xylem
Let's Solve Water

Fighting water loss: Best practices in action

Contents

Every drop counts

By Géraud de Saint-Exupéry

In Europe, 25% of all distributed water is lost due to issues such as leaks, bursts, poor pressure management or unauthorised connections. Non-revenue water (NRW) is a problem that weighs heavy on utilities' shoulders. NRW not only results in wasted water but also represents a loss of hard work, resources and expertise involved in distributing water safely from the source to the final consumer.

Every step of the clean water cycle requires energy, too. Intake, purification, distribution, metering and billing all need electricity to be completed. And when water is lost due to poor infrastructure, the energy used to produce and distribute it is squandered.

This is why the problem with NRW goes beyond wasting water. The water industry is responsible for 8% of all EU's greenhouse gas (GHG) emissions. But the high amount of water loss in our distribution system means that a significant percentage of those emissions are released in vain. With the 2050 net zero goal approaching, this is no longer acceptable.

While we understand that it's not possible to eliminate water loss completely, we're on utilities' side to collaborate towards a greener tomorrow. Tackling NRW can help utilities operate more sustainably and reach their carbon reduction targets. Moreover, it can lead to significant savings that can be reinvested to upgrade existing infrastructure, further reducing instances of leaks and bursts and kickstarting a virtuous circle of continuous optimisation.

To help utilities achieve this, Xylem has released its innovative Watertight Calculator. This is an interactive tool that helps utilities calculate the amount of energy and carbon emissions they're losing to NRW, and assess the positive impact that sustainable water solutions could have.

This guide is another contribution from our team of experienced water experts to help utilities move towards a "watertight" future. By highlighting the biggest challenges related to NRW and offering tangible, effective solutions, our experts share their precious know-how to raise awareness of what can be done to achieve a more sustainable and equitable water distribution system.

Géraud de Saint-Exupéry,
Europe Commercial Leader

Our biggest challenge: operating sustainably

By Alexis de Kerchove

Regulatory pressures and consumer expectations are pushing utilities to pay increasing attention to the sustainability of their operations. For example, the EU Green Deal is dictating sustainability obligations that directly impact utilities, such as:

Monitoring and reducing water losses, which is mandated by the revised Drinking Water Directive for all utilities;

Annually reducing energy consumption by 1.9%, as mandated by the Revised Energy Efficiency Directive.

New measure will also be introduced soon. For example, starting from 2026, the Corporate Sustainability Report Directive requires companies with over 250 employees and €20 million in their balance sheet to report on their impact on climate change and water resources.

What are the goals of the revised Drinking Water Directive?

Under the revised Drinking Water Directive, Member States must assess water leakage levels and potential improvements using the Infrastructure Leakage Index (ILI) method, or similar. This assessment considers public health, environmental, technical, and economic factors, and applies to water suppliers serving at least 10,000 m3 per day or 50,000 people. Results must be submitted to the Commission by January 12, 2026. By January 12, 2028, the Commission will set a leakage threshold, based on ILI or similar, requiring action plans from Member States that are surpassing it.

In this context, it becomes crucial for utilities to accurately measure and monitor greenhouse gas (GHG) emissions, energy consumption and water utilisation and consumption across their whole infrastructures. This data is important to set a baseline from which realistic targets can be developed.

GHG emissions related to the production and distribution of drinking water are driven by indirect operations – from using electricity, to the purchase of service and goods to third parties for the maintenance and repair of ageing infrastructures.

Emissions generated by the use of electricity are highly dependent on the geographical area and its dependence on fossil fuels, as well as how efficiently utilities produce and distribute drinking water.

Emissions generated by contracted suppliers are mainly driven by work needed to build or repair the distribution network – such as excavation and laying down new pipes. That is why, to reduce this type of emissions, it's critical that utilities accurately prioritise the sections of the network that need repairs, localising water leakage to avoid the need to dig dry holes and excavate ground in vain.

Unfortunately, Western Europe's ageing infrastructure is exacerbating the environmental impact of repair services – so much so that emissions from water distribution are three times higher than those from water production.

As the environmental regulatory landscape changes, forcing utilities to pay more and more attention to their GHG emissions, investing in technologies for leak detection and repair will be a necessity. Luckily, there are several solutions that help reduce real and apparent water losses[1], as well as water consumption – and therefore GHG emissions.

