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# INTELLIGENT METERS: SAVING ENERGY AND COST



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- **SPECIAL FEATURE:** New Energies Powering India
- **INSIGHT:** Advanced Metering Infrastructure Deployment Challenges
- **SPECIAL REPORT:** World's First and Largest GW-scale Integrated RE Project
- **FOCUS:** Supercapacitors: Building Next-Gen Energy Storage Devices



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## COVER STORY

### Metering Data: The Key Enabler for Distribution Utility Reform and Energy Transition

9

This article by Sushil Kumar Jangir, leading technical specialist and Senior Manager; Vinod Kotra, Senior Manager; and Bhavik Talesra, Manager and Team Lead-Smart Metering Solution, **Secure Meters**, elucidates how metering data can be utilised to drive reform in the distribution sector, enable network resilience and support India's sustainable energy goals, by enhancing utility operations, thus establish that data-driven insights and decisions optimise distribution networks and investments to finally empower the consumer.



## INSIGHTS

### Advanced Metering Infrastructure Deployment Challenges

19

Aashish Gaur of Genus Power Infrastructure Limited explores key challenges faced by AMISPs in India and provides recommendations for overcoming them to ensure successful AML deployment across the country.

### Essential Role of Integrated System Testing in Factory Acceptance Testing (FAT) for Smart Metering Systems

35

This technical paper by Shailendra Goyal, Managing Director; Kartikeya Sharma, General Manager; and Abhijit Kumar, General Manager-Design and Development, ZERA India Pvt Ltd, provides an insight into the importance of the role of advanced metering infrastructure system providers, by defining their function. The paper further elaborates on the significance of integrated system testing during factory acceptance test to show its indispensability for ensuring the success of smart metering systems.

## CASE STUDY

### Auto Regulated Grid Links in Inter-Connected Power Systems

29

Er. Natvar D Makwana, retired senior engineer from State Load Dispatch Center (SLDC), Gotri Baroda, Gujarat, and Prof Paresh R Modha, Assistant Professor, Department of Electrical Engineering, AD Patel Institute of Technology - A Constituent College of CVM University, Gujarat, take us through the dynamics of the National Power Grid.

## SPECIAL FEATURE

### New Energies Powering India

42

With nearly 86 percent of the 33 GW power capacity added in FY25 coming from renewable sources, India is committed to achieving 500 GW of non-fossil fuel capacity by 2030 as it overtakes Germany to become the world's third-largest generator of electricity from wind and solar, IEEMA JOURNAL reports.



## SPECIAL REPORT

### World's First and Largest Gigawatt-scale Integrated Renewable Energy Project

40

This pioneering project by Greenko includes 4,000 MW of solar, 1,000 MW of wind, and 1,680 MW of pumped hydropower generation.

## FOCUS

### Supercapacitors: Building Next-Gen Energy Storage Devices

47

Nagaland University-led research team has developed a cost-effective method for building next-generation energy storage devices that can reportedly store large amounts of energy and charge quickly, IEEMA JOURNAL explores.

## SPECIAL FEATURE

### POWERful Women Leading the Front

49

The Women in Power Conclave at ELECRAMA 2025 brought together industry-leading women under a single platform to celebrate their incredible progress while also setting a platform for connecting, learning, and leading.

## IEEMA EVENTS

### 'Health & Electrical Safety' for Linemen and ITI Students

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IEEMA, under its CSR initiative, conducted a special training programme on 'Health & Electrical Safety' for linemen and ITI students, in partnership with the National Power Training Institute (NPTI).

### Electrical Fire Safety Conclave, Delhi

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IEEMA's Electrical Fire Safety Conclave at Delhi brought together key stakeholders from industry, regulatory bodies, and policy think tanks to address the critical issue of electrical fire hazards.



### Training Programme on Transformer Technology & Performance Testing

60

IEEMA conducted a one-day training programme on the subject with an aim to enhance participants' understanding of transformer design, manufacturing, quality control, performance evaluation, and testing procedures.

## QnA

### Practical On-the-Field Technical Queries on Transformer (Part-34)

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This section features queries about the abnormal conditions of transformers, sent by readers working in field units and most of those addressed by transformer industry expert **Er PK Pattanaik**, and a few by transformer expert **Er P Ramachandran**.

## POLICY UPDATES

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- Union Minister Shri Pralhad Joshi inaugurates solar PV testing facility at NISE.
- DPIIT extends timeline for implementation of QCO on Safety of Household, Commercial and Similar Electrical Appliances.
- Union Minister Shri Manohar Lal visits Nepal to strengthen India-Nepal energy cooperation.
- MNRE Minister Pralhad Joshi launches Green Hydrogen Certification scheme.
- Union Minister of State for Power and New & Renewable Energy Shri Shripad Naik chairs meeting for addressing issues on viability of distribution utilities in the country.
- India and Denmark renew MoU that will support India's ambitious target of achieving net-zero emissions by 2070.
- India leads call for inclusive energy governance at BRICS Energy Ministers' Meet in Brazil.
- Karnataka Government seeks electric buses under PM E-Drive.
- Brainstorming session held on pumped storage projects to power India's renewable future.

## NEWS

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70

- CEA notifies draft CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2025.
- SJVN subsidiary commences commercial operations of 78.23 MW capacity in Rajasthan.
- SAEL to invest Rs50 billion in 5 GW solar cell manufacturing facility.
- NTPC to raise Rs40 billion via NCDs.
- MNRE issues clarifications on inclusion of solar cells in ALMM.
- OTEPC and Assam Power Development Corporation to develop 250 MW BESS.
- NHPC raises Rs19.45 billion via NCT.
- NHPC and RRVUNL sign MoU for developing two 1,000 MW PSPs in Rajasthan.
- Uttar Pradesh approves PPA to procure 1,500 MW thermal power for 25 years.
- Assam approves Rs77.3 billion thermal power policy initiatives.
- RVNL to set up 300 MW hybrid renewable energy project for Indian Railways.
- Odisha Government approves Rs11.91 billion renewable energy projects.



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- ADB commits US\$ 10 billion for ASEAN transnational power grid.
- Reliance Power signs PPA with GDL for 500 MW solar project in Bhutan.

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- ReNew Power to develop clean energy project in Andhra Pradesh at Rs220 billion.
- ACME Solar commissions 52.5 MW Phase-I of 300 MW solar project in Rajasthan.
- Cleantech Solar commissions 80 MWp captive solar projects in Tamil Nadu.
- Avaada Energy to raise Rs40 billion through IPO.
- Adani Power plans Rs1.2 trillion investment for capacity expansion to 30.67 GW by 2030.
- JSW Neo Energy signs 1,500 MW pumped hydro storage PPA with UPPCL.
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