Energy Management Systems

Assis Flores
Account Executive
Johnson Controls

Energy Management System Re-commissioning

Jeffrey Day
Director of Service Sales
Day Automation Systems

Performance Contracting

Steve Heaslip
Account Executive
SIEMENS Building Technologies
ENERGY MANAGEMENT SYSTEMS

BAS  EMS  BMCS
FMS   DDCS  EMCS  BMS
BCS
The term **Energy Management System** can be refer to a computer system which is designed specifically for the automated control and monitoring of the heating, ventilation and lighting needs of a building or group of buildings such as university campuses, office buildings or factories. Most of these energy management systems also provide facilities for the reading of electricity, gas and water meters. The data obtained from these can then be used to produce trend analysis and annual consumption forecasts.
ENERGY MANAGEMENT SYSTEMS

Benefits:

• Facilitate the management of energy usage in the building or facilities
• Trending and monitoring energy consumption
• Automatic and consistent reaction to events
• Provide a means to gather and view information quickly
Goal:
• To provide an environment for the building occupants that is comfortable and safe.
Process:

- Apply Energy to:
  - Heat
  - Cool
  - Filter
  - Ventilate
ENERGY MANAGEMENT SYSTEMS

How is it done?

• Monitor Utility Meters
• Measure Temperatures, Relative Humidity, Pressure, CO2, etc.
• Monitor status of equipment – ON/Off or Open/Closed
• Digital Control to start and stop equipment
• Analog control to adjust setpoint values, Control Valves, Dampers and Variable Frequency Drives
What are the EMS strategies?

- **Basic Strategies**
  - Time Scheduling
  - Optimum Start and Stop
  - Night set-back
  - Peak Demand Limiting

- **Advanced Strategies**
  - Chiller and Boiler Plant Optimization
  - Morning Warm-up/Cool-Down
  - Night Purge
  - Load Resetting
  - CO2 Demand Ventilation
Results:

- A comfortable and safe environment for the building occupants for the lowest possible cost.
1895 era system components shown in this photo are ASME landmark designated artifacts.
ENERGY MANAGEMENT SYSTEMS

IT Infrastructure

Network Controller

Wireless Controller Bus

IP Cameras

Intelligent Equipment

Wireless Sensors

Wireless Sensors
Energy Management Systems

Questions??

Assis Flores
ENERGY MANAGEMENT SYSTEM RE-COMMISSIONING

Jeffrey Day
Director of Service Sales
Day Automation Systems
Why is system re-commissioning important?

Even well-constructed buildings experience performance degradation over time. No matter how well building operators and service contractors maintain equipment, if it operates inefficiently or more often than needed, energy waste and reliability problems can occur.
Energy Management System Re-commissioning

Why is preventive maintenance not enough?

Preventive maintenance has a focus on component-by-component care, rather than taking the holistic view that operation.
ENERGY MANAGEMENT SYSTEMS

Energy Management System Re-commissioning

Benefits

1. Reduction in building operating costs
2. Reduction in occupant complaints
3. Increased ability to manage the Energy Management System
4. Building staff receive training and improved documentation
5. Building occupants are more comfortable or safer
ENERGY MANAGEMENT SYSTEMS

Energy Management System Re-commissioning

The process

1. Initial meeting to identify the equipment and scope of work and timeline
2. Assign the responsibilities
   1. Commissioning leader
   2. Coordinate with the building occupants
   3. Access to the equipment
   4. Who provides replacement parts or performs repairs
3. Perform a site survey of the equipment
4. Create the re-commissioning list
The process

5. Perform the re-commissioning process on the equipment
   1. Test each item on the check list
   2. Capture a list of items checked and the open items
   3. Repair items that can be repaired

6. Prepare a report of the items corrected and the open task items
7. Create a follow-up plan to resolve the open task items
PERFORMANCE CONTRACTING

Steve Heaslip
Account Executive
SIEMENS Building Technologies