

# Enhanced Metering Technology in the non-household water market

*Webinar presentation*

*6 April 2022*

*John Davies, CIO MOSL*

*Martin Hall, Programme Lead, MOSL*

*Claire Yeates, Waterscan (sponsor)*

*Dene Marshallsay, Artesia Consulting*

[Recording of webinar](#)



# Agenda

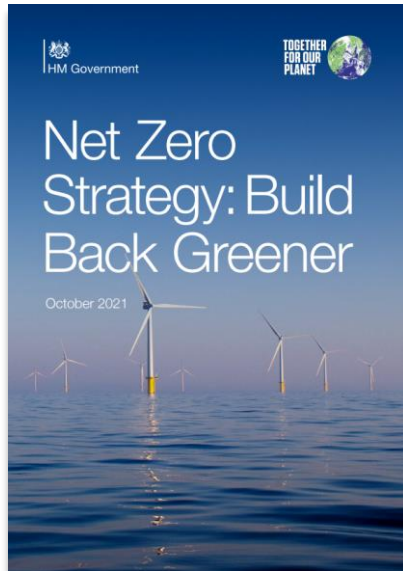
- ◆ Welcome and introductions
- ◆ Context and drivers for change – John Davies, MOSL CIO
- ◆ Research process and headlines – Claire Yeates, Metering Committee Sponsor
- ◆ Technologies and challenges – Martin Hall, Programme Lead, MOSL
- ◆ Research findings – Dene Marshallsay, Artesia Consulting
- ◆ Next steps – Martin Hall
- ◆ Q&A

# A market with massive water efficiency potential

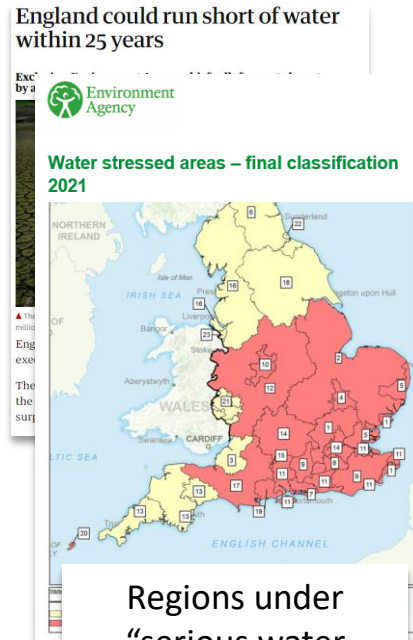
- ◆ 1.2 million eligible customers
- ◆ Circa. 70 wholesalers and retailers
- ◆ NHH customers consume 3bn litres of water per day - 30% of England and Wales' total
- ◆ Most NHH customers v small, with profiles very similar to households
- ◆ Largest customers very large: 1% consume half of NHH water (3% consumes 70%)
- ◆ Ideal opportunity for water efficiency intervention measures and/or address timing of consumption



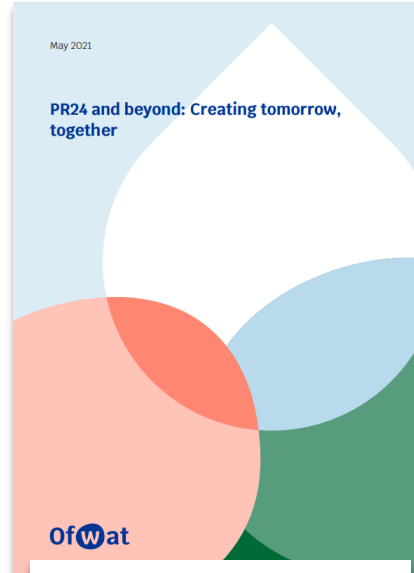
# Multiple drivers for change



HM net zero climate change agenda



Regions under "serious water stress"



Future AMP objectives, incentives and penalties



Tightening environmental targets



Wholesalers' leakage reduction commitments

Regulatory > Environmental > Societal  
> Consumer pressure > Technological  
> Operational

*"Significant issues regarding poor quality customer, consumption, and asset data continue to persist in the [NHH] market"*

