Challenges Faced By BESCOM In Field Level Management

28 October 2025

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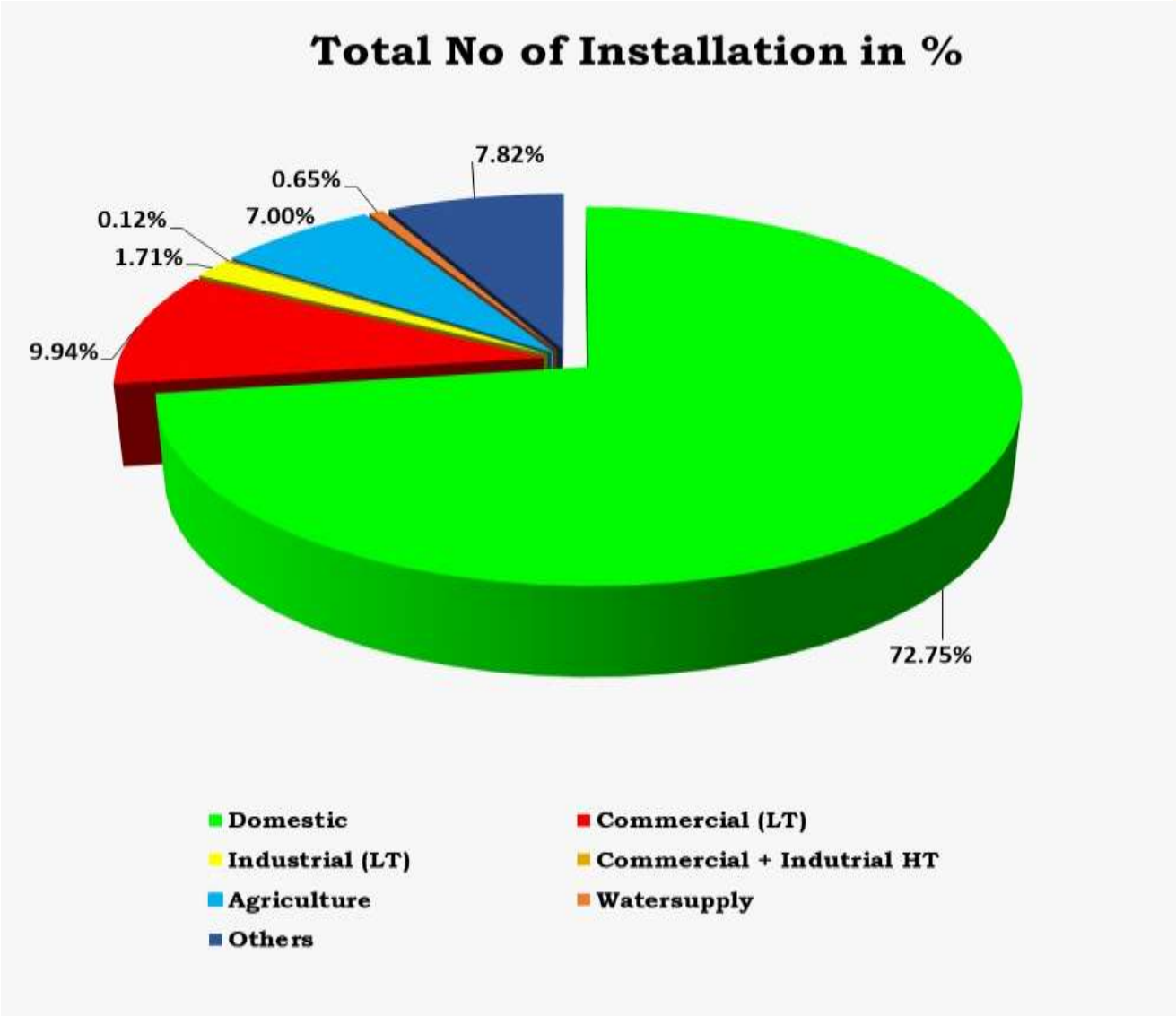
Introduction to BESCOM

