

Challenges being Faced by Discoms, AMISPs and OEMs in India and New Services for Smart Meter Customers



RP Singh
Senior VP, SEW

Naye Bharat ki Nayi Disha



Leading The Digital Transition in Energy & Water

430+

Utility Providers

1.2B+

People Connected to SEW

1T+

Platform Annual Interactions

1550+

Global Team Members

45+

Global Solutions Presence



Power



Water



Gas



Smart Cities



Solar



E-Mobility



Energy Retailers



Communication Service

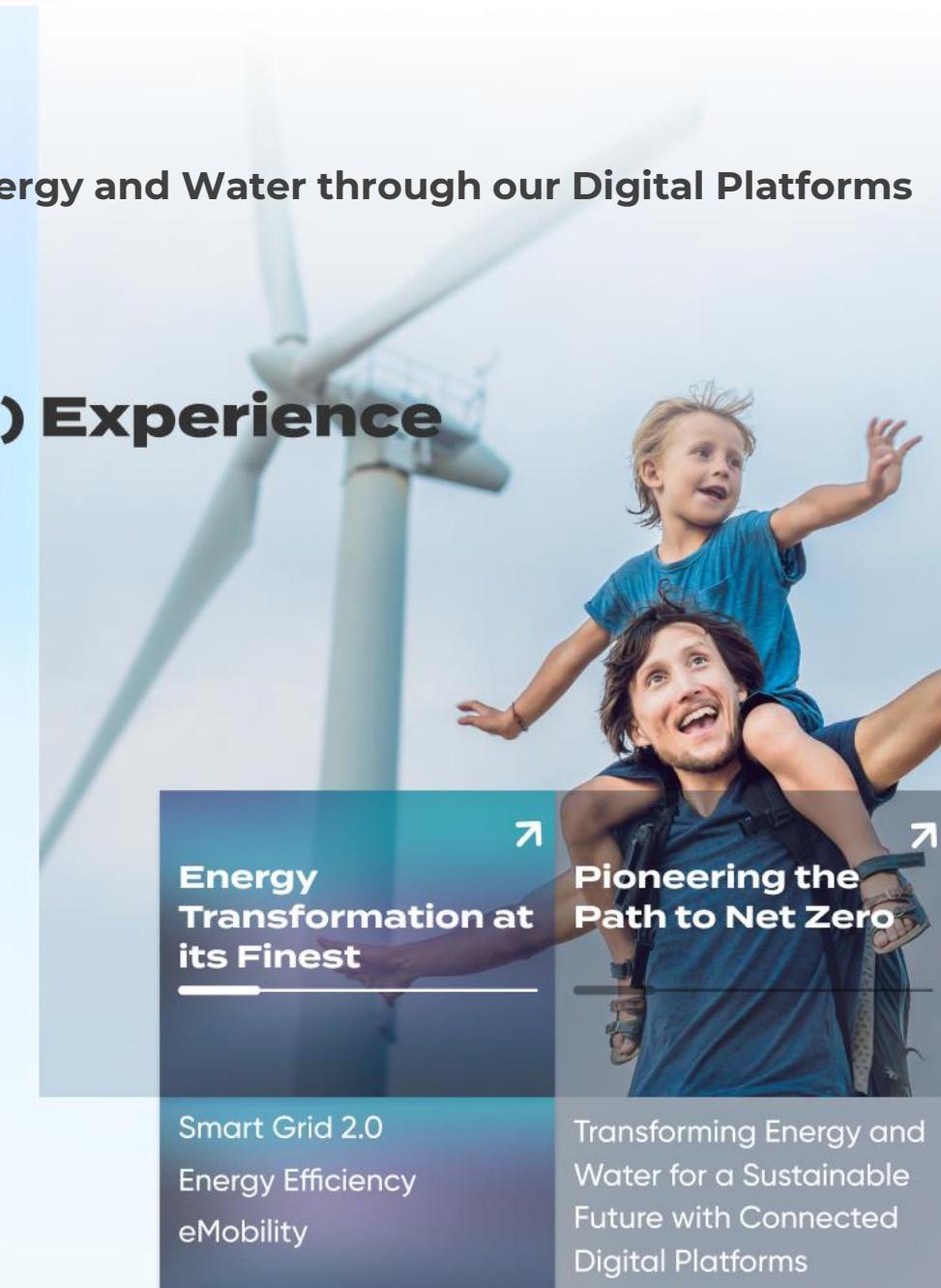
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|---|--|------------------------------------|-------------------------------|-------------------------------|------------------------|----------------------------------|---|
| • Energy Efficiency and Analytics | • Solutions for Drought | • Digital Self Service | • Energy & Water Efficiency | • Personalized Solar Programs | • Manage Charging | • Personalized Service | • Digital Customer Engagement |
| • Smart Home Management | • Personalized Water Conservation | • Personalized Assistance Programs | • Digital Customer Experience | • Community Solar Initiatives | • Digital Self service | • Smart Energy Management | • Billing and Payments |
| • Electric Vehicle Integration | • Programs | • Energy Use Management | • Data-driven Decision Making | • Solar Generation & Tracking | • Rebates and programs | • Rate Plans | • Operational Excellence Powered by AI/ML/IoT |
| • Demand Management & Customer Programs | • Comprehensive Leakage and Flow Analytics | • Operational Efficiency | • Operational Efficiency | • EV Analytics | • Digital Marketplace | • Bundled Services and Offerings | • Communications and Service |

