

Interim National Metering Strategy for the Non-Household Market

Strategic Panel

17 April 2023

Letter to water wholesaler Chief Executives

Dear Chief Executive,

In February I wrote to you on behalf of the Strategic Panel to give feedback on your draft Water Resource Management Plan (WRMP).

It was clear from companies' draft plans just how challenging it is going to be to meet the growing demand for water over the next 25 years. It is equally clear how many competing demands are being placed on water companies to deliver in AMP8, not least tackling combined sewer overflows.

The Government subsequently confirmed that it expects companies to reduce consumption in the non-household (NHH) market by 9% by 2038 (and 15% by 2050); a target which, importantly, does not take account of the increased demand from economic growth.

As a market that consumes a third of the country's water, the vast majority of which is used by a small proportion of large customers, the NHH market has an important role to play in the sustainability of the country's water supply and is ideally placed to do so.

In our feedback we expressed our disappointment that many draft WRMPs made little or no reference to the NHH market, the scale of opportunity it presents to save water or details of how companies intend to achieve the Defra target.

We were pleased by the positive response to our feedback and that a number of companies have since announced their intention to include much more ambitious plans for the NHH market in their final WRMPs, with some including large-scale smart metering.

The Panel believes strongly that the key to capitalising on the NHH market's water efficiency potential and achieving the water consumption targets is access to timely, accurate, detailed consumption data – access to which is being transformed by smart metering.

We are very keen that companies move towards smart metering at a similar speed and to avoid a data 'fast lane' and 'slow lane' developing in which the quality of data, data insights and therefore services retailers can offer customers varies significantly across wholesaler regions.

In the absence of a national mandate or targets for smart metering, the Panel has therefore taken on the challenge to develop a national NHH metering strategy over the next 12 months.

In the meantime, before companies finalise their WRMP plans, we are pleased to attach (below) an interim strategy which recommends the adoption of an accelerated approach to smart metering in AMP8 and provides further support and guidance to you and your teams.

We very much welcome your feedback and any early indications of which route you intend to pursue – please email comms@mosl.co.uk.

Kind regards,

Trisha

Trisha McAuley
Chair, Strategic Panel

1. Introduction

Wholesalers' Water Resource Management Plans (WRMPs) set out how companies plan to balance the supply and demand for water over a 25-year period.

Companies are currently finalising their plans for 2025-2050, including how they propose to meet the growing demand for water and mitigate the impact of climate change.

The strategies outlined in companies' WRMPs will then be used to determine PR24 submissions for funding Asset Management Period 8 (AMP8), 2025-2030.

Companies published their draft WRMPs between December and January 2023. In some cases, this was before [Defra confirmed its target](#) for water companies to reduce water consumption in the non-household (NHH) market by 9 per cent by 2038.

The Chair of the Strategic Panel, Trisha McAuley, [wrote to wholesaler CEOs](#) in February, urging them to ensure final WRMPs include detailed plans for the NHH market, particularly in relation to water efficiency and metering.

Access to timely, accurate, granular consumption data is critical in helping balance supply and demand. The ability to access this data is being transformed by technology, particularly smart (Advanced Metering Infrastructure/AMI) meters.

The Panel is keen to support the transition to smart meters in the NHH market and help companies move at a similar speed to avoid the emergence of a data 'fast lane' and 'slow lane' in which the data insights and services a retailer can provide varies significantly from wholesaler region to region.

There is currently no requirement for water companies to adopt smart meters, or timescales for doing so. Nevertheless, many companies are planning large-scale smart meter rollouts, while others are actively reviewing their options.

The Panel is therefore in the process of developing a national metering strategy for the NHH market over the next 12 months. In the meantime, this paper presents an interim strategy for companies to consider as they finalise their WRMP plans.

This interim metering strategy strongly recommends water wholesalers include acceleration of smarter meter technology to NHH customers in their WRMP and PR24 plans, and proposes two options for doing so (beginning on Page 7).

2. Drivers for change

Key to achieving these ambitions and continuing to maintain security of supply is accessing timely, accurate, granular consumption data from customers' water meters.

In its [response to Ofwat's draft PR24 methodology](#), the Strategic Panel said it considered enhanced metering "a pre-requisite for reducing water demand, which is particularly important considering the recent drought events we have seen across the country."

NHH market characteristics and opportunities

The NHH market uses a third of the country's potable water. Just 165,000 medium and large meters account for more than 70 per cent of that consumption (see breakdown, Appendix B).

The NHH market therefore has an important role to play in the long-term sustainability of the country's water supply and is ideally placed for targeted water efficiency interventions.

Government targets

A key principle is that companies must prioritise demand management (i.e. reducing consumption and addressing leakage) before pursuing supply-side solutions (i.e. increasing the water available).

