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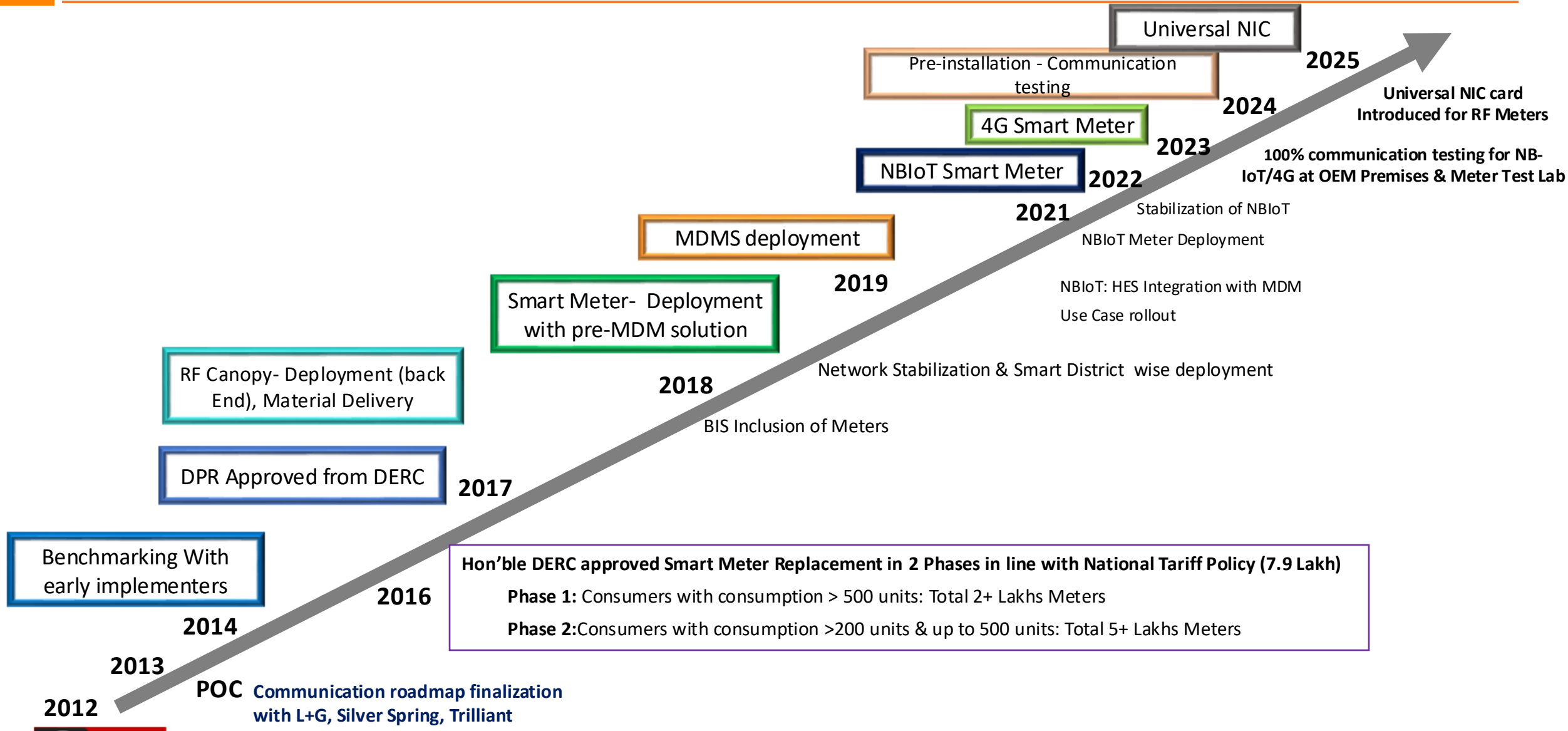
Session : SMART METERING Part A - Indian Lessons

