

**National Metering Strategy
for the Non-Household Retail Market**

Strategic Panel

27 March 2024

Strategic Panel letter to CEOs

Dear Chief Executive,

In April 2023 the Strategic Panel published an Interim Metering Strategy for the non-household (NHH) market, which urged companies to accelerate plans to roll out smart metering for NHH customers in AMP8 (2025-30).

The strategy was well received and there is broad consensus that smart metering is key to meeting the water scarcity challenge and helping Wholesalers balance the supply and demand for water.

The attached metering strategy aims to support Wholesalers to roll out smart metering to NHHs as efficiently as possible to meet the needs of NHH customers and help achieve Defra's 9% overall consumption reduction target for the NHH market by 2038.

The detailed data that smart metering can provide promises to transform the market's approach to water efficiency and the services and tariffs provided to customers. Based on companies' updated plans, Wholesalers representing around 50% of customers are proposing to roll out smart metering in one AMP (AMP8). The vast majority of the remaining Wholesalers are planning a two-AMP rollout.

The Panel welcomes the increased scale and pace of Wholesalers' smart metering plans. However, we encourage those proposing a two-AMP rollout to deliver as much as possible in AMP8 to help minimise the difference in benefits enjoyed by customers during the rollout period.

The Panel recognises that there are competing investment priorities in AMP8, including combined sewer overflows, and the challenges of the current economic climate. We are encouraged that this has not deterred companies from proposing significant smart metering programmes.

Having encouraged Wholesalers to submit "ambitious" smart metering plans, the Strategic Panel urges Ofwat to allow the necessary investment to deliver them, while recognising the need to ensure companies' proposals are properly evidenced and provide value for money.

The design of PR24 final determinations will also matter. The strategy makes recommendations to Ofwat regarding the design of Price Control Deliverables (PCDs) and incentivisation for the inclusion of larger meters, long unread and hard-to-read meters in companies' rollout plans.

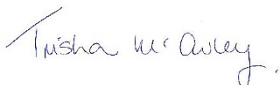
The strategy offers guidance and opportunities for companies to adopt a common approach in key areas such as how data should be formatted, collected and shared. It also includes advice for addressing existing 'problem' meters that are not included in smart metering rollout plans.

Smart metering is a moving target and we do not have all the answers at this point. Where necessary, the strategy aims to provide a 'direction of travel', while setting out further work that needs to be undertaken. We will issue updates as these plans are developed further.

Thank you and your teams for your continued support with this important programme and in advance for your help working with other Wholesalers and Retailers to deliver what promises to be an exciting transformational change for the retail market and its customers.

We hope you find this strategy helpful. If you have any feedback that may be helpful in supporting the delivery of this strategy, please email comms@mosl.co.uk.

Kind regards,



Trisha McAuley
Chair, Strategic Panel

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National NHH metering strategy

Overview of recommendations

This strategy sets out a series of recommendations, grouped by theme, to help maximise the benefits from smart metering from a common, national approach. It also addresses issues relating to existing traditional and AMR meters that may, or may not, be included in any rollout.

In this section we provide a high-level overview of each recommendation. Further explanation is provided for each recommendation in the body of the strategy, beginning on page 14.

Smart metering rollout

Topic	Description	Page
Choice of technology	This strategy does not specify particular smart metering manufacturers or technologies. Chosen technolog(ies) should, however, prioritise long-term value for money over short-term least-cost options and be able to deliver a minimum data sharing standard.	13
Timescales	Wholesalers should aim to roll out smart metering in line with their Business Plan timetables. Companies wishing to adopt a two-AMP rollout (i.e. by 2035) should aim to deliver as much as possible in AMP8.	13
Inclusion of medium and large meters	Wholesalers' smart metering rollouts should include medium and large meters, with sufficient detail provided in companies' delivery plans (and Price Control Deliverables) to ensure they are rolled out as quickly as other meter sizes.	14
Addressing 'problem meters'	Meters that have not had a meter reading taken and entered into CMOS since the NHH market opened (i.e. are 'Legacy Long Unread) or 12 months or more ('Long Unread') due to being hard to read, broken, have 'no flow', etc, should be included in smart metering rollout plans.	15
Publishing rollout plans	Retailers and customers need to know in advance when smart metering will be available in their area so that they can plan appropriately. Wholesalers should publish rollout plans in advance (as per the Codes) and progress against them, on a quarterly basis in a standardised format.	15
Capturing asset data	Wholesalers to ensure new smart metering asset data is captured accurately at installation, uploaded to CMOS, and kept up to date.	16
Monitoring smart meter performance	Wholesalers should monitor the performance of new smart metering installations and have processes in place to maintain equipment and resolve any faults or failures that are identified.	16

Smart metering rollout (continued)

Topic	Description	Page
Customer communications during rollout	Wholesalers should give Retailers ample notice of their intention to install smart metering to allow time for the Retailer to communicate to their customers (as per the Codes). Both parties will be expected to work together cooperatively during the rollout, paying particular attention to the communication needs of customers with medium and large meters.	17
Customer communications after rollout	Once smart metering has been installed by the Wholesaler, ongoing communications will depend on the smart metering-related products and services the Retailer provides to its customers.	18

Reading smart meters

Topic	Description	Page
Responsibilities	Subject to approval of Code Change CPW142, Wholesalers are to be responsible for transferring meter reads from SmartAMI meters and submitting the data into CMOS once commissioned. Smart consumption monitoring devices can be installed by Retailers, customers or third parties. Such devices are not normally used for billing or settlement purposes, however.	19
Read frequency	Once installed, reads from SmartAMI meters will continue to be submitted on the current frequency (i.e. bi-annually or monthly). On the assumption that Code Change CPW142 is approved, it is expected that Wholesalers will transition to reading all meters on a monthly basis as soon as practicable. Any further changes will be considered through the Market Performance Framework.	20
Improving accuracy of transfer reads	Retailers should follow the Metering Committee recommendations for improving the accuracy of transfer reads. Once smart meters are installed, retailers will have the opportunity to further improve the accuracy of the transfer read processes.	20

Sharing data

Topic	Description	Page
Standard format	All market participants should adopt the common data format for granular consumption. This will make it easier for national retailers to share, analyse and aggregate data across different Wholesaler regions, as required, for multi-site customers	21
Standard approach	Wholesalers should adopt a standard approach to storing and sharing consumption data. Options are currently being assessed to determine a recommended approach.	21
Data governance	Data sharing governance to be developed and introduced.	22
Provision of data to Retailers	Wholesalers to make hourly meter reading data available to Retailers for all customers with smart metering as standard.	24

Sharing data (continued)

Topic	Description	Page
Provision of analysed data	Wholesalers to make analysed metering data available in a standard format on a regular basis to maximise the value of data being captured.	23
Provision of data-related services	The use of metering data provided by Wholesalers and the products and services developed from them are to be determined by Retailers, subject to a 'minimum recommended service level'.	24
Wholesaler charges for providing data	Wholesalers will be expected to provide hourly consumption data to Retailers. Charging should be for initial set-up costs only, with the ongoing provision of hourly data provided free of charge.	24
Monitoring	Process for monitoring the effectiveness of data sharing to be introduced.	25

Other smart metering-related topics

Topic	Description	Page
Defining continuous flow	A standard definition of continuous flow is to be adopted once approved.	25
Leakage allowances	The Panel recommends reviewing the need for, and application of, leakage allowances for customers with SmartAMI meters.	26
Performance monitoring	The reformed Market Performance Framework (MPF) will monitor Wholesalers' metering performance and publish peer comparison reports, among other things, to help inform NHH customers' choice of Retailer.	26

Improving the performance of existing meters

Topic	Description	Page
Asset management	Wholesalers should take steps to improve the performance of existing meters that are <u>not</u> due to be upgraded or replaced by the end of AMP8 (i.e. 2030).	28

1. Purpose

This strategy has been developed by the [Strategic Panel](#), with support from [MOSL](#), the NHH [Metering Committee](#) (including CCW), trading party subject matter experts and other stakeholders.

It sets out a series of recommendations on future policies, standards and best practices that aim to:

- Maximise the speed, efficiency and transparency with which smart metering is rolled out nationally to NHH customers by recommending a framework and identifying opportunities for consistency and standardisation among Wholesalers
- Set out how Retailers and Wholesalers can work together to support the rollout of smart metering and maximise its benefit to NHH customers
- Ensure traditional/AMR meters that are currently ‘problem meters’ (i.e. long unread, hard-to-read, etc) are included in companies’ smart metering rollouts or, if not, are addressed separately
- Make it as easy as possible for Retailers to access the data they need to identify and develop innovative products, services and tariffs, including those relating to water efficiency
- Provide a framework to help Wholesalers and Retailers develop solutions to shared meter-related challenges and delivery to customers
- Ensure that all NHH customers receive a good level of service, regardless of the type of meter (e.g. maximising the proportion of traditional meters being read by addressing known issues)
- Provide customers with more timely, accurate consumption data so they can make informed decisions about their water use.
- Determine how MOSL, the Metering Committee and others (e.g. [CCW](#), [Retailer-Wholesaler Group \(RWG\)](#), etc), can help take the recommendations forward.