Meet SEW.Ai

We Engage, Empower, Educate Billions of People to Save Energy and Water through our Digital Platforms

AI-Powered Connected Customer (CX) and Workforce (WX) Experience Industry Cloud Platforms

- + ENERGY TRANSFORMATION
- + WATER CONSERVATION
- + ENERGY EFFICIENCY
- + EMOBILITY
- + NET ZERO
- + ESG



The State of Indian Power Sector



Country's Focus

Indian Government has time & again emphasized that an efficient, resilient, and financially robust power sector is most essential for growth of the Country



Quality of Power

Almost all investment & climate surveys point to poor availability and quality of power as critical constraints to commercial and manufacturing activity and India's competitiveness



Focus On Distribution

Distribution improvements have lagged, but it is now clear that they need to be a priority



Urgent Need

Revenues originate with the customer at distribution, so subpar performance there hurts the entire value chain the most.

Pain is more likely to be spilled over to lenders & affect the broader financial sector

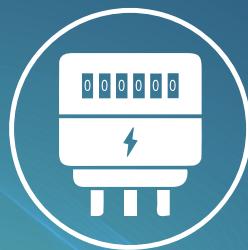


Added Capacity

Lot of Government-initiated reform efforts have gone into generation and transmission segments, reflecting the urgent need for adding capacity and evacuating it.

Smart Metering – Beyond Just “Smart Meters”

The term ‘Smart Metering’ actually denotes not just Smart Utility Meters but a “System” which when put together allows for an end-to-end process **of Data Acquisition, Validation, Analytics, Reporting and Control, to provide both the consumers and the utility better management** of their resource usage, the associated cost and to allow for cost-optimization.



Smart
Meter



Communication
Network



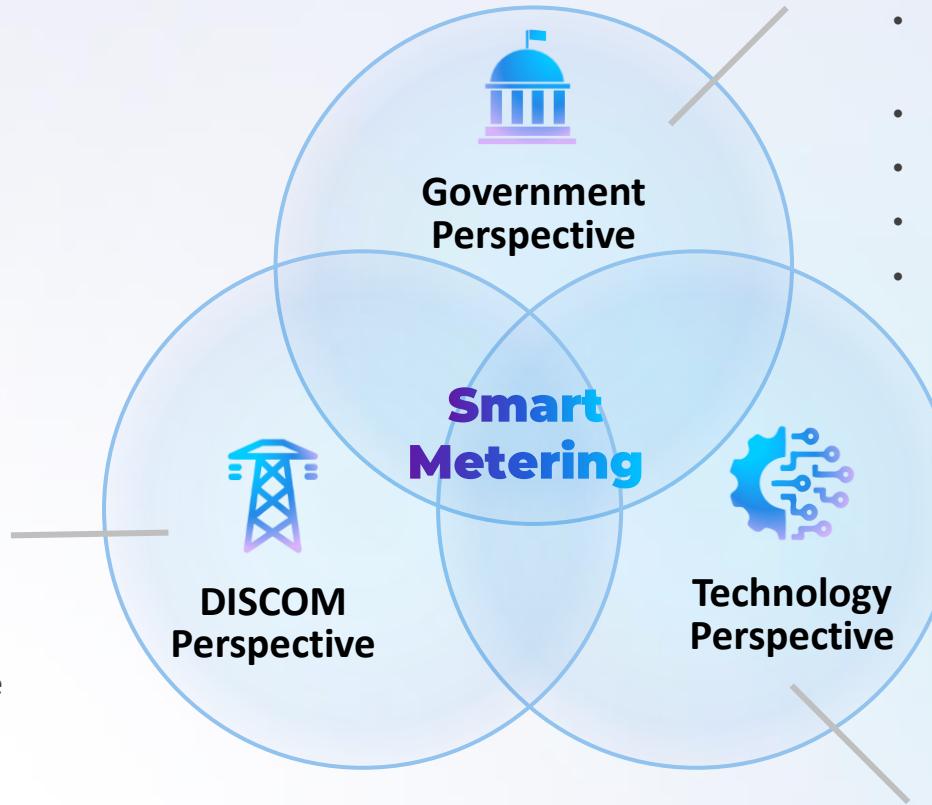
IT
Applications



Consumer
Interfaces

Key Smart Metering Objectives

- First step towards incorporating a smart grid
 - Power Reliability Improvement
 - Enhanced Quality of Power
- Energy Auditing & its advantages on the operations side such as --
 - Identification of High Loss Pockets
 - Technical Losses – Load Unbalance, Overloading, Reactive Power Compensation, etc
- Leverage on Power Trading Arbitrage by accurate load scheduling
- Customer Engagement
- Assured of a shorter customer billing cycle and improved accuracy



