



**SMART METERING DEPLOYMENT
IN INDIA POLICY FRAMEWORK,
INSTITUTIONAL STRUCTURE AND
NATIONAL IMPLEMENTATION STATUS**

India's electricity distribution sector has undergone a gradual structural transition over the past decade, moving from conventional metering systems towards digitally enabled monitoring and billing infrastructure. Smart metering has emerged as a central component of this transformation, driven by the need to improve operational efficiency, strengthen financial sustainability of distribution utilities and enable data-driven electricity management. The deployment of smart meters represents one of the largest digital infrastructure programmes within India's power sector, combining policy intervention, institutional coordination and technology-led execution at national scale.

The power distribution segment has historically been challenged with issues related to high aggregate technical and commercial (AT&C) losses, delayed billing cycles, low consumption visibility, and inefficient revenue realization mechanisms. The conventional electromechanical and static meters were limited to manual readings that often led to billing inaccuracies and disputes between the consumer and the distribution company. With the growth in electricity consumption driven by the increasing rate of urbanisation, industrialisation, and rural electrification, these issues were becoming more acute.

Smart meters are significantly different from conventional meters based on their functional capabilities. Smart meters are enabled to transmit information to the distribution company at predetermined intervals. These meters are capable of two-way communication that eliminates the need to manually read the meters. Smart meters can transmit information on consumption patterns on a near real-time basis. The information generated through smart meters can help utilities to accurately bill the consumers based on the consumption pattern.

The move towards smart metering has acquired greater relevance with the

sustained financial stress being experienced by the distribution utilities. The difference between Average Cost of Supply and Average Revenue Realised has remained an important concern for the sector. Smart metering is not just a technology upgrade but a structural change to bring greater transparency and accountability to the distribution sector.

GOVERNMENT POLICY INITIATIVES AND INSTITUTIONAL FRAMEWORK DRIVING SMART METER ROLLOUT

The push to deploy smart meters in India is primarily driven by policy initiatives, which are backed by coordinated efforts by the central ministries, lenders, and distribution companies. The Ministry of Power has been instrumental in integrating smart metering into the broader initiatives aimed at transforming the distribution sector.

The most notable initiative in the smart metering space in India has been the Revamped Distribution Sector Scheme (RDSS). The initiative aims to reduce Aggregate Technical and Commercial (AT&C) losses, improve the efficiency of the billing process, and enhance the overall performance of the utilities by modernizing the distribution sector. The



initiative has been keen on prepaid smart meters to improve payment discipline and reduce outstanding dues. The initiative has been keen on the standardization of technology, interoperability, and models of deployment linked to outcomes.

The initiatives taken prior to the introduction of the Revamped Distribution Sector Scheme (RDSS) include the Integrated Power Development Scheme (IPDS), the Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY), and the National Smart Grid Mission (NSGM), which provided hands-on experience to the utilities through the deployment of smart metering technology and the communication technology associated with it.

The institutional structure supporting implementation involves multiple stakeholders:

- Ministry of Power responsible for policy direction and programme oversight
- Power Finance Corporation Limited (PFC) and Rural Electrification Corporation (REC) Limited providing financing and monitoring support

- Energy Efficiency Services Limited (EESL) acting as an implementation agency in several deployments

- State distribution companies responsible for consumer onboarding and operational integration

- Advanced Metering Infrastructure Service Providers responsible for deployment and maintenance under performance-based contracts

The shift to Design-Build-Finance-Own-Operate-Transfer has enabled utilities to roll out the projects on a large scale without requiring significant capital expenditures. The utilities fund the rollout of the services and recover the costs through ongoing payments based on the performance of the systems, for example, the speed of the bills and the uptime of the systems.

Policy initiatives have supported the development of domestic manufacturing and production of smart meters, which has been part of the broader push to secure the local supply chain. This has helped develop an ecosystem of meter manufacturers, communication technology providers, and data management system developers.