The assumptions on which this strategy is based are listed in Appendix 1.

2. Background

2.1 Wider context

The United Kingdom faces a significant, and growing, water scarcity challenge. This is due primarily to population growth and the effects of climate change, which are making weather events more severe and less predictable.

Wholesalers rely on reserves being recharged during the winter to ensure there is enough water during the year. This recharge is becoming less reliable, while summers are getting hotter. The UK recorded its hottest day in 2022 and only narrowly avoided widespread water restrictions.

All Wholesalers are experiencing localised water scarcity issues, including regions not classed as ‘water stressed’. In some areas, water companies are unable to connect large new NHH customers.

Water Wholesalers have submitted Water Resource Management Plans (WRMPs) to Ofwat, outlining how they intend to balance the supply and demand of water from 2025 to 2050 and find the additional four billion litres of water per day that [Defra calculates will be needed by 2050](#).

Based on their WRMPs, Wholesalers have also submitted their Business Plans for the next five-year Asset Management Period (AMP) (i.e. AMP8, 2025-30), as part of the Price Review process.

Wholesalers are required to prioritise reducing demand and water lost (e.g. through leakage) ahead of measures to increase supply, such as building new reservoirs.

Research by Thames Water indicates that up to 25 per cent of NHH customers have continuously flowing water, which may indicate leakage.

Reducing demand requires access to timely, accurate and granular consumption data. Wholesalers are therefore proposing significant smart metering investment programmes in AMP8.

This investment will also enable Retailers (and Wholesalers) to deliver benefits to customers, including more timely, accurate bills, water efficiency measures and innovative tariffs and services.

Building on the Panel's [Interim Metering Strategy](#), published in April 2023, this document outlines a coordinated approach to the delivery of smart meters, as well as the collection and use of the granular consumption data they capture, to maximise the benefits for customers.

It also considers how existing traditional (manually read) and AMR (automatic meter reading) meters that are not due to be replaced by smart metering should be managed.

Defra's [Environmental Improvement Plan 2023](#) placed a legally binding responsibility on Wholesalers to reduce overall consumption of NHH customers by 9% (net) by 2038, rising to 15% by 2050. These targets exclude regional growth and therefore represent an even greater challenge for the country's fastest-growing regions.

Although Retailers are excluded from this target, they are nevertheless expected to provide water efficiency services to their customers as part of a competitive service offering.

In its guidance to Wholesalers, Ofwat set out its expectations that WRMP and PR24 proposals should include "ambitious" plans for smart metering. Ofwat is due to announce draft determination on water companies' plans in June 2024. Final determinations will be announced in December 2024.

2.2 The NHH market and metering

2.2.1. Market launch objectives

- The NHH market was launched to provide choice, improve customer service and reduce costs, e.g. through switching to a new Retailer or negotiating a better deal with the existing one, and the provision of improved water efficiency measures
- The market envisaged efficiency benefits for multi-regional NHH customers by being able to use one Retailer, have consolidated water bills with data presented in a consistent way, etc

2.1.2. Water usage and efficiency

- The NHH market uses 3 billion litres of potable water per day; around a third of the country's water. Just 1% of NHH customers use half of the market's water
- The large majority of NHH customers use the same amount of water, or less, than households and use the same size and type of water meter (i.e. 15mm or 20mm) (Source: CMOS)
- NHH customers with medium (25-65mm) and large meters (80mm and above) represent 13% of the 1.3 million SPIDs in the market, but account for nearly three quarters of consumption (72%).
- Due to its relatively low cost, water tends to be lower priority for NHH customers than gas or electricity. However, the real value of water becomes apparent when it is restricted or unavailable, at which point it becomes business-critical
- Interruptions to supplies affect all NHH customers, regardless of their size, type and amount of water they use. Not having water for employees to wash their hands or flush toilets stops businesses operating almost immediately

- Smart metering is expected to enable Retailers and third parties to provide water efficiency and leakage measures that are not currently provided at scale across the market

2.1.3. Retailer and wholesaler responsibilities

- Wholesalers are responsible for ensuring security of supply and helping reduce customer demand and water lost through network leakage, etc
- Retailers typically offer customers help to reduce demand and improve their water efficiency as part of their competitive service offering. However, they are not obligated to do so
- Retailers' 'own' the direct relationship with NHH customers (e.g. customer service, added value services, meter reading and billing, etc). Wholesalers can contact customers directly in certain circumstances, for example incidents and interruptions to supply
- Wholesalers own and maintain operational assets (e.g. meters) and maintain direct interactions with NHH customers through events, incidents and asset replacement and installation, etc.

2.1.4. Meter replacement considerations

- Wholesalers are fully responsible for their smart metering and replacement programmes
- NHH meters can be installed externally or internally. Internal meters are typically harder and more time-consuming to read due to the need to contact the customer to gain access. Smart metering will help address access issues in future
- Wholesalers' existing meter replacement programmes have tended to prioritise smaller meters due to the cost and complexity of replacing larger meters, which require careful planning to minimise the impact on customers and the public (due to supply outages, streetworks, etc)
- Data loggers can be added to meters (typically larger meters) to monitor the amount of water used between two time periods. This data is not used for meter reading or billing purposes. Devices can be added by Wholesalers, Retailers, customers or third parties, which can complicate replacement programmes
- A significant proportion of NHH meters are more than 25 years old. The accuracy of traditional meters tends to reduce over time, usually under-recording consumption
- Replacing inaccurate meters with smart metering will result in higher bills for some customers. However, this may be offset by faster identification of leakage, improved water efficiency, etc
- There are disincentives to investigating the accuracy of meters. These include the cost of under-reporting versus replacement; Wholesaler 'tariff rebalancing', which takes under-reporting into account, and Retailers being liable for the cost of meters that pass accuracy tests
- Wholesalers are responsible for promptly sharing plans, carrying out meter installations, the customer advance warning and ongoing communications for the works and ensuring the Retailer is involved and communicated with throughout the smart metering installation process
- Where a traditional or AMR meter is no longer working, the customers' consumption is not being accounted for accurately in the NHH market and may, therefore, be inflating reported leakage volumes

2.1.5. Measuring meter-related performance

- The majority of companies' meter-related performance is measured by MOSL via metrics and targets set out in the [Market Performance Framework \(MPF\)](#), which is currently being reformed to make it simpler and more effective.
- The reformed MPF is due to come into effect from April 2025

2.1.6. Wholesalers' smart metering plans

Wholesalers have set out how they propose to balance the supply and demand for water over the next 25-years (2025-2050) in their WRMP and PR24 submissions.

The percentage of SPIDs each Wholesaler owns and the proportions of SPIDs that will be rolled out over one, two and three AMPs is shown in Appendix 2 and summarised below.

- Wholesalers representing 50% of the NHH market's SPIDs are proposing a one-AMP rollout of smart metering (i.e. by the end of AMP8 in 2030)
- A further nine Wholesalers, representing 49% of SPIDs are proposing a two-AMP rollout (i.e. by the end of AMP9 in 2035)
- Two Wholesalers, representing around 1% of SPIDs, are currently proposing a three-AMP rollout

Wholesalers planning a two-AMP rollout are encouraged to deliver as much of their programmes in AMP8 as possible to minimise the disparity of meter and data-related services from region to region.

Wholesaler's overall NHH meter penetration varies between 67.9% and 97.5%. In other words, in some regions, nearly 30% of NHH customers do not have a metered supply and are receiving bills based on estimated rather than actual consumption.

The variation in meter penetration reflects a number of factors, including whether the region is classed as water scarce and the practicalities of installing meters using current technology.

All NHH customers should have a metered supply. As well as rolling out smart metering, the Panel expects Wholesalers to work to increase the penetration of meters to at least the industry average (87%) by the end of AMP8, increasing to current best-in-class (97%) by the end of AMP9.

2.1.7. PR24 determinations and Price Control Deliverables (PCDs)

Having encouraged Wholesalers to submit "ambitious" smart metering plans, the Strategic Panel urges Ofwat to allow the necessary investment to deliver them, while recognising the need to ensure companies' proposals are properly evidenced and provide long term value for money.

Each proposal will be assessed on an individual basis. However, the rollout of NHH smart metering across the country has the potential to deliver benefits greater than the 'sum of the parts'.

To do so, the Panel asks Wholesalers to consider their programmes part of a national rollout and encourages Ofwat to consider companies' plans 'in the round' as well as on their individual merits.

The Panel recognises that there are other priorities competing for investment in AMP8, including combined sewer overflows (CSOs) and the challenges of the current economic climate.