- Reduction of AT&C losses
 - Increasing billing and collection efficiency
 - Lower tariffs
 - Address issues such as load management, peak shaving and demand side management.
 - Crucial for renewable energy integration
 - Early detection of failing service connections
 - Substantial gains to Customers
 - Help in achieving India's sustainability goal
-
- Use interoperable standards, and undertake staged deployment
 - “Super Computer in the meter”
 - Reports outages to the outage management system.
 - Security from Cyber threats
 - Ensure engaged and satisfied customer
 - Commoditized communication
 - Developing robust ecosystem throughout country
 - Open standard protocol

Possible Benefits from “Smart Metering”

- Loss reduction / energy accounting
- Shortening of Cash-to-Cash Cycle
- Improving reading efficiency and quality
- Improving billing efficiency
- Reducing “Estimated Bills” & “Billing Disputes”
- Cost Reduction
- Allows 24x7/ remote / cashless transactions (billing or Prepay)
- Provides data & platform for new services / revenue for the Utility

- Giving Consumers a better understanding / control on their spend
- Gives consumer options of Prepay & Post pay
- Better customer services
- Demand response / Load shifting
- Power quality improvement in the system
- Planning system maintenance and upgrades
- Load forecasting
- New tariff designs

Utility must lay down its drivers for Implementation, before the start of the project

Multiple Factors At **PLAY**

Factors	Matured	Fragile
AT&C Loss Levels	<10% AT&C Loss	>10% AT&C Loss
Power Reliability	SAIDI <60 Mins Ring + n-1 Network	SAIDI >60 Mins Radial + Overloaded & Dilapidated Network
Technology Absorption	Network - Automation at DT & Smart Metering Process - Workforce Mobility Solutions	Network - Poor Automation Levels Process – Manual, paper driven processes
Annual Revenue Requirement Gap	Dividend Paying Near Zero Regulatory Disallowances Near Zero Regulatory Asset Creation Near Zero Over-dues of Power Gencos	High Regulatory Disallowances Huge Regulatory Asset Creation High Over-dues of Power Gencos
Customer Engagement	EoDB Compliant Transparent Digital Uber Customer Engagement Platform	No or Poor Customer Engagement Platform Non-Transparent