Assets

Smart water meters are bringing tremendous benefits in reducing apparent water losses, which strongly contribute to NRW. Installing these meters at all water usage points enhances the accuracy of measuring volumetric water consumption and improves data collection. This enables real-time monitoring of water usage rates, empowering water suppliers to identify abnormal consumption, detect downstream water losses, and encourage consumers to reduce water usage.

In addition, **high-efficiency pumping systems** combine intelligent features such as frequency-controlled pumps with high motor efficiency (IE5). This enhances energy efficiency compared to traditional pumps with less efficient motors. Soft start features prevent pressure surges in the network, reducing the risk of pipe degradation and leaks.

Furthermore, monitoring asset temperature, noise, and vibration provides valuable insights into asset health, facilitating preventive maintenance and minimising energy loss. Due to the large number of pumps involved, even minor efficiency enhancements across distribution networks can result in significant energy savings and reduced GHG for water suppliers.

Sub-network

District metered areas (DMAs) enable the exact localisation of water losses across commercial and residential distribution networks. The complexity and urban location of sub-networks makes it important to effectively locate water losses and minimise disruption and unnecessary civil work.

Network

Condition assessment on transmission main and distribution networks gathers critical information on structural weaknesses and leakages in an ageing infrastructure. Utilities can then prioritise annual pipe replacement work in sections where it's most needed. This helps avoid unnecessary civil work, reduces the instances of burst pipes, and positively impacts GHG emissions.

Digital twinning and **real-time decision support systems**, on the other hand, enable a holistic management of the distribution network. This helps generate forecasts on water and energy use in distribution, production, resource management, the localisation of water losses, and maintenance. These forecasts provide relevant information to both residential and commercial users, enabling them to reduce water consumption and prevent system disruption, which are both large sources of GHG emissions.

As Water Utility GHG emissions are mostly driven by indirect operation emissions. The challenge for these operators is managing an ageing infrastructure that generates either poor electricity efficiencies or water losses across the transmission and distribution network. The primary reduction of emissions is then entirely based on pressure optimisation, and the most accurate localisation of water losses across both water transmission and distribution network.

By investing in smart water management technologies at an assets, sub-network and network level, utilities can make great progress in cutting unnecessary costs, operating more efficiently, reducing water utilisation by eliminating water losses and cutting down excessive water consumption, their GHG emissions, and increasing their regulatory compliance.

Alexis de Kerchove,
Europe Client
Sustainability Leader

[1] Real water losses are physical losses (leaks) caused by infrastructural issues – such as ageing pipes. Apparent losses are caused by incorrect meter readings, water theft or billing errors.

Leak identification, location and management

Identifying water leaks and assessing how critical they are based on size and location is often the biggest challenge when working to reduce NRW. The complexity of the water distribution system means it's often hard to detect smaller leaks, especially when there aren't sophisticated systems in place to collect data for network monitoring.

Many utilities have traditionally relied on methods such as visual inspection and manual monitoring.

However, the complexity of today's infrastructure – coupled with increased scrutiny from consumers, regulators and stakeholders – means that more advanced methods must be used. Here, our experts share their insights on the most promising technologies.

Leveraging data for optimal network management

By Victor Philippon

Handling "data deluge"

Tackling NRW requires a holistic approach. In today's complex water management world, it's no longer enough to spot leaks and fix them as they appear. To maximise efficiency and reduce costs, utilities need to effectively monitor their network, prioritise actions, and optimise their investment for best results. In a challenge this big, utilities have a great ally: data.

Utilities have become aware of the importance of gathering and storing data, and are beginning to do this at scale. However, one of the biggest challenges they are facing is that the amount of data they collect is so big, that much of it remains unprocessed due to lack of time and resources.

Gathered data is a source of treasure, full of valuable information. But without the means to process it, it's impossible to support decision-making and prioritise the most impactful interventions.

There are a number of questions our clients deal with daily:

- How can we prioritise action when several leak detection alarms send us warnings?
- Which area of our network should we focus on for pipe renewal?
- How can we best optimise our NRW reduction budget?

Luckily, all these questions can be answered with a holistic network monitoring approach based on cross-data analysis. Unfortunately, this represents a massive challenge, because data is often scattered across a myriad of systems (GIS, CMMS, SCADA, metering, CRM and more)[2] and collected in many formats.

That is why operators need reliable decision-making solutions. Data generated each day by sensors is raw, and can be incomplete or incorrect. Moreover, the sheer amount of it makes manual data validation impossible. As such, there is a strong need for data validation support to build trustworthy indications and recommendations.

