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Mick Baker, Network Control Manager,
Northumbrian Water PLC.

Looking beyond energy savings at Northumbrian Water Group

In an industry famous for being conservative, Northumbrian Water Group is noteworthy for innovation. But even so, eyebrows were raised when in March 2011 Northumbrian Water announced that it would be the first water utility in the European Community to implement the Derceto Aquadapt software throughout its network – targeting energy cost savings as well as operational efficiencies and water quality improvements.

Northumbrian Water’s implementation of Derceto’s Aquadapt continues to be closely followed by water utilities across the European Union. Part of the interest is by virtue of Northumbrian Water’s size and industry profile. Among the top five water utilities in the UK, by any measure Northumbrian Water is big. It serves a population of 2.6 million in the north east of England with water and sewerage services and a further 1.8 million in the Essex, south Norfolk and north Suffolk areas. Its Kielder reservoir is the largest man made reservoir in Northern Europe. In total, Northumbrian Water has more than 25,000km of water mains, 57 water treatment works, and 338 water service reservoirs. Its size – and value – was highlighted in August 2011 with the Reuters report that ‘a consortium led by Hong Kong tycoon Li Ka-shing’s Cheung Kong Infrastructure Holdings (CKI) had agreed to take over Northumbrian Water Group in an all cash deal which values the British utility at about £2.41 billion’ – the biggest takeover of a British listed company during 2011.

In Derceto’s news release back in 2011, CEO Wayne Spittal noted that the project was

the largest carried out by Derceto to date and would result in energy cost savings for Northumbrian Water of around £1 million a year. Northumbrian Water Network Manager Dennis Dellow said the decision to purchase Aquadapt had been driven primarily by the need to control, manage and predict energy costs, but he also pointed to other operational benefits.

“For a water utility, energy is the second highest cost after labour,” Dennis Dellow said. “We are principally interested in Derceto’s Aquadapt as a way of reducing energy costs, mainly through more efficient pump scheduling. But as the product was evaluated, and Derceto analyzed the cost saving opportunities, it became clear that in addition to achieving significant energy savings, Aquadapt could also provide accurate energy modeling, and that data could be used to negotiate more favorable three-year energy supply contracts.” This indeed proved the case in 2013.

He said there would also be operational benefits from being able to support individual operators with a powerful software tool designed to enable consistent

and predictable operation.

“We have a lot of storage so we have quite a lot of flexibility in how we pump the water. But we have a highly complex system with hundreds of pumping stations and reservoirs, so it’s a big challenge to maintain supply and manage reservoirs at operational levels while at the same time prioritizing lowest cost electricity use. This is a bigger and more complex problem that cannot be managed by individual operators over such a large number of sites.”

Two years on. Has Derceto delivered?

So two years down the track, has Derceto’s Aquadapt delivered on its promises?

Northumbrian Water’s Network Control Manager, Mick Baker, says yes. But he also tempers his Aquadapt report card with pragmatic comments and observations borne out of the real world of water utility network management, rather than abstract balance sheet energy saving calculations.

“Aquadapt will work as advertised,” he says, “but be prepared to invest in your existing

“We certainly found no other product that would do what Aquadapt can do. Some vendors said they could develop a solution, but we saw Derceto’s Aquadapt as a proven and working solution, already doing what we want to do at other water utilities in North America, New Zealand and Australia.”

Northumbrian Water Network Manager Dennis Dellow.



◀ asset base to ensure optimum performance from the new system. I think the energy cost savings from Aquadapt tend to be highlighted because these savings can be quantified and at a Board level drive acceptance of the business case. Energy cost savings are a way of convincing the finance guys. But it is about a lot more than just energy optimization. The other less tangible benefits of Aquadapt – such as better water quality and more consistent operational control – are making a major impact.”

He says that Aquadapt requires pumping and control valve assets to be in good working order and that the first ‘benefit’ of the Aquadapt implementation was to identify the requirement for replacement and upgrades that otherwise might have been deferred.

“Aquadapt will quickly identify any assets that are not performing properly. We’ve seen that as a major benefit. But we’re prepared to invest in our network in the knowledge that the money spent on replacing a control valve is a necessary part of achieving longer term benefits.

“Our experience is that implementing Aquadapt is definitely not just about achieving energy savings. With 12 operators in network control, each with their own personal approach to network operation, we tended to keep our reservoirs full as much as possible. Aquadapt is proving to be a powerful enabler in ensuring consistency of operation with steadier network performance, better reservoir management and turn over, and related water quality improvement.” Mick Baker says.

“Aquadapt is processing an optimum network solution every 30 minutes as things change. Other software packages can create an operations schedule, but not in real time and not update it every 30 minutes.”

Change is a major challenge

Mick Baker says managing change is a significant part of the Aquadapt journey. “We had a big PR job to do. It’s required a significant cultural change within the business, changing the way we view and operate both our treatment plants and strategic water network. It still presents challenges at times, but some of the operators who were perhaps skeptical at the outset are now the most positive about the benefits of the system.”

The implementation has required a high degree of teamwork between Derceto’s implementation partner, Mouchel, the Northumbrian Water implementation team, and Derceto itself. Mick Baker gives both Mouchel and Derceto a high mark. “The approach made by the two teams was excellent with good communication and involvement with the client at all times. We never had any issues with the supplier/client relationship.”

Likewise the quality of Derceto’s support, despite the time difference between the UK and Derceto’s support team based in Auckland, New Zealand. “Again the support element is very good,” Mick Baker says. “The time difference between the UK and NZ has its advantages. This means we can call upon the team in the UK as we need it during our normal working hours and where on occasion an issue has been raised late in the day, it’s been sorted in Auckland overnight and the patch implemented for us at the start of the next working day.”

And the software itself. Has Aquadapt delivered on what it promised? “Yes,” says Mick Baker emphatically. “We have had minimal issues with the software and nothing that has ever given any concerns.”

About Derceto

Derceto is the leading provider of energy management software for water utilities worldwide. Our award-winning Aquadapt software integrates with existing management systems to help utilities make operating decisions that reduce energy consumption – typically one of their highest costs after personnel. Aquadapt also contributes to improved water quality and greater consistency of operations. By applying our smart water software, deep industry knowledge and an outstanding commitment to support, Derceto makes it happen – delivering energy savings of 10-20 percent, along with significant gains in operational efficiency and water quality.



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