TPDDL | TPC Mumbai | AEML | Torrent Power | CESC

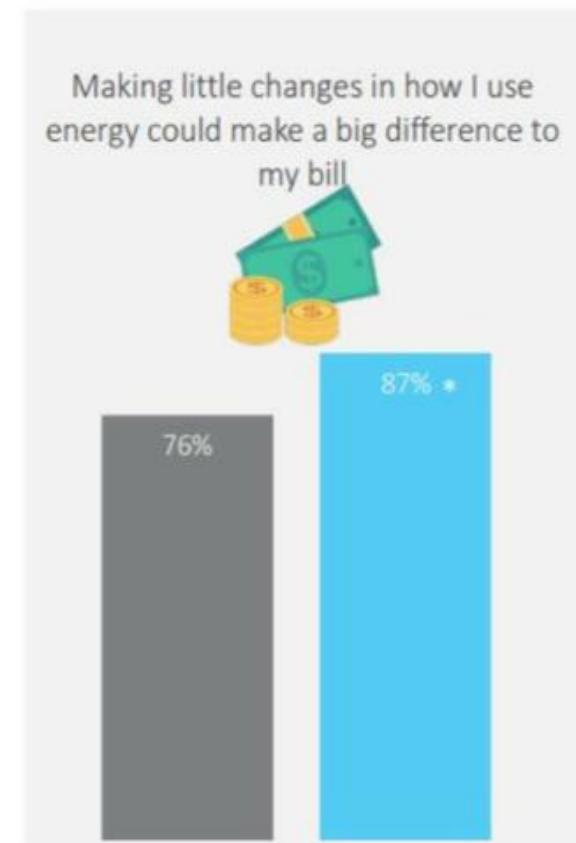
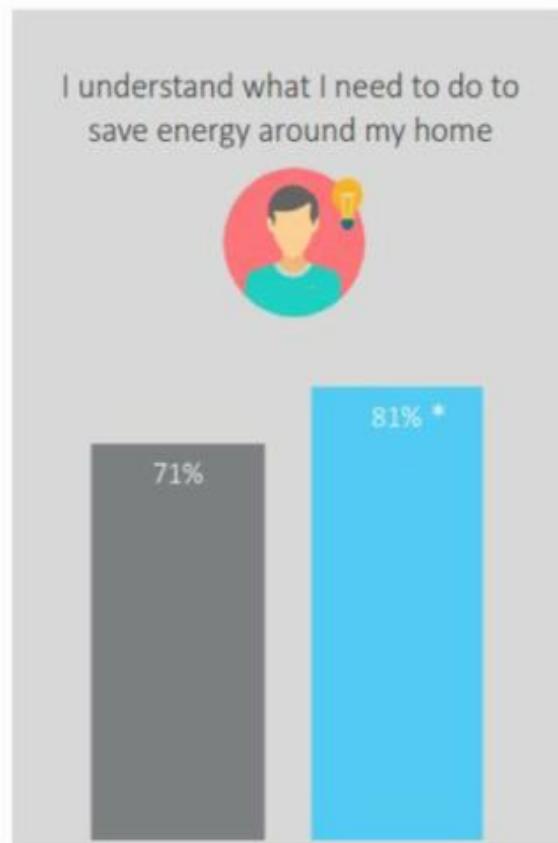
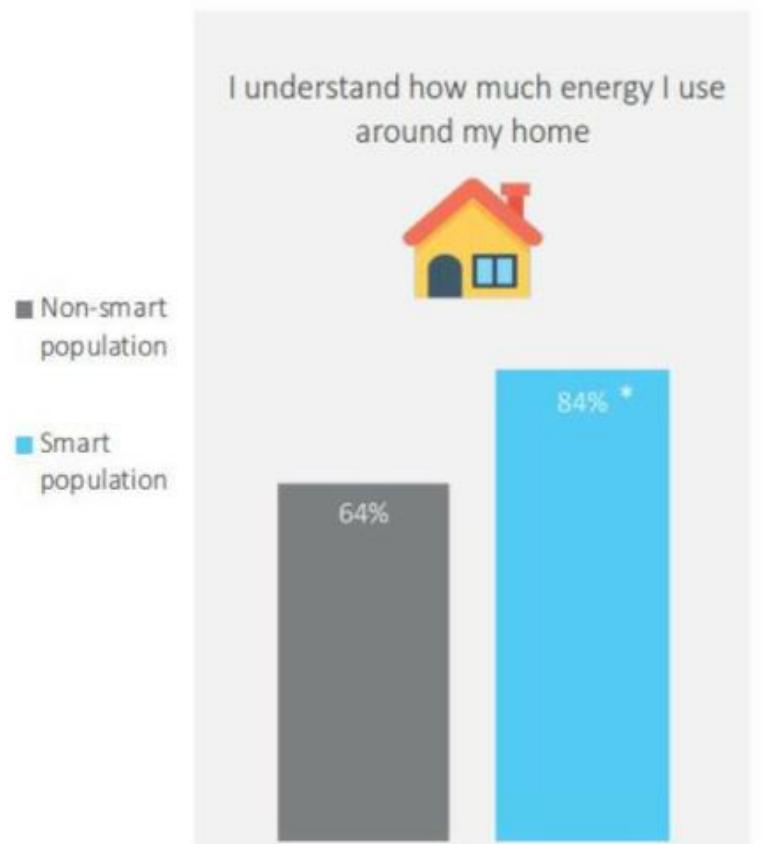
T. Bhiwandi | BSES | Gujarat SEB

TP Odisha | CESC Rajasthan

Other SEBs | J&K

The Big Question is – Are Smart Meter Really Ensuring Smart Customers into Happy Customers?

Attitudes towards energy – agree – among all respondents



*Denotes significantly higher than non-smart population

Graphic credit: Utility Week/Populus

Going Beyond Conventional Usage of METERS

Current Meter System –
Walk In Reading

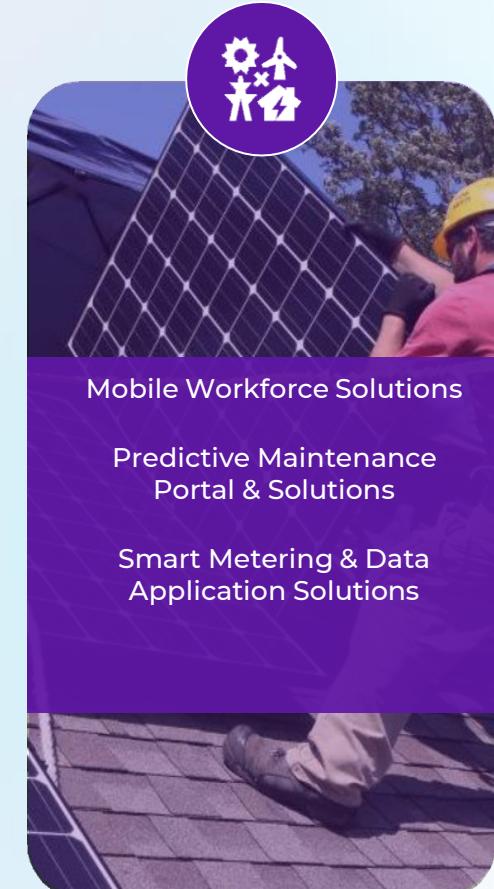
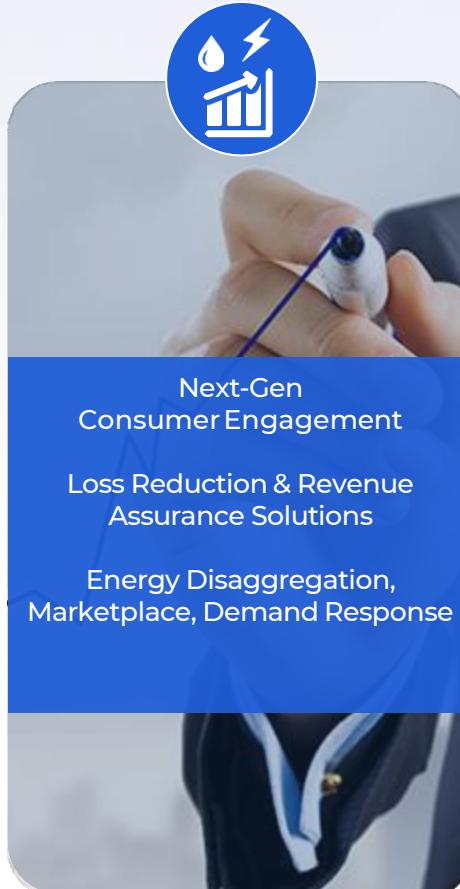
Smart Meter Benefits



