



Roles and responsibilities for metering in the NHH market

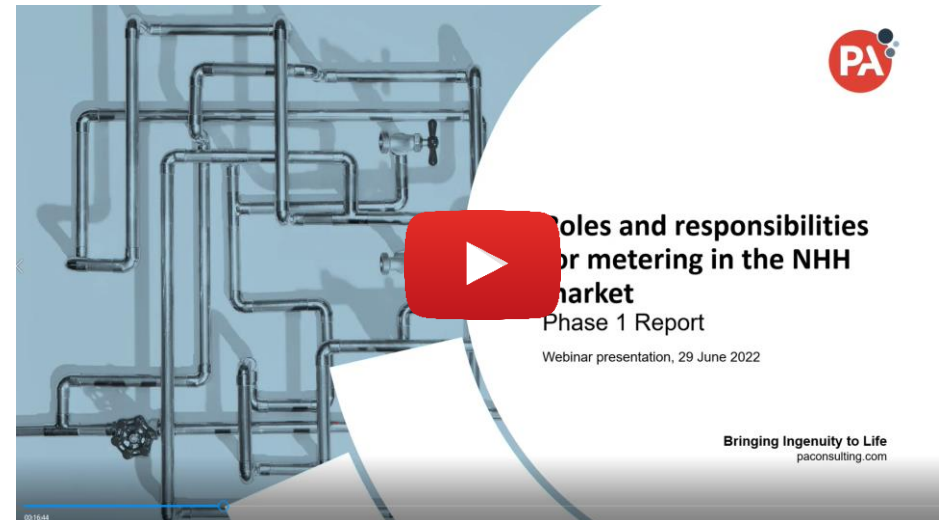
Phase 1 Report

Published 29 June 2022

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Webinar and consultation documents

- 💧 The following report was presented at a webinar on 29 June 2022
- 💧 A recording of the webinar is available [here](#) (see time stamps below, right)
- 💧 The consultation questionnaire form is available [here](#)
- 💧 Closing date for submissions: **Friday 22 July 2022**
- 💧 If you have any questions, please email comms@mosl.co.uk



💧 Opening remarks	Ofwat	00:01:15
💧 Market context	MOSL	00:03:42
💧 Strategic Metering Review	MOSL	00:08:00
💧 Purpose of today	Waterscan (sponsor)	00:11:55
💧 Research findings	PA Consulting (process)	00:15:20
	PA Consulting (12 options)	00:27:00
	PA Consulting (pros and cons)	01:00:00
💧 Prioritisation discussion/questions	MOSL	01:12:10
💧 Next steps and close	MOSL	01:27:30

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01

**Foreword & executive
summary**



Foreword from the Metering Committee

Foreword

I am pleased to introduce the second of two independent reports on metering in the non-household (NHH) water market, which MOSL has commissioned on behalf of the Strategic Panel's Metering Committee.

The first report considered the business case for enhanced metering technology in the NHH market (see box, right).

This second report considers the options and merits of potential changes to the current roles and responsibilities relating to NHH meters, from responsibility for reading meters to meter ownership.

Meters are key to providing timely, accurate meter reads and consumption data. They play a critical role in the NHH market, from ensuring customers' bills are accurate to identifying leaks, helping drive water efficiency and enabling retailers to develop innovative tariffs.

Although wholesalers 'own' the meter, they do so as 'stewards' for customers and retailers, who are directly affected by decisions about the meter (e.g. technology) and rules relating to it (e.g. responsibilities for reading meters, how and when data is made available, etc).

With the benefit of five years' experience of the market, the Metering Committee wishes to revisit the current roles and responsibilities to:

1. Consider whether they are still appropriate and optimal
2. Address any unintended consequences from decisions made prior to market opening (e.g. transferring responsibility for reading meters from wholesalers to retailers)
3. Explore potential opportunities for changes to the current status quo, particularly those that could benefit customers.

PA Consulting was commissioned to identify and evaluate all potential options. None are 'off the table' at this first stage.

Twelve potential options have been identified. A one-page summary is provided on Page 9, with options grouped into categories.

To help prompt discussion and debate, we have applied a *provisional* ranking to the various options, indicating which are considered most applicable for further analysis.

Please note that the ranking does not imply a formal recommendation by the Metering Committee, nor a guarantee that particular option(s) will be taken forward.

Have your say

Before deciding which options to analyse in more detail, we are inviting feedback from all stakeholders, including trading parties, customers, customer bodies, Regulators, etc:

- Are there any options we have missed?
- Are there any options you would definitely not pursue (and why)?
- Do you have any other comments, insights or data that would help the discussion?

Please submit any feedback via this link [LINK] by [X] July 2022.

If you have any comments or questions, please email comms@mosl.co.uk.

Claire Yeates
Strategic Project Sponsor
Strategy Director, Waterscan
On behalf of the Metering Committee

Report 1: Enhanced Metering Technology

The first report, which was published in April 2022, assessed enhanced metering technology in the NHH market.

The report concluded that:

1. There is a compelling case for water companies rolling out enhanced metering technology to NHH customers
2. Water companies planning to roll out 'smart' meters to households should include NHH customers.
3. Companies without large-scale meter investment programmes would benefit from replacing or upgrading selected non-household customers' meters
4. That common data output standards will enable multiple technologies to be adopted.

The full report, cost-benefit analysis, financial model and templates to support water companies' PR24 and Water Resource Management Plan submissions is available on the [MOSL website](#).

Purpose and background

MOSL's 2021-24 Business Plan defined nine priorities that aim to improve the NHH market. The Strategic Metering Review (SMR) is one of MOSL's key multi-year improvement programmes and remains a strategic priority in the most recent (2022-25) business plan.

The main aim of the SMR is to increase the volume and quality of consumption data and meter reads available to the market and improve the ability for trading parties to provide timely and accurate bills to customers and to ensure the effective functioning and evolution of the NHH market to the benefit of all stakeholders – particularly customers.

MOSL defined three key projects for the SMR:

- Roles and responsibilities for metering in the NHH market
- Enhancing Metering Technology in the Market.
- NHH Metering standards

This report relates to the first of these projects, and is focused on identifying a set of potential options to reform or enhance current roles and responsibilities in relation to metering and related activities in the NHH market.

The options presented in this report have been developed through extensive engagement with NHH market experts through the Metering Committee. It provides a foundation for wider engagement with market stakeholders, as for the first time there is now a clear and comprehensive view of the range of potential reforms to metering roles and responsibilities.

Rationale for reforming metering roles and responsibilities

The rationale for considering changes to metering roles and responsibilities is twofold. Firstly, to address issues with the current roles and responsibilities that are causing or exacerbating metering issues. Secondly, to enhance alignment between NHH metering arrangements and the vision and future direction of travel for the sector as a whole.

The current ownership and roles and responsibilities relating to water meters was part of a pragmatic design to enable the NHH market to be established, and based on the state of metering technology at the time. The experience of the first five years of market operation has highlighted a number of complexities and frictions in the market that have increased costs and risk, especially for retailers, and which have led to sub-optimal outcomes for customers.

There is now significant evidence of ongoing metering issues (such as unacceptably high volumes of long unread meters) where current roles and responsibilities is hindering resolution. There are also concerns that accountabilities and incentives in the market are misaligned, resulting in Trading Parties being measured, and in some cases penalised, for meter asset and meter reading performance, parts of which are beyond their control.

Additionally, the sector is increasingly embracing improved metering technologies, and seeking to develop more innovative offerings and better customer experience, driven by richer and more accessible consumption data. The recently published Enhancing Metering Technology report makes a strong case for water companies rolling out enhanced metering technology to NHH customers. And some participants are trialling smarter data solutions and assessing the business case for technology investments for NHH customers. It is therefore critical that metering roles and responsibilities do not create a barrier to progress in the NHH market, and instead create a framework that enables market evolution and new opportunities, including:

- Creating more value for NHH customers
- Optimising the operation and cost-efficiency of the NHH market
- Maximising the potential for innovation in the market

This report identifies a comprehensive range of options for reform to roles and responsibilities, and includes an initial high-level evaluation of these options, including:

- Whether each option is likely to deliver positive outcomes to customers, the NHH market and support the wider strategic policy aims and initiatives in the water sector.
- The different types of potential impacts on customers, market participants, the Market Operator or other businesses (current or future) such as meter reading agents or asset investors/funders.
- The potential scale of effort and complexity to design, deliver and operate each option.

This approach balances strategic and tactical considerations, and is therefore a valuable first step towards the development of more detailed evaluation and business cases for reform to metering roles and responsibilities as part of the SMR.

Executive summary (cont'd.)

A broad range of options has been identified

The table opposite lists the twelve options identified by the project.

The options are not all mutually exclusive, and it may be possible to identify an optimal approach based on a combination of two or more of the options as part of a phased programme of reform.

Recognising the aims of resolving current market frictions, as well as enabling future market evolution, the options vary in nature and focus, including options which would:

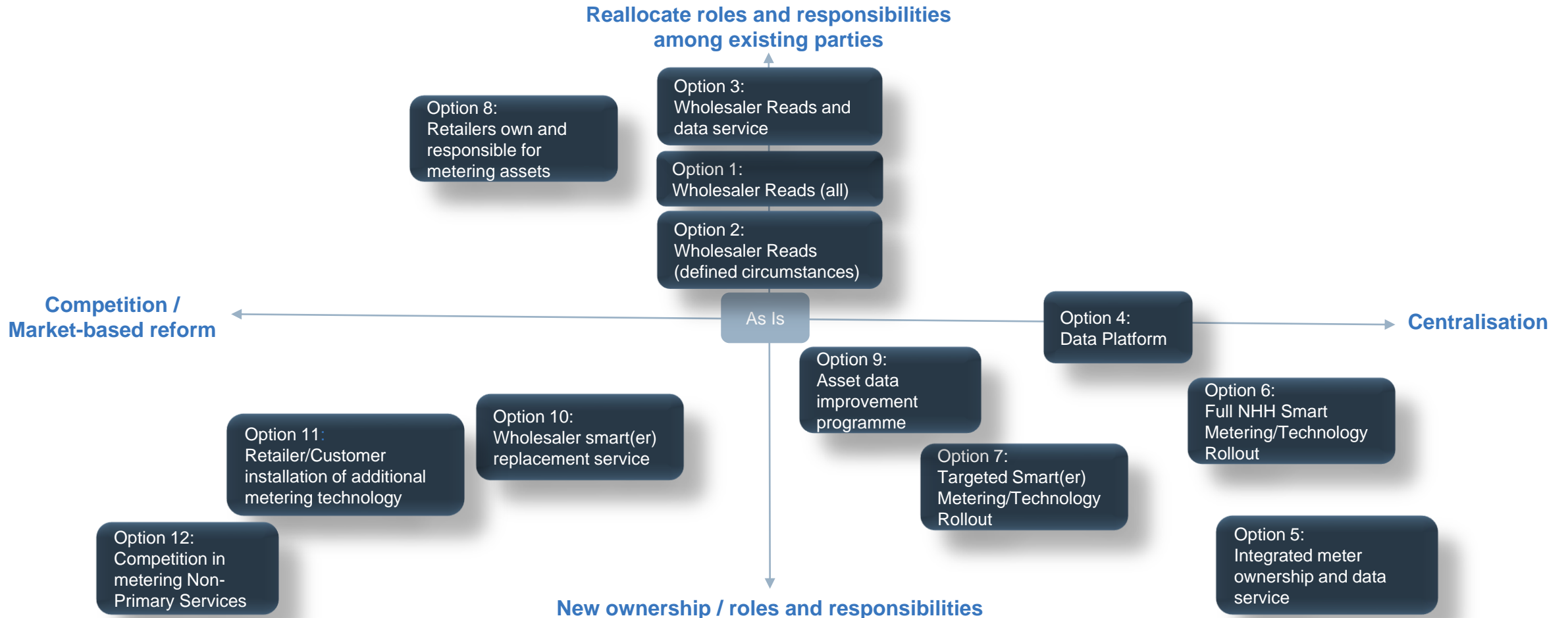
- Increase participant responsibilities and incentives to focus on resolving known metering issues, such as Long Unread and Hard to Read meters (e.g. Options 2 and 9)
- Place increased NHH market meter reading responsibilities on Wholesalers (e.g. Options 1, 2 and 3)
- Create a market-wide platform for sharing and accessing smart meter data to drive market performance and evolution (Option 4)
- Introduce new metering asset ownership models for the market (e.g. Options 5 and 8)
- Mandate and accelerate smarter technology roll-out in the NHH market (e.g. Options 6 and 7)
- Provide more control/optionality for retailers and customers over when and where smarter metering technologies are deployed (e.g. Options 10 and 11)
- Open more areas of metering activity to competition to increase the market's capacity to resolve metering issues (e.g. Option 12)

#	Option	Summary
1	Wholesalers responsible for all market meter reads	Wholesalers obliged to submit reads on behalf of market for all meter read types within own Wholesale Area
2	Wholesaler Reads (Defined circumstances only)	Meter read responsibility switches to wholesaler in defined circumstances only, such as where there is evidence of long unread / hard to read meters
3	Wholesaler Reads and data service (for smart meters only)	Meter read responsibility switches to wholesaler where smart metering is installed
4	Data Platform	New NHH market-wide data platform to improve access to and standardisation of data for market participants
5	Integrated meter ownership and data service	New market structure with an independent meter asset provider and data platform as a service
6	Full NHH Smart Metering/Technology Rollout	Mandated and coordinated smart metering / smarter technologies roll-out programme for all of the NHH market
7	Targeted Smart(er) Metering/Technology Rollout	Mandate on wholesalers to deploy smart / enhanced metering technologies at a defined sub-set of premises only
8	Retailers own and are responsible for metering assets	Responsibility for metering assets transferred to incumbent retailer for all NHH SPIDs from a specified date
9	Asset data improvement programme	Centrally-governed programme of initiatives to improve known metering issues
10	Wholesaler smart(er) replacement service offering	Retailers can request Wholesaler to install smart meter / enhanced technology and provide access to data.
11	Retailer/ Customer installation of additional metering technology	Enhanced ability / rights for retailer/customer to install own smart equipment (or commission installation by qualified contractor)
12	Competition in metering Non-Primary Services	Opens up non-primary activities to competition such that this is no longer a wholesaler monopoly activity

Executive summary (cont'd.)

The options are deliberately diverse

The twelve options identified are deliberately diverse so as to provide as wide ranging a view as possible on where and how metering reform could be effected, and to ensure that each option will be fully assessed against a consistent set of criteria. This is illustrated in the diagram below.



Executive summary (cont'd.)

The advantages identified across the options could not only resolve current issues, but also enable substantive evolution of the market

The initial evaluation of the options set out in this report has identified a range of potential benefits of reforming metering roles and responsibilities, including:

- Potential to expedite resolution of current metering market and asset data issues - leading to better customer outcomes – including through placing more responsibility for resolution on the parties best placed to do so, increasing performance incentives to take action or increasing the range of parties that can undertake metering work.
- Enabling greater economies of scale, for example by combining Wholesalers' activities around smart meter deployment and meter reading and consolidating NHH and HH meter reading
- Accelerating market evolution toward smarter technologies and data sharing for NHH market, for example by providing a single market-wide platform for smart meter data sharing, or driving consistency of the overall market solution and timescales for deploying smarter metering technologies
- Enabling retailers greater choice and ability to offer smart-enabled service offerings to customers.

There are a number of key challenges which would require to be addressed in order to achieve the optimal outcome

This report also provides an initial assessment of the potential challenges of each option, in advance of detailed assessment and development of a full business case for the preferred option. For example, it has been identified that some of the options could:

- Have possible negative customer impacts, for example through removing choice of meter read provider if the wholesaler becomes wholly responsible for NHH reads
- Impose major regulatory, operational and commercial changes on market participants and their supply chain, including contracted meter reading agents
- Create new monopoly roles and activities (such as a central Data Platform provider or single meter asset owner) with related risks that would need mitigation

- Introduce complexities such as separation of asset ownership and maintenance from other market roles - requiring additional handoffs or dispute mechanisms
- Represent a less cost-efficient approach to smart technology rollout than currently being planned by wholesalers.

Implementation considerations

This report also provides an initial view on the scale and nature of changes that would be needed to progress the reform options. Some options would require a relatively modest change to existing arrangements and could be progressed within existing market governance arrangements. Some options would require new systems or services to be developed or procured. A number of options would have significant legal, regulatory and financial implications for market participants, as well as implications for PR24 price controls and the Retail Price Review. There is likely to be a need for Defra/Ofwat sponsorship to drive some options, particularly where there could be a significant impact on the regulatory framework, market structure or existing wholesaler / retailer activities and charging regimes.

Recommended way forward

The definition and initial critical evaluation of the options set out in this report provides a basis for wider industry and stakeholder engagement to broaden perspectives on the options and inform the optimal way forward. Additional design, analysis and testing of the options will be required before a fully informed decision can be taken on any of the options set out in this report, based on a full business case. However, to provide a starting point, an indicative categorisation of options that should be prioritised for further evaluation is provided on the next page, based on the analysis undertaken in this phase.

The next phase of the review should therefore focus on delivering a fuller objective evaluation of priority options, including the economic case related to possible alternative models for metering roles and responsibilities.

This report identifies the additional information required to develop a more rigorous and higher-confidence evaluation of the options identified in this report and suggests a range of activities (including consultation, more detailed design and impact assessments) that will support the next phase of work on the SMR towards a full business case for reform of metering roles and responsibilities. This will ensure that the selection and implementation of reforms are fully aligned with the strategic direction for the market.