Schemewise Smart Consumer Meters Installation Progress (Units) (As of January 31, 2026)

Scheme	Sanctioned	Installed*
Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY)	38,400	38,400
Integrated Power Development Scheme (IPDS)	6,90,616	6,90,616
IPDS (SG Pilots)	32,642	32,642
IPDS ST&D	1,19,641	1,19,641
Jammu and Kashmir Power System Improvement Project (JPSIP)	3,71,243	3,63,363
National Smart Grid Mission (NSGM)	1,78,522	1,69,557
Prime Minister’s Development Package (PMDP) - Phase-I	1,27,050	1,25,415
Prime Minister’s Development Package (PMDP) - Phase-II	6,00,000	5,20,371
Revamped Distribution Sector Scheme (RDSS)	19,48,60,030	3,80,72,383
Non-RDSS to RDSS	29,70,100	26,13,975
SDP	58,930	55,580
State Fund	1,51,516	1,30,628
Utility Owned	2,40,81,059	1,17,37,976

Note: Data is Updated as of January 31, 2026. | Source: National Smart Grid Mission

Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY)

The Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY), introduced in December 2014, focused on strengthening rural electric distribution infrastructure and enhancing the reliability of power supply in rural areas. Its key initiatives involved separating feeders for agricultural and non-agricultural consumers, improving sub-transmission infrastructure, and installing meters at feeder and distribution transformer points to enhance billing accuracy.

The DDUGJY scheme was one of the first to integrate metering into distribution infrastructure enhancement, especially in rural areas where metering was limited. Under this scheme, 38,400 smart meters were sanctioned and implemented, providing a preliminary step towards digitalization in rural areas. Although this figure is low in comparison to subsequent initiatives, it helped set a precedent for utilities to adopt digital metering.

Integrated Power Development Scheme (IPDS)

The Integrated Power Development Scheme (IPDS) was launched in December 2014 to strengthen sub-transmission and distribution infrastructure in urban areas and improve reliability of power supply. The scheme included components such as consumer metering, feeder metering, IT

enablement, enterprise resource planning systems and smart metering pilots to reduce Aggregate Technical and Commercial losses.

The total outlay of IPDS was approximately Rs. 32,612 crore (US\$ 3.67 billion), reflecting the government's emphasis on urban distribution modernisation. Under IPDS, 6,90,616 smart meters were sanctioned and fully installed, while additional deployments under IPDS smart grid pilots and system strengthening and distribution components accounted for 32,642 and 1,19,641 installations respectively. IPDS therefore served as a transition phase where smart metering moved beyond pilot demonstrations and became integrated within mainstream distribution infrastructure projects.

National Smart Grid Mission (NSGM)

The National Smart Grid Mission (NSGM) has been established to take forward smart grid technology, which includes advanced metering infrastructure, automation, and the overall communication systems driving the entire sector. The primary objective of the NSGM leaned more towards pilot projects, technology development, and building capabilities in the utilities to facilitate the future digital grid deployment.

With the support of the NSGM, 1,78,522 smart meter approvals were made, out of



which 1,69,557 were deployed. Even though the numbers were low, the NSGM has been instrumental in driving the overall technical guidelines, interoperability, and overall familiarity in the advanced metering infrastructure space.

Jammu and Kashmir Power System Improvement Project (JPSIP)

The Jammu and Kashmir Power System Improvement Project (JPSIP) focused on improving the distribution network and increasing billing efficiency in areas affected by technical and commercial losses. Smart metering was a key component of the program, which was intended to increase the efficiency of energy accounting and reduce revenue loss. As part of the JPSIP, 371,243 meters were sanctioned, and 363,363 meters were installed.

Prime Minister’s Development Package (PMDP) – Phase I and Phase II

The Prime Minister Development Package (PMDP) for Jammu and Kashmir has emphasized the upgradation of infrastructure in the state, with particular focus being given to the transmission and distribution infrastructure. As part of the PMDP initiative, the state has adopted the use of smart metering technology to enhance the efficiency of the consumption of energy at the consumer level. In all, 7,27,050 smart meters were approved under Phase I and Phase II, with 6,45,786 smart meters having already been installed.



Revamped Distribution Sector Scheme (RDSS)

The Revamped Distribution Sector Scheme (RDSS), launched in FY22, represents the most significant scale-up in India’s smart metering programme. The scheme aims to improve operational efficiency, reduce losses and enhance financial sustainability of distribution companies through infrastructure modernisation and prepaid smart metering deployment. The total scheme outlay is Rs. 3,03,758 crore (US\$ 34.14 billion) over five years.