Ofwat 'State of the Market' Report  
December 2021

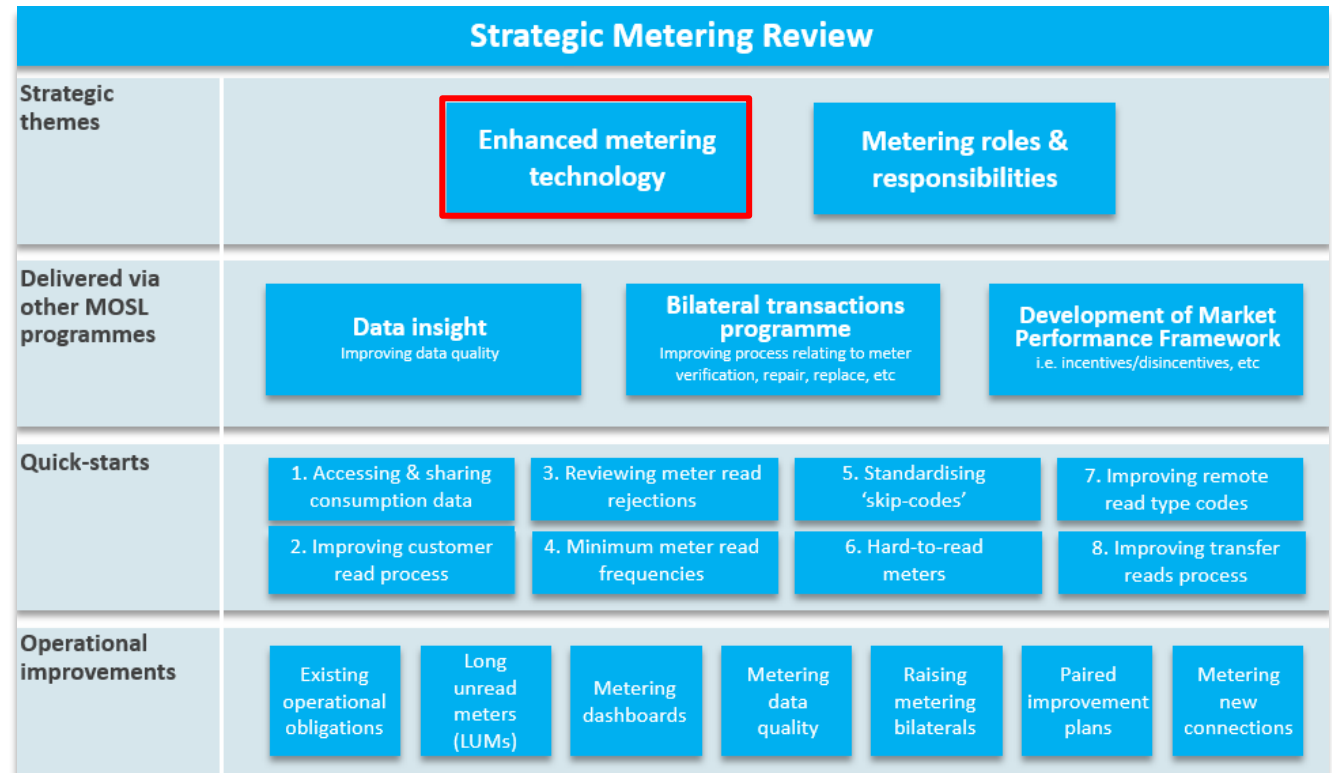
# Enhanced metering in context

## The Strategic Metering Review:

- Operational processes
- Two strategic themes

## Theme 1: Enhanced Metering Technology:

- Benefits be of regular, accurate, granular consumption data?
- Meter technolog(ies) to capture the data?
- Cost-benefit analysis?
- Funding totally dependent on PR24/WRMP or does it stack up anyway?
- Impact of current imbalance in incentives and penalties between domestic and NHH?
- We asked Artesia Consulting to take a closer look..*