Executive summary (cont'd.)

Initial view of the options to prioritise for detailed evaluation

The table on this page provides an initial view of options that should be prioritised for detailed evaluation in the next phase of the SMR.

Highest priority should be given to those options which could be considered “no regrets” options and those which are currently viewed as having the greatest opportunity to meet the objectives of the SMR, as well as being realistically deliverable and which could be progressed and deliver value irrespective of other options.

	Option grouping (Priority order)	Options	Description	
<p>Must be progressed further as market and data improvement is key driver for the SMR – these options are most closely aligned to the immediate SMR priorities.</p>	<p>1 Potential ‘must have’/‘No regrets’ options</p>	<p>a. Option 9 Asset data improvement programme; and...</p> <p>b. Option 4 Data platform</p>	<p>These are options that should be implemented and will provide a robust framework for developing metering in the market. They are also no-regrets options.</p>	<p>Higher</p>
	<p>2 Performance improvement</p>	<p>a. Option 1 Wholesaler responsible for all market reads; or...</p> <p>b. Option 2 Wholesaler reads in defined circumstances only</p>	<p>The best of these options could be selected, to tackle meter reading costs and long unread meters. Also to incentivise wholesalers to implement smart metering for NHH customers.</p>	
<p>If it is confirmed that accelerating smart metering in the NHH market is a critical driver for NHH market improvement then these options should also be high priority.</p>	<p>3 Smart metering options</p>	<p>a. Option 6 Full NHH smart metering/technology rollout; or...</p> <p>b. Option 7 Targeted smart(er) metering/technology rollout; or...</p> <p>c. Option 10 Wholesaler smart(er) replacement service offering; or...</p> <p>d. Option 11 Retailer/customer installation of additional technology</p>	<p>The best of these options could be selected, depending on individual wholesaler circumstances and building on the Enhancing Metering Technology work.</p>	<p>Priority</p>
<p>This is a radical change – and should only be considered if other options are not viable or successful</p>	<p>4 Fall-back position</p>	<p>a. Option 5 Integrated meter ownership and data service (as an option, only where wholesalers are not investing in technology)</p>	<p>A fall-back position if there is insufficient traction by wholesalers on smart metering deployment and data improvement in the NHH market.</p>	<p>Lower</p>
<p>No clear case to progress at this stage, based on current evaluation</p>	<p>5 Not prioritised for further evaluation</p>	<p>a. Option 3 Wholesaler reads and data service (for smart meters only)</p> <p>b. Option 8 Retailer own and are responsible for assets</p> <p>c. Option 12 Competition in metering Non-Primary Services</p>	<p>Option 3 deprioritised as a specific option on basis that similar outcome would be delivered via a combination of wholesaler responsibility for reads (Options 1 or 2) and data platform (Option 4).</p> <p>Options 8 and 12 currently viewed as unattractive due to delivery complexity and low likely benefits.</p>	<p>Lower</p>

02

Overview of approach

This section sets out:

- The approach followed for this first phase of the review of NHH metering roles and responsibilities, including engagement and co-creation with the Metering Committee
- How the longlist of options described in this report was developed

Introduction

Strategic Metering Review

This report was commissioned by MOSL on behalf of the Metering Committee (a formal sub-committee of the Strategic Panel).

MOSL's 2021-24 Business Plan outlines nine improvement programmes that aim to improve the market and make it 'easier to do business' for market participants and their customers.

The Strategic Metering Review (SMR) is one of MOSL's key multi-year improvement programmes and remains a strategic priority in the most recent (2022-25) business plan and is considered a 'must-do' by MOSL and trading parties. The SMR aims to increase the volume and quality of consumption data available to the market, resolve market frictions around metering and improve the ability for trading parties to provide timely and accurate bills to customers and deliver improved environmental outcomes.

PA Consulting was engaged in December 2022 to deliver initial analysis for a strategic metering theme: **Roles and responsibilities for metering in the NHH market.**

This project is considering the range of possible alternative models for ownership and responsibilities for meters, meter reading, add-on technology for meters, data and data sharing arrangements.

The key output of this work is an initial evaluation of the possible options and recommendation on those options that could be taken forward for further evaluation to assess how significant a benefit to the market these could offer.

This report sets out a long-list of options for improved roles and responsibilities in the market and provides a basis for a subsequent, more comprehensive, review of the implications and benefits.

The project is a critical part of the wider SMR, alongside and complimentary to the priorities of the Strategic Panel, including the parallel workstream on Enhanced Metering Technology.



Scope of initial options development and assessment

Metering market issues within scope

A key objective of this initial phase of work on the Metering Roles and Responsibilities strategic theme was to identify a set of options for change across a range of different aspects of the NHH metering arrangements, including:

1. **Meter Assets:** potential alternative arrangements for the ownership, deployment, operation and maintenance of NHH meters and related equipment (such as communications infrastructure)
2. **Meter Reading:** potential changes to allocation of responsibilities for obtaining and submitting the various meter read types required under the NHH market rules
3. **Meter Asset Data:** options that have potential to improve the quality and timeliness of asset data (such as meter type and location) which is critical to the effective operation of the NHH market
4. **Additional Metering Technology:** changes to market rules and arrangements that could increase the potential for AMT to contribute to better market operation and customer outcomes
5. **Metering Data:** Initiatives or solutions that could improve the quality and accessibility of enhanced consumption data (particularly as smart/smarter technologies increase the volume and granularity of data available)

These focus areas were used to structure the process of generating ideas for change, from which the initial longlist of options set out in this report were generated. As these are closely related and interdependent aspects of the metering arrangements, some of the resulting options identified impact more than one of these elements.

Scope of initial analysis

The aim of this initial phase of work on the Metering Roles and Responsibilities workstream was to identify a longlist of options which are credible but which also represent a degree of stretch – i.e. including both options which could be implemented in the relatively near term with relatively contained change to the existing NHH market, as well as others which could involve more significant market restructuring.

Another key aim was to provide sufficient definition and initial critical evaluation of the options to provide a basis for wider industry and stakeholder engagement. It is also important to recognise that significant additional design, analysis and testing of the options will be required before a fully informed decision can be taken on any of the options set out in this report. Therefore another aim of this piece of work was to identify the additional information and activities that will be necessary to provide that rigour in subsequent phases of this strategic theme. The scope of this initial phase therefore included:

- Initial ideation and identification of a range of options that could be considered
- Informing the options development by considering approaches used in other similar markets
- Conducting an initial high-level assessment of each option to identify potential benefits that could be delivered to stakeholders, as well as any unintended consequences or potential implementation challenges
- Recommending the longlist of options to be developed in detail in subsequent phases
- Considering how options relating to each of the metering issues identified above could be combined (recognising that a number of options may not be mutually exclusive)
- Developing an assessment framework for the options to be developed in more detail, including the criteria by which potential solutions should be judged

Meter Assets (ownership, roll-out, O&M)

Meter Reading (to meet NHH market requirements)

Meter Asset Data

Additional Metering Technology

Metering Data (consumption - enhanced)

Approach

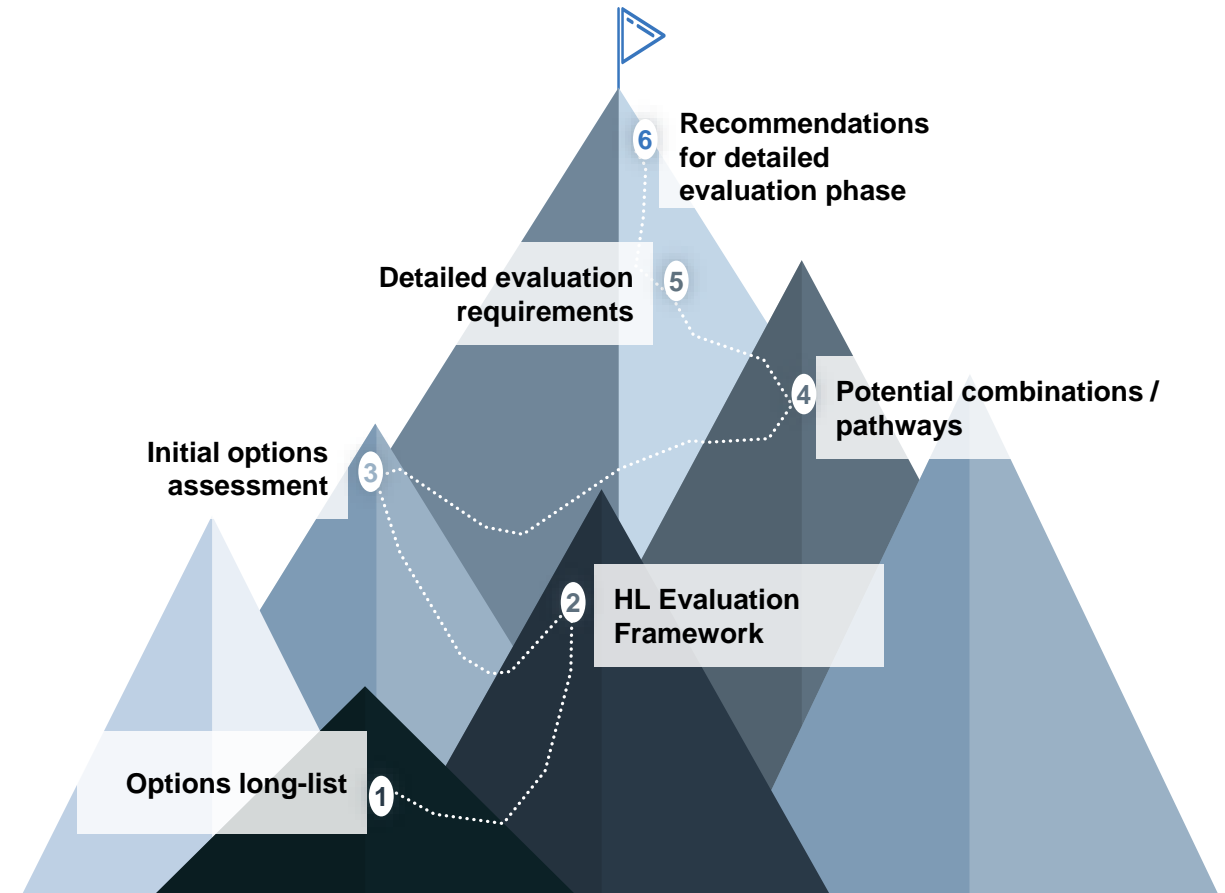
Current phase overview

Summary of approach followed

This initial phase of work was conducted primarily between January and March 2022, in close collaboration with MOSL, the Metering Committee (<https://mosl.co.uk/groups-and-forums/panel-committees-and-subgroups/metering-committee>) and its Metering Roles and Responsibilities Sub-Group.

A number of workshops and off-line document reviews were held with the Sub-Group during this period to:

- Generate an initial set of ideas across the five focus areas of the review
- Co-create and validate the longlist of options set out in this report
- Agree the initial evaluation framework and criteria that would be used to assess the options during this phase
- Review, discuss and strengthen the initial high-level assessment of the options against the evaluation framework, drawing on the operational experience and market knowledge of the industry experts
- Define potential combinations of options that could be further developed as potential reform packages
- Discuss the additional activities, data and insight that will be required to move from the current high-level options assessment to a more rigorous business case and decisioning for reform
- Review and finalise this report, including recommendations for a further programme of work to continue to progress the Roles and Responsibilities workstream



Summary of options development process

Initial ideation

Through engagement with the working group we generated an initial list of ideas based on the five focus areas for the review known issues currently observed within the operation of the NHH market as well as approaches implemented in comparable markets (such as the energy smart metering programme). The ideas included a broad range of potential changes in roles and responsibilities in relation to asset ownership, operation, market obligations, metering data, new commercial services, alternative funding models and enabling changes to the regulatory framework for metering and related services.

Option dimensions

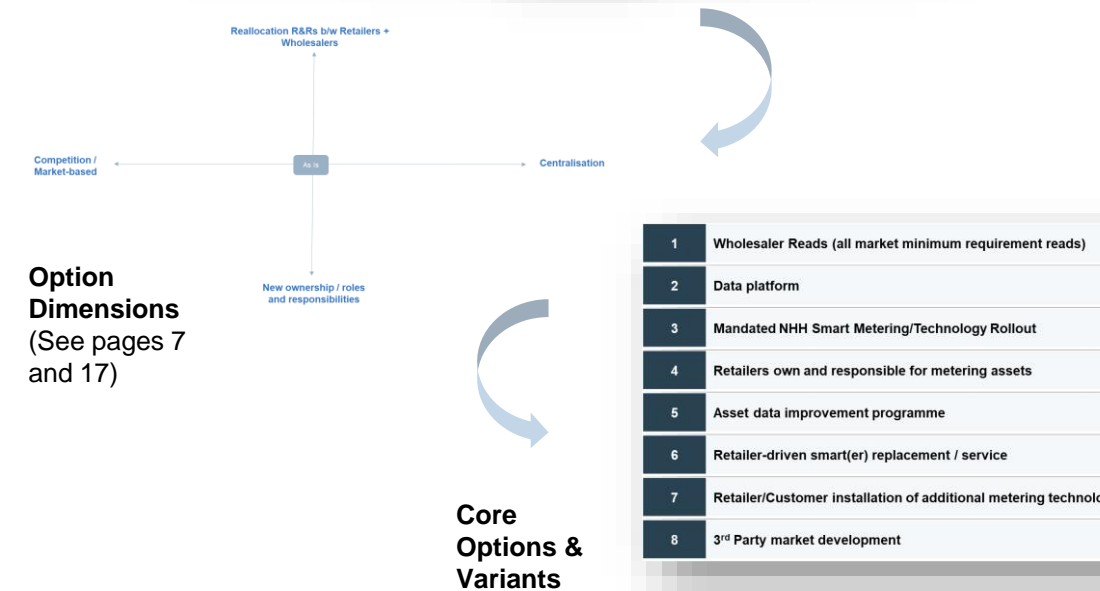
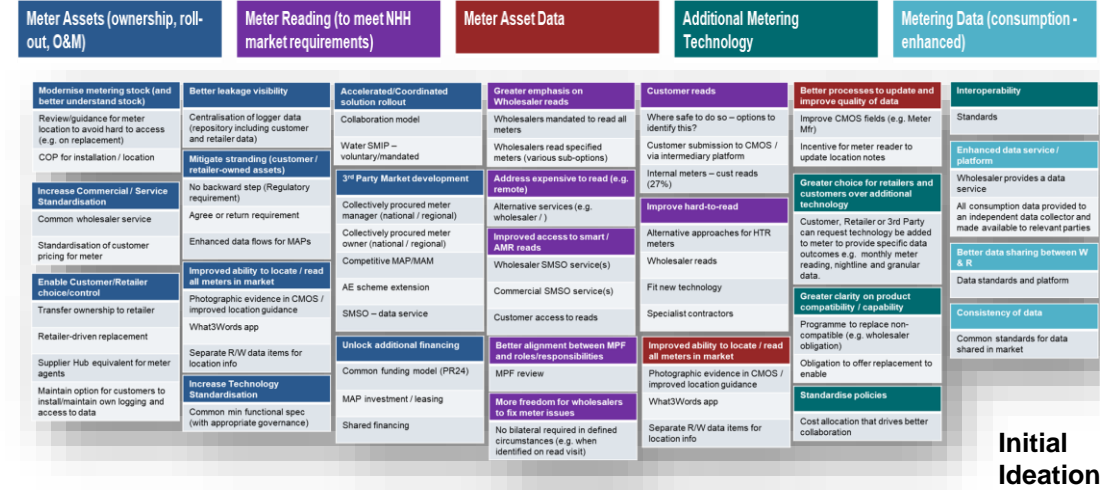
In order to distil set of options from these ideas we considered a number of “option dimensions” which could be used to frame or group the ideas into more fully formed options. These option dimensions included:

- Change of ownership (e.g. of assets / data)
- Change of roles / new roles (for current market functions or new/enhanced services)
- Centralisation (e.g. of services, procurement, operations)
- Competition / markets (e.g. enabling third-party services / new funding models)
- Standardisation (of technology, services, terms, data)

Core option set and variants

That process resulted in the definition of a set of eight core options. We then considered whether any of the options could be designed or applied in different ways to identify a longlist which includes some variants of the core options. This included, for example, targeting an option at a subset of the metering market (such as difficult to read or long unread meters), defining specific triggers/defined circumstances in which new obligations or responsibilities would come into effect, or varying the scope and degree of any new regulatory obligation.

The resulting longlist of 12 options is introduced on pages 11-12, with a fuller description of each option in Section 3b.
