Victor Philippon,
Process Engineer

[2] Geographical information systems (GIS) provide geospatial information on the water supply network.
Computerised maintenance management systems (CMMS) help utilities automate maintenance-related activities, such as by sending warnings or scheduling activities at regular times.
Supervisory control and data acquisition (SCADA) systems can gather and analyse data in real-time.
Customer relationship management (CRM) software helps improve the customer experience and enhances engagement with utilities' services.

Implementing a holistic solution

Implementing a data validation layer can help operators go from reactive to proactive, prioritising interventions correctly and basing their decisions on sound, reliable data. To do that, they need analytics tools that help them process huge amounts of data from a variety of sources and systems.

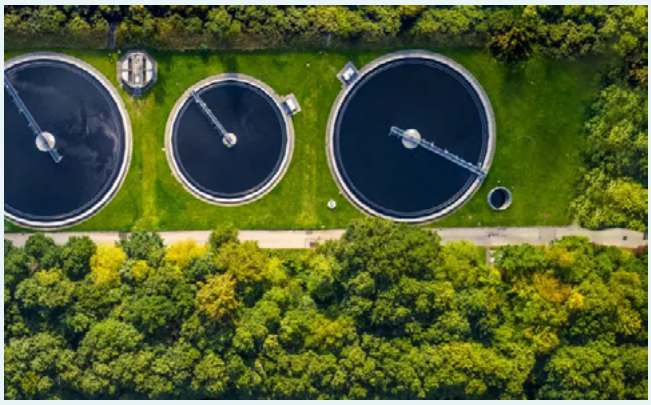
This is the goal of Xylem Vue Powered by GoAigua, an integrated software and analytics platform that allows operators to tackle NRW with a holistic approach, following best practices by the International Water Association (IWA).

Xylem Vue powered by GoAigua features several modules that can help detect leaks and prioritise actions:

- The **Leak Detection module** helps spot leaks by monitoring district metering areas (DMAs) and using acoustic sensors.
- The **Unified Network Management and Real-Time What-If Scenario** modules can help optimise network pressure to decrease leakage volume, prevent pipe ageing, and avoid water hammer.
- The **Work Orders** module helps optimize the speed and quality of necessary repairs.
- The **Pipe Planner** module manages pipe and asset condition monitoring.
- The **Meter Data Analytics** and **Meter Asset Management** modules manage metering and related issues.

Xylem Vue powered by GoAigua's **vendor agnostic nature** enables it to connect to any system, from any data data provider – which is crucial for holistic

xylem vue powered by go-aigua



cross-data analysis. It is **scalable** enough to allow operators to handle large volumes of data without lagging, and its sophisticated data validation algorithms ensure that recommendations are based on **reliable** data.

Crucially, Xylem Vue powered by GoAigua has modules to tackle all aspects of NRW, supporting a holistic and modular approach. Plus, its personalised dashboard allows users to have an overview of the most important information from all modules. Its certified architecture ensures **secure** operations, which is essential for the sensitive water utilities sector, and its **ergonomic** and **user-friendly** design improves the daily user experience.

By implementing a holistic analytics solution like Xylem Vue powered by GoAigua, utilities will be able to leverage the data they gather to optimise their operations, improve sustainability and cut costs.

How Yorkshire Water reduced leaks by 57%

In 2019, the UK's Water Services Regulation Authority (Ofwat) challenged utilities to find innovative ways to serve customers more efficiently and sustainably. Yorkshire Water embraced the challenge and selected Sheffield as a trial city for the biggest smart water pilot programme in the UK.

Yorkshire Water collaborated with 15 companies in the digital water space, including Xylem and Idrica, to transform Sheffield into the UK's first smart water city. 6,000 sensors were installed, including smart meters and flows, and Xylem Vue powered by GoAigua was installed to security integrated and standardise data, regardless of its source.

As a result of the transformation programme, Yorkshire Water has reduced visible leaks by 57% while requiring 30% less distribution main repairs on an annual basis.

A helping hand from metrology

By David Nicklin

Detecting leaks with smart meters

Reducing water loss in supply networks is one of utilities' biggest challenges. This includes losses both in the water distribution network – which can be lost during the water treatment process, up to the meter, and in the pipes to the customer's property – as well as on a customer's premises.