In its [Environment Improvement Plan \(EIP\)](#) (January 2023) and subsequent [Plan for Water](#) (April 2023), Defra set water companies the target to reduce overall consumption in the NHH market by 9 per cent by 2038 (15 per cent by 2050).

The 9 per cent target is particularly challenging for the NHH market as it does not allow for the additional demand for water driven by economic growth over the coming years, nor does it include customer supply pipe leakage.

In its [Water Resources Planning Guidance](#) on 14 April 2023 (Sections 6.5 and 9.3.2), Defra clarified its expectations relating to water efficiency and smart meters, reminded companies to:

- “Set out how [your WRMP plans] contribute to Defra’s water demand target and associated EIP, which seeks a 9% reduction of NHH water consumption
- “Explain why your plan does not show an overall reduction in non-household water consumption if this is the case, for example because of a large commercial development
- “Fully consider the benefits of increasing meter penetration, including the installation of smart meters
- “Consider a range of scenarios as part of your decision-making, including one that assumes roll-out as fast as possible
- “Learn from the good practice of some companies that have achieved high levels of meter penetration
- “Work with NHH customers to improve water efficiency where you believe there are savings to be made. You should clearly demonstrate how you will deliver non-household water efficiency. Your final plan should see an overall reduction in non-household consumption.”
- “When you prepare your plan you can work closely with any applicable retailers through the national retailer and wholesalers WRMP24 working group, which will be set up as part of the joint action plan.”

Separately, Defra has also advised to companies (*‘Government expectations for water resource planning’*) that in relation to demand reduction actions, Government expects “smart meters become the standard meter installed, given the wider benefits, or there should be justification for using older technology.”

Regulatory guidance

In its PR24 [Final Methodology](#) (Appendix 9, Setting Expenditure Allowances, p106/107) Ofwat outlined the following expectations in relation to companies' PR24 plans in relation to smart metering:

- “In their WRMPs and business plans we expect companies to consider smart meter solutions as the standard meter installation type
- “Companies should consider the benefits of increasingly detailed demand data that can be read without directly accessing the meter and provided on a near real time basis
- “Companies should provide sufficient and convincing evidence for the smart metering technology they propose to adopt. Where companies propose to continue to install older visual read meter technologies, they should provide compelling evidence to justify this
- “We expect companies to collaborate across the sector to introduce national standards relating to the data collected from smart meters to ensure interoperability across the sector
- “We expect companies to engage with other stakeholders... to gain their views on smart metering and their experience from previously completed studies and investigations, e.g. MOSL have projects focused on the role of metering and metering technology in the NHH market
- “We initially expect the sector to present proposals for developing [data interoperability] standards alongside business plan submissions in a joint document approved by all companies
- “We will consider how delivery of interoperability and national standards has been included in our assessment of individual company business cases.”

Market research

In 2022 the Metering Committee commissioned research to consider the benefits of smart meters for stakeholders, including customers and trading parties, and the business case.

[The report](#) by Artesia Consulting, was published in April 2022, alongside templates to support water companies' submissions. The research drew four key conclusions:

- There is a strong benefit case for water companies rolling out enhanced metering technology to NHH customers
- Water companies planning to upgrade or roll out 'smart' meters for domestic customers should include non-household customers at the same time
- Companies without large-scale meter investment programmes would also benefit from replacing or upgrading selected non-household customers' meters, particularly the largest customers and/or where businesses are in close proximity, and that:
- Common data output standards will be at least as important as particular technolog(ies)

Customer research

[Research published by CCW in April 2023](#) indicates strong support for smart meters among customers. Key findings include:

- There is support amongst business consumers for the rollout of smart water meters and the perceived benefits have genuine appeal (82% would support smarter metering being rolled out)
- Those aware of smart water meters most readily associated it with financial and time-saving benefits, with environmental benefits being less ‘top of mind’
- NHH customers seeing additional costs associated with installing smart meters as an ‘investment in the future’ and expect smart meters to become the norm
- The majority of customers see at least some monetary value in receiving regular data on their water usage. The total ‘mean monetary value’ was estimated at £255.12 per year, while large businesses estimated the monetary value to be significantly higher at £315.72.

Meter technology

Data from water meters is key to ensuring customers receive timely, accurate bills based on actual consumption.

The more frequently meters are read, and the more granular the data, the better companies’ understanding of when, where and how customers are using, or wasting, water.

This is currently a significant challenge due to the nature of the meters in the NHH market, nearly three quarters of which are traditional, i.e. mechanical meters that are read visually.

However, companies can now choose from a range of technologies that make reading meters and transferring data easier, faster and more reliable, including:

- ‘Smart’ Advanced Metering Infrastructure (AMI) meters that can take readings as often as every 15 minutes and transmit this granular data over long distances using a fixed network
- Smart(er) Automatic Meter Reading (AMR) meters that can transmit reads and a leak alarm over short distances, e.g. a meter reader walking or driving past
- Add-on technologies to ‘read’ traditional meters and transmit their consumption data

3. Problem statement

Currently just five per cent of NHH water meters are ‘smart’ or have a smart logger attached. Too many NHH customers are still not receiving timely, accurate bills.

