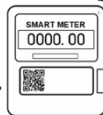




GOVERNMENT OF INDIA
MINISTRY OF POWER

EGSM

Expert Group on Smart Metering



ROLL OUT OF 250 MILLION SMART METERS

PROGRESS AND CHALLENGES

Atul Bali- Director NPMU & EGSM



PROGRESS OF ROLLOUT of 250 MILLION SMART METERS



Smart Metering initiative under RDSS

- ❑ Total outlay of INR 3.04 Lakh Crs. and categorized into 2 parts:
 - PART A: **Metering** & Distribution Infrastructure works
 - PART B: Training & Capacity Building & other enabling activities

Smart metering works:

- ❑ Provision for an **outlay of INR 1.5 Lakh Crs** with an **estimated GBS of INR 23,300 Crs**
- ❑ **Implementation model – DBFOOT** with complete responsibility of development and O&M on Implementing agency (AMISP)
- ❑ **Funding pattern –15%/ 22.5%** (limited to INR 900/ INR 1,350*) of cost per meter



Improve quality, reliability & affordability of power supply



Reduce AT&C loss to 12-15% by FY-25



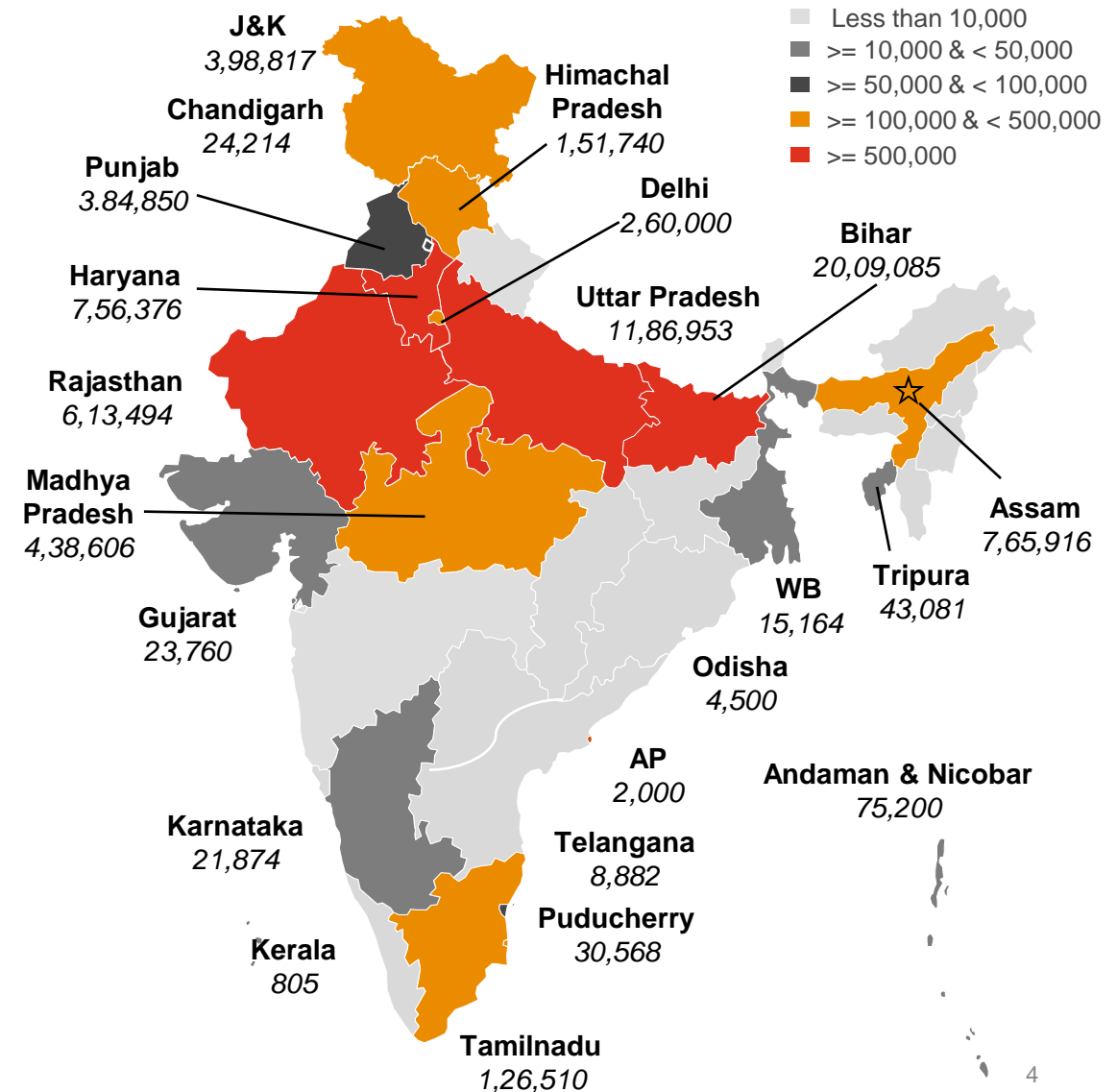
Reduce ACS-ARR Gap to zero by FY-25

Progress of smart metering



Smart Metering and AMI

- Govt. of India plans for 25 Cr meters smart prepaid meters
- ~73 Lakh smart meters installed across Bihar, Uttar Pradesh, Haryana, Delhi, Rajasthan, Assam etc.
- Around 23 Lakh smart meters in prepaid mode in Bihar, Uttar Pradesh, Assam and Haryana



CHALLENGES IN SMART METER PROJECT ROLLOUT



Factors of Success

1. PROJECT COMMENCEMENT:

- a) Timely Signing of Contract Agreement, formation of SPV and Payment Security Mechanism by utility as per SBD.
- b) Supply of materials : Placing of Purchase Orders to OEMs & Supply schedule to OEM.
- c) Constitution of Smart Metering Wing within Utility with members from IT, Tech & Commercial wing

2. PROJECT EXECUTION :

- a) Finalization of detailed L2 plan
- b) Detailed SoPs with responsibility centers to address field issues:
 - ✓ Meter Change Process including sharing details from utility, pre-filled meter change orders, consumer consent required etc.
 - ✓ Verification of Last meter reading by utility officials
 - ✓ Meter dismantling, installation, sealing
 - ✓ Old Meter Disposal/return
 - ✓ SoP for delta update of consumers through App
- c) Defining Escalation matrix for resolving issues

3. IT INTEGRATION:

- a) Seamless Integration of MDM with other utility systems
- b) Integration of AMISP's CI App with the utility CIS/ERP for update of Master data
- c) Regular cyber security audits as per provisions of RFP

4. ENABLING PREPAID CONNECTION:

- a) Revisiting the tariff structure to devise prepaid friendly tariff jointly by Utility and SERC.
- b) Rebate mechanism for encouraging consumers to adopt prepaid metering.