Under RDSS, 19,48,60,030 smart consumer meters have been sanctioned, with 3,80,72,383 installations completed so far. RDSS accounts for the largest share of ongoing installations and marks the transition of smart metering from limited deployment to nationwide infrastructure rollout.

State-funded and Utility-owned Deployments

In addition to centrally sponsored schemes, several state governments and utilities initiated smart metering independently to address operational challenges. State-funded deployments account for 1,51,516 sanctioned meters and 1,30,628 installations, while utility-owned initiatives represent a significant share with 2,40,81,059 sanctioned meters and 1,17,37,976 installations. These deployments demonstrate early adoption by utilities seeking to improve billing efficiency and reduce losses even before central programmes reached scale.

REVAMPED DISTRIBUTION SECTOR SCHEME (RDSS)

The Revamped Distribution Sector Scheme (RDSS), introduced in the FY22, is the forthright reform step undertaken in the Indian electric distribution system. The scheme is also the foundation of the nationwide rollout of smart metering in



the country. As a reforms-driven, results-linked initiative, the scheme's objective is to raise the quality, security, and affordability of electric supply through the establishment of a financially sustainable and efficient operating model for the distribution companies (DISCOMs). With a scheme size of Rs. 3,03,758 crore (US\$ 34.13 billion) from FY22 to FY26, the RDSS incorporates all the schemes introduced in the distribution segment and focuses on achieving concrete, quantifiable operational results.

Scheme objectives and reform framework

RDSS aims to address long-standing structural issues within the distribution segment by reducing Aggregate Technical and Commercial (AT&C) losses to pan-India levels of 12–15% and eliminating the Average Cost of Supply (ACS) and Average Revenue Realised (ARR) gap. Unlike earlier schemes that primarily supported infrastructure expansion, RDSS links financial assistance to performance improvement. Distribution utilities are required to meet predefined reform benchmarks related to loss reduction, infrastructure upgrades, consumer services and operational

efficiency to remain eligible for funding. Annual appraisal mechanisms have been introduced to ensure that investments translate into sustained improvements in utility performance.

Smart metering as the central implementation component

Prepaid smart metering forms the core of RDSS implementation, enabling accurate energy accounting, improved billing efficiency and enhanced revenue realisation. The scheme supports deployment of smart meters at consumer, feeder and distribution transformer levels to enable end-to-end monitoring of electricity flow within the network. Under RDSS, 19,48,60,030 smart consumer meters have been sanctioned, with 3,80,72,383 installations completed so far, accounting for the largest share of ongoing smart metering deployment in India. The scale of sanctioned meters reflects a transition from limited pilot deployments under earlier schemes to nationwide infrastructure rollout.

Operational transformation and long-term significance

Beyond meter deployment, RDSS emphasises digitalisation and data-driven

utility operations. Data generated through smart meters is expected to support automated energy accounting, demand forecasting, loss identification and implementation of time-of-day tariffs, while also facilitating renewable energy integration in the long term. The scheme also promotes infrastructure strengthening and convergence with agricultural feeder modernisation initiatives, improving supply quality for rural consumers. Structurally, RDSS marks a shift towards performance-linked reforms and positions smart metering as a foundational tool for modernising India's distribution sector, enabling utilities to move towards a more transparent, efficient and digitally enabled operating environment.