Snapshot of BESCOM

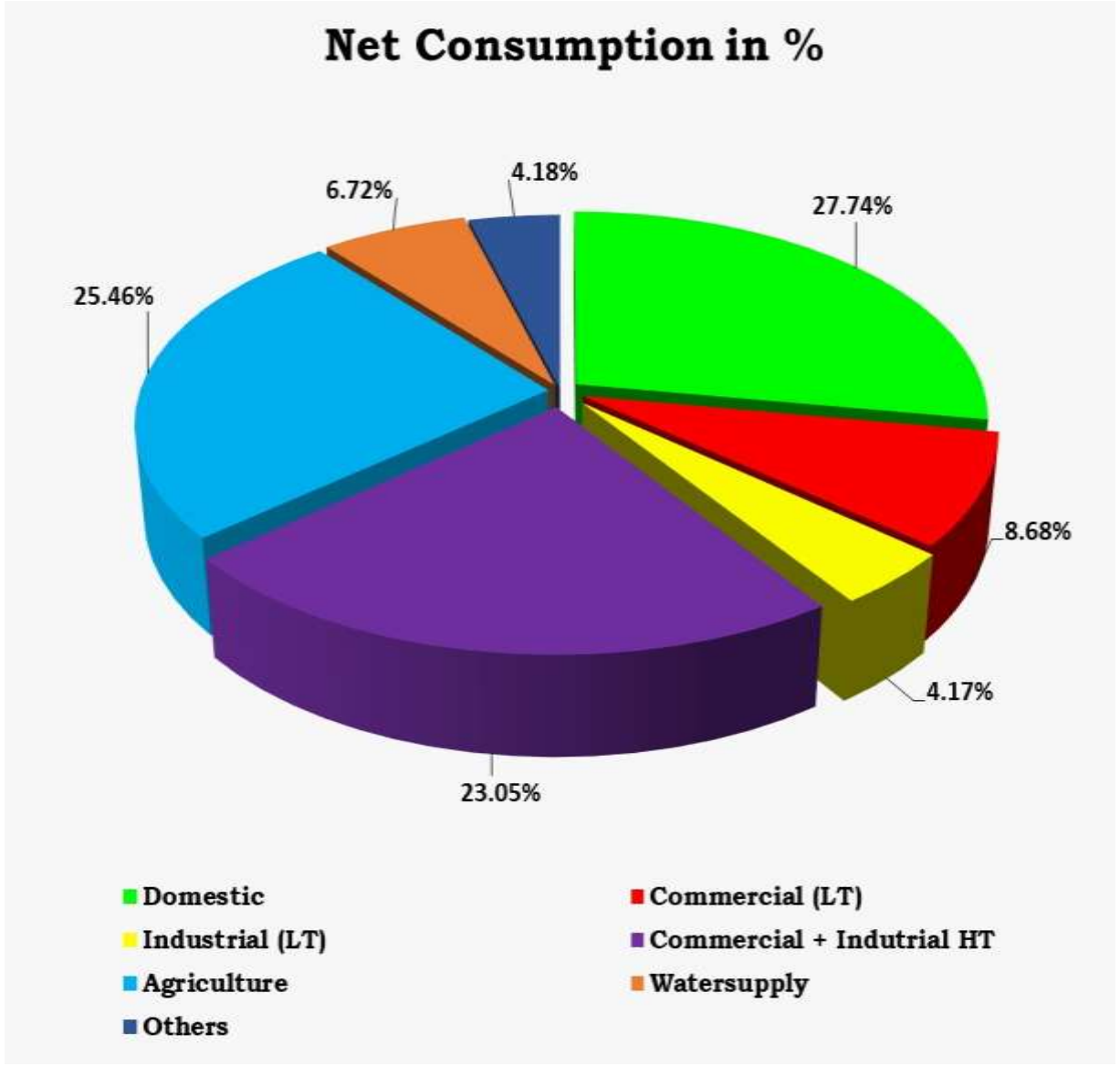
Profile		
Area (in Sq km)		41,092
No. of Districts		8
Population (in Lakhs)		207
No. of EHV Stations		572
No. of Consumers (in Lakhs) (Provisional)		150.40
No. of 11 kV feeders (Live)		7014
HT Line in ckt km		156022.46
LT Line in ckt km		201001.24
No. of DTCs		542825
No. of Employees (31.03.2025)	Sanctioned	24721
	Working	13975
Energy Sales in Mus (March-25)		37122.46
Revenue Demand in Rs. Cr (FY 24-25)		32893.97
Revenue Collection in Rs. Cr (March-25)		31217.76
Energy Sales in Mus (FY 2024-25 upto March-25)		33386.02
Revenue Demand in Rs. Cr (FY 2024-25 upto March-25)		37089.17
Revenue Collection in Rs. Cr (FY 2024-25 upto March-25)		32593.33
% Distribution Loss (March-2025)		8.44
% AT & C Loss (March-2025)		10.41