These Changes/Challenges Are Giving Birth to New Opportunities

Utilities Are Turning to Business Transformation Initiatives to –

- **Improve Operational Efficiency**
- **Reduce Costs**
- **Increase Customer Satisfaction**



What's in it for State Discoms: How does CX Matter?

KEY NUMBERS

Up to **45%** reduction

Utility Operational & Expense Cost

Up to **30-45%** reduction

Customer Care Call Volume

Up to **50%** improvement

Response times

KEY BENEFITS – INVESTMENT IN CX

- Customer Satisfaction and Loyalty
- Brand Reputation
- Revenue Generation
- Operational Efficiency
- Competitive Advantage

BENEFITS OF HAVING A MATURE CX PLATFORM

- **Accelerated** and **Targeted** Customer Outreach
- **Seamless** customer experience
- **Hassle-free** and **Quick** Customer Onboarding
- Improve **profitability** of operations
- **Future ready platform** for integrations – EV, Solar, Demand Response etc.
- Improved Customer Service through **Data-driven Business Insights**

All with the Power of AI/ML Technology

Adding a “WOW” Factor to Smart Metering Ecosystem to Help Customers...

- Track their **energy consumption in real time**
- **Ensure timely billing and collection** by remote reading and management
- Get **Access to real-time data** to actively monitor and manage their energy consumption
- **Enable time-of-use tariffs**, encouraging consumers to shift consumption to off-peak hours, resulting in cost savings
- Allow customers to **prepay for meter usage**.
- Receive **Notification for Fraud Detection**
- **Reduce bill abnormalities**
- Ease of **managing one's electricity consumption** and bills
- **Lower electricity demand** during “peak” periods
- In making **informed decisions** about their usage
- Contribute to **India’s Green Agenda**



Customer Experience Platforms

Accelerating the Energy Transition

Current Challenges	Consumer Demands	Future of Customer Experience
Frequent power outages and blackouts	Reliable and uninterrupted power supply	Advanced smart grid technologies, distributed energy resources, and energy storage solutions that increase grid resilience and reliability
Limited access to energy in rural areas	Access to affordable and reliable energy for all	Increased deployment of off-grid renewable energy solutions, such as solar home systems and mini-grids, to provide energy access in remote and underserved areas
Limited awareness and engagement with energy efficiency and sustainability	Opportunities to participate in clean energy solutions and reduce carbon footprint	Innovative customer experience tools, such as energy usage monitoring and feedback, incentivized energy efficiency programs, and consumer-driven renewable energy procurement
Limited communication means in rural areas	Improved communication infrastructure and access to information	Increased deployment of digital technologies, such as mobile apps and online portals, to provide real-time access to energy information and services
Lack of personalized services and options	Customized and flexible energy solutions	Development of personalized energy plans and packages that cater to specific consumer needs and preferences
Slow adoption of electric vehicles (EVs)	Incentives and infrastructure for EV adoption	Increased investment in EV charging infrastructure, and introduction of policies that incentivize EV adoption



Establishing the Pillars of Excellence

COMPREHENSIVE DIGITAL PLATFORM



People –

Motivated | Change Oriented | Technology Trained | Team Spirit | Performance Driven | Analytical & Statistical Mindset (Need for Analytics Platform)



Process –

Documented | Evolving based on Customer Needs | Digitized | Automated (Need for Workforce Mobility Platform)



Network –

Robust (n-1 compliant till LT Level) | Healthy (fault proof) | Safe (Zero Accidents) | 5S Compliant | Loss Proof (Need for DT Energy Accounting & Revenue Assurance Platform)



Technology –

Automation – GIS (With Last Mile Connectivity), SCADA (100% Automation), DMS (>50% Automation), Smart Metering (Data to Application), Digital Customer Engagement Platforms (New for Customer Engagement Platform)

