

ENERGY MANAGEMENT SYSTEM FOR UTILITIES IN INDUSTRIAL PROJECTS

By- Abhijeet Vaidya_ & Vijay Barve

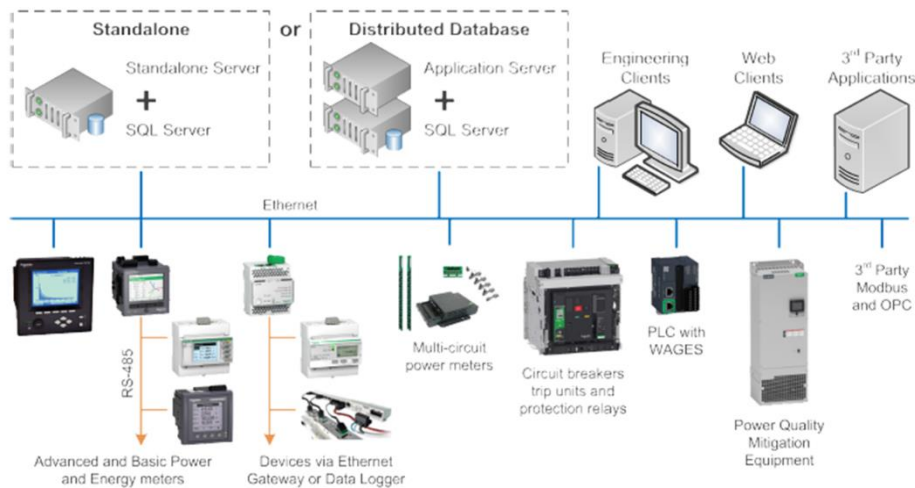
Need for Energy Management System

Utilities such as air, water, gas, electricity etc. are required for process and manufacturing industry. The quantity of such utilities needs to be monitored in a precise way to ensure efficient usage. This can be monitored through Energy Management System (EMS) and controlled effectively to increase usage efficacy and reduce wastage. This will in turn help to reduce operating cost. EMS also provides readily available statistical data of utility systems, which will be very useful at the time of energy audit.

What is an EMS?

EMS is a system to measure, analyze and control the energy used for various applications using computerized tools. This intelligent energy management system is designed to predict the system performance and improve the utilization of the system.

Energy management can be done in a process plant, manufacturing industry, commercial or residential building, service industries such as hospitals, government offices, etc



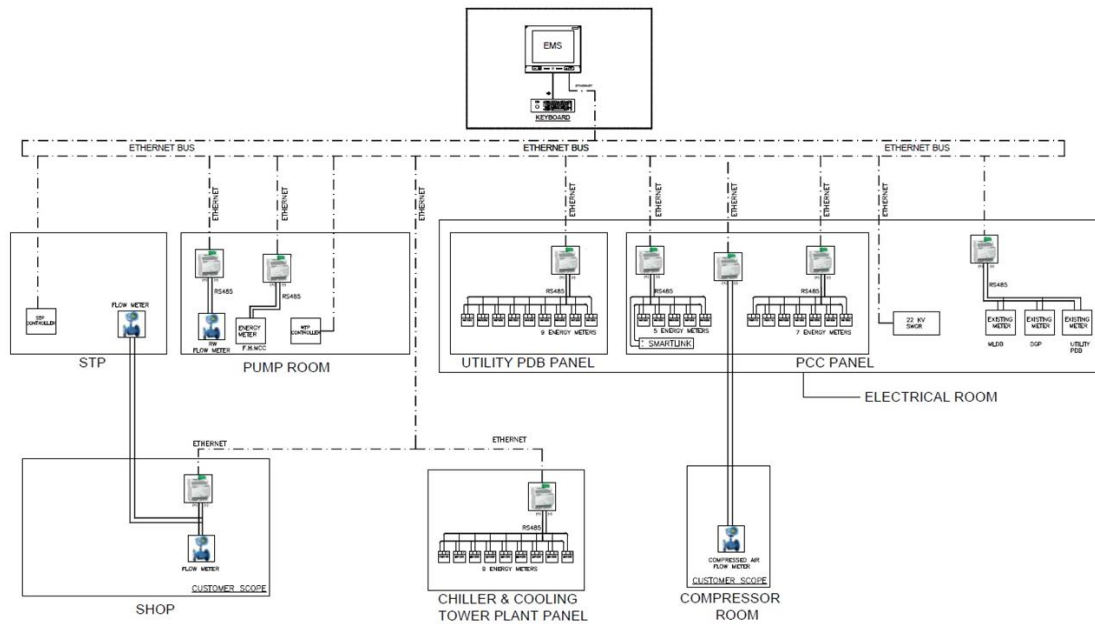
Advantages of EMS

Sl No	Feature	Benefit
1	Remote Monitoring of Utility System	Entire plant utility system can be remotely monitored over internet
2	Alarms and Events	Various alarms and events are recorded to help schedule maintenance and ensure continuous production
3	Real Time Shift Wise Utility Consumption	Utility consumption is measured and recorded to give statistical data for real time, shift wise, trends of energy consumption
4	Utilisation improvement	To identify losses if any based on trends of energy consumption and plug them

Apart from the benefits mentioned above some of the additional benefits could be as below :

- Organisations may project themselves as following “Green” practices which may give them a certain edge in some of the business deals with customers who are following similar practices
- Organisations implementing energy management systems can in turn influence their suppliers to adopt “Green” practices

Typical system Architecture



Parameters on EMS

- Electrical - Current, Voltage, Power factor, Harmonics, Energy consumption, Status of breakers, Indications, Load shedding
- Mechanical – Pressure, Flow, Level, Temperature, Humidity, Speed

Scheme for EMS

- All energy meters to be connected to the EMS for monitoring Electricity Usage.
- Consumption of all other utilities like air, water, ETP, STP, Chiller system to be measured with Flow Meters connected to EMS at various stages.
- Statistical data for all Utilities will be available on EMS and same can be monitored to ensure minimal wastage and efficient usage.
- All utility metering devices in the plant including all computers and work stations are connected to IT/LAN network.

EMS is a cost optimised solution wherein Electricity and all Utilities can be monitored in an integrated manner. The feature of “Operation” of Utilities through EMS can be added based on client specific needs.

TCE have engineered a number of projects implementing EMS systems and can offer services for green field or brown field projects