- c) User friendly App with multiple recharge options

IT system Integration

CHALLENGES

- a) Complex Integration between Utility IT System and MDMS leading to delays and increase in cost.
- b) Utility solutions are highly customized and thus use different data formats, structures, or standards for storing and processing meter data.

POSSIBLE SOLUTIONS

- a) Standardization of key elements for Integration in AMI (Advance Metering Infrastructure) value chain
- b) Integration touchpoints/data flow diagram of existing systems should be clearly mentioned during tendering stage
- c) Utility to clearly identify the RACI (Responsible, Accountable, Consulted, Informed) Matrix for the integration process jointly with existing utility SI and AMISP

Communication Network

CHALLENGES

- a) Fast updating technology and its related upgradation cost.
- b) Unreliable Network leading to latency and congestion
- c) Increased cost and dependency on Telecom operators in Cellular

POSSIBLE SOLUTIONS

- a) Adoption of International/National Standards
- b) Dedicated communication bandwidth for smart metering
- c) Cost optimization with large scale operations

Consumer Engagement

CHALLENGES

- a) Lack of trust by the consumer during the transitioning of to smart metering
- b) Misinformation with consumer about excess usage or spiked bills
- c) Lack of Awareness about the benefits and usage
- d) Engaging those who are less familiar with technology or have limited access

POSSIBLE SOLUTIONS

- a) Comprehensive awareness campaigns to inform consumers about the benefits, security measures; Use of Check Meters etc.
- b) Ensuring enough Offline recharge centers available for Non-Tech savy consumers.
- c) User friendly App

Regulatory/Tariff

CHALLENGES

- a) Current tariff is designed primarily for Post paid consumers
- b) Handling of different components of electricity bill for prepaid connections
- c) Adjustment of components such as subsidy given by States
- d) Return of Security Deposit

POSSIBLE SOLUTIONS

- a) Tariff re-structuring according to pre-paid system
- b) Standardization of frequency and mechanism for deduction of various components
- c) Standardization of rebates across all states for pre-paid
- d) Adjustment of security deposit with arrears etc.

Data Security

CHALLENGES

- a) Unauthorized Access to Data energy usage data, potentially leading to privacy breaches.
- b) Consumers are concerned about how their usage data will be used, shared, or sold to third parties.
- c) Consumers worry about vulnerabilities in smart meters and their potential exploitation
- d) Consumers may want assurance that their data is being handled securely.