This has not deterred companies from proposing ambitious smart metering programmes, which reflects the critical importance of smart metering in meeting the future demand for water.

The focus is now on companies' PR24 final determinations, which will need to balance these priorities, while ensuring NHH smart metering programmes can be delivered and their benefits realised.

Recommendations for Wholesalers' Price Control Deliverable (PCD) are set out in Appendix 4.

3. Benefits of smart metering

Table 1 (below): Benefits of smart metering identified by Artesia Consulting research

Retail customers	Wholesalers	Retailers	Market operator
Improved service	Transactions based on valid consumption	Fewer customer complaints	Improved market performance
Bills based on valid consumption	Greater visibility of property level consumption	More accurate cash settlements	Market performance framework can be outcome focussed
Value added services	Ability to target leakage and wastage reductions	Improved cash flow	Data rich metrics
Water efficiency opportunities	More accurate consumption data for regulatory reporting	Scope to innovate and provide customers with added services	Value added insight
Fewer bill shocks	Improved management of meter assets	More confidence in taking on new customers	Evidence based improvements
More informed choices	Benefits align with household metering	Reduced cost to serve	
		Fewer stranded assets	

[Independent research](#) commissioned by MOSL and the Metering Committee on behalf of the Strategic Panel identified a range of benefits of smart metering to customers, Retailers, Wholesalers and the market (see Table 1, above).

In April 2023 CCW published its [Smart Thinking - Metering for Business Customers](#) report based on qualitative and quantitative research among NHH customers.

The research identified strong support (82%) for a broader rollout of new water meter technologies, with businesses expecting smart water meters to become commonplace.

Time and financial savings were considered to strongly outweigh any perceived drawbacks for both businesses and water companies.

The most compelling benefits of smart water meters were increased financial control, savings, and time efficiencies. NHH customers estimated the total mean monetary value for receiving data on water usage is £255 per year on average across all businesses and £316 for larger customers.

3.1. Summary of key benefits

Billing and settlement

- More accurate customer billing based on actual rather than estimated consumption, driving a reduction in billing contacts and customer complaints
- More timely and accurate meter reads to enhance speed and accuracy of market settlement
- Transition to monthly meter readings for customers whose meters are currently read bi-annually

Business demand reduction

- Granular consumption data enables NHH customers to manage consumption and reduce usage
- Data enables Retailers to offer services to NHH customers to help manage their consumption
- Consistent approaches to identify/measure defined types of consumption (e.g., continuous flow)
- Consistent/standardised services to Retailers regardless of Wholesaler region
- Greater tariff innovation opportunities for Wholesalers and Retailers
- Ability to identify and target customer-side leakage and internal waste at NHH premises
- Enhanced understanding of consumption to drive targeted demand reduction in NHH

Other opportunities

- Wholesalers' network and leakage management
- Faster identification of meter issues, leading to faster resolution
- More accurate leakage calculations for Wholesalers
- Reduced meter reading costs for Retailers

4. Defining smart metering

4.1. Meter technologies

There are three main types of meters/meter technologies:

- 'Traditional' meters, which need to be visited and read manually
- AMR (Automatic Meter Reading) meters, which can transmit a meter reading over short distances to a meter reader walking or driving past
- AMI (Advanced Metering Infrastructure), which transmit meter readings over long distances.

The meter in a smart metering system (be it a SmartAMI meter or a traditional/AMR meter that has been upgraded using add-on technology) is only 'smart' when part of a system that meets certain criteria, e.g. measurement frequency, distance over which data is transmitted, use of data, etc.

To upgrade meters to work in a smart metering system, Wholesalers can install SmartAMI meters or add meter 'reading' and transmission technologies to existing traditional and AMR meters.

4.2. Definition of smart metering

This strategy uses the definition of smart metering developed by the NHH Metering Committee:

A meter installation is classed as 'SmartAMI' (Advanced Meter Infrastructure) where meter read data is captured from a meter using a fixed network radio infrastructure. The radio infrastructure can be either a private or public network, such as cellular communications.

Wherever possible, the maximum period between planned data collection events is an hour. In addition, the meter installation and smart metering system must be able to provide data in accordance with the Granular Data Sharing Standard Specification

A meter will only be classified as 'SmartAMI' in CMOS when it has been installed, commissioned, and proven to provide the minimum level of performance as defined by the Wholesaler.

Wholesalers are expected to provide assurance that the reading on the physical meter register is the same as that taken by the smart metering system, both at the time of commissioning and during the life of the meter.

Smart metering definitions and additional requirements are discussed in more detail on the [MOSL website here](#). See Appendix 5 for other meter definitions.

5. National Metering Strategy

The Metering Strategy for the NHH market is outlined below.

Each section includes a summary of the recommended position, further explanation and/or background information and details of any further investigation that may be needed to provide further clarity or take recommendations forward.

We expect Wholesalers to incorporate the strategy's recommendations in their metering implementation plans for smart and existing meters and note the areas where further investigation is required.

5.1. Smart metering rollout

5.1.1. Choice of technology

This strategy does not specify particular smart metering manufacturers or technologies. Chosen technolog(ies) should, however, prioritise long-term value for money over short-term least-cost options and be able to deliver a minimum data sharing standard.

Wholesalers have invested significant time and effort developing smart metering plans and preparing to procure the necessary equipment and resources to carry out the installations.

Attempting to standardise technologies at this stage would delay the introduction of smart metering significantly and jeopardise the market's ability to meet the challenging targets it has been set.

It would also have a significant impact on companies such as Anglian Water and Thames Water, both of which have already installed thousands of smart metering systems.

The Panel does not believe that there is sufficient justification to standardise smart metering technology and that Wholesalers should therefore be free to choose the solution(s) that meet their needs, providing they meet the necessary data sharing standards (see Section 5.3).

This approach does not preclude future potential initiatives to introduce more standardisation to smart water metering or to take advantage of other possible opportunities, such as integration of smart metering with smart energy meters (see Section 5.6).

Wholesalers are reminded of the importance of choosing technology solutions that provide long-term value for money rather than least-cost options.

Wholesalers should confirm the smart metering solutions they intend to use in their metering implementation plans, including solutions for medium and large meters and hard to read locations.

5.1.2. Timescales

Wholesalers should aim to roll out smart metering in line with their Business Plan timetables. Companies wishing to adopt a two-AMP rollout (i.e. by 2035) should aim to deliver as much as possible in AMP8.

It is important to roll out smart metering over as few AMP periods as possible to:

- Begin delivering the benefits of smart metering to customers, Wholesalers and Retailers
- Contribute to the national rollout of smart metering to NHH customers
- Minimise the variance in data-related services offered between Wholesaler regions
- Begin contributing to efforts to manage demand and achieve Defra's targets

Four Wholesalers have submitted plans to roll out smart metering to all NHH customers over one AMP, nine companies over two AMPs and two companies over three AMPs.

As per the Interim Metering Strategy, Wholesalers should aim to roll out smart metering in one AMP (i.e. AMP8) and over a maximum of two AMP periods (i.e. by 2035).

Wholesalers should confirm smart metering implementation timescales in their metering implementation plans.

5.1.3. Inclusion of medium and large meters

Wholesalers' smart metering rollouts should include medium and large meters, with Price Control Deliverables (PCDs) included in plans to ensure they are rolled out as quickly as other meter sizes.

Approximately 85 per cent of NHH meters are small (15 and 20mm), but represent less than a third of total NHH consumption.

As well as the benefits described in Section 3, replacing small meters will help overcome access issues with internal meters. It can also enable multi-site NHH customers to align their water bills across all their sites.

By contrast, medium and large water meters make up around 17% of the market's 1.3m meters, but account for nearly three quarters (72%) of total NHH consumption.

The largest NHH customers are more likely to have effective water consumption monitoring/analysis and efficiency programmes in place already. Smart metering is likely to provide incremental benefits to these customers.

The NHH customers below this level – those with a mix of medium and large meters and less well developed water monitoring equipment and processes – are likely to benefit most from smart metering.

Medium-to-large customers offer an efficient way for Wholesalers to address a large proportion of NHH consumption in pursuit of their consumption reduction targets, and an ideal target market for Retailers' data analysis and water efficiency products and services.

Wholesalers should, however, anticipate larger meters being more complicated and expensive to replace or upgrade. More time will therefore need to be allowed for coordination and communication between the Retailer, Wholesaler and customer.

All parties are expected to use Standard Definitions for Meter Types [\[link\]](#) and data sharing processes and operational arrangements for meters.

Key issues relating to medium and large meters and loggers are outlined in Appendix 3:

Further investigation

MOSL to work with the Metering Committee, with input from manufacturers as appropriate, to develop guidance for smart metering larger meters, including consideration of where static meters may be considered (see Appendix 3).

