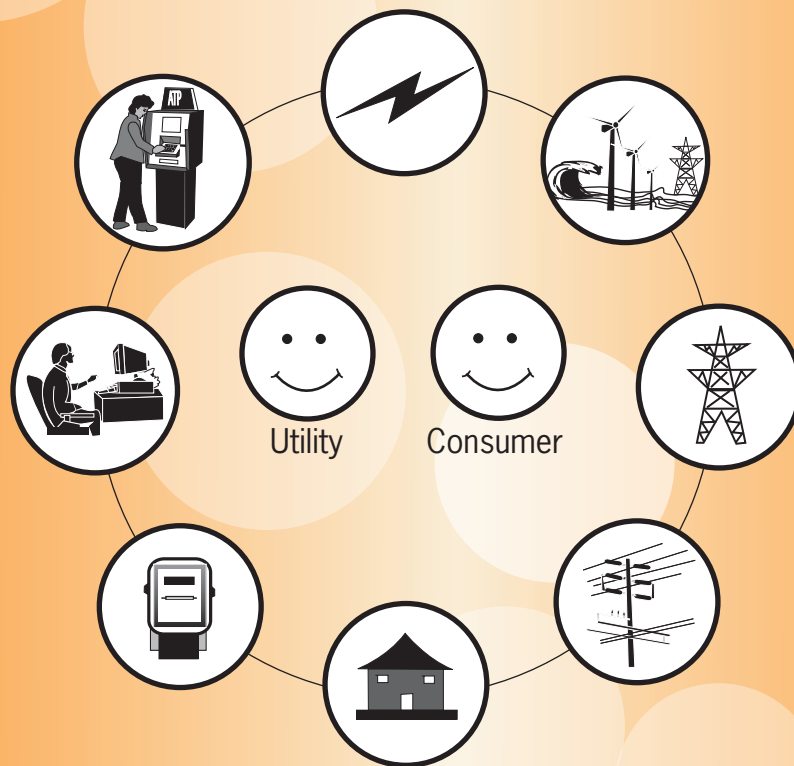


Energy Management System



Integrated Energy Management Solution
Optimizing the Service & Consumer Experience

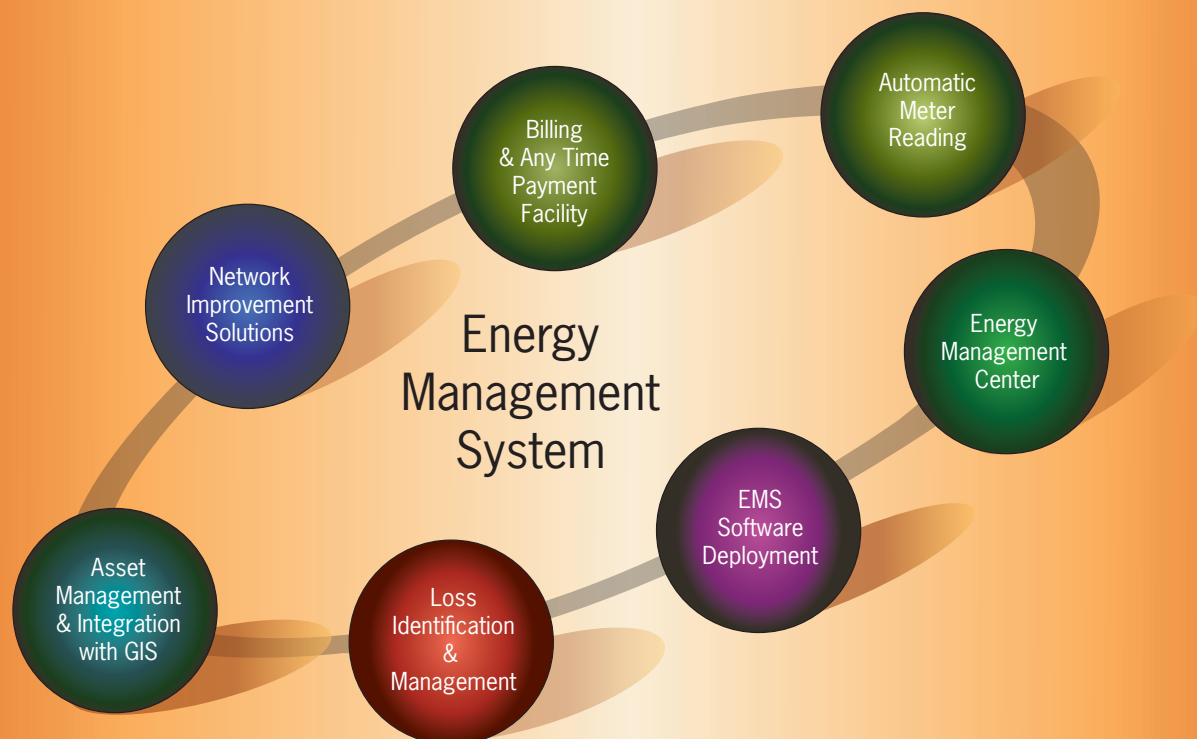
Energy Management System (EMS)

