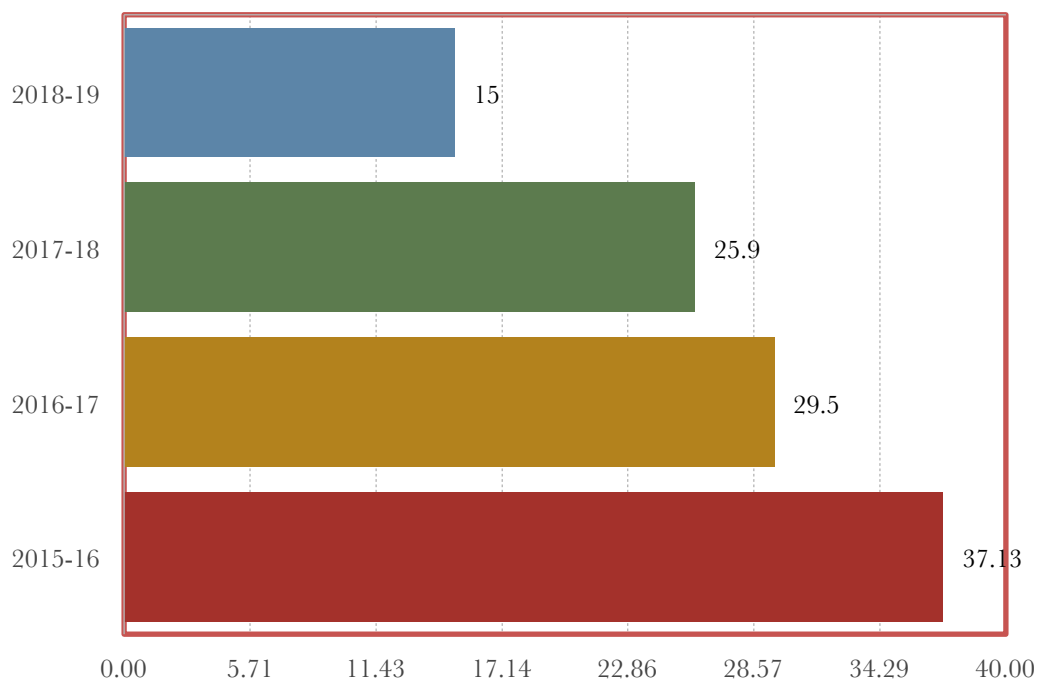




ACTION PLAN FOR ACHIEVING OPERATIONAL MILESTONES

ENERGY & POWER DEPARTMENT
GOVERNMENT OF SIKKIM



INTRODUCTION:

The Government of India and the State of Sikkim signed a Bi-Partite Memorandum of Understanding (MOU) under the Scheme UDAY – “Ujjwal Discom Assurance Yojana” at New Delhi on 23rd of February 2017 for Operational turnaround of Energy & Power Department, Government of Sikkim.

Sustainability of operational performance is at the CORE of UDAY. Through UDAY, the State of Sikkim would bring about Operational Efficiencies through compulsory feeder, Distribution Transformer and Consumer metering, consumer indexing & GIS mapping of losses, upgrade / change transformers, meters etc., smart metering of all consumers consuming above 200 units / month, and increased power supplies in areas with reduced AT&C losses.

The MOU envisages that the State of Sikkim would adhere to a designated AT&C loss trajectory to reduce the AT & C losses from the current levels of almost 37% to 15% by the year 2019. To this effect, the State of Sikkim has committed to improve Billing Efficiency from 68% in FY 15-16 to 87% in FY 19 and Collection Efficiencies from 91.78% in FY 15-16 to 97% in FY 19. Similarly, the gap between Average Cost of Supply (ACS) and Average Revenue Realized (ARR) would be reduced from Rs. 2.58 per unit in FY 15-16 to Zero in FY 19.