5.1.4. Addressing ‘problem meters’

Meters that have not had a meter reading taken and entered into CMOS since the NHH market opened (i.e. are ‘Legacy Long Unread’) or 12 months or more (‘Long Unread’) should be included in the smart metering rollout

Note: meters not due to be replaced as part of a smart metering rollout are considered in Section 5.5

There are 138,000 Long Unread Meters that have not been read for more than 12 months and 18,000 meters that have not been read since the NHH market opened in 2017.

This can be due to several reasons, for example issues relating to locating, accessing or reading the meter, or because it is broken, is believed to have no flow, etc.

These meters must be included in companies’ smart metering rollouts to resolve these issues and ensure customers’ bills are based on actual consumption.

The Metering Committee has already established and quantified many of the existing problems and challenges with metering in the NHH market and [published guidance](#) to help their resolution.

Smart metering solutions can be implemented by replacing the meter or by modifying the existing meter. Wholesalers are expected to share their rollout plans as per the [Market Codes, Process D1](#) (Notification of capital works).

These plans should set out companies’ policies on replacement or modification and whether ‘technical obsolescence’ (see Appendix 5) is being used to justify the replacement of traditional or AMR meters before their ‘end of life’.

Wholesalers’ meter asset management plans should determine whether meters are replaced or modified as part of the smart metering programme and their policy on technical obsolescence.

Wholesalers’ Smart Metering Implementation Plans should include details of how they will focus on and resolve known problem meters in AMP8.

5.1.5. Publishing rollout plans

Retailers and NHH customers need to know in advance when smart metering will be available. Wholesalers should publish rollout plans in advance (as per the Codes) and progress against them on a quarterly basis in a standardised format. Timing of plan publication will vary according to each Wholesaler’s specific timetable.

Wholesalers will need to ensure Retailers and customers have access to rollout plans so they know, as accurately as possible, when to expect smart metering in their area.

Retailers will need to know when to begin making customers aware of the rollout and what to expect, the benefits of smart metering and the services they will be providing (see also 5.1.8 ‘Communicating with customers’)

Customers using a large volume of water or those classed as “water sensitive” will need as much notice as possible to consider their data needs, update systems and prepare for the installation and potential interruptions to supply.

The Market Codes require Wholesalers to consult with Retailers on their rollout plans and steps to be taken when replacing meters. Wholesalers should make smart metering rollout plans available on their websites with consistent content and/or format (once confirmed) so Retailers and customers can compare plans on a like-for-like basis.

Wholesalers are also expected to publish progress reports on their rollout programmes on a quarterly basis, beginning in the second quarter of 2025/26 for programmes underway at that time.

MOSL will use this information to produce and publish an update on the rollout of smart metering from a national perspective in the following quarter.

Further investigation

MOSL and the Metering Committee to develop a standard process and format/content for reporting smart metering plans and delivery progress on a geographical basis (e.g. by water resource zone) and how best to share this information, e.g. via a MOSL dashboard.

5.1.6. Capturing asset data

Wholesalers must ensure new smart metering asset data is captured accurately, uploaded to CMOS, and kept up to date.

The quality of meter data in CMOS has been a cause of inefficiency and friction in the NHH market.

Companies' smart metering implementation plans should include the process to ensure meter-related data (e.g. manufacturer, type, serial number, location, remote read type, etc) is captured accurately and kept up to date in CMOS.

Wholesalers should upload meter asset data into CMOS in accordance with the Market Codes. MOSL will monitor that CMOS is being updated.

Wholesalers are reminded that there is guidance on meter location data capture [best practice](#) from the Metering Committee and Retailer-Wholesaler Group (RWG). This will also provide clarity on meter make and type data required by CMOS.

MOSL will monitor asset data quality and make any additional recommendation for improvement for consideration by the Metering Committee.

Further investigation

MOSL to ensure that appropriate metrics are in place in the Market Performance Framework (MPF) to ensure meter asset data is entered into CMOS regularly and accurately during installation programmes and updated after any subsequent changes.

Any key issues should be reported to the Metering Committee.

5.1.7. Monitoring the performance of smart meters

Wholesalers should monitor the performance of new smart metering installations and have processes in place to maintain equipment and resolve any faults or failures that are identified.

Unlike traditional meters, SmartAMI meters use electronic components and rely on multiple batteries to operate the head unit and transmitter.

Despite electronics being housed in sealed units, the hostile conditions in which they often operate make them more susceptible to faults or failure (e.g. due to water or moisture ingress) than their mechanical counterparts.

Wholesalers should be able to demonstrate that they have appropriate monitoring and maintenance plans in place which include, as a minimum:

- Battery performance – equipment replacement policies to consider battery life (as sealed units, SmartAMI meter batteries cannot be repaired and must be replaced)

- Process for when no data is received from a meter – e.g. the length of time before a site must be visited and corrective action taken
- Accuracy sampling – surveys to sample of meters to determine any discrepancy between the reading on the meter register and the electronic reading taken by the smart metering system.

Wholesalers should produce and publish their Metering Asset Management Standard by March 2025, setting out minimum timescales for fault rectification and maintenance strategies.

5.1.8. Communicating with customers during rollout

Wholesalers should give Retailers ample notice of their intention to install smart metering to allow time for the Retailer to communicate to their customers (as per the Codes).

Both parties will be expected to work together cooperatively during the rollout, paying particular attention to the communication needs of customers with medium and large meters.

Effective communication with NHH customers will be critical to the successful rollout and acceptance of smart metering.

Retailers own the relationship with NHH customers and are responsible for all communications (except for wholesalers' operational activities) and will be keen to ensure communications relating to the rollout of smart metering by the Wholesaler are timely and appropriate.

Wholesalers' priority will be to roll out smart metering as quickly and efficiently as possible as they move through an area, while maintaining a degree of flexibility in case plans change.

The Panel recommends Wholesalers and Retailers follow the [RWG Planned Activities Good Practice Guide](#) and work together proactively and supportively to determine the best approach to communicating with customers before, during and after the rollout.

It will be important that Wholesalers give Retailers ample notice of their rollout plans (and any changes) so Retailers can plan their customer communications ahead of the work being carried out.

This will then lay the foundations and set customers' expectations for Wholesalers to communicate with customers on a day-to-day 'on the ground' basis in relation to the installation of the meter.

Working together to ensure customers receive effective, timely communications benefits both Retailers and Wholesalers. It will help ensure both parties appear 'joined up' and that customers are aware that smart metering is coming and appreciate some of its potential benefits.

Retailers may also help Wholesalers contact customers who are 'water sensitive' or have internal, difficult-to-access meters to gain access to carry out the work. Customers with medium and large meters, whose needs are likely to be more complicated, will need to be considered on a case-by-case basis.

Wholesalers are encouraged to approach companies whose rollouts are already at an advanced stage (e.g. Anglian Water and Thames Water) to understand the lessons they have learnt regarding rollouts and communications. The Panel also recommends exploring how MOSL, the Metering Committee and/or CCW may be able to support trading parties' communications.

Examples of high-level messages that Retailers and Wholesalers may wish to communicate before, during and after rollout are suggested below. It will be for Retailer and Wholesaler pairings to agree which messages are appropriate to one or other, or both, parties.

Pre-rollout messages

- The water supply challenge and how smart metering can help
- The benefits of smart metering to the NHH customer, environment, etc
- When and how smart metering will be rolled out
- The services your Retailer will/intends to provide
- When and how you can get hold of your consumption data
- How your data is protected (GDPR)
- Answers to common questions (costs, what happens if I change retailer, etc)

Pre-installation

- Notification in weeks or months when smart metering is due to be installed
- Clarification whether the newly installed SmartAMI meter will operate as a smart meter immediately or at a later date, once it is connected to the communications network
- What to expect and what you need to do (tailored to different size customers)
- How to make the most of smart metering
- What happens next (who will be in touch and when)
- Particular consideration should be given to “water sensitive” customers and those with larger meters due to the potential impact on their business

Post installation

- Confirmation that smart metering has been installed successfully
- Reminder of the benefits and services available
- How to access meter data
- Where to get support

Further investigation

MOSL to liaise with the RWG Steering Group (which includes CCW) to consider whether the existing guidance is sufficient or further support is required.

Further consideration to be given to having some central messaging for smart metering, e.g. updating the Open Water website.

5.1.9. Communicating with customers after rollout

Once smart metering has been installed by the Wholesaler, future communications with the customer will depend on the smart metering-related products and services the Retailer provides.

The rollout of smart energy meters to households included supplying customers with in-house displays, which was a visual reminder that they now had a smart meter and provided a way to see and engage with the amount of energy they were using.

There will be no such visual cues with smart metering. Indeed, some NHH customers may not see or feel any difference to their service for some time.

The onus will be on Retailers to remind customers that they have a new smart meter and the new products, services and tariffs that are – or will be – available to them to help reduce their water consumption or water usage patterns and save money.

