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ABB drive cuts fountain's carbon footprint in half

A variable speed drive and a programmable controller from ABB have significantly reduced the energy bill for running a fountain in the middle of a Cornish boating lake by more than half and also lowers the height of the fountain whenever the wind velocity becomes an issue. The installation also reduces aerosol drift, thereby preventing passers-by from getting wet thus improving health and safety. The solution was designed and installed by Exeter based system integrator, Drive Control.

Restormel Borough Council installed the 11-metre fountain in 2006 in the Trenance Gardens boating lake in Newquay. The aim of the project was partly to commemorate 100 years of the Trenance Gardens, but also to help aerate the lake and combat the formation of algae. There were two primary issues that required further examination, the energy consumption and aerosol drift from the fountain.

“Installing the variable speed drive enabled me to reduce the energy cost and prevent the wind drift of the aerosol in one go,” says energy manager, Martyn Perrow. “The running costs are now down to around £2200, which of course means that the fountain’s carbon emission footprint has reduced by over half.”

The challenge was to devise a solution that enabled the fountain to run at its full height for at least some of the time, because local people were keen to maintain the fountain as a major feature. “We developed a system that let them have the maximum height on still, sunny days, but dropped the fountain to two or three metres on windy days,” says Daniel Rufus, Drive Control’s engineer on the project. “The important issue in design terms was to design the control loop so that it doesn’t react too quickly to one-off gusts of wind.”

The successful solution uses external instruments to check the wind speed constantly and feed these results into the Programmable Logical Controller (PLC). The PLC keeps a rolling average of the last 10 minutes and uses this average reading to control the drive, which in turn varies the speed of the pump motor. The fountain now runs high when the air is still and shrinks back as the wind picks up. The system also cuts off the flow entirely if the wind speed approaches gale force.

According to Mr. Perrow, the equipment has been running trouble-free since it was installed in 2007. “Energy-wise the ABB drive has been fantastic,” he says.

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Caption: A variable speed drive and a programmable controller from ABB have significantly reduced the energy bill for running a fountain in the middle of a Cornish boating lake by more than half.

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For more information please contact:

Layla Hewitt
Marketing Communications
Phone: 01925 741517
Email: layla.hewitt@gb.abb.com

ABB Ltd.
Daresbury Park
Daresbury
Warrington WA4 4BT

Emma Jenkinson
Armitage Communications
Phone 020 8667 2218
Email: emma.jenkinson@armitage-comms.co.uk