

Presentation on

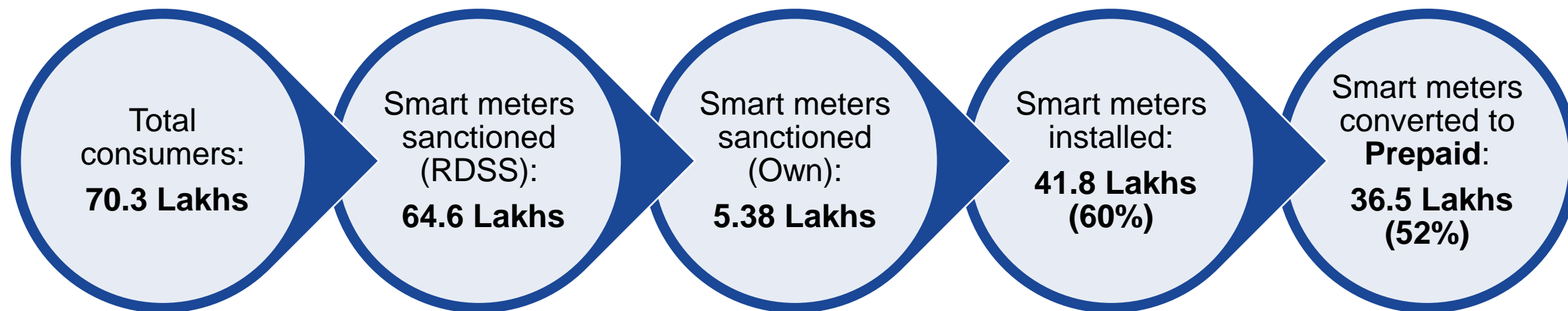
Smart Meters: Implementation challenges & analysis of benefits to utilities and consumers

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Smart Metering Progress in APDCL – July'2025

Consumer Smart Metering



System Smart Metering

Type of Meter	Scope (Nos.)	Installed (Nos.)
Distribution Transformer (25 KVA and above)	70,000	70,000
Feeder (33 KV and 11 KV)	2858	2858

Implementation challenges & Strategies adopted



Implementation strategy adopted in Assam

Pre-deployment

- Conducting public meetings for awareness
- Distribution of leaflets to consumers on smart meter benefits
- Public Announcement System
- Advertisement in print media and social media

Deployment

- Individual letters to consumers from sub-divisions requesting cooperation
- SMS intimation to consumers
- Advertisements in print media and social media on recharge mechanism and prepaid conversion
- Workshop with consumers on usage of mobile app and online recharge

Post Deployment

- Advertisements in print and social media on prepaid balance deduction, prepaid recharge, grievance redressal process etc.
- Feedback survey
- SOP for grievance redressal
- Campaign in FM radio and TV Channels
- Public meetings to understand consumers' concerns
- Installation of check meters

Implementation challenges

Consumer apprehension

- Increase in electricity bills due to smart meters
- Facilities for recharge

Strategy adopted

- Use of check meters
- Use of historical consumption data
- Installation in the houses of public representatives to instill confidence
- Multiple modes of recharges made available (Cash counters, digital mode, UPI, KIOSK, Easypay agents)

Snapshot of check meter



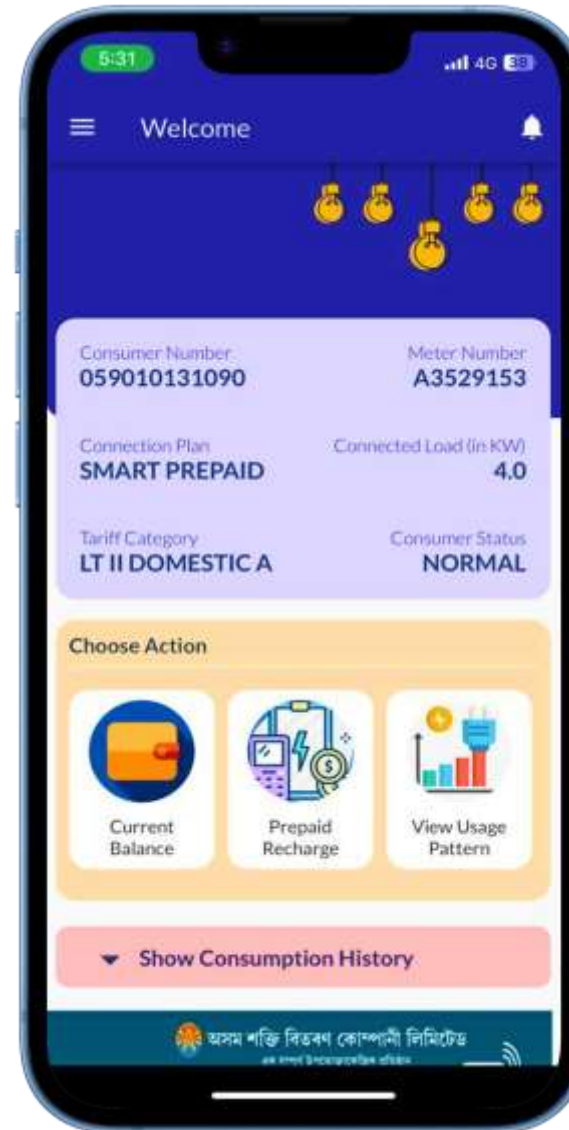
Implementation challenges

Consumer apprehension

- Disconnection without notice
- Transparency in balance deduction

Strategy adopted

- Credit window for recharge
- MyBijulee app for consumption and payment tracking
- Notifications on low balances



Implementation challenges

DISCOM Employees apprehension

- Inertia in DISCOM Eco System and job security



Strategy adopted

- No retrenchment of manpower
- Re-orientation and Redeployment of DISCOM Staff in other O&M activities