Water meter metrology, particularly the use of smart meters, has emerged as a promising solution to this problem. Water meters can help detect water loss by measuring the volume of water that flows through them. By measuring the water during the night or, more correctly, the early hours of the morning (known in the industry as "night flow") it is possible to identify flow that is not expected — which is usually caused by leaks.

Utility companies use large commercial and industrial (C&I) meters – known as "bulk meters" – to measure the flow in a particular zone or District Metering Area. By measuring the flow into an area and the sum of all meter readings of customers in that area, it's possible to calculate the difference between them – which is the water that's been "lost."

The most important indicator of a problem is a change in usage profile. This is why it is important the data is analysed by a tool such as **Xylem Vue Powered by GoAigua**. In itself, a meter can provide data and basic alarms to indicate a problem. However, as explained in the previous section, having an analytics tool to sift through the meter readings over time will help utilities spot low-level, persistent leaks.

How to choose a smart meter

A good meter for leakage detection should have the following characteristics:

- **Low flow rate detection:** The meter can detect very small amounts of water going through it, revealing even small leaks. This is important, because small leaks can quickly escalate from a point where it's uneconomic to try and find and fix, to a point where they must be fixed immediately as the amount of NRW has become too large. Where that point is, is often dependent on where the leak is located.
- **Effective Burst and Leakage Alarms:** Water meters can be set with thresholds that trigger alarms that indicate a downstream pipe burst (faster flow of water than normal) or upstream problem (no flow of water through the meter).
- **Accuracy and consistency over time:** It is important that the water meter does not degrade in performance over time. This leads to a mismeasurement that usually underreports actual use. Modern meters are much more accurate over their typical 10-15 year lifespan, compared with older versions.
- **Good communication:** Ideally, meters should communicate via always-connected advanced metering infrastructure (AMI) technology to help detect changes early. Reading meters every month or so can reduce water loss, but substantial leaks can still occur before they are corrected. It is much more effective to have water meters report in near real-time via an AMI network solution, to detect a problem and rectify it as soon as possible.

- **Changes in use monitoring:** Water meter data may detect a sudden change in usage pattern. This can indicate, among other things, that water theft is occurring – for example, by tapping the water distribution pipe ahead of the meter or running a bypass pipe across the meter. It's possible to see the resulting reduction in water measured, but with no reduction in the flow of water going into the area monitored by the water companies' own meters.

By choosing smart meters with these characteristics and pairing them with an analytics solution such as Xylem Vue Powered by GoAigua, utilities can have better visibility of the origin, size and causes of water losses – and prioritise action accordingly.

David Nicklin,
Head of Technical Marketing

Did you know?

In the UK, Anglian Water and Thames Water have been making strides in reducing water loss using smart meters.

According to Ofwat, the UK's water services regulation authority, **Anglian Water has reduced leaks by 6.1%** based on a three-year average from the 2019/20 baseline.[3]

Thames Water has **reduced leakage by 10.7%** in the same period.[4]

How EPAL reduced Lisbon's water loss by 1.7 million m³/year

EPAL is the oldest and largest water company in Portugal. Over the last 15 years, EPAL has successfully deployed a network monitoring project to reduce Lisbon's water losses.

The mainstay has been the implementation of more than 160 District Metered Areas (DMAs), along with associated flow and pressure monitoring equipment and telemetry systems, undertaken in tandem with EPAL's ongoing renewal and rehabilitation program.

The DMA project has been a huge success. Between 2005 and 2014, EPAL reduced its real water losses from 23% to 8%. This corresponds to a reduction in water loss from nearly 27 million m³/year to just over 8 million m³/year.

3 https://www.ofwat.gov.uk/ofwat-reveals-progress-on-water-industry-leakage-performance/
4 https://www.thameswater.co.uk/about-us/performance/leakage-performance

The business case for Advanced Metering Infrastructure (AMI)

By Berry Drijsen

Water utilities face significant challenges in managing water distribution efficiently – reducing costs, minimising water loss, and ensuring the delivery of safely managed drinking water to end-consumers. There is a pressing need for solutions that offer long-term value and that contribute to energy efficiency and sustainability goals.

Advanced Metering Infrastructure (AMI) offers a proven and viable solution. AMI systems collect data from customers' premises through smart meters and send them to utilities at regular intervals. In this way, they enable real-time data collection, improved water management, proactive system maintenance, and leak detection, leading to significant operational efficiencies.

