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KXCHANGE

INSIDE THE ISSUE...

Securing Smart Meter Infrastructure: Cyber Challenges

India's journey toward modernizing its electricity distribution system through the rollout of 250 million smart meters highlights a pivotal shift towards improved energy management and efficiency. This initiative promises to enhance billing accuracy, minimize power theft, boost revenue collection, and facilitate real-time consumption monitoring.

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Manager, Strategy & Policy
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the smart meters. Similarly, data encryption protocols must be in place to protect the privacy and integrity of data collected by these devices. Ensuring that smart meters only run digitally signed firmware prevents unauthorized code execution. The concept of locked-down hardware is also crucial. Techniques like hardware secure boot and the capability for over-the- air firmware

However, the ambitious scale of India's smart meter rollout brings to the forefront the critical issue of cybersecurity. The interconnectedness of smart meters, while a boon for data-driven utility management, also exposes these systems to cyber threats that can compromise consumer privacy, financial integrity, and the overall security of the energy grid.

Spectrum of Threats

Smart meters are attractive targets for variety of attackers, from individual hackers seeking financial gain through fraudulent activities to organized crime groups aiming to disrupt utility services. The potential cyber threats range from tampering with meter readings to orchestrating large-scale outages, underscoring the need for robust cybersecurity measures.

Foundational Security Measures

To counter these threats, encryption and digital signatures stand out as essential tools. They ensure the integrity and confidentiality of data transmitted between smart meters and utility providers. Employing strong, approved cryptographic techniques is crucial in protecting against unauthorized access and data manipulation. Moreover, hardware security is of paramount importance. Implementing hardware features designed to thwart physical tampering and disabling unnecessary programming interfaces can significantly enhance the resilience of smart meters against cyber-attacks. The use of secure elements or hardware security modules for cryptographic key storage further solidifies the defence mechanism by making it exceedingly difficult for attackers to gain access to sensitive information.

Finally, it's crucial that all communication modules within the smart meters are sourced from trusted and verified suppliers. These standards'-compliant modules should have built-in security features to ensure safe and secure data transmission, mitigating the risk of cyber intrusions.

Comprehensive Security Strategies

A multi-layered security strategy is imperative. This includes secured command protocols to ensure that only authenticated and authorized commands are executed by

updates are vital for maintaining the security integrity over the lifespan of the meter. It's also essential to recognize the role of human factors in cybersecurity. Secure development practices, regular penetration testing, and rigorous design audits help identify and mitigate vulnerabilities. Educating utility staff and consumers about potential cyber risks and encouraging vigilant security practices can further enhance system security.
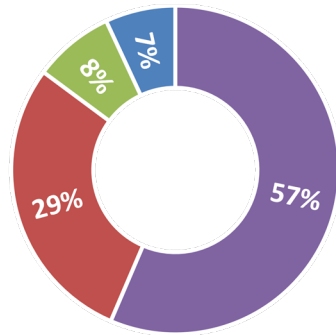

Moving Forward

The cybersecurity landscape is dynamic, with attackers constantly devising new strategies to exploit vulnerabilities. Thus, the security of smart meter infrastructure is not a one-time effort but a continuous process that requires vigilance, innovation, and adaptation. Regulators, utilities, and technology companies must work together to establish and adhere to stringent security standards, ensuring that smart meters deliver their intended benefits without compromising the security and reliability of the energy grid.

In conclusion, addressing cybersecurity challenges in smart meter infrastructure demands a holistic approach that encompasses technological solutions, regulatory frameworks, and human factors. By embracing innovative security solutions and maintaining a vigilant stance against cyber threats, India can build a resilient smart meter infrastructure that serves as a model for energy management and efficiency worldwide. In this journey of digital transformation, comprehensive cybersecurity will not only protect the metering infrastructure but also safeguard the trust and well-being of millions of Indian consumers.

Smart Metering Tender Progress and Status in India

- Ongoing Tenders
- Tenders Under Evaluation
- L1 Decided/ LOA Under Process
- Tenders Awarded