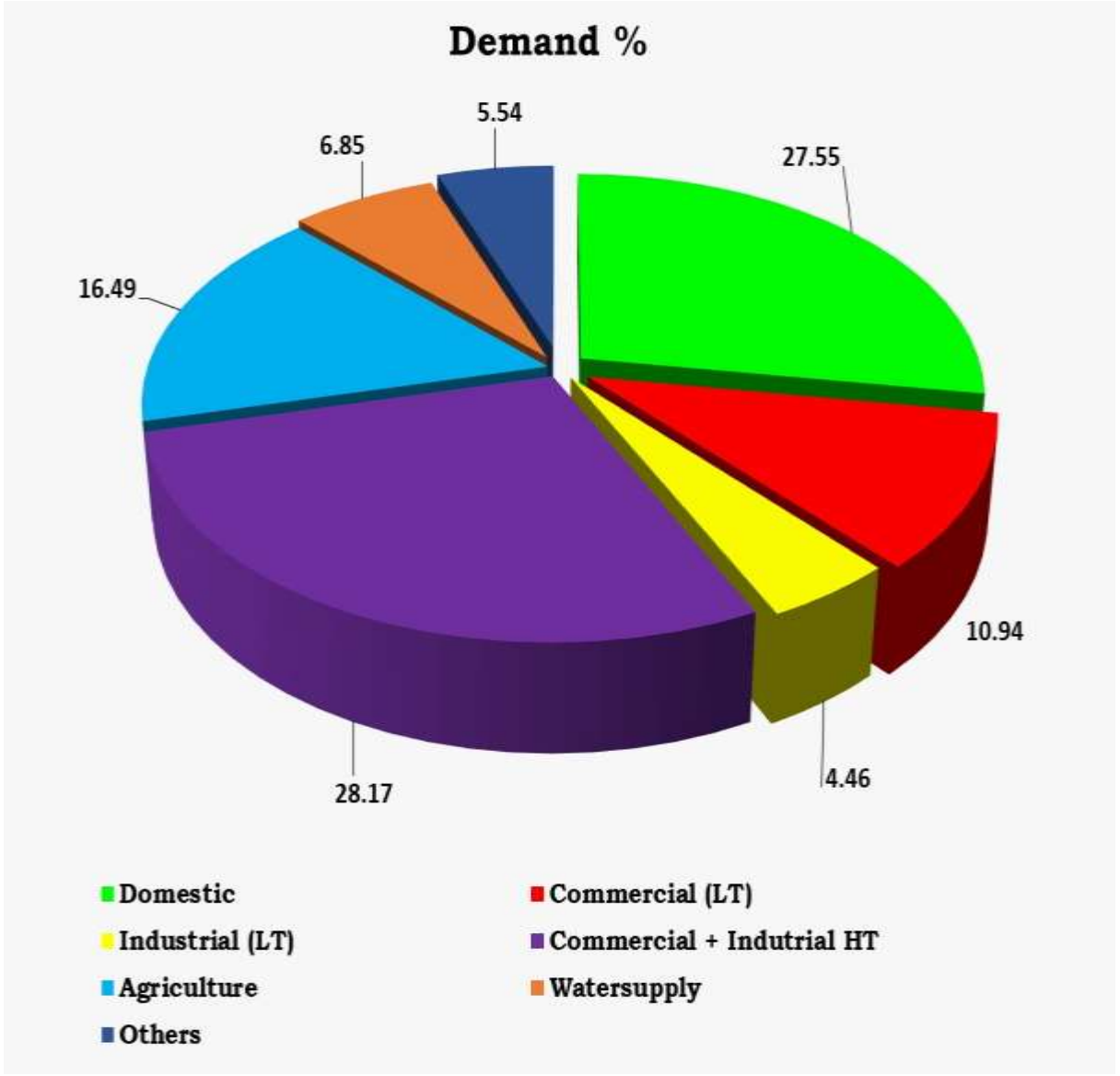
Consumer Profile

Tariff Category	FY-15	FY-25	% incr.
LT Domestic	7148220	10854635	52
LT Commercial	874655	1497261	71
IP sets	770469	1045755	36
LT Industrial	175326	255148	46
LT Others	464432	1263305	172
HT Industrial	5414	8933	65
HT Commercial	5273	10667	102
HT Others	729	3509	381
TOTAL	**9444518**	**14939213**	58