SPML Energy Limited, a subsidiary of Subhash Projects and Marketing Limited (SPML), allied with global technology & solution partners with years of research to develop an Energy Management System (EMS) providing end-to-end Energy Management Solution for Utilities. EMS has proven capabilities in geographies such as Australia, Russia, China and Singapore amongst others.

At the core of EMS, is a smart chip developed at a world class semiconductor design center, the invention is a result of our Innovation Partner's research and development initiatives, since 1998.

SPML Energy Management System provides a comprehensive solution, comprising supply of new meters, retrofitting of existing meters, communication solution, Energy Management Centers (EMC) to Any Time Payment (ATP) solutions.

EMS intends to create an ideal environment for Utility; an integrated energy management solution, with enhanced and value added consumer experience.



EMS Overview - Integrated Energy Management

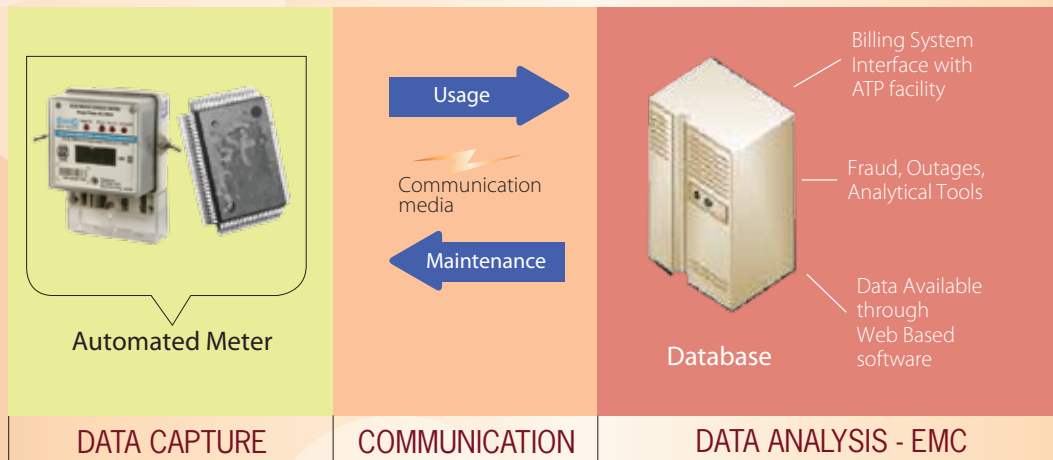
SPML Energy Management System provides:

- Automatic Remote Meter Reading (AMR) technology-Installation of new meters, retrofitting of existing meters
- Dedicated Energy Management Center (EMC): A core data management center
 - Remote monitoring of important distribution parameters
 - Notification services-Alerts/Notifications in the form of SMS to designated personnel (Communication such as Blackouts, Brownouts, Tamper, Outages etc.,)
 - Meter data analysis through Energy Management Software, with modules such as:
 - Asset Management and Integration with GIS- Valuation of Assets, Asset Life Enhancement and Maintenance
 - Meter and Consumer Profiling Module
 - SLD Software: Visualization of Distribution Network Diagrams
 - Energy Accounting Software
 - Distribution Network Analysis Software -
 - Load Flow Analysis Module
 - Feeder Analysis Module: Capacitor Optimization, Phase Balancing etc.,
 - Generation of exception, trending and MIS reports
- Solution recommendations – Root Cause Analysis, Benchmarking for improvements and other such value added services
- Billing Solutions integrated to SPML Any Time Payment (ATP) and/ other payment gateways
- SPML ATP is a proven e-payment service used for collecting Utility payments 24x7x365 days to enhance service delivery

