Key Learnings from Pilot Project

- Baselining of project parameters is critical for measuring project benefits post-implementation.
- Consumer indexing is a pre-requisite for accurate energy audit.
- Ring-fencing of the project is critical for undertaking accurate energy accounting.
- Baseline survey and inspection for connections/updation of meter records provides significant opportunity for plugging revenue leakages.
- Consumer engagement strategy is a must for success of pilot project.
- Data analytics is key to unlocking full benefits of Smart Grid.
- Dedicated utility project team and top-down driven decision making is required to enable action implementation.
- Automatic energy auditing enables identification of loss areas.
- Training and capacity building is key to operating the system.
- Smart metering is a viable preposition for utilities.

About the USAID PACE-D TA Program

The USAID PACE-D TA Program is a part of the overall Partnership to Advance Clean Energy (PACE) initiative, the flagship program under the U.S.-India Energy Dialogue. The five year Program, implemented in collaboration with the Ministry of Power and Ministry of New and Renewable Energy, has three key components: energy efficiency, renewable energy and cleaner fossil technologies. The Program's focus is on institutional strengthening, capacity building, technology pilot projects, innovative financing mechanisms and increasing the awareness of clean energy technologies.

Ajmer Vidyut Vitran Nigam Limited

Smart Grid Pilot Project

Towards Improved Service Delivery

Apurva Chaturvedi
Senior Clean Energy Specialist
USAID/India
Email: achaturvedi@usaid.gov

Nithyanandam Yuvaraj Dinesh Babu
Chief of Party
PACE-D TA Program
Email: ydbabu@pace-d.com

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Ministry of Power
Government of India

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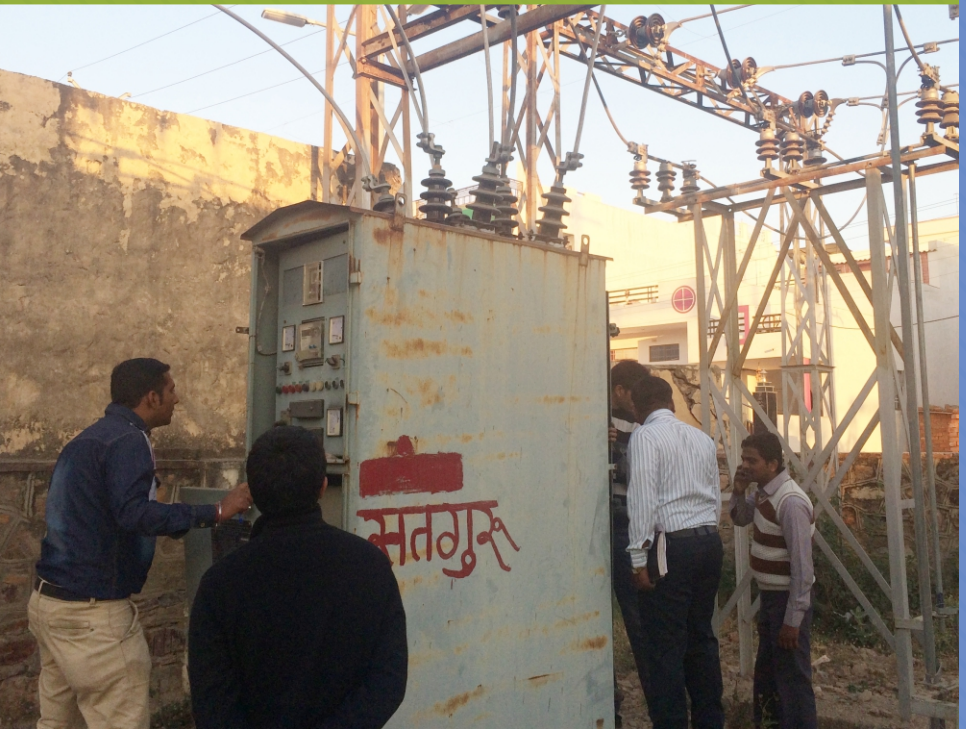
Background

