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Water park cuts 40% off pumping costs with ABB drives

The UK's largest indoor water park is saving £13,000 per annum, an improvement of 40 percent, on the running costs of its water circulation pumps following the installation of four ABB variable speed drives.

Four 15kW pumps are used by the Sandcastle Water Park in Blackpool to pump 418 m³ of water an hour to circulate water through the pool. Maintenance Engineer Tony McNichol, says: "The pool is a deck level pool in which water runs over the edge into a balance tank to make up water lost from the system. From the balance tank it is heated and treated in a sanitizer and then pumped back to the pool."

Sandcastle Water Park is the biggest utility user among the council owned facilities and with a target to save eight percent of overall energy use, the management of the park was keen to improve the energy efficiency of the pool installations. The circulation pumps were running constantly with no form of speed control.

ABB, in association with ABB Drives Distributor Radway Control Systems (RCS), offered to investigate the circulation pump system and determine the prospects for saving energy.

RCS carried out an energy audit, connecting variable speed drives to the pumps and looking at the energy use both before and after they were connected. The pumps were originally used in a two duty, two standby configuration, with peak periods using a three duty, one standby configuration. ABB found that running costs were nearly £33,000 per annum. Phil Tomkinson, Sales Manager of RCS, says: "The major problem was that they had no control between the level of flow provide by individual pumps. It was an all or nothing system."

Following connection of four ABB variable speed drives, the circulation system was run in both a three pump and four pump configuration. An original power consumption of 34.8 kW fell to 21kW for three pumps and 17.5.kW for four pumps, giving an estimated saving of £13,000 and £16,000 respectively. Says McNichol: "I would not have believed it if I hadn't seen it with my own eyes. We didn't have to think twice about it and we gave the go ahead for a permanent installation."

RCS installed four 15kW variable speed drives to run the pumps as a permanent measure. A simple potentiometer gives complete control over the pumps, allowing any flow rate needed. "We don't run all four at once and have found that running three at a lower speed gives better efficiency than running two at full speed," says McNichol.

With a £15,000 investment, the project has a 15 month payback on three pump operation. "I am happy with the application and there was minimal disruption while it was being installed. The 40 percent energy saving on pumping costs made by the drives has contributed to a 20 percent energy saving at the facility overall, compared to our target of eight percent."

The Water Park intends to link the ABB drives up to its building management system (BMS) to interrogate the drives to gain data about how they are performing.

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Caption: The UK's largest indoor water park is saving £13,000 per annum on the running costs of its water circulation pumps following the installation of four ABB variable speed drives.

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