03a

Options Longlist Summary

This section sets out:

- A summary of the 12 options developed during this first phase of the Metering Roles and Responsibilities workstream of the Strategic Metering Review.
- The summary tables on pages 11 and 12 highlight the key features of each option, and which market issues each option most closely aligns to.
- Fuller descriptions of each option are included in Section 3b, including an initial description of how each option would impact key elements of the market governance and operations, including changes to industry codes, systems, processes and funding/charging arrangements.
- NOTE: Section 3b provides a description of each option – an initial evaluation of the pros and cons of each option can be found later in the document (Section 5)

Options Longlist (1 of 2)

Options Longlist						
Option	1: Wholesalers responsible for all market meter reads	2: Wholesaler Reads (Defined circumstances only)	3: Wholesaler Reads and data service (for smart meters only)	4: Data Platform	5: Integrated meter ownership and data service	6: Full NHH Smart Metering/Technology Rollout
At a glance	Wholesalers obliged to submit reads on behalf of market for all meter read types within own Wholesale Area	Meter read responsibility switches to wholesaler in defined circumstances only	Meter read responsibility switches to wholesaler where smart metering is installed	New NHH market-wide data platform to improve access to and standardisation of data for market participants	New market structure with an independent meter asset provider and data platform as a service	Mandated and coordinated smart metering / smarter technologies roll-out programme for all of the NHH market
Key features	<ul style="list-style-type: none"> No Retailer reads required any longer Permanent change of role/responsibility from Retailer to Wholesaler MPF standards realigned to be reflect wholesalers undertaking all reads 	<ul style="list-style-type: none"> Wholesaler responsible where e.g. retailer has made number of unsuccessful attempts, evidence of poor location data, etc.) Once issue resolved, responsibility defaults back to retailer (e.g. location information improved and/or meter moved) 	<ul style="list-style-type: none"> Hybrid arrangement reflecting that Smart Metering programmes may be delivered over a number of years Wholesaler takes enduring responsibility for provision of meter read data, plus additional consumption information via a defined set of standard interfaces 	<ul style="list-style-type: none"> Platform provision likely a new regulated activity, with codified functionality, access rules, charging and service levels Interface with CMOS for market data submission Obligation on parties to make data available as smarter technologies deployed 	<ul style="list-style-type: none"> Data Platform provider also takes on ownership for all meters and enhanced metering technologies (including comms) Enables end-to-end (meter-to-platform) service for NHH market 	<ul style="list-style-type: none"> Wholesaler roll-out obligation, but potentially also retailer obligations (e.g. to ensure customer engagement) Common standards for metering, enhanced metering technologies and potentially comms and data services Target date for installation at all NHH sites
Focus		 		 	  	   

Meter Assets (ownership, roll-out, O&M)	Meter Reading (to meet NHH market requirements)	Meter Asset Data	Additional Metering Technology	Metering Data (consumption - enhanced)
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Options Longlist (1 of 2)

Options Longlist						
Option	7: Targeted Smart(er) Metering/Technology Rollout	8: Retailers own and are responsible for metering assets	9: Asset data improvement programme	10: Wholesaler smart(er) replacement service offering	11: Retailer/ Customer installation of additional metering technology	12: Competition in metering Non-Primary Services
At a glance	Mandate on wholesalers to deploy smart / enhanced metering technologies at a defined sub-set of premises only	Responsibility for metering assets transferred to incumbent retailer for all NHH SPIDs from a specified date	Centrally-governed programme of initiatives to improve known metering issues	Retailers can request Wholesaler to install smart meter / enhanced technology and provide access to data.	Enhanced ability / rights for retailer/customer to install own smart equipment (or commission installation by qualified contractor)	Opens up non-primary activities to competition as no longer wholesaler monopoly activity
Key features	<ul style="list-style-type: none"> Criteria for eligible premises defined in market codes Potentially based on meter size, known issue (LUM/HTR) or other characteristics (e.g. troughs) 	<ul style="list-style-type: none"> Retailers responsible for meter reading and all other meter operations Responsibility transfers between retailers on transfer Third-party MAP likely to own asset and lease to retailer Provisions in place to enable wholesalers to have access to meter data for operational purposes (potentially with charges) 	<ul style="list-style-type: none"> Targeted at issues associated with meter asset data quality and location to address current market frictions Timebound programme (“one-off blitz”) Backed with specific Trading Party obligations and performance framework changes 	<ul style="list-style-type: none"> Wholesaler obliged to action requests in line with codified service levels. Standardised technology and data provision options. Wholesaler could specify options so can be integrated into wider smart programme Defined cost sharing mechanism between wholesaler and retailer 	<ul style="list-style-type: none"> Defined process/conditions for wholesaler to approve Could include extension of AE schemes Supported by measures to drive standardisation and accuracy Measures to prevent wholesaler removing retailer/customer assets 	<ul style="list-style-type: none"> Measures to enable wider range of parties to carry out all operational tasks in relation to metering equipment (e.g. Retailer-commissioned contractors) Procurement (possibly centrally) of specialists to expedite resolution of known market issues such as long-unread and hard-to-read meters
Focus						

Meter Assets (ownership, roll-out, O&M)

Meter Reading (to meet NHH market requirements)

Meter Asset Data

Additional Metering Technology

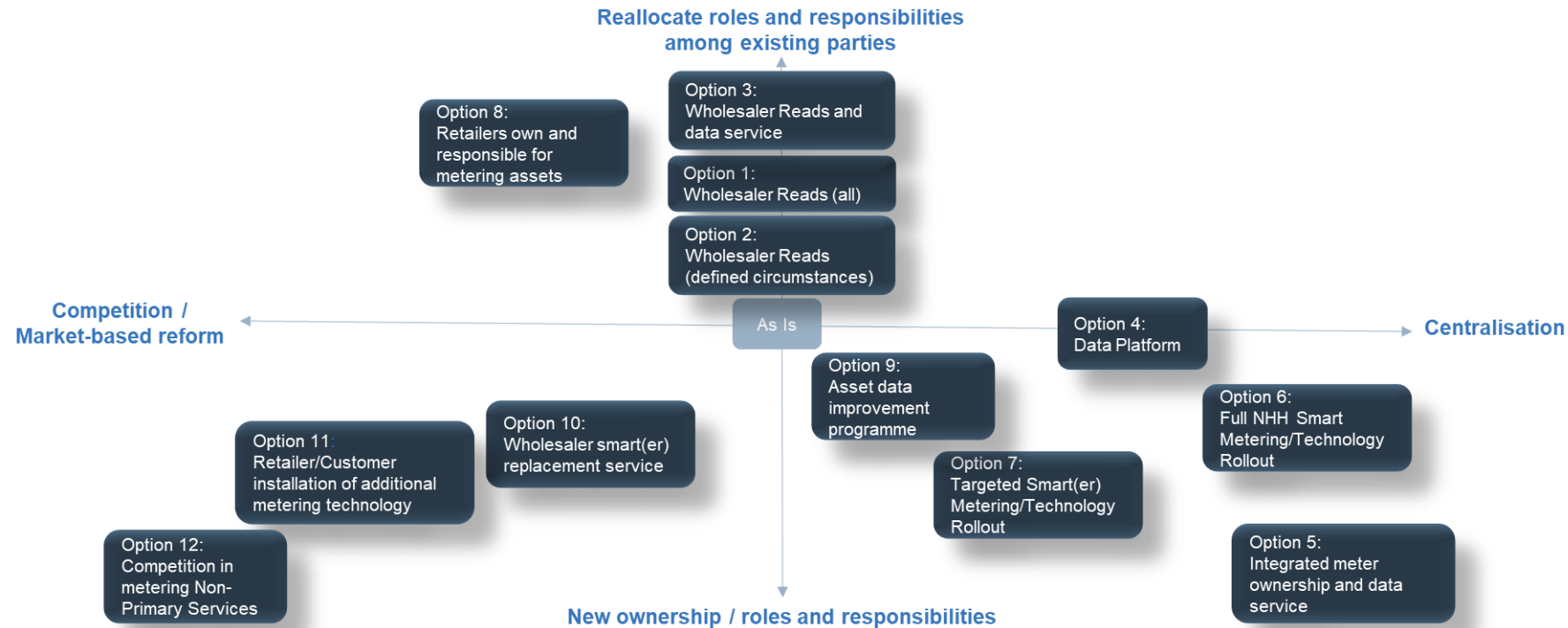
Metering Data (consumption - enhanced)

The longlist covers multiple option dimensions

A key objective and challenge for this initial stage of the review has been to ensure that the set of options identified is sufficiently broad – covering a range of possible dimensions for future development of the metering arrangements.

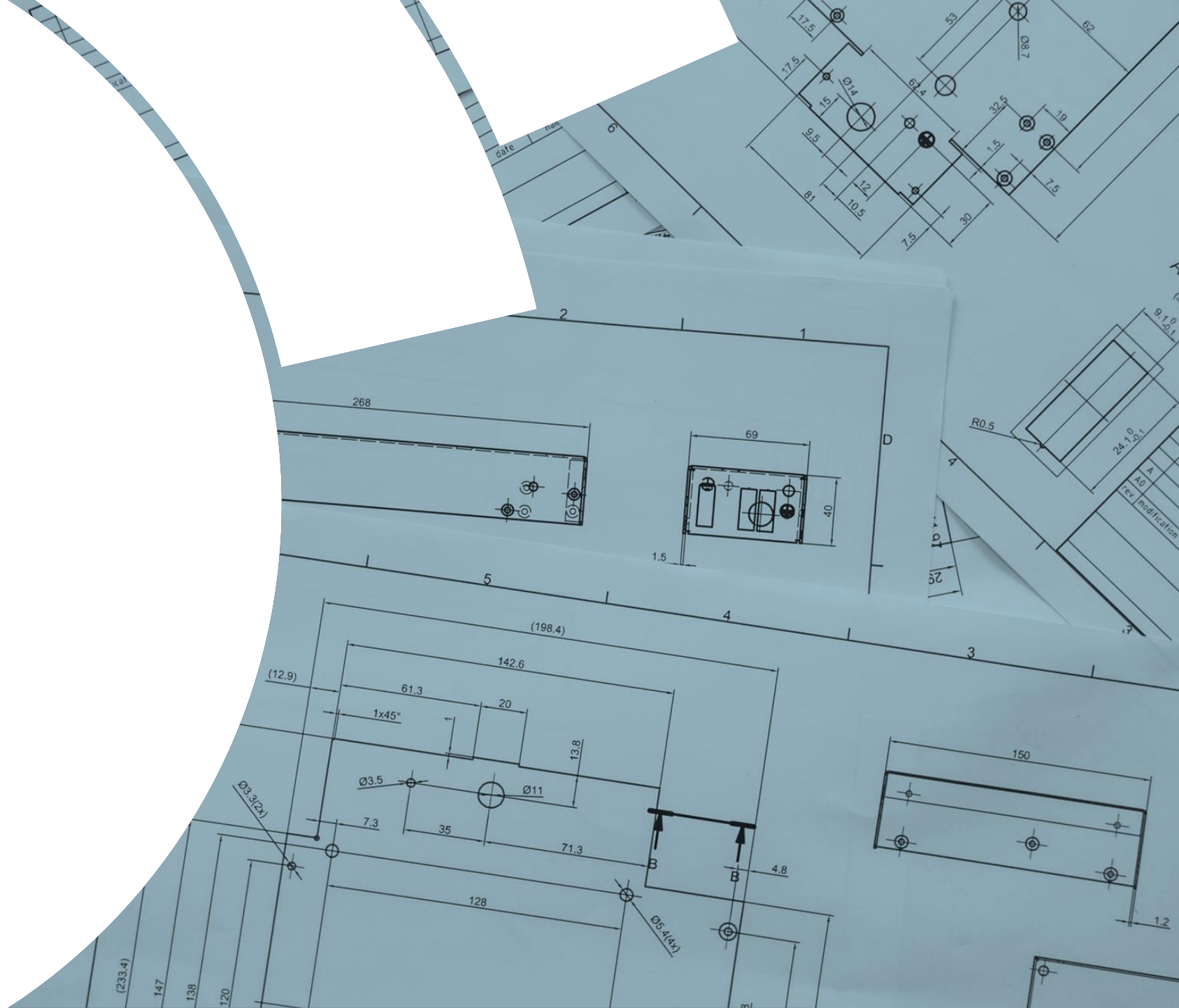
The diagram opposite demonstrates that the longlist of options developed provides a diverse range of potential approaches including options that focus on one or more key dimensions, including:

- Change of ownership (e.g. of assets / data)
- Change of roles / new roles (for current market functions or new/enhanced services)
- Centralisation (e.g. of services, procurement, operations)
- Competition / markets (e.g. enabling third-party services / new funding models)



03b

Option Descriptions



Option 1

Wholesalers responsible for all market meter reads

Overview

Under this option Wholesalers would be obliged to submit meter reads on behalf of the market for all meter read types and for all NHH premises within their own Wholesale Area. The rationale for this option is that Wholesalers are potentially best placed to deliver an efficient meter reading service and that this could also lead to improved market data quality and timeliness, resulting in better outcomes for customers and market participants.

Features

- Wholesaler becomes the party that reads meters on behalf of the NHH market for all meter read types required under the Market Terms within their own Wholesale Area.
- There would no longer be a requirement for Retailers to provide any meter reads under the market rules.
- This would be a permanent change of role/responsibility from Retailer to Wholesaler.
- Obligations would be placed on Wholesalers in the market codes in relation to responsibilities and meter read requirements (frequency, accuracy, etc.)
- Assumption is that all current read types and timing requirements would be retained (subject to modification under normal code change processes)
- Market Performance Framework (MPF) standards would be realigned to reflect Wholesalers service obligations in undertaking all reads
- Wholesalers would retain meter asset ownership and responsibility for all meter asset data, as now
- Bilateral processes will continue (although there would be potential to allow greater freedom for Wholesalers to fix issues at premises without a bilateral e.g. when already attending premises to take a read). It will be important to ensure customers receive clear communication about meter reading and replacement services.
- The Retailer will no longer submit reads, but will need to monitor reads submitted by Wholesalers and trigger subsequent actions (e.g. dispute, customer engagement, billing) as required

Element	Impacts / Design Choices
Legal Framework / Codes	<ul style="list-style-type: none"> • Changes required to market codes to place meter read obligations and relevant Market Performance Standards on Wholesalers • Consideration should be given as to whether there should be an opt-out available in certain circumstances - e.g. self-supply or to support a Retailer wishing to offer a differentiated service
Systems	<ul style="list-style-type: none"> • Changes would be required in CMOS – including reconfiguration of the validation rules to reflect that Wholesalers are now submitting reads • Changes likely to be required to Wholesaler systems to allow for increased read submission types and volumes
Processes	<ul style="list-style-type: none"> • Retailers’ processes will need to change to monitor reads submitted to CMOS by Wholesalers and trigger subsequent actions (e.g. dispute, customer engagement, billing) as required (Design choice: Wholesalers could provide reads to Retailers to submit to the market instead) • Update required to market performance processes to monitor and assure Wholesaler performance in relation to meter reading and data submission
Cost allocation	<ul style="list-style-type: none"> • There would need to be a review of Retailer and Wholesaler funding and charging regulations to reflect the impact that this option would have on: <ul style="list-style-type: none"> • Retailer’s cost to serve (as no longer need to fund meter reading directly) • Wholesaler costs to provide wider reading service and exposure to increased compliance (market standards) and contracted costs.

Option 2

Wholesaler Reads (Defined circumstances only)

Overview

Under this option responsibility to read a meter would transfer to the relevant Wholesaler in defined circumstances only and for a limited period. The rationale for this option is that it would place responsibility for resolution of specific issues on the party best placed to do so at any given point in time, while preserving the existing market design principle that it is generally the Retailer's role to read meters.

Features

- Responsibility for reading the meter at a specific premises would become the responsibility of the Wholesaler in defined circumstances, for example where the Retailer has made a number of unsuccessful attempts and the problem is due to incomplete/inaccurate asset location data owned by the Wholesaler, or the meter has been installed in a way that makes it inaccessible.
- The Wholesaler would be responsible for meter reading, read provision and all related obligations (including meeting the Market Performance Standards) until such time as the underlying issue preventing the Retailer from being able to read the meter have been addressed.
- Once the root cause issue has been resolved, responsibility would transfer back to the Retailer (e.g. there is evidence that the meter location information has been improved and/or the meter has been moved/replaced).
- There would be rules in the market codes defining and governing when responsibility transfers to a Wholesaler, and when it transfers back to the Retailer, the evidence required to trigger such a transfer, and the processes for this to be implemented.
- There would also need to be a new dispute mechanism to address the situation where a Wholesaler and Retailer do not agree that the circumstances justify a transfer of responsibility to the Wholesaler or back to the Retailer.
- Rules could also be included to increase the ability for a Wholesaler to address issues at the premises without the need for a bilateral agreement with the retailer.
- The Retailer will no longer submit reads for the relevant meters, but will need to monitor reads submitted by Wholesalers and trigger subsequent actions (e.g. dispute, customer engagement) as required

Element	Impacts / Design Choices
Legal Framework / Codes	<ul style="list-style-type: none"> • Changes required to market codes to provide clear rules around the transfer of reading responsibility to/from Wholesalers • Changes to extend meter read obligations and relevant Market Performance Standards on Wholesalers where relevant. • For consideration - should the customer have a say in the point at when responsibility should transfer. As a minimum, customers must be informed of the end-to-end service delivery responsibilities.
Systems	<ul style="list-style-type: none"> • Changes would be required in CMOS – including reconfiguration of the validation rules to reflect when Wholesalers are now submitting reads • Changes likely to be required to Wholesaler systems to allow for increased read submission types and volumes
Processes	<ul style="list-style-type: none"> • New processes would be required to enable Retailers to flag where unable to read a meter, provide evidence and trigger a transfer of reading responsibility. • Processes required to implement the transfer and transfer back • Processes for disputes between Retailers and Wholesalers • Processes for performance oversight and reporting • Retailers' processes will need to change to monitor reads submitted to CMOS by Wholesalers and trigger subsequent actions (e.g. dispute, customer engagement, billing) as required (Design choice: Wholesalers could provide reads to Retailers to submit to the market instead)
Cost allocation	<ul style="list-style-type: none"> • It is assumed that Wholesalers would bear all costs associated with providing reads at premises allocated to them under this process.