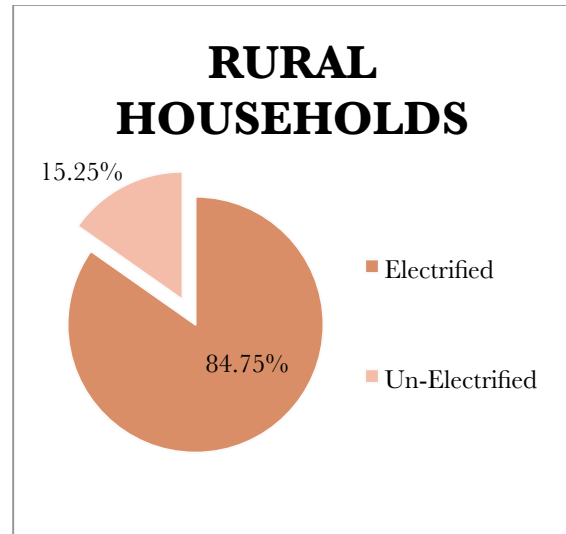
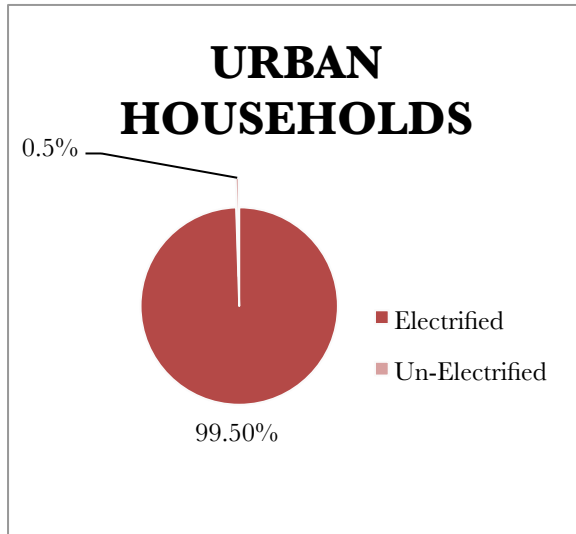
In order to achieve the targets specified under the MOU, an Action Plan has been prepared considering all the existing operational issues and key targets that are to be achieved for “Operational Turnaround” of Energy & Power Department, Government of Sikkim. In this regard, the As-is status of metering, distribution infrastructure and issues leading to AT&C losses have been collected from fourteen (14) Circles of the department, and based on the present status, a detailed targets have been developed and set for each parameter.

BACKGROUND:

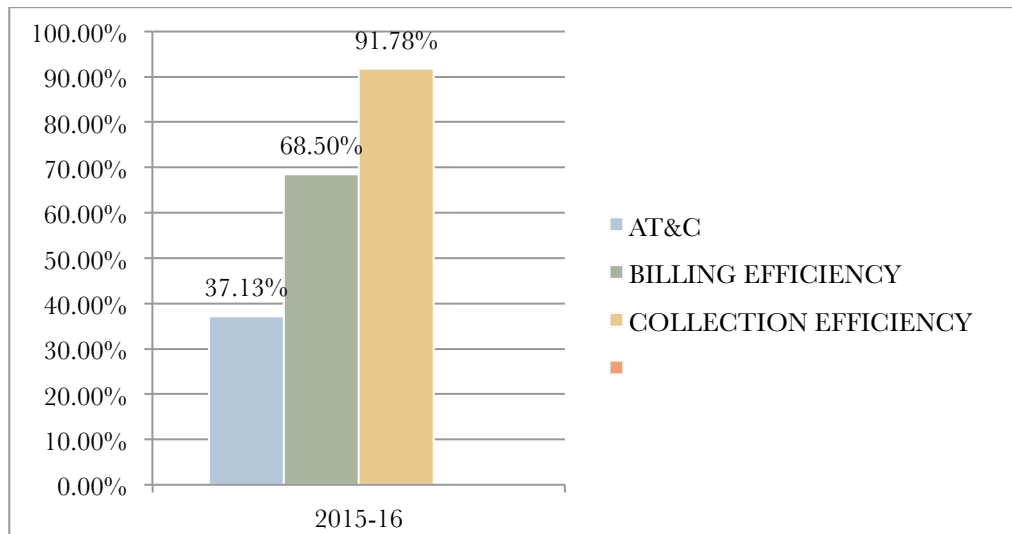
❖ Brief Profile of the State

Area	7096 Sq. Km
Population as per Census 2011	6,10,577
Rural	4,56,999
Urban	1,53,578
Number of Districts	04
Number of Rural Households	93,288
Number of Urban Households	35,718
Number of Rural Consumers	77,819
Number of Urban Consumers	26,557