There is currently no obligation on water companies to introduce smart meters or fixed timescales for doing so, though we note that government and Ofwat have set out their expectations regarding the benefits of smart metering and the role it can and should play in demand management and reduction ([PR24 Final Methodology, Appendix 9](#), P106, and [Defra's Government expectations for water resources planning](#), Sections 6.5 and 9.3.2).

As things stand however, companies are developing different strategies for enhancing meters based on their own drivers and variables, e.g. whether an area is classed as being ‘water stressed’.

Draft WRMPs show a significant variation in the speed and scale of investment companies plan to make in meters and meter-related activity in the AMP8 (2025-30). While some companies have established deadlines by which their networks will be fully smart, others are at the trial stage.

Disparities in the speed and scale of companies' rollout plans presents several risks:

- A 'two-speed', increasingly divergent NHH market, with water companies (and therefore Retailers and NHH customers) in either the data 'fast lane' or 'slow lane'
- The standard of service and level of innovation retailers are able to offer customers varying significantly between wholesaler regions
- Companies continuing to install traditional ('dumb') meters in AMP8 with an average 20-year lifespan, further postponing the widespread adoption of smarter technology
- If the proposed [data interoperability standards](#) are not widely adopted by the market, there will be the risk of a lack of consistency and standardisation of data and processes

The Strategic Panel believes strongly that the adoption of smart metering is fundamental to the water sector's ability to balance the supply and demand for water in the long term.

The Panel is extremely keen to see a concerted effort towards smart meters in AMP8 so that they can begin contributing to achieving consumption reduction and efficiency targets as soon as possible and avoid the pitfalls of a protracted, piecemeal rollout.

At the current rate, based on companies' draft WRMPs, water meters in the NHH market are not expected to be 'smart' until 2040 at the earliest - two years after the Government target date for a 9 per cent reduction in overall water consumption.

Ofwat recently published the results of its [Accelerated infrastructure delivery project](#), including accelerated smart metering programmes for five companies over the next two years (2023/24 and 2024/25). It is currently unclear the extent to which some plans relate to the NHH market, however.

This interim strategy, and the detailed strategy that will follow, aims to provide a framework to help companies move towards smart metering in a coordinated and consistent way.

4. Current activity to improve metering in the NHH market

The Panel has delegated the Metering Committee to work with MOSL to pursue a programme of work to address frictions and issues that lead to a lack of accurate or actionable meter data in the market. The activities are divided into three workstreams:

The Creation of a national metering strategy for the NHH market (this document); Improving the meter reading process, and Making granular data available to all.

A summary of the key activities in the two workstreams is provided below. A more detailed description of each activity is provided in Appendix C.

Table 1: Current workstreams and activities

Workstream	Activity
Improving the meter reading processes	<ol style="list-style-type: none"> 1. Changing responsibility for reading meters from retailer to wholesaler for smart meters* (see 'Project AMIDST', below) and meters in defined circumstances*, e.g. those that are 'hard to read'* 2. Wholesalers to improve the understanding of the asset health of NHH meters, ensuring they meet minimum age and quality standards and that the potential of AMR readings is being fully realised, including leak alarms 3. Changing responsibility from retailer to wholesaler to investigate and resolve all Legacy Long Unread meters, i.e. those that have not been able to be read since the market opened* 4. Trading parties to work together to reduce older Long Unread Meters (LUMs) by ensuring all meters have been read within last three years
Making granular data available to all	<ol style="list-style-type: none"> 5. Accelerating the implementation of enhanced metering technology (such as smart meters) to capture granular consumption (as per Options 1 & 2) 6. Trading parties to adopt newly defined data interoperability standards to improve consumption data sharing, initially on a voluntary basis, with a review in 2024 to consider whether the standard needs to be mandated.

*Nb: subject to approval by the Code Change Committee and consultation with trading parties

The above activities are already underway. The Panel expects companies to factor the cost of the above activities (subject to successful code changes in some instances) and any related costs, into their plans.

Transferring smart meter data: Project AMIDST

Reading a traditional water meter and ensuring the data reaches CMOS in order to produce a bill for customers is currently a multi-stage process, with a number of recognised frictions and pitfalls.

Market Improvement Funded '[Project AMIDST](#)' (Advanced Metering Infrastructure Strategic Data Transfer) has been investigating how data can be transferred from smart meters directly into CMOS.

