WARRINGTON, UK, NOVEMBER 17, 2020

Two pumps prove better than four in Anglian Water upgrade project

New pumps fitted with ABB variable speed drives increase pumping capacity, improve reliability and reduce noise pollution at Anglian Water's Kentford Moulton site

Replacing four fixed-speed pumps with two variable speed-controlled pumps has increased pumping capacity, improved reliability and significantly reduced noise for Anglian Water's Kentford Moulton site, near Newmarket.

Four 11 kW line shaft-driven pumps first installed in 1992 were running without any form of variable speed control. They have been replaced with two 45 kW submersible sewage pumps, the flow rate of which is controlled by two ABB water drives.

The upgrade increases pumping capacity and delivers substantial energy savings, as the ABB drives ensure that the pumps only operate at the speed required. Prior to the upgrade the average pump running time was 14 hours per day. Following the upgrade, the average run time is reduced to three hours per day. This reduction in energy led to an estimated £4,000 annual saving for Anglian Water.

The four old pumps ran simultaneously, generating high noise levels and disturbing local residents. The two replacement pumps are run in a duty-standby configuration, meaning only one pump is typically running at a given time, significantly reducing noise levels. The load is shared between the two pumps via switching, spreading wear between the pumps more equally.

The project was part of a large pump upgrade at the Kentford Moulton site and carried out by ABB Value Provider, Gibbons Engineering Group. The site needed to remain fully operational while the upgrade took place, so Gibbons connected the new VSDs to temporary pumps while the old pumps were replaced. This ensured that customers received no interruption in service.

According to Mark Dorrell, Project Engineer at Anglian Water, maintenance requirements are substantially reduced. "In the previous configuration where we had four inefficient pumps running all the time, we were typically calling out the operations team four or five times a month for maintenance. Since the installation was completed this has now dropped to zero."

"This project is a great example of how variable speed drives can help water companies achieve their AMP7 objectives," says Matthew Gibbons for Gibbons Engineering Group. "Using a drive to control pump motor speeds is one of the best ways to improve energy efficiency, whilst reducing strain on pump components lowers the need for maintenance, building better resilience for the pumping station as a whole."

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Caption: Replacing four fixed-speed pumps with two variable speed-controlled pumps has reduced Anglian Water's annual energy costs by an estimated £4,000