❖ **Electrification Status**



❖ **Operational Parameters Status**



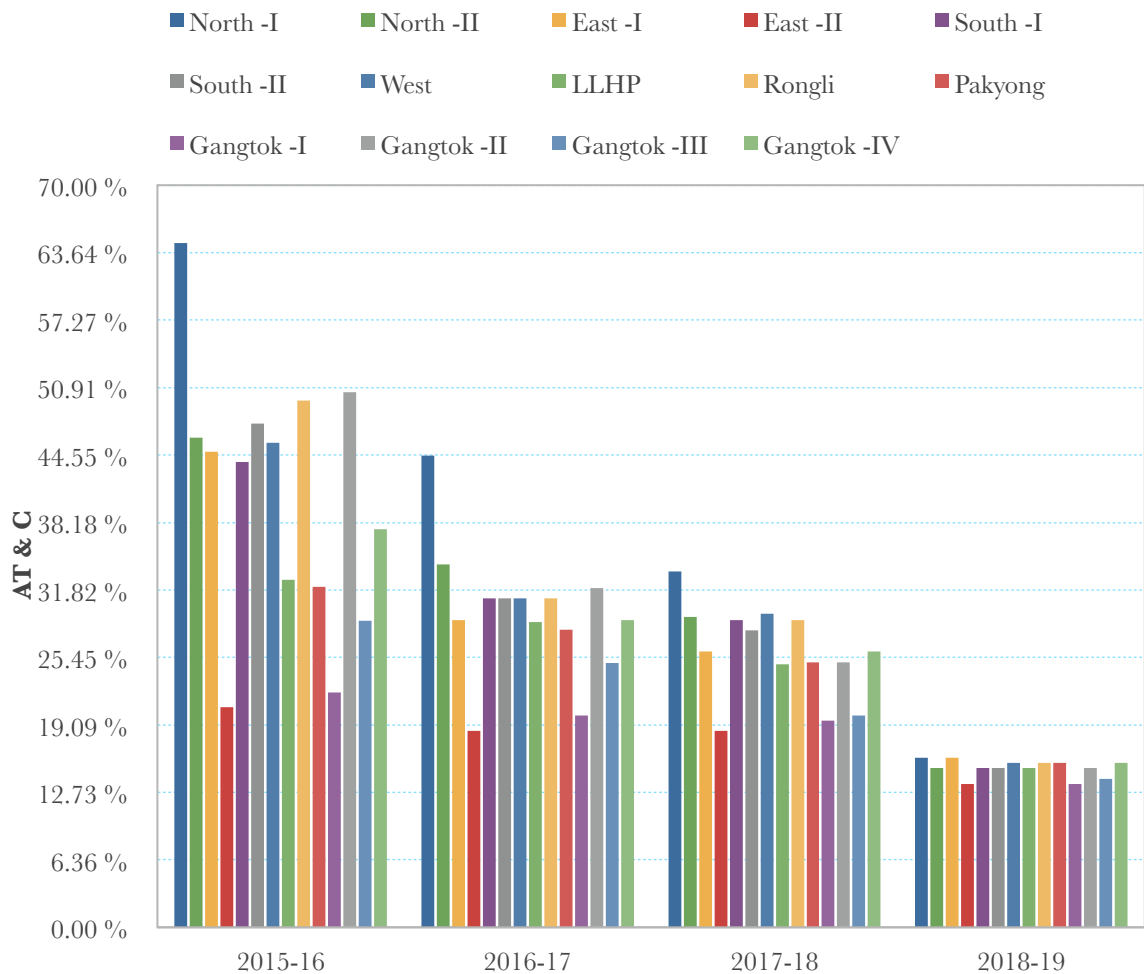
❖ **ACS – ARR GAP :**

F.Y	ACS (Rs)	ARR (Rs)	GAP (Rs)
2015-16	5.37	2.79	(2.58)

ACTION PLAN 2017 – 2021

❖ OPERATIONAL MILESTONES

➤ AT &C :- Circle wise Current Status & Loss Trajectory



➤ The E&PD, Govt. of Sikkim shall endeavor to reduce AT&C losses from 37.13% to 15% by FY 2018-19 as per the trajectory above. However, if the target in a particular year is not met, then the E&PD shall strive to achieve the targets in the subsequent years so as to achieve the desired target of 15%.