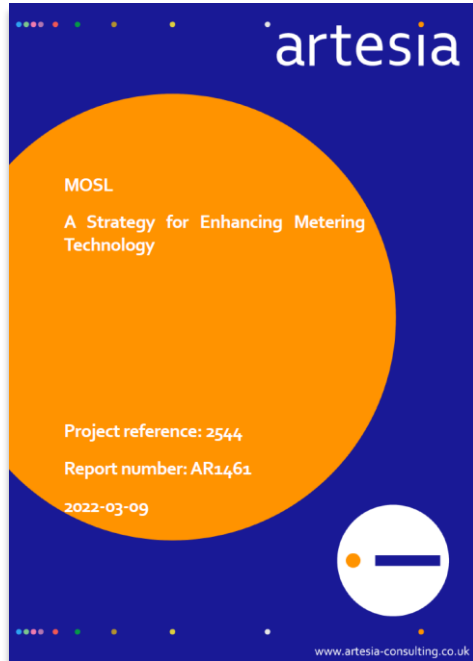


# Research process and headline findings

Claire Yeates

Metering Committee Sponsor  
Director of Strategy, Waterscan

# Key research findings - headlines



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

# Metering technologies: definitions and current challenges

Martin Hall  
Programme Lead, MOSL



## Enhanced Metering Technologies\*

### Visual reading



#### Traditional Meters

- Sizes up to 300mm
- Most sub-25mm, i.e. same as household
- Visited and read manually
- 73% of market meters

### Walk/drive-by



#### Automatic Meter Readers (AMR)

- Can be added to traditional meters
- Able to transmit over short distances
- Smarter technology

### Fixed network



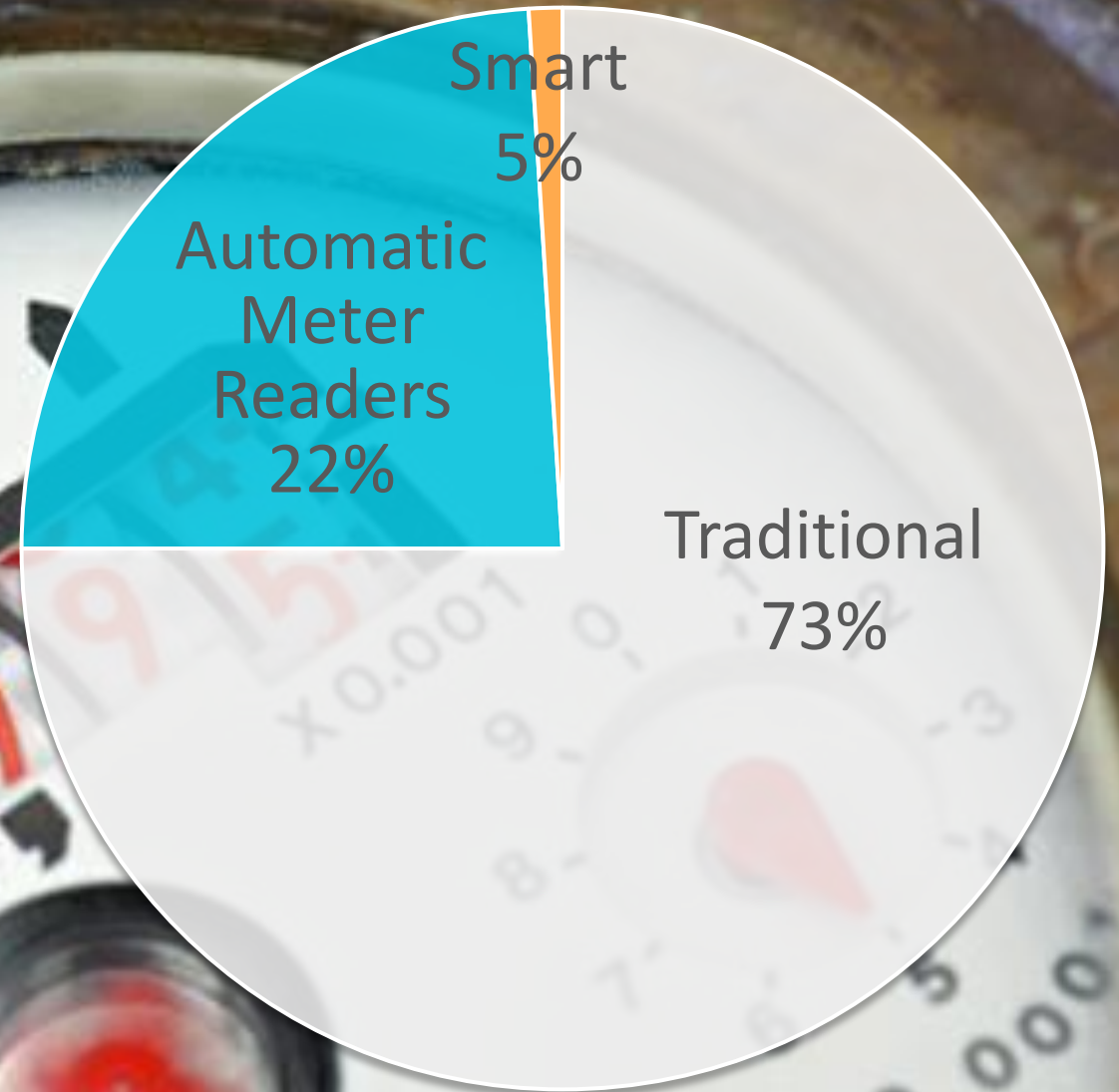
#### Smart Advanced Metering Infrastructure (AMI)

