"Remote Monitoring - Energy Conservation"

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Energy Conservation:

The Energy Conservation Bill-2001 was passed by the Parliament in August-2001 and was expected to clear the way for to check Wastage Energy. This Bill was suppose to control huge wastage of Power. The Energy Conservation Bill 2001 prepared by group of expert committees discussed and debated at various forums, was passed by the Indian Parliament in august-2001. This a Bureau called the Bureau of Energy Efficiency (BEE) was established and managed through Governing council.

However the implementation of Energy Conservation Bill-2001 has to be done through well qualified and experienced Energy Managers with the designated consumers and the Energy Auditors to check & certify that every such consumer complies with the provisions of this bill, thereby conserving the Energy, which of course will benefit the consumers themselves reducing their own Energy Bills and such savings increasing their profitability.

Bureau of Energy Efficiency (BEE) also play key role in creation of professionally qualified energy managers and auditors with expertise in energy management, project management , financing and implementation of energy efficiency projects as well as policy analysis. It is a Law to force firms to make more profit and not an Act to control and monitor Energy Consumption of Industry. Under the BEE's PAT Scheme (Perform, Achieves & Trade) for few Industrial Sectors, it is mandated to compulsorily improve their Energy Efficiency by adopting all the available measures including replacement of their old Equipments with New and Energy Efficient Equipments.

The Energy accounting gives the overall picture of Energy availability & its use. The Energy Audit enables analyzing the data in meaningful manner to evolve measure to introduce checks & balances in the system to reduce leakages and losses and also to improve technical performances. Increasing spread of utilities over a wide network only necessitates an efficient, reliable and cost-effective solution for remote monitoring. Real-time monitoring of efficiency in performance and ahead-of-time indication of a probable maintenance are aspects critical to every company.

Innovative device with GPRS connectivity, time and date facility, display, event logger and serial ports provides accurate information on energy consumption by each process, each location, within a stipulated time period as it is important to measure and monitor energy. Data is analysed on a continuous basis and user-defined trends for individual parameters such as RMS Voltages & Currents, PF, Frequency, KW, kWh, kVarh, kVAh, Maximum Demand,, etc. are created.

SUPERVISORY CONTROL & DATA ACQUISITION SYSTEM (SCADA)

In 1993 it was determined that a Supervisory Control & Data Acquisition System (SCADA) system was needed to monitor the campus electrical supply and distribution system. Most of the packaged systems involved the

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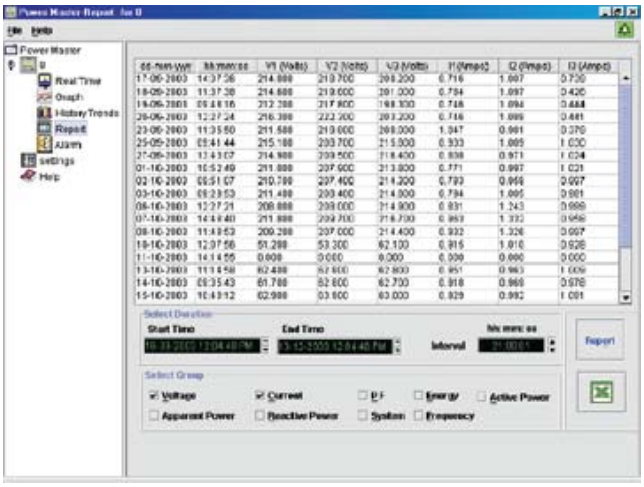
purchase of a complete SCADA system as opposed to the method of using single meters as the basic component. In 1994 the Utilities Division started installation of the campus SCADA system using Intelligent Electronic Devices (IEDs) and SCADA software package. The Energy Management Control Systems (EMCS) group, which is a department in the Utilities Division, also needs data from building meters. The IEDs provide communications to the SCADA software as well as an analog output signal (proportional to kW) which is read by the building EMCS. The building EMCS (a Rosemont system) records this signal to track electrical energy demand and Kilo Watt Hours (KWH).



Additionally, this system allows the Facilities Operations - High Volt Technicians to view the big picture (a section of campus), and then tunnel down to a detailed view (a single-line) as needed. SCADA automatically generates alarms and monthly energy reports and is easily expandable as the needs grow. The new system is extremely flexible and is completely expandable as IED meters are added.

Benefits

Long Term Benefits and Future Needs : Power System Operators need to be able to continue to remotely and instantaneously, identify electrical power system failures at any location in the distribution system. Accurate real time alarming and historical information is needed to continually meet the needs of a diverse community of energy users. A continuation of the demands for high reliability and accurate performance and trending data is paramount. This will allow users to access specific information by using a web browser instead of expensive third party software (e.g., energy consumption report, performance data, etc...).

"MECO" Multifunction Power & Energy Monitor, Model : "MFM-96S" Microcontroller based with MODBUS RTU Protocol is indigenously designed, tooled and manufactured by the R & D Department of MECO and Competitively Priced. "MFM-96S" is Super Bright Red LED Displays with Inbuilt Memory to store CTR, PTR, Inst. Address, Password & Energy Reset facility. It has Simultaneous Display for Voltage, Current, Active Power, Reactive Power, Apparent Power, Frequency, Power Factor, Active Energy, Reactive Energy & Apparent Energy (Import / Export - 4 Quadrant operations). TRMS Measurement, 3Phase 3Wire / 3Phase 4 Wire (User Selectable) CTR, PTR, Instruments address, Password Protected, Energy Reset & Auto / Manual Scroll Display (Programmable) are key features of "MFM- 96S". "MFM-96S" is Ideal to monitor & acquire Power Data from Generator, Remote Monitoring, Building Management System, PLC's / SCADA application, Energy Audit, QC Testing, Power Management, etc. RS485 Port with MODBUS Protocol & Power Master Software to store parameters on the PC can be grouped into table or graph for Analysis & Management of any Electrical System. The software feature like Real time display, Tabular representation, Graphical display of Measured, Stored values, History trends, Alarms for Max./ Min. values etc. These values can be converted to Excel format for further data processing & import into other software platforms. "MFM-96S" is having IP54 (Meter Front) & CE Complaisance as per EN61010-1, ENG61326-1

The objectives of this Energy Monitoring and Energy Conservation are very good but the road ahead is very long, rough and tardy but with the cooperation and strong will, nothing is impossible.

Note:

- Some of the writ-up, example or case study taken from various articles in Magazine for the awareness and knowledge of the Public issued herewith without any prejudice. E. & O.E.
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