses is stood around 22.67 %.

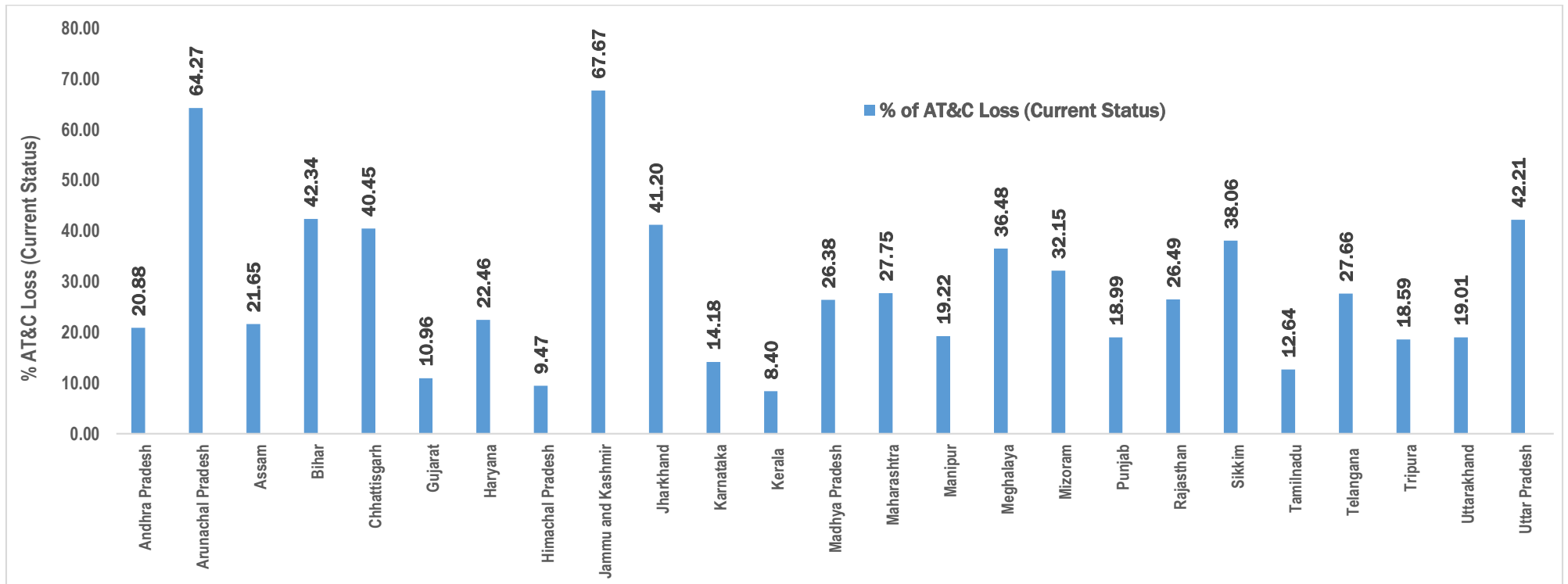


Fig.1: State wise % AT& C Loss in India (Current Status)



National Average of AT&C Loss stands at 22.28 %

(Does not include data of Andaman and Nicobar Islands, Lakshadweep, Nagaland)
viewed as on 10 June 2021

No. of States participated in UDAY	25
No. of States below National Average	12
No. of States above National Average	13
State with lowest % AT&C	Kerala (8.40 %)
State with highest % AT&C	Jammu & Kashmir (67.67 %)

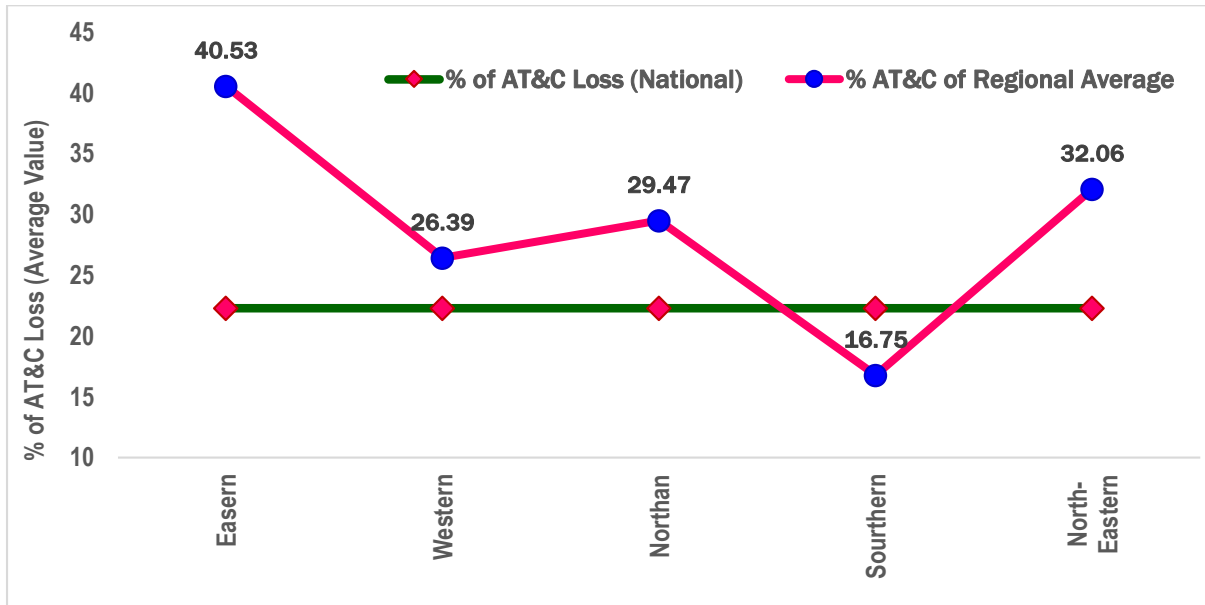


Fig.2: Region wise % AT& C Loss in India (Calculated as per Current Status)

States considered under different regions¹:

Eastern	Bihar, Jharkhand, Sikkim
Western	Chhattisgarh, Gujarat, Maharashtra, Madhya Pradesh
Northern	Haryana, Himachal Pradesh, Jammu & Kashmir, Punjab, Rajasthan, Uttar Pradesh, Uttarakhand
Southern	Andhra Pradesh, Karnataka, Kerala, Tamilnadu, Telangana
North-Eastern	Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Tripura

¹ – Regions are grouped as per the Power System Operation Corporation Limited (POSOCO) classification)

Note:

- The values shown in the above figures are viewed by myself on **09 June 2021** in UDAY official site.
- The national average % of AT&C loss shown in the site is updated daily and is almost matching with monthly Executive Summary of Power System released by Central Electricity Authority (CEA), MoP, GoI.
- The readers are requested to visit https://www.uday.gov.in/atc_india.php for more details.
- Other states not included in the list and Union Territories (UT) are yet to join in the UDAY scheme.
- **UDAY: Ujwal DISCOM Assurance Yojana.**



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