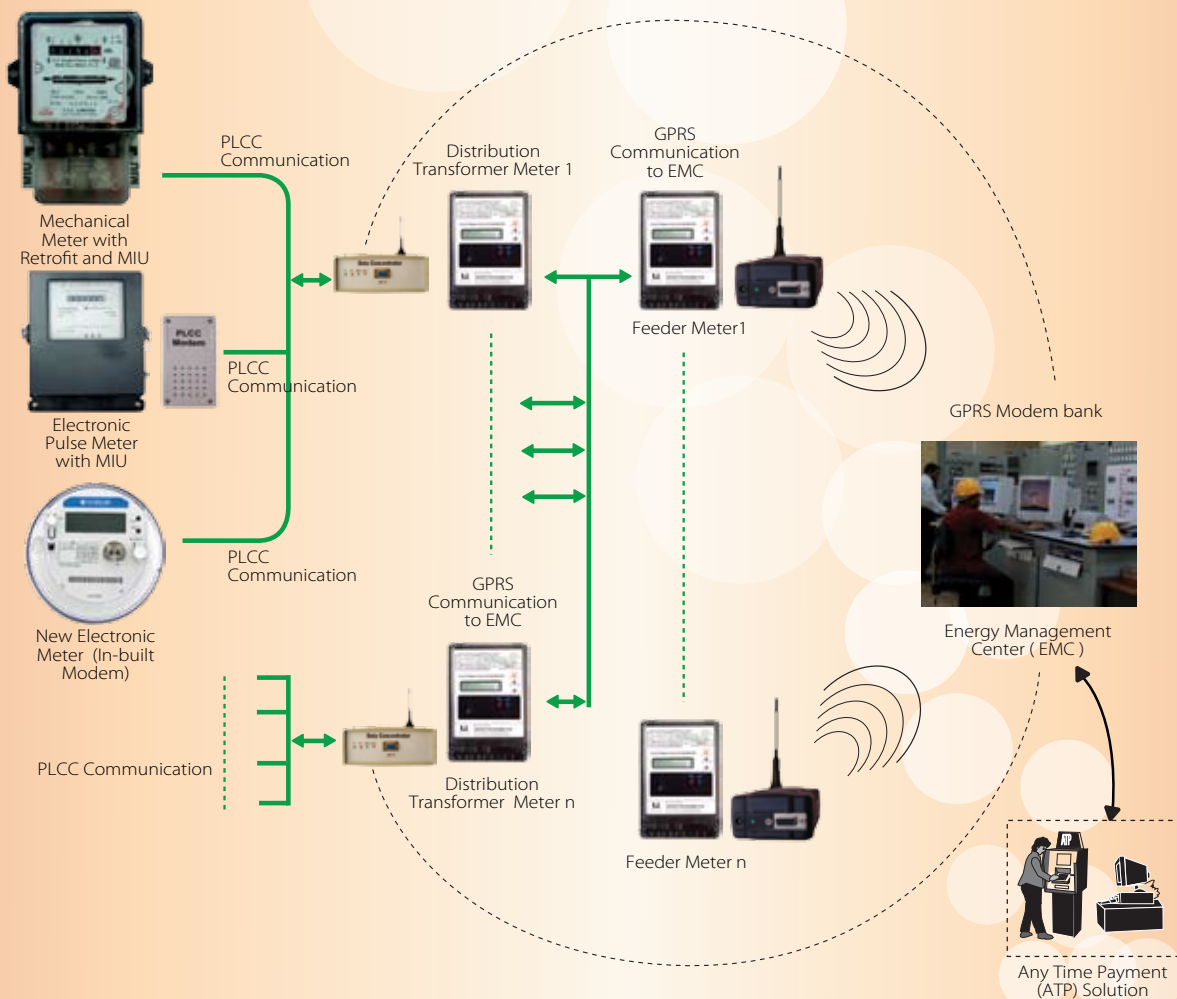
Solution Overview

SIMAC CHIP – The Core of EMS

SIMAC Smart Chip forms an integral part of the Energy Management Solution. SIMAC was conceptualized in 1998 as a System-on-a-Chip (SoC), by 2003, after years of extensive research and development, the Chip was ready, followed by testing and certification through out 2004 and 2005. This technology has been proven across countries and now completely integrated into the EMS.



