India’s energy systems have, over the last four years, seen a tremendous transformation. At the centre of this journey is the Indian consumer, an ever-aspirational citizen whose ambition for growth propels the nation forward. For the government's vision of energy access for all, accountability at a citizen level must be expedited. Herein lies the role of the smart meter, the newest, and most transformative piece of technology in India’s energy plans. Most notable among these initiatives is the Smart Meter National Programme (SMNP), for which contract has been awarded for a procuring ten million smart meters for the state utilities of Uttar Pradesh, Andhra Pradesh, Bihar, Telangana, Delhi and Haryana, spanning across the most populous states of India. The smart meter is also the starting point of the smart grid, which is already in pilot stages in Maharashtra and Chandigarh and has seen a successful implementation in New Delhi’s Municipal Corporation Area with adoption of 50,000 Smart Meters.

We believe enhancing energy efficiency in India is a collective mission, and, I humbly welcome your valuable inputs, ideas and suggestions. With regards,

Rajiv Kumar,
General Manager, Smart Meters

**SMART METER**

**Policy Landscape in India**

*Mr. Ajay Sharma, Deputy General Manager, EESL*

The metering industry in India has evolved drastically in the past few years leapfrogging from Automated Meter Reading (AMR) to smart metering / Advanced Metering Infrastructure (AMI). The Ministry of Power (MoP) has been proactive in issuing policies and directives for benefiting the nation. Integrated Power Development Scheme (IPDS), launched in December 2014, laid the foundation for smart metering at a policy level which was reinforced by the announcement of UDAY (Ujwal DISCOM Assurance Yojana), launched in November 2015. The Bureau of Indian Standards (BIS) published standards for smart metering (IS 16444 in August 2015 and IS 15959 Part 2 in February 2016). The Central Electricity Authority (CEA) published functional requirements of AMI and technical specification of smart meters in August 2016 and strategy for rolling out smart metering in September 2016. The National Tariff Policy released in January 2016 also provided the necessary impetus for smart metering roll out. Recent launch of NDMC Smart Electricity metering has given lot of confidence on the implementation of this policy.
GLOBAL CASE STUDY ON SMART METERING IMPLEMENTATION

Mr. Sudhanshu Gupta, Associate Partner & Digital Leader, Ernst & Young LLP

In the recent past, the impact of smart meters internationally has been observed. The evidence from mass roll-outs is more diffuse, but can begin to give some insights on the uptake of innovative time-of-use tariffs facilitated by smart meters and on some aspects of consumer engagement. This Case study explains the UK, Sweden, Italy, the state of Victoria in Australia, and the states of Texas and California in the USA, all of which have experienced substantial roll-outs. Between them these jurisdictions contain in the region of approximately 110 million smart meters out of which only the UK plans to deploy over 52 million smart meters across 30 million homes. Further, by 2020, it is expected that almost 72% of European consumers will have a smart meter for electricity while 40% will have one for gas.

There have also been a small to medium scale rollouts in the UK including the SMETS 1 rollout for approximately 15 million Smart Meters. In early 2018 the UK government and UK energy retailers agreed to build interfaces which allow the earlier SMETS1 Smart Meters to be moved to the new DCC system supporting SMETS2 meters wherein Government of UK have separately selected communication hub providers, communications infrastructure provider and other AMI software components. In the SMETS 2 scenario, EDMI has manufactured the hub for Scotland and Northern England where the communications provider is Arqiva, this will have Zigbee for HAN and Radio mesh for WAN. Toshiba has manufactured the hub for Middle England (Midlands) and South England where the communications provider is O2/Telefornica, this will have Zigbee for HAN and GPRS/Radio for WAN, so in case GPRS is not available, Radio will take the data till next available GPRS node. This means that, although consumer may have lost Smart functionally when they change supplier, when it is enrolled into the new DCC system that functionally will come back, consumers may be able to change suppliers without technical problems. The process of moving the meters across system is called "enrolment and adoption."

