Know more.
Do more.

**Reducing demand
with smarter metering** →

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Introduction

"We're starting to run out of water." This stark warning came from Doug Spencer during a recent webinar hosted by the Chartered Institution of Water and Environmental Management (CIWEM).

According to Spencer, head of Anglian Water's smart metering programme, the company's Water Resources Management Plan 2019 highlighted a water deficit of around 140 megalitres per day by 2045. This equates to one in ten of the utility's customers being without water in a little over two decades, unless we act now.

The threat of a future water shortage in the UK is clear. Figures released by the National Audit Office in 2020 stated that water sourced through abstraction will decline by a massive one billion litres a day over the next 25 years. So it won't just be Anglian Water customers suffering. Without prompt action, some parts of the UK – particularly the South East – will simply run out of water.

Knowing the scale of the problem is one thing. Doing something about it is quite another. Building resilience into the UK's water supply is a multi-year, multi-billion pound task that requires national collaboration, behavioural change, and major supply and demand-side investments. None of this however can be achieved without an accurate picture of daily usage. Increasingly, that's leading the water industry to introduce smart metering.

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AMI deployment at Anglian Water

For Anglian Water, that means the deployment of Advanced Metering Infrastructure (AMI), providing them with hourly readings from 'smarter' water meters.

Speaking on the CIWEM webinar, Spencer discussed the ongoing initiative to install meters in homes and businesses – with the hourly readings transmitted back to be analysed. The richness and frequency of this data gives Anglian Water an incredibly detailed insight into water usage of individual households. Anglian Water has installed over 330,000 smart meters, with more than one million planned.

"The biggest impact we have found is through customer-side leakage. The extra bonus we get is around customer satisfaction. Customers now have access to data, a smoother billing experience, and we have a better ability to deal with customers' property inquiries," said Spencer. He also pointed to a "once in a three AMP opportunity" to evaluate the location state of all Anglian Water's assets and the opening of the door to smart networks.

When it comes to leakage reduction, the impacts are considerable. Prior to its AMI trials in Norwich in 2018 and Newmarket in 2019, Anglian Water was identifying around 7,000 customer leaks per year. With the completion of these trial deployments, and the wider roll out happening at pace, Spencer's team are now able to pinpoint upwards of 65,000 customer-side leaks every year.

While this ten-fold increase in leakage detection creates some extra work, not least in terms of managing the amount of data (set to grow to 10 billion meter reads a day by the end of this AMP period), Spencer believes the longer-term benefits massively outweigh the shorter-term increase in workload.

Certainly, Anglian Water has reduced plumbing loss and internal leakage, as well as customer service pipe leakage, in Norwich and Newmarket by 85-90%.

The team has also been able to radically improve the efficiency of District Metered Area (DMA) leaks. According to Spencer, "now we have smart metering, we will spot immediately whether the DMA has a leak. More importantly, we can evidence that there is no need to waste money sending leak technicians into DMAs to find something that's not there."

By sharing water usage data with customers, Anglian Water has also been able to influence behaviours. Data from the Norwich and Newmarket trials shows around a 7% reduction in consumption.

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Thames Water – the world's biggest smart water programme

Thames Water was the UK's AMI 'first mover' in 2015. With an installed base of over 650,000 smart meters across its region, this has grown to become the world's largest AMI-based smart water network. On completion, some 1.1 million meters will be deployed.

Joining Anglian Water on the CIWEM webinar, Thames Water outlined its plans to roll out a compulsory meter programme using Arqiva's fixed communications network.

To date, smart metering has reduced household water use by 12-17%. Tucker expects this number to rise as the company 'really goes to town' on its behavioural change programme. But he's very clear that this isn't always a straightforward process. "This is almost a culture change. Some of these demand reduction targets, whether national or regional, or right down to water company resource manager plans, are reliant on households doing something better every day."

With data coming from both households and commercial premises, Thames Water has been able to identify key evidence to support this change. Continuous flow is a particular issue. At least 8% of households and around a quarter (26%) of all water delivered to businesses is shown as continuous flow. While some of that commercial consumption is from genuine round-the-clock operations, the majority isn't.

"From our water efficiency work with businesses and through extra smart meter data analysis, we see a huge chunk of water consumption is through leaky loos and uncontrolled urinals. We've got to work with the sector to try and engineer this out of existence," he says.

The frequency of the smart meter data is allowing Thames Water to identify these high-usage households and businesses. According to its analysis, around 25% of households use more than 500 litres a day. Some even up to 7000 litres a day. This insight allows Thames Water's water efficiency teams to accurately target those high users through a combination of communications, water efficiency visits and so on. This also has knock-on cost and resource savings for the utility.

"Through smart meters and analytics, we're able to target high usage better. Instead of going to absolutely everyone, including those really efficient water users where you don't get much of a saving, we're able to target households using over 500 litres per house per day. Here, you can get fantastic cost/benefit driven-demand reductions. The higher the consumption in their household, the greater the opportunity," says Tucker.

Contact Arqiva

For more on how connected, always-on smart metering, with hourly meter readings, can help transform your business – tackling leakage and reducing consumer demand – get in touch with our smart water metering specialists on:

Call: **+44 (0)333 0328000**

Email: **smartwater@arqiva.com**

Details outlined in this paper were presented in a webinar hosted by CIWEM in June 2022. Watch the full webinar here.

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