



# Landis+Gyr

## Outside Inside the box thinking

A no regrets decision for smart water metering solutions in new build housing.



# Summary

As smart metering in the water sector gathers traction, with 10 million water meters forecast to be installed or upgraded across the next AMP8 period throughout England and Wales, it is questionable whether such communication devices should continue to be installed and buried below ground, in wet and signal encumbered environments.

Whilst this has been the traditional location, with c.80% of water meters in England and Wales located at the boundary of properties, we should be mindful of the complexity that such an installation location can bring for smart metering technology, and whether it is time to consider a move to 'above ground' metering to improve the long-term total cost implications for consumers.

Whilst the opportunity to effect this move may be limited for existing properties, where Water Companies have already invested capital in creating the infrastructure, we should be cognisant of the new Government plans to create c. 1.5 million new homes in the UK in the next five years.

This provides an ideal opportunity to revisit tradition and design out of new build property the propensity for leakage from supply pipes, afford smart meters the greatest opportunity to effectively communicate with Automatic Metering Infrastructure (AMI) networks and allow customers to readily identify their own water meter whilst having the ability to visually read it with ease if necessary.

Undoubtedly, further benefits will arise from this move, not least reduction in costs to install, repair and maintain street furniture, costs associated with street works permits and likely increased battery life for smart meters together with fewer communication gateways required.

Landis+Gyr, using its vast experience of smart metering globally wholeheartedly supports the move to 'above ground metering' and further endorse the Water UK Best Practise Guidelines for meter location in England and Wales.



# Adapting to AMP8: The Urgent Need for Innovation in Water Metering

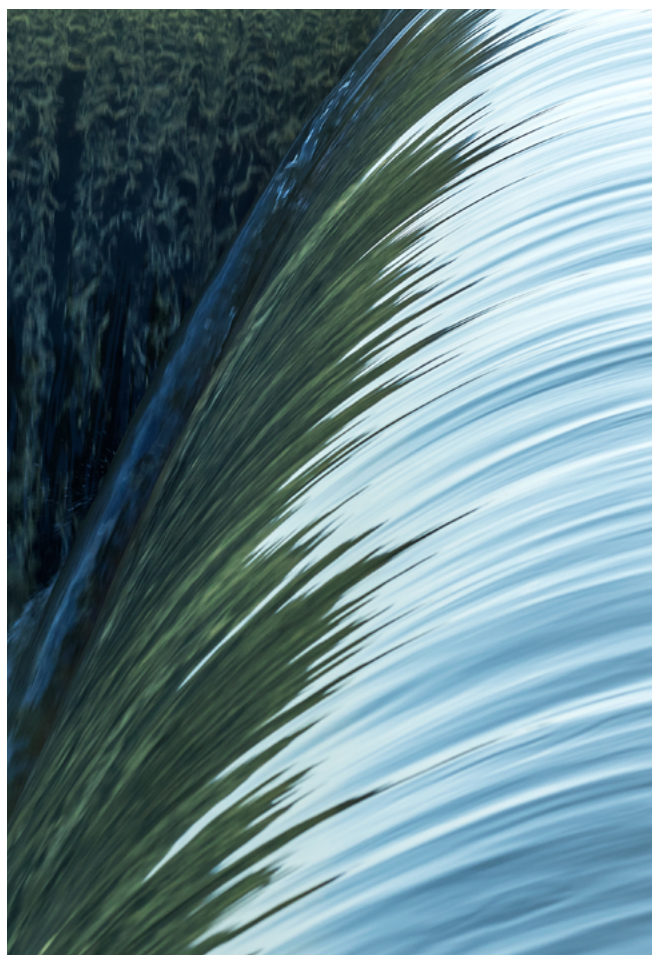
With AMP8 just around the corner, Water Companies across England and Wales are busy digesting the recent Interim Determinations of their business plans by Ofwat and considering what that means for them. There is also a new government in power which has strong views on Water Companies and has stated it would like to see 1.5 million new properties constructed in the next five years. Both factors will have challenges for water companies in meeting their future commitments, not least in the area of water supply/demand.

It is clear that supply and demand, leakage detection and resolution and reducing the amount of water each of us uses per day (per capita consumption or p.c.c.) are key enablers to ensure we all have sufficient water supplies in the future. The Government's recently published Plan for Water sets out that the best way to manage supply pressures is by taking an integrated approach across the whole catchment and metering – or more specifically 'smart' metering – forms a key part of the supply/demand strategy. Indeed, the Government expects water companies to act quickly and take significant steps forward on installing smart meters and delivering on their water efficiency commitments for both households and non-households.