In the absence of the equivalent of an in-house display, Retailers may wish to remind customers that they now have smart metering on their water bills and flag the benefits to the customer in terms of accuracy, etc.

As a minimum, Retailers should explain how they can access their consumption data. The minimum water efficiency-related services Retailers are expected to provide is described in Section 5.3.6 (below).

5.2. Reading smart meters

5.2.1. Responsibilities

Subject to approval of Code Change CPW142, Wholesalers are to be responsible for transferring meter reads from SmartAMI meters and submitting the data into CMOS once commissioned.

Smart consumption monitoring devices can be installed by Retailers, customers or third parties. Such devices are not normally used for settlement purposes, however.

The ability of smart metering to provide accurate and timely meter reads means it represents an opportunity to significantly improve the speed and accuracy of the settlement and billing processes.

Retailers are currently responsible for reading customers' meters and submitting the data into CMOS for billing and settlement purposes. Smart metering negates the need for manual meter reads.

Following [independent research](#) into meter-related roles and responsibilities, the Metering Committee is progressing a change to the Codes ([CPW142](#)) to make the Wholesaler responsible for 'reading' smart meters (electronically) and submitting reads directly into CMOS.

The change of responsibility will only take effect once smart metering has been installed and commissioned and the meter type updated to 'SmartAMI' in CMOS. Until then the meter will continue to operate as a traditional meter, including the need to be read manually.

This will enable Wholesalers to roll out SmartAMI meters proactively ahead of their communication network and treat them as traditional meters until they are ready to be connected.

Anglian Water and MOSL collaborated on Market Improvement Funded '[Project AMIDST](#)' to develop and successfully test the submission of SmartAMI meter readings directly into CMOS, while still enabling Retailers to challenge meter reads as necessary.

The change of responsibility for 'reading' smart meters relates only to those installed by Wholesalers, not those installed by Retailers, customers or third parties.

There may be instances where a Wholesaler may decide that a SmartAMI meter can no longer operate as a 'smart' meter and needs to revert to being used as a 'traditional' meter (i.e. read manually). In such circumstances the responsibility for reading the meter would revert to the Retailer. Before doing so, the Wholesaler should satisfy themselves that this cannot be avoided. The proposal must be approved by the Retailer in advance and both parties will need to agree notice periods, timescales and customer communications.

Wholesalers continue to be responsible for replacing smart meters that are faulty, i.e. no longer transmitting a meter reading, and alerting the Retailer via the MOSL Bilateral Hub so they can inform the customer. The Retailer can also flag faulty meters to Wholesalers via the Hub.

Retailers should be aware that what appears to be a 'fault' with a meter may be a temporary disconnection from the network (due, for example, to a skip being placed over the meter).

Wholesalers may wish to re-test the smart meter before attending to allow time for the connection to be restored automatically.

Further investigation

MOSL and the Metering Committee to progress Code Change CPW142.

5.2.2. Meter read frequency

Once installed, reads from SmartAMI meters will continue to be submitted on the current frequency. On the assumption that Code Change CPW142 is approved, it is expected that all smart meters will be read monthly, with further changes considered through the MPF.

Meter readings should continue to be submitted into CMOS in accordance with the Market Codes, i.e. at least twice a year for most meters.

If CPW142 is approved, the read frequency obligation in the codes will not change. However, it is expected that Wholesalers will transition smart meters to being read on a monthly basis for the purpose of submissions into CMOS – and make the necessary changes to the relevant data items – as soon as practicable.

Following the change, Retailers will capture metering readings for billing purposes directly from CMOS, thereby ensuring that the billing and settlement processes are aligned. Retailers that are currently unable to extract data from CMOS for their billing engines should determine appropriate processes with Wholesalers.

Once smart metering reads are being submitted into CMOS, MOSL will assess whether the accuracy of settlement has improved and consider any further changes to the settlement process.

MOSL will review and report the improvements resulting to the settlement process and recommend improvements to the settlement process as a result of better data availability.

Further investigation

MOSL to review CMOS to ensure it will continue to operate effectively as the amount of smart metering and meter reads in the market increases.

MPF Reform programme to consider incentivising Wholesalers to upload meter readings more frequently than currently required by the Market Codes (i.e. monthly).

5.2.3. Improving accuracy of transfer reads

Retailers should follow the Metering Committee process for improving the accuracy of transfer reads. Once smart meters are installed, Retailers will have the opportunity to further improve the accuracy of the transfer read processes

The Metering Committee has made improvements to the transfer process. With smart metering (under code change [CPW142](#)), Wholesalers will submit meter reads from SmartAMI meters directly into CMOS once a month.

This frequency of data capture in CMOS will not, however, provide a meter reading on the day of any change, for example when customers move in or out of their premises, or switch Retailer.

Retailers may therefore wish to develop a suitable process for these changes, e.g.:

- Using granular consumption data to obtain a reading on the day of transfer
- Requesting the meter reading on a specific day from the Wholesaler
- Using the data provided by CPW142 in CMOS to obtain a more accurate meter reading on the day of transfer
- Ensuring that when a customer with a smart meter changes Retailer that their meter read is based on actual consumption, not an estimate

5.3. Data sharing

5.3.1. Data format standard

All market participants should adopt the common data format for granular consumption. This will make it easier for national retailers to share, analyse and aggregate data across different Wholesaler regions, as required, for multi-site customers

Smart metering offers the opportunity to significantly improve our understanding of customers' consumption and develop a range of improved services for Wholesalers, Retailers and customers.

Key to this opportunity is the ability to frequently collect and analyse granular consumption data. Granular consumption data is defined as meter readings that are hourly or more frequent (e.g. every 15 minutes). Data collected from smart metering is usually available for analysis within 24 hours.

The ability to share meter data easily, efficiently and accurately is vitally important to customers, trading parties and the market as a whole.

Wholesalers employ a wide range of smart metering products from different manufacturers and use multiple systems and suppliers, which can result in an equally wide range of data types and formats.

As stated, this strategy does not seek to restrict or standardise the metering technology companies use. Technologies should, however, be able to output data in a standard format for key data items.

To ensure data in the NHH market is available in a consistent format, trading parties must adopt the [Data Standard for Sharing Granular Consumption Data](#).

Further investigation

MOSL will be asked to assess adherence with the data standard and work with the Metering Committee to determine ways to maximise adoption

5.3.2. Standard approach to sharing granular consumption data

Wholesalers should adopt a standard approach to storing and sharing consumption data. Options are currently being assessed to determine a recommended approach.

The large quantity of data generated from smart metering needs to be stored and made available to Retailers in an efficient and consistent way, recognising that many Retailers work across multiple Wholesaler areas.

The Metering Committee is currently working with Artesia Consulting to investigate three options for storing and sharing consumption data:

- Organic growth – Wholesalers store customer data in their systems and develop individual data sharing processes, with 'light touch' governance as necessary
- Central data hub – a single, central data 'hub' is developed by a third-party, in which all consumption data is held and shared with the relevant parties
- Peer-to-peer sharing – data is shared based on an agreed set of rules (i.e. a 'trust framework' similar to mobile banking).

The Artesia research recommends moving quickly to develop the next phase of the work as market participants are already requesting this data.

The 'organic growth' option is not recommended as it is likely to result in a proliferation of different approaches in the market. This would introduce complexity and inconsistency between Wholesalers, leading to inefficiency and friction, as it did with bilateral transactions.

In addition, the market wishes to avoid stranded investment in interim systems that later require modification to a standard approach.

The immediate next step is to fully define the governance rules in terms of who has access to what (see table in section 5.3.3, below), who provides the data, the security considerations and GDPR requirements.

At the same time, consideration will be given to selecting a preferred option which is likely to be either the central data hub or the peer-to-peer sharing ('trust framework') approach.

The Metering Committee is due to consider the options and make recommendations on the way forward and next steps in mid-2024. This will include how options should be assessed in detail, including market engagement, and the proposed governance over how a recommendation is made.

The recommended option will then be costed, including: detailed design; governance rules and 'use-cases'; system development; system operation and maintenance; system monitoring and future enhancement(s).

The Panel recommends Wholesalers do not to commit to data storage solution(s) that may not align to future data sharing and storage strategies, before such recommendations are made.

Further investigation

Metering Committee to review findings of independent research and investigate costs of recommended approach(es). Committee to then consider how to take forward.

5.3.3. Data governance

Data sharing governance to be developed and introduced

The three data sharing solutions discussed above (Section 5.3.2) will need strict Governance to determine parties' access to data and ensure adherence to the appropriate data protection regulations (e.g. GDPR).

It will be important to set out a series of 'use cases' for each party, which defines the purpose of each item of data and how it will be used, stored, and disposed.

Consideration will also need to be given to the management of customer data including GDPR principles. There may be additional restrictions relating to data from sole traders that need to be incorporated.

It is recommended that a consistent approach to customer data protection is developed.

Further investigation

Metering Committee to develop 'use cases' for data items and consider how many years' historic data should be made available to customers.