AMI offers several benefits, such as:

- **Long-term value:** Despite the initial investment needed, AMI systems deliver substantial returns through operational efficiencies and water savings. For example, AMI-connected smart meters provide round-the-clock readings and alert both operators and end-customers to anomalies that indicate possible leaks. Real-time data access allows users to monitor changes in water usage and quickly respond to potential leaks, saving water and preventing property damage.

  Newer AMI wireless technologies and business models, such as Network as a Service (NaaS), have helped drive down up-front CAPEX costs and simplified ongoing OPEX costs. This ensures the AMI network works seamlessly over the smart water meters' 15-20 year operational life.

Anglian Water stated that their AMI programme has saved customers approximately **£15 million** off annual water bills in one year, an average of **£251.97 per customer.**

- **Reduced energy consumption:** Real-time data allows for better water management, leading to significant reductions in energy usage associated with water treatment and distribution. In many areas where droughts have raised water awareness, AMI meters empower operators and customers to track their water usage more closely and adjust their consumption.

  Many regulators across Europe have consumption goals measured in "litres per person per day (lpppd). This can range across Europe from over 200 lpppd to under 100 lpppd, with variations across countries and cultures. The goal is to get closer to an average of 100 lpppd to reduce the overall energy needed to treat and distribute water. In this way, we can water efficiently and sustainably for both business and personal use.

Thames Water states their AMI-connected Xylem water meters "reduce average water use in the home by 13%."

- **Improved customer loyalty:** Many environmentally-conscious customers self-impose water conservation standards. AMI networked meters allow them to set personal budgets and conservation goals with hourly/daily readings. Customers can experiment with different actions (e.g., adjusting irrigation schedules) to see the results. Greater tiered usage pricing may become an option in some regions, especially under drought conditions. For those striving to stay within specific rate tiers, AMI-connected meters provide valuable and up-to-the-minute insights.
- **Improved network operations and efficiency:** AMI-connected meters streamline billing processes by collecting frequent and accurate data. Utilities can improve billing accuracy, reduce

the staff time needed for readings, and enable more frequent billing options where required.

They can also use AMI-connected meters to help analyse areas District Meter Areas (DMAs), which use bulk meters to measure inflowing water. Accurate and time-stamped consumption data from residential and commercial & industrial (I&C) meters within a DMA can then be cross-checked against data from the district meters, to provide accurate calculations of NRW.

Combining AMI-connected DMA meters with analytics tools like Xylem Vue Powered by GoAigua simplifies measurement and reporting. This streamlines the job of network operators by enabling NRW detection to be carried out on an ongoing basis – increasing visibility into network performance and efficiency.

AMI networked smart water meters address a utilities' primary challenge of ensuring operational efficiency, and safeguard the consistent quality and delivery of water to their customers – efficiently and sustainably.

Implementing AMI at scale can result in considerable savings over time, making it a prudent investment for water utilities. Moreover, the environmental benefits of AMI, particularly in terms of reduced energy consumption and CO2 emissions, further strengthen the business case for its adoption.

Berry Drijsen,
Senior Director Vertical Marketing EU

How AMI helped the municipality of Vrilissia reduce water loss by 80,000 m³/year

Vrilissia is a municipality of Athens located northeast of the Greek capital. Its municipal water supply network spans 85 km, with over 16,000 customer connections.

The municipality was facing significant water losses due to outdated infrastructure and degraded mechanical meters. These required manual readings which could lead to errors and incorrect billing. To address these issues, half of the existing mechanical water meters (8,000 out of 16,000) were replaced with Sensus iPERL Smart Static Water Meters, establishing an AMI network to enable near real-time meter readings and alarm collection.

This led to a 15% improvement in the NRW performance indicator between 2020 and 2022 – which translated to an annual increase of 80,000 m³ of revenue water.

The time required to collect water readings was also reduced from 20 days to just one day.

Finally, alarm collections is enabling the utility to reduce network losses, inform clients of potential losses in their residential network, and detect cases of water theft.

Tackling high-impact leaks with inline leak detection

By Eric Toffin

Leaks on large-diameter pipelines have a big impact on water loss volumes. Even small leaks on these large pipes add up because they often go undetected for a long time, resulting in costly pipe failures.

Addressing leaks on critical transmission mains can prevent catastrophic failures and result in significant water savings – creating a high return on investment for utilities. However, traditional correlator based leak detection methods are less reliable on large-diameter pipes.