Smart metering options for AMP8

The Strategic Panel strongly recommends water companies adopt one of the following approaches in AMP8. To either:

- 1. Roll out smart metering to all NHH customers (recommended)**
Which will, in doing so, address activities 1-6 above, OR
- 2. Ensure all medium and large meters are 'smart' or smart-enabled**
And deliver meter reading improvement for small meters, i.e. activities 1-4 above

Option 1: Roll out smart metering to all NHH customers (recommended)

[Independent research](#) carried out in April 2022 by Artesia Consulting identified a strong benefit case for water companies rolling out enhanced metering technology to all NHH customers.

Companies that have invested in smart meters are seeing significant benefits from the granular data they provide, for example in identifying continuous flows that may represent leakage, and enabling more effective water efficiency interventions.

One water company has identified that up to 25 per cent of NHH consumption is 'continuous flow'; an insight that would not have been possible without smart meters.

The Strategic Panel calls on all water companies roll out smart (AMI) metering to NHH customers in AMP8.

Ofwat's Final Methodology for PR24 confirmed its expectation that in their WRMPs and business plans, companies should consider smart meter solutions as the standard meter installation type. and that the continued installation of traditional meters will need to be justified (Page 5).

Where the back-end infrastructure is not yet in place, smart meters can still be installed, but they will need to be read by a meter reader (i.e. as per a traditional meter). In this scenario, the responsibility for reading the meter remaining with the retailer until it is connected to the network.

Subject to the approval of the relevant Code Change, wholesalers will become responsible for reading any smart meters they have installed once they are activated.

Companies planning to upgrade or roll out smart metering for domestic customers should include NHH customers at the same time. Furthermore, given that many NHH customers use the same or less water than households and have the same meters installed, the Panel recommends water companies treat these customers the same in terms of water efficiency advice and devices.

In pursuing this option, companies would also need to ensure they have addressed activities 1-4 listed in Table 1 above, e.g. Legacy Long Unread Meters, hard to read meters, etc.

Companies would also be expected to adopt the [Common Standard for Sharing Granular Consumption Data](#), (i.e. activity 6, Table 1).

The [Artesia Consulting research](#) findings and documents to support trading parties' business plan submissions are available on the MOSL website.

Option 2: Ensure all medium and large meters are smart

Companies unable to pursue large-scale smart metering rollout (i.e. all households and NHHs) should prioritise ensuring all medium (25-50mm) and large (>50mm) meters are smart in AMP8.

There are 165,000 medium and large meters in the NHH market. Although they represent just 13 per cent of the total 1.3 million meters, they account for nearly three quarters (72 per cent) of the total water consumption in the market.

Where companies already have plans to roll out enhanced technology to small meters in their regions, these rollouts should continue. At the same time, companies should invest in a programme to strengthen their meter reading performance to deliver activities 1-4 in Table 1 (Page 8).

Where large meters already have data loggers or other devices capable of collecting granular consumption data, we urge companies to analyse this data to identify continuous flows on a regular basis and make the necessary intervention or share the data with retailers/customers to take action.

The key challenge this approach presents is in capturing the data from the meter. The first priority should therefore be to connect the meter to the company's preferred smart metering solution, whether that is a private network specifically for smart metering, or an existing cellular network.

In the absence of an existing network solution, there are various service providers that can help meet this challenge, for example by providing pulse output add-ons, communication network infrastructure, and services such as meter readings, granular consumption data and analysis.

Water companies may also be concerned that their focus on larger meters in AMP8 may complicate or preclude changes in strategy at a later date, e.g. opting to roll out smart meters to all customers.

Where appropriate, companies' focus on medium and large meters should be on an 'interim' basis, pending a longer-term strategy and/or large-scale rollout. This would also be an appropriate strategy given the generally shorter life (i.e. due to batteries) and generally lower resilience of add-on technology.

As per Option 1, all new and replacement meters should be smart from 2025. In pursuing this option, companies would also need to ensure they have addressed activities 1-4 listed in Table 1 above, e.g. Legacy Long Unread Meters, 'hard to read' meters, etc.

In common with Option 1, companies would also be expected to adopt the [Common Standard for Sharing Granular Consumption Data](#), (i.e. Activity 6, Table 1, p8).

5. Funding considerations

The Panel recognises that there are many competing pressures for Enhanced funding in AMP8, not least the urgent need to address combined sewer overflows (CSOs) through the WINEP programme.

However, this should not deter companies from proposing ambitious smart metering programmes, particularly given the central - and increasingly important - role metering will play in balancing the supply and demand for water.

Wholesalers should therefore build an ambitious programme for smart and enhanced metering into their WRMPs as part of their preferred programme, the funding needs for which should be reflected in their subsequent PR24 submissions.

The [Artesia Consulting report](#) on the business case for enhanced metering technology (and associated templates), and [CCW's "Smart thinking – metering for business customers" report](#) on the benefits of smart metering to customers are useful references and demonstrate considerable support for smart metering from customers.

Enhancement funding

Companies wishing to accelerate their smart metering programmes should seek Enhancement funding in their PR24 submissions, principally on the basis of Defra's consumption reduction target.