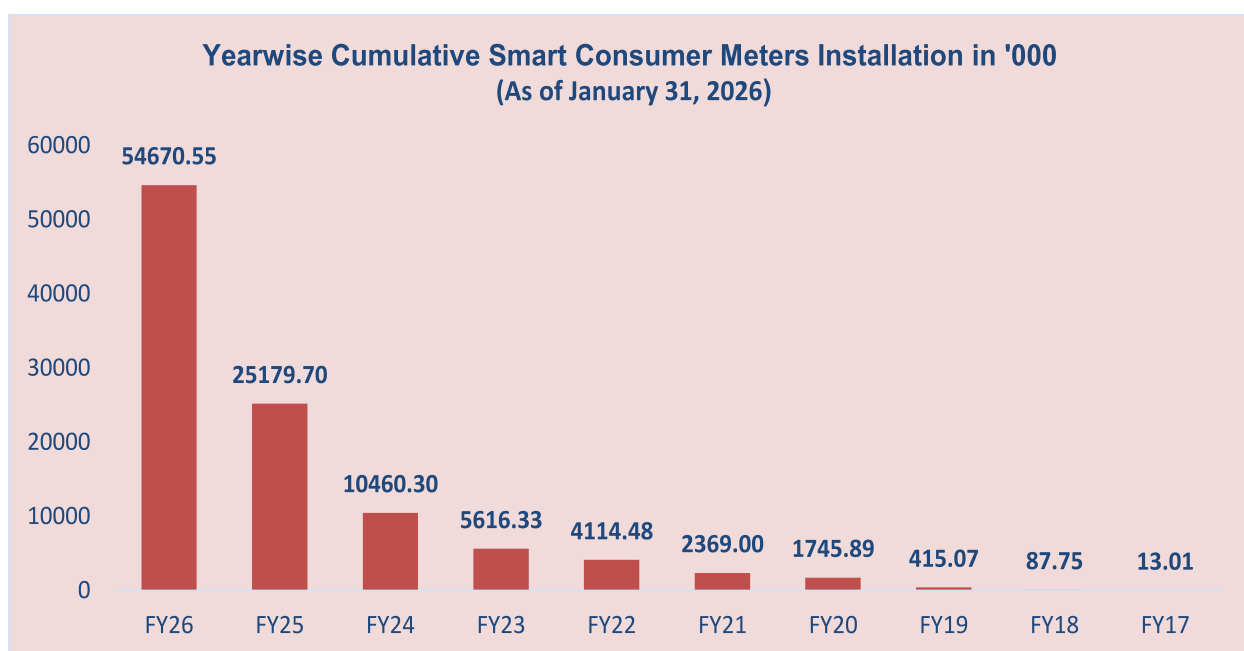
NATIONAL DEPLOYMENT STATUS: PROGRAMME SCALE, SCHEME DISTRIBUTION AND IMPLEMENTATION PROGRESS

India's smart metering programme represents one of the largest deployments globally in terms of consumer coverage and geographic diversity. The latest national status of smart consumer metering indicates substantial progress

while also highlighting the scale of ongoing implementation.

As per the latest programme data: (As of January 31, 2026)

- Smart consumer meters sanctioned: 22,42,79,749
- Smart consumer meters installed: 5,46,70,547
- Smart consumer meters under implementation: 16,96,09,202



Note: Data is Updated as of January 31, 2026.
Source: National Smart Grid Mission

Thus, these figures indicate that even though the pace of installation has accelerated in recent years, a considerable part of the installation work is still in progress, which signifies the pace at which the work will continue in the coming years. Looking at the trend in the number of installations from year to year, it a sharp increase in the number of installations from FY24 onwards can be seen, thanks to the rollout of tenders under RDSS schemes.

From the perspective of the schemes, pattern in which the program has progressed can be noticed. Earlier schemes like DDUGJY, IPDS, and NSGM were part of the initial rollout and

provided a platform to test the viability of the program, whereas the RDSS scheme currently accounts for the maximum sanctioned capacity and installation work. Utility-based schemes and programs undertaken by the states also provided a boost to the rollout in the early days.

From the perspective of the agency, it can be noticed that PFC and REC Limited combined form the bulk of the sanctioned capacity in the form of smart meter deployments under the RDSS financing structures. Deployment undertaken by EESL reflects the early days of large-scale execution models, which provided a platform to test the viability of the program.