Analysis of benefits to utilities and consumers



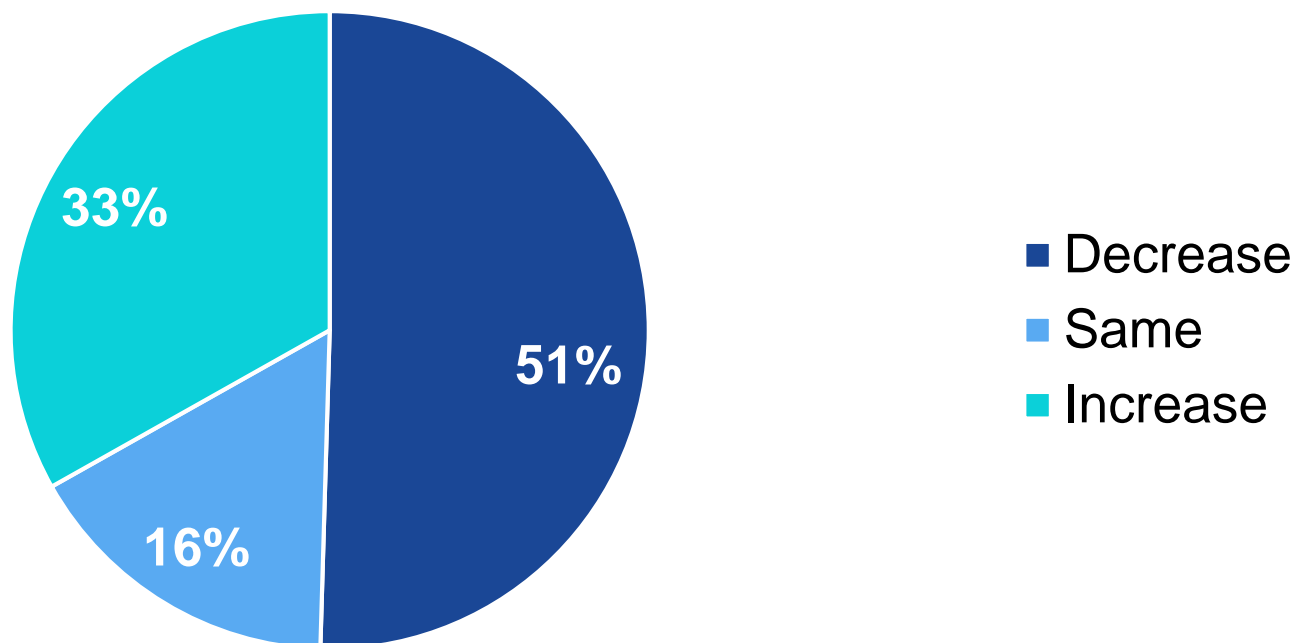


Benefits to Consumers

- Installation of smart meters is hugely beneficial for the consumers as these meters result in accurate and error-free billing facility through automatic meter reading without manual intervention.
- Moreover, consumers only need to pay for the electricity used by them resulting in savings for them.
- Consumers can also monitor their daily electricity consumption and recharge their prepaid meters through a mobile app.
- Usage of smart meters also help DISCOMs in energy auditing of feeders and DTRs and implement Net Metering for Solar consumers and Time-of-Day tariffs for all categories of consumers.

Benefits to Consumers – Behavioural change in electricity consumption

Consumption trend of smart prepaid consumers compared to non-smart period

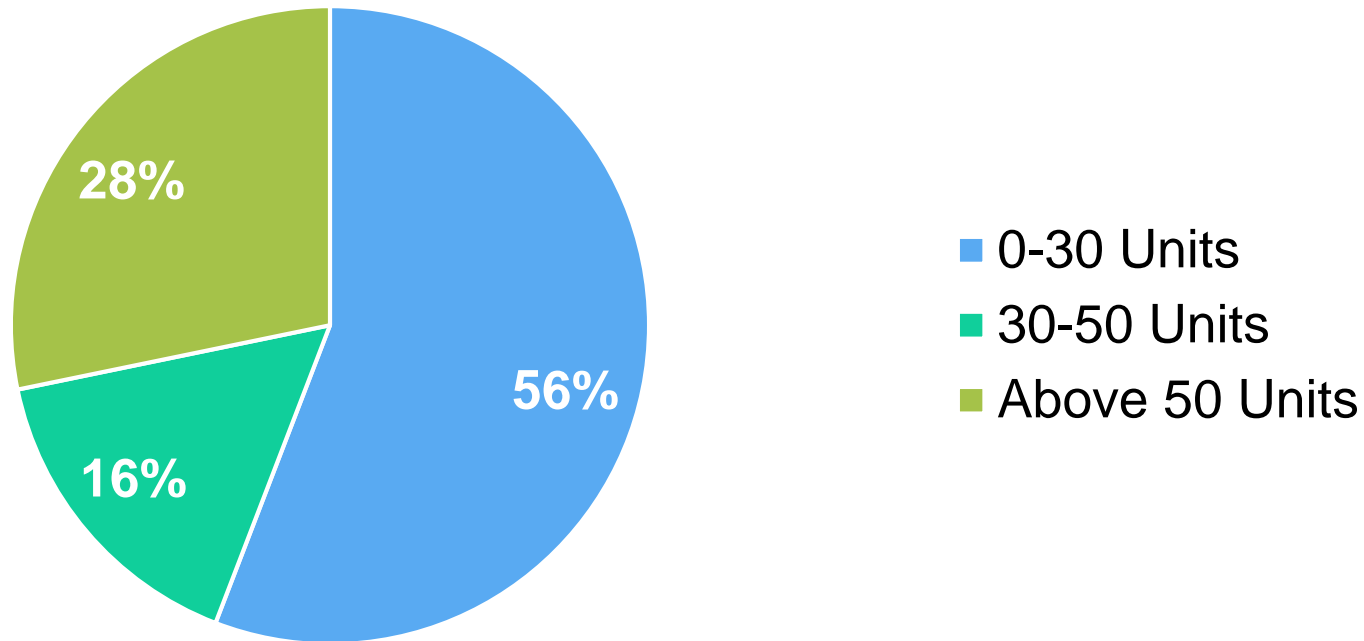


Due to daily consumption tracking facility through Mobile App, Consumers are becoming more conscious in usage of electricity

