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Changes for the Better

Automating the World

Data-driven approach critical to unlocking water resilience

Hatfield, UK – 25th of March 2025

A new data-driven approach to asset management could bring the UK's aging water infrastructure out from 'behind the curve', though more detail is needed on proposed 'statutory resilience' standards.

With the government's 'A New Vision for Water' including 'water security' as a key pillar of its strategic response to the Independent Water Commission's (IWC) 2025 review of the water sector regulatory system in England and Wales, a leading automation expert warns that the delivery will depend on how the industry improves its approach to data.

David Bean, Business Development Group Manager at Mitsubishi Electric's Automation Systems Division, comments: "Given the scale of our water infrastructure, with major assets comprising of 10,000 pumping stations, nearly 1,500 water treatment works and over 2,000 large, raised reservoirs, it was not surprising to see failure rate used as the default condition monitoring metric.

“It is encouraging to see the government address the IWC’s call for ‘accurate and robust data on the assets water companies are responsible for […] as a pre-requisite of a resilient system’. This is through plans for ‘statutory resilience standards’; a need for ‘engineering expertise [to be] embedded’ into the core of the new regulator, and a separated, ‘ringfenced’ allowance for capital maintenance expenditure.”

However, David believes more detail is needed on the delivery to gauge how effective the new strategy will be. He continues: “For these recommendations to work, there needs to be real understanding of the science behind decision-making that ultimately will make an asset perform optimally.

“This includes understanding its health, when it is likely to start to degrade and then making informed maintenance decisions around it. There needs to be a major shift from reactive to preventative to predictive maintenance, and then onto prescriptive. This should sit at the heart of any future resilience standards.”

The broader implementation of Edge software represents a critical opportunity for action. David argues deploying modular, smart condition monitoring solutions across water treatment and unmanned pumping stations offers a clear ROI. It enables water companies to move away from reactive and preventative maintenance regimes, or the need for a technician on site, towards the development of systems with early warning of asset failure, via remote monitoring.

“Software such as Mitsubishi Electric’s Edge platform, which can be deployed onsite with offsite analysis, offers the potential for both data management and Edge-based analytics. In operation, this type of software can create a diagnostic rule that would include anything affecting the health and performance of the asset. Once the rules are defined, the Edge software uses a real-time diagnostic mode to monitor the asset and a closed loop control to apply the rule directly to the asset when required,” he continues.

“A good operational example would be the use of rules in an aeration plant. The software monitors the health of the equipment and the variables that impact performance, such as pH and dissolved oxygen levels. A digital twin of the plant can then be developed to compare the performance of the plant against the model to ensure optimal, real-time performance.”

Whilst a data-driven approach offers a route forward for industry, it must be willing to embrace the government’s call for greater collaboration on sharing best practice, both between water companies and other markets, whilst also expanding on the use of standardised designs.

“Ultimately, the water industry is behind the curve on maintenance. Whilst the task is daunting, the route forward lies in the better use of data,” concludes David. “We helped save one water company

£3.6m by integrating 19 different systems into one situational awareness platform, so the technology is proven. With AMP8 funding in place, we now have to seize the opportunity at scale."

For more information, please visit: https://gb.mitsubishielectric.com/fa/solutions/industries/water.

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For more about the story behind “Automating the World” please visit:

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