A. KEY TARGETS:

<ul style="list-style-type: none"> <u>Metering and Infrastructure Improvement</u> 		<ul style="list-style-type: none"> <u>AT & C Loss Reduction</u> 	
1	100% Feeder Metering	1	LED for Domestic and Other category of Consumers (DELP).
2	100% DT Metering	2	Feeder Improvement Programme
3	100% Consumer Metering	3	Consumer Awareness Programme & Programmes and Campaign to control power theft
4	Smart Metering of Consumers (above 500 Units / Month)		
5	Feeder Improvement Programme for Network strengthening and optimization.	4	Energy Audit upto 11 KV level
6	Performance Monitoring & Management System (MIS) implementation.	5	PAT scheme implementation
<ul style="list-style-type: none"> <u>ACS - ARR Gap Reduction</u> 		<ul style="list-style-type: none"> <u>Other Measures</u> 	
1	Power Purchase Cost Optimization	1	Employee Engagement
2	Tariff rationalization	2	Performance Monitoring
4	AT & C Loss Reduction		

ACTION PLAN

2017 – 2021

❖ **Vision 2021: Sikkim Power Sector**

➤ **24x7 Power for All (PFA) by 2019:**

A detailed Action Plan to achieve the vision of providing electricity access to all Households (HHs) in the State has been prepared, with an ambitious aim to achieve 24x7 availability of power to all by FY- 2019.

➤ **100% Village & Households Electrification:**

The State has already achieved 100% Village Electrification during 2014-15 as per the prevailing definition. All 425 numbers of inhabited villages (Census 2011) has been declared electrified.

The State now plans to achieve 100% Households (HHs) electrification. As against total 1, 29,006 numbers of Households as on 31st March 2017, 1, 14,620 number of HHs have been electrified and the remaining 14,386 numbers of HHs are expected to be electrified by March 2018.

➤ **Growth Development Plan to meet the load growth:**

- ✓ Creation of new 66/33/11 KV Substation & associated sub-transmission lines (66/33/11 KV level) for strengthening of Distribution System in order to establish adequate Electricity Distribution Backbone Infrastructures.
- ✓ Capacity addition of 66/11 KV substations (existing EDBs)
- ✓ Installation of meters for new connections
- ✓ Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY)
- ✓ Integrated Power Development Scheme (IPDS)

➤ **AT & C Losses:**

Along with achieving the multiple objectives such as enhancing the reach, reliability and quality of electricity, the E&PD shall endeavor to bring down AT&C losses to 15% by 2019. In this regard, several focused interventions at all levels are being undertaken, including Metering of Feeders, DTRs and Consumers, Improving and Augmenting existing Sub-transmission and Distribution infrastructure, Enhancing Revenue collection initiatives and ensuring consumer satisfaction.

➤ **ACS and ARR Gap:**

To build capacity to achieve financial sustainability, the State is initiating strategies and several action steps to address the wide gap between Average Cost of Supply (ACS) and Average Revenue Realized (ARR).

ACTION PLAN

1. Metering & Infrastructure Improvement:

A. Current Status of Consumer Metering

Circles	2015-16				
	Total Consumer	Total Metered	Total Defective	Total Un-Metered	Metering Level (%)
North -I &II	7,763	4,141	910	3,622	53.34
East -I	12,661	10,401	764	2,260	82.15
East -II	4,432	4,122	394	310	93.01
South -I	23,558	20,889	460	2669	88.67
South -II	5,438	4,822	120	616	88.67
West	16,095	11,703	378	4,392	72.71
LLHP	4,470	4,183	241	287	93.58
Rongli	4,726	3,015	364	1,711	63.80
Pakyong	8,008	6,478	211	1,530	80.89
Gangtok -I	4,329	4,329	29	-	100.00
Gangtok -II	4,950	4,468	33	482	90.26
Gangtok -III	5,583	5,558	39	25	99.55
Gangtok -IV	2,363	2,110	74	263	89.29
Total	1,04,376	86,219	4,017	18,167	81.69

➤ Target for Consumer Metering:

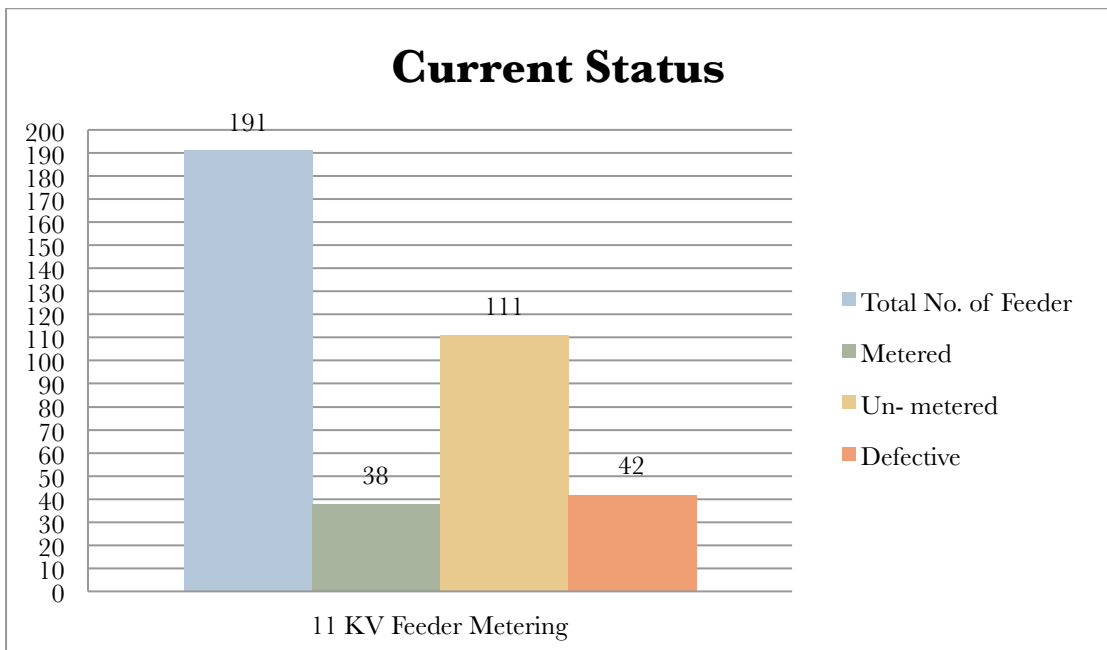
Activity	Current Status	2016-17	2017-18 (December)
Consumer Metering	81.69 %	90%	100%

➤ **Action Plan:**

The E&PD has already achieved 81.69% metering of its existing consumer base. Out of the un-metered consumers, majority are Rural / BPL domestic consumers. The E&PD proposes to cover all un-metered consumers as well as replacement of defective & electro-mechanical meters with new static / smart meters by the year 2018 (December). All new connections will be metered and defective meters shall be replaced on regular and urgent basis.

- Funds for 100% metering has already been earmarked under DDUGJY, IPDS & State Plan for the following activities to achieve 100% consumer metering:
 1. Procurement of Meters for installation in Rural & Urban areas to cover all un-metered consumers.
 2. Replacement of faulty / defective meters
 3. Replacement of all electro-mechanical meters with static (electronic) / smart meters.
 4. Installation of smart meters in urban area for all consumers with consumption of more than 200 & 500 units per month.
 5. Smart Meters would also cover the net metering to enable / support distributed solar roof top generation, this scheme has been covered under IPDS.

B: 11 KV Feeders Metering:



- The total no. of 11 KV feeders is 191, out of which 111 are un-metered while 42 are defective.