DIGITALIZATION & APPLICATIONS

Marry PEOPLE, PROCESS & NETWORK

Step One: FOCUS ON CUSTOMER EXPERIENCE

- Digitally Empowering Customers by enhancing **Convenience, Control and Choice**
- Delivering **All-inclusive Human Experiences** with Consistent, Multi-channel Integrations
- Provide **bidirectional communication** across channels with customers on status updates every step of the way
- Develop smooth and fully integrated **smart meter billing services**
- Provides **real-time notifications** to customers on the smart meter repair/maintenance
- Seamless Bill payments via Customer's channel of choice
- Monitor & track Energy & Water Usage in Real Time
- Achieving **Equity for All** through Standard Approach to Empower Billions of Indians to Achieve a Cleaner Future



Step Two: EMPOWERING WORKFORCE

- Manage work orders to **assign, schedule, and complete tasks** from anywhere
- **Facilitates new activations**, meter configuration changes, reconnect/disconnect services, and load-limiting capabilities
- **Automatically routes and prioritizes tasks**, tracks field workers and equipment
- **Manages meter and equipment procurement**, inventory management and warehousing, logistics, warranty and repair
- **Ensures meter maintenance** through installation, repair, and replacement
- Enables **field management, work order management, and resource scheduling and allocation**
- Enables **collaboration and coordination** between different departments



Emerging Technologies in the Utility Sector



Revenue Assurance and Energy Accounting

- Yearly, utilities lose \$101.2 Bn globally due to NTL – energy theft, fraud, billing errors etc.
- Utilities seek AI/ML based non-intrusive software solutions to potentially map network **infrastructure**, network **health**, **transformer overloading**, revenue **leakages** and improving **energy balance**
- There is critical need of ready-to-use platforms for distribution network analytics – **Loss analysis**, **Active and Reactive Power Analysis**, **Event Analysis**, **Power Factor analysis**, **DER analysis**, **Current & Voltage Analysis** etc.



Energy Disaggregation

- It refers to being able to extract **real time appliance level energy consumption data** for customer's and utility's view
- Customers should be able to track which appliances are (not) working efficiently and take necessary actions to **optimize their consumption**
- Technology solutions needed that **empower** utilities and customers with customised **DR programs**, intelligent insights gathered from **Peer Comparison**, **Surveys** and **Audits**



Solar Rooftop

- With macroeconomic factors and government initiatives leaning towards renewables, **transition from consumer to prosumer is rapidly accelerating**
- Pradhan Mantri Suryoday Yojana – **solarize 1 Cr households** in 1 year, **attain 40 GW rooftop solar capacity by 2026**
- Prosumers seeking platforms to track their **generation** at a granular level, track generation **KPIs**, track **net metering** related parameters, view **energy credits** etc.
- Utilities seek easy ways to **manage peak load**, **diversify energy sources**, **grid support** and **stability** etc.

Emerging Technologies in the Utility Sector



E-Mobility

- Indian e-mobility ecosystem growing at rapid pace (CAGR of 45.5% between 2022-2030), host of growth conducive efforts like e-mobility friendly government policies and initiatives (FAME), supporting electric vehicle manufacturers, charging infrastructure development, integration with renewable energy etc.
- Utilities see end-to-end e-mobility services as a differentiating factor for their valued customers
- There is growing need of comprehensive digital platforms that offer hardware, software, and EV services providing a complete solution for stakeholders in the electric vehicle ecosystem



Demand Response (DR)

- Efficient DR Management critical for every modern utility for – grid stability and reliability, cost savings, environmental benefits and customer engagement and satisfaction
- There is a natural need of solutions enabling utilities to run end-to-end DR programs and for customers to easily participate and reap benefits from the same
- Utilities seek full-scale DR Management system that seamlessly integrates with existing systems and provides end-to-end capability to plan, schedule, execute, and monitor DR events in real-time and provide load reduction

