



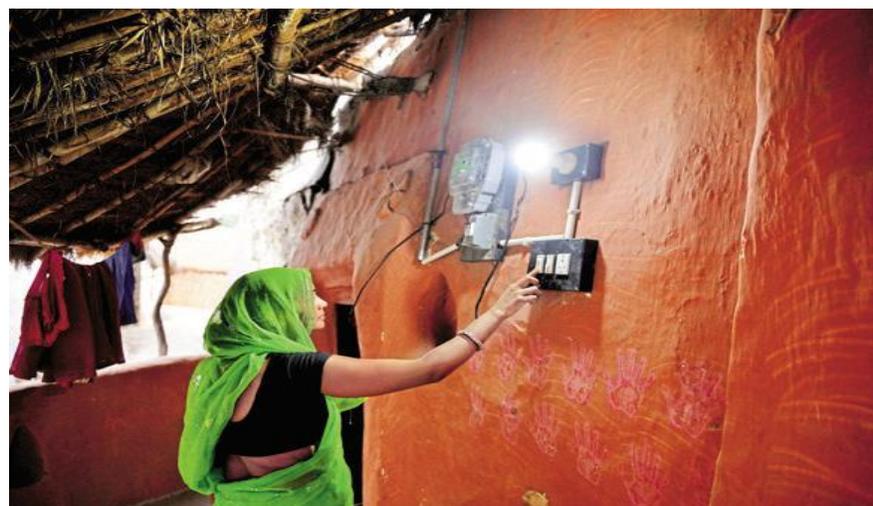
Distribution Utilities Forum



# Rural Electrification

## Impact on Distribution Companies in India

Findings from consultations with Discoms



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# Rural electrification in India



Distribution Utilities Forum



## Electricity Act (2003)

- Section 6 of the Act obligates the Central and State Governments to extend electricity access to all areas, including villages and hamlets, through rural electricity infrastructure development and connections to households.

## RGVY (2005)

- **Rajiv Gandhi Grameen Vidyutikaran Yojana (RGVY)**
- Provision of Village Electrification Infrastructure (VEI) with distribution transformers of appropriate capacity in all villages
- Free connections to all 'below poverty line' (BPL) households in the villages.

## DDUGJY (2015)

- **Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY)**
- To electrify un-electrified villages and for intensive electrification of partially electrified villages
- This scheme subsumed RGVY for electrification of 18,500 extremely remote un-electrified villages and also included network strengthening and feeder separation

## Saubhagya (2017)

- To ensure **last mile connectivity** and electricity connections to all remaining un-electrified rural and urban households in India
- **First time the focus on household electrification at such a large scale** (electrification of 30 million households by March 2019)



## Achievements of RE programs and schemes

**DDUGJY**

100% village electrification achieved  
on 28<sup>th</sup> April 2018

**SAUBHAGYA**

60% (i.e 18.4 million HH) of the  
targeted 30 million covered as on  
date (Overall 94% HH electrified)

States such as Gujarat, Tamil Nadu, Jammu and Kashmir, Kerala, Punjab, Andhra Pradesh, Madhya Pradesh and Bihar have achieved 100% household electrification as on date

# Objectives



## Broad objective

To present a **'distribution utility' perspective** on the **technical, operational, institutional, and financial implications** on Discoms, due to the large scale implementation of rural electrification program in India

## Specific objectives

- To identify the key challenges faced by Discoms in **implementing the rural electrification programs** as well as the forthcoming after-effects of these programs on their performance
- To **highlight leading operational and institutional best practices** that have enabled Discoms to manage their electrification and performance targets well

# Approach and Methodology

Study the key rural electrification schemes – SAUBHAGYA, DDUGJY, RGGVY.

Identification of technical, financial and operational parameters of Discom performance

Selection of Discoms for consultations- based on electrification rates and targets (leading and lagging as parameters for selection)

Development of consultation framework and checklist of questions for discussion with Discoms

Individual and group interviews with senior Discom officials

Collation of findings and development of discussion paper





# Consultation framework

## Planning and execution of Saubhagya scheme

1. Selection of the beneficiaries (secondary and primary surveys)
2. Requirement of resources (human resources and budgetary support) and its adequacy
3. Understanding effectiveness of supply chain to deliver the material in time

## Factors for performance improvement

1. Improve billing and collection efficiencies
2. Reduce AT&C losses
4. Effectiveness of franchisee model
5. Metering at all levels (feeder, DT etc.)