Floated Total Quantity - ~19 Crore

Tenders Awarded				
State	**Discom**	**Meters Quantity (Lakh)**	**Mode**	**Status**
Andhra Pradesh	APCPDCL, APEPDCL, APSEPDCL	35	TOTEX	Awarded
Andhra Pradesh	APCPDCL, APEPDCL, APSEPDCL	16	OPEX	Awarded
Assam	APDCL	65	TOTEX	Awarded
Bihar	NBPDCL & SBPDCL	150	TOTEX	Awarded
Chhattisgarh	CSPDCL	82	TOTEX	Awarded
Delhi	BSES	10	CAPEX	Awarded
Gujarat	PGVCL	24	TOTEX	Awarded
	DGVCL	18	TOTEX	
	PGCIL	53	CAPEX	
Himachal Pradesh	HPSEB (South)	9	TOTEX	Awarded
Jammu & Kashmir	Power Development Department J&K	6	TOTEX	Awarded
Jammu	JPDCL	8	TOTEX	Awarded
Kashmir	KPDCL	8	TOTEX	Awarded
Maharashtra	BEST	11	TOTEX	Awarded
	MSEDCL	225	TOTEX	Awarded
Madhya Pradesh	MPPKVVCL, Indore	10	TOTEX	Awarded
	MPMKVVCL, Bhopal	11		
	MPMKVVCL, Jabalpur	18		
Punjab	PSPCL	8	CAPEX	Awarded
Uttarakhand	UPCL	16	TOTEX	Awarded
Uttar Pradesh	PVVNL	67	TOTEX	Awarded
	DVVNL	62	TOTEX	Awarded
	MVVNL	79	TOTEX	Awarded
	PuVVNL	78	TOTEX	Awarded
Other States	Other DSICOMs	10	CAPEX/ TOTEX	Awarded
Total		**1079**		

Tenders L1 Decided and LOA under Process

State	Discom	Meters Quantity (Lakh)	Mode	Status
Himachal Pradesh	HPSEB	19	TOTEX	L1 Decided/ LOA under Award
Maharashtra	MSEDCL	17	TOTEX	L1 Decided/ LOA under Award
Gujarat	PGCIL	47	CAPEX	L1 Decided/ LOA under Award
Jharkhand	JBVNL	14	TOTEX	L1 Decided/ LOA under Award
Manipur	MSPCL	2	TOTEX	L1 Decided/ LOA under Award
West Bengal	WBSEDCL	45	TOTEX	L1 Decided/ LOA under Award
Other States	Other DISCOMs	7	TOTEX/ OPEX	L1 Decided/ LOA under Award
Total		**151**		

Tenders Under Evaluation

State	Discom	Meters Quantity (Lakh)	Mode	Status
Arunachal Pradesh	Department of Power	3	TOTEX	Under Evaluation
Andaman & Nicobar	Power Department	1	TOTEX	Under Evaluation
Meghalaya	Power Department	5	TOTEX	Under Evaluation
Punjab	PSPCL	90	TOTEX	Under Evaluation
Rajasthan	JVVNL	49	TOTEX	Under Evaluation
	AVVNL	56	TOTEX	Under Evaluation
	JdVVNL.	43	TOTEX	Under Evaluation
Sikkim	Power Department	2	TOTEX	Under Evaluation
Tamil Nadu	TANGEDCO	300	TOTEX	Under Evaluation
Total		**549**		

Smart Meter Ongoing Tenders

State	Discom	Meters Quantity			Total	No of Packages/ Tenders	Mode	Due Date
		Consumer	DT	Feeder				
Goa	Electricity Department Goa	7,41,160	8,369	829	7,50,356	1	TOTEX	15.04.2024
Gujarat	PGVCL	33,11,031	15,000	-	33,26,031	1	TOTEX	15.04.2023
Gujarat	DGVCL	23,91,869	1,500	-	23,93,369	1	TOTEX	17.04.2023
Haryana	DHBVNL	31,42,249	1,34,002	14,100	32,90,351	4	CAPEX	19.04.2024
	UHBVNL	25,93,754	79,665	12,775	26,86,194	5	CAPEX	22.04.2024
Madhya Pradesh	MPPKVVCL	41,568	-	-	41,568	1	TOTEX	12.04.2024
Puducherry	PED	4,03,767	3,105	180	4,07,052	1	TOTEX	25.04.2024
Total		**1,26,25,398**	**2,41,641**	**27,884**	**1,28,94,921**			

Note: The data shown in this section excludes small capacity tenders and covers tenders from September 2021 to till date. The variation in floated quantity is due to cancellation of some tenders in past months.

Highlights: IntelliSmart Achievements

First Smart Prepaid Meter Installation in Surat!

Celebrating a significant leap in energy management, Dakshin Gujarat Smart Metering Pvt. Ltd., a subsidiary of IntelliSmart Infrastructure Pvt. Ltd., proudly unveils the first smart prepaid meter installation in Surat's Piplod subdivision. With over 17 lakh meters set for deployment under Dakshin Gujarat Vij Company Limited, consumers can now enjoy precise billing, real-time energy monitoring, and convenient online recharge options. This milestone underscores our commitment to pioneering innovations that empower communities and shape the future of energy consumption.