MOSL Legal team to consider the recommendation and provide a position statement and actions needed to ensure approach complies with data protection requirements (e.g. GDPR).

5.3.4. Wholesaler provision of data to Retailers

Wholesalers to make hourly meter reading data available to Retailers.

Wholesalers should make hourly meter reading data available as standard to Retailers for all customers with smart metering (subject to GDPR regulations) by the end of 2025.

Wholesalers may provide more frequent reads, e.g. every 15 minutes. Based on customers' requirements, Retailers may choose to provide hourly meter reads or combine them into a daily reading*. Wholesaler charges for setting up and providing data is discussed in Section 5.3.7.

Specific attention should be given to GDPR requirements relating to sharing sole traders' data as many customers' residential properties may also be their registered business premises.

*Note: the frequency with which a smart meter can provide meter readings (e.g. hourly) is not to be confused with the frequency with which trading parties are expected to enter meter reads into CMOS (i.e. bi-annually or monthly, see Section 5.2.2).

5.3.5. Analysed data

Wholesalers to make analysed metering data available in a standard format on a regular basis to maximise the value of data being captured.

Wholesalers will be obliged to share the raw data from smart metering with Retailers and, with the permission of the customer, third parties. In most cases, Wholesalers will carry out some degree of analysis of this data.

Wholesalers may wish to share this analysis with Retailers as a chargeable service. Retailers can use this information to inform leakage and water efficiency measures and customer contacts.

For consistency of reporting, it would be helpful to Retailers for Wholesalers to agree what analysed data should be provided as standard, for example:

- A list of top high-use meters by meter size
- A list of meters with significant increase in consumption
- Meters with continuous flow (start date, average continuous flow rate in last 7 days, date continuous flow stopped, etc)
- Benchmark consumption by customer segments
- Total daily, weekly, monthly consumption by Retailer

Wholesaler and Retailer pairings to agree how, and how often, data should be shared.

Further investigation

Metering Committee to agree what analysed data should be provided as standard.

5.3.6. Provision of data-related services to customers

The use of metering data provided by Wholesalers and the products and services developed from them are to be determined by Retailers, subject to a ‘minimum service level’

Data-related services provides an opportunity for Retailers to specialise and differentiate themselves in the NHH market in what is expected to become an increasingly competitive arena.

It is expected that Retailers will use the granular metering data provided by Wholesalers to offer a range of services that help customers understand their consumption, identify and rectify leakage on their pipework and fittings, and offer water efficiency measures, etc.

Third parties may also provide data-related services, subject to customers providing their consumption data or giving approval to access their data.

More advanced services could include benchmarking and analysis of peak flow, consumption patterns and customer segmentation, innovative tariffs and so on.

It is important to note that Wholesalers have responsibility for achieving Defra’s target of a 9% reduction in overall NHH consumption by 2038 (and 15% by 2050).

Retailers’ data-related services will be determined by customer demand and market competition. However, to support Wholesalers aim to reduce overall consumption, Retailers’ services must, as a ‘minimum service level’, include: the provision of daily consumption data, high usage alerts and continuous flow alerts to customers.

These services may be offered solely by the Retailer or in collaboration with the Wholesaler. Alternatively, the Retailer may allow the Wholesaler to contact the customer/premises directly.

To encourage competition and differentiation between Retailers, the number of services included in the ‘minimum service level’ will be kept to an absolute minimum.

Retailers will be asked to confirm to MOSL that they are providing the minimum service level.

5.3.7. Wholesaler charges for providing data

Wholesalers will be expected to provide hourly consumption data to Retailers. Charging should be for initial set-up costs only, with the ongoing provision of hourly data provided free of charge.

This strategy uses the principle for charging that was developed between [Thames Water and Ofwat](#) following the CMA review on the provision of data services.

Thames Water agreed to a commitment with Ofwat for the provision of hourly data to “Simplify its Digital Data Service (DDS) tariffs by charging for initial set-up costs only, with the ongoing provision of data provided free of charge”.

The Panel recommends the Metering Committee or RWG reviews current data-related charges in the NHH market and assesses items for which charges are made, considering the above principle.

It will be left up to individual Wholesalers to determine the level of such charges. A recommendation to be considered for a change to Market Non-Primary charges.

Consideration should be given to:

- A one-off set-up charge to cover the Wholesalers’ costs to supply granular consumption data
- Providing subsequent hourly data to Retailers free of charge
- A charge for providing data more frequently than hourly (e.g. 15 minute)

- Provision of continuous flow analysed results (start date, average flow rate, end date) using the standard format
- Provision of data with a latency less than one day (i.e. near real-time data)
- Provision of analysed results
- Provision of the minimum service standard

Further investigation

Metering Committee to consider the benefits of compiling and publishing a comparison of wholesaler charging structures across the NHH market to maximise visibility.

5.3.8. Monitoring effectiveness of data sharing

Process for monitoring the effectiveness of data sharing to be introduced

Once Wholesalers have begun sharing data, the Metering Committee and MOSL will introduce a monitoring process to ensure it is being done consistently and effectively.

It will also introduce a Forum for parties to discuss their experiences of data sharing, consider the results being achieved and opportunities for future improvement.

Further investigation

MOSL to monitor effectiveness of data sharing in the NHH market and consider opportunities for future improvement.

5.4. Miscellaneous

5.4.1. Defining continuous flow

A standard definition of continuous flow is to be adopted (once approved)

One of the primary uses of smart metering data will be to identify customers with continuous flow, which may indicate leakage (e.g. due to leaking toilets, taps, bursts, etc).

The early identification of potential leaks allows Retailers and/or Wholesalers to alert the customer/premise and intervene as quickly as possible to prevent further water loss and the associated impact on customers' bills.

The Metering Committee is currently working with an independent consultant to develop a definition of continuous flow as part of a 'Quick Start Project' to enable comparisons to be made between Wholesaler regions on a like-for-like basis.

Further investigation

Metering Committee to agree and publish the definition for continuous flow in the summer of 2024, including consideration of whether the definition should vary according to the size of the meter.

5.4.2. Leakage allowances

The Panel recommends reviewing the need for, and application of, leakage allowances for customers with SmartAMI meters

Currently when an underground leak is identified and repaired, Retailers and/or customers can apply for a leakage allowance to deduct the value of the lost water from the customer's bill.

The allowance was introduced to recognise that most NHH customers do not, or cannot, read their meters regularly and that it could be many months before a leak is identified at the next meter reading, by which time the customer could be facing an excessively high water bill.

By contrast, smart metering makes it possible to identify potential customer-side leaks within days or even hours of the occurrence and take remedial action.

The Panel therefore recommends trading parties, Ofwat and CCW consider whether a leakage allowance in its current form and practice remains appropriate for SmartAMI meters going forward.

Further investigation

MOSL to work with the RWG Steering Group to review the need for, and application of, leakage allowances for customers with SmartAMI meters.

This work should also include any changes that may be required to processes and procedures to ensure customers are not disadvantaged by this change (i.e. due to delays in Retailers and/or Wholesalers responding or alerting customers).

5.4.3. Performance monitoring

The reformed MPF will monitor wholesalers' metering performance and publish peer comparison reports, among other things, to help inform NHH customers' choice of Retailer.

The MPF helps MOSL understand and influence how the NHH market is performing. The MPF is currently being reformed to make it simpler and more effective. The revised MPF is due to come into effect in April 2025.

The MPF does not play a role in incentivising Wholesalers' smart meter rollouts, which will be driven by regulatory mechanisms such as Price Control Deliverables (PCDs) through PR24.

The MPF could, however, play an important role in monitoring and incentivising the provision of data to the relevant parties. The reformed MPF should consider mechanisms, either in its first iteration for 2024/25, or subsequent performance cycles, that incentivise delivery of this metering strategy. This could include areas such as:

- Wholesalers' meter 'reading' performance
- Wholesalers making granular consumption data available to Retailers
- Retailers and/or Wholesalers to make water efficiency/leakage services available to customers
- Retailers and/or Wholesalers to make granular consumption data available to customers

Several meter-related metrics will have targets and associated financial incentives/penalties, e.g submission of meter reads into CMOS. It is recommended that the targets are reviewed periodically and, where appropriate, raised to help drive further improvement.

Further investigation

Metering Committee to work with MOSL Market Performance Framework Reform team to recommend how trading parties can be incentivised to produce and share meter reads and data.

5.5. Improving existing meter performance

5.5.1. Asset management

Wholesalers should take steps to improve the performance of existing meters that are not due to be upgraded or replaced by the end of AMP8 (i.e. 2030).

As discussed in Section 5.1.4, Wholesalers smart metering rollout and replacement programmes should include replacing or addressing issues relating to ‘problem meters’.

Wholesalers should also take steps to improve the performance and address issues with existing meters that are not due to be upgraded or replaced before the end of AMP8 (i.e. 2030).