TOPIC: Challenges and Learnings

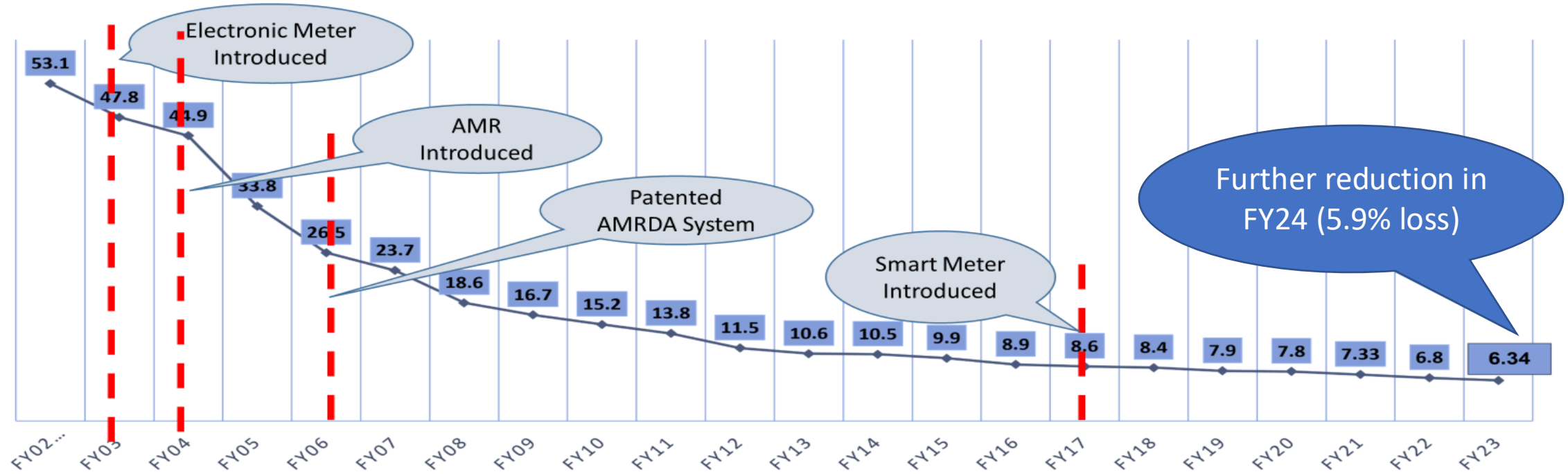
Presented By

Gajanan S Kale, CEO, Tata Power-DDL

TPDDL Smart Meter Journey



AT&C loss reduction : Turnaround Story



Energy Audit up to Distribution Transformer Level

Electronic Meters

High Voltage Distribution System & Low Tension Aerial Bunched Conductor

Automated Meter Reading for High Revenue Consumers

Controlling theft - Community pressure

Aggressive Enforcement

Special Consumer Group

Outage Management System

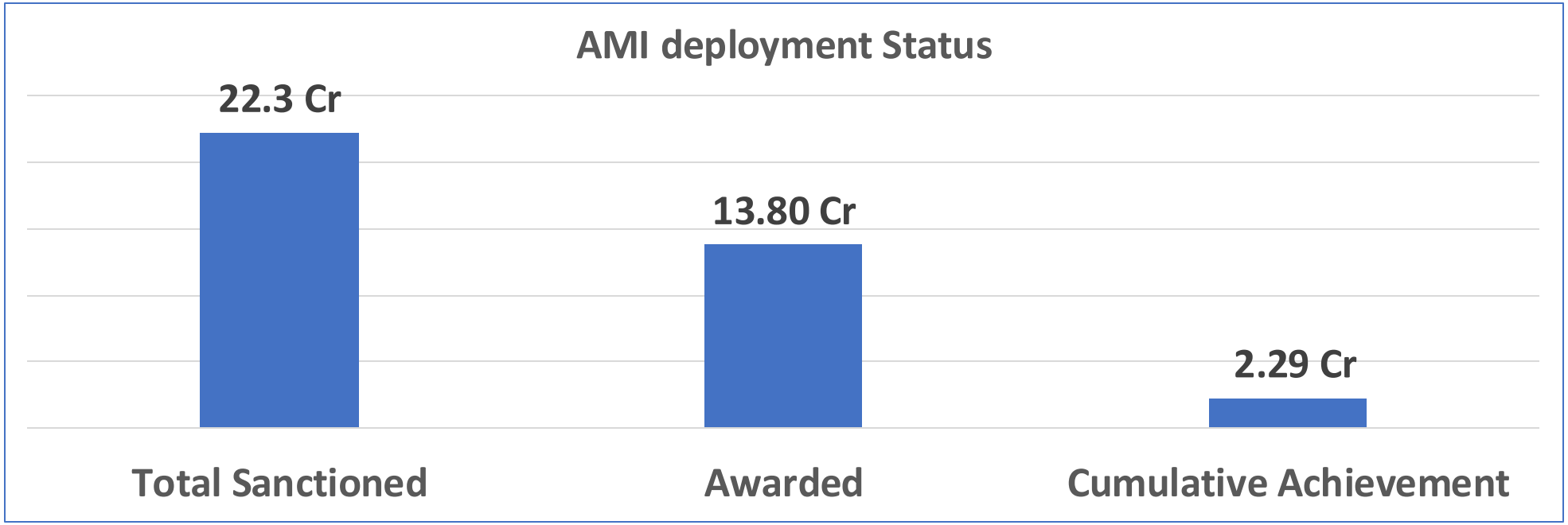
Automated Demand Response

Roof Top Solar Plant

Smart Grid

Indian Scenario - Smart metering progress under RDSS

- World's largest Smart Meter deployment announced in 2021
- Target: ~ 25 Crore (250 Million) prepaid Smart Meters
- A sizeable outlay of Rs 3,037.58 billion over five years (FY21-22 to FY25-26)



Status as on 4th March, 2025

Source: NSGM portal

Challenges in Scaling up the AMI Rollouts

- Lack of Infrastructure/ Non readiness of Utilities for timebound integration with AMI system
- Supply Chain issues
- Site acceptance and Go live issues
- Coordination with local authorities – Regulatory issues
- Resistance to change from Customers
- Technical Issues – Lack of Trained manpower (especially business cases)
- 4G Communication partner limited
- Challenges related to interoperability is a critical concern for discoms

Prepaid vs Postpaid Dynamics

Operational complexities in adoption to Prepaid

1. Transitioning multi-slab tariffs from postpaid to prepaid billing presents significant challenges due to non standard/prescribed way of handling slabs in daily calculations.
2. Non-uniform daily deductions under prepaid mode can cause confusion among consumers (mainly due to monthly billing components like MDI, FPPAS)
3. Given the potential challenge of consumer resistance following the roll-out of prepaid billing, managing both the technology transition and consumer adaptation simultaneously may prove difficult

Suggestions

1. Simplified tariff for prepaid consumers without any monthly adjustments.