Luckily, utilities can locate high-impact leaks on large-diameter pipes without shutting down critical pipelines – thanks to inline leak detection. This involves deploying an extremely sensitive acoustic sensor, either tethered or free-swimming, to traverse the active pipeline to detect leaks. The sensor can detect pinhole-sized leaks and, since it's much closer to the source of the leak than in traditional methods, can do so with greater accuracy.

As such, this method is a valuable part of a condition assessment program, which can help utilities safely and affordably manage their infrastructure.

The benefits of inline leak detection

Inline leak detection allows utilities to prevent costly and ineffective guesswork. By knowing a leak's exact size and location, utilities can improve the efficiency of repairs, reduce shutdown times and limit excavation – avoiding unnecessary costs and disruption.

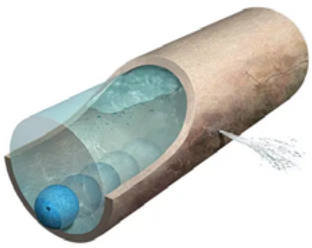
But operators don't need to wait for a leak to happen. Inline inspection can also be used as a method to gain valuable insights on pipe conditions, pinpointing problem areas that decision-makers can address proactively. For example, this method can be used to identify gas pockets that impact flow and lead to pipe wall corrosion in wastewater pipelines, or to map the pipeline network and confirm the location of buried assets.

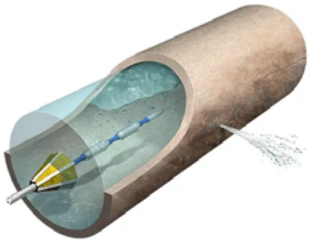
Our proven experience in inline leak detection

Pure Technologies, a Xylem brand, excels at detecting and locating hard-to-find leaks on critical pipelines. Our industry-leading inline leak detection tools can find even pinhole-sized leaks on large-diameter mains.

Our experienced team has completed thousands of successful leak inspections for utilities around the world. We have inspected more than 25,580 kilometers (16,895 miles) of pipeline and found over 10,000 leaks, saving millions of liters of water. For a comprehensive assessment of pipeline health, we combine leak detection with structural pipe wall inspection and advanced analysis. In this way we can help utilities make the best possible long-term pipeline management decisions.

Eric Toffin,
Global Product Manager,
Metallic Pipeline Solutions





Pure Technologies' SmartBall

The **free-swimming** SmartBall platform detects leaks and gas pockets and maps pipeline networks. The platform is easy to deploy and excels at long-distance transmission main inspections, travelling with the flow in the pipeline. Technicians actively track the tool throughout the inspection for the most accurate data analysis.

Pure Technologies' Sahara

The **tethered** Sahara platform is ideal for complex water pipeline networks. The platform pinpoints leaks and air pockets, collects live video, and maps pipelines in a single deployment. With close control of the tool, operators can locate anomalies with high precision and mark their location above-ground in real time.

How Eau de Paris detected leaks on a critical pipeline without disrupting service

Eau de Paris, the public water utility in Paris, France, needed to inspect a critical drinking water pipeline without disrupting service. The Voulzie pipeline is a 39 kilometers (24 miles), cast -iron pipeline built in 1924, with a diameter of 1.25 metres.

Using the SmartBall platform, the pipeline was inspected in three stages and the data collected was compiled into a report identifying and qualifying the nature of each leak, with results presented in a GIS format.

Thanks to this report, Eau de Paris was able to prioritise pipeline repairs and start fixing the leaks, twelve of them within 24 hours of the inspection.

Managing pressure to minimise energy use in water systems

By Johann Kneissl

High energy prices, combined with the need to accelerate the transition to net zero, mean that it's increasingly important to find ways to minimise energy use in water systems, without compromising the quality and reliability of water supply.

One of the key factors that affects energy use in water systems is pressure, which is the force that drives water through pipes, pumps, valves, and other components of a water system.