The UK government are keen for all SMETS smart meters to interoperate on one system so customers can switch suppliers easily. To enforce this they are stopping suppliers and suppliers cannot install SMETS1 meters (or upgrade firmware to SMETS1) after 5th December 2018. (Though, some suppliers have a special dispensation and can carry on until 15th March 2019.) Additionally due to the extra complexity of prepayments meters, the end date for them is 15th March 2019.

**Switching time** between suppliers in the deregulated market like the UK, Sweden and the state of Victoria in Australia has been significantly improved with the implementation of smart metering, and are likely to have helped energy retailers to reduce the number of customer complaints. It is also observed that time to address customer complaints over the period in which smart meters were rolled out has been reduced to a great extent.

**Passive benefits** Energy retailers in the UK have admitted that smart meters are cost-effective due to the ‘passive’ benefits they are likely to yield, for example reduced home visits for meter reading, better information for distribution [and transmission] system operators yielding savings on grid costs, savings for energy suppliers in terms of call centres and complaint costs following from errors with bill readings and grid costs.

**DID YOU KNOW**

If you produce your own renewably generated energy, a smart meter will enable you to measure how much energy you produce using net metering. The smart meter will also calculate whether or not there is a surplus which you could sell back to the grid.
Business models need to be formulated by considering a number of factors such as business drivers, financial capability, technology availability, technical competence etc. Based on these factors, a number of business models can be formulated that are based on capital expenditure, operational expenditure and revenue sharing. Traditionally, the Engineering, Procurement and Construction (EPC) model has been used and entails a high capital expenditure. Typically, the Distribution Company invests an equity and takes a loan for the remaining amount.

Lack of funds at Distribution Companies is forcing stakeholders to formulate innovative business models based on operational cost such as ‘Leasing and Services’ model which is based on a financial intermediary that would supply smart meters against a monthly rent and the implementing agency would implement all the meter services. Distribution Companies can also opt for a revenue sharing model in which no fixed and guaranteed fee is paid to the implementing agency. This poses a higher risk to the implementation agency and hence it receives a major share of the revenue share as a monthly fee. On the other hand, the Distribution Company receives the remaining portion of the revenue share on a monthly basis. For those Distribution Companies that do have funds for smart metering, but do not have the deep technical knowhow for implementation of smart metering, choosing to procure smart meters upfront may be an option. EESL deploys a unique BOOT (build, own, operate, transfer) which is a public-private partnership (PPP) project model in which a private organization conducts a large development project under contract to a public-sector partner, such as a government agency. A BOOT project is often seen as a way to develop a large public infrastructure project with private funding.

“I have definitely made me stop and think about the way I use energy. I used to just pay my bill and not think about it, but seeing exactly where my money goes makes you more conscious. As a pensioner, I need to be especially careful with money”

- Hitesh
Bengali Market, New Delhi
Smart Meter Launch: A Quick Round Up

Energy Efficiency Services Limited (EESL) and the New Delhi Municipal Council (NDMC) organised an event titled ‘Launch of Smart Meter Project in NDMC’. The event was attended by the Hon’ble Minister for Power, New and Renewable Energy, Shri R K Singh, who inaugurated NDMC’s smart meter project, in the presence of dignitaries including Shri Anil Baijal, Lieutenant Governor of Delhi; Smt. Meenakshi Lekhi, Member of Parliament, New Delhi constituency, Shri A.K. Bhalla, Secretary, Ministry of Power; Shri. Naresh Kumar, Chairman, NDMC, and Shri Rajeev Sharma, Chairman, EESL. The successful completion of the project to replace 50,000 conventional electricity meters with smart meters in the NDMC area was announced at the event. With this initiative, NDMC has become the first Indian distribution company (DISCOM) to implement 100 percent smart metering. Smart meter adoption will enhance consumer convenience and rationalise electricity consumption.

To contribute to the newsletter or for any suggestions please write to us at innovatingenergy@eesl.co.in