
WARRINGTON, UK, OCTOBER 3, 2012

ABB drives help to cut Experian's data centre's energy bill

ABB has helped Experian, the global information services company, reduce its data centre energy bill.

Over £140,000 has been cut from a data centre's energy bill, as well as a reduction of 1,300 tonnes of CO₂ production per annum, with the help of ABB variable-speed drives installed on an air conditioning system as part of a wider energy saving initiative.

Experian's Fairham House data centre in Nottingham has a 2,000 square metre production floor with over 2,000 servers. On the production floor, server computers are arranged in 15 rows of 17 computers per row – some servers are realised through software, so that several server processes can run on one computer. The server computers have a total load of 800 kW.

The 26 air conditioning units blow cooled air under the floor through grills. This air is sent towards the racks via a cold aisle containment system. This encloses the air intakes of the servers with a roof and walls, forming a barrier that ensures the cooled air is directed where needed.

This barrier also prevents hot exhaust air from the server racks being drawn directly into the cold intake side. This means that the air conditioning units do not have to cool the exhaust more than necessary to account for warm air entering the intakes. Because they are providing only the amount of cooling needed, the air conditioning units can use speed control to match the speed of the air conditioning fans to the actual demand from the racks.

Previously, motors running the air conditioning units were used direct-on-line, with no form of speed control.

As the servers are operating around the clock to serve clients spread across numerous time zones, there is a constant demand for cooled air, with no opportunity to switch off air conditioning units.

Paul Dennis is the Technical Facilities Manager for the site: "I calculated that using ABB low voltage AC drives running the air conditioning unit motors at 50 percent speed during the day and at 80 percent speed at night, would give a reduction in energy costs for the air conditioning units of five percent." He contacted Inverter Drive Systems (IDS), an ABB Drives Alliance member, for advice on which drive to use.

"I wanted to use ABB drives as we had used them in the past on site and had very good experiences with them," says Dennis. "IDS used their extensive knowledge of ABB drives to specify exactly the right model for our application."

The 26 air conditioning units were each fitted with a 15 kW ABB drive for HVAC. IDS provided support to ensure the drives were installed correctly, as well as training in their use. The drives themselves were fitted by Experian's own maintenance contractors. The air conditioning units are controlled by a building management system (BMS), which monitors alarms. Set points of the units are altered manually.

"We are very pleased with the drives project, as it contributed to an overall saving of eight percent on our energy bill for the units, some £144,000" says Dennis, "with a payback time of 15 months. We also cut 1,300 tonnes of CO₂ production per annum. From a business point of view, the project extends the life span of the site, as we do not have to install extra air conditioning as the site grows. There will also

be less wear and tear on the air conditioning units by running at half speed, so overall it was a very successful project for us.

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Caption: ABB has helped Experian's Fairham House data centre reduce its energy bill.

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