Smart Meters

Why in News

According to the **Energy Efficiency Services Limited (EESL),** the Smart Metering Programme (SMP) is helping electricity distribution companies (discoms) generate 95% of billing efficiency during the lockdown.

- The discoms using smart meters have seen 15-20% average increase in monthly revenue per consumer.
- EESL, a Public Sector Undertaking (PSU) under the **Ministry of Power,** Government of India, is the designated agency to implement the smart metering programme in India.

Key Points

- **Smart Meter National Programme:**

  - It is being implemented to deploy smart meters across the country.
  - Under this programme, a total of 12,06,435 smart meters have been installed till date to enhance consumer convenience and rationalise electricity consumption.
- **Smart Meters -** Advanced meter devices having the **capacity to collect information about energy, water, and gas usage at various intervals and transmitting the data through fixed communication** networks to utility, as well as receiving information like pricing signals from utility and conveying it to consumers.
- **Innovation:** With electricity demand expected to rise by 79 % in the next 10 years, India is on a path of transforming its energy mix with innovation.
- **Reduction in AT&C Losses:**

  - To meet energy needs, along with enhancing energy production, the nation also needs to cut Aggregate Technical and Commercial (AT&C) losses to below 12% by 2022, and below 10% by 2027.
  - Smart meters minimize human intervention in metering, billing and collection, and help reduce theft by identifying loss pockets.
- **Smart Meters are part of the Smart Grid:**

  - Smart grid includes the creation of Advanced Metering Infrastructure (AMI).
  - **AMI** describes the whole infrastructure from **Smart Meter to a two way-communication** network to control center equipment and applications that enable the gathering and transfer of energy usage information in near real-time.

Benefits of Smart Meters

- **Operational Benefits:** It incentivises energy conservation by checking data-entry errors and billing efficiencies, and cutting the costs of manual meter reading through a web-based monitoring system.
- Smart meters deployed **can also switch to prepaid mode.**
- **Benefits to Customers**

- It enhances consumer satisfaction through **better complaint management, system stability, reliability and transparency.**
  - The new meters have the Time of Day (ToD) tariff feature which allows consumers to reschedule electricity usage to the off-peak hours and reduction in the bill amount significantly.

Challenges

- **High Capital Costs:** A full scale deployment of smart meters requires expenditures on all hardware and software components,network infrastructure and network management software, along with costs associated with the installation and maintenance and information technology systems.
- **Integration:** Samrt Meter is a complex system of technologies that must be integrated with utilities' information technology systems, including Customer Information Systems (CIS), Geographical Information Systems (GIS), Outage Management Systems (OMS),Mobile Workforce Management (MWM), Distribution Automation System (DAS), etc.
- **Standardization:** Interoperability standards need to be defined, which set uniform requirements for technology, deployment and general operations.
- **Release of Radiation:** Unlike the electronic meter, the smart meter allows 'communication' among the consumer and the meter, hence there is probability of release of radiation.

Source:TH

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