THE UK'S CAPABILITY FOR MANAGING LEAKAGE: POLICY GOALS AND TECHNOLOGICAL INNOVATIONS

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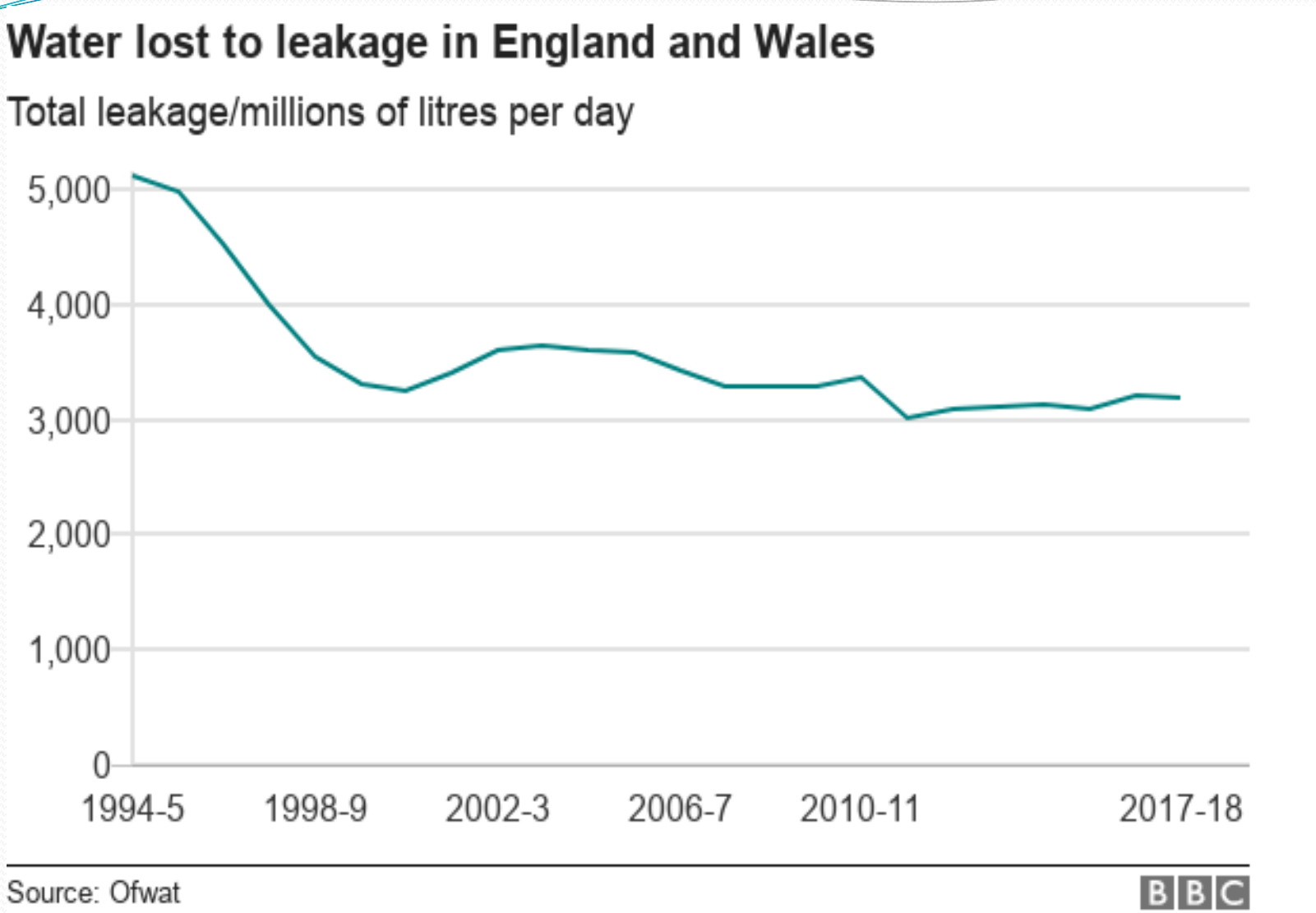
How Is the UK Water Industry Addressing Its Leakage Targets?