Statewise Smart Consumer Meters Installation Progress (units in '000) (As of January 31, 2026)

Row Labels	Total Sanctioned	Cumulative Achievement	Percent Achievement
Uttar Pradesh	30978	7909	25.5%
Tamil Nadu	30141	130	0.4%
Maharashtra	23565	8609	36.5%
West Bengal	21209	564	2.7%
Bihar	17209	8521	49.5%
Gujarat	16511	3747	22.7%
Rajasthan	14901	2991	20.1%
Madhya Pradesh	13444	3578	26.6%
Kerala	13290	171	1.3%
Punjab	11233	2021	18.0%
Assam	6921	5392	77.9%
Chhattisgarh	5962	3384	56.8%
Andhra Pradesh	5611	2309	41.2%
Himachal Pradesh	2953	927	31.4%
Jammu and Kashmir	2134	1204	56.4%
Jharkhand	1864	1084	58.2%
Uttarakhand	1588	447	28.1%
Haryana	1000	847	84.7%
Goa	741	0	0.0%
Meghalaya	460	0	0.0%
Tripura	447	167	37.3%
Puducherry	404	12	2.9%
Nagaland	317	31	9.6%
Mizoram	290	29	10.1%
Arunachal Pradesh	287	54	18.7%
Delhi	260	260	100.0%
Andaman and Nicobar	159	75	47.4%
Manipur	154	34	22.2%
Sikkim	145	82	56.4%
Ladakh	59	56	94.3%
Chandigarh	29	24	82.3%
Telangana	9	9	100.0%
Odisha	5	5	100.0%

Note: Data is Updated as of January 31, 2026. | Source: National Smart Grid Mission

The high growth rate in deployments has resulted in major partnerships for rollouts, connecting distribution utilities with private sector infrastructure players. If the growth curve for installations is considered, it's clear that India's smart metering effort has moved out of the experimental stage and into a widespread, national infrastructure stage. The growth rate demonstrates the sense of urgency for distribution reform and the speed with which data-driven electricity management is being recognized as a necessity for the grid of the future.

Smart metering in India represents a policy reform, a coordinated effort, and a tech upgrade within the power distribution industry. Smart metering, moving away from legacy metering, has been driven by a need for improved operations, improved utility financials, and a grid ready for increasing demand.

Government-driven programs, particularly the RDSS, have transformed smart metering from a tech innovation to a pilot to a national infrastructure effort. Smart metering's current deployment status represents a significant achievement, yet it also represents a reminder of the amount of work to be completed, firmly establishing it as a foundational element of India's evolving digital power landscape.

PREPAID SMART METERING AND THE SHIFT IN REVENUE REALISATION MODELS

One of the biggest changes that the introduction of smart metering will bring about is the move to prepaid electricity. Under the old post-paid system, people used the electricity and then paid the bills at the end of the month. This left the utilities in a precarious position, where they were often forced to chase debts and deal with the administrative headache of unpaid bills. This was particularly true

in various states, where overdue accounts from government institutions and other large consumers were a part of the general accounts receivable.

With the prepaid system of smart metering, the situation changes so that people will be required to top up the prepaid meter before using the electricity. The meter then draws from the prepaid balance in a manner that is very similar to prepaid mobile phones. This allows the utilities a far greater level of clarity in terms of the revenue situation and reduces the financial risks associated with unpaid accounts.

The prepaid system also changes the way in which people perceive the usage of the electricity. As the prepaid system allows people to monitor the usage in a very tangible manner, they are far more likely to be active in monitoring the usage. This is particularly true in the case of residential consumers who were previously in a position where they could not accurately monitor the usage.

The prepaid system also has a number of advantages in terms of the utilities themselves. As the prepaid system reduces the need to dispute the bills, the administrative difficulties associated with disconnections is also eliminated. This allows the utilities to disconnect the supply remotely, which reduces the need to send people into the field. This also makes the situation safer for the people in the field.

The government bodies are relying on prepaid smart meters to encourage timely payments. By moving public offices, municipal systems, and government facilities to a prepaid system, they are able to avoid accumulating unpaid electricity charges on their accounts. This will



greatly benefit the financial condition of utilities, especially in those states where government departments are a major part of unpaid electricity charges.

However, moving to a prepaid system has also required a greater degree of consumer education. In some areas, there has been a degree of resistance to moving to a prepaid system simply because people are not familiar with how to recharge their accounts or are unfamiliar with how they will be presented with a bill. Utilities have been able to overcome this by launching a number of initiatives to make this a smoother process.