2. Gradual transition to Prepaid. Let technology transition be completed first before consumer transition
3. Prepaid rollout to follow phases on basis of consumer segmentation/tariff category/load segmentation/geographical segmentation.
4. Maturity of Technology in case of auto disconnection and reconnection

Addressing the challenges - Corrective Actions Suggested

- Maturity of Meter OEM process to handle exponential scaling up of their facilities; Proactive Planning & collaboration among stakeholders
- Timely Site Acceptance Test (SAT) and Go-Live is must to boost stakeholders' confidence. For ensuring sustainability, It is important that timebound payment is made to AMISP
- Effective deployment requires coordination with various local stakeholders, and support from utilities, government bodies, and other regulatory authorities
- Effective Consumer Awareness and Acceptance Campaign. A national level campaign on advocating positives of smart metering is need of the hour
- Cyber security, data analysis and new business cases
- Universal HES, Hybrid communication network for data fetch

Overall, the implementation of smart energy meters requires Significant investment in infrastructure, needs skilled labor & consumer awareness. Communication Barrier / Technical Issues / Regulatory Issues need to be sorted out.

OEM and Supply Chain Alignment

- Important for utilities that Meter OEMs has agreements for uninterrupted supply of meters
- It is to be ensured that large scale supply does not compromise quality of product due to process immaturity and cost pressure.
- It is important that electronic components have secured communication and necessary compliances to be made stringent.
- Meter customizations in different utilities over RDSS specifications should be analyzed for updating standard versions. This shall promote better standardization going forward.

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THANK YOU

For discussions/suggestions/queries email: isuw@isuw.in

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Links/References (If any)