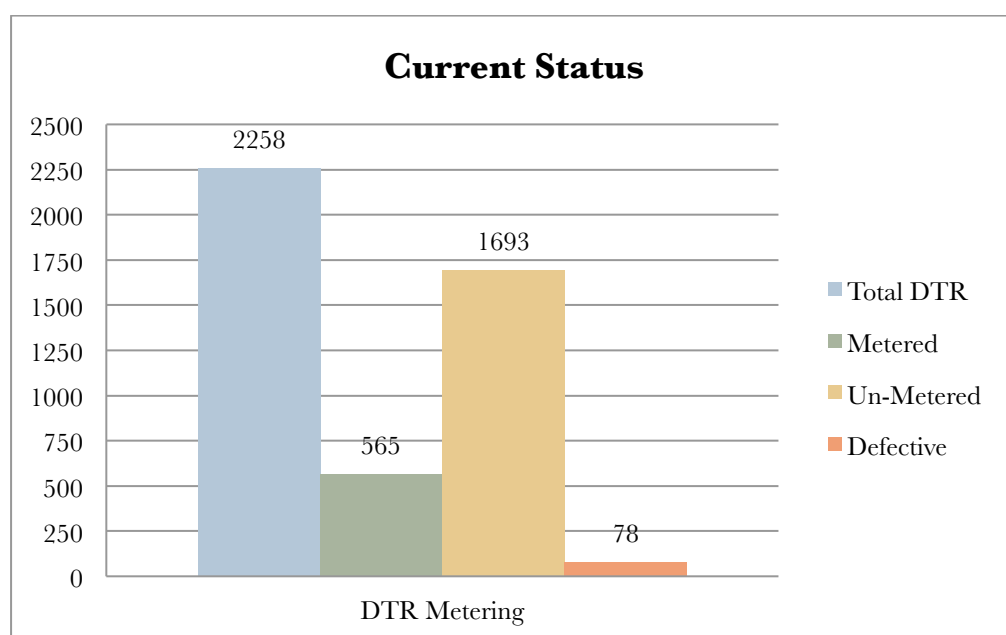
➤ **Target for Feeder Metering:**

Activity	Current Status	2016-17	2017-18 (March)
Feeder Metering	20 %	75%	100%

➤ **Action Plan:**

- It is proposed to meter all 11 KV feeders and achieve 100% feeder metering by 2018 (March) for which fund has already been earmarked under DDUGJY, IPDS & State Plan. The activity for replacement of defective meter have already been initiated and this exercise is targeted to be completed by 2017 (December).
- Metering of all 11 KV Feeders in Rural area will be covered under DDUGJY, for which NIT has already been published and is targeted to be completed by Mid-2018 (July).
- Metering of all 11 KV Feeders in Urban area shall be covered under IPDS, for which fund has been earmarked.

C. DTR Metering:



- The total no. of DTRs as on 2015-16 is 2,258; out of which 565 has been metered and remaining 1693 are aimed to be covered for metering by end 2018. However, this will depend on availability of fund under DDUGJY, IPDS and State Plan.
- The E&PD has prepared a comprehensive DTR metering plan, in order to achieve the target of energy audit and appropriate accounting to contain T&D losses.

➤ **Target for Feeder DTR Metering:**

Activity	Current Status	2016-17	2017-18	2018-19 (March)
DTR Metering	25 %	35%	75%	100%

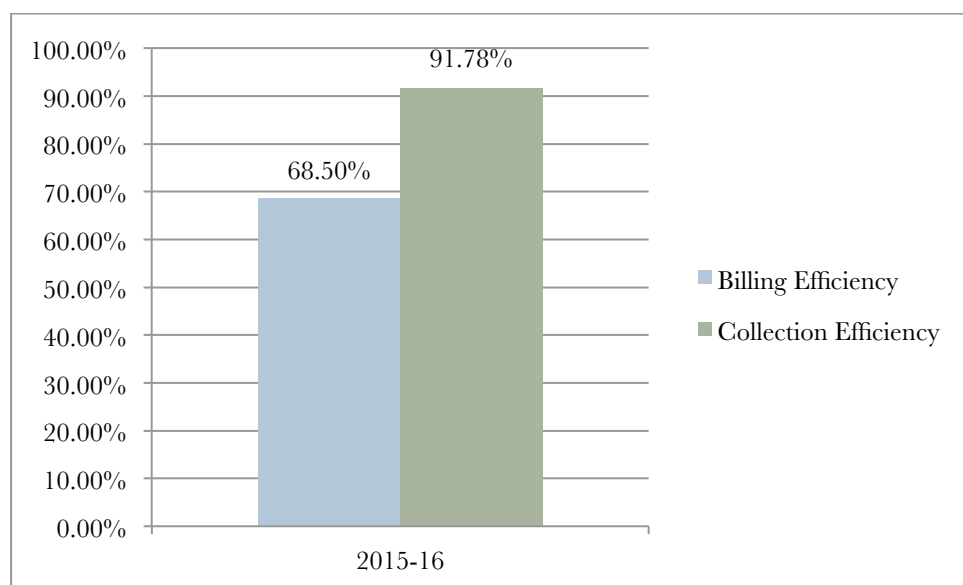
➤ **Action Plan:**

- 100% DTR metering has been planned in a phased manner
 1. All DTRs in Urban area shall be targeted along with DTR of capacity 63 KVA and above in Rural areas.
 2. Then, remaining DTR will be metered.

D. Billing and Collection Efficiency:

- The AT&C Losses in the State was very high to the extent of 48.66% in the year 2012-13, since then after initiation of various activities to address the issue, significant improvement has been witnessed. The AT&C losses have come down to 37.13% in 2015-16 from 48.66%. However, it is still high considering the national average of 23% (2014-15).