Ofwat's [Final Methodology for PR24](#) outlines the Regulator's position and expectations regarding the adoption of smart meters (see Drivers for Change, Page 3).

Wholesalers are reminded that proposals for enhancement funding should demonstrate delivery of 'best value', taking into account wider environmental and social benefits, costs, risks and affordability of customers' bills.

Companies should ensure their proposals are robust, supported by evidence – including the research referenced in this document – and deliver benefit for customers. Wholesalers should set out their case for the mix of both smart (AMI) and AMR metering to meet their circumstances.

Wholesalers' plans should build on Ofwat's responses to their draft WRMPs, which recommended ways in which addressing the needs of the NHH market could be strengthened.

Smart metering programmes should be allocated to a Price Control Deliverable (PCD) mechanism, which should explain how customers would be protected if the target deliverable was not met due to genuine circumstances (e.g. how funding would be managed in the event that a proportion of the PCD could not be delivered).

Reasons for under-delivery of a PCD may, for example, include the ability of the supply chain to deliver an accelerated programme of metering due to the lack of availability of semiconductors.

Any processes and technology solutions that provide consistency and interoperability between wholesalers is welcomed. The [Data Sharing Interoperability Standard for Granular Consumption Data](#) is a good example of this.

Following previous determinations there has been a tendency for companies to focus on the smallest meters, which are the easiest and least expensive to replace. To help rebalance this in

AMP8, we recommend NHH metering enhancement programmes' metering costs and benefits are split between small, medium and large meters to reflect the significant variance in cost.

Replacing meters before 'end of life'

The most efficient way to roll out smart meters is to do so on a geographical basis, i.e. to replace all household and NHH customers' water meters, regardless of their age.

However, we understand some companies may have been deterred from doing so on the basis of their belief or perception that Ofwat may not approve funding to replace existing meters before they have reached the end of their life.

The Panel believes that changes in technology and the needs of the NHH market mean this approach to replacement is now outdated and that a meter should be deemed to have reached 'end of life' once it is no longer able to provide the data required, i.e. when it becomes 'technically obsolete'.

Following discussion with Ofwat, the Panel recommends wholesalers propose an appropriate model for replacing meters before the end of their life where it is deemed necessary to deliver effective and efficient roll out.

The cost of doing so should be balanced against its benefits, e.g. the efficiency savings of this approach and gaining earlier access to granular data. Companies may consider separating the affected meters into different age ranges and proposing a different approach for each.

The justification for this approach could also be strengthened with evidence such as:

- Learnings from other countries (and/or utilities) that have already implemented smart metering programmes driven by risk of drought
- A technology roadmap, particularly that the choice of communication system is 'future-proofed'
- Where a change of meter will provide more accurate or resilient data.

Alternative funding arrangements

For the purposes of this document we have focused on funding via WRMP and PR24 routes. Other alternative funding approaches that could be considered may include, for example:

- Commercial arrangement: whether the meter service costs should be recharged via a commercial service to retailers and/or business customers
- Tariff adjustment: a smart metering levy being applied to medium and large consumers in the NHH market i.e. a percentage levy for customers using more than, for example, 500 m³/year
- Data as a service: ownership of larger meters changing to a third-party provider to deliver 'data as a service' (DaaS), including meter technology upgrades, meter asset management, data capture and data sharing.

6. Other success factors

The role of retailers

Wholesalers' plans should recognise the important role retailers will play in the success of a smart metering and demand reduction programme.

This includes promoting the benefits to its customers, helping facilitate the replacement of medium and large meters, and working with wholesalers to assist in delivering the resulting water efficiency measures.

Customer or retailer investment in smart metering

If a NHH customer or retailer wishes to install other add-on meter technology, they should be able to do so where they are prepared to make the necessary investment, subject to ensuring that the data produced meets the interoperability standards.

This should be done with the agreement of, and in conjunction with, the relevant wholesaler. Other funding models may be available, or develop, to support this approach.

Customer engagement and messaging

Effective communications and engagement with NHH customers will be an important factor in the successful rollout of smart metering to gain customers' buy-in, improve engagement with their water use and use the technology to its full potential, e.g. requesting access to their data, etc.

As stated in the CCW report: "If new smarter metering technologies are rolled out across the water system – something that 82 per cent of businesses would support – then there needs to be an emphasis on properly communicating the potential benefits, whether financial, environmental or organisational, particularly to smaller businesses."

When discussing the financial benefits with customers, the Panel encourages companies to focus not only on the monetary value of water saved, but the value to a business of ongoing security of their water supply, i.e. water as a business continuity issue.

7. Summary of costs and benefits

To support companies' proposals, a checklist of costs and benefits is provided for guidance in Appendix D.

Companies are also reminded that the [Artesia Report](#) into the business case for Enhanced Metering Technology includes research findings and templates they may wish to use or refer to in their plans.