Consumer Profile – Sales vs Demand



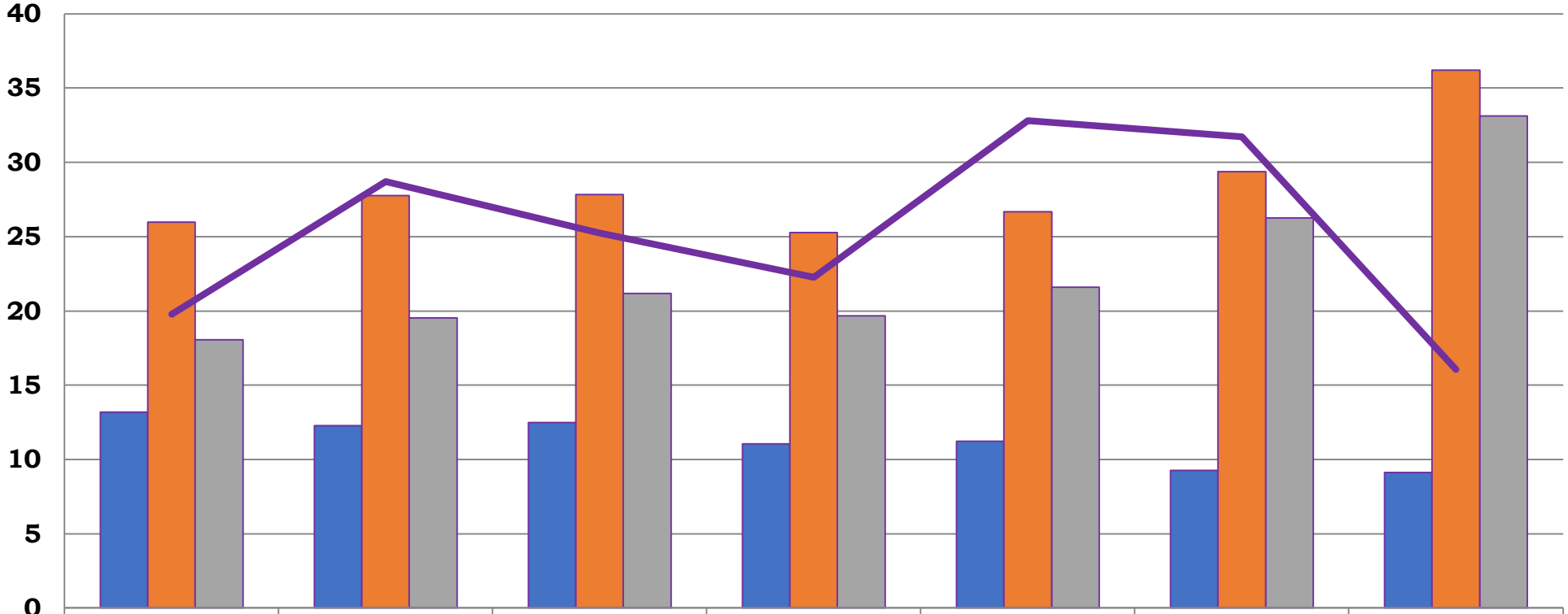


Trend Analysis from FY18 to FY24

Steps taken to reduce distribution Loss –

- **Conversion of Overhead Lines into Under Ground Cables/Aerial Bunched Cables**
- **Effective Vigilance activity to control commercial loss**
- **Avoiding manual reading of meters by using advanced technologies like photo reading, probe reading etc**

Comparison on Distribution Loss, Sales, Revenue & CAPEX (FY-18 to FY-24)



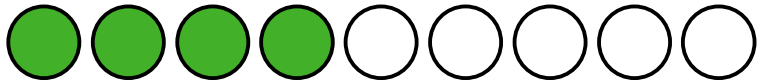
	FY-18	FY-19	FY-20	FY-21	FY-22	FY-23	FY-24
Distribution Loss Achieved (%)	13.17	12.27	12.49	11.06	11.23	9.28	9.13
Sales in BU	26.0	27.8	27.8	25.3	26.7	29.4	36.2
Revenue Demand in Rs 1000Crs	18.0	19.5	21.2	19.7	21.6	26.2	33.1
CAPEX in 100CRS	19.8	28.7	25.2	22.3	32.8	31.7	16.1

Field level challenges

The field challenges faced by the officials can be broadly divided into 2 categories

Technical Challenges

These challenges refer to the distribution related issues that arise from limitations in electrical infrastructure, equipment, and network management systems, which hinder the reliable distribution of electricity.



Administrative Challenges

These challenges refer to the organizational and procedural hurdles that arise from limitations in workforce management, policy implementation, coordination, which affect effective decision-making, service delivery, and overall operational efficiency.

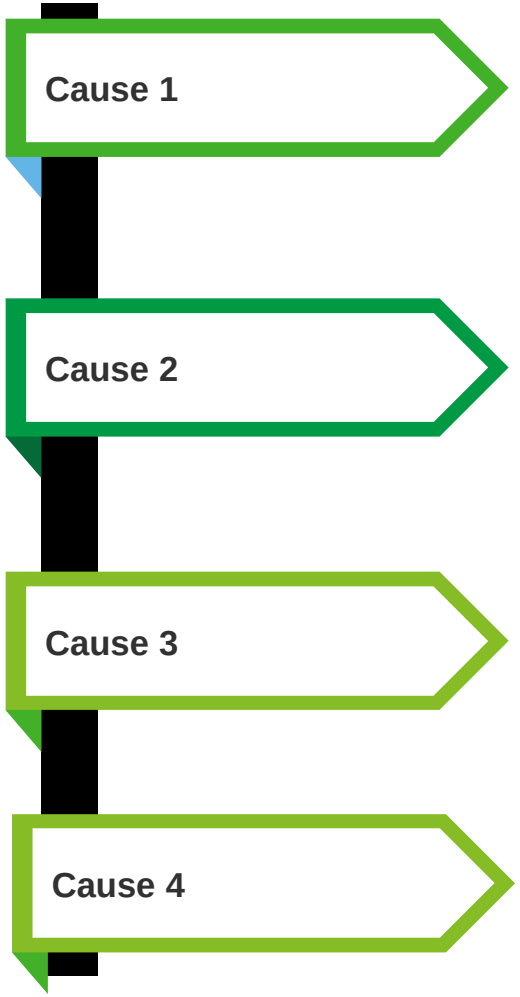
1) **To provide reliable power supply**
2) **Revenue Leakages**
3) **Distribution loss reduction challenges**

