



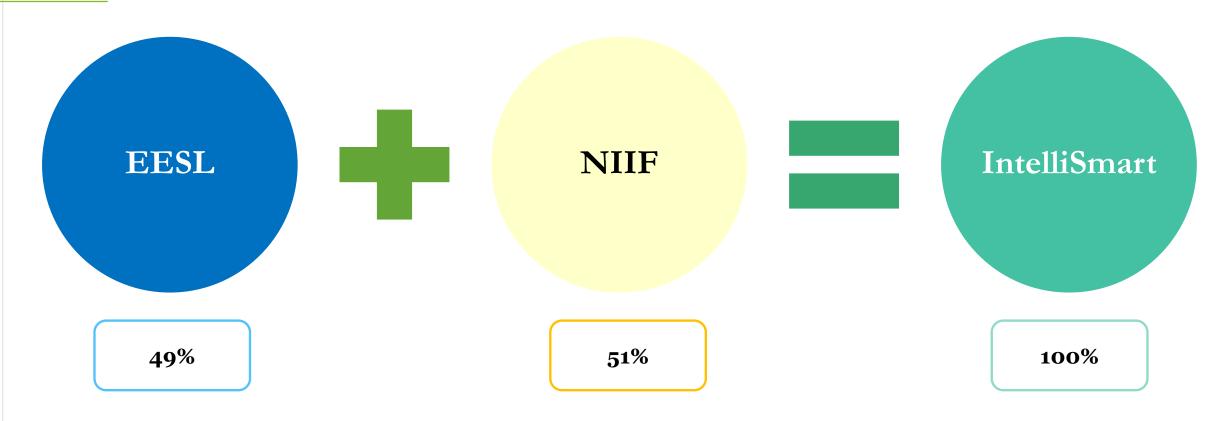


ROLE OF ADVANCED METERING INFRASTRUCTURE IN DISCOM MODERNIZATION



3rd March 2022

ABOUT INTELLISMART



EESL: promoted by Ministry of Power, Government of India (GoI) as a JV of four reputed PSUs viz. NTPC, PFC, REC and PGCIL.

NIIF (National Investment & Infrastructure Fund): a GoI backed fund directed by Governing Council chaired by Finance Minister, GoI and Secretary – DEA, Secretary as other member.

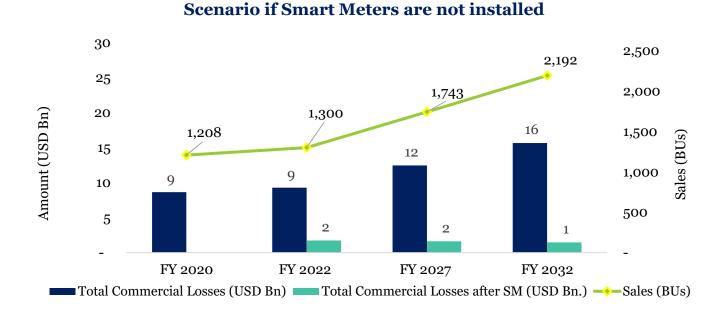
IntelliSmart: Enabling implementation of Smart meters through BOOT (Build, Own, Operate & Transfer) model. Vision to create digitalized and resilient power sector.



HUGE SUPPORT TO DISCOMS FOR ENHANCING EFFICIENCY

Smart Meters poised to potentially save USD 8.4 Bn per annum through loss reduction, advanced data analytics and other futuristic digital interventions.

- National AT&C losses stand at 22% as of FY 2019-20 but the actual losses including agricultural losses may lie b/w 30-35%.
- Gross energy sold by Discoms was ~1208 BU in FY 2019-20.
- Smart Meters provide an excellent solution to increase efficiencies.
- Therefore, SMNP has targeted to implement 250 million Smart Meters in the Country.



