

Yorkshire Water

Managing water resources in real-time improves system reliability, scalability and revenue protection



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Water is becoming a critical issue around the world and companies like Yorkshire Water are on the frontlines of managing this precious resource. To ensure its ability to deliver clean, reliable, water to households and businesses, Yorkshire Water depends on having access to a large pool of data. When the company's telemetry infrastructure could no longer keep up with its need for data, Yorkshire Water turned to the PI System for faster, more scalable, data management. In the process, it achieved more than £1 million in annual savings through reduced energy use, improved leak detection and better chemical management.

“We need the right technology in place that allows us to respond to new and emerging requirements. We may not know these future requirements but the PI System enables us to make key decisions based on good quality Telemetry data from our instrumentation.”

– Nick Hook, Telemetry Information Team Manager, Yorkshire Water

Situation

Yorkshire Water provides clean water and wastewater treatment services to 4.7 million people and 130,000 businesses in Northern England, delivering its services via 65,600 kilometers of pipelines. The company also manages 650 water storage facilities, 2,250 pumping stations and 86 wastewater treatment facilities. The geographic spread of this network includes both hilly

and flat territories and the company draws water from both groundwater and river sources.

Managing the diverse network of assets that make up Yorkshire Water has long been a data-intensive activity, with monitoring occurring at multiple points throughout the system. Water pressure, flow volume, pump state, reservoir level and water quality measures are all gathered from sensors and systems throughout the clean and wastewater treatment works. As Yorkshire Water's customer base grew, so did the amount of data it was collecting. The number of measurement locations grew from 1,000 in the 1990s to more than 6,000 in the 2000s.

Historically, Yorkshire Water tracked this data through a custom-built telemetry infrastructure, but in 2006, the company began to ask the question: is this sustainable? The answer, it found, was no. Within the next decade, Yorkshire Water was going to hit the limits of its current infrastructure, jeopardizing all of the company's efforts toward continuous improvement. What it needed was a more scalable technology infrastructure.

Solution

Yorkshire Water chose the OSIsoft PI System to help support its planned growth, because it allows the utility to view its assets in an integrated way, supporting continuous improvement of operations as a whole. “As our network grows, we need a lot more detail and instrumentation to support our environmental initiatives, various policy mandates and reporting requirements,” said Nick Hook, Telemetry Information Team Manager, Yorkshire Water. “The PI System provides that foundation.”

After implementing the PI System Yorkshire Water realized an Enterprise Agreement would help them realize even more benefits. The PI System acts as a central translator for a wide range of device languages and protocols while providing a highly scalable infrastructure. The Enterprise Agreement provided additional support and resources for the Yorkshire Water thus furthering the deployment of the PI System, providing Yorkshire

Water with a true, enterprise-wide, infrastructure. Yorkshire Water was able to quickly integrate its existing assets into the system—which includes nearly 60 technologies from more than 40 vendors. “We don’t have to worry about collecting data when we’re choosing providers now,” Hook says. “As long as it conforms to a standard, we can integrate it into the PI System.” Yorkshire Water employees now have instantaneous access to data whether they are in the office or in the field.

Benefits

With improved access to the data in place, the company began focusing on migrating business processes and responsibilities to capture efficiency opportunities. The PI System allowed Yorkshire Water to gather all of its information in a central location, which can be accessed by employees in the field, at regional offices or at headquarters. This increased visibility yielded some surprises, at first. “When we got it all hooked up, the business users didn’t like what they saw,” Hook recalls. “The data was not all good news.”

The initial shock, however, quickly yielded results, as the business team assigned full-time staff members to data analysis. Their work supports annual action plans aimed at addressing specific company challenges, including energy use, chemical use and water leaks.

- By using the PI System to monitor energy use across 12 sites, the company was able to identify its most energy-intensive processes system-wide. Some of those activities (such as pumping sewage) were then shifted to nighttime, when energy demand is lower and prices are cheaper. Within 12 months, Yorkshire Water saved £900,000.

- By using the PI System to monitor chemical use in real-time, Yorkshire Water was able to switch from a scheduled delivery system to ordering chemicals on demand. This eliminated £45,000 in excess chemical costs per year.
- Because of the ease with which new monitoring devices can be integrated with the PI System, Yorkshire Water was able to expand its network of flow and pressure logger devices to identify and fix water leaks. In the process, it also identified heavy-usage aspects of its operations and was able to improve their efficiency.

Because Yorkshire Water now has better visibility into what is happening across the system, it better understands dependencies between different assets and processes. Viewing the organization in an integrated way has enabled Yorkshire Water to identify problems more quickly and understand potential solutions. “It allows our users to do predictive analysis and provides content that helps them understand what the data means,” said Steven McGuin, Yorkshire Water’s OSIsoft PI System technical lead.

By providing actionable, real-time data where it is needed most, the PI System has helped Yorkshire Water achieve its goals, address broad corporate efficiency initiatives such as Operating for Excellence and prepare for sustainable growth. The result: reliable information, simplified analysis and improved reporting processes that have helped Yorkshire Water protect and improve water resources for its customers today—and tomorrow.

Business Challenge



Solution



Customer Results

- Existing telemetry system wasn’t scalable.
- Business users lacked visibility into operations.
- Increasing environmental concerns.

- The PI System expanded data collection throughout Yorkshire Water.
- Diverse systems were integrated into a single operational view.
- Business users gained broad field visibility.

- Improved ability to identify problems and implement solutions.
- £900,000 in energy savings within 12 months.
- Reduced chemical use and water losses.