- Analysis of 22.6 Lakhs Smart Prepaid Meter Consumers
- Period: FY 2024-25 vs FY 2023-24)

Benefits to Consumers – Behavioural change in electricity consumption

Breakup of consumers whose consumption has increased post installation of smart meters



Even for the consumers whose consumption has increased, the increase quantum is marginal (less than 30 units for 56% consumers)

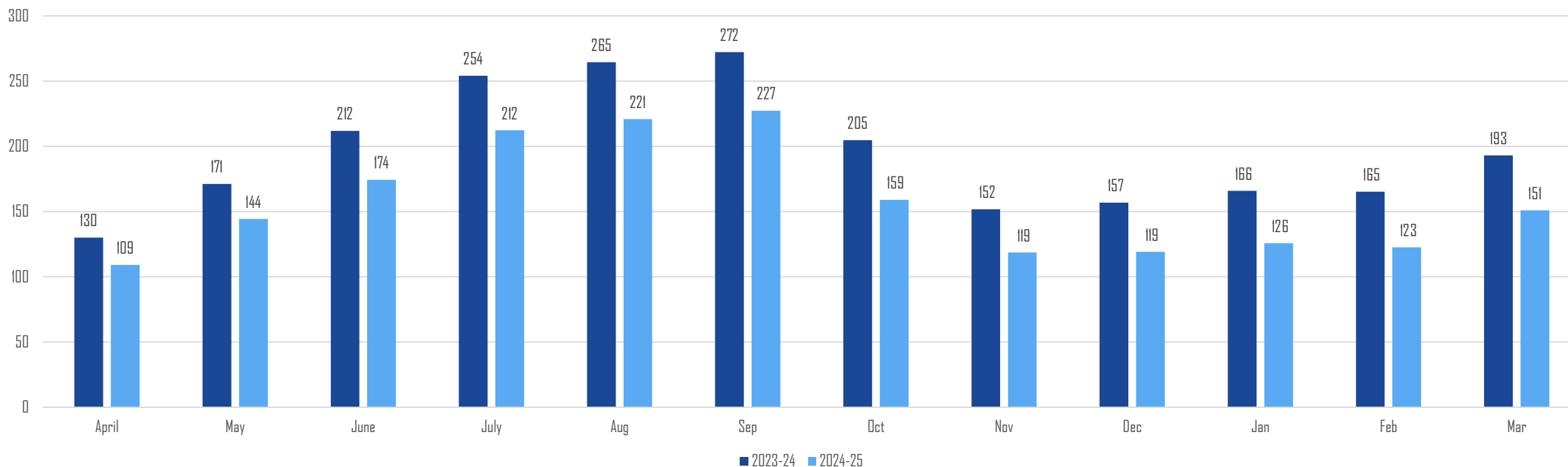
Major reasons for increase in consumption:

- Correction in billing for consumers
- Increase in usage by consumers (installation of new electrical gadgets like Air-Conditioners etc.)

- Analysis of 22.6 Lakhs Smart Prepaid Meter Consumers
- Period: FY 2024-25 vs FY 2023-24)

Benefits to consumers – Financial Savings

Savings of Units in 2024-25 as compared to 2023-24 (Million Units)



** Analysis of 22.6 lakh smart prepaid consumers*

- **20% less consumption** vs corresponding period of FY 2024 when on post paid meters
- Out of 22.6 lakh consumers, **~50% consumers have saved ~33 units per month** through smart prepaid meters equivalent to **Rs. 200 per consumer per month**; **~Rs 260 Crs** saved by these consumers over 12 months

Impact of Smart Meters on Consumers – Feedback Survey

Total Feedbacks received (till 31.05.2025) (Nos.)	Satisfied (Nos.)	Dissatisfied (Nos.)
94,203	74,045	20,158
	79%	21%