Option 3

Wholesaler Reads and data service (for smart meters only)

Overview

Under this option Wholesalers would provide meter reading (data collection and distribution) at all premises in their Wholesale Area where there is Wholesaler-installed smart (AMI) meters.
The minimum Wholesaler provision would be for current market required reads into CMOS, with additional consumption information also being available to Retailers.

Features

- Hybrid arrangement reflecting that Smart Metering programmes may be delivered over a number of years
- Where a smart meter or eligible smarter technology is installed at a premises, the relevant Wholesaler becomes responsible for market read submission i.e. the Wholesaler submits the meter reads to CMOS
- The Wholesaler would identify smart installations (as done currently through the Remote Read flag) and this would trigger a transfer of responsibility for reading the meter to the Wholesaler
- MPF would apply to Wholesalers in relation to the meters they are responsible for reading
- The Wholesaler would also make additional consumption information available to the Retailer to enable the Retailer to provide additional services/value to the customer, and/or to drive the Retailer's customer billing processes. This additional consumption information available to Retailers would be provided in a standardised manner, so that all Retailers would access this information in the same way irrespective of Wholesaler.
- The Retailer will no longer submit reads for the relevant meters, but will need to monitor reads submitted by Wholesalers and trigger subsequent actions (e.g. dispute, customer engagement) as required, and may make use of any additional consumption information available from the Wholesaler.

Element	Impacts / Design Choices
Legal Framework / Codes	<ul style="list-style-type: none"> • Changes required to market codes to codify the transfer of reading responsibility to Wholesalers on installation of smart meter • Changes to extend meter read obligations and relevant Market Performance Standards on Wholesalers where relevant. • Codification of additional consumption information to be made available by Wholesalers
Systems	<ul style="list-style-type: none"> • Changes would be required in CMOS – including reconfiguration of the validation rules to reflect when Wholesalers are now submitting reads • Changes to Wholesaler systems to enable read submission to CMOS, and to make additional consumption information available (via a defined set of standard interfaces)
Processes	<ul style="list-style-type: none"> • Retailers' processes will need to change to monitor reads submitted to CMOS by Wholesalers and trigger subsequent actions (e.g. dispute, customer engagement, billing) as required (Design choice: Wholesalers could provide reads to Retailers to submit to the market instead)
Cost allocation	<ul style="list-style-type: none"> • There would need to be a review of Retailer and Wholesaler funding and charging regulations to reflect the impact that this option would have on: <ul style="list-style-type: none"> • Retailer's cost to serve (as no longer need to fund meter reading directly) • Wholesaler costs to provide wider reading service and exposure to increased compliance (market standards) and contracted costs • Wholesaler costs to provide additional consumption information • The volume of meters for which retailers / wholesalers are responsible will change throughout each year as smart meters are installed. Might require a true up at the end of each financial year to reflect the balance of funding for meter reading.

Option 4

Data Platform



Overview

Under this option a new NHH market-wide data platform would be procured as a “data as a service” offering, to improve access to and standardisation of data for market participants. The rationale for this option would be to reduce friction for retailers by providing a single data source (rather than multiple wholesaler platforms) and a potentially more cost efficient method for wholesalers / other data owners to make data available to market without significant investment in their own point solutions.

Features

- Data platform procured/implemented to improve access to and standardisation of data for market participants over and above existing market data set available in CMOS.
- Obligations would be placed on relevant market participants to make enhanced consumption data available as smarter technologies deployed that enable this.
- Platform could enable parties that have invested in data sources to make data available to others at a cost (creating a potential revenue stream to support smart metering investment)
- There would be defined consistent standards and controls on data provision as the smart market develops.
- This option would not specify specific metering standards/technologies or comms infrastructure (just about enabling data access).
- Platform provision would likely be a new regulated activity, with codified functionality, access rules, charging and service levels, probably set out in the market codes.
- The data platform could interface with CMOS for market data submission.
- Provider could e.g. be MOSL or an alternative centrally procured commercial entity (e.g. procured and managed by Wholesalers / MOSL on behalf of the market)
- Access could be restricted to existing market participants or potentially opened to customers, third-party intermediaries, etc.

Element	Impacts / Design Choices
Legal Framework / Codes	<ul style="list-style-type: none"> • New obligations would be required on market participants around data provision to the platform. • Obligations on procuring body (e.g. MOSL) in relation to service management. • Legal/commercial framework for data platform – including service specifications and terms of access • Potentially requires the creation of a new regulated/separately licensed activity as an effective monopoly on data services
Systems	<ul style="list-style-type: none"> • Requires specification and design of the data platform with appropriate functionality, security and access control • May be a need to re-architect CMOS if the data platform is a master meter read data source for settlements
Processes	<ul style="list-style-type: none"> • The platform could be a core part of market data submission process • Processes would be required to ensure compliance with data provision obligations and standards • There would need to be processes in place for ongoing service management of the platform provider and for platform evolution
Cost allocation	<ul style="list-style-type: none"> • Appropriate funding, charging and cost allocation arrangements would need to be defined, dependent on the procurement and ongoing service model • Potential differential charges for core service (e.g. data access) and enhanced service costs (e.g. if platform used to provide value-add data/analytics) • Defined charges for provision of data to platform from data owners.

Option 5



Integrated meter ownership and data service

Overview

This option would effectively create a new NHH metering market structure with an independent meter asset owner/provider for all NHH metering assets which would also be responsible for providing a data platform as a service to the market (i.e. incorporating Option 4). This is a radical option but could potentially improve access to and standardisation of metering, data and communications for market participants, through a single end-to-end service, with potential to accelerate market evolution toward smart for the NHH market.

Features

- Data Platform provider also takes on ownership for all current meters and enhanced metering technologies (including comms)
- Provider becomes supplier of all new requested smart/smarter equipment at premises. Would also have choice to install smart/smarter technologies in its own right in order to develop more effective overall service and coverage.
- Enables end-to-end (meter-to-platform) service for NHH market, with a centralised market-wide solution to metering and/or comms and data infrastructure
- Would require significant negotiation and agreement on terms of asset ownership transfer from wholesalers to new entity
- Likely to require creation of new monopoly regulated entity and framework for funding and regulation, given criticality of meter assets and data
- Potentially spreads investment to fund asset deployment (provider would effectively act as Meter Asset Provider (MAP)) and development/operation of data platform, but would still require funding through price controls and retail charges to meet these costs.

Element	Impacts / Design Choices
Legal Framework / Codes	<ul style="list-style-type: none"> • Would require commercial terms for asset transfer and ongoing leasing agreements. • Legal/commercial framework for integrated MAP/Data service – including service specifications and terms of access • Potentially requires the creation of a new regulated/separately licensed activity as an effective monopoly on technology, data and comms services • Other impacts and legal framework requirements for data platform as per Option 4.
Systems	<ul style="list-style-type: none"> • System impacts and requirements for data platform as per Option 4.
Processes	<ul style="list-style-type: none"> • Process impacts and requirements for data platform as per Option 4 above. • In addition, would need to establish service arrangements between all relevant parties for installation and maintenance of metering infrastructure at premises.
Cost allocation	<ul style="list-style-type: none"> • Funding and charging impacts and requirements for data platform as per Option 4 above. • Would also need to establish industry-wide leasing terms and charges.

Option 6



Full NHH Smart Metering/Technology Rollout

Overview

Under this option there would be a mandated and coordinated smart metering / smarter technologies roll-out programme for all of the NHH market. This would be similar to the energy Smart Metering implementation programme - i.e. it would aim to ensure a time-bound deployment of smart/smarter metering technologies to all NHH premises within a prescribed timescale and to support an overall integrated and consistent metering solution.

Features

- A NHH smart/smarter roll-out programme would most likely be underpinned by a Wholesaler roll-out obligation in regulation. It would probably also require new Retailer obligations (e.g. to ensure effective customer engagement in relation to the roll-out)
- A key element of the programme would be to define and bind participants to common standards for metering, enhanced metering technologies and potentially comms and data services.
- A target date for installation at all NHH sites would be set in regulation and relevant parties would be required to meet this and to report on progress towards the roll-out target. There would potentially be regulatory enforcement for failure to meet the obligations.
- The roll-out would be coordinated through a centrally managed and funded NHH smart metering roll-out programme which would be responsible for regulatory and technical frameworks, as well as roll-out monitoring. This would probably require Defra/Ofwat sponsorship.
- Common standards would be defined for metering / smarter technologies and comms technology and all installations would need to align with these.
- While this could be established as a standalone programme for the NHH market, another option would be for this to be part of wider programme including HH premises, if pursued in the future (although there is no current indication that this will be the case)
- This option would not, in and of itself, change responsibilities for obtaining meter reads and submitting meter reads to CMOS

Element	Impacts / Design Choices
Legal Framework / Codes	<ul style="list-style-type: none"> • This would require a full regulatory framework for NHH smart metering, including legal obligations to mandate and drive roll-out • Dependent on funding being requested and granted in PR24 • New smart-related code provisions would be required covering e.g. access to smart data and services, smart customer transfer processes and funding/charging. • Code meter read requirements would need to be reviewed to align with accelerated penetration of smart/smarter devices and comms.
Systems	<ul style="list-style-type: none"> • System impacts would depend on the scope of the overall solution within the programme (e.g. could be full DCC type service including data services or could be progressed in conjunction with a new data platform per Option 4).
Processes	<ul style="list-style-type: none"> • All relevant processes would need to be defined, including for installation, enrolment, services, governance and security
Cost allocation	<ul style="list-style-type: none"> • Funding and charging arrangements would need to be established for: <ul style="list-style-type: none"> • Central programme costs • Wholesaler/Retailer roll-out costs • Procurement and central service development costs • Ongoing operational and service provider costs (e.g. Data Service Provider, Comms Service Providers)

Option 7

Targeted Smart(er) Metering/Technology Rollout



Overview

Under this option there would be a mandate placed on wholesalers to deploy smart / enhanced metering technologies at a defined sub-set of premises only, focused on addressing specific issues in the NHH market where the deployment of such solutions would have the greatest benefit.

Features

- Criteria for eligible premises that would be within the scope of the mandate to install smart/smarter technology would be defined in the market codes
- The criteria could potentially be based on characteristics such as meter size, known issues at the premises (e.g. LUM/HTR) or other characteristics (e.g. troughs)
- Given the relatively limited expected scale of deployment, it may not be necessary to specify common technology standards as would be the case for a full smart rollout programme. However, over time the lack of common technology standards would be likely to become more of an issue
- Compliance and progress with the obligation / roll-out could potentially be managed through the market codes performance framework and governance, rather than requiring wider regulatory enforcement
- This option would not, in and of itself, change responsibilities for obtaining meter reads and submitting meter reads to CMOS

Element	Impacts / Design Choices
Legal Framework / Codes	<ul style="list-style-type: none">• Code changes would be required to establish the obligations on trading Parties, to define the criteria for inclusion of premises in the mandate and to govern performance against the obligations.
Systems	<ul style="list-style-type: none">• This option is not expected to require significant changes to central systems
Processes	<ul style="list-style-type: none">• Processes will be required to identify and allocate responsibility for installation at relevant premises• Market performance framework will need to be updated potentially to establish and monitor standards in relation to the targeted smart deployment• Processes will be required to ensure customers are informed and understand impacts
Cost allocation	<ul style="list-style-type: none">• It is assumed that the relevant party responsible for the premises within scope would bear the installation costs.• However consideration will need to be given to ensuring that no party is disproportionately financially impacted by the obligation.

Option 8

Retailers own and are responsible for metering assets

Overview

Under this option responsibility for owning and maintaining all metering assets and for obtaining and submitting meter reads would be transferred to the incumbent Retailer for all their registered NHH premises. This responsibility would then transfer to a new Retailer upon customer transfer. The rationale for this option would be to enable improved customer service in relation to metering by placing end-to-end responsibility from meter to bill with their directly contracted Retailer.

Features

- Retailers would become responsible for all meter reading and all other meter operations. Retailer responsibilities would include not only meter reading but all other meter operations (e.g. installation, replacement, maintenance)
- It is likely that this model would require the introduction of a new market role – a third-party “Meter Asset Provider” (MAP) which would own the assets and lease these to retailers. Retailers could choose to own assets themselves, but this would create additional commercial and operational complexity for retailers.
- Appropriate commercial/regulatory arrangements would need to be put in place to achieve transfer of asset ownership from wholesalers to retailers/MAPs in the first instance.
- Responsibility would subsequently transfer between retailers on customer transfer, supported by appropriate market processes, data exchange and underpinning commercial arrangements.
- Third-party MAPs would need to put “churn contracts” in place with all NHH retailers (likely backed by regulation to mitigate asset stranding risks) that define the terms upon which assets are leased and enable seamless customer transfer.
- Provisions would need to be put in place to enable wholesalers to have access to meter data for their operational purposes (potentially with associated charges from Retailers)

Element	Impacts / Design Choices
Legal Framework / Codes	<ul style="list-style-type: none"> • Industry codes would need to be updated to reflect new and additional Retailer responsibilities for meter reading, meter assets and asset data. • If the role of a MAP is introduced then this will need to be recognised and integrated into market rules and processes (e.g. to provide MAP access to relevant data and notifications) • Additional regulation may need to be introduced to mitigate stranding risk for third-party owned assets (similar to that introduced in the energy sector) • Obligations would need to be placed on retailers/MAPs when working on wholesalers’ water networks. Potentially requiring introduction of a “supplier hub” framework with associated obligations. • Obligations and commercial arrangements would be required to govern terms of Wholesaler access to meter data
Systems	<ul style="list-style-type: none"> • There would potentially be significant systems impacts for Retailers / MAPs to develop Meter Data Management Systems and asset tracking systems. • Changes to CMOS would be required to reflect new responsibilities and to make relevant data available to all parties (e.g. MAPs)
Processes	<p>New processes would be required covering:</p> <ul style="list-style-type: none"> • Retailer/MAP/meter asset management processes • Entry, qualification and assurance processes for retailer agents (“supplier hub” type processes) • Data provision to wholesalers • Updated customer transfer processes
Cost allocation	<p>Charging and cost-allocation arrangements would need to be defined for:</p> <ul style="list-style-type: none"> • Asset transfer costs between wholesalers and Retailers/MAPs, including establishing fair value • Retailer margin adjustments to reflect the additional operational/contracted costs for meter activities • Charges for wholesaler access to meter read data

Option 9

Asset data improvement programme

Overview

This option would focus on establishing a centrally planned and governed programme of initiatives which could accelerate improvements for known issues associated with asset data quality and location to address current market frictions and improve customer experience and outcomes. This would be supported by new obligations on Trading Parties to implement the necessary activities and reporting to secure the timely outcomes of the improvement programme.

Features

- A programme would be defined through industry governance arrangements, likely including consultation, scope definition, prioritisation and agreement of supporting obligations.
- The scope of the programme would target issues associated with meter asset data quality and location to address current market frictions.
- This could be a timebound programme (a “one-off blitz”) or an annual programme with priorities and focus adjusted through a defined review process.
- The improvement programme would be backed with specific Trading Party obligations and performance framework changes, as well as processes to track and report on progress towards the objectives of the programme.
- Scope could include, for example:
 - Coordinated timebound inspection programme (e.g. via MPF) – to validate accuracy of asset data
 - Enabling additional information capture (e.g. What3Words / Photos) to enhance ability to locate meters
 - Improvement of CMOS fields (e.g. meter manufacturer)
 - Incentivising field force to update and standardise Location Notes
 - Dual Wholesaler/Retailer location notes
 - Guidance/Code of Practice – for installation/access/location of replacement meters
 - No bilateral in certain situations i.e. wholesaler does not need to wait for bilateral request from retailer to address a known issue

Element	Impacts / Design Choices
Legal Framework / Codes	<ul style="list-style-type: none"> • New obligations would be placed on Trading Parties to comply with the activities required under the programme scope • Changes to market rules would be required to reflect new/updated data requirements, roles and responsibilities and associated processes • New formally recognised and binding guidance and/or COP would be developed (e.g. for meter installations)
Systems	<ul style="list-style-type: none"> • There would potentially be a requirement to make changes to CMOS and interfacing Trading Party systems to implement some of the changes progressed by the programme (e.g. new data fields) • Potentially also Wholesaler system impacts to enable e.g. additional meter asset data collection and sharing
Processes	<ul style="list-style-type: none"> • The changes progressed within the improvement programme could require new or updated processes, such as changes to some bilateral and data submission processes. • It would also be necessary to establish appropriate processes for governance of the programme and any new performance standards or Codes of Practice.
Cost allocation	<ul style="list-style-type: none"> • It would be necessary to consider appropriate sources and levels of funding for the central and Trading Party programme of activities. • These costs would include additional costs associated with changes to systems, processes and any compliance activities • Consideration could be given to including a funding allowance in PR24 settlements.

Option 10

Wholesaler smart(er) replacement service offering



Overview

Under this option Wholesalers would be required to offer a service under which Retailers can request the Wholesaler to install a smart meter / enhanced metering technology and provide access to data on a premise-by-premise basis. The rationale for this option would be to accelerate access to smarter metering technologies and associated benefits for customers and retailers at the pace and timing of their choice, rather than having to wait for a Wholesaler's deployment programme to reach particular premises.