Potential savings from 2022 to 2031-32 with AMI



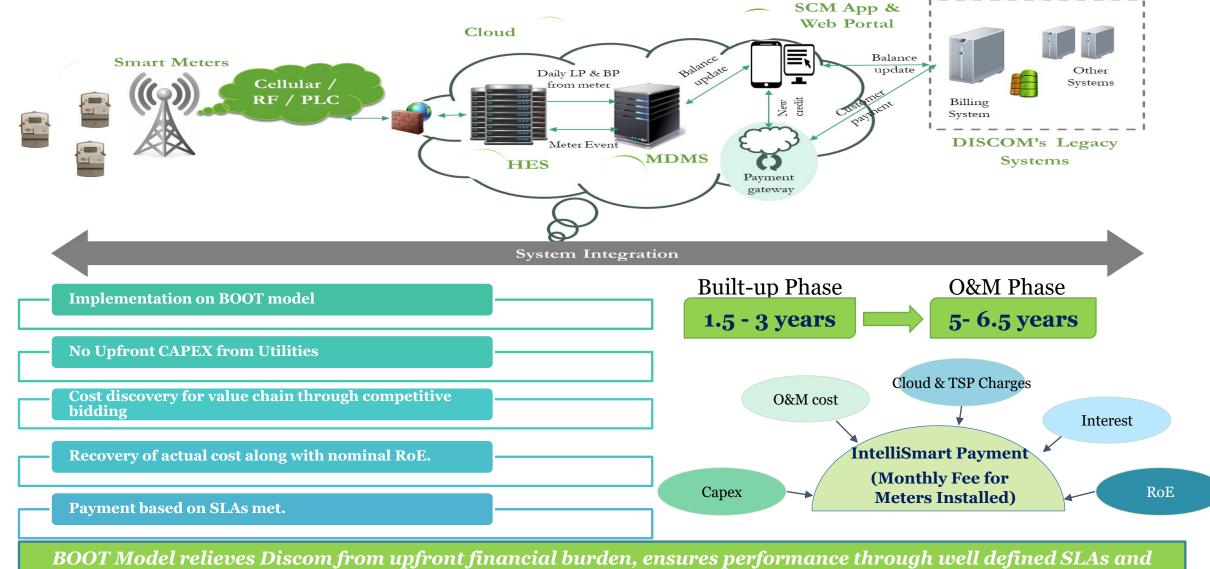








BUSINESS MODEL



BOOT Model relieves Discom from upfront financial burden, ensures performance through well defined SLAs and ensures large scale operations by bringing time & cost efficiencies.



AMI ROLLOUT & FUTURE INVESTMENT OPPORTUNITIES IN INDIA

India is on a mission to achieve 100 Mn Smart Meters by 2023 and 250 Mn by 2025 Business opportunity of the size of USD 35 Billion

Opportunities: 27.8 Million **Tender Rollout Status** > 1 Million < 1 Million < 0.5 Million < 0.1 Million 0.22

Agency Wise Smart Metering Status-India*

Implementing Agency	Sanctioned	Installed Smart Meter	Installed Prepaid Smart Meter
EESL/ IntelliSmart	78	23	6
Others	34	16	0.5
Grand Total	112	39	6.5



AMI INTERVENTIONS FOR DISCOM MODERNIZATION

- Accurate and timely meter reading for loss reduction interventions.
- Realtime alerts for preventive actions.

- Early detection and response to load increase.
- Real time information to consumers about consumption and pricing, and verification of consumer's load curtailment

AI/ML Based

Advances Data Analytics

Futuristic

Technologies

- TOD / TOU tariff for flattening of load curve.
- Easy to incentivize consumers to shift their non-essential load.

Smart Grid Demand Response

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TOD/TOU

Remote Operations

AMI Driven Interventions

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• Plugging of royonue le

Plugging of revenue leakages

Resource optimization

- Remote configurability
- Remote disconnection and reconnection

• Distributed generation

- EV charging
- Virtual power plant
- P2P trading through Prosumers

AMI Driven Technologies paves the path for DISCOM Modernization through digital interventions



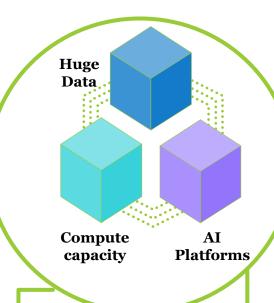
ADVANCED DATA ANALYTICS

Assets and **Operations**

- Network Reliability
- Asset Performance Analytics
- Maintenance Optimization
- Fault / Hot Spot Detection

Portfolio Analytics

- Energy Forecasting
- Power cost analysis
- Renewables Forecasting
- Next-gen Consumer analysis – customised energy management



Customer, Revenue Analytics

- Billing & Payment Analysis
- Non-Technical Loss
- Complaint Analytics
- Alerts/exceptionsoutlier customers likely to engage in fraud or defaulter

Other Applications

- Customer Segmentation
- Demand Side Management
- Power Quality
- Alert/Alarms & field maintenance

Pilot Conducted in One Discom in India

Description	Baseline Sep 2021	Pilot Output	
Anomaly/Theft Detection (No. of Accounts)	120	252 High Risk Customers. Total 1027 Cases have been identified.	
Billing Ratio	1.068	14,047 consumers with total consumption of 2,22,779 Units have not been billed for September 2021.	
Contracted Demand (kW)	4,31,289	 27.89 % of Total consumers Exceeded Sanctioned Demand in year 2021. 421 HT/LT Consumers exceeded Sanctioned Load 	
High bill generation Analysis (No. of Accounts)	1,603	7,225 Consumers defaulted due to High Bill.	
Complaint Defaults	5,660	5,660 Customers who had raised complaint with Discom have defaulted on their payments	

AI & ML based pilots on advanced data analytics have potential to generate additional revenue of \sim USD 10 Bn.





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COMMUNICATION TECHNOLOGIES

Parameters	Cellular	RF	PLC
Spectrum Type	1-2 Mbps	Unlicensed/Licensed	Licensed
Latency	<1 sec	1-60 sec	<1 sec
Scalability	High	Moderate	Low
Reliability	Moderate	Deployment and product specific	Dependent on underlying power line
Security	Highest	Low	Low
Life Cycle Cost	Low	High	High
Penetration	High	Moderate	Low

Solution lies in selection of technology and hybrid solution (Cellular + RF) in the interest of mass scale rollout in India.