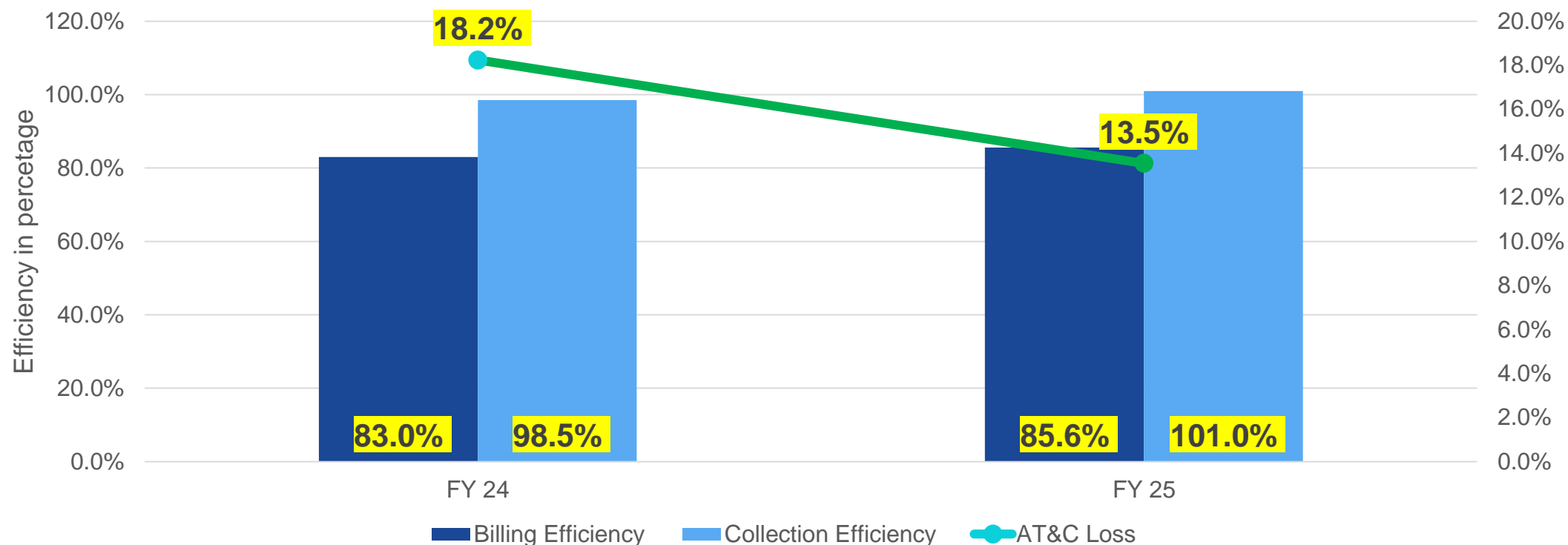
Major reasons given by the dissatisfied consumers:

- High bills during summer period
- High and complicated tariff rates
- Complaint against fixed charges (balance deduction without usage)
- Complicated calculations / Lack of clarity in calculations

Benefits to Utilities – Improvement in operational efficiency

- By implementing smart metering, Utilities can achieve sustainable reduction in the AT&C (Aggregate Technical & Commercial) losses by:
 - a) Eliminating commercial losses such as theft of power, unbilled energy etc.
 - b) Ensuring 100% revenue collection due to operation in prepaid mode.
 - c) Energy auditing at Feeder and Distribution Transformer Level for accurate analysis of loss-making areas and plugging the leakage points.
- APDCL observed improvements in Billing efficiency (BE) and Collection efficiency (CE) parameters of the feeders' where smart prepaid meters are being installed.

Benefits to Utilities– Improvement in operational efficiency



- Analysis of 1542 feeders having at least 70% saturation of Smart Prepaid Meters
- Period: April – March (FY 2025 vs FY 2024)

Benefits to Utilities– Improvement in operational efficiency

- It was observed that post installation of smart meters, there has been an improvement in AT&C losses of these feeders from 18.2% to 13.5%.
- This has led to increase in revenue and savings in other operation and maintenance cost for the Company even after making payments to the Contractors.

Benefits to Utilities - Payout to Contractors from the additional income generated through Smart Prepaid Meters

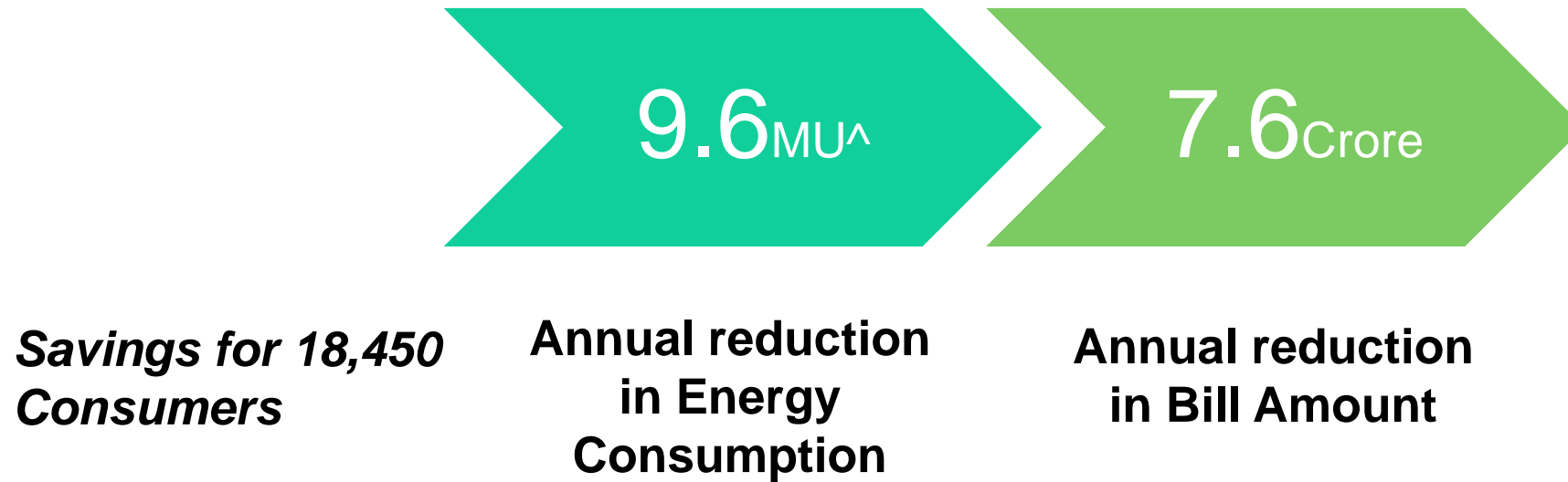
Smart Meters considered (Nos. in lakhs)	Monthly Expenses	Monthly Income						
	Payout to Contractors (in Rs.Crs.)	Increase in revenue (in Rs.Crs.)	Savings in MBC Cost (in Rs.Crs.)	Arrear recovery through prepaid conversion (in Rs.Crs.)	Addl. fixed charge & Assessment bills recovered in Rs. Crs.	Working capital savings (Rs. Crs.)	Total Income + Savings (Rs. Crs.)	Net Gain/(Loss) (in Rs.Crs.)
	A	B.1	B.2	B.3	B.4	B.5	B = (B.1+B.2+B.3+B.4+B.5)	B – A
21.45	18.74	8.41	1.69	11.17	1.12	0.15	22.54	3.66