Some meters in the NHH market are more than 40 years old and are likely to be under-reporting the amount of water being consumed. Wholesalers should therefore have an appropriate meter replacement policy in place, which should consider replacing all assets greater than 25 years old.

As per guidance from Ofwat, all new meter installations or replacements should be SmartAMI-enabled from AMP8 onwards (i.e. 2025). In some cases this may mean that a SmartAMI will operate as a traditional meter, and read manually, until it is connected to the network.

Contrary to the Market Codes, 138,000 NHH meters have not had a meter reading entered into CMOS for 12 months. 18,000 meters have not been read since the market opened in 2017. This needs to be addressed urgently.

For meters that are not included in smart metering programmes during AMP8 this strategy calls for a programme of asset improvement that is focused on these types of meters and implemented during AMP8.

This is aimed at improving market processes (in accordance with Market Codes) and providing improved service to customers. This programme should include:

- 1 Resolution of all Legacy Long Unread meters defined as occupied by April 2026
- 2 Resolution of older Long Unread meters (i.e. no reading for three years or more) that are defined as occupied
- 3 Improved facilities to enable the Retailer’s meter reading agent to be able to read those meters defined as ‘Hard to Read’ (see ‘Guidance Documents’)
- 4 Improved facilities to enable the Retailer’s meter reading agent to be able to read sub-meters and non-market meters
- 5 Early replacement of ‘broken meters’ that are occupied but showing no consumption in line with Metering Committee recommendations (see [Market Improvement Fund project ‘NoFlow’](#))

Based on the above requirements Wholesalers should prepare a statement of their meter asset management approach and share with the Metering Committee to provide visibility and assurance.

Further investigation

Rolling out smart metering will change the economies of scale – and therefore cost and efficiency – of reading the decreasing proportion of remaining traditional/AMR meters.

The Panel recommends further consideration of the impact this could have on customer service and whether further changes are required to the market’s frameworks to ensure they remain appropriate, when traditional/AMR meters form a small minority of the NHH market’s meters.

5.5.2. Market improvements for existing meters

As part of the Strategic Metering Programme, MOSL has been working with the Metering Committee, which includes representatives from Retailers and Wholesalers, as well as CCW, to address issues relating to locating, accessing and reading meters, meter accuracy, etc.

Metering projects have also been delivered successfully via the Market Improvement Fund (MIF). These projects were funded by Market Performance Standards (MPS) and Operational Performance Standards (OPS) charges to trading parties.

A summary of key activity and outputs is provided below for reference:

Topic	Issue	Solution/output
Meter chambers and covers	Lack of clarity regarding ownership of meter chamber and responsibility for clearing the chamber in different situations, leading to delays and disputes.	Meter chamber and cover guidance document published
Definition of 'hard to read' meters	Inconsistencies in companies interpretation of 'hard to read' meters, leading to meters not being read and difficulties in analysing and addressing underlying issues.	Hard to read definition agreed and published.
Meter reading 'skip codes and follow on process'	Inconsistencies in codes and the follow-on process that companies use for reasons why a meter read was unsuccessful, leading to difficulties in analysing and reducing the number of unsuccessful reads.	Skip code guidance published
CMOS rejecting meter reads	CMOS was programmed to reject meter 200% higher or lower than the previous reading. A large number were often correct and re-submitted by Retailers, overriding CMOS. Tolerances changed as a result, leading to fewer rejections. Case sensitivity also addressed.	Change to CMOS
Logger-to-smart meter readings	Lack of consistency in the management of loggers that are installed when replacing traditional meters with smart meters, leading to disputes and delays.	Logger-to-smart process published
Meter location descriptors	Lack of consistency in the descriptions used in free text fields to help locate meters. Descriptions therefore ineffective and difficult to compare like-for-like.	Standard meter location description published

The Panel expects trading parties to work together to address long unread and faulty meters. The Metering Committee will continue to develop appropriate 'Quick Start Projects' to support future meter-related initiatives.

5.6. Learning the lessons of energy

The market will work with the energy industry to understand lessons learned and explore opportunities for value added services such as efficient technology solutions and data management and sharing.

[SmartDCC](#) presented to Panel on 1 February 2023 on the lessons learned from the roll-out of smart metering in the energy sector.

It was recognised that there are many similarities between smart metering in energy and water, e.g. gas meters' use of batteries and the need to communicate with each home and business premise. Several key differences were also recognised, for example the working environment in which water meters operate.

Net zero for carbon is the main driver in energy with a target of achieving 30 million homes and small businesses and 53 million meters by 2028 (the original target was to do so by 2018). Key lessons learned were:

- **Commercial** – Need for strong contract management and a focus on driving value for money
- **Technological** – a data platform approach enables scale and allows for unforeseen changes to be managed. SMETS2 standard for meters allows easier integration
- **Life cycle management** – Retirement and end of life planning can be properly managed into the next License period (September 2025)
- **Engagement** - With DCC at the centre of the Energy ecosystem system engagement with customers and key stakeholders can be built from the beginning
- **Ownership and accountability** – An independent Board has brought wider expertise and skills across a range of industries. Greater customer representation is key to the future of DCC

In the short to medium term the options to integrate with the energy sector are likely to be limited, but should look at longer-term options. This could include:

- Adopting the approach to customer contact and installation processes
- Use of sub-contractors for installation of smart metering facilities
- Smart metering maintenance practices
- Adopting elements of standardisation set out in the energy sector's SMETS2 (Smart Metering Equipment Technical Specification)
- Linking water meters to the home-hub
- Making use of the energy communication system
- Inclusion of water meter readings within the data management process offered by DCC.

The challenge is this is an opportunity for all smart metering in the water industry not just the NHH market. It therefore requires an industry-wide initiative.

As such it is considered Defra should be instrumental in setting up and facilitating a forum with Energy to explore and develop opportunities.

Further investigation

The Strategic Panel to discuss opportunities with the Smart Metering Advisory Group and Defra and consider establishing a cross-industry forum to explore potential developments that could provide benefits to both parties.

6. Next steps and feedback

The NHH Metering Committee and MOSL will work together to ensure this strategy is publicised, reflect on feedback and take forward the next steps described in each section.

The Strategic Panel will review progress regularly, assess success and lessons learnt and consider timing for future updated versions.

This strategy aims to provide direction and recommendations for trading parties in the NHH market and recommendations. Where new code changes or mandatory requirements are required, these will be initiated by the Strategic Panel to be pursued by MOSL and/or the Metering Committee, with further consultation as appropriate.

If you have any feedback that may be helpful in supporting the delivery of this strategy, please email comms@mosl.co.uk.

Appendices

Appendix 1: Planning assumptions

The metering strategy is based on the following assumptions and understandings:

1. The strategy is developed to meet the needs of the NHH market only
2. The Panel will monitor the takeup of the recommendations contained in this strategy and may mandate the adoption of certain recommendation(s) in future via the Codes if necessary
3. Customers should have access to their consumption data if they wish. Customer consent will be required before third parties are given access to their data.
4. It is accepted that it will not be possible to connect a proportion of SPIDs to smart metering (estimated at 3%) for technical reasons, e.g. due to the challenges of radio communications, etc
5. A proportion of SPIDs may never be metered using either traditional meters or smart metering, for example those with a common supply
6. Wholesalers will make every reasonable effort to install smart meters for customers and/or resolve existing meter-related issues
7. SmartAMI data transmissions may be interrupted due to technical reasons or physical obstacles, leading to gaps in data
8. A large number of older meters of unknown accuracy are operating in the NHH market. Older traditional meters tend to under-report consumption as they age
9. The responsibility for reading a meter will remain with the Retailer until a smart meter has been installed and confirmed as working by the Wholesaler (and registered as 'SmartAMI' in CMOS) (subject to change proposal [CPW142](#)).
10. Retailers can install consumption monitoring devices (e.g. reading devices that use cameras), but the responsibility for reading the device will remain with them and not the Wholesaler
11. The frequency of reading SmartAMI meters will be unchanged initially (i.e. bi-annually for meters up to 80mm in size and monthly for meters above 80mm). However, it is expected that smart meters will move to monthly reads, subject to the MPF Reform
12. Retailers retain responsibility for submitting meter reads ('transfer reads') into CMOS when a customer switches
13. There will continue to be a demand for pulsed outputs to enable connection of data loggers, business management systems or dosing systems in specific circumstances. However, we expect the demand for pulse outputs to reduce over time as confidence in smart metering grows
14. The availability of smart metering systems with suitable output for logging facilities is decreasing
15. This strategy does not preclude Retailers and/or customers from adding smart metering solutions to existing meters, particularly where there may be a significant delay before smart metering is provided by the Wholesaler. Retailers and/or customers should be aware there may be processes they are required to follow before installing their own device and this may differ between Wholesaler regions (see [RWG logger-to-smart](#) metering guidance document)
16. For the purposes of this strategy, guidance to Wholesalers applies equally to New Appointments and Variations (NAVs). It is recommended that NAVs – which are Wholesalers in their own right – liaise with the water Wholesaler in whose region they operate to determine the most cost-effective way of managing the rollout of smart metering and connection to the necessary communications infrastructure.