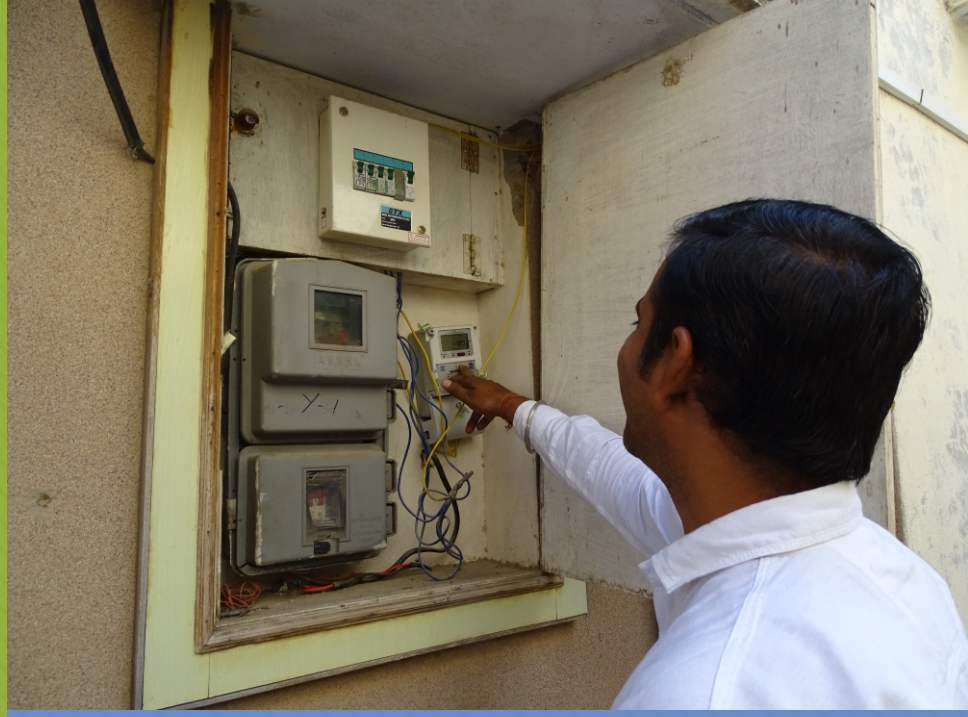
Building a Smart Grid is a key priority for the Government of India – not only to curb power transmission and distribution losses but also to improve reliability and quality of power supply, and ensure power to all.

The U.S. Agency for International Development (USAID), through the Partnership to Advance Clean Energy - Deployment Technical Assistance (PACE-D TA) Program, has been supporting the Ministry of Power and the National Smart Grid Mission (NSGM) on Smart Grid deployment in India. One of the activities is a Smart Grid pilot project in Ajmer, implemented in partnership with the NSGM and Ajmer Vidyut Vitran Nigam Ltd. (AVVNL).

Objective and Overview of the Pilot

The objective of the pilot project was to demonstrate benefits of select functionalities (automatic energy audit and loss reduction analytics) to AVVNL by implementing a proof of concept on selected feeder and suggesting options that could be considered for scale up of such initiative. As a part of this pilot, two types of technologies were deployed on a pilot basis for six months, covering 1,000 consumers of Satguru feeder. These included a) Smart Meters in series to existing meters of the consumers, and b) Communication Adapters on existing meters to make them smart and able to communicate wirelessly.





Pay for Service Model

The AVVNL Smart Grid pilot was implemented via an innovative Pay for Service ("or rental") model where the entire implementation was treated as a service rather than considering it as a one-time capital expenditure. This model spared the utility from making an investment upfront and at the same time made the vendor an active project partner to ensure the success of the project.

Key Functionalities Installed

- Automated Metering Infrastructure for energy audit.
- Analytics including loss management, load management, energy theft monitoring and tamper alerts.

Pilot Results Estimated

Based on the intervention undertaken, total annual savings of ~INR 12 Lakh has been estimated for ~1000 consumers. Other expected benefits include:

- AT&C loss reduction - 20% to 13.5% (In one pocket of the pilot area, the loss was brought down from 60% to 20%.)
- Bill generation cycle reduction – 14 days to 5 days
- Meter reading and punching cost – Nil
- Reduction in failure rate of meters – 80%
- Reduction in failure rate of transformers – 30%
- Outage time reduction – 30%
- Reduction in time spent on handling consumer queries – 80%