Net Gain per consumer (monthly) : Rs. 17.04

Benefits to Utilities – Savings to the State exchequer in electricity bills

Auto-Disconnection of Govt. consumers having smart meters

- Auto-disconnection is carried out in around 18,450 nos. of Govt. consumers(except emergency services) during non-essential hours to prevent wastage of energy.
- An analysis was carried out for these consumers to find the savings realized from the exercise. The findings are as below:

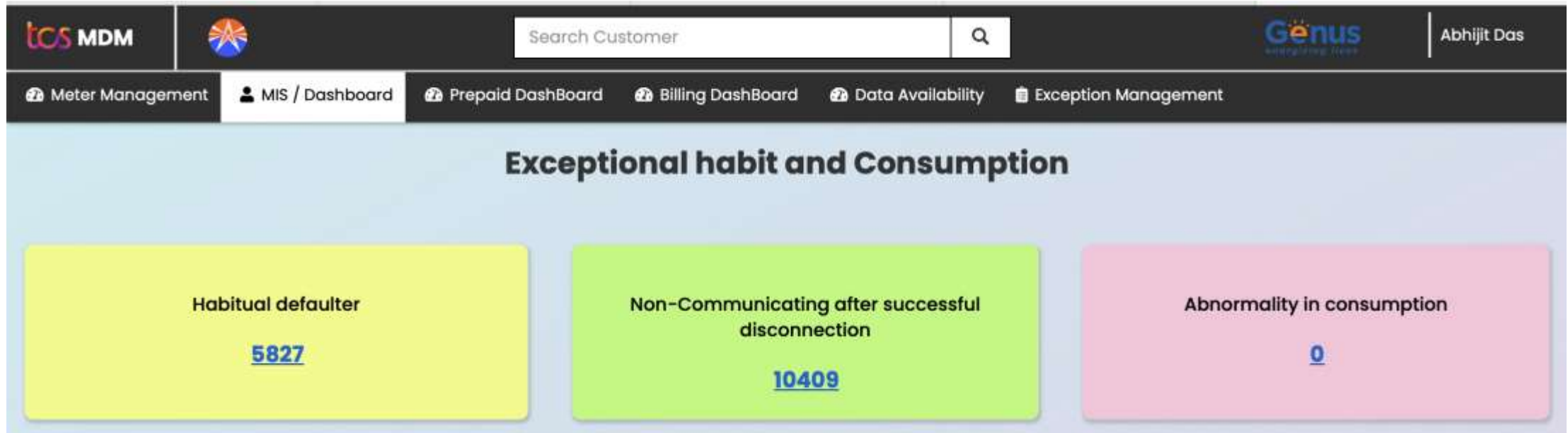


^ Consumption of FY 24-25 compared to FY 23-24

Benefits to Utilities – Data analytics

Revenue Protection

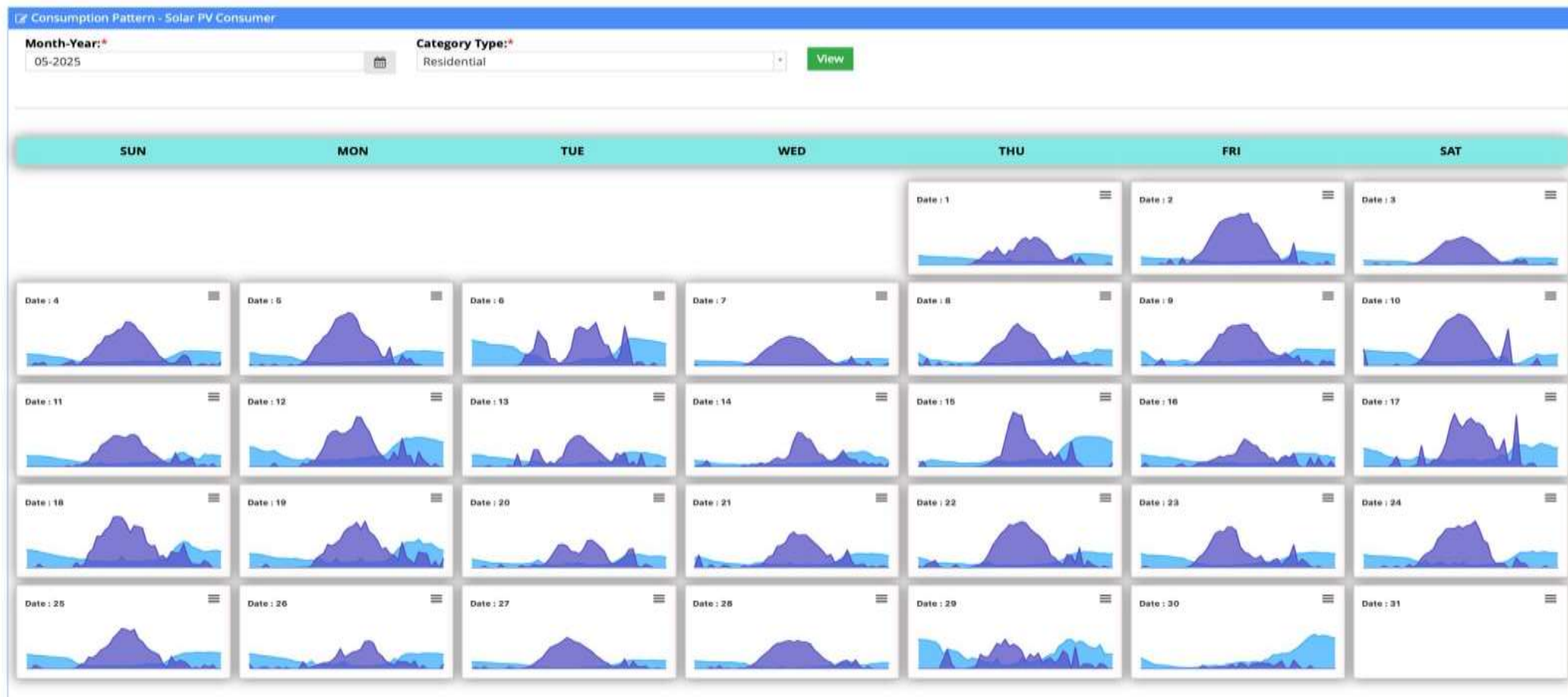
Detecting Probable Malpractice cases through data analytics