Empowering Surat Through Smart Meter Awareness

Dakshin Gujarat Smart Metering Private Limited (DGSMeter), a subsidiary of IntelliSmart Infrastructure Pvt. Ltd., spearheaded a consumer awareness campaign in Surat's Piplod sub-division. This proactive effort preceded the deployment of over 17 lakh smart prepaid meters for Dakshin Gujarat Vij Company Limited.

The campaign aimed to enlighten consumers about the manifold benefits of smart meters, including real-time energy monitoring, online recharge facilities, accurate billing, and automated meter reading processes.

With officials from DGVCL and DGSMeter overseeing the event, it underscored our commitment to cultivating informed energy consumption practices in Surat.

IntelliSmart Cricket Tournament 2024!

At IntelliSmart, nurturing a vibrant work culture is paramount. In pursuit of this goal, IntelliSmart and its subsidiaries recently organized a cricket tournament, providing employees with a platform to unwind, foster camaraderie, and rejuvenate away from the office setting. The event showcased sporting talents, encouraged collaboration, and underscored IntelliSmart's dedication to employee engagement through recreational activities.

Glimpses of Holi Celebration at IntelliSmart and its Subsidiaries

News Flash Bulletin

Energy trade volume grows nearly 14 pc to hit all-time hight of 110 billion units in FY24: IEX

Energy trading platform IEX has logged the highest ever trade volume of 110 billion units (BU) in the FY 2024, registering a growth of nearly 14% year-on-year. The total trade volume has crossed the 100 BU-mark for the first time in FY24.

DISCOM Dues to Power Generators in March 2024 Drop to ₹778 Billion

State distribution companies owed power generators ₹778.57 billion (~$9.34 billion) in total dues for the monthly billing cycle in March 2024, according to the Ministry of Power's payment ratification and analysis portal PRAAPTI.

Power Minister RK Singh warns of debt trap for using borrowed money to provide free electricity

Power Minister RK Singh has warned of a debt trap for states using borrowed money to provide free electricity, saying such populist schemes are fine only if a state has finances. If the generating utility isn't paid, electricity will not be produced in the first place.

IEX Trades 3.2 BU of Renewable Energy (RE) During FY 2024, Down 38%

IEX traded 3,227 MU of RE during FY 2024, a 38% YoY decrease compared to 5,206 MU. IEX traded 426 MU of RE in March 2024, an increase of 9% YoY compared to 391 MU. The green energy trade also saw a rise of 42% month-over-month compared to 298 MU traded in February 2024.

Gujarat DISCOMs Top Annual Ratings, While Karnataka Struggles to Keep Pace

The Ministry of Power's 12th annual integrated ratings of DISCOMs have revealed notable shifts in financial and operational performance. Out of the 55 DISCOMs evaluated for FY 2023, 17 have shown improvement in their grades, while 14 have been downgraded.

Telangana Allows Green Open Access for Consumers with 100 kW Load

Consumers with a contracted or sanctioned load of 100 kW and above, including those combining multiple connections to reach 100 kW within the same electricity division of DISCOM, can procure power through green energy open access (GEOA).

Government Goes into Overdrive to Ensure Energy Demand is Met in Summer

Anticipating an energy demand higher than previous years as temperatures rise across the country, the Govt. is taking measures to ensure zero load shedding in the summer months. Shri R. K. Singh, power minister has held a series of meetings to ensure it.

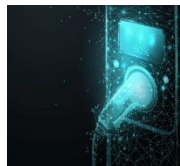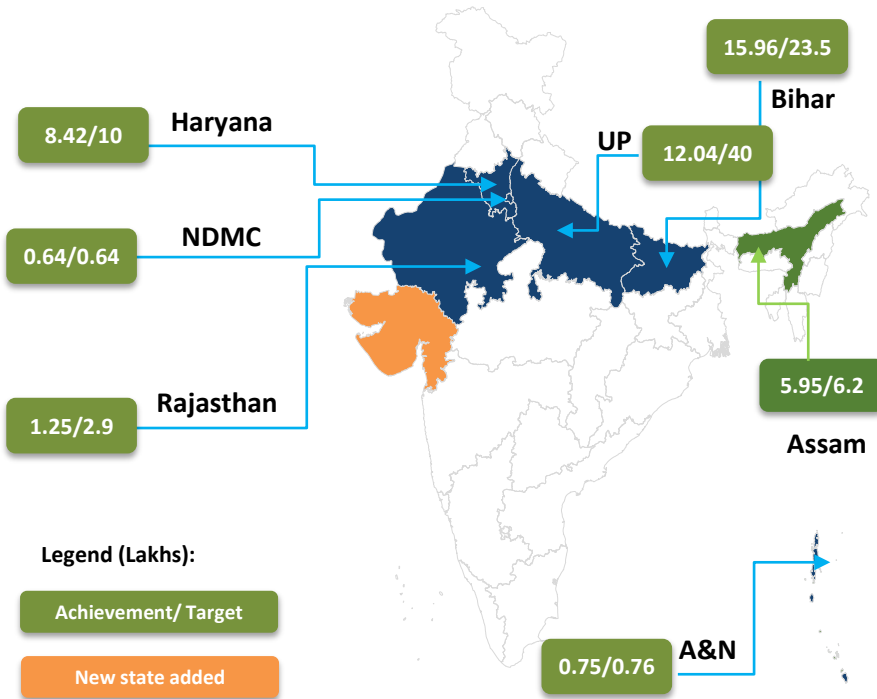**No Grid Support Charges for Rooftop Solar, Rules Telangana Regulator**