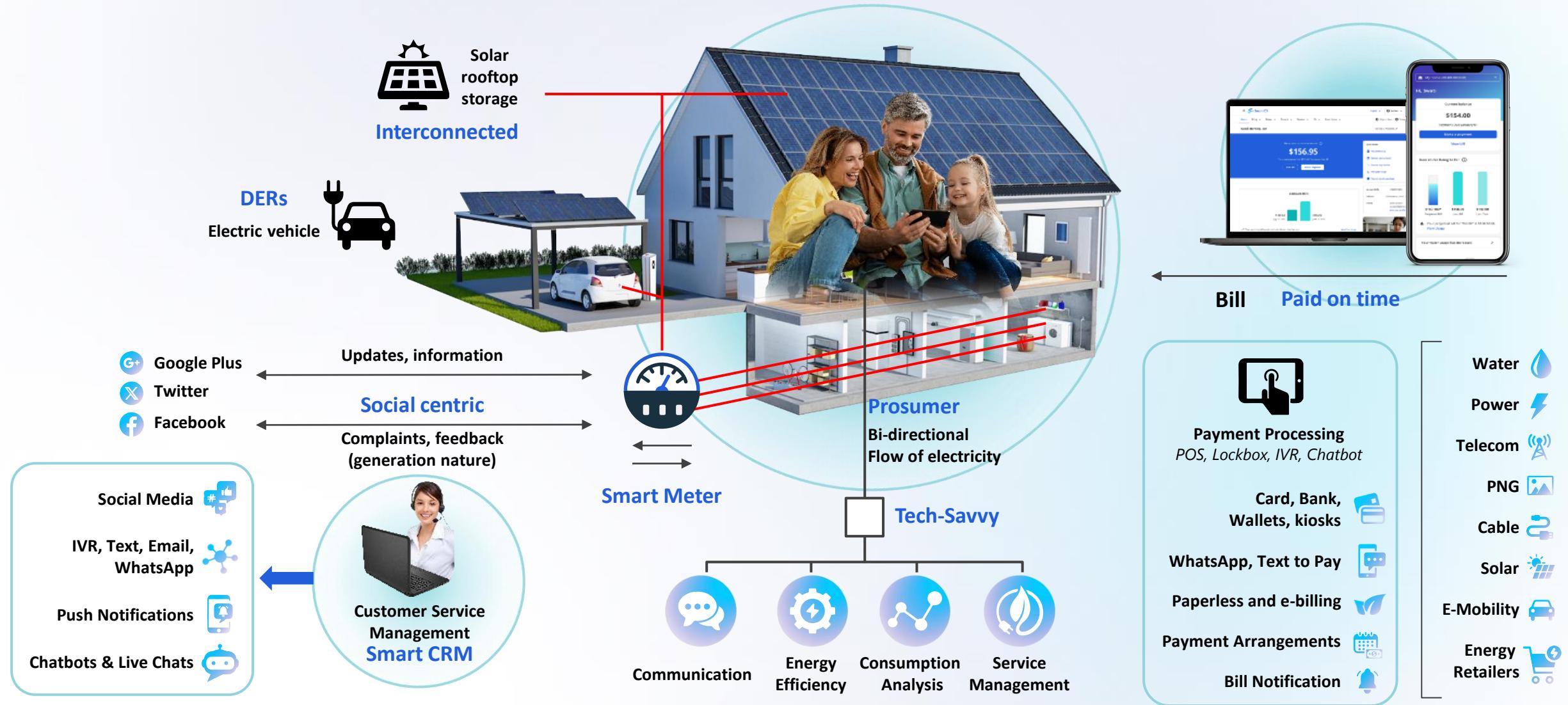


Distributed Energy Resources (DERs)

- DERs include small-scale power generation, storage, and demand-side management resources located close to the point of consumption
- Technologies such as rooftop solar panels, microgrids, and electric vehicle charging stations are examples of DERs reshaping traditional utility model
- Need of solutions allowing prosumers access to self service features - registering assets with DSO, tracking I&C activities, Generation KPI tracking and monitoring etc., and DSOs ability to onboard prosumers, track aggregated generation by VPP cluster/region, track short/long term demand forecasting etc.

Who is Behind the CX Transformation?

Modern Energy Consumer



So, What Should DISCOM's DO?

Ensuring a consumer-centric transition to smart (prepaid) meters

- Discoms, along with the Gov, should undertake sustained consumer engagement to spread awareness of the benefits and features of smart meters and their mobile apps.
- Discoms should continue offering e-bills and phase out paper bills.
- Discoms should help consumers use the flexible payment feature to generate acceptance of prepaid meters
- Discoms should send out timely alerts and facilitate a smooth recharge experience to dispel the fear of disconnection among prepaid consumers



WHAT IS SEW AMPLIFY?

STRATEGY



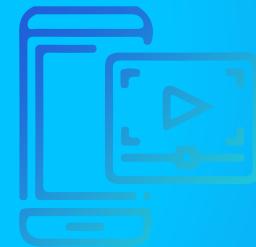
Proven strategies for
energy and water utilities