Benefits to Utilities – Data analytics

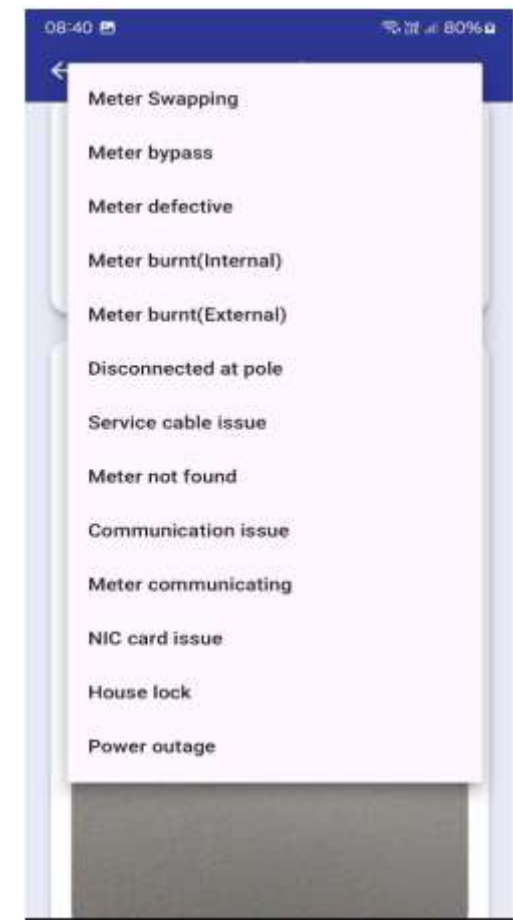
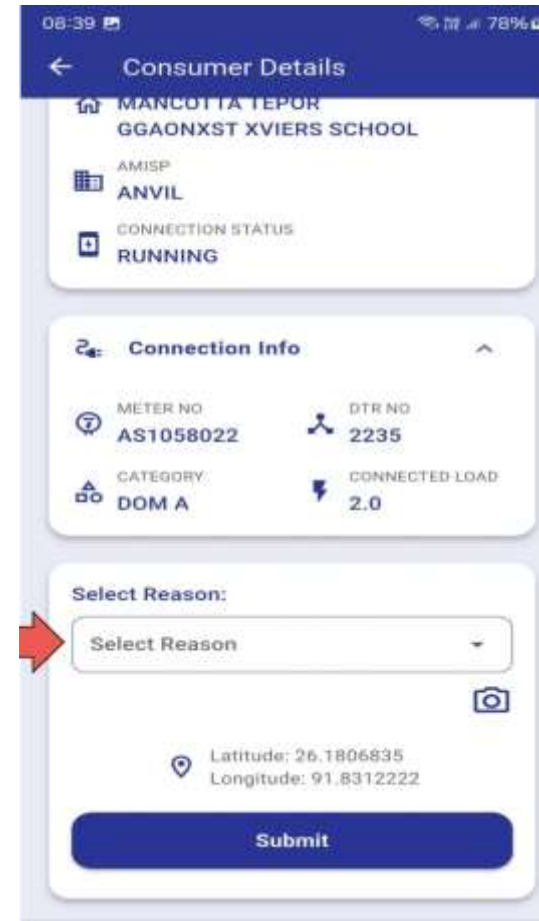
New insights on energy usage

Analysing Import vs Export Energy of Solar Consumers



Benefits to Utilities – Targeted detection of theft and bypass cases through monitoring of communication status of smart meters