Can We Ever Achieve Zero Leakage?

The Situation Now: 3,170 Ml/day total leakage



Poor Performers

Nine of the 20 water companies in England and Wales missed their leakage targets in 2017-18.

Thames Water was the worst offender.

The company was fined £120m by the regulator for ‘failing to manage leaks adequately’.

Thames Water CEO forced to resign in May 2019.

Commitments

Ambitious leakage reduction targets for the next Asset Management Plan (AMP) period.

All companies propose at least a 15% reduction in leakage.

Some companies propose reductions of up to 25% during the period 2020-25.

Operational responses – and some infrastructure investment responses – are needed to meet the challenge.

Meeting Targets

***Innovation is seen as key in meeting targets**:*

Innovative ways of finding, fixing and reducing leakage and increased focus on next generation leakage management tools:

- Sensors (total network coverage)
- Data Communication and Analysis Systems
  ('Big Data' handling, NB IoT, AI, Machine Learning)
- Advanced Leak Detection Technologies
- Economic Repair

Steps in a Leakage Reduction Strategy

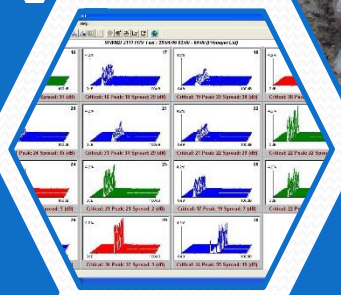
Accurately quantify leakage

Smart network

Leaks are located as fast as possible

Quick Repairs

Create Calm Networks



Eliminate Background Losses

New networks are leak free

Source: Bristol Water

Challenges

Ageing Network, low replacement policy (0.2% per year)

Ageing Workforce, loss of skills and expertise

Low level of interest from young engineers

Climate - adverse and contrasting weather
(winter freeze/thaw followed by hot summer)

Maintaining customer satisfaction and sufficient supplies

Effect of Covid-19 pandemic on future demand patterns

Drivers

Robust regulators (Ofwat, Environment Agency)

Stringent targets and incentives
(price restrictions, fines)

Media attention and public relations

Maintaining shareholder dividends

Political pressure (high salaries, re-nationalisation)

The Steps Towards Zero Leakage

Prevention

All new pipework is leak-free when laid and remains so throughout its economic life

Location

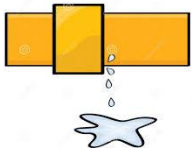
We can confidently quantify leakage and demonstrate when it is zero

How do we achieve zero leakage in a sustainable way by 2050?

Awareness

New leaks on existing network are minimised

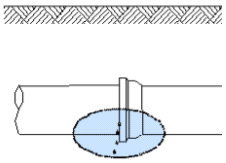
All new leaks are found quickly after they break out



Repair

Repairs are quick, economic with minimum disruption

Background leakage is eliminated



Progress in 2020

Leakage has reduced by 7% - to the lowest level since records began in the mid-1990s.

Customer use has fallen slightly, from 143 litres to 142 litres per day (‘Covid effect’).

The overall volume of water being leaked has fallen by 216 Ml/day to 2,954 Ml/day.

Some Highlights

Affinity Water achieved a 15% reduction in leakage through using state of the art technology, data capture and analysis.

Anglian Water are using thermal imaging drones to detect leaks to find and pinpoint leaks.

SES Water has partnered with Vodafone to create an intelligent water-distribution network to help them detect and fix leaks.

Northumbrian Water are using satellite technology to help detect leaks in their Suffolk and Essex region.

Yorkshire Water are piloting the UK's largest smart water network.

United Utilities are using sniffer dogs to detect leaks by smell in rural transmission mains.

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