CREATIVE



Full service creative
capabilities

TECH

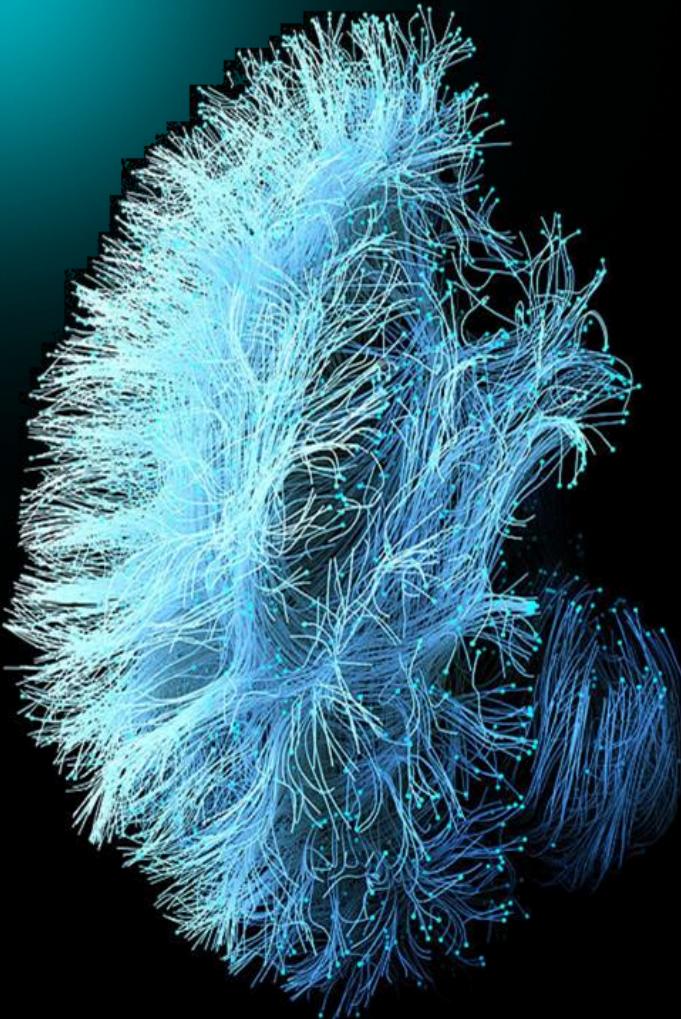


Self-service marketing
automation

CONTENT



AI-powered
Content Hub



Amplify combines the creative expertise of a full-service marketing agency with the automation and scale of an AI-powered self-service platform.

Drive Engagement and Customer Loyalty

Together with AI we turn every interaction into a step towards a more connected and sustainable future



And Help AMISP's and DISCOM's to Solving the Puzzle & Emerge Themselves as an Intelligent & Smart INDIAN Provider



- Instant & Reliable Digitization of Utility Meter Reading
- Fault detection and outage management at Grid level
- Handle real-time consumer data and high data volumes for Smart Grid applications
- Ensure timely and flexible analytics and intuitive reporting through AI/ML
- Unmatched data quality & accuracy
- On the fly ensuring Energy Accounting & High Loss Area Identification
- Improve their load forecasting, which can help them optimize power procurement and reduce the cost of power supply.
- Strengthen the overall security of the network.
- Receive Ad-hoc grid frequency signals
- Better Customer Satisfaction
- Lower AT&C losses and Improve O&M Costs
- Faster realization of revenue
- Resource Optimization Streamline Business Operations
- Secure & compliant data capture
- Ensure the safety of field workers, customers, and the public
- Realize the benefits of smart grid investments
- Enhance data accuracy and decision-making

Things to be in Place...

- Utilities need to define clear “Objectives” for their Smart Meter programs
- Define the implementation – Specifications, processes, SLA’s
- Define the “Commercial / Business Model”
- Set selection criteria for Entity to be given the task of deployment
- Set a budget and arrange funds
- Get on with Procurement

Set “Objectives / Goals”

- While the broad needs of Utilities are common, there are specific drivers why each Utility wants to do this
- Senior management of Utility needs to define the Objectives / Goals
- Ensure these Objectives / Goals to percolate down to the Operational teams within Utilities
- Objectives / Goals should be shared with all potential bidders
- Objectives and Goals can be used to set the SLAs and “Critical to Success Criteria”

Define the implementation - Specifications, processes, SLA's

- The Policy / Guiding bodies should help the Industry (Utilities and Project Developers) to converge on a broadly common Specification / Process / Deliverables
- MoP has come up with SBD through NSGM / REC
- REC is running the process of “Empanelment of AMI-SPs”
- This will help Industry to
 - Establish and stabilise Ecosystems for delivery
 - Economies of scale
 - Close the Knowledge gap for Utilities
 - Increase the speed of Roll out / deployment projects

Define the “Commercial / Business Model”

- The main considerations are
 - Where does the Risk Lie
 - Who is bringing the Money for the project

Key Takeaways

- Smart metering / AMI is a system not a product, Smart Meter is a part of AMI which is one of the building blocks of Smart Grid.
- Standardization is helping
 - ✓ Meters (BIS 16444 / IS 15959)
 - ✓ CEA Guidelines
 - ✓ Standard Bidding documents (Technical & Commercial)
 - ✓ More is on the way
- Essential to set clear objectives and processes at the start of the project
- Technology and vendor selection is extremely important to have an up and running efficient system for the next minimum 10 -12 years
- Hybrid commercial models maybe the best way forward in the short term to balance the Risks and Money availability issues between the Buyer and the Service provider
- Interoperability / Standardisation are key ways to prevent “Vendor Lock Ins”
- QR (and possibly QCBS) tests should be applied across the Ecosystems to check credentials of bidders
- Deliverables and SLAs need to be pragmatically but clearly defined so as to get an efficient system that delivers but is not very onerous to administer

THANK YOU



SEW Headquarters

15495 Sand Canyon Ave.
Ste. 100, Irvine, CA 92618.
info@SEW.ai
(949) 409-6833