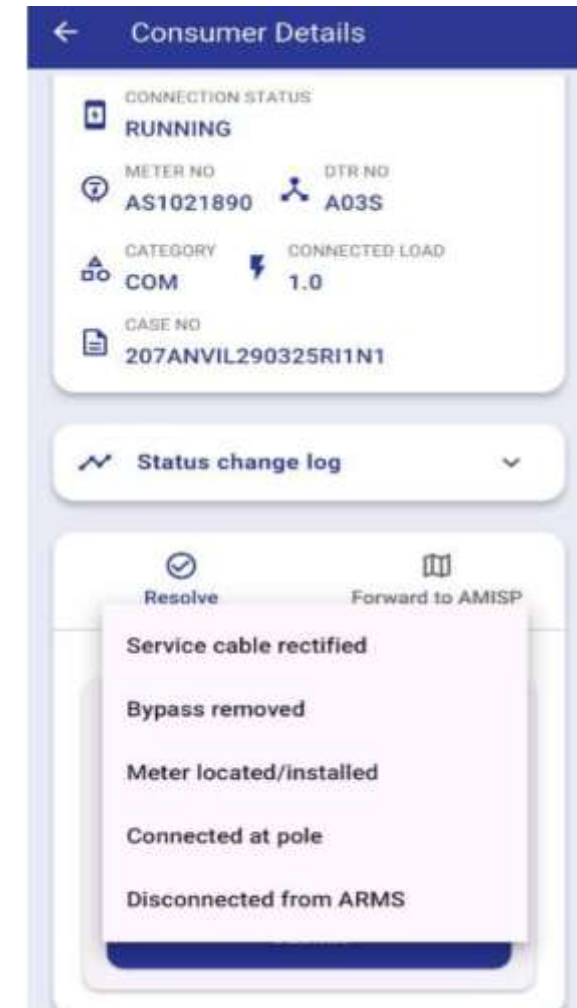
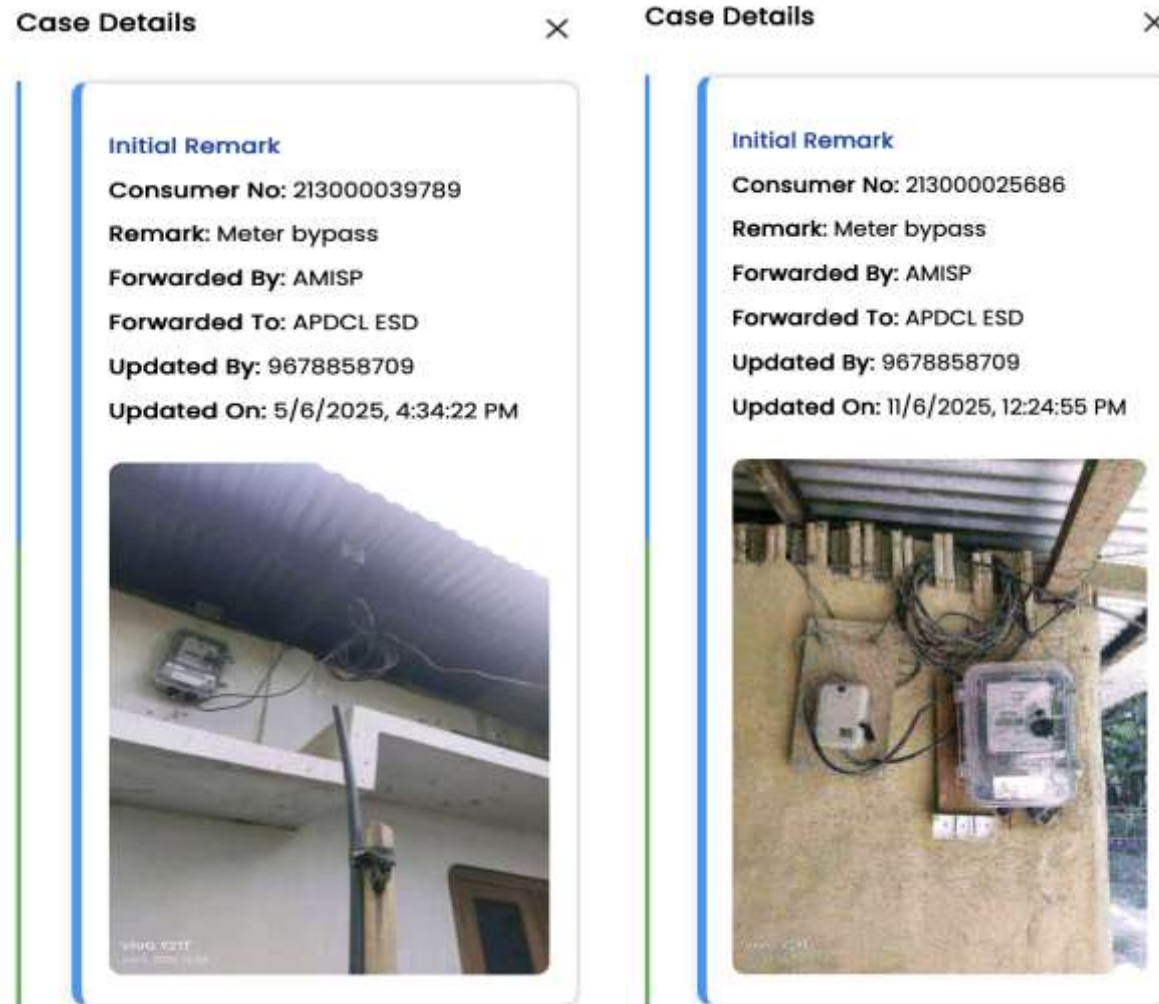
- APDCL has developed an in-house mobile for monitoring and resolution of non-communicating smart meters
- All eligible non-communicating cases are made available in the login of the AMISPs.
- AMISPs then visit such premises and record their findings with photo & location evidence
- If there is DISCOM dependency, such cases are assigned to DISCOM officials in the App itself



Benefits to Utilities – All meter bypass and theft cases are recorded in the mobile app itself with photographic evidence