- Reads transmitted over long distances to:
- **Private** fixed network where density of customers allows
- **Public** comms system (e.g. GSM or NB-IoT) for individual meters

\*Matrix of available technologies at [www.mosl.co.uk](http://www.mosl.co.uk)

## The challenge

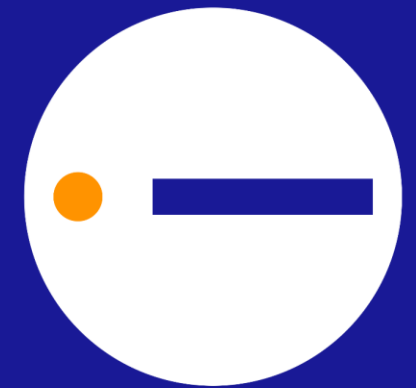
- 💧 Only 5% of meters are 'smart' (previously 1%)
- 💧 Ageing assets
- 💧 Metering process has multiple issues and inconsistencies
- 💧 196k long unread meters, of which 34k unread since NHH market opened
- 💧 Complexity increased due to division of meter responsibilities
- 💧 Risk of market divergence
- 💧 Avoiding stranded assets



# Enhanced metering in the non-household market

2022-04-06

Dene Marshallsay



## The benefits case

Who might benefit from the more frequent, accurate, granular data that smarter meters could provide?

And do the benefits justify doing a full cost-benefit analysis?