➤ **Current Status of Billing & Collection Efficiency:**



➤ **Target for Billing & Collection Efficiency Improvement:**

Year	2015-16	2016-17	2017-18	2018-19
Billing Efficiency (%)	68.50	75.00	78.00	87.65
Collection Efficiency (%)	91.78	94.00	97.00	97.00

➤ **Action Plan:**

➤ **Measures to increase Billing Efficiency**

- i. **Automatic Meter Reading of Industrial Consumers –**
 - ✓ *AMR system has been implemented using GSM and around 30% such consumers have been covered, there is plan to cover all industrial consumers by end of 2017.*
- ii. **Metering including prepaid/ Smart Meter –**
 - ✓ *Smart meters already in place in two towns covering around 10,000 consumers, there is plan to extend Smart Metering to other towns and fund has already been earmarked under IPDS and Smart Metering of all Urban Consumers in identified 6 towns is targeted to be completed by 2018 (December).*
 - ✓ *New meter installation in Rural areas including replacement of defective meters and replacement of electro-mechanical meters with static / smart will be covered under DDUGJY for which NIT has been published.*
- iii. **Image of Meter Reading on Bill-**
 - ✓ *Already in place in two towns covering around 15,000 consumers and there is a plan to cover consumers of other 6 towns under IPDS.*
- iv. **Consumer Indexing & GIS Mapping –**
 - ✓ *As of now, around 10,000 consumers in Gangtok and Tadong Towns have been Indexed and Mapped through R-APDRP scheme, there is plan to cover other towns under IPDS.*
- v. **Frequent raids and inspection of consumer premises to prevent power theft –**
 - ✓ *To check, monitor and eliminate power theft, flying squads headed by Chief Engineers has been formed.*
- vi. **100% feeder metering by 31st March 2018 –**
 - ✓ *Metering all Rural Feeders will be completed by 2018 (March). NIT published.*
- vii. **100% DT metering by 31st December 2018**
 - ✓ *E&PD plans to meter all DTs by 2018 (December)*
- viii. **Energy Audit up to 11 KV by 31st December, 2018**
- ix. **Energy Accounting and Audit.**

➤ **Measures to increase Collection Efficiency**

- i. **Door to Door collection from Rural consumers; -**
 - ✓ *Door to Door Collection is exercised only once in a year, there is plan to increase the frequency.*
- ii. **Uploading of all Electricity bill on web for direct download and on-line payment –**
 - ✓ *Already in place in two towns covering around 15000 consumers and there is plan to cover another 15000 to 20000 consumers of other 6 towns of the State by 2018 (December).*

iii. Payment Options –

- ✓ *Online payment facility through Net banking, Debit Cards, Debit Cards in place for consumers of two towns and industrial consumers covering around 15000 consumers. There is plan to extend this facility to all Urban Consumers and thereafter state wide.*
- ✓ *Direct collection at State Bank of Sikkim already in place for all consumers. There is plan to introduce more direct collection centres, however this will depend on the State Government.*
- ✓ *Mobile based payments and Mobile app are in pipeline. Two towns with 15000 consumers to be facilitated by March, 2018 and thereafter there is plan to extend the facility to other towns.*

iv. Disconnection drive in case of non-payment; -

- ✓ *Revenue drive involving disconnection of defaulting consumers at present is conducted twice a year, there is plan to increase the drive frequency to at least 6 times a year.*

v. Customer Facilitation Centre for rectification of bill/ consumer complain –

- ✓ *At present such facilitation are in place only in sub-division offices, there is plan to extend this facility to the level of section offices and GPU (Gram Prashasanik Kendra).*

E. Other measures:

➤ **Strengthening and Capacity addition of electricity infrastructure**

- ✓ The E&PD shall strengthen and undertake capacity addition of electricity infrastructure under IPDS, DDUGJY and State Plan Schemes to the effect of reduction of technical losses in the system. (as detailed in “Growth Development Plan to meet the load growth” section above.

➤ **Feeder Segregation and Management**

- ✓ In the State, most of the feeders are mixed (catering to Rural + Urban consumers), the E&PD plans to physically segregate such feeders by creating separate Rural, Urban and Industrial feeders. The proposal under DDUGJY and IPDS aims to cover the above activity.

➤ **GIS Asset mapping and Consumer Indexing**

- ✓ GIS Asset mapping and Consumer indexing have already been completed in two towns and activity for integrating the delta changes in these towns are also in progress.
- ✓ The E&PD further plans to undertake GIS mapping and Consumer indexing of all assets and consumers within the power distribution network in the State. There is plan to take up this activity in phased manner covering Urban areas in the first phase then Rural areas.