1) **Recovery of Revenue Demand**
2) **Shortage of Skilled Manpower**

Technical Challenges

Challenge 1: To provide reliable power supply and implementing outage management

Especially to Urban area like Bangalore city and Rural Irrigation Pump Sets (Agriculture Feeders)



Rapid urbanization, industrilisation and infrastructure growth have driven a sharp increase in power demand, resulting in overloading of distribution transformers and feeders

Lack of Co-ordination between multiple agencies leading to delay in execution of expansion projects posing challenges in maintenance works

Identifying fault during an outage delays some times due to limited visibility and extensive network coverage

Inadequate transmission network (overloading)

Solutions to provide reliable power supply and implementing outage management

01

The implementation of advanced automation solutions, including distributed automation systems, can significantly reduce the duration required to attend and restore faults.

02

Use of advanced tools such as thermal sensors, live distribution network maintenance can help in early detection of faults and support effective preventive maintenance.

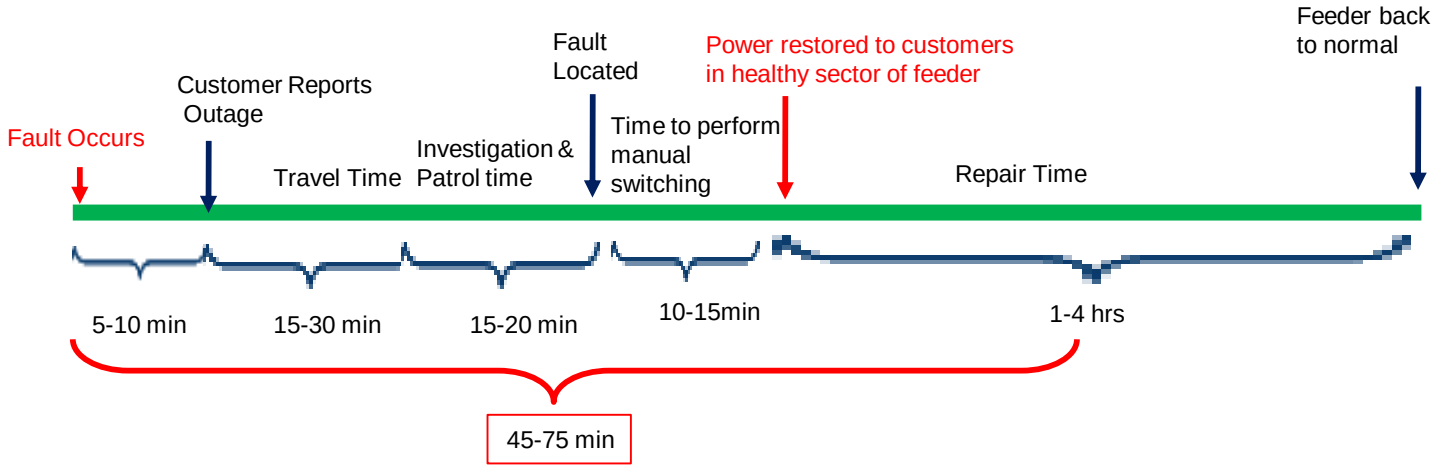
03

Urban planning agencies could explore the provision of dedicated underground utility corridors, to facilitate efficient execution and maintenance of civic networks to minimize the damage caused to the network of utilities and public property.