Pressure can be influenced by many factors, such as demand, flow rate, pipe diameter, pipe length, pipe material, elevation, friction, and leakage. Managing pressure effectively can help reduce energy use in water systems by:

- **Reducing pumping costs:** Lowering network pressure can reduce the energy required to pump water from the source to the destination. This can also extend the lifespan of pumps and reduce maintenance costs. Especially in the night, required pressure is lower due to lower demand, so reducing pressure in the network reduces power consumption and risk of leakages
- **Reducing leakage:** High pressure can cause pipes to crack or burst, resulting in water loss and wasted energy. Lowering pressure can reduce leakage rates, and save water and energy. Additional use of variable speed drives is reducing water hammer in the pipework to prevent burst of pipes.
- **Reducing consumption:** High pressure can increase water consumption by users, especially in residential and commercial sectors. Lowering pressure can reduce water consumption and demand, which can also save energy.

To manage pressure effectively, it's essential to have accurate and reliable data on the pressure levels and variations in different parts of a water system. This can be achieved by using advanced metering, or pressure sensors, alongside communication technologies that can monitor and transmit pressure data in real time.

There are several solutions that can be used together to control pressure effectively and help utilities save energy and consequently reduce their carbon emissions. These include:

- **Static volumetric meters** to measure water volume and pressure accurately and reliably, and detect fraud and unusual usage patterns.
- **Highly controllable pumping solutions**, such as Xylem Hydrovar X, which ensures the best energy efficiency performance, with its combination of frequency converter and innovative synchronous motor.
- **Effective communication systems**, wired or wireless, which connect meters, sensors and pumps to a network for reliable and accurate performance data collection – alongside optimal control of pumping assets across the water network.
- **A management and analytics software** that collects, analyses, and displays data. This provides information on pressure across the network, and offers recommendations and options to operators on maintaining optimal pressure management.

Xylem's pressure management solutions

As a leading water solutions provider, Xylem offers innovative solutions for pressure management, including advanced variable speed drive pumps

and control software. Using Xylem's products, software and services, water system operators can:

- Identify optimal pressure levels for different zones and times of the day
- Adjust pressure settings remotely according to demand and flow variations
- Detect and locate leaks and fix them promptly
- Monitor and evaluate the performance and efficiency of pumps and other components

These interventions can allow utilities to reduce energy use and costs by up to 30%.

Managing pressure effectively can help minimise energy use by reducing pumping costs, leakage, and consumption. To achieve this, it's important to have accurate and reliable data on pressure levels and variations in different parts of a water system. Xylem's products, software and services can provide this data and help operators to manage water pressure more effectively.

Johann Kneissl,
BDM Xylem Central & Nordics – Buildings & Industry Product Group

Did you know?

Water loss from a single circular hole with 6mm diameter in a distribution pipe, at 60 m pressure amount to 1.8 m^3/hour or 1,300 m^3/month. This is enough to fill up an Olympic pool in less than two months.

Discover hydrovar® X

Do you need to improve the performance and efficiency of your pumping application, with a simple, connected and sustainable solution? Lowara has launched hydrovar® X, a fully integrated variable speed solution (IES2) with assisted reluctance IE5 motor, built-in intelligence and communication.

Features include:

- Ultra premium efficiency IE5 motor (from 3 to 22 kW)
- Graphical colour display
- Multipump capability with no single failure point
- Remote control and management

Find out more

Conclusion

With consumers, regulatory bodies and stakeholders putting pressure on utilities to improve efficiency and cut waste, the impact of NRW on the net zero transition can no longer be ignored.

Efficient data gathering and processing, state-of-the-art metrology, AMI and inline leak detection solutions can help utilities detect leaks quickly and precisely, while techniques such as pressure management can both prevent and help manage water loss.