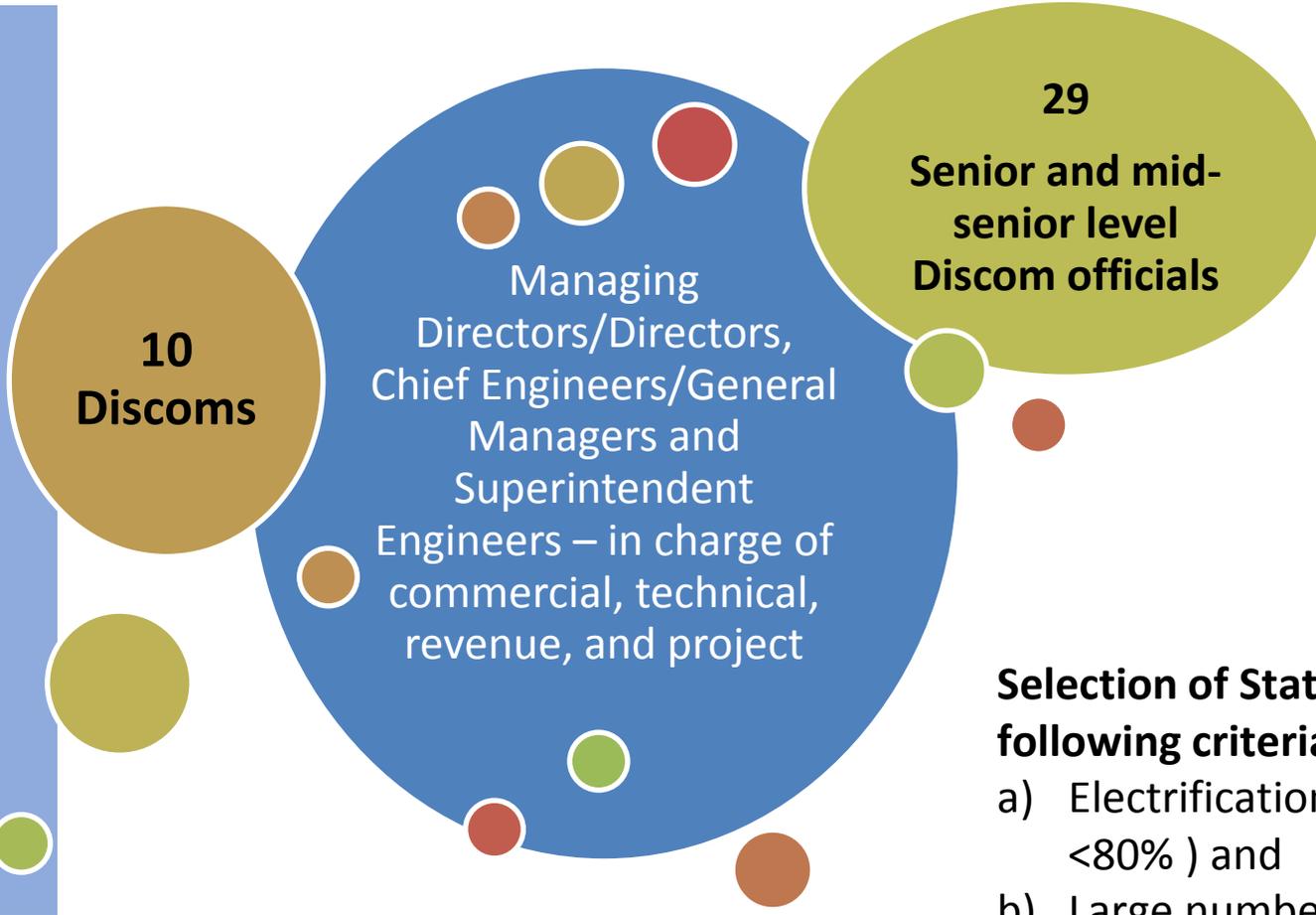
## Post-implementation concerns

1. Revenue recovery and sustainability
2. Consumer willingness and ability to pay for connections
3. Load management and supply of power