Appendix 2: Overview of smart metering plans

The table below shows the percentage of SPIDs each Wholesaler owns in the NHH market and the proportions of SPIDs that will be therefore potentially within scope of smart meter roll outs over one, two and three AMPs.

It also demonstrates the wide variation in total NHH meter penetration across the market. Some Wholesalers' rollouts will be principally meter replacements, while others will also be installing meters for the first time for a proportion of customers.

The final coverage of smart metering across SPIDs will depend on the level of updated meter penetration. The percentages below are indicative and represent the maximum coverage if all SPIDs are covered by the rollouts.

Wholesaler	NHH meter penetration	SPIDs in NHH market (%)	AMP8 2025-2030 SPIDs (%)	AMP8/9 2025-2035 SPIDs (%)	AMP8/9/10 2025-40 SPIDs (%)
Anglian Water	97.5	9.9	9.9	-	-
Southern Water	90.2	5.4	5.4	-	-
Thames Water	78.3	18.8	18.8	-	-
United Utilities	67.9	15.3	15.3	-	-
				-	-
Northumbrian Water	83.2	6.7	3.4	3.4	-
Portsmouth Water (8 yrs)	87.6	0.6	0.4	0.2	-
SES Water (7 yrs)	84.3	0.5	0.4	0.1	-
Severn Trent	83.9	15.8	7.9	7.9	-
South East Water	95.2	2.0	1.0	1.0	-
South Staffs Water	89.8	1.6	0.8	0.8	-
South West Water	94.6	4.7	2.4	2.4	-
Wessex Water	90.6	4.2	2.1	2.1	-
Yorkshire Water (80/20)	85.0	10.6	8.5	2.1	-
Affinity Water	86.5	2.8	0.9	0.9	0.9
Bristol Water	95.7	1.0	0.3	0.3	0.3
Smart metering rollout per AMP (indicative)			1 AMP 78%	2 AMPS 21%	3 AMPS 1%

Notes:

1. Table assumes smart metering will be rolled out evenly across AMPs unless otherwise stated (i.e. SES Water's seven-year rollout, Portsmouth Water's eight-year rollout and Yorkshire Water's plans to deliver 80% of its programme in AMP8)
2. AMP8 figures (above) will be overstated for wholesalers whose mobilisation are not completed by April 2025 due to the time needed in AMP8 to plan and begin rolling out smart metering
3. Bristol Water is now part of South West Water but are shown separately as smart metering will be implemented over a 3 AMP period in this area only.

Appendix 3: Larger meter considerations

Medium sized meters (25-65mm)

12% of meters in the NHH market are medium-sized, but account for 32% of consumption. Medium meters often have logging facilities attached.

The development of smart metering technologies has tended to focus on meters up to 30mm in size, primarily due to the size of the market and economies of scale.

The market needs to better understand the opportunities for smart metering medium-sized meters, including solutions to convert existing meters for use as part of a smart metering system.

Large meters (80mm+)

Large meters are relatively expensive to purchase and costly to install due to the need for two-man lifts, working in confined spaces, work in carriageways, bolted meter fittings, etc.

Customers are also often less willing to allow the water to be disconnected and may specify out-of-hours times for the work to be carried out.

Most large meters already have logging facilities attached to monitor consumption, which may be installed by the Wholesaler (e.g. to monitor network leakage), Retailer, customer or a third party. Some customers use an output from the Wholesalers' meter to monitor and manage industrial process on site. However, this is not considered an appropriate application for a revenue meter.

Logger considerations

Many NHH customers with larger meters use data loggers for various reasons, including the ability to input directly into building management systems to be able to have a 'live' view of water use.

Data loggers connected to a meter's pulse output usually monitors consumption between periods of time and is not generally used for billing or settlement purposes.

Data from smart meters is usually available within 24 hours. As a result, some customers, particularly the largest customers, may need a meter with a pulse output or a smart loggable meter.

Customers, Water Company Operational Teams, retailers and third parties often do not want their logging equipment disconnected, particularly if it is not compatible with the smart metering equipment being fitted.

Wholesalers will need to work with the owners/users of such equipment during the rollout. The Metering Committee has produced a [guidance document](#) relating to this process (see Section 5.5). Ofwat has made [recommendations in this area](#) as part of a challenge to the approach used in the past by Thames Water.

Only where the customer or Retailer is committed to logging facilities should a meter type be installed that allows a logger to be fitted (i.e a 'smart loggable' meter).

Splitter cables are used where more than one party wishes to install logging equipment. These can introduce reliability issues due to the increase in wired connections. Similarly, combination meters, which are installed where there is a large variation in flows, are known to be less reliable than other meter types and make logging more complicated.

A new generation of 'static' meter is becoming available that has no moving parts. These meters have large flow ranges and often come with smart metering connectivity and logger compatibility built in.

Wholesalers will be expected to ensure that the reading between the meter register and the electronic smart meter reading remain aligned and be able to demonstrate that this is the case.

Wholesalers should include their approach to smart metering medium and large meters in their Metering Implementation Plans.

Appendix 4: Price Control Deliverable (PCD) Recommendations

Ofwat is expected to require Wholesalers to propose Price Control Deliverables that clearly set out a detailed programme of smart metering.

It is recommended that Wholesalers' Price Control Deliverables:

1. Confirm that the programme includes both household and NHH meters
2. Confirm that medium and large NHH meters, hard to read meters and long unread meters will be included in the implementation strategy
3. Clarify the policy for determining when a meter will be replaced and when it will be modified to make the installation 'smart'
4. Explain any specific flexibility that may be required, including mitigation and recovery opportunities to deliver the proposed rollout programme in the event of unforeseen circumstances and explain mitigation and recovery opportunities
5. Include proposals to increase meter penetration to at least the current average (85%) by the end of AMP8, increasing to current best-in-class (97%) by the end of AMP9

The Recommendations below are based on the following expectations and assumptions:

- Smart metering implementation will begin in AMP8 and complete by the end of AMP9 (2035), as per Wholesalers' PR24 submissions (Appendix 2)
- Wholesalers will wish to implement smart metering on a geographic area basis
- Wholesalers will roll out smart metering to all meter types and customer segments in a given geographical area, i.e. none will be excluded and/or left until the end of the programme
- Problem meters (e.g. long unread, hard-to-read, broken, etc) not due to be converted to smart by the end of AMP8 (2030) will also be addressed and resolved by the end of AMP8. Companies' plans should allow additional costs for doing so due to the challenges associated with such meters
- Wholesalers will set out the maximum age by which meters should be replaced and/or their definition of technical obsolescence (i.e. the need for replacement on the grounds that a meter is no longer able to provide the data required)
- Business plans make allowance for the additional cost of delivering smart metering solutions for larger meters, rather than cost benchmarks being based on the cost to install a meter in a typical household.

Appendix 5: Definitions

- **Traditional meter** – a water meter that needs to be visited to take a visual reading and cannot be read remotely
- **Automatic Meter Reading (AMR) meter** – data is captured from a water meter using ‘walk-by’ or ‘drive-by’ methods, with an electronic interface unit near the meter (typically up to 10m)
- **Advanced Metering Infrastructure (AMI) meters** – a meter installation is classed as ‘SmartAMI’ (Advanced Meter Infrastructure) where meter read data is captured from a meter using a fixed network radio infrastructure. The radio infrastructure can be either a private or public network, such as cellular communications
- **Market monthly smart meter reading** – a single monthly meter reading collected by a SmartAMI meter installation and uploaded directly into CMOS which is Settlement affecting
- **Granular consumption data** – continuous collection of frequent meter readings in litres (i.e. hourly or every 15 minutes) that are shared between relevant parties in the market typically one day after collection.
- **Small meters** – meters of sizes 15 and 20 mm (equivalent to the sizes used for households). Around 85% (1.1m) NHH meters are small, accounting for 28% of consumption in the market
- **Medium meters** – meters of sizes 25 to 65 mm that includes about 156,000 meters that collectively account for 32% of consumption in the market
- **Large meters** – meters of size 80 mm and above that includes about 13,000 meters that collectively account for 40% of consumption in the market
- **Broken meter** – a meter that is operational but where the register is not recording consumption.
- **Long Unread Meter (LUM)** – a meter that remains unread for more than 12 months.
- **Legacy Long Unread Meters (LLUM)** – meters that are in the market and listed in CMOS that have never been read since the competitive water market opened in 2017
- **‘Life expired’ meters** – a meter over 25 years of age
- **Technical obsolescence** – a meter that is no longer able to provide the necessary interface to smart metering, regardless of age