Estrategias clave para reducir eficazmente fugas de agua potable

Oportunidades de negocio e impacto para el sector de agua e infraestructura:

En este informe presentamos un artículo de Liz Bury publicado en Utility Week sobre las estrategias implementadas por tres empresas de agua que han liderado la reducción de fugas de agua potable en Inglaterra y Gales.

El regulador Ofwat estableció una meta de reducción de pérdidas de 15% para el período 2020-2025. De las 17 empresas de agua, siete de ellas fijaron objetivos más exigentes que la norma.

Thames Water y Yorkshire Water comparten el primer lugar en superar este objetivo con una reducción del Agua No Contabilizada del 25%.

A corto plazo, la estrategia más eficaz es aumentar el personal para detectar y reparar fugas. Otra estrategia apunta a que los usuarios y los trabajadores reporten fugas.

También las nuevas tecnologías juegan un rol importante, entre ellas:

* Loggers acústicos fijos y móviles que localizan fugas mediante el ruido de las fugas de agua.

* Drones que encuentran vegetación sobre el suelo donde emergen las fugas.

* Tecnología de Utilis que puede detectar fugas en el subsuelo con imágenes satelitales.

* Perros entrenados para oler el cloro del agua.

Las empresas de agua también deberán realizar inversiones de capital para reemplazar o renovar redes antiguas.

Northumbrian Water Group ha implementado zonas con macromedición y un sistema de información con flujos mínimos nocturnos por cada zona medida, así como la adquisición de loggers acústicos, drones y servicios de imágenes satelitales para prelocalizar fugas.

En cambio, Portsmouth Water optó por invertir en investigación y desarrollo para suavizar el comportamiento de la red y prevenir roturas, mientras que Thames Water asignará recursos para un amplio programa de smart metering.

Strategies for tackling leakage

In this excerpt from a Utility Week premium leakage report, we look at what three companies are doing to tackle leakage.

Regulator Ofwat has set a minimum leakage reduction target of 15 per cent for water companies during the next asset management period, AMP7. Yet of the 17 company draft determinations published, seven set themselves tougher targets than this.

Thames Water and Yorkshire Water share the steepest reduction goals at 25 per cent apiece for the five-year period, which ends on 31 March 2025.

These are tough targets for all companies and the race is on to drive down leakage as low as possible by the end of the current AMP6 cycle, on 31 March 2020.

Water companies are pedalling hard in the short term to hit their 2019/20 targets and keeping a watchful eye on the longer-term business plan.

The most effective short-term strategy is to increase manpower to find and fix leaks. Another is asking staff and customers to report leaks.

Beyond these, new detection technologies have a role to play:

• Mobile and fixed acoustic loggers can pinpoint leaks by measuring noise of water escaping.

• Drones can help find vegetation above ground where leaks occur.

• Some companies have bought data from satellite imaging technologists Utilis that can detect leaks underground.

• Dogs trained to sniff out chlorine have proven reliable, if unscalable, leak detectors.

But longer term, and if the industry is to meet its average 17 per cent leakage reduction target for 2020-25, companies will need to develop their systems capabilities.

For certain utilities, such as Thames Water, about a third of whose network is more than 120 years old, it will also require capital investment. Its plans to replace old mains have been coldly received by a regulator that would prefer to keep customer bills down. "We need to increase investment in replacing old assets. And customers want us to. We are working with the regulator to help support that," says Tim McMahon, head of networks at Thames Water.

Northumbrian Water Group: data analysis and innovation

Northumbrian Water Group comprises Northumbrian Water in the North East and Essex & Suffolk Water in the South East; utilities with diametrically opposite challenges on leakage.

Essex & Suffolk serves one of the UK's most water-stressed regions and suffers leaks during summer. Northumbrian gets more leaks during harsh northeasterly winters. Leakage was a low priority in Northumbria historically because water was plentiful and the group therefore has higher leakage levels in the north.

An early adopter of metering, it manages district metered areas through a system providing information on minimum night flows for each district meter area (DMA). This was sufficient until the freeze-thaw after February 2018, which led to high levels of leakage going into 2018/19 and was followed by one of the driest summers for almost 100 years.

"We had to do things dramatically differently," says Martin Lunn, head of technical strategy and support.

To become more innovative in find-and-fix, it added manpower, invested in static acoustic loggers and mobile loggers, and set up reporting portals.

In some areas of Essex & Suffolk noise loggers were less effective. It used drones to identify vegetation where leaks occur and satellite imagery to detect patches of drinking water underground.

Northumbrian also hosts Innovation Festivals. The third involved a "hackathon" with coders given access to the group's leakage data. They developed a program highlighting areas of a DMA most likely to develop leaks.

Portsmouth Water: greater resource and smart tech

Portsmouth Water is the UK's smallest utility by population served and operates among the shortest networks at 10,000km.

The utility hit problems in the big thaw of February 2018, recording leakage of 36Ml/d, significantly above its Ofwat target for the year ending 31 March 2018.

This led it to question if it would reach AMP6 targets by the end of March 2020, so it injected significant new resource, including doubling spend on leak detection and repair. It's on course for leakage of 30Ml/day in the current year ending 31 March 2020. This would bring it in line with its AMP6 target and 18 per cent below the 2017/18 peak.

The first move was to double its leak detection and repair operatives. Fixed acoustic loggers were also strategically installed and personnel deployed using mobile loggers.

A big challenge is half its network is made of plastic, which acoustic technology functions poorly with, so it is investing in R&D.

Its next step-change will be to develop its network models to function as live tools. "The model won't serve to pinpoint a leak down to 'dig a hole here', but it will tell you to go and look," says Jim Barker, head of leakage and smart networks. The company aims to score an additional win by calming the network to prevent bursts.

Portsmouth's leakage reduction activity also supports its increasing function as a bulk seller to neighbouring utilities in water-stressed areas.

Thames Water: smart metering and systems thinking

Thames Water owns arguably the most challenging network in the country for reducing leakage.

The utility's leaks hit 690Ml/day in 2018/19, busting its yearly Ofwat target by 12.7 per cent. It has significantly stepped up efforts to meet its 606Ml/day target this year. If achieved, it will equal a 12.2 per cent decrease on last year's actual leakage.

This year's performance is doubly critical because it stands to influence Thames's success in the next AMP cycle too. Ofwat has set a target of 25 per cent leakage reduction for Thames for the upcoming AMP7 (2020-25). The challenge is vast. Its network covers 32,000km of pipework and is the industry's oldest.

The bigger wins for Thames are likely to be at a systems level. It is aiming to integrate siloed management systems to provide a single view of network leakage. And it will begin what it believes is the world's largest smart metering programme.

"Getting meters into properties is key because it will really allow us to understand where the leakage is, so that we can target investment better and so that we can find and fix better with an operational response," says head of networks Tim McMahon.

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