# There are benefits across a range of stakeholders

## Retail customers

Improved service

Bills based on valid consumption

Value added services

Water efficiency opportunities

Fewer bill shocks

More informed choices

## Wholesalers

Transactions based on valid consumption

Greater visibility of property level consumption

Ability to target leakage and wastage reductions

More accurate consumption data for regulatory reporting

Improved management of meter assets

Benefits align with household metering

## Retailers

Fewer customer complaints

More accurate cash settlements

Improved cash flow

Scope to innovate and provide customers with added services

More confidence in taking on new customers

Reduced cost to serve

Fewer stranded assets

## Market operator

Improved market performance

Market performance framework can be outcome focussed

Data rich metrics

Value added insight

Evidence based improvements

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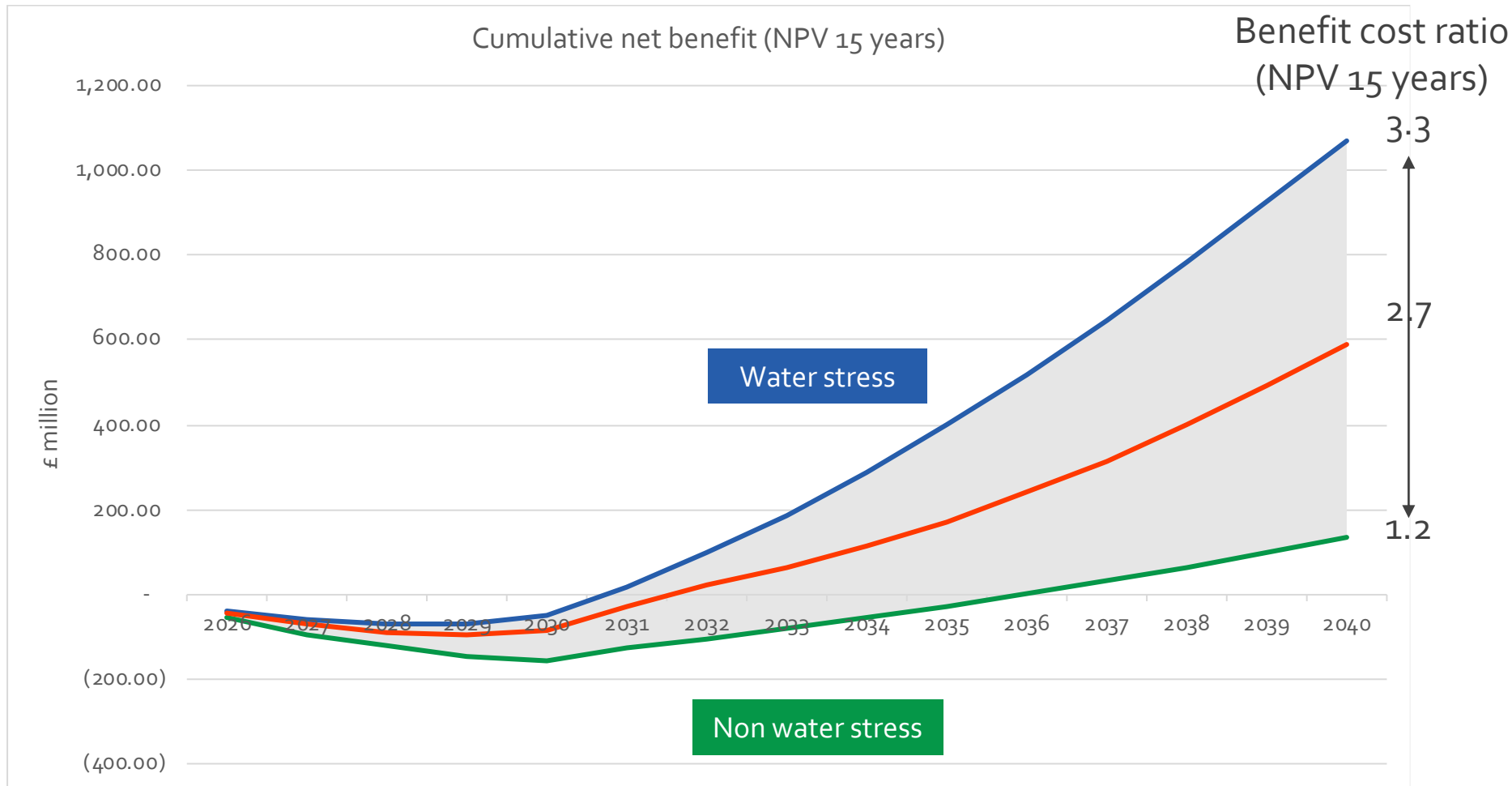
Value added insight

Evidence based improvements

## Cost-benefit analysis

How much might rolling out smarter meters to NHH customers cost and what would the financial and non-financial benefits be?

# How cost beneficial is the solution across a range of scenarios?



- Non-quantified benefits:**
- Improved data accuracy
  - Business and retailer measures of experience (B-Mex/R-Mex) performance commitments
  - Reduced bi-lateral requests
  - Reduced need to install 3<sup>rd</sup> party equipment
  - Benefits to society from reduced carbon
  - Improved health, safety and wellbeing for meter reading

Investment in technology during AMP8

Benefits continue over the long term





## Smarter metering technologies

Which technology – or technologies – should companies use to aid the speed of adoption of smarter meters?

It's all about the data

# The solution proposed focusses on the meter consumption data

For all customers in the market, this would mean:

- Delivering meter reads by remote communications technology
- Providing daily metered consumption values
- Providing sub-daily data

This could be achieved by rolling out enhanced meter technology that delivers the following data:

Meter size	Percentage of meter stock	Minimum data required per meter	Minimum data read frequency	Technology
Less than 25 mm	87 % (~1,126,000 meters)	Daily consumption value & indication of continuous flow	Monthly	AMR or AMI <sup>1</sup>
25 mm and above	13 % (~165,500 meters)	Hourly consumption	Daily	AMI <sup>2</sup>