DETAILED COMMUNICATION DIAGRAM



Present Scenario of Utilities in India

In India, only 44% rural households have access to electricity

Transmission and Distribution (T & D) losses at 31% being one of the highest in the world

Large scale theft of power

Lack of commercial viability of Utility and Distribution Companies

Modest private sector investment

Distorted tariff structure owing to high industrial tariffs adversely affects competitiveness of Indian industry combined with high subsidies to agriculture; leading to wasteful usage of water and ground water depletion in agricultural sector

Quality – reliable power is not made available to agricultural sector; further, poor load management leads to manipulation

Scenario After Incorporating EMS

A mere 5% AT & C loss reduction by deploying EMS, will result in energy saving that can lighten up 57.8 million additional rural households

EMS helps in substantial reduction of T & D losses

EMS with Automatic Meter Reading effectively checks tamper detection and reverse rotation of meter. Commercial loss due to theft can be made practically zero

AT & C losses are reduced, which makes business of Utility commercially viable

A viable business opportunity exists incorporating EMS and hence more private sector participation is ensured with models of engagement such as BOOT

EMS offers better load management; further, the incorporation of Time of Use (ToU) tariff can bring down the high industrial tariffs. This can boost industrial growth while still ensuring continued lower tariffs to agricultural sector

Quality power is assured by incorporating EMS's effective load management; Automatic discrete metering with remote control is also incorporated through Automatic Meter Reading; Heavy losses owing to manipulation is checked effectively

Advantages of SPML EMS

Provides an end-to-end Energy Management Solution using the existing infrastructure, assets and network:

- Commercial losses can be plugged and reduced - Zero manipulation of meter reading
- Ease & Speed of installation - does not require replacement of existing electro mechanical meters
- Asset mapping of Utility helps in valuation of assets, actual asset worth of Utility and enhancing the life of assets
- Scalable and Flexible Communication options - Highly reliable - secure communication, cost effective & low operational cost:
 - Recommended Power Line Carrier Communication (PLCC) - identifies and suggests improvements at the time of installation itself
 - Power Line Modem-a System-on-a-Chip (SoC) for power line communications ensures secure, reliable data over noisy networks, high performance and open standards
 - GPRS communication is used from Distribution Transformers and Feeders to the Energy Management Center
 - For Irrigation Pump sets, LPR (Low Power Radio) is used for meter reading
- Efficiency improvements in Irrigation pump sets by root cause analysis and corrective actions/solutions
- Energy Management Center servers are clustered for scalability and availability with Active-Passive and Active-Active clustering
- SMS Alerts and Notifications to Field Engineers on Energy Tamper, Blackouts, Brownouts, Outages etc. SMS alerts to consumers - bill related notifications/customer service messages etc.,
- Disconnection and Re-connection of power to consumer through meter interface unit from a remote location/Energy Management Center
- Enhanced consumer & service delivery with Any Time Payment solutions-these are proven e-payment services being used by over 11,00,000 consumers in one city itself

Models of Engagement

Utility Funded Engagement

Utility completely funds and retains control over the projects, while the private sector proponent operates and maintains for a predetermined cost and time.

Build, Own, Operate & Transfer (BOOT)

BOOT is a long term Public Private Participation where the qualified proponent invests in the project; maintains, operates and transfers the system to the Utility after a pre-determined period of time. Revenue is generated by reduction in losses, optimizations and innovative solutions. Minimal or zero financial implication to Utility.

Swiss Challenge Basis

Swiss Challenge System is a bidding process in which offer is made by the original proponent to the Utility. Further, the model allows third parties to make better offers (challenges) for an identified project during a designated period. Then accordingly, the original proponent gets the right to counter-match any superior offers given by the third party. Roles of investments could be BOOT/Risk-Reward basis.

Risk-Reward Model

Risk-reward models are combined participation of Utility and Private Sector. Utility could invest and share the development costs with a proponent in return, jointly own the Intellectual Property (IP) and mutually share revenue/risk.

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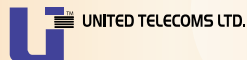
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