Features

- Every Wholesaler would be obliged to offer a service to install and commission smart or enhanced metering technologies at a specific premises upon request from a Retailer.
- Wholesalers would be required to action and complete such requests in line with defined and codified service levels.
- This would essentially enable a demand-driven, Wholesaler delivered smart roll-out, as opposed to a full centrally mandated programme with common targets.
- It would be expected that each Wholesaler would offer a set of standardised technology and data service options. Wholesalers could, for example, specify technology options that could be integrated into their wider smart metering programme in due course.
- There would be a defined cost sharing mechanism between the wholesaler and retailer for the assets installed (asset costs and ongoing operational costs). A cost sharing mechanism would need to be defined to allocate costs between requesting retailer and wholesaler (or to include retailer cost element in wholesale charges for current incumbent retailer at any given point in time)
- There would be potential to extend existing Accredited Entity and contribution schemes to support this initiative.

Element	Impacts / Design Choices
Legal Framework / Codes	<ul style="list-style-type: none">• New regulatory or code obligations would be required to establish the service obligation and commercial terms between wholesalers and retailers• Defined service standards would also be required• There would need to be codification of technology detail and service offerings• New regulations would potentially be required to mitigate the stranding risk if a subsequent retailer does not wish to continue with the installed equipment or services.
Systems	<ul style="list-style-type: none">• Central Market systems could potentially be used for installation and service requests building on existing bilateral functionality
Processes	<ul style="list-style-type: none">• New processes would have to be established to enable service requests to be Initiated between retailers and wholesalers and for the tracking of these requests.• New processes may be required to monitor and assure compliance with wholesaler service obligations
Cost allocation	<ul style="list-style-type: none">• Cost allocation arrangements and charging arrangements would be required in relation to the equipment and service costs• This could potentially take the form of non-primary charges

Option 11

Retailer/ Customer installation of additional metering technology

Overview

Under this option there would be an enhanced ability and rights for retailers/customers to install their own smart equipment at a premises (or commission installation by qualified contractors). The rationale for this option would be to enable retailers to pursue differentiated services / innovation for customers and to increase choice and control for customers and retailers in relation to the installation of smarter metering technology.

Features

- There would be a codified rights for a retailer/customer to install its own smart / smarter equipment (or commission installation by suitably qualified contractor), subject to appropriate conditions to ensure safety and operational standards that support effective market operation.
- A process would be established for the relevant wholesaler to approve installation (allowing for no unreasonable objection, appropriate consideration of safety issues, etc.)
- Existing AE schemes could be extended to enable this option (i.e. accrediting parties to undertake the necessary works)
- This option could be supported by measures to drive standardisation/better visibility of interoperable technology (such as improved asset type data). For example, the RWG good practice guide for data logging could be formalised in the market codes.
- Minimum standards could be specified in relation to equipment – e.g. an approved list maintained by Wholesalers or MSOL to ensure installed equipment meets standards for settlement accuracy
- New regulation could be required to prevent a wholesaler from removing retailer/customer owned equipment (i.e. to mitigate asset stranding risk)
- Subject to suitable conditions, there would be scope for Retailer/Customer installed data sources to be used for settlement purposes.

Element	Impacts / Design Choices
Legal Framework / Codes	<ul style="list-style-type: none">• Enabling rights, obligations and processes would need to be enshrined in the market codes• New regulations would potentially be required to mitigate the stranding risk if a subsequent retailer does not wish to continue with the installed equipment or services and/or to prevent wholesaler removal of the equipment
Systems	<ul style="list-style-type: none">• Changes to central systems would be required to allow for the submission and capture of new data items / flows in market for retailer/customer asset data.
Processes	<ul style="list-style-type: none">• Processes would need to be established for requests and approvals between retailers and wholesalers• A new process and governance for the establishment and maintenance of a “compatibility register” defining equipment that could be installed• May require the establishment of an additional testing and certification regime for relevant equipment
Cost allocation	<ul style="list-style-type: none">• It is expected that the Retailer/Customer would bear the costs of the equipment and installation and ongoing maintenance.• However it is for consideration whether standardised charging arrangements should be established if, for example, the relevant Wholesaler wishes access to enhanced data from the installed equipment.

Option 12

Competition in Metering Non-Primary Services



Overview

This option would enable a broader range of parties to undertake metering-related non-primary activities (such as meter installation and maintenance) such that this would no longer be a wholesaler monopoly activity. The rationale for this option would be to accelerate issue resolution and deployment of smarter solutions by increasing industry capacity to undertake works.

Features

- Rules and processes would be implemented to enable a wider range of parties to carry out all operational tasks in relation to metering equipment
- Relevant parties would need to be suitably qualified and assured (e.g. via accreditation) to undertake work on metering equipment to ensure maintenance of industry safety standards and compliance with market requirements in relation to metering.
- This could potentially be delivered through an extension of an existing accreditation scheme (e.g. WIRSAE scope extension)
- This may allow an option for the procurement (possibly centrally) of specialists to expedite resolution of known market issues such as long-unread and hard-to-read meters. Centrally procured specialists could force pace of change if Trading Parties don't engage in this themselves – i.e. this could provide a “last resort” option for market improvement activity.

Element	Impacts / Design Choices
Legal Framework / Codes	<ul style="list-style-type: none">• Rules and requirements for commissioning third party work will be required, with appropriate interaction between the registered parties at the affected premises.• Rules will be required in relation to accreditation requirements for third parties.• A new legal/commercial framework (or extension of existing scheme) may be required for accreditation administration
Systems	<ul style="list-style-type: none">• System changes may be required to recognise additional parties in relation to data provision and other transactions and data flows (access, validation, security, etc.). For example to allow contractors to submit updated meter asset data.
Processes	<ul style="list-style-type: none">• Processes will need to be implemented to manage the commissioning of works and communication between all relevant parties.• Processes for entry, accreditation and assurance of third parties will also be required.
Cost allocation	<ul style="list-style-type: none">• There will need to be cost allocation and funding rules for any centrally procured service providers, for example via market charges.• Where work is undertaken by a retailer-commissioned contractor, it is for consideration whether the relevant Wholesaler should partially fund the work (e.g. where necessary to address an issue that would otherwise have been the wholesaler's responsibility).

04

High-level evaluation framework

This section sets out:

- The high-level evaluation framework which has been used to drive and structure the initial assessment of the pros and cons of each of the identified options.

High-Level Evaluation Framework

A high-level evaluation framework was defined to drive and structure the initial assessment of the pros and cons of each of the identified options. The framework is shown in the table opposite.

Each option was considered across three primary domains, to ensure a balanced assessment. These are:

1. **Strategic:** Assessing whether the option is likely to deliver positive outcomes to the NHH market and customers. In addition it is recognised that changes in the NHH metering market need to be considered in the wider strategic context of the overall policy aims and initiatives in the water sector.
2. **Stakeholder:** A broad range of stakeholder perspectives need to be considered as each option could have different types and level of impacts on customers, market participants, the Market Operator or other businesses (current or future) such as meter reading agents or asset investors/funders.
3. **Management and implementation:** The potential scale, complexity and cost to design, deliver and operate each option was also considered.

This approach balances strategic and tactical considerations, and will therefore be a useful starting point for development of more detailed evaluation and business cases for options in subsequent work.

Given much of the information being used to assess the options at the current initial evaluation stage is has been predominantly qualitative, a more detailed definition of specific considerations against each criteria in the framework has been suggested in Section 7 of this report to inform and focus the next stage of more detailed evaluation.

Domain	Assessment criteria
Strategic Delivering the desired market and consumer outcomes from NHH metering	1.1 Improved outcomes for NHH customers
	1.2 Improved functioning and enabling evolution of the NHH market (including reduction of frictions and addressing known issues)
	1.3 Alignment with wider strategic and policy objectives for water sector (e.g. contribution to key PR24 aims)
Stakeholder Likely impacts on and benefits for relevant participants (current and future)	2.1 Impact on consumers, including cost and service impacts
	2.2 Impact on NHH retailers, competition and market conditions
	2.3 Impact on Wholesalers
	2.4 Impact on MOSL
	2.5 Impact on other businesses – e.g. third party service providers, MAPs/investors etc.
Management and implementation Scale, complexity and cost to deliver and operate	3.1 Likely scale of effort and change required to design and implement
	3.2 Likely timescales for implementation and benefit realisation
	3.3 Key risks and challenges to implementation
	3.4 Cost to implement and operate
	3.5 Long term maintenance, monitoring and oversight

05

Initial Options Evaluation

This section sets out:

- A headline view of the key pros and cons of each option (pages 30-33)
- Detailed observations on each of the options against the high-level evaluation framework (pages 34-45)
- NOTE: A detailed initial evaluation of Option 3 has not been included at this stage, as only early discussions have been held with the Metering Committee on this option.

Options Evaluation Summary – Key Pros and Cons

Option 1 Wholesalers responsible for all market meter reads	2 Wholesaler Reads (Defined circumstances only)	3 Wholesaler Reads and data service (for smart meters only) Note: indicative based on early discussions with Metering Committee
Pros Potential for better outcomes and operational improvements <ul style="list-style-type: none"> ✓ Potential to expedite resolution of current market and asset data issues, leading to better customer outcomes. ✓ May enable economies of scale by combining Wholesalers' activities around smart meter deployment and meter reading, and by consolidating NHH and HH meter reading. Potential to drive smart metering deployment <ul style="list-style-type: none"> ✓ Incentivises wholesalers to include NHH customers in their roll-out programmes. 	Could be an effective means to address legacy issues such as long unread meters & hard to read meters <ul style="list-style-type: none"> ✓ Places responsibility for resolution of issues on party best placed to do so ✓ Preserves existing market design principle - retailer role to read meters - while better addressing specific issues Builds collaboration and transparency <ul style="list-style-type: none"> ✓ This formalises what many wholesalers / retailers are already doing ✓ Provides rules-based clarity on roles and responsibilities 	As Wholesalers roll out smart meters, the benefits of the availability of enhanced meter read data are immediately made available to Retailers <ul style="list-style-type: none"> ✓ Places responsibility meter reading on the party best placed to do so using new technology deployed ✓ Also places responsibility on Wholesaler to share additional consumption information with Retailers, in a manner that will be common across all Wholesalers
Cons Possible negative customer impacts <ul style="list-style-type: none"> x Removes choice of meter read provider x Reduces ability for service flexibility x Confusing for customers to deal with two parties x Undermines principle of retailer-customer relationship Concerns about service viability for Wholesalers <ul style="list-style-type: none"> x Not all wholesalers will have existing capability / resources to support this x Cost-to-serve for NHH becomes less efficient if reducing field force through smart HH deployments x Major operational and commercial impact on market participants and contracted meter reading agents 	Process and rule heavy <ul style="list-style-type: none"> x Additional market rules would need to make the split of responsibilities between trading parties very clear x Escalation and dispute management processes will need to be clearly defined Difficult to avoid ambiguity and dispute <ul style="list-style-type: none"> x Need to avoid pedantic rules, grey areas and discretionary decisions which do not benefit the customer. x Potential for push back from wholesalers when handing responsibility across 	Retailer/customer impact could be significant as Customer no longer reads the meter <ul style="list-style-type: none"> x Retailer processes would need to be changed to avoid negative impact on existing processes which are driven by the meter read, and consequential customer impact

Options Evaluation Summary – Key Pros and Cons

Option	4 Data Platform	5 Integrated meter ownership and data service	6 Full NHH Smart Metering/Technology Rollout
Pros	<p>An enabler for market evolution</p> <ul style="list-style-type: none"> ✓ Improved access to and standardisation of data for market participants ✓ Supports data-driven market services and innovation, with potential for improved customer experience and outcomes <p>An efficient solution for data sharing</p> <ul style="list-style-type: none"> ✓ Single data source for Retailers (rather than multiple wholesaler platforms / APIs) ✓ Potentially more cost efficient method for wholesalers / other data owners to make data available to market 	<p>Accelerating smart deployment</p> <ul style="list-style-type: none"> ✓ Potential to accelerate market evolution toward smart for NHH market, with a centralised market-wide solution to metering and/or comms and data infrastructure ✓ Reduces reliance on Wholesaler smart metering programmes which may not see some NHH meter become smart for up to 25 years <p>Asset management improvement</p> <ul style="list-style-type: none"> ✓ Could provide significantly greater focus on improved management of NHH meter assets 	<p>Greatest potential for long-term strategic benefits</p> <ul style="list-style-type: none"> ✓ Whilst the cost of implementing this is significant, the benefits of doing so are potentially far greater than other options ✓ Aligned with wider sector objectives e.g. leakage reduction, water efficiency, resource management <p>Smart metering certainty and consistency</p> <ul style="list-style-type: none"> ✓ Common target deployment date provides certainty to participants to develop new solutions and customer offers ✓ Mandated standards would drive consistency of overall market solution and reduce risk of stranded investment for individual company programmes
Cons	<p>Duplication / added complexity</p> <ul style="list-style-type: none"> × Concerns over creating a 'second CMOS' and increasing data requirements for trading parties when have so many issues with the current data <p>Implementation cost</p> <ul style="list-style-type: none"> × Likely to incur significant development cost for all trading parties – this ultimately would be funded by the customer <p>Service management</p> <ul style="list-style-type: none"> × Creates a monopoly with risk of poor performance that needs mitigation 	<p>Potential negative customer impacts</p> <ul style="list-style-type: none"> × Separation of asset ownership and maintenance from other market roles could lead to reduction in service for customers with additional handoffs or disputes <p>Fundamental shift and complexity</p> <ul style="list-style-type: none"> × Major change to the market structure × Significant legal / regulatory & financial implications × Could reduce competition in metering equipment and data services markets 	<p>Significant regulatory and implementation burden</p> <ul style="list-style-type: none"> × May be significant unplanned acceleration of individual company programmes × Not clear that there is a standalone business case for NHH smart mandate (separate from combined NHH/HH programmes) <p>Significant funding and coordination requirements</p> <ul style="list-style-type: none"> × Significant cost and effort required to establish and manage programme to e.g. define technology standards, develop policy and legal framework, monitor rollout, coordinate testing/certification regimes × Ultimately will come down to what Ofwat allows in PR24.

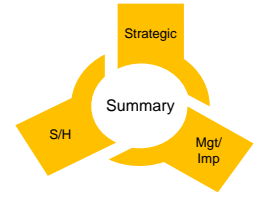
Options Evaluation Summary – Key Pros and Cons

Option	7 Targeted Smart(er) Metering/Technology Rollout	8 Retailers own and are responsible for metering assets	9 Asset data improvement programme
Pros	<p>Could deliver early benefits</p> <ul style="list-style-type: none"> ✓ Addressing issues that are a source of frustration for customers ✓ Programme of deployment to address known issues could commence relatively quickly <p>A good fallback option</p> <ul style="list-style-type: none"> ✓ If funding not given in PR24 for a full smart roll out then a more limited but targeted rollout would be something to consider 	<p>Some increased scope for better service and differentiation</p> <ul style="list-style-type: none"> ✓ Some potential to enable improved customer service in relation to metering by placing end-to-end responsibility from meter to bill with their directly contracted retailer ✓ Could increase customer dissatisfaction with poor performers, which would stimulate the market by driving customers to shop around and improve customer satisfaction in the long term 	<p>Accelerating data improvement and focus</p> <ul style="list-style-type: none"> ✓ Coordinated programme of initiatives could accelerate improvements for known issues associated with asset data quality and location to address current market frictions and improve customer experience and outcomes <p>Laying foundations for other options</p> <ul style="list-style-type: none"> ✓ A valuable prerequisite for a lot of activity within the market on metering
Cons	<p>Inefficient roll-out model</p> <ul style="list-style-type: none"> × Rollout cost per unit will be more expensive than a mass rollout which can be done by postcode area × Financial impacts of this could be significant versus geographical rollouts × Would be reliant on networks being in place across a whole region – this wouldn't be an attractive rollout model <p>Risk of multiple markets</p> <ul style="list-style-type: none"> × Benefits some but not all customers, leading to multiple markets, one where there can be significant innovation and water efficiency activity, and one which remains similar to the current market 	<p>Undermines wider strategic benefits</p> <ul style="list-style-type: none"> × Potentially reduces business case for smart metering as costs will be higher as retailers customer base will not be as concentrated as wholesaler asset base × Significant benefits around leakage and water efficiency are derived from smart metering which may be lost or diluted if Retailers own the assets <p>Separated markets</p> <ul style="list-style-type: none"> × May not be strong rationale for Retailer taking on responsibility for additional aspects of metering, as creates separate arrangements for HH and NHH markets <p>Retailer cost impact</p> <ul style="list-style-type: none"> × High costs to upscale, could potentially result in smaller retailer failure 	<p>Limited scope and impact</p> <ul style="list-style-type: none"> × As targeted at specific NHH market issues, likely to have much more limited benefits in terms of wider market and sector objectives and evolution than some other options × Customer benefits limited to those currently affected by targeted issues – essentially bringing up to expected standards rather than enabling significant service enhancements or innovation

Options Evaluation Summary – Key Pros and Cons

Option	10 Wholesaler smart(er) replacement service offering	11 Retailer/ Customer installation of additional metering technology	12 Competition in metering Non-Primary Services
Pros	<p>More choice and control for retailers and customers</p> <ul style="list-style-type: none"> ✓ Potential to accelerate access to smarter metering technologies and associated benefits for customers and retailers at pace and timing of their choice, rather than having to wait for wholesaler deployment programme. ✓ Enables retailers greater choice and ability to offer smart-enabled service offerings to customers 	<p>Greater choice, pace and differentiation for retailers</p> <ul style="list-style-type: none"> ✓ Increases choice and control for customers and retailers for installation of smarter metering technology ✓ Beneficial option where wholesaler is not delivering (or delivery is too far in the future) a metering technology programme for NHH customers <p>Improving market operation</p> <ul style="list-style-type: none"> ✓ Scope for Retailer/Customer installed data sources to be used for settlement purposes which could help address current market performance issues 	<p>Greater competition</p> <ul style="list-style-type: none"> ✓ Introduces more competition elements into the market <p>Increased capacity to address market issues</p> <ul style="list-style-type: none"> ✓ Increases options to accelerate issue resolution and deployment of smarter solutions by increasing industry capacity to undertake works ✓ Could force pace of change if Trading Parties don't engage themselves – provides "last resort" option for market improvement
Cons	<p>Limited strategic benefit to market</p> <ul style="list-style-type: none"> × As deployment would only be demand-led, likely to have much more limited benefits in terms of wider market and sector objectives and evolution than a full coordinated deployment of smart technologies <p>Inefficient rollout</p> <ul style="list-style-type: none"> × Not an efficient way to roll out smart meters, doesn't benefit all customers. Setting up communications / data services for a small number of disparate customers will not be economical <p>Low demand</p> <ul style="list-style-type: none"> × Customer demand currently relatively low given cost of technology and low margin, so we would anticipate customer behaviour would not lead to a significant increase in smart metering. 	<p>Risk of stranded assets</p> <ul style="list-style-type: none"> × Avoiding stranded assets is a concern for a Retailer to make a return on investment in meter technologies × Potentially requires introduction of additional regulation to mitigate stranding risks <p>Implementation complexity</p> <ul style="list-style-type: none"> × Accreditation of parties allowed to install additional equipment would need to be robust and would come at a cost 	<p>Administrative and operational overhead</p> <ul style="list-style-type: none"> × 3rd parties would need to integrate with all wholesaler policies, systems and data requirements × Would require accreditation and governance in place to ensure operational rigour and improved customer outcomes. × Adds additional layer of complexity for MPS, and would require review of MPF to recognise new market roles and obligations.