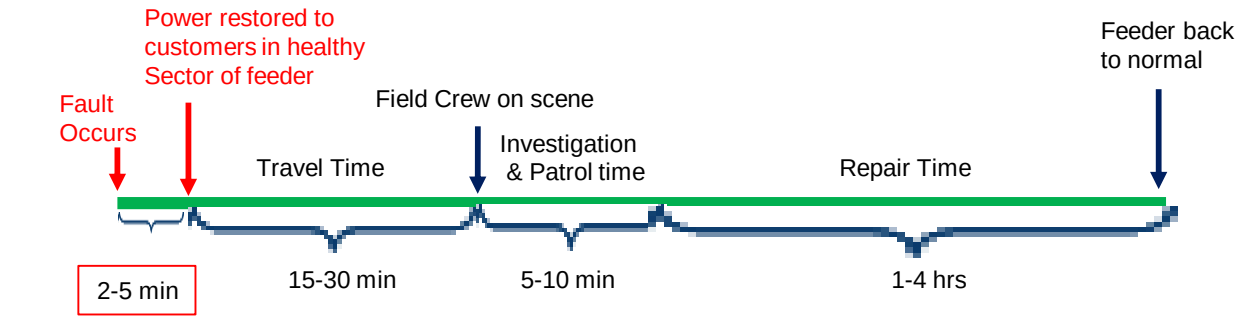
Implementation of Distribution Automation System in BESCOM

- Remote monitoring and control of 11 kV feeders (UG- 228 KMs & AB – 255 KMs) has helped to shorten fault restoration time while enhancing supply of quality power for consumers.
- Interruption duration reduced from **86 HRS to 13 HRS per customer per year.**
- Increase in sales and corresponding increase in revenue demand.
- **SKOCH** award under Energy Gold Category

Without automation



With automation



Challenge 2: Revenue Leakage (Meter reading and its challenges)

Meter reading poses challenges due to accessibility issues, human errors in manual entry, and non consumer availability.

Cause 1

Accessibility challenges arise when meters are located in congested areas, locked premises, or unsafe locations, making it difficult for personnel to physically access and record readings on time

Cause 2

Manual meter reading is also prone to human errors, including misreading digits, incorrect data entry, oversight during rushed visits, meter readers colluding with consumers and taking subnormal readings, which leads to inaccurate billing and disputes.

Cause 3

Non availability of consumers during scheduled visits results in missed readings, affecting billing accuracy and consumer satisfaction.

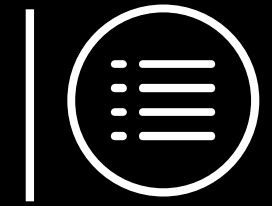
Solutions to challenges associated with meter reading

- **Ultimate solution is to install Smart Meters**
- **Until Smart Meters are installed and data is fetched automatically following procedures could be adopted**

1

Use of technology to eliminate manual meter reading

- Use of technology such as probe reading eliminates the need of manual entry and ensures accuracy of data capture.



2

Automatic Meter Reading (for HT installations)

- **Use of remote communicating Modems coupled with Meters to automatically send meter reading data to MDM for accurate reading**

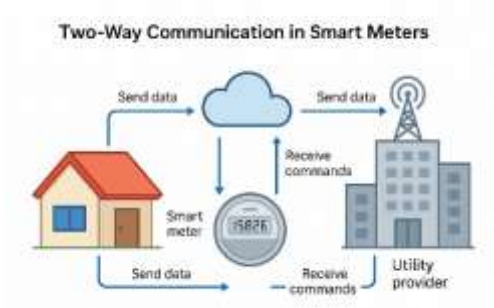
3

Installation of smart meters in new installation

- The implementation of smart meters enables automatic, real-time data collection and remote monitoring, eliminating the need for manual readings. BESCOM is already implementing installation of smart meters in new installations.

Advantages of Smart meters

Smart meters are electronic devices that automatically record energy consumption (electricity, gas, or water) in real-time or near real-time, and transmit the data to utility providers for monitoring and billing purposes.



Benefits to Consumers

- Real Time Energy Consumption Data (Live update)
- Prepaid Option for the consumers
- Better Control Over Energy Costs
- Outage Notifications leads to faster power restorations