8. Next steps

The Panel expects wholesalers to consider the content of this paper as a matter of priority and which of the two options is most appropriate.

It is vital that wholesalers build the chosen option into their WRMP plans and PR24 submissions, referring to supporting documents or evidence as necessary, e.g. the [Artesia Consulting report](#).

Companies are reminded to refer to the consultation feedback on their draft WRMPs provided by the Strategic Panel and MOSL (see “11 things we would like to see in final WRMPs”, Appendix E). Wholesalers should also consider the potential costs of implementing activities 1-6 (Table 1, Page 8).

Once this interim strategy has been agreed and issued, MOSL and the Metering Committee will begin developing a more detailed NHH metering strategy on the Strategic Panel’s behalf over the next 12 months.

The Strategic Panel would like to thank the many water companies and customers that have contributed to the research findings and projects detailed in this report.

The Panel would very much welcome companies’ feedback on this interim report, particularly any early indications of which of the two options they intend to pursue. Please email comms@mosl.co.uk.

Appendices follow

Appendix A: Useful links and references

1. [Ofwat's "Accelerated infrastructure delivery project: draft decisions", April 2023](#)
2. [Ofwat Final Methodology for PR24](#)
3. [Ofwat: Creating tomorrow, together: our final methodology for PR24, December 2022](#)
4. [Defra "Plan for water: our integrated plan for delivering clean and plentiful water"](#)
5. [Defra Environmental Improvement Plan 2023](#)
6. [Defra Water resources planning guidelines, April 2023](#)
7. [Environment Agency Chair, Alan Lovell, speech on ways to better manage water supply](#)
8. [CCW: "Smart thinking – metering for business customers, April 2023](#)
9. [NHH Metering Committee: Metering Roadmap](#)
10. [Hard to read meters: definition and guidance, MOSL October 2022](#)
11. [Artesia Consulting: Common Data Standard for Sharing Granular Consumption Data from non-households, February 2023](#)
12. [Artesia Consulting: A strategy for enhancing metering technology April 2022](#)
13. [PA Consulting: Roles and responsibilities for metering in the NHH market, Phase 1, May 2022](#)
14. [PA Consulting: Roles and responsibilities Phase 2, proposed options to progress to Market Code Change Process, March 2023](#)
15. [Market Improvement Fund 'Project Looking Glass' – Report on Long Unread Meters, OccuTrace and MOSL, November 2022](#)
16. [Market Improvement Fund 'Project AMIDST \(Advanced Metering Infrastructure Data Strategic Transfer\)' – transferring smart AMI readings directly into CMOS, Interim Report April 2023](#)
17. [MOSL: Non-Household Meters and Enhanced Metering Technology, Overview of suppliers and products](#)

Appendix B: Meter sizes and consumption

Meter size

SPID Classification	Bands (mm)	No. of Meters	Meters (%)	Total Consumption (m3/year)	Consumption (%)	Average consumption (m3/year)
Small	15-20mm	1,125,950	87.2	264,712,173	27.9	235
Medium	25-50mm	153,235	11.9	307,943,035	32.5	2,010
Large	80-300mm	11,494	0.9	375,054,304	39.6	32,630

Consumption bands

SPID Classification	Bands (m3/year)	No. of Meters	Meters (%)	Total Consumption (m3/year)	Consumption (%)	Average consumption (m3/year)
Low	0 - 500	1,023,852	82.19	90,766,241	9.6	89
Medium	500 - 50,000	217,785	17.48	517,442,394	54.6	2,376
High	>50,000	4,058	0.33	339,500,877	35.8	83,662

Tables based on 2022 data from CMOS

Appendix C: Detailed description of key activities (Table 1)

Activity 1: Wholesalers take responsibility for reading smart meters and meters in defined circumstances

Following an independent review of roles and responsibilities relating to metering in the NHH market by PA Consulting, the Committee has agreed to submit two separate code change proposals:

- To change responsibility for reading meters from the retailer to the wholesaler for any smart meters the wholesaler chooses to install
- To change responsibility for reading external meters from the retailer to the wholesaler in 'defined circumstances', such as where a meter is defined as 'hard to read'

Subject to approval of the code change, this action will help improve the accuracy and timeliness of meter reads for settlement and customer billing, including transfer, at a reduced cost to retailers.

Related: [MIF Project AMIDST](#) (Advanced Meter Infrastructure Strategic Data Transfer) sets out the key requirements and details of a medium volume interface (MVI API) that has been developed to transfer meter readings directly into CMOS, subject to retailer approval.

Activity 2 - Wholesalers to improve the understanding of the 'asset health' of NHH meters, ensuring they meet minimum age and quality standards, and realise the potential of AMR functionality

This action aims to ensure customers receive accurate bills based on actual readings by removing meters from the market that are more than 25 years old, which are least accurate and do not support add-on AMR technology.