EMERGENCE OF DATA-DRIVEN CONSUMER BEHAVIOUR AND DEMAND - SIDE ENERGY AWARENESS

Beyond the basic cost savings of cutting bills and improving efficiency, smart metering is also revolutionizing the way people think about their relation to their electricity use. In the past, Indians' experience with electricity consumption was passive. They would get a bill every month but would not know the 'when' and 'how' of their consumption.

With the help of smart meters, Indians can now view their consumption

patterns with the help of various apps and alerts. They can view the consumption of electricity day by day and hour by hour. They can also see how much electricity is being consumed by each appliance. With the help of this information, Indians can now take more informed decisions regarding their consumption of electricity.

Research done on the international level as well as studies done on the consumption patterns of Indians has revealed that Indians can reduce their consumption of electricity with the help of information feedback. With the help of information feedback, people can shift their discretionary activities to times that are more favorable to them once they are aware of the high intensity of their consumption patterns.

The response has been particularly strong among commercial and small business consumers. With the help of smart metering, consumers can monitor their energy consumption during different hours of operation and optimize the usage of equipment to reduce energy costs. In energy-intensive businesses, marginal improvements in efficiency can translate into considerable savings in the long term.

Smart metering has the potential to support the development of time-of-use pricing in the future, where the price of

electricity changes depending on the time of day. Although this type of pricing is still in the development stages in various states, the availability of interval data makes it technically possible to manage demand. The gradual shift of non-essential usage from peak hours helps in the efficient operation of the distribution network.

The second behavioral impact of smart metering in India is the link between electricity bills and the broader digital payment system in the country. The increasing availability of online recharge systems makes it easier for consumers to clear their electricity bills on time. The link between digital payment systems and electricity services has the broader effect of increasing the overall digitalization of the Indian economy.

The most important aspect of smart metering in India is the way it changes the consumer's attitude towards electricity consumption. In the past, the consumption of electricity has been a 'hidden' cost, and consumers were less likely to be concerned about it. However, the direct link between consumption and cost in smart metering systems forces consumers to be more efficient in their energy usage.

SMART METERING AS AN ENABLER OF SMART GRIDS AND RENEWABLE ENERGY INTEGRATION

The large-scale deployment of smart metering in India represents more than an operational improvement within electricity distribution; it marks the foundation of a broader transition towards digitally enabled energy infrastructure. As installation progresses under national programmes and utilities begin to utilise consumption data at scale, smart



metering is increasingly positioned as an enabling layer for grid modernisation, renewable energy integration and long-term transformation of the electricity value chain.

India's electric sector is presently undergoing a realignment, driven by increasing renewable capacity, increasing demand, and a move towards decentralized generation. Solar and wind, being intermittent sources of energy, cause uncertainty in the electric grid as their generation depends upon the weather. In order to balance supply and demand, a better understanding of electric consumption patterns is required, as is the ability to match demand with available supply. Smart metering will play a vital role in facilitating this realignment.

Advanced Metering Infrastructure will enable electric companies to collect data about consumption patterns at regular intervals, rather than relying upon data about consumption patterns of a month ago. This will enable a better understanding of how consumption patterns change over time, across different customer classes, and across different geographical areas. With a better understanding of consumption patterns, accurate demand forecasting will become possible. This will be increasingly important as renewable energy sources become a larger part of the overall energy mix.

Smart meters also enable implementation of time-of-day tariff



structures. Under such frameworks, electricity tariffs vary depending on demand conditions, encouraging consumers to shift non-essential consumption away from peak periods. Although time-of-day tariffs are still being gradually introduced across states, smart metering provides the technical capability required for their execution. The availability of interval-based consumption data ensures accurate billing based on time-specific usage, thereby supporting demand-side flexibility.

Another important aspect relates to distributed energy resources, like rooftop solar and batteries. As the number of people generating electricity grows, utilities will increasingly require bidirectional metering systems, which will be able to measure the electricity being fed into the system as well as the electricity being taken out of the system. Smart meters play an important role in the precise implementation of net metering, and it all ties into the larger vision of renewable energy and distributed energy systems in India.

Another sector in development is electric vehicle charging. Charging electric vehicles creates new patterns of

demand, which can put strain on local distribution networks if not managed. Smart meters enable the monitoring of charging patterns, allowing companies to offer incentives through tariffs to charge during off-peak times. In the long term, this will help integrate electric mobility without needing radical network expansion.