# States and Discoms Covered

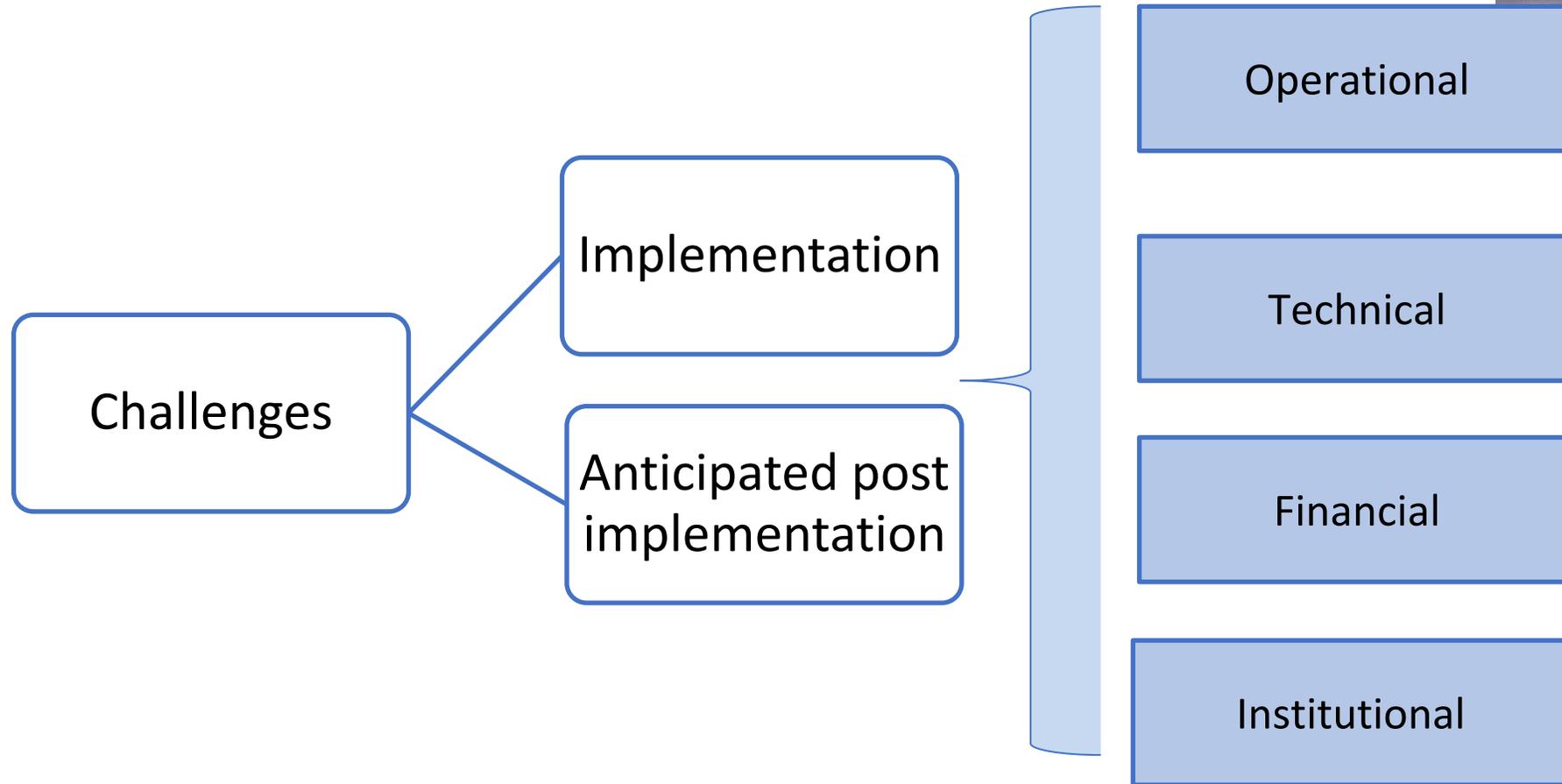


1. West Bengal
2. Odisha
3. Uttar Pradesh
4. Rajasthan
5. Bihar
6. Madhya Pradesh
7. Maharashtra



**Selection of States was based on the following criteria:-**

- a) Electrification rate (>95%, 85-90% and <80% ) and
- b) Large number of electricity connections to be achieved under the scheme