POSSIBLE SOLUTIONS

- a) Implement strong security measures such as encryption, access controls, and regular security audits to protect data from unauthorized access.
- b) Utility should educate consumers about data security measures and best practices
- c) Utility should have transparent data privacy policies that clearly state how data will be used and shared.
- d) Consumers should be given the option to opt in or opt out of data sharing with third parties for marketing purposes.
- e) Regularly update and patch smart meter firmware to address security vulnerabilities.

Supply Chain

CHALLENGES

- a) Shortage in supply of Smart meter and its imported components
- b) Limited manufacturing Capacity of Smart meter due to parallel manufacturing of Static meters
- c) Inventory & Work front Management

POSSIBLE SOLUTIONS

- a) Increase Minimum Local Content in smart meter manufacturing
- b) Reuse of healthy static meters in routine activities to free up manufacturing capacity for smart meters
- c) Predefined SoP's with AMISP for phase wise installation of meters

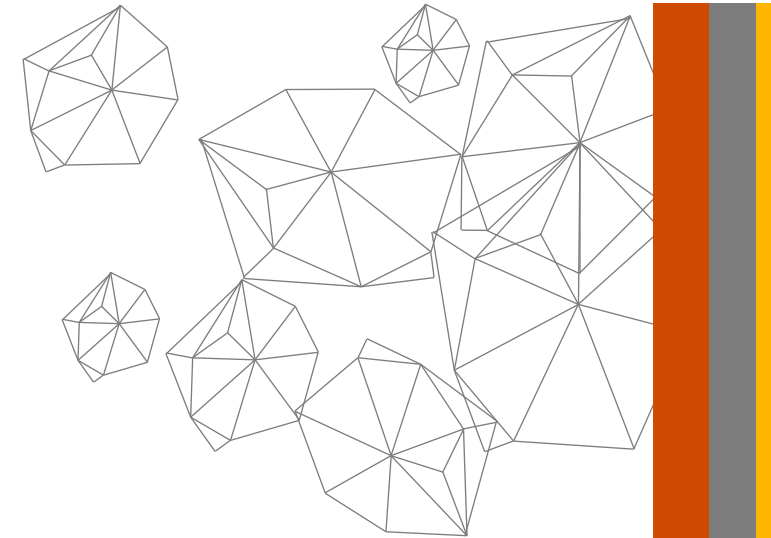
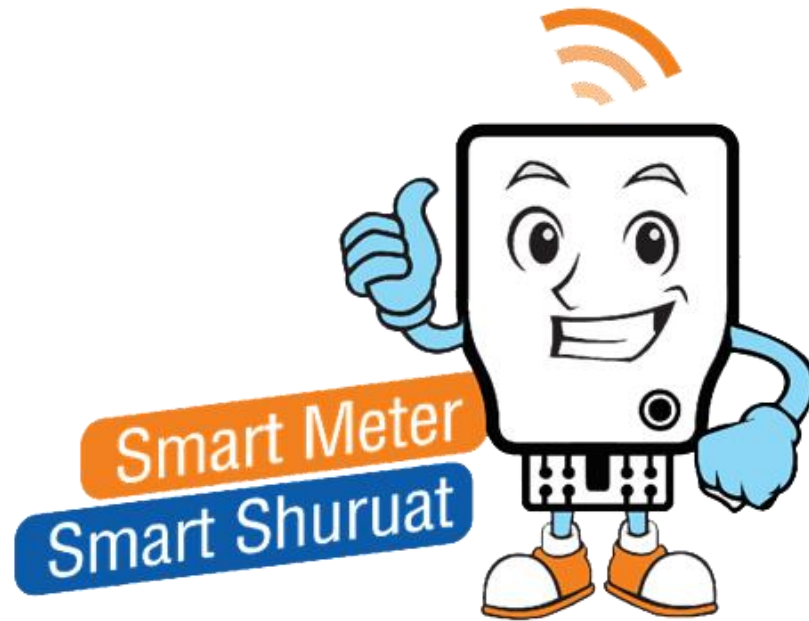
Handling of Removed Meters

CHALLENGES

- a) Lack SoP for handling and disposal of static meters resulting in ineffective utilization of resources.
- b) Environmental Hazards posed by scrapping of 200 Crore removed meters.
- c) Fresh procurement of Static meters for routine activities, even after initiation of Smart meter Project.
- d) Higher manufacturing of Static meters limiting availability of electronic components and production capacity for manufacturing of smart meters.

POSSIBLE SOLUTIONS

- a) Define SoPs for handling of removed meters before project commencement.
- b) Utilize Healthy removed Static meters for routine activities till roll-out of Smart Meters in all project area and gradually reduce the procurement
- c) Engage and award Vendor for Scrap handling before commencement of the project.



Thank You