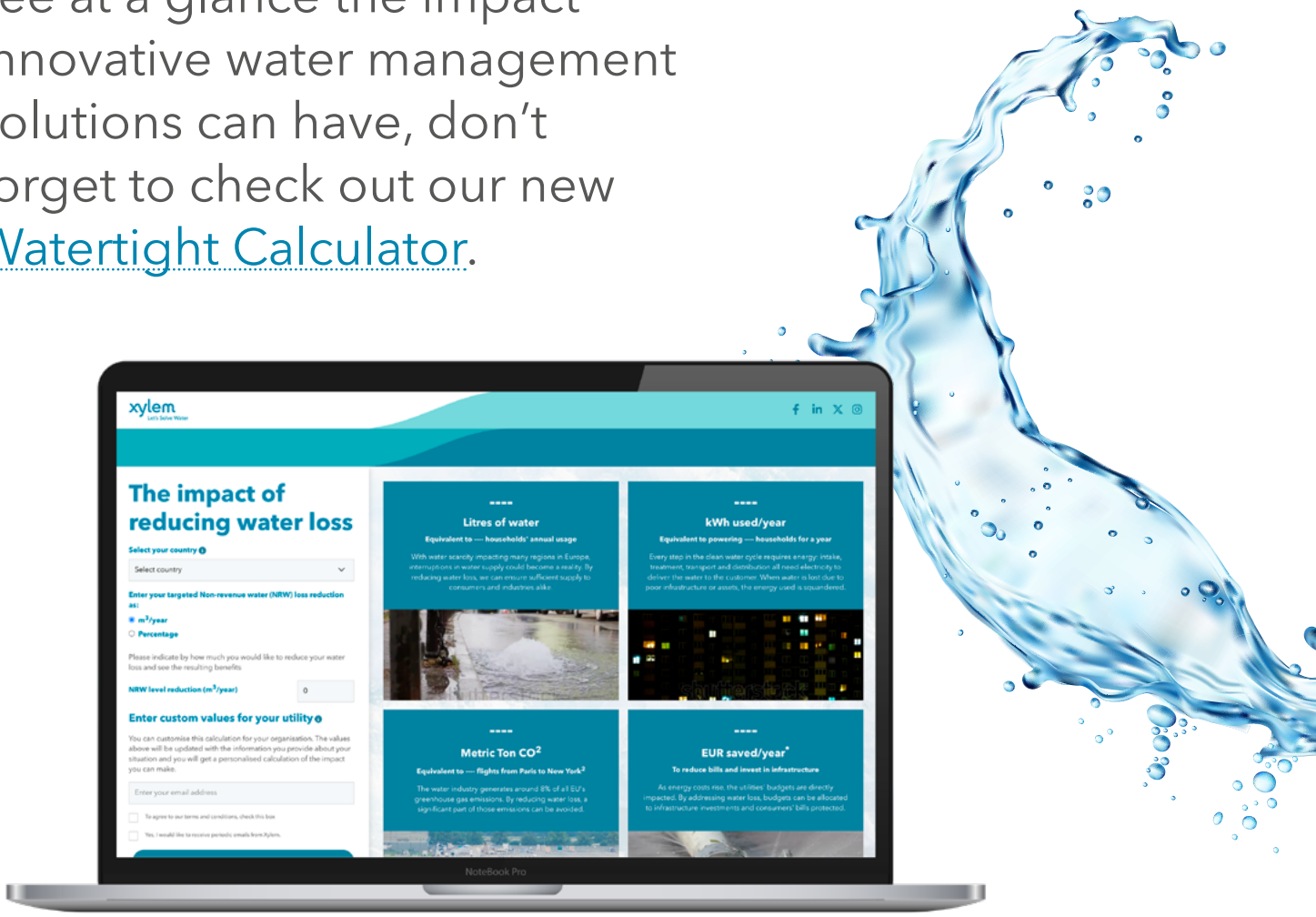
If implemented correctly, using high-quality products and relying on the expertise of a world-renown water specialist, like Xylem, the best practices outlined in this guide will help utilities save money, improve their environmental credentials, and stay compliant with environmental regulations. They will also help respond to consumer and stakeholder demand for a more sustainable and efficient water distribution system – improving trust in utilities' processes.

We hope our experts' insights will help utilities as they work hard to achieve a more efficient and sustainable water distribution system. Our global team of experienced water specialists remains on utilities' side for the journey ahead, and will continue to provide the best solutions and know-how to solve the world's toughest water challenges.

xylem

Further resources

To learn more about the scale of water loss in Europe and see at a glance the impact innovative water management solutions can have, don't forget to check out our new Watertight Calculator.



Xylem |'zīləm|

1) The tissue in plants that brings water upward from the roots;
2) a leading global water technology company.

We're a global team unified in a common purpose: creating advanced technology solutions to the world's water challenges. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. Our products and services move, treat, analyze, monitor and return water to the environment, in public utility, industrial, residential and commercial building services settings. Xylem also provides a leading portfolio of smart metering, network technologies and advanced analytics solutions for water, electric and gas utilities. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise with a strong focus on developing comprehensive, sustainable solutions.

For more information on how Xylem can help you, go to www.xylem.com

xylem vue

Digital transformation starts with Xylem Vue

xylem
Let's Solve Water

Xylem Europe GmbH

Bleicheplatz 6
8200 Schaffhausen
Switzerland

www.xylem.com