Smart meters are not just about measuring usage they play a key part in developing a smart grid. They help us move beyond a traditional electricity supply model, where demand, generation, and storage of electricity interact through data-driven decisions.

FUTURE OUTLOOK: DIGITAL UTILITIES, MARKET EVOLUTION AND LONG-TERM IMPACT ON INDIA'S ELECTRICITY VALUE CHAIN

The future of smart metering is not just about meters running in homes; it's about changing the way utilities do business. Traditionally, electric distribution companies were just about selling electricity, sending out bills, and ensuring wires were functioning properly. Today, with a vast amount of data available at their fingertips, electric

companies are slowly becoming digital service providers, offering analytics-based insights, and running their operations in a predictive and data-driven way.

Artificial Intelligence and machine learning technologies are no longer just buzzwords but rather becoming a part of smart meters' data analysis. Utilities can easily identify unusual patterns of consumption, which might indicate theft, faulty meters, or inefficient networks. By using predictive maintenance, electric companies can also fix issues before they arise, avoiding costly outages and lowering maintenance costs. This change from a reactive, fix-the-problem-after-it-occurs model to a predictive/preventative model represents a fundamental change in how electric companies do business.

Another fundamental change in the electric industry is represented by the emergence of Advanced Metering Infrastructure Service Providers, which also signals a change in electric companies' operations. The term 'Service Providers' refers to a model in which a private company handles deployment, communication, and maintenance of electric meters, typically through a performance-based contract. The

electric company gets access to state-of-the-art technologies, while their primary focus will be on what matters most distributing electricity. This model also represents a change in terms of data analytics, customer relationship, and operation optimization.

Smart metering is expected to create opportunities for new forms of electricity markets to emerge and evolve in the future. Around the world, people are working to create new forms of peer-to-peer markets, local markets, and distributed management systems for electricity, and these are expected to become the new forms of electricity markets in the future. In India, these forms of markets are in their early stages, and the foundation for these markets is being laid with the introduction of smart meters.

From a consumer's point of view, the integration of smart metering and technology is expected to create new opportunities for consumers to interact with their electricity usage. In the future, it is expected that electricity usage could become a part of a new generation of smart home systems, and this could bring a larger number of consumers into the active participation of the electricity markets.



From an economic perspective, the world of smart metering is moving away from the sale of equipment and moving into the sale of services. New forms of analytics, demand response, and management services are expected to become important parts of the market in the future. These changes are expected to align with the rest of the world, where utilities are working to improve both efficiency and customer experience through the implementation of new technologies.

Based on these changes, it is expected that smart metering will become an important part of the new forms of electricity markets in India, and these markets are expected to become a flexible, resilient, and integrated system to meet the future demand for electricity, sustainability, and growth.

CONCLUSION: SMART METERING AS A STRUCTURAL TRANSFORMATION IN INDIA'S POWER DISTRIBUTION LANDSCAPE

Overall, smart metering emerges as a foundational reform within India's electricity distribution sector. The transition began as a policy-led initiative to address operational inefficiencies and financial stress within distribution utilities. Through programmes such as the Revamped Distribution Sector Scheme (RDSS) and earlier smart grid initiatives, smart metering has evolved into a national infrastructure

programme with significant scale and institutional backing.

The deployment phase established the technological and organisational foundation required for transformation. Installation progress, supported by coordinated efforts of government agencies, financing institutions and utilities, demonstrates the scale at which digital infrastructure is being integrated into the power sector. The operational phase has shown measurable improvements in billing efficiency, revenue discipline and consumption transparency, while also initiating behavioural shifts among consumers.

Going forward, smart metering is no longer just about measurement; it's about enabling. Smart metering has a big part to play in the integration of renewable energy into the mix, the acceleration of the modernization of the grid, and the support of data-driven decision-making in the entire electricity supply chain.

The success of smart metering in India depends on the quality of the data management system it has the potential to provide. The continued evolution of the regulatory environment, consumer participation, and investment in digital technology will determine the potential of the energy sector to fully transition into a digital energy service provider. Smart metering is likely to be a key component of India's journey to a secure, efficient, and sustainable electricity system.