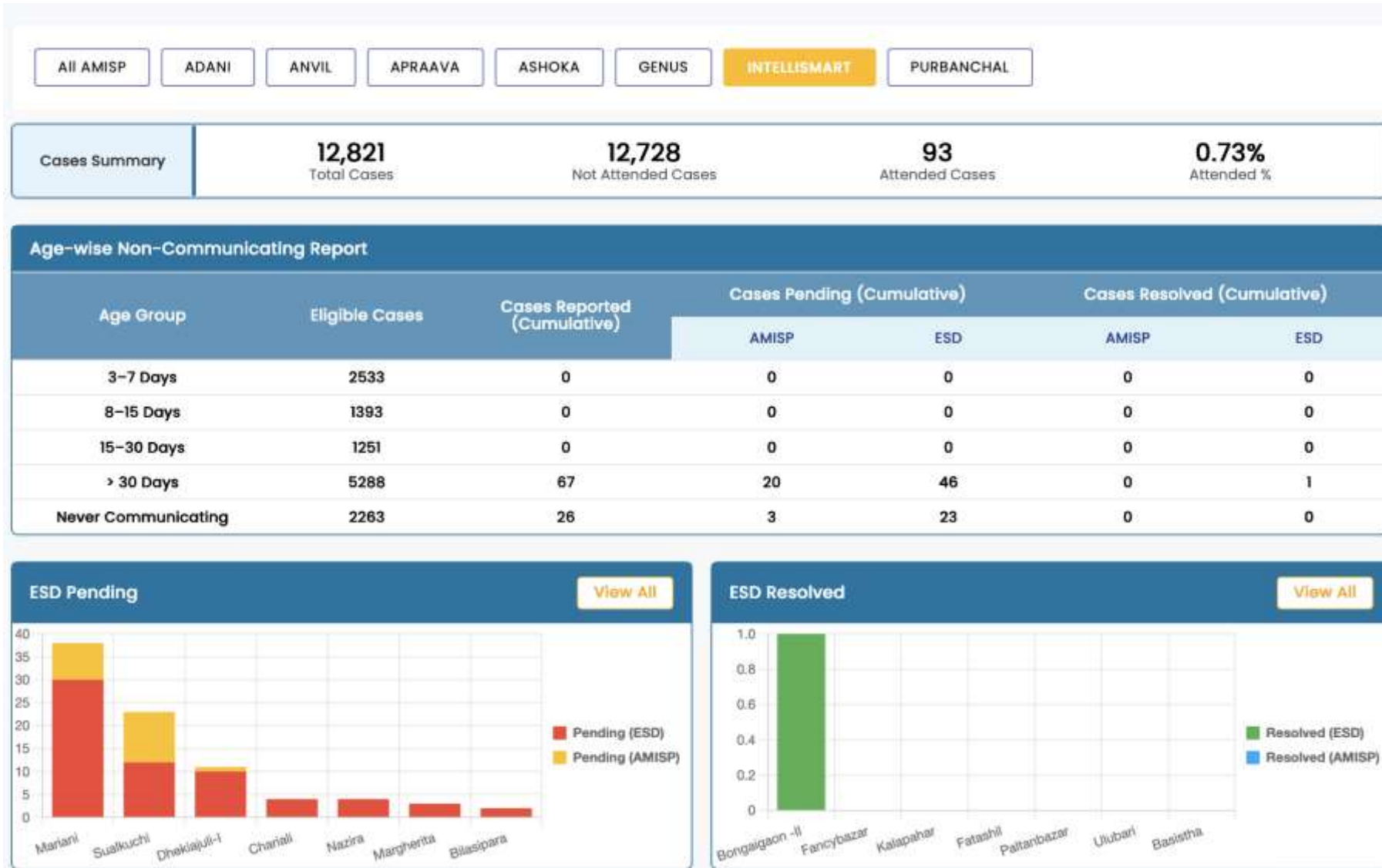
Reasons for non-communication is captured with photographic evidence

APDCL officials need to resolve the DISCOM dependency cases in the app itself



Benefits to Utilities –

Centralized dashboard for monitoring of non-communicating smart meters and corrective actions taken



Benefits to Utilities –

Centralized dashboard for monitoring of non-communicating smart meters and corrective actions taken

Detailed Non-Communicating Consumer Report									
Cons No	Name	AMISP	Case No	Non-Comm Days	Address	Status	Category	Load	Meter N
213010126230	Astomi Tanti	GENUS	213GENUS230525DLU6Z	117	bokpara palang line	RUNNING	DOM A	0.49	926063
213000075362	KIRAN SINGH	GENUS	213GENUS190525W29Y2	103	TARA TE	TDC	DOM A	0.49	735366
213010126229	Astomi Tanti	GENUS	213GENUS2305253PK4H	96	bokpara palang line	TDC	DOM A	0.49	927430
213010126655	Nondoo Porshuram	GENUS	213GENUS230525Y0IQX	96	Badlabeta TE Palong Line	TDC	DOM A	0.49	736613
213000064117	AGUSTINA BHUYAN	GENUS	213GENUS2205253QY0E	94	BUDLABETA TE 3 NO LINE	TDC	DOM A	0.06	907750
213010126338	Saraswati Paik	GENUS	213GENUS230525T20LD	93	bokpara palang line	RUNNING	DOM A	0.49	736781
213000018883	SADHU KRISHNA RAJPUT	GENUS	213GENUS26052566SAR	93	BADLABHETA TE 79/76 NLR	TDC	DOM A	0.06	735405
213000093574	GITA EKKA	GENUS	213GEN060625IF8S7	92	PAKKA LINE	TDC	DOM A	0.49	925707
213000018871	RAKHY TANTI	GENUS	213GENUS260525EEO4Y	92	BADLABHETA TE 79/76 NLR	TDC	DOM A	0.06	735409
213000075411	BIJOY CHIRUTAM	GENUS	213GENUS190525M6NQ4	81	TARA TE WL 37	TDC	DOM A	0.49	735360
213000075361	RAJESH KANDHA	GENUS	213GENUS190525N7SK9	78	TARA TE	TDC	DOM A	0.49	735360
213000063456	HEMONTA MORAN	GENUS	213GEN050625XN0KO	72	TANGONA MAJ GAON	RUNNING	DOM A	0.06	730874

THANK YOU