TSERC has refused to impose Grid Support Charges (GSC) on rooftop solar installations, whether operating under net-metering or gross-metering arrangements. GSC should only be applied to captive power plants and solely for the power utilized by the co located load.

EV charging flexibility integrated into National Grid ESO's Reserve service

Flexitricity and ev.energy have announced a partnership to utilise EV charging flexibility in National Grid ESO's, Short Term Operating Reserve service for the first time. It builds on and reinforces the UK's work in opening up power markets to aggregated distributed energy resources.

Smart Metering Systems (SMS) testing domestic demand side response solutions

SMS has begun laboratory testing of Interoperable Demand Side Response solutions as part of the UK Govt's Flexibility Innovation Programme. SMS and its partners (Engage Consulting and Netherlands Measurement Institute) were awarded by Department for Energy Security and Net Zero.

March Snapshot: Smart Metering Dashboard and Awards

Haryana 8.42/10

NDMC 0.64/0.64

Rajasthan 1.25/2.9

Bihar 15.96/23.5

UP 12.04/40

Assam 5.95/6.2

A&N 0.75/0.76

Legend (Lakhs):

Achievement/ Target

New state added

- ➤ **~120 Lakh** meters of existing project.
- ➤ **~44.47 Lakh** meters installed.
- ➤ Achieved Installation of ~8.42 lakh Smart Meters in Haryana.
- ➤ IntelliSmart has won major contracts to install 192 lakh prepaid smart meters in Assam, Bihar, Gujarat and Uttar Pradesh
- ➤ First Smart Prepaid Meter Installed in Surat's Piplod subdivision.

CHEERS TO PEERS AWARD

Anil Ranka
AVP, Finance

Pankaj Mittal
DGM, Finance

Tara Chandra Pandey
DGM, Finance

Jatin Mittal
AGM, Finance

Kapil Goyal
Sr. Manager, Finance

Anshul Tyagi
Manager, Finance

Sunil Gupta
Manager, Finance

Dhiraj Garg
Manager– Finance

Ajeetabh Srivastava
Manager – Finance

Ajmal U Chavda
AM-Finance

Roopali Agarwal
Asst. Manager, Finance

Vikas Verma
Jr Manager, Finance

Sonalika
Executive, Bihar

Suraj Kumar Bhan
Sr. Executive, Finance

BEST TRAINER AWARD

Reshmi Goppi
(Towards Right)
Sr. Manager, PMO, Corporate

Rahul Purbey
(Towards left)
Senior Officer – HSE
Noida, PVVNL

LEADERSHIP AWARD

Sumit Grover
Chief Financial Officer

ACE of OWNERSHIP

Vishwajeet Kundu
(Towards Right)
Manager, Commercials

Sanjeev Kumar
(Towards right)
Sr. Manager, Operations

Piyush Pratap Singh
State IT Lead – PVVNL

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IntelliSmart

IntelliSmart is a joint venture of EESL (Energy Efficiency Services Limited, A Joint venture of PSUs of Ministry of Power, Government of India) along with NIIF (National Investment and Infrastructure Fund, a Government of India backed fund). It is responsible for enabling implementation of Smart meters across the country. The focus of IntelliSmart is to drive efficiencies for DISCOMs, improve revenue management, increase billing efficiency and consumer satisfaction. With our vision of creating a digitalized & resilient power sector, through innovative technological solutions, IntelliSmart is well placed to determine future of infrastructure.

Disclaimer

Editors Note:

Welcome to K-Xchange's 34ᵗʰ Edition, dedicated to India's smart metering landscape. We've provided insights, updates, and expert perspectives on the digitalization journey of the power sector. With your support, we aim to drive sectoral transformation and foster a sustainable energy ecosystem. Share your feedback and ideas as we shape the future of smart metering in India. Embrace the power of knowledge with us.

Happy to hear from you

Newsletter is meant to share updates, case studies, success stories and experiences with various stakeholders on regular basis. For any suggestions/ queries/ inputs, please write to newsletter@intellismartinfra.in

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