➤ **LED for domestic and other category consumers under DELP**

- ✓ The total energy consumption of in the State is around 265 MU (FY 2015-16).
- ✓ To reduce energy input and thereby to save energy, the E&PD has adopted Domestic Efficient Lighting Scheme (DELP) developed by EESL to provide energy efficient LED lighting to grid connected consumers in the domestic sector where high quality LED bulbs are given to households at an affordable price to encourage them to invest in energy efficiency.

- **Consumer Awareness programme**
 - ✓ E&PD has taken an initiative to increase consumer awareness about the need for Energy Efficiency (EE) and Energy Conservation (EC) and the manner in which EE/EC can be brought about by undertaking extensive consumer awareness campaigns. The emphasis has been laid down on increasing interaction with the consumers by making them aware of the various initiatives which can be devised from their end to ensure a significant Energy Conservation.
- **Control of power theft**
 - ✓ Vigilance Squad / Flying Squad to check and monitor power theft are in place.
 - ✓ The E&PD further plans to roll out various campaign and scheme to address the issue in a very effective way and to completely eliminate the power theft at all level of consumption.
- **Increasing Employee Engagement**
 - ✓ Capacities building of Employees – Currently in-house refresher trainings in regional centres are being imparted. The E&PD now plans to adopt dynamic training policy & plan to cover all the employees.
 - ✓ Various activities are being taken up to Motivate and encourage the staff.
 - ✓ Recognition and award for the best performing employees twice a year. (On Republic Day and on Independence Day).

2. ACS & ARR Gap Reduction

- Reduction of gap between Average Revenue Realization (ARR) and Average Cost of Supply (ACS) is one of the key targets to be achieved under UDAY.
- During 2015-16, the E&PD estimated the ACS – ARR gap of Rs. 2.58, with ACS of Rs. 5.37 and ARR at Rs. 2.79.
- The State plans to reduce this gap to Zero by 2019-20 through the following measures:
 - Loss reduction, tariff rationalisation and other cost and revenue optimisation measures.

➤ **Action Plan**

- **Power Purchase Cost Optimization**
 - ✓ To address the high power purchase cost of Rs 5.37/kwh, several power purchase cost optimization measures have been planned. It is expected that PPC will be restricted to Rs. 3.38/kwh by FY 19-20. This can be achieved on account of various measures to be taken at central, state and State Generating utility.
- **Tariff Rationalization**
 - ✓ Timely filing of Tariff Petition – Considering the importance of timely filing of Tariff Petition before Hon'ble SERC.
 - ✓ Timely filing of Tariff Petition

EXPECTED OUTCOME AND WAY FORWARD

Energy & power Department, Govt. of Sikkim is expected to draw out from the measures taken to turnaround itself into an operationally sound and viable utility.

➤ **Expected Outcomes:**

- ✓ 100% metering at all levels including rural consumers, installation of smart meters, utilization of technology and the energy accounting shall ensure that the reasons for T&D losses can be identified and arrested.
- ✓ The up-gradation of existing distribution infrastructure with feeder improvement
Program coupled with infrastructure investments under various central government schemes such as DDUGJY, IPDS etc. shall ensure 24X7 reliable power to all consumers in the state.
- ✓ Initiatives related to energy efficiency, focus on optimization of power purchase cost shall definitely have an impact on creating the affordability of power for all Consumers.
- ✓ The impact of measures to be taken by E&PD for reduction of AT&C Losses, including feeder improvement scheme, improving billing and collection efficiency through various means shall not only be instrumental in reducing the overall cost of supply but also result in optimal utilization of national resources at large.
- ✓ As E&PD endeavours to become a regulatory compliant entity with enhanced discipline in tariff filing and recovery of cost impact through Fuel and Power Purchase Cost Adjustment (FPPCA) mechanism, it can be ensured that the gap between the ACS and ARR gets timely addressed. E&PD will also be able to recover its actual cost of supply and the tariff shocks can be avoided.

➤ **INFERENCE**

Thus, it is expected that a pace will be set for E&PD, which will be characterized by robust infrastructure, monitoring of performance, motivation of employees and technological interventions. Effectively, it will pave foundations for an operationally efficient and a self-sufficient power sector in the State of Sikkim.
