

BUILDING ENERGY MANAGEMENT SYSTEMS AT STRATUS COMPUTERS

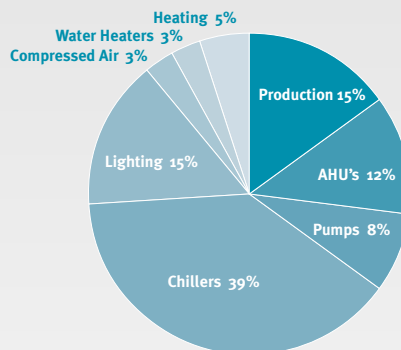


Stratus Computer Ireland has achieved energy savings of £50,000 per year and maintenance savings of £30,000 per year following the installation of a Building Energy Management System. The system, designed and manufactured in Ireland, cost some £180,000 to install and has allowed the company to make major savings across a wide range of activities.

Stratus Computer Ireland was set up in Blanchardstown, Dublin in 1989 to manufacture continuously available fault tolerant computers and currently employs 215 people. From the outset energy usage has been a high priority due to the nature of the manufacturing process. At any one time up to 200 machines are in use, each giving off heat at a rate of 5 to 8kW per hour. There is also an additional heat load from lighting and personal computers.

Initially the company carried out a survey of its energy usage to determine possible cost savings. A breakdown of the energy use is shown in Fig. 1. As a result of this survey a strategy was developed to control and reduce energy costs with the use of all available tools and mechanisms without affecting the efficient operation of the manufacturing process.

FIG 1. ENERGY USERS %



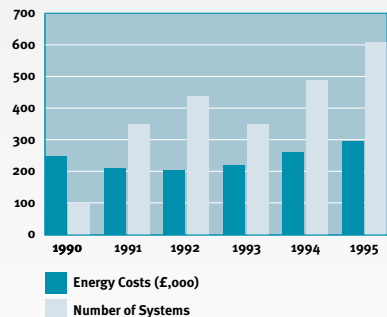
As a first step in implementing this strategy it was decided to purchase a Building Energy Management System which would control energy use and costs by monitoring and targeting of specific areas.

The system paid immediate dividends. At the end of 1990 energy costs at the plant totalled £250,000 - 95% of which was electricity. By the end of 1991 this cost had been reduced by 12% while production has increased from 100 to 350 systems. A 75% reduction in energy use per unit and a saving of £1,870 per unit had been achieved.

Fig. 2 shows that by 1995 the energy costs continued to be relatively static while production increased to 600 systems.

At present there are some 1,200 points on the system which control everything: plant temperature, lighting, air conditioning, heating systems, process cooling systems and electrical Max Demand. All plant equipment at the Stratus facility is connected to out-stations on the system which can communicate with each other across a high speed network.