Benefits to DISCOM

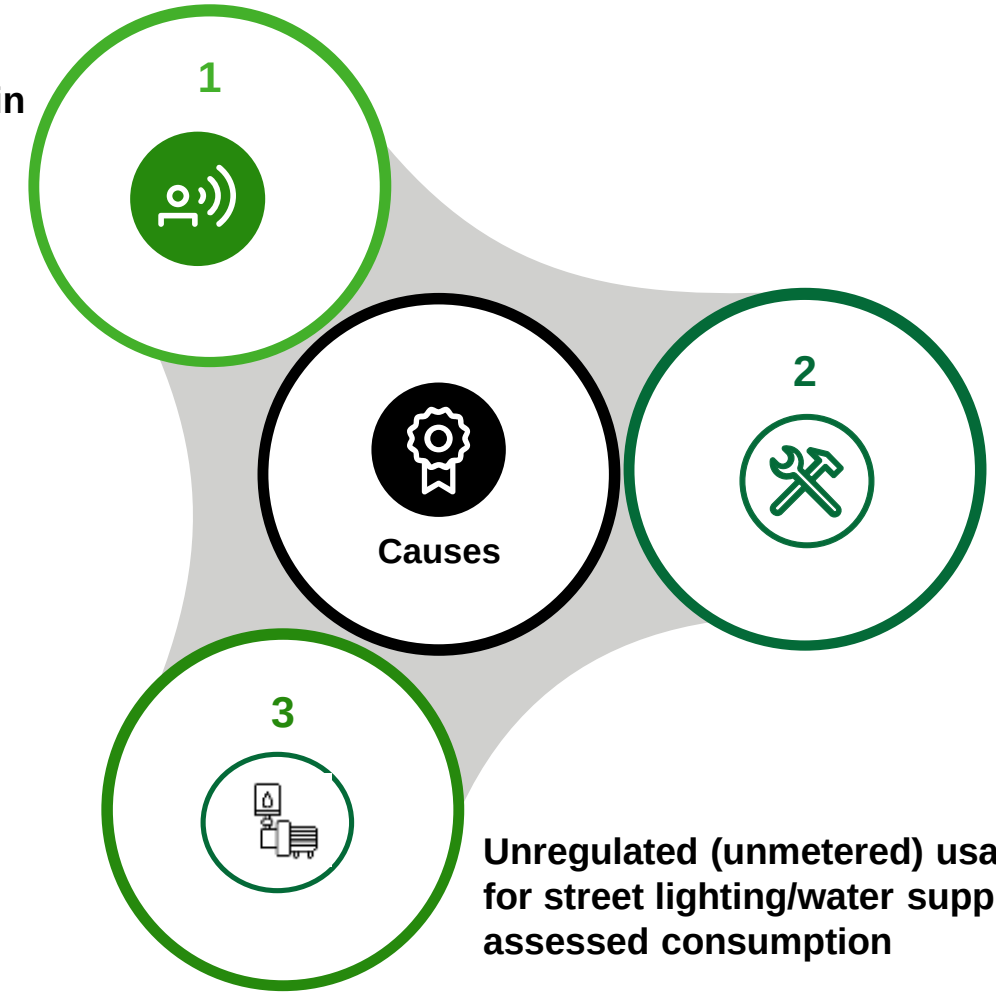
- High level of Consumer satisfaction
- Improving Operational Efficiencies
- Reduction of Revenue Loss & Real-time Energy Audit
- Demand Control

Benefits to Society

- Environmental Impact
- Paperless Energy Bills
- Support for Smart Grid Initiatives

Challenge 3: Distribution loss reduction challenges

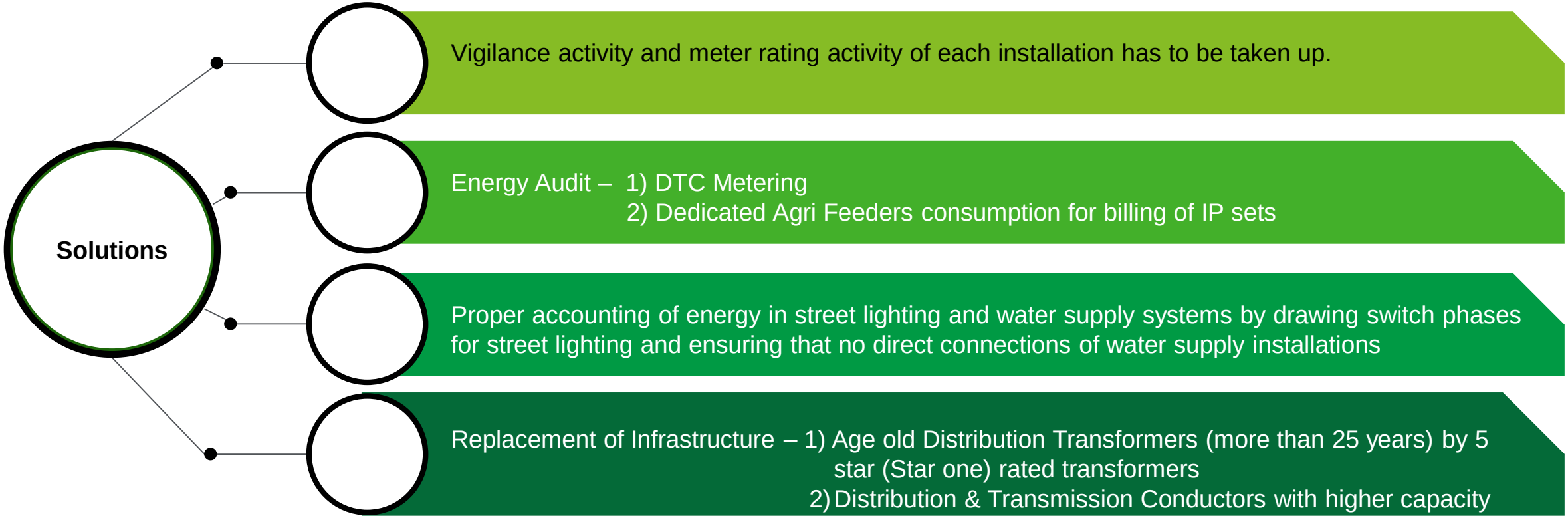
Age old Transformer, Lines in the System