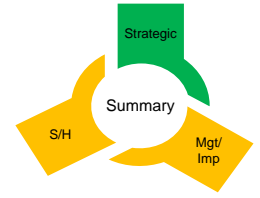
Option 1: Wholesalers responsible for all market meter reads



Domain	Initial Assessment
Strategic Delivering the desired market and consumer outcomes from NHH metering	<ul style="list-style-type: none"> + Wholesaler potentially best placed to deliver efficient meter reading service – could lead to improved market data quality and timeliness, resulting in better billing outcomes for customers. + May improve current asset data related issues as Wholesaler responsible for location and identification of meters + Better alignment between smart meter roll-out and reducing need for physical reads and multiple site visits – positive for smart deployment costs and potential for less customer disruption. + Potential for increased economies of scale through combining this with HH meter reading + Meter read outcomes may be improved if wholesalers utilise existing staff base who have a pre-existing knowledge of asset locations etc (MYB) - Removes responsibility for meter reads from retailer, meaning customer has less direct interface with party responsible for reads - Removes the customers ability to switch read provider if meter reading performance doesn't meet desired levels - Reduces the ability for service flexibility e.g. if a customer wishes to have monthly meter reads but the market stipulates biannual a wholesaler would be unlikely to meet these requirements unless the service was a commercial offering bringing in revenue (assumption that if funded this would only be for market minimum requirements) - Some wholesalers are rolling out smart meters to households only, meaning NHH reading will become increasingly inefficient - Wholesalers would once again be the monopoly meter read provider so would have less incentive to perform well. There would need to be significant penalties attached to wholesalers not delivering.
Stakeholder Likely impacts on and benefits for relevant participants (current and future)	<ul style="list-style-type: none"> + Potential for improved data quality and timeliness, resulting in improved outcomes for customers + Potentially more cost-effective and reliable solution for retailers – reducing cost to serve and exposure to MPS - May limit scope for differentiation for retailers who wish to provide enhanced services based on meter reading - Potentially adverse impact on competition in commercial meter reading provider market, as wholesalers may use in-house teams and have effective in-area monopoly - Removes choice from retailer in relation to preferred meter read provider - Increase in market obligations and operational cost for wholesalers. Not all wholesalers have a meter reading service. - Potential loss of wholesaler revenue if they currently offer meter reading service on commercial terms, and are not funded to provide it under this option
Management and implementation Scale, complexity and cost to deliver and operate	<ul style="list-style-type: none"> / Relatively quick option to implement as largely based on existing capabilities (although would require consultation, code change processes and system updates as well as sufficient lead time for wholesaler business change) - Significant cost to MOSL to change code and CMOS – would require change to many transactions - Potentially significant impact on wholesaler systems and operations to meet increased meter read and data submission volumes - Would require adjustment to wholesaler charging and funding mechanisms and levels and retail margins

Criteria	Initial RAG
1.1 Improved outcomes for NHH customers	■
1.2 Improved functioning of the NHH market	■
1.3 Alignment with wider strategic and policy objectives for water sector	■
2.1 Impact on consumers, including billing and service impacts	■
2.2 Impact on NHH retailers, competition and market conditions	■
2.3 Impact on wholesalers	■
2.4 Impact on MOSL	■
2.5 Impact on other businesses – e.g. third party service providers, MAPs/investors etc.	■
3.1 Likely scale of effort required to design and implement	■
3.2 Likely timescales for implementation and benefit realisation	■
3.3 Key risks and challenges to implementation	■
3.4 Cost to implement and operate	■
3.5 Long term maintenance, monitoring and oversight	■

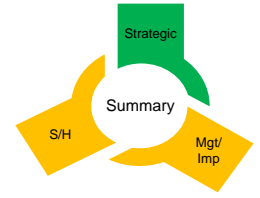
Option 2: Wholesaler Reads (Defined circumstances only)



Domain	Initial Assessment
Strategic Delivering the desired market and consumer outcomes from NHH metering	<ul style="list-style-type: none"> + Places responsibility for resolution of specific issues on party best placed to do so at any given point in time + Preserves existing market design principle - retailer role to read meters - while better addressing specific issues + May improve current asset data related issues as Wholesaler responsible for location and identification of meters, particularly for LUMs/HTR assets + Could lead to improved market data quality and timeliness, resulting in better billing outcomes for customers. + This formalises what many wholesalers / retailers are already doing - working together to resolve legacy long unread & hard to read meters - Limited additional benefits in relation to wider deployment of smart technologies (relative to Option 1A)
Stakeholder Likely impacts on and benefits for relevant participants (current and future)	<ul style="list-style-type: none"> + Potential for improved data quality and timeliness, resulting in improved outcomes for customers + Potentially more cost-effective and reliable solution for retailers to resolve specific meter reading challenges – reducing cost to serve and exposure to MPS + Maintains overall responsibility for meter reads with retailer, meaning customer has clarity on party responsible for reads / Some increase in market obligations and operational cost for wholesalers, but limited to only targeted issues and would expect number of problem sites / issues to reduce over time as root causes addressed - Would require additional market rules, processes and governance (e.g. in relation to disputes about issue responsibility) - Potential impact on third parties (commercial meter reading market) if wholesalers choose to utilise internal teams to resolve these issues.
Management and implementation Scale, complexity and cost to deliver and operate	<ul style="list-style-type: none"> + Relatively limited technical reconfiguration of CMOS (validation rules etc.). There is an existing process for wholesaler submitted reads now so since this should only be a temporary position should not require too much change. / Would require consultation, code change processes and system updates as well as sufficient lead time for wholesaler business change and implementation of new market processes / Some design complexity as need to establish rules and processes for handover of responsibility, disputes, monitoring, etc. / Some impact on wholesaler systems and operations to meet increased meter read and data submission volumes / Possibly requires a review of data ownership e.g. location notes / Will require a better process for Retailers to become aware that a wholesaler read has been submitted as the Retailer will still need to validate the read for settlement and obtain the read for customer billing / Requires timely MPF reform. Would penalties for missed reads and poor asset maintenance also be passed to the wholesaler or would the retailer still be responsible? - Would require some adjustment to wholesaler charging and funding mechanisms and levels

Criteria	Initial RAG
1.1 Improved outcomes for NHH customers	■
1.2 Improved functioning of the NHH market	■
1.3 Alignment with wider strategic and policy objectives for water sector	■
2.1 Impact on consumers, including billing and service impacts	■
2.2 Impact on NHH retailers, competition and market conditions	■
2.3 Impact on wholesalers	■
2.4 Impact on MOSL	■
2.5 Impact on other businesses – e.g. third party service providers, MAPs/investors etc.	■
3.1 Likely scale of effort required to design and implement	■
3.2 Likely timescales for implementation and benefit realisation	■
3.3 Key risks and challenges to implementation	■
3.4 Cost to implement and operate	■
3.5 Long term maintenance, monitoring and oversight	■

Option 4: Data Platform



Domain	Initial Assessment
Strategic Delivering the desired market and consumer outcomes from NHH metering	<ul style="list-style-type: none"> + Improved access to and standardisation of data for market participants over and above existing market data set. + Enables market evolution toward smart + Potential revenue stream to support smart metering investment for parties that have invested in data sources + Keeps standards and controls on data provision as smart market develops, improving market data quality + Supports data-driven market services and innovation, with potential for improved customer experience and outcomes + Enables Retailers to more effectively offer value-add services for customers such as water efficiency and leakage / Creates a monopoly with risk of poor performance that needs mitigation
Stakeholder Likely impacts on and benefits for relevant participants (current and future)	<ul style="list-style-type: none"> + Reduces friction for retailers as provides single data source (rather than multiple wholesaler platforms / APIs) + Potentially more cost efficient method for wholesalers / other data owners to make data available to market without significant investment in own solutions / Does not specify specific metering standards/technologies or comms (just about data access) therefore limited impact on technology market or participant choice / roll-out programmes / Risk of impact on retailer differentiation (but limited if does not include significant analytics offering) / Additional compliance burden in relation to obligations for data provision / access / Additional central resources and activities required depending in delivery model (e.g. central operation / commercial service management of platform provider) / Likely to require changes to participant systems and processes to meet data transfer standards and related requirements - Likely to incur significant development cost for all trading parties – this ultimately would be funded by the customer
Management and implementation Scale, complexity and cost to deliver and operate	<ul style="list-style-type: none"> / Significant effort to specify, procure and implement data platform (although would need to be tested with market as may be existing solutions available to deploy or readily configurable) / Need to define and implement legal/commercial framework for data platform – including service specifications, data/interface standards and terms of access / Potentially requires regulatory change to create new regulated/separately licensed activity and/or to extend existing market roles / Costs likely to be dependent on availability of solutions in market and level of competition between potential providers. Potential to be costly dependent on solution and required functionality. / Value in standardisation of data, but may be concerns over creating a '2nd CMOS' and increasing the data requirements for trading parties when have many existing data issues with the current data sets

Criteria	Initial RAG
1.1 Improved outcomes for NHH customers	■
1.2 Improved functioning of the NHH market	■
1.3 Alignment with wider strategic and policy objectives for water sector	■
2.1 Impact on consumers, including billing and service impacts	■
2.2 Impact on NHH retailers, competition and market conditions	■
2.3 Impact on wholesalers	■
2.4 Impact on MOSL	■
2.5 Impact on other businesses – e.g. third party service providers, MAPs/investors etc.	■
3.1 Likely scale of effort required to design and implement	■
3.2 Likely timescales for implementation and benefit realisation	■
3.3 Key risks and challenges to implementation	■
3.4 Cost to implement and operate	■
3.5 Long term maintenance, monitoring and oversight	■

Option 5: Integrated meter ownership and data service



Domain	Initial Assessment
Strategic Delivering the desired market and consumer outcomes from NHH metering	<ul style="list-style-type: none"> + Improved access to and standardisation of metering, data and communications for market participants, through a single end-to-end central service + Potential to accelerate market evolution toward smart for NHH market, with a centralised market-wide solution to metering and/or comms and data infrastructure + Reduces reliance on Wholesaler smart metering programmes which may not see some NHH meter become smart for up to 25 years + Could provide significantly greater focus on improved management of NHH meter assets - Would lead to separate market structures for HH and NHH metering markets
Stakeholder Likely impacts on and benefits for relevant participants (current and future)	<ul style="list-style-type: none"> / Potentially spreads investment to fund asset deployment (provider would effectively act as MAP) and development/operation of data platform, but would still require funding through price controls and retail charges - Risk that reduces competition in metering equipment and data services markets – would require regulation on equipment procurement and scope of services to mitigate this risk / Removes smart deployment responsibility from wholesalers, but also removes control over deployment - Wholesalers would need to maintain operational capability of meters – risk that separation of asset ownership/choice from operations could impact operations - Separation of asset ownership and responsibility for maintenance could lead to a reduction in service for customers with additional handoffs / disputes over responsibility
Management and implementation Scale, complexity and cost to deliver and operate	<ul style="list-style-type: none"> - The transfer of responsibility of meter assets to a 3rd party to provide data as a service is a major change to the structure of the NHH market and would be complex to achieve - Would require significant negotiation and agreement on terms of asset ownership transfer from wholesalers to new entity and ongoing asset leasing arrangements - Likely to require creation of new monopoly regulated entity and framework for funding and regulation, given criticality of meter assets and data / Consideration for bilateral processes - would need to be managed by MAP

Criteria	Initial RAG
1.1 Improved outcomes for NHH customers	■
1.2 Improved functioning of the NHH market	■
1.3 Alignment with wider strategic and policy objectives for water sector	■
2.1 Impact on consumers, including billing and service impacts	■
2.2 Impact on NHH retailers, competition and market conditions	■
2.3 Impact on wholesalers	■
2.4 Impact on MOSL	■
2.5 Impact on other businesses – e.g. third party service providers, MAPs/investors etc.	■
3.1 Likely scale of effort required to design and implement	■
3.2 Likely timescales for implementation and benefit realisation	■
3.3 Key risks and challenges to implementation	■
3.4 Cost to implement and operate	■
3.5 Long term maintenance, monitoring and oversight	■

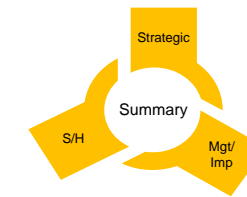
Option 6: Full NHH Smart Metering/Technology Rollout



Domain	Initial Assessment
Strategic Delivering the desired market and consumer outcomes from NHH metering	<ul style="list-style-type: none"> + Potential to accelerate deployment of smart technologies and associated benefits realisation for market and customers + Common target deployment date provides certainty to participants and potential new service providers to develop new solutions and customer offers + Common mandated standards would drive consistency of overall market solution, and reduce likelihood of stranded investment for individual company programmes + Aligned with wider objectives in relation to e.g. leakage, water efficiency, resource management + Whilst the cost of implementing this is significant, the benefits of doing so are potentially far greater than other options - Not clear that there is a standalone business case for NHH smart mandate, separate from combined NHH/domestic (which appears to be how most companies are approaching own rollout programmes)
Stakeholder Likely impacts on and benefits for relevant participants (current and future)	<ul style="list-style-type: none"> - Places significant new regulatory mandate on participants responsible for roll-out. May be significant unplanned acceleration of individual company programmes (depending on how ambitious target date is) / Would require significant additional funding across sector under price control settlements (but there may be a business case for doing so in PR24) / Likely to require significant amendment to functions of MOSL and market governance to manage and oversee elements of market-wide smart programme and enduring operations / Careful consideration required as to any specification of meter / data standards so as not to unduly impact meter manufacturer market.
Management and implementation Scale, complexity and cost to deliver and operate	<ul style="list-style-type: none"> - Significant cost and effort required to establish and manage central programme to e.g. define technology standards, develop policy and legal framework, monitor rollout, coordinate testing/certification regimes / Likely to require changes to legislation and regulations, with lengthy timelines / Would require Government and regulator sponsorship - Not clear that time to assess and include full funding requests in PR24 process / Would require full assessment of potential constraints (e.g. technology availability, supply chain constraints to support roll-out, levels of customer engagement/acceptance, etc.) - If includes comms solution and/or central data services then will be additional time, cost and complexity to specify and procure these / Need to consider lessons learnt from energy mandated smart meter rollout where the industry encountered issues such as interoperability in the early stages of rollout – appreciate specific issue may not impact this market but it would be useful to have a defined minimum specification to avoid issues such as this and subsequently equipment being rendered redundant before reaching the end of its lifespan / Need to take into account cost of stranded assets if meters are replaced before the end of their economic useful life

Criteria	Initial RAG
1.1 Improved outcomes for NHH customers	■
1.2 Improved functioning of the NHH market	■
1.3 Alignment with wider strategic and policy objectives for water sector	■
2.1 Impact on consumers, including billing and service impacts	■
2.2 Impact on NHH retailers, competition and market conditions	■
2.3 Impact on wholesalers	■
2.4 Impact on MOSL	■
2.5 Impact on other businesses – e.g. third party service providers, MAPs/investors etc.	■
3.1 Likely scale of effort required to design and implement	■
3.2 Likely timescales for implementation and benefit realisation	■
3.3 Key risks and challenges to implementation	■
3.4 Cost to implement and operate	■
3.5 Long term maintenance, monitoring and oversight	■

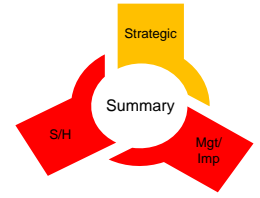
Option 7: Targeted Smart(er) Metering/Technology Rollout