The recent determinations identify that over 10 million 'smart' meters are proposed to be installed in England and Wales during AMP 8. Unlike many water meters installed in Europe and Worldwide, water meters in England and Wales are more often than not installed in purpose made 'underground meter boxes', which are located at the property or premise boundary, hence leading to the term 'Boundary Box Meters', meaning that millions of 'smart meters' will be fitted underground. It is difficult to imagine a more adverse environment for good long-term data communications than a water-logged hole in the ground. Water meters have traditionally been located at property boundaries for two primary reasons – firstly, to detect supply pipe leakage, and secondly, to allow easy access to read, maintain and replace water meters. However, the UK is somewhat unique in this respect and therefore at risk of diverging from the global trend of investment and development for in-line AMI meters. The industry needs to look forward and consider how best to evolve the metering infrastructure with some sensible no regret decisions.

Supply pipe leakage – that is, any leakage on the underground pipe leading from the property boundary to the customers property – is recorded as leakage by the Water Company. However, 'plumbing losses' – that is, any leakage occurring on above ground customer plumbing, is not recorded as leakage and is considered as household consumption. Differentiating between the two is time consuming and complex, as the water meter, smart or otherwise, simply records volumes, and whilst both the supply pipe on the customer side of the boundary and customer pipework are in the ownership of the customer, companies have differing approaches on tackling customer side leakage.

The industry has much to consider in dealing with the challenges of boundary meter installations in terms of leakage, cost and potentially in the future, ownership. It is evident however, that for existing premises already constructed, most – it is believed c. 80% - will have meters located at the boundary and this is unlikely to change. However, we believe it is time for the Water Industry to review its meter location policy for new build premises, and lift smart meters out of the darkness of underground meter boxes into elevated locations.





# Rethinking Water Meter Placement

Water meters located at the boundary of premises serve two important functions for water companies – identifying supply pipe leakage and ease of access for maintenance.

However, installation of water meters in 'boundary boxes' can also cause several issues for companies. These include but are not limited to:

**Cost** – excavation, installation and reinstatement costs of boundary box meters can be significant. Coupled with street works permits, costs can be significant.

**Damage** – whilst boundary boxes are designed to withstand light traffic loading, damage to boxes, particularly on new build sites can, and does occur. This can also lead to 'trip hazard' complaints and compensation issues for water companies.

