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Hospital saves £9,000 on HVAC energy costs

ABB variable speed drives (VSDs) are saving a hospital £9,000 a year on the cost of running its air handling units (AHUs).

Medway Maritime Hospital in Gillingham, Kent, is an acute and general hospital primarily serving the needs of people in Medway, Swale and North Kent. It was increasingly concerned by the energy consumption of the AHUs in the three plant rooms serving the hospital's Block A.

Trish Marchant, deputy environmental manager of Medway Maritime Hospital says: "Our main driver is keeping our CO₂ contribution low, as well as cutting energy costs, especially with the launch of the CRC Energy Efficiency Scheme."

The hospital asked ABB Drives Alliance partner Inverter Drives Southern Ltd (IDS) to look into the application and make recommendation for improving its energy efficiency. Says Marchant: "We wanted a company that had experience of working in the NHS and that understood the demands made on a ventilation system in a building that was continually occupied. I found IDS to be very confident in gathering the energy use data – they assessed the motors and estimated that they were oversized. IDS then produced robust predictions that fitted in with our own expectations."

Each plant room has one supply and three extract fans. IDS measured the power consumption and determined that the AHUs cost a total of over £21,000 a year to run. They predicted that installing variable speed drives could cut this cost to just over £12,000 per annum, a saving of £9,000 and with 32 tonnes of CO₂ saved per year.

The installation project involved IDS installing 12, ABB standard drives for HVAC, with ratings between 1 kW and 11 kW. At night, the speed of the fans is set back to 80 percent, while in the daytime they are set to 90 percent. The drives are integrated with the building management system (BMS) so the night set-back is engaged by the BMS to a centrally controlled time schedule. IDS worked closely with the hospital's BMS vendor to ensure the correct I/O for the drives.

"We were concerned about the quality of installation," says Marchant, "particularly that the cables and drives would be sited so they were easy to maintain. IDS did everything we asked – we had no issues with them and we found them to be good, responsible contractor."

The project was carried out with a loan from Salix Finance, a not-for-profit agency that provides interest-free loans to public bodies such as NHS trusts. Eventual savings from the project are on target to achieve the £9000 per year, giving a payback time of 2.5 years.

"We have been very happy with the contract," adds Marchant and have been looking for similar applications that could benefit from VSDs. I have been tweaking the settings of the VSDs to get the right comfort levels in the building. This is one of the major advantages of VSDs, the flexibility to adjust the set-point to suit the occupancy of the building. I would definitely recommend the use of VSDs in other similar situations, particularly for older AHUs where the motors may be oversized."

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Caption: ABB variable speed drives are saving Medway Maritime Hospital £9,000 a year on the cost of running its air handling units.

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