The recommendation is based on the findings of MIF 'Project NoFlow', which investigated the causes of broken meters to ensure they are quickly identified and replaced [link to follow].

Retailers and wholesalers should also work together to improve the speed and efficiency of meter accuracy tests for the most common meters in the NHH market.

As per Ofwat's Final Methodology for PR24, all new or replacement meters fitted from April 2025 should be smart by default, even if they need to be read manually until the necessary 'back-end' infrastructure is in place.

Smart meter replacements plans should be based on a 15-year lifespan, which is determined primarily by battery life.

There are currently around 262,000 small Automatic Meter Readers (AMR) meters in the market. Wholesalers should ensure they are taking full advantage of the AMR capabilities to capture accurate meter readings and flag continuous flows – which may indicate leaks – to retailers/customers.

The [Data Interoperability Sharing Standard](#) should be used to share data between relevant parties and RWG Meter Reading Standard followed in relation to AMR meters.

Wholesalers should publish plans to upgrade or install AMR and smart (AMI) meters at NHHs to be by July 2023, building on the work already carried out by the Smart Metering Advisory Group (SMAG).

Activity 3 - Eliminate Legacy Long Unread meters in AMP8

There are currently around 26,000 'Legacy Long Unread' meters in the NHH market, i.e. meters that have not been read since the market opened in 2017.

The Metering Committee will be sponsoring a code change requiring companies work to eliminate Legacy Long Unread meters as during AMP8.

Subject to approval by the Code Change Committee, wholesalers would lead the process to find, read, replace, refit or de-register legacy long unread meters in (particularly those classified as occupied) in AMP8.

Wholesalers would lead this activity with the support of retailers, whose support they will need to access the 17,000 legacy long unread meters that are inside customers' premises.

This activity should also precede any programme of installation of enhanced metering technology such as smart metering, so these meters are appropriately incorporated into the programme.

Nb: the Market Improvement Funded (MIF) 'Project Looking Glass' [LINK], which investigated the root cause of 2,000 'Long Unread Meters', also provides useful information.

Activity 4 - Ensure all meters have been read in last three years

There are currently 179,000 'Long Unread Meters' (LUMs) in the NHH market, i.e. where an actual meter reading has not been submitted to CMOS for at least 12 months.

This action aims to ensure that meters have been read within at least the last three years, which would increase the number of actual meter readings in the NHH market by 45,000.

This goal can be achieved by companies adopting the enhanced meter reading standards [LINK] and taking action where a reading is not possible, e.g. raising the appropriate bilateral service request.

LUMs for 'vacant' properties that are more than three years old should be considered for disconnection and de-registration. All meter replacements should be smart or smart-enabled.

LUMs from 1 April 2017 to 31 May 2018 require particular attention as this was the first year of the market and both parties may have made errors in data entry to CMOS. Wholesalers and Retailers will need to work together to resolve any LUMs in that time frame.

MIF 'Project Looking Glass', provides useful information [LINK].

Activity 5 - Accelerate implementation of enhanced metering technology (e.g. smart meters) to capture granular consumption

As described in Options 1 & 2.

Activity 6 - Trading parties to adopt data interoperability standards to improve data sharing

As described in Options 1 & 2

Appendix D: Cost and benefit templates

The following tables are provided to help companies develop the cost and benefit case for implementing smart metering, whether following recommended Option 1 or 2.

NHH numbers and plans

Planning elements		Details of plans
Section 1. Current NHH metering & demand situation		
Outline current status of NHH Demand and Metering	Total NHH demand (Mld)	
	% of company demand	
	No. of total NHH properties	
	No. of NHH metered (%)	
	No. of small NHH meters (15 & 20mm)	
	No. of medium NHH meters (25-50mm)	
	No. of large NHH meters (80mm+)	
	No. of smart metered (%)	
	No. logged (%)	
	No. of Long Unread (%)	LLUM, LUM>3yrs
No. of NHH meters >25 years old		
Section 2. NHH Metering (Replacement & Smart Meter Rollout)		
NHH replacements	No. of replacements for AMP8	Small, medium, large
Long Unread Meter plan	How planning to reduce the number of Legacy LUMs and LUMs>3years	
Plans for smart metering	No. of smart meters planned for AMP8	Small, medium, large
	No. of smart meters planned for AMP9	
	Aspirations and link to Defra target and improvement of the NHH market	

	Provision of a monthly smart meter reading direct to CMOS	
Section 3. NHH Water efficiency and demand reduction		
Activity planned	Details of demand reduction activity to help meet Defra target of 9% reduction by 2038	
	Improved data sharing for granular consumption data	
How smart data will help demand reduction	Identification of Continuous flow (Wastage/CSL)	
	Insight into Water Use and demand reduction activity	
Section 4. NHH meter reading improvement (National Metering Strategy for NHHs - Option 1 only)		
Activity planned	Elimination of legacy long unread meters	
	No meter not read in last 3 years (LUMs >3 years)	
	Manage meter asset health: replace meters >25years, replace broken meters, capture and share AMR leak alarms	

