Nottinghamshire County Council

Beacon Council Scheme: Sustainable Energy

Case Study: Building Energy Management Systems (BMS)

Introduction

A BMS is a microprocessor-based system that provides the facility to control any building service. It works by using the intelligent standalone controllers, or outstations installed on site, to accurately control plants such as boilers, pumps, fans, lights and security systems in response to changing conditions such as time, temperature and light levels. A BMS has the ability to be added to and expanded in the future.

BMS utilises a central monitoring station from where an operator can look at what is happening at each outstation and make adjustments to improve conditions or change parameters such as heating times. The outstations 'talk' to each other via dedicated communication cables or a telephone link.

The County Council has 50 of our largest energy use sites connected to our central monitoring station located at our main council office.

Benefits

Energy savings – State of the art controls and communications provides savings by ensuring that the plant is operating at peak efficiency whenever it is used and that it only operates when needed. Energy savings can be achieved whilst maintaining, or even improving, comfort conditions.

Flexibility of use – BMSs provide the flexibility to cope with continually changing needs of building users.

Monitoring and targeting - Vast amounts of data is transferred within a BMS, making it ideal to determine optimum operating efficiency and compare with targets.

Improved reliability – Routine checks and adjustments of the BMS can be carried out from the supervisory control point and the system can be set to indicate problems and provide alarms which will allow the maintenance staff to respond rapidly and rectify any situation before it gets critical.

Staff costs reduced – Made by having a central control point, automatic meter readings, improving plant maintenance regimes and extending the life of the operating plant.

Improved comfort conditions – Greater occupant satisfaction can be achieved with BMS by having a tighter control over the environment and comfort conditions. Problem areas can be identified by the BMS operator and changes made appropriately.

Budget control – Where buildings are sub-metered, a BMS can automatically monitor and record the energy use of individual areas in order to bill the specific areas.

Security, fire detection and alarm – A BMS can be used to provide security by expanding it to incorporate all standard security, fire detection and alarm systems.

Environmental benefits – By improving control over building services, a BMS will reduce CO_2 and SO_2 emissions and help conserve the world's finite energy resources and water supplies.

Beacon Council 2005-2006 Sustainable Energy

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