Limited Real time identification of theft or technical leakages – like use of Unauthorized Irrigation Pump sets

Unregulated (unmetered) usage of power for street lighting/water supply – exceeding assessed consumption

Solutions to reduce distribution losses



Administrative Challenges

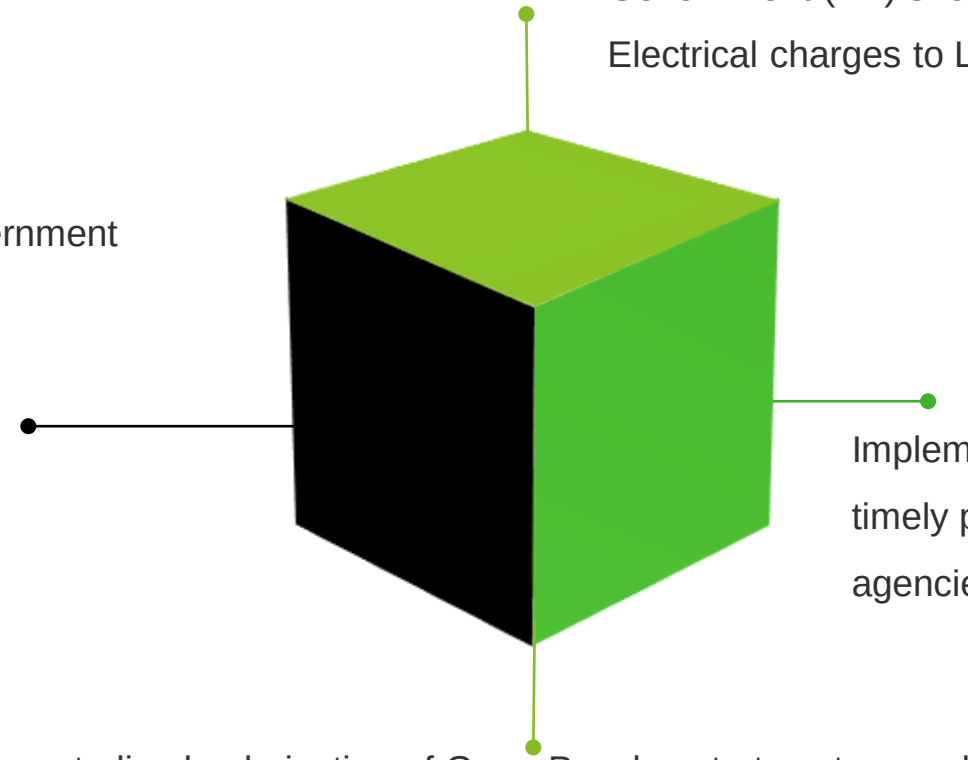
Challenge 1: Recovery of Revenue Demand

Significant outstanding arrears continue to persist among various local and urban bodies, as well as other government institutions. Revenue collection in slum areas also remains a major challenge due to social and economic factors, limited awareness, and difficulties in engaging consumers.

Possible solutions

Government (FD) should earmark required budget for Electrical charges to Local Bodies & Government Department

Providing smart prepaid meters of Government Installations



Implementation of ESCROW mechanism to ensure timely payment of electricity bills for all Government agencies.

Decentralized solarisation of Gram Panchayats to cater needs of power for street lights and water supply

Challenge 2: Shortage of skilled manpower

Due to grid modernisation and upgradation of digital tools, training and reskilling the present workforce is the need of the hour. Shortage of skilled manpower due to various reasons (Transfers,retirements etc) is causing deficiencies in attending consumer grievances and decreasing the efficiency of the utility

Possible solutions

As the consumer base and network is expanding rapidly, the posts need to be sanctioned proportionately on par with the growth

Work load norms to be implemented across BESCOM

Regular trainings need to be scheduled at all levels of cadre.
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Recruitment needs to be done at regular intervals.

CONCLUSION

Government support for clearing Electricity Chargers by various Government Departments / Local bodies very crucial

Proper Energy Audit through Feeder Level Metering/DTC Metering & Consumer level AMR/Smart Meters, will improve efficiency

To meet the Growing Demand parallelly Transmission & Distribution infrastructure to be upgraded

The demand for EV charging will grow substantially in the future – DISCOMS should work out the projected demand and upgrade the infrastructure to cater the requirement.

Thank you.