Costs

Cost categories	Sub-Categories	£/meter
Meter unit rates		
Meter device	Small Meters	
	Medium meters	
	Large meters	
	Local comms equipment (LCE)	
Meter replacement (in-house or contractor + fixed costs)	External meter exchange - small meters	
	External meter exchange - medium meters	
	External meter exchange - large meters	
	Internal meter exchange - small meters	

	Internal meter exchange - medium meters	
	Internal meter exchange - large meters	
	OSV installation	
	Unmeterable property survey	
Internal fixed costs	Internal fixed costs	
Updating market systems	New meter details to CMOS, completing bilateral.	
Customer journey	Working with retailer to get customer contact details, customer contact and appointment booking	
Additional costs (suggested to be excluded from the meter unit-rate calculation)		
Field investigations	Stale meters, tech issues	
Smart meter comms (Fixed network, phone network)	Installation / set-up	
	Annual maintenance / licence	
Smart meter operational centre	Staff and IT	
Meter data management system	Build and set-up	
	Annual licence / upgrades	
Additional customer-side leakage	Getting customers into account	
	Maximising demand reduction benefit	
Additional water efficiency / wastage	Water efficiency smart visits	
	Separate wastage fix visits	
Digital engagement portal (app, on-	Build and integration	
	Annual maintenance / licence	

line account, email platform)		
NHH specific costs		
System to provide meter readings direct to CMOS		
System to share granular data with retailers / customers		
LUM site visit (challenging access, inc. legal processes)		
Elimination of Legacy Long Unread meters (Option 1 only)		
No LUMs >3 years (Option 1 only)		
Improvement to asset health (Option 1 only)		

Benefits

Activity	Benefit per meter
	Number / MLD / £/year
To wholesaler	
Improve settlement certainty and accuracy	
Smart metering (replacement of dumb/AMR to Smart AMI) customer-initiated water savings	69l saving for every smart meter - continuous flow and consumption
Targeted interventions - continuous flow fixes by plumber for high priority leak	
Targeted interventions - continuous flow fixes by plumber for other leak	
Targeted interventions - continuous flow fixes resulting from letter to business to self-fix	>200 l/d
Smarter business visits (water efficiency device installation)	
Improved calculation of network leakage	
Revenue generated from provision of meter readings	
Revenue generated from provision of granular consumption data	
Eliminate costs to operate a NHH monitor	
Improved short and long-term water planning including drought measures	
Improved delivery of B-Mex and BR-Mex	

To retailer	
Elimination of Long Unread Meters	
Reduction in number of customer complaints	
No longer required to read meters	
Reduced H&S incidents related to meter reading	
Reduced cost to acquire granular data	
Opportunity to provide other value add services	
To customer	
Increased confidence from accurate and timely bill	
Reduced instances of bill shocks	
Provision of granular consumption data	
Allowing customer to be in more control of their bill	
Ability to understand benefit of switching retailer	

Appendix E: Checklist from MOSL's response to wholesalers' draft WRMPs

A reminder of MOSL's response to wholesalers' draft WRMPs and the 11 things MOSL said it would like to see in final plans.

For more information, please refer to the [MOSL website](#).

1. Ensuring references to 'customers' are clear in terms of whether you are referring to households, NHHs or all customers
2. A clear statement regarding the recognition of the size and importance of the NHH market and the role it plays in delivering your WRMP, reducing water demand and wastage
3. Reference to Defra's nine per cent water reduction target for the NHH market by 2038 and your detailed plans for achieving this target
4. Greater use of the research by MOSL and the Metering Committee to determine the business case for NHH smart metering and the benefits of making meter data available to retailers and customers
5. Clarity on the number of smart meters you intend to deploy in AMP8 and beyond – visibility for retailers on when they will be rolled out and where will help avoid duplication of effort
6. Where appropriate, cross-referencing the findings of other water companies smart meter rollouts to support smart meter proposals and the scale of water saving opportunities
7. An approach that treats smallest NHH customers the same as households for the purposes of water conservation messages and devices
8. Explanation of how water efficiency services would be offered to different categories of NHH customers – multi-site, industrial customers, commercial/offices etc.
9. Explanation of how you plan to work with retailers collaboratively to engage with customers to reduce water consumption and carry out water efficiency interventions
10. Exploration of how you plan to work with retailers to avoid denial of PR24 outperformance payments, e.g. a pain/gain sharing mechanism or incentives for retailer water efficiency offerings
11. A country-wide approach to demand reduction, regardless of whether water company regions are designated as being 'water stressed' or not, recognising all areas have local demand challenges.