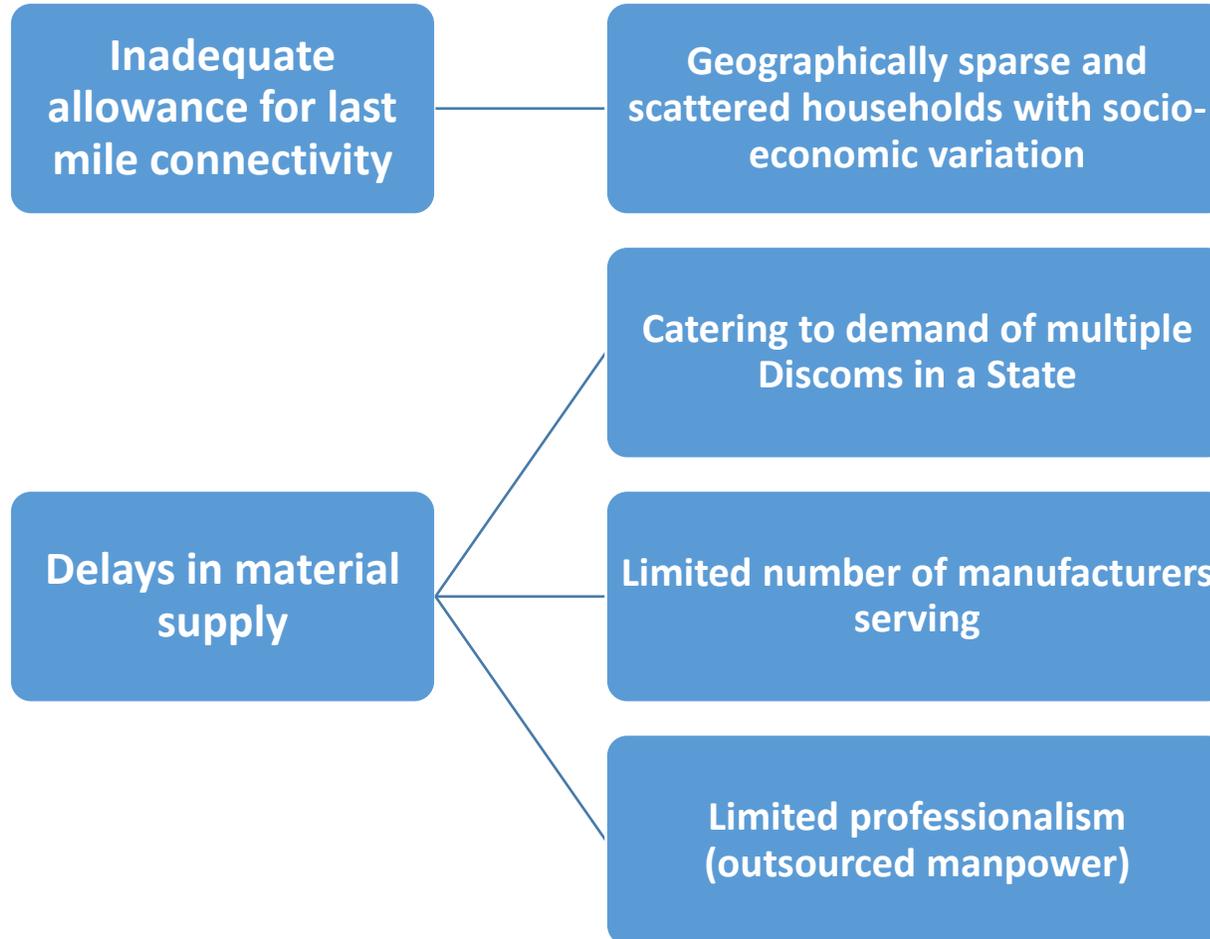


**Type and degree of challenges may vary from State to State**

# Findings- Implementation

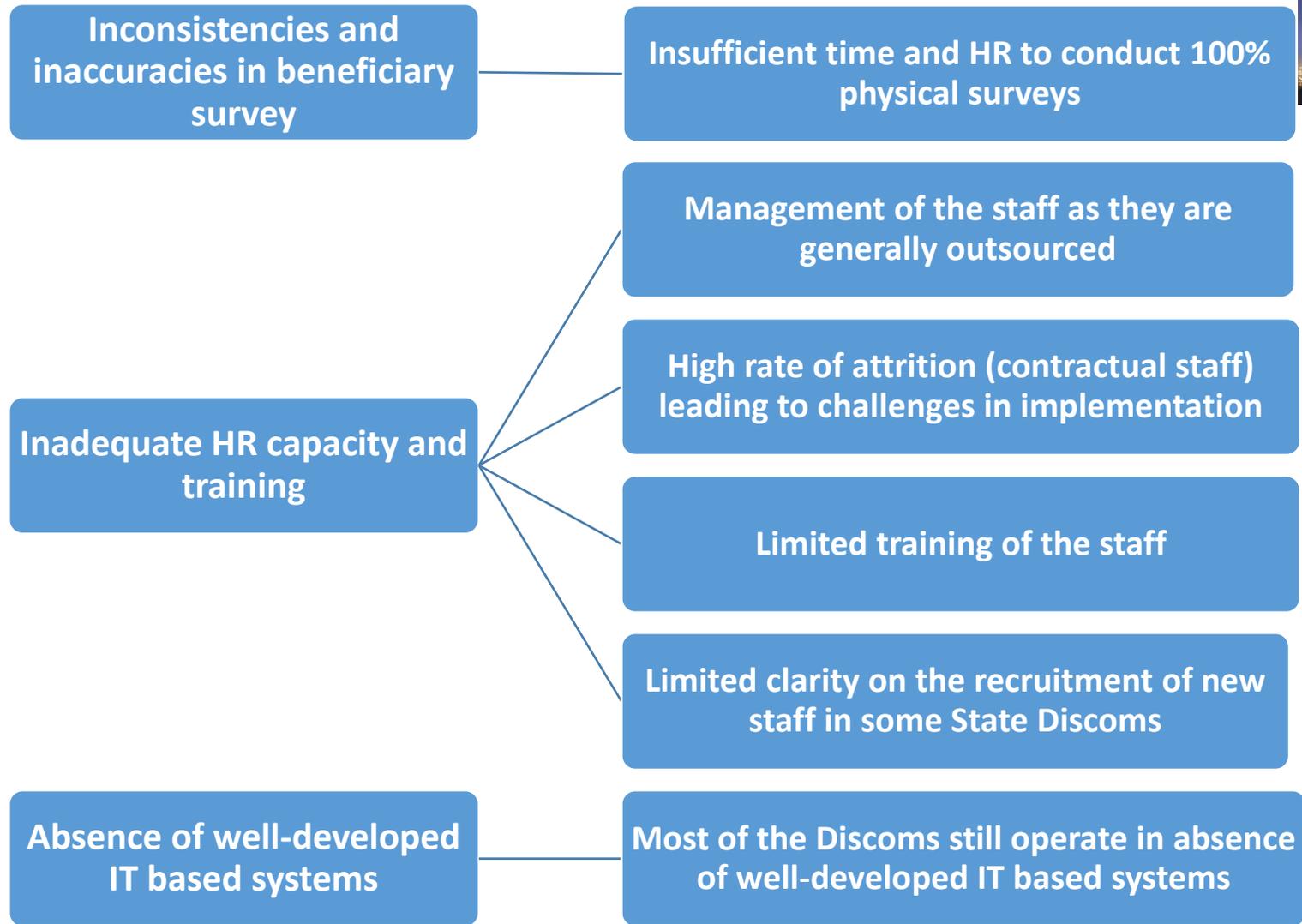


# Operational and Financial



**Allocation of financial resources and time for implementing the scheme may not be adequate varying from State to State**

# Institutional



- a) Recruitment and management of human resource(HR) for various tasks and
- b) Limited time available (almost no time) for HR training