FIG 2. ENERGY COSTS VERSUS SYSTEM SHIPMENTS



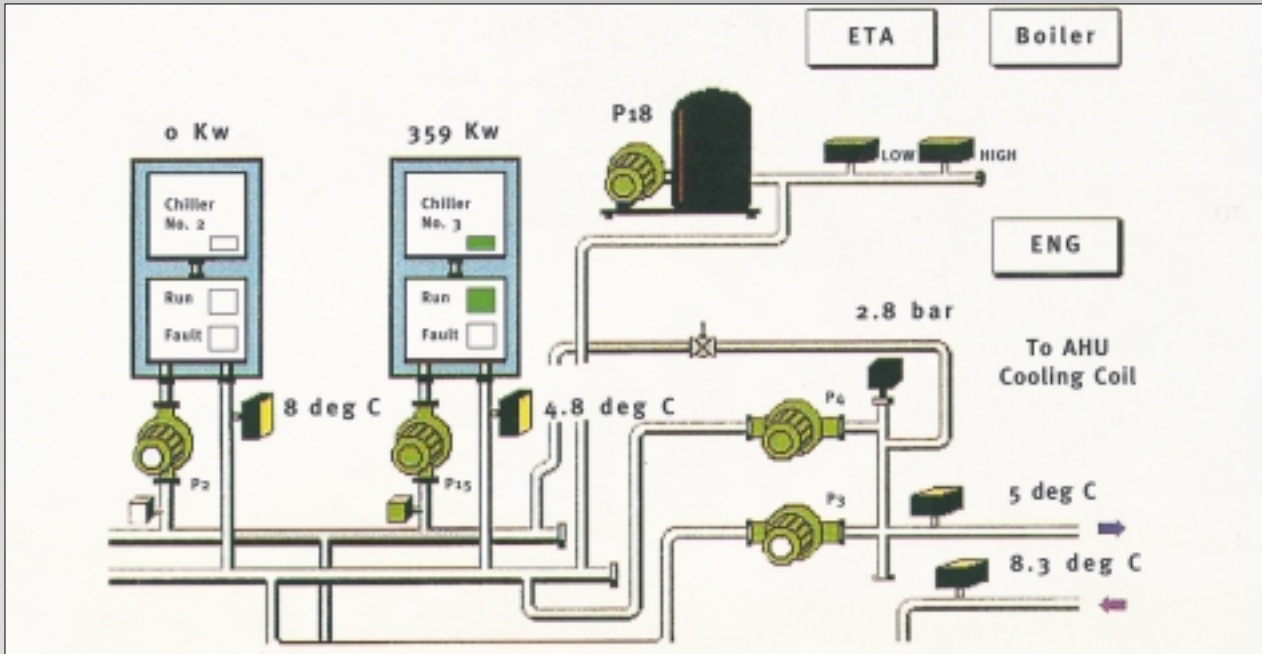


FIG 3. CHILLED WATER SYSTEM

Fig. 3 is an example of the chilled water systems at Stratus Computers which can be interrogated through the PC. The system can be interrogated on how the plant is operating at any time. Strategies such as time scheduling on pumps and fans, optimisation of the cooling system and Max demand control help to reduce energy usage and cost.

Weekly or daily printouts showing detailed graphs of energy usage can be produced allowing easy identification of areas where savings are possible.

Stratus received ESB ETA awards in both 1993 and 1995 for its efforts in controlling and reducing energy costs. These awards were the result of an ongoing series of projects and initiatives at the Blanchardstown plant which have been made possible through the use of the Building Energy Management System.

In early 1990 Stratus identified a problem with Max Demand charges which was costing it in excess of £12,000 per year. Using the Building Energy Management System, energy usage was controlled and the additional cost was eliminated.

The Max Demand programme on the system predicts the maximum energy required during each 15 minute

monitoring period and controls eight levels of switchable energy users within the plant, such as pumps, air conditioning, variable speed drives and lighting.

An annual saving of £1,820 was achieved by using the system to control the heating equipment at the loading bay area. The cost of this action was just £194.

In 1993 it was decided to change the Variable Air Volume system at the plant from pneumatic control to electrical control on the Building Energy Management System. The old system had cost £1,800 in electricity each year and £4,700 in maintenance. The new electrically controlled system costs just £450 in electricity and £900 in maintenance - an overall saving of £5,150 each year. This is a significant contribution to the overall modification cost of £50,000.

By controlling the running times of the calorifiers a saving of approximately £4,300 a year is being achieved for a modification cost of £200. Savings of £265 per year on electricity and £465 on maintenance have been achieved by installing controls to allow only one vacuum pump to be switched on at any time. The modification cost here was £38.

Process water pumps were put on time control on the system in 1994 at a cost of £78. This has resulted in annual savings

of approximately £500. Failures in the fridge and freezer rooms had cost Stratus some £3,500 in lost foodstuffs in the four years to June 1994. Both rooms were fitted with temperature sensors linked to the Building Energy Management System. Since then the refrigeration plant in both rooms has failed twice but, thanks to the system, the maintenance department was alerted on time and prevented the loss of some £2,000 in foodstuffs. The total cost of the sensor installation was £270.

As can be seen from the experience of Stratus, Building Energy Management Systems, can achieve substantial savings for a company, and many of the measures to reduce energy consumption can be achieved within a reasonable pay back period of between two and three years - or far less as some of the above examples show - and often have a very small capital outlay. For Stratus this is particularly important as it adds to the overall profitability of the company and contributes to maintaining competitive prices for its products.

Source/Text: Stratus Computers, Maintenance Dept.

For further information on BEMS and other energy saving technologies and initiatives contact:



IRISH ENERGY CENTRE

GLASNEVIN, DUBLIN 9, IRELAND
TEL: (01) 8369080, FAX: (01) 8372848