TA Provided to AVVNL

- Baselining and pre-implementation analysis
- Equipment installation – Smart Meters and M2M over-the-top devices (retrofit communication adapters)
- Analytics software/mobile application for generating periodic reports and alerts related to energy audit, energy theft, load violation, etc.
- Program management and Monthly analytics report for loss reduction strategies
- Cost-benefit analysis

Impact

- Project analytics dashboard enabled regular monitoring of project area parameters and helped take corrective action if required
- Regular analytics and reporting helped identify loss reduction opportunities and strategies thereof to AVVNL management
- 6.5 percent AT&C loss reduction estimation – from 20 percent to 13.5 percent, (with one of the DT losses being reduced from 60 percent to 25 percent)
- Total estimated annual savings: INR 12 lakhs (for 1,000 consumers) with total utility cost: ~ INR 40 lakhs
- Investment payback for AVVNL established as ~3 years
- Structured system and analytics training, including sharing national and international experience; and case studies helped build the capacity of AVVNL officials in the pilot area

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June 2017
This brochure is made possible by the support of the American People through the United States Agency for International Development (USAID). The contents of this brochure are the sole responsibility of Nexant Inc. and do not necessarily reflect the views of USAID or the United States Government. This brochure was prepared under Contract Number AID-386-C-12-00001.

Pilot Projects

USAID FROM THE AMERICAN PEOPLE

National Smart Grid Mission
Ministry of Power
Government of India

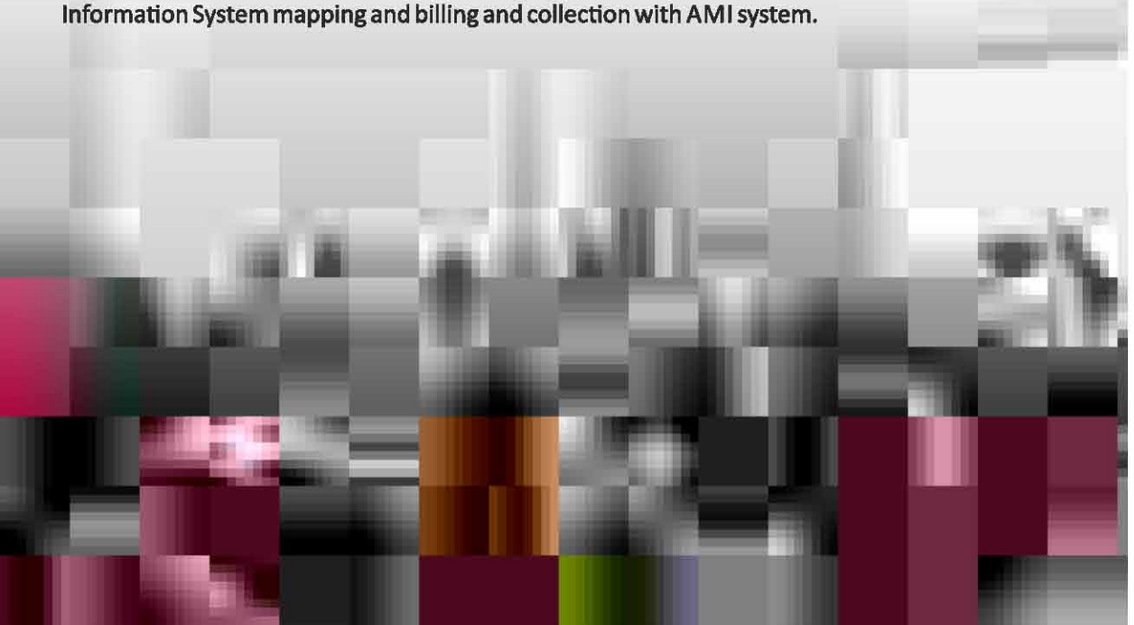
Overview

Smart Grid projects typically require replacement or upgrading of infrastructure, inclusion of digital technology, and use of innovative business models. These interventions are not only capital intensive but also complex in nature, particularly during the evolving stage of the market when there is lack of awareness and documented best practices.

To address these challenges, the Government of India has selected 14 electricity distribution utilities to implement Smart Grid pilot projects, which will allow evaluation of the technological and commercial benefits and assess the potential of wider nationwide roll-out. The U.S.-India bilateral Partnership to Advance Clean Energy – Deployment Technical Assistance (PACE-D TA) Program supported the Government of India on two Smart Grid pilot projects - Tripura State Electricity Corporation Limited and Ajmer Vidyut Vitran Nigam Limited. These projects aimed to prove the technical and financial viability of select Smart Grid components and evaluated them in a practical environment. The pilot projects also provided an opportunity to engage stakeholders across the Smart Grid value chain and disseminate information about tools, technologies, costs, performance, and measurement and verification data over a period of time.

Tripura State Electricity Corporation Limited (TSECL)

TSECL is the state power utility responsible for implementing the Smart Grid pilot project in Agartala, Tripura. The pilot project at TSECL envisaged establishment of control center along with supply, installation, testing and commissioning of complete Advanced Metering Infrastructure (AMI) and Peak Load Management system involving smart meters, Data Concentrator Units, Meter Data Acquisition System, Meter Data Management, communication system, hardware and software for control center, etc. along with integration of Geographic Information System mapping and billing and collection with AMI system.



TA Provided to TSECL

- Strategy for measurement and verification and baseline development
- Capacity building of TSECL's Smart Grid project team (four workshops held)
- Smart Grid Data Analytics report formats
- Development of IT Guidelines
- Lessons learned and Best Practices Document

Impact

- Trained ~25 professionals who were a part of TSECL Smart Grid project team
- 21 Data Analytics report formats developed to aid TSCEL in decision making in areas of AT&C losses, power quality and reliability, load management and asset optimization
- IT guidelines enabled confidentiality, integrity and availability of TSECL's critical IT infrastructure (including Smart Grid)
- M&V Strategy Report and Excel Tool for AMI enables TSECL to evaluate project benefits and obtain regulatory approvals for Smart Grid investments

Ajmer Vidyut Vitran Nigam Limited (AVVNL)

AVVNL is responsible for electricity distribution and supply in 11 districts of Rajasthan. The utility has AT&C losses ranging around 21 percent. The objective of the pilot programme was to demonstrate benefits of select functionalities (automatic energy audit and loss reduction analytics) to the utility by implementing a proof of concept on a selected feeder (1,000 consumers). As a part of this pilot, two different technologies were tested (Smart Meters and M2M over-the-top devices were deployed on approximately 500 consumers each in Phase 1, and subsequently a base for a larger roll-out was to be prepared in Phase 2). The project 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.