# Findings: Anticipated Post-Implementation



# Technical



Increase in technical losses

AT&C losses may increase due to network expansion with existing HR capacities

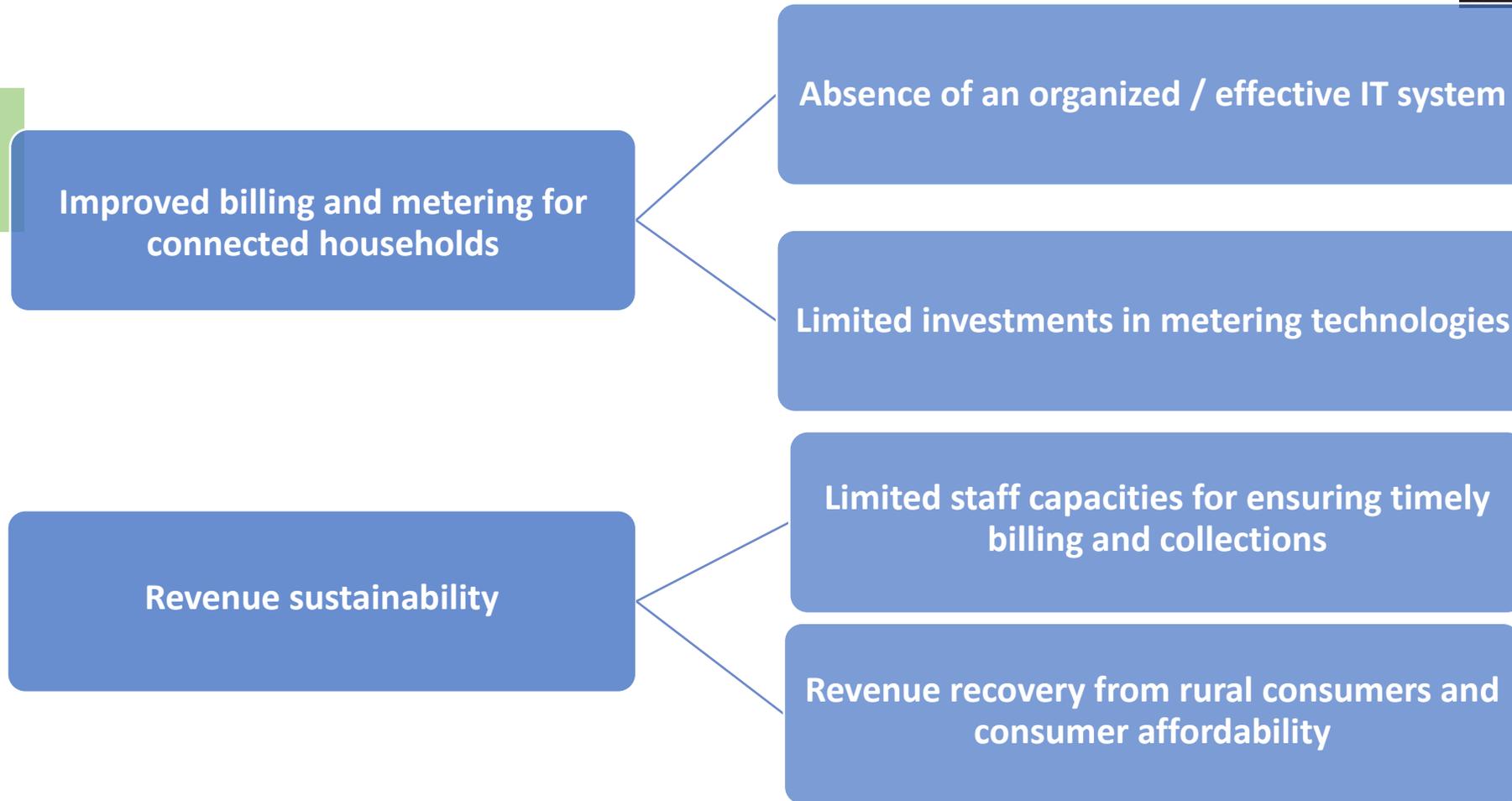
Absence of 100% metering at all levels (feeder, DT etc.)

Increase in electricity theft

Illegal hooking may increase due to network expansion and resource constraint (monitoring)

**Expansion of distribution network may lead to increase in losses unless a) 100% metering is achieved at all levels and b) insulated cables (full proof) installed**

# Financial and Operational



**Managing networks in remote areas are more demanding and may require more human resource capacity and an investment to develop IT enabled system**

# Operational and Institutional Best Practices



# IT-based energy and revenue management

Monitoring actual technical losses at every level of distribution

Centralised database can capture energy flow information at all levels (the feeder, substation and distribution transformer) by improving metering at all levels

Adoption of IT-based billing and collection systems (spot billing, mobile app-based billing and collections, online payment gateways)



# Augmented revenue collection methods

**Outsourced billing and collection processes**

**Engaging local individuals (manage meter reading, billing and collections at the feeder level)**

**Incentivise staff to ensure high- efficiency rates in the regions**

**In case of defaulters- Discoms take stricter measures and abort supply until all pending bills are paid.**



# Intensive governance and monitoring

## Stringent monitoring and review processes

Weekly and monthly review meetings

Dedicated 'quality cell' to monitor the work carried out by the turnkey contractors

Periodic field visits by senior management

Better accountability and ownership amongst the staff

## Training and capacity building

Introduction of a dedicated training centre

Training of the Discoms staff along with contractors and labors



# Saturated implementation approach



**Electrification in  
“mission mode”**

- Moving in a phased manner
- Concentrating all their material and human resources in selected districts
- Decentralised tendering (circle-wise instead of State wise)

**Prioritization by targeting the high density areas with un-electrified households**

# Discussion Points



- Additional funds requirement by the Discoms (expanding infrastructure)
- Augmentation of resource areas (in terms of capacities and capabilities)
- Standardisation and use of end-to-end IT enabled systems for metering, billing and monitoring at different levels
- Network maintenance and innovative distribution models



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