Domain	Initial Assessment
Strategic Delivering the desired market and consumer outcomes from NHH metering	<ul style="list-style-type: none"> + Potential to address known market frictions and issues – e.g. Long Unread Meters and Hard to Read meters, with associated benefits for customers and the market + Metering Technologies (Artesia) report provides business case for this for wholesalers and likely for Retailers / However, replacement of meter with smarter technology may not always be the only/best solution to all LUMs/HTR situations - As targeted at specific NHH market issues, likely to have much more limited benefits in terms of wider market and sector objectives and evolution than a full coordinated deployment of smart technologies
Stakeholder Likely impacts on and benefits for relevant participants (current and future)	<ul style="list-style-type: none"> + Benefits for retailers in addressing issues that are a source of frustration for customers and also likely to lead to improved performance against MPS / Customer benefits limited to those currently affected by targeted issues – essentially bringing up to expected standards rather than enabling significant service enhancements or innovation - Benefits some but not all customers, leading to multiple markets, one where there can be significant innovation and water efficiency activity, and one which remains similar to the current market - Places a limited new regulatory mandate on participants responsible for roll-out and issue resolution. / Targeting problem premises may not be aligned with individual company programmes (which may be more focused on e.g. area-by-area deployments / May require some additional funding across sector under price control settlements. If funding was not given in PR24 for a full smart roll out then a more limited but targeted rollout would be something to consider. / Will require some amendment to market rules and governance to identify target premises, assign responsibility and monitor progress
Management and implementation Scale, complexity and cost to deliver and operate	<ul style="list-style-type: none"> + Relatively straightforward to implement obligation on relevant parties to address market issues. Given limited scale it may not be necessary to specify common technology standards as would be the case for a full smart rollout programme + Programme of deployment to address known issues could commence relatively quickly as a result, enabling some early benefits realisation / Some complexity to establish market rules and processes for identification, targeting and monitoring of issue resolution. But required effort should diminish over time as issues resolved. - Whether this is possible depends on the type of technology a wholesaler opts to use for AMI rollout – if a network based solution (which have a longer lifespan than a SIM card type solution) then this would be reliant on networks being in place across a whole region – this wouldn't be an attractive rollout model. - Rollout cost per unit will be more expensive than a mass rollout which can be done by postcode area

Criteria	Initial RAG
1.1 Improved outcomes for NHH customers	■
1.2 Improved functioning of the NHH market	■
1.3 Alignment with wider strategic and policy objectives for water sector	■
2.1 Impact on consumers, including billing and service impacts	■
2.2 Impact on NHH retailers, competition and market conditions	■
2.3 Impact on wholesalers	■
2.4 Impact on MOSL	■
2.5 Impact on other businesses – e.g. third party service providers, MAPs/investors etc.	■
3.1 Likely scale of effort required to design and implement	■
3.2 Likely timescales for implementation and benefit realisation	■
3.3 Key risks and challenges to implementation	■
3.4 Cost to implement and operate	■
3.5 Long term maintenance, monitoring and oversight	■

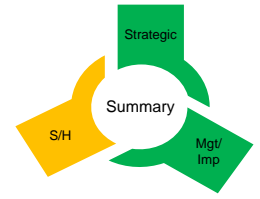
Option 8: Retailers own and are responsible for metering assets



Domain	Initial Assessment
Strategic Delivering the desired market and consumer outcomes from NHH metering	<ul style="list-style-type: none"> + Some potential to enable improved customer service in relation to metering by placing end-to-end responsibility from meter to bill with their directly contracted retailer + Some potential to remove market frictions associated with bilaterals processes and operational and-offs between retailers and wholesalers – placing retailers more in control of market performance - May not be strong rationale for Retailer taking on responsibility for additional aspects of metering, particularly if then separate arrangements for HH and NHH markets - May be less efficient means to achieve widescale smarter technology deployment, as multiple parties would be responsible for metering asset replacement in each wholesaler area. Could also undermine efficiencies of scale where wholesalers already pursuing combined NHH/HH smart deployment. - May not be aligned with wider sector aims as could be less incentive on retailers than wholesalers to upgrade metering technologies for purposes of e.g. leakage reduction, water resource management, etc.
Stakeholder Likely impacts on and benefits for relevant participants (current and future)	<ul style="list-style-type: none"> + Potential for allowing retailer differentiation - could increase customer dissatisfaction with poor performers, which would stimulate the market by driving customers to shop around and improve customer satisfaction in the long term - Significant new asset ownership, management and operational responsibilities for retailers that are not within current operating models or factored into current cost-to-serve / retail margin / Increased cost to service for Retailers - would this balance with reduced cost to serve for wholesalers? Would need to be controls in place to protect customer bills / New regulatory and commercial arrangements would need to be managed between retailers, MAPs and wholesalers - Risk for wholesalers that reduces ability to manage network as effectively if no longer have responsibility for metering assets which are fundamental to network operations / Creates new market opportunity for Meter Asset Providers (but would need to assess whether scale of NHH metering market alone would be sufficient to make this an attractive proposition in reality) - If retailers unprepared or don't want it, could result in temporarily worse service for customers, and high costs to upscale could result in smaller retailer failure. - Potentially increases barrier to entry for new Retailers
Management and implementation Scale, complexity and cost to deliver and operate	<ul style="list-style-type: none"> - Fundamental change to structure of the metering arrangements in NHH water sector. Likely to require long period of consultation, design, planning and implementation - Creates complexity of change of responsibility upon change of use at premises and asset stranding risk upon churn. This would need new regulations, market rules and operating arrangements (e.g. new processes and data flows) to be implemented - Potentially requires commercial/regulatory arrangements to achieve transfer of asset ownership from wholesalers to retailers/MAPs - Likely to require significant new operational rules and e.g. accreditation schemes to enable retailer agents to undertake physical work on the network which could impact wholesaler operations/responsibilities - Would require adjustment to retailer margin to reflect significant additional responsibilities and activities

Criteria	Initial RAG
1.1 Improved outcomes for NHH customers	■
1.2 Improved functioning of the NHH market	■
1.3 Alignment with wider strategic and policy objectives for water sector	■
2.1 Impact on consumers, including billing and service impacts	■
2.2 Impact on NHH retailers, competition and market conditions	■
2.3 Impact on wholesalers	■
2.4 Impact on MOSL	■
2.5 Impact on other businesses – e.g. third party service providers, MAPs/investors etc.	■
3.1 Likely scale of effort required to design and implement	■
3.2 Likely timescales for implementation and benefit realisation	■
3.3 Key risks and challenges to implementation	■
3.4 Cost to implement and operate	■
3.5 Long term maintenance, monitoring and oversight	■

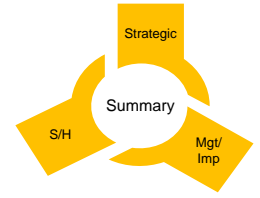
Option 9: Asset data improvement programme



Domain	Initial Assessment
Strategic Delivering the desired market and consumer outcomes from NHH metering	<ul style="list-style-type: none"> + A coordinated programme of initiatives could accelerate improvements for known issues associated with asset data quality and location to address current market frictions and improve customer experience and outcomes + A valuable prerequisite for a lot of activity within the market on metering - As targeted at specific NHH market issues, likely to have much more limited benefits in terms of wider market and sector objectives and evolution than e.g. a full coordinated deployment of smart technologies
Stakeholder Likely impacts on and benefits for relevant participants (current and future)	<ul style="list-style-type: none"> + Benefits for retailers in addressing issues that are a source of frustration for customers and also likely to lead to improved performance against MPS / Customer benefits limited to those currently affected by targeted issues – essentially bringing up to expected standards rather than enabling significant service enhancements or innovation / May require some additional funding across sector under price control settlements / Will require some amendment to market rules and governance to identify target assets/premises, assign responsibility and monitor progress / May required to be mandated by Ofwat/Defra, say as a 5-year data refresh process or incentivised by the Market Improvement Programme
Management and implementation Scale, complexity and cost to deliver and operate	<ul style="list-style-type: none"> + Could potentially be undertaken within existing market codes governance and change processes + Does not require long lead time and could realise early quick-wins. Programme of deployment to address known issues could commence relatively quickly as a result, enabling some early benefits realisation + “One off blitz” programme could be efficient timebound approach to issue resolution / Some complexity to establish market rules and processes for identification, targeting and monitoring of issue resolution. But required effort should diminish over time as issues resolved. / Consideration required as to how programme would align to / be backed by Market Performance Framework and be included in the MPF measures.

Criteria	Initial RAG
1.1 Improved outcomes for NHH customers	■
1.2 Improved functioning of the NHH market	■
1.3 Alignment with wider strategic and policy objectives for water sector	■
2.1 Impact on consumers, including billing and service impacts	■
2.2 Impact on NHH retailers, competition and market conditions	■
2.3 Impact on wholesalers	■
2.4 Impact on MOSL	■
2.5 Impact on other businesses – e.g. third party service providers, MAPs/investors etc.	■
3.1 Likely scale of effort required to design and implement	■
3.2 Likely timescales for implementation and benefit realisation	■
3.3 Key risks and challenges to implementation	■
3.4 Cost to implement and operate	■
3.5 Long term maintenance, monitoring and oversight	■

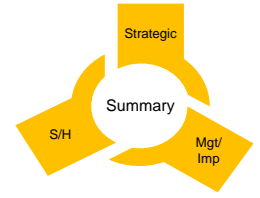
Option 10: Wholesaler smart(er) replacement service offering



Domain	Initial Assessment
Strategic Delivering the desired market and consumer outcomes from NHH metering	<ul style="list-style-type: none"> + Potential to accelerate access to smarter metering technologies and associated benefits for customers and retailers at pace and timing of their choice, rather than having to wait for wholesaler deployment programme. + Could lead to steps towards more competition and retailer differentiation / Opportunity to address known market issues such as LUMs/HTR meters within a clear framework of service levels. However, not as effective as a dedicated programme to address these. - As deployment would only be demand-led, likely to have much more limited benefits in terms of wider market and sector objectives and evolution than a full coordinated deployment of smart technologies - Margin in the market is low (and so retailers unlikely to request meters on their own). - Customer demand is currently relatively low given cost of technology and low margin, so may anticipate customer behaviour would not lead to a significant increase in smart metering.
Stakeholder Likely impacts on and benefits for relevant participants (current and future)	<ul style="list-style-type: none"> + Enables retailers greater choice and ability to offer smart-enabled service offerings to customers + Some potential to work in parallel with wider wholesaler smart programmes – e.g. reducing number of premises requiring subsequent visit, enabling early engagement / trialling - Wholesalers may not be ready to install fully functional smart meters at some premises when requested if e.g. wider smart roll-out is based on comms network availability area-by-area. This could lead to additional costs/inefficiencies if required to install and support outside main programme - Wholesaler revenues may be impacted if new retailer unwilling to pay for enhanced assets/data access if they do not want to offer such services to the customer. - Stranding mitigation / charging upon customer transfer could lead to some socialisation of costs across retailers
Management and implementation Scale, complexity and cost to deliver and operate	<ul style="list-style-type: none"> - Cost per installation will be higher as the most efficient way to deliver a smart rollout will be area by area. In addition this requires a wholesaler to have the data element of a smart offering set up across their region ahead of a full rollout which will again push the unit cost up. / Some complexity to agree appropriate funding / charging arrangements – e.g. May need to split cost allocation between avoided meter read costs which are obligatory and additional data costs which are optional, or could require some funding route through retailer margins – this would require Ofwat implementation / Would require new market rules and potentially charging arrangements to be developed, agreed and implemented / Would need to be agreement between wholesaler and retailers on technology solution and data sharing / Wholesalers may need to stand up parallel smart deployment operations to meet own programme as well as meet service levels for retailer-requested installations and data services

Criteria	Initial RAG
1.1 Improved outcomes for NHH customers	■
1.2 Improved functioning of the NHH market	■
1.3 Alignment with wider strategic and policy objectives for water sector	■
2.1 Impact on consumers, including billing and service impacts	■
2.2 Impact on NHH retailers, competition and market conditions	■
2.3 Impact on wholesalers	■
2.4 Impact on MOSL	■
2.5 Impact on other businesses – e.g. third party service providers, MAPs/investors etc.	■
3.1 Likely scale of effort required to design and implement	■
3.2 Likely timescales for implementation and benefit realisation	■
3.3 Key risks and challenges to implementation	■
3.4 Cost to implement and operate	■
3.5 Long term maintenance, monitoring and oversight	■

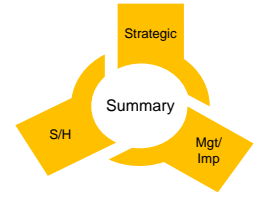
Option 11: Retailer/Customer installation of additional metering technology



Domain	Initial Assessment
Strategic Delivering the desired market and consumer outcomes from NHH metering	<ul style="list-style-type: none"> + Increases choice and control for customers and retailers for installation of smarter metering technology + Standardisation of technology options and quality of installations could improve market data and asset data quality + Subject to suitable conditions, increased scope for Retailer/Customer installed data sources to be used for settlement purposes which could help address market issues (e.g. LUMs/HTR meters) + Beneficial option where wholesaler is not delivering (or delivery is too far in the future) a metering technology programme for NHH customers - As deployment would only be demand-led, likely to have much more limited benefits in terms of wider market and sector objectives and evolution than a full coordinated deployment of smart technologies - Customers would require incentives/want fast ROI/often aren't willing to invest (especially small customers) so unlikely to deliver wider objectives
Stakeholder Likely impacts on and benefits for relevant participants (current and future)	<ul style="list-style-type: none"> + Potential to enable retailers to pursue differentiated services / innovation for customers - Potential for inconsistency in approach to AMI rollout across differing Wholesale areas could cause customer frictions / Not clear that quality of meter asset data and meter installation environment well enough known for this to be done without physical inspection each time – so may not reduce (or may increase) burden on wholesalers / Differing asset types in Wholesale areas could impact compatibility / Any extension of AE scheme could increase costs to administer / May be increased activities for MOSL/other central body to administer/operate (e.g. possible centralised certification regime for work at premises) - Stranded assets is a concern for a Retailer to make a return on investment unless this risk is fully mitigated by new regulation
Management and implementation Scale, complexity and cost to deliver and operate	<ul style="list-style-type: none"> + Potential to build on / formalise RWG good practice guide for data logging / May require additional analysis and activity to establish compatibility and accuracy of equipment / Changes required to market rules and processes / May require additional data flows to e.g. provide visibility of all equipment installed at premises in market dataset and support mitigation of stranding - Potentially requires introduction of additional regulation to mitigate stranding risks / Any centralised certification regime would require design, implementation and ongoing maintenance and funding / Likely to require some standardisation of costs (not only process) as that is a significant barrier to customer uptake of this

Criteria	Initial RAG
1.1 Improved outcomes for NHH customers	■
1.2 Improved functioning of the NHH market	■
1.3 Alignment with wider strategic and policy objectives for water sector	■
2.1 Impact on consumers, including billing and service impacts	■
2.2 Impact on NHH retailers, competition and market conditions	■
2.3 Impact on wholesalers	■
2.4 Impact on MOSL	■
2.5 Impact on other businesses – e.g. third party service providers, MAPs/investors etc.	■
3.1 Likely scale of effort required to design and implement	■
3.2 Likely timescales for implementation and benefit realisation	■
3.3 Key risks and challenges to implementation	■
3.4 Cost to implement and operate	■
3.5 Long term maintenance, monitoring and oversight	■

Option 12: Competition in metering Non-Primary Services



Domain	Initial Assessment
Strategic Delivering the desired market and consumer outcomes from NHH metering	<ul style="list-style-type: none"> + Increases options to accelerate issue resolution and deployment of smarter solutions by increasing industry capacity to undertake works + Centrally procured specialists could force pace of change if Trading Parties don't engage themselves – provides "last resort" option for market improvement + Introduces more competition elements into the market - Risk that if not properly set up, this arrangement may create more issues than it addresses.
Stakeholder Likely impacts on and benefits for relevant participants (current and future)	<ul style="list-style-type: none"> + Potential to enable retailers to pursue differentiated services / innovation for customers - Any extension of AE scheme could increase costs to administer / May be increased activities for MOSL/other central body to administer/operate (e.g. possible centralised certification regime, procurement, commercial/service management) / Wholesalers will require visibility of parties working on their assets and activity carried out. / Would require agreement around types of equipment used e.g. asset type to avoid causing inefficiencies for meter reading service providers (integrated or third party)
Management and implementation Scale, complexity and cost to deliver and operate	<ul style="list-style-type: none"> + Could be delivered with extension of existing accreditation scheme (e.g. WIRSAE scope extension) / Would require appropriate market rules and governance to ensure improved customer outcomes. / Central procurement option would require funding and commercial management / May require changes to rules and systems to recognise additional parties (e.g. for meter asset data and read submission) - Adds additional layer of complexity for MPS and would require review of MPF. - Some complexity as 3rd party would need to integrate with all wholesaler policies, systems and data requirements (which are all likely to be different)

Criteria	Initial RAG
1.1 Improved outcomes for NHH customers	■
1.2 Improved functioning of the NHH market	■
1.3 Alignment with wider strategic and policy objectives for water sector	■
2.1 Impact on consumers, including billing and service impacts	■
2.2 Impact on NHH retailers, competition and market conditions	■
2.3 Impact on wholesalers	■
2.4 Impact on MOSL	■
2.5 Impact on other businesses – e.g. third party service providers, MAPs/investors etc.	■
3.1 Likely scale of effort required to design and implement	■
3.2 Likely timescales for implementation and benefit realisation	■
3.3 Key risks and challenges to implementation	■
3.4 Cost to implement and operate	■
3.5 Long term maintenance, monitoring and oversight	■

06

Potential Composite Option Packages

This section sets out:

- The potential rationale for combining options
- Some illustrative option combinations
- A requirement to conduct further detailed evaluation of the options to enable a robust decision on combining options

A combination of options may offer greater overall benefits and enable an adaptive pathway to evolve the metering arrangements

Overview

This initial phase of work has focused primarily on developing a set of standalone options for reform in the NHH metering market. However these options are not all mutually exclusive, and a number could potentially be complimentary approaches.