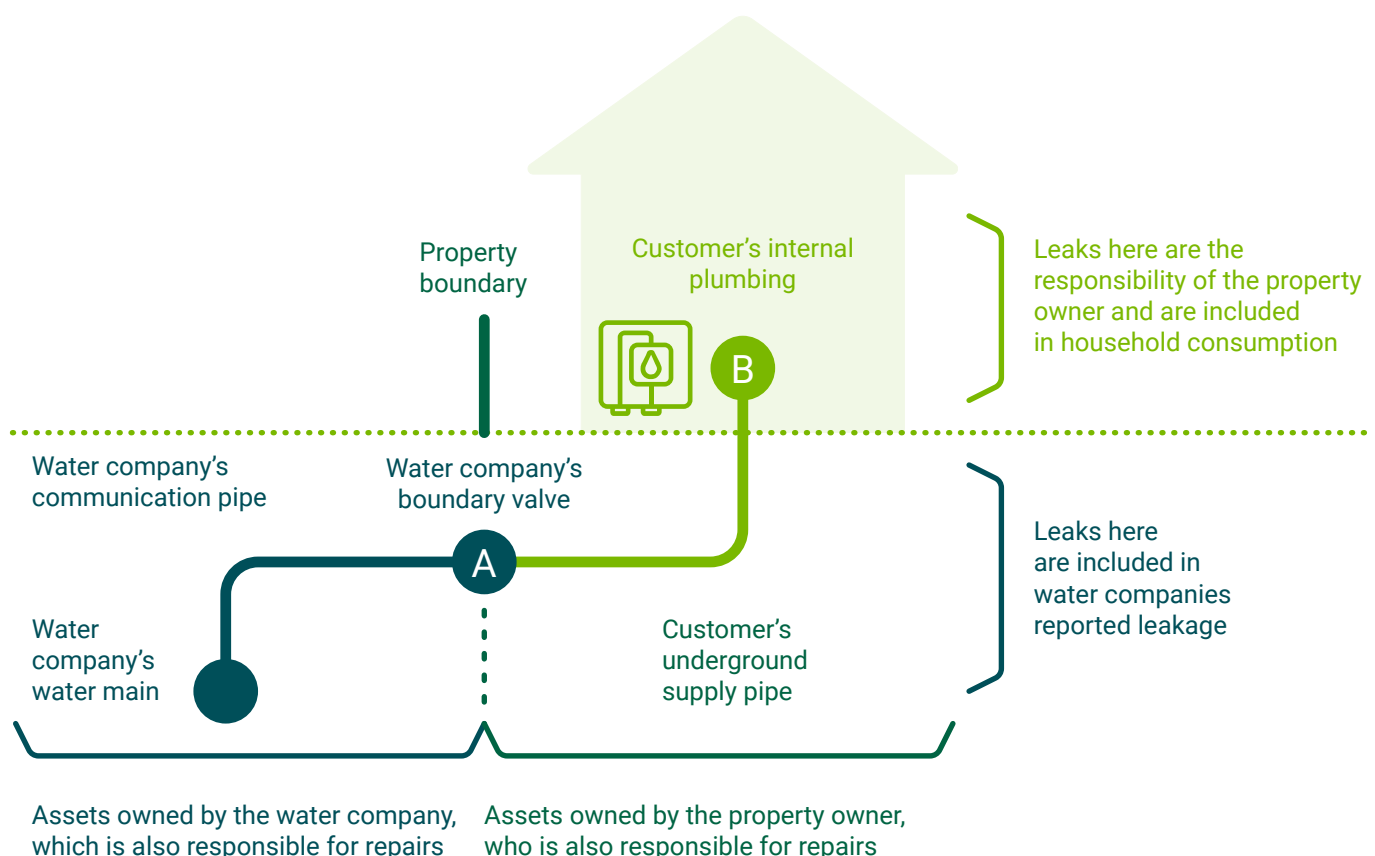
**Leakage** – whilst the location of the meter is intended to capture any 'supply pipe leakage', with differentiation between the two being a costly and occasionally complex matter. Further, introduction of at least two – often more – joints on supply pipe from a boundary box installation.

**Ease of reading** – boundary location has been cited as one of the primary reasons to enable easier meter reading. However, whether the meter location can be determined as 'reasonable' especially for a customer to locate, access and read their own meter, is highly questionable, particularly if the customer has physical restrictions.

Issues are created once it is decided to place a smart meter into an underground environment that is damp and often flooded with water. Signal propagation is hampered by the surrounding ground, ground water, other buried utility services and the cover of the chamber itself. Further issues can also arise, including buried meters, crossed meters and restricted access due to parked cars.

With the advent of 'smart' metering and a paradigm shift expected in the next AMP 8 period and beyond for smart metering, we question whether it is now time to take the opportunity for new build properties to 'design out' all issues associated with underground meter location.

Whilst at this juncture, it is likely meters will remain in-situ at their current external locations for existing premises, the 1.5 million properties due to be constructed in the next five years would materially benefit from a revised meter location.



# Solution

Above ground water metering is an eminently feasible approach to smart water meter location. Indeed, it is cited as 'best practice' by Water UK and has been adopted by a small number of water companies already as their preferred meter location on new build sites. Both United Utilities (UW) and Portsmouth Water have above ground metering as their preferred meter location on new builds, with UW moving to a preferred above ground meter location in 2010. United Utilities have further recently advised that they are planning to consult with the supply chain on proposals to move to external wall mounted box as their specified meter location on new build. Many other water companies including Anglian Water and Yorkshire Water also allow wall mounted boxes as an option, though not necessarily a preference.

Installation of water meters above ground will provide both water companies and customers with significant benefit, addressing directly many of the issues associated with below ground metering and ensure communications and interactions with customers in regard to any billing or leakage issues are far easier to resolve – as any issue with leakage or high consumption will be downstream of the meter – i.e. plumbing loss. Customers will also find it far easier to identify and read their own water meter.

As the Water Industry embarks on its 'smart metering' journey, we have to question what is smart about continuing to bury communications technology and water meters – which provide the life blood of revenue for water companies underground and then trying to develop solutions to fix problems this causes.

Think inside the meter box and elevate your water smart water metering solutions.



To learn more about Landis+Gyr Smart Water solutions, please reach out to our team.