This is an aspect that should be explored further during subsequent work. It will be important to more fully understand the potential features, benefits and deliverability of each option before any robust decision can be made to combine options.

Possible rationale for combining options

Options could be combined based on a primary strategic outcome that the market is seeking to achieve. This could, for example, be to:

- Address existing data and performance issues currently seen in the NHH market; or
- Accelerate smarter technology deployment in the NHH market; or
- Create more choice and competition in metering activities within the NHH market

Some illustrative examples of how options could be combined in this way are shown in the table opposite. These are indicative only at this stage and will need to be further developed and validated in further work.

An adaptive pathway

Consideration should also be given to whether an “adaptive pathway” can be defined which would see options (or packages of options) pursued in sequence, based on measurable benefits/impact of implemented options, with defined stage gates to determine whether there is a full business case to move forward with the next option.

Stage gates could be aligned, for example, to key market factors such as PR24 funding decisions. For example it could be appropriate to focus on Package 1 initially, and at a later time deliver either Package 2 or 3.

Target outcome	Example packages	Rationale
Address existing data and performance issues	<p>Package 1</p> <ul style="list-style-type: none"> Option 9 Asset data improvement programme Option 2 Wholesaler Reads (Defined circumstances only) 	<ul style="list-style-type: none"> • Complimentary options as both seeking to create additional incentives on Wholesalers to address issues hindering effective operation of metering arrangements
Accelerate smarter technology adoption and innovation	<p>Package 2</p> <ul style="list-style-type: none"> Option 6 Full NHH Smart Metering/Technology Rollout Option 4 Data Platform 	<ul style="list-style-type: none"> • Comprehensive package of options to coordinate smart metering deployment in NHH market • Data platform enables market evolution toward smart • Keeps standards and controls on data provision as smart market develops, improving market data quality
Create more choice and competition	<p>Package 3</p> <ul style="list-style-type: none"> Option 10 Wholesaler smart(er) replacement service offering Option 11 Retailer/Customer installation of additional technology Option 12 Competition in metering Non-Primary Services 	<p>Package of options focused on creating greater choice:</p> <ul style="list-style-type: none"> • Enables retailers greater choice and ability to offer smart-enabled service offerings • Increases choice and control for customers and retailers for installation of smarter metering technology • Increases options to accelerate issue resolution and deployment of smarter solutions by increasing industry capacity/operating models to undertake works

07

Detailed Evaluation Framework/Approach

This section sets out:

- **Additional detailed evaluation points against each of the lenses and criteria in the evaluation framework.** This detail will enable a more rigorous assessment of the options in the next phase of work and enable scoping and planning of the appropriate evaluation activities.
- **An initial view of detailed evaluation requirements and activities.** This identifies the additional information required to develop a more rigorous and higher-confidence evaluation of the options identified in this report and suggests a range of activities (including consultation, more detailed design and impact assessments) that will support the next phase of work on the strategic review. These activities will support business case development and decision-making on the most appropriate way forward.

Detailed evaluation framework (1)

Assessment criteria	Detail on assessment considerations
1.1 Improved outcomes for NHH customers	<ul style="list-style-type: none"> Proposals should appropriately balance customer, market and wider strategic outcomes (e.g. sustainability)
1.2 Improved functioning and enabling evolution of the NHH market	<ul style="list-style-type: none"> Improved customer service & journey, improved value and choice for customers, protect and promote the interests of, and participation by, existing and future Non-Household Customers
1.3 Alignment with wider strategic and policy objectives for water sector (e.g. contribution to key PR24 aims)	<ul style="list-style-type: none"> Includes reduction of frictions and addressing known issues (to achieve more accurate and timely reads, better CMOS data, reduced time and effort for TPs including in meeting performance standards)
2.1 Impact on consumers, including billing and service impacts	<ul style="list-style-type: none"> Other impacts considered relevant for the policy, such as environmental impacts, resilience and impact on future innovation in the market
2.2 Impact on consumers, including billing and service impacts	<ul style="list-style-type: none"> The likely impact on consumers in terms of financial impacts, service levels, consumer choice, distributional impacts across different customer cohorts.
2.1 Impact on consumers, including billing and service impacts	<ul style="list-style-type: none"> The likely impact on competition between NHH retailers. This could include an assessment of barriers to entry/exit, economies of scale, impacts on ability to differentiate offerings, and these factors may ultimately affect the consumer.
2.2 Impact on NHH retail competition and market conditions	<ul style="list-style-type: none"> Risk of stranded assets caused by new market models
2.3 Impact on Wholesalers	<ul style="list-style-type: none"> Impact on wholesale operations Likely impact on funding needed via price control Impact on wholesaler non-regulated meter reading services
2.3 Impact on Wholesalers	<ul style="list-style-type: none"> Impact on MO role, systems, processes and resources Degree of market change required to support
2.4 Impact on MOSL	<ul style="list-style-type: none"> The likely impact on wider businesses in terms of cost, market opportunities and incentives/barriers to participate and innovate.
2.5 Impact on other businesses – e.g. third party service providers, MAPs/investors etc.	

Detailed evaluation framework (2)

Assessment criteria	Detail on assessment considerations
3.1 Likely scale of effort required to design and implement	<ul style="list-style-type: none"> • Technical complexity of solution and scale of business and legal/regulatory change required • Required MOSL capacity, service provider capacity, input required from market participants and range of stakeholders involved, all of which may increase risk to delivery.
3.2 Likely timescales for implementation and benefit realisation	<ul style="list-style-type: none"> • Informed by evidence including past projects and business/stakeholder insight where available
3.3 Key risks and challenges to implementation	<ul style="list-style-type: none"> • This could include likely prerequisites and challenges identified from evidence, including legal/regulatory challenges (e.g. need for primary legislation), commercial risks, delivery risks, level of stakeholder consensus/commitment
3.4 Cost to implement and operate	<ul style="list-style-type: none"> • Implementation costs for changes to systems, processes and market arrangements • Costs to impacted participants
3.5 Long term maintenance, monitoring and oversight	<ul style="list-style-type: none"> • Level of financial and non-financial resources required post-implementation (e.g. governance, assurance, performance management, contract management, etc.)

Detailed evaluation requirements and activities

Domain	Assessment criteria	Data required	Activities
Strategic	1.1 Improved outcomes for NHH customers	<ul style="list-style-type: none"> Customer views on customer benefits Industry views on customer benefits 	<ul style="list-style-type: none"> Consultation on options, including with customer representative bodies Customer journey mapping for shortlisted options
	1.2 Improved functioning and enabling evolution of the NHH market (including reduction of frictions and addressing known issues)	<ul style="list-style-type: none"> Assessment of impact on known market issues 	<ul style="list-style-type: none"> Market process mapping / analysis Market impact assessment Modelling of potential impact on known market issues
	1.3 Alignment with wider strategic and policy objectives for water sector (e.g. contribution to key PR24 aims)	<ul style="list-style-type: none"> Ofwat PR24 policies and decisions alignment Long-term delivery strategies alignment Defra policy direction 	<ul style="list-style-type: none"> PR24 policy / methodology decisions review LTD strategies review Ofwat and Defra engagement Link in with PR24 calendar and events

Suggested detailed evaluation requirements and activities

Domain	Assessment criteria	Data required	Indicative Activities
Stakeholder	2.1 Impact on consumers, including cost and service impacts	<ul style="list-style-type: none"> Impact on consumers in terms of financial impacts, service levels, consumer choice, distributional impacts across different customer cohorts. 	<ul style="list-style-type: none"> Consultation on options, including with customer representative bodies Customer journey mapping for shortlisted options Evaluation / modelling of distributional impacts
	2.2 Impact on NHH retailers, competition and market conditions	<ul style="list-style-type: none"> Operational, financial and commercial impacts on retailers The likely impact on competition between NHH retailers. 	<ul style="list-style-type: none"> Retailer engagement Market modelling / analysis <ul style="list-style-type: none"> Assessment of barriers to entry/exit impacts on ability to differentiate offerings Market participant impact assessment
	2.3 Impact on Wholesalers	<ul style="list-style-type: none"> Impact on wholesale operations Likely impact on funding needed via price control Impact on wholesaler non-regulated meter reading services 	<ul style="list-style-type: none"> Wholesaler engagement Consideration of alignment of PR24 proposals Market participant impact assessment
	2.4 Impact on MOSL	<ul style="list-style-type: none"> Impact on MO role, systems, processes and resources Degree of market change required to support 	<ul style="list-style-type: none"> MOSL impact assessment Systems impact assessment (inc. CMOS, Bilaterals Hub) Market codes potential change proposal development
	2.5 Impact on other businesses – e.g. third party service providers, MAPs/investors etc.	<ul style="list-style-type: none"> The likely impact on wider businesses in terms of cost, market opportunities and incentives/barriers to participate and innovate. 	<ul style="list-style-type: none"> Third party engagement – e.g. exploring potential commercial solutions for e.g. data platform, non-primary services, etc. Consultation on options, including with trade bodies

Suggested detailed evaluation requirements and activities

Domain	Assessment criteria	Data required	Indicative Activities
Management and implementation	3.1 Likely scale of effort and change required to design and implement	<ul style="list-style-type: none"> • Technical complexity of solution and scale of business and legal/regulatory change required • Required MOSL capacity, service provider capacity, input required from market participants and range of stakeholders involved, all of which may increase risk to delivery. 	<ul style="list-style-type: none"> • High-level business and technical architecture/design for shortlisted options • Technical Impact Assessment • Change programme scoping with input from relevant parties • Participant impact assessment • Legal framework impact assessment
	3.2 Likely timescales for implementation and benefit realisation	<ul style="list-style-type: none"> • Delivery timescales 	<ul style="list-style-type: none"> • Change programme plan development • Benefits definition and realisation planning • Benefits monitoring framework
	3.3 Key risks and challenges to implementation	<ul style="list-style-type: none"> • This could include likely prerequisites and challenges identified from evidence, including legal/regulatory challenges (e.g. need for primary legislation), commercial risks, delivery risks, level of stakeholder consensus/commitment 	<ul style="list-style-type: none"> • Technical risk evaluation (e.g. metering technology standards / issues) • Risk log development • Agreement of mitigations
	3.4 Cost to implement and operate	<ul style="list-style-type: none"> • Implementation costs for changes to systems, processes and market arrangements • Costs to impacted participants 	<ul style="list-style-type: none"> • Cost assessment / budgeting based on design, impact assessments and programme planning • Assess ongoing costs for impacted participants
	3.5 Long term maintenance, monitoring and oversight	<ul style="list-style-type: none"> • Level of financial and non-financial resources required post-implementation (e.g. governance, assurance, performance management, contract management, etc.) 	<ul style="list-style-type: none"> • Operating model design for progressed options • Resource planning and allocation

08

Next Steps

This section sets out:

- How the next phase of the review should build on the options and analysis in tis report to deliver a fuller objective evaluation of options and move towards a full business case and decision on reform
- Some key considerations for the next phase to ensure it is rigorous and takes account of all relevant perspectives
- Indicative workstreams for the next phase of work to ensure that momentum in the review can be maintained

This report has identified opportunities for beneficial market reform and provides the foundation to work towards a full business case

This initial phase of the Roles and responsibilities workstream has identified a diverse longlist of options, including options which could be implemented with relatively contained change to the existing NHH market, as well as others which could involve more significant market restructuring.

Importantly, the advantages identified across the options could not only resolve current issues, but also enable substantive evolution of the market and therefore strongly merit further exploration to define the optimal reform approach.

The definition and initial critical evaluation of the options set out in this report provides a basis for wider industry and stakeholder engagement to broaden perspectives on the options and inform the potential way forward.

Significant additional design, analysis and testing of the options will be required before a fully informed decision can be taken on any of the options set out in this report.

The next phase of the review should therefore focus on delivering a fuller objective evaluation of options, including the economic case related to possible alternative models for metering roles and responsibilities.

The next page provides an overview of the range of activities that should be factored into plans for the next stage, including:

- Socialising and consulting on the options and potential reform programme, to allow a final shortlist and decision-making on priority reforms
- Further analysis and design work to enable a full business case to be developed for shortlisted and prioritised options
- Further engagement with market participants and service providers to fully understand business impacts and opportunities
- Structuring and managing a programme of work to move from decisioning to implementation

In developing and executing a programme of work to deliver a robust decision on the way forward, several key challenges and considerations will need to be addressed, including ensuring that:

- The perspectives and potential roles for stakeholder groups who currently sit outside the non-household market framework, for example infrastructure investors, meter asset providers and meter reading companies, are properly reflected
- There is alignment with the work being completed on the other Strategic Metering Review workstream on the technology roadmap, for example to ensure that the identified options for roles and responsibilities are effectively ‘future-proofed’ in terms of how they would relate to an evolving metering technology landscape
- Potential options are properly considered in the context of changes that are already in-flight or planned, for example through the ‘quick start’ initiatives and other changes being considered in relation to the Market Performance Framework
- Potential options are properly considered in terms of their practical deliverability, for example with consideration given to the opportunities and constraints presented by the PR24 process
- The detailed options evaluation and business case development is robustly anchored in the context of the different value propositions for each key stakeholder group, so as to ensure that the ultimate preferred set of options will drive maximum value for customers, wholesalers and retailers and therefore the market as a whole.



1.
Business Case
and Decisioning



2.
Comms and
Consultation



3.
Options
Architecture/
Design



4.
Impact
Assessment



5.
Vendor
Engagement /
Procurement



6.
Programme
mobilisation and
run



7.
Implementation /
Operational
Change

Strategic Metering Review Phase 2 - Key Workstreams (Indicative)



1.

Business Case and Decisioning

- Ongoing sponsorship
- Options shortlisting
- Outline Business Case
- Full Business Case
- Modelling and analysis
- Decision on options
- Industry change governance
- Benefits definition and tracking



2.

Comms and Consultation

- Stakeholders comms
- Stakeholder engagement
- Options consultation



3.

Options Architecture/ Design

- High-level architecture / design to inform decisioning and impact assessment



4.

Impact Assessment

- Participant Impact Assessment
- MOSL Impact Assessment
- Systems Impact Assessment



5.

Vendor Engagement / Procurement

- Market engagement / testing
- Vendor procurement



6.

Programme mobilisation and run

- Managing delivery across all phases (from options business case to delivery and benefits realisation)
- Benefits tracking
- Stage Gates / Evolution Pathway confirmation



7.

Implementation / Operational Change

- Coordinated programme of change activities across market

Indicative route to change

Based on initial assessment against relevant criteria in the Management & Implementation domain, we have developed an indicative view of the potential routes to change for each option, with a view on the scale of change required. This should be further validated as part of the development of the full business case for reform.

3.1 Likely scale of effort required to design and implement
3.2 Likely timescales for implementation and benefit realisation
3.3 Key risks and challenges to implementation (including degree of legal/regulatory change)
3.4 Cost to implement and operate

#	Option title	3.1	3.2	3.3	3.4	Potential route to change
1	Wholesalers responsible for all market meter reads	A	A	R	A	Significant change to market structure. Requires a case for change via Strategic Panel, Ofwat and Defra.
2	Wholesaler reads (defined circumstances only)	A	A	A	A	Could be achieved through Strategic Panel and Ofwat as it is time limited.
3	Wholesaler reads and data service (for smart meters only)	A	A	A	A	Could be achieved through Strategic Panel and Ofwat as it is pragmatic and gradual as smart meters are introduced
4	Data platform	A	A	A	A	Could be through a case to Strategic Panel – key is to secure funding to support it. Would also require early vendor market engagement.
5	Integrated meter ownership and data service	R	R	R	R	Fundamental change to market structure and would probably require a case for change being presented up through Strategic Panel, Ofwat and Defra. Likely to require significant legal/regulatory change to establish new market role.
6	Full NHH smart metering/technology rollout	R	R	A	R	Would need a case to be developed and to be mandated by Ofwat/Defra and funding secured. May require primary legislation to underpin market-wide mandate.
7	Targeted smart(er) metering/technology rollout	G	G	A	A	Could be developed by strategic Panel and implemented via market codes.
8	Retailers own and are responsible for assets	R	R	A	R	Fundamental change to market structure and would probably require a case for change being presented up through Strategic Panel, Ofwat and Defra And to be mandated in the market codes
9	Asset data improvement programme	A	G	G	G	Could be mandated via MPF and/or Ofwat/Defra as a one-off exercise
10	Wholesaler smart(er) replacement service offering	A	A	A	A	Agreement between wholesalers and retailers supported by Strategic Panel
11	Retailer/ customer installation of additional technology	A	A	A	A	Would need support through the retail price review
12	Competition in metering non-primary services	A	G	A	A	Could be agreement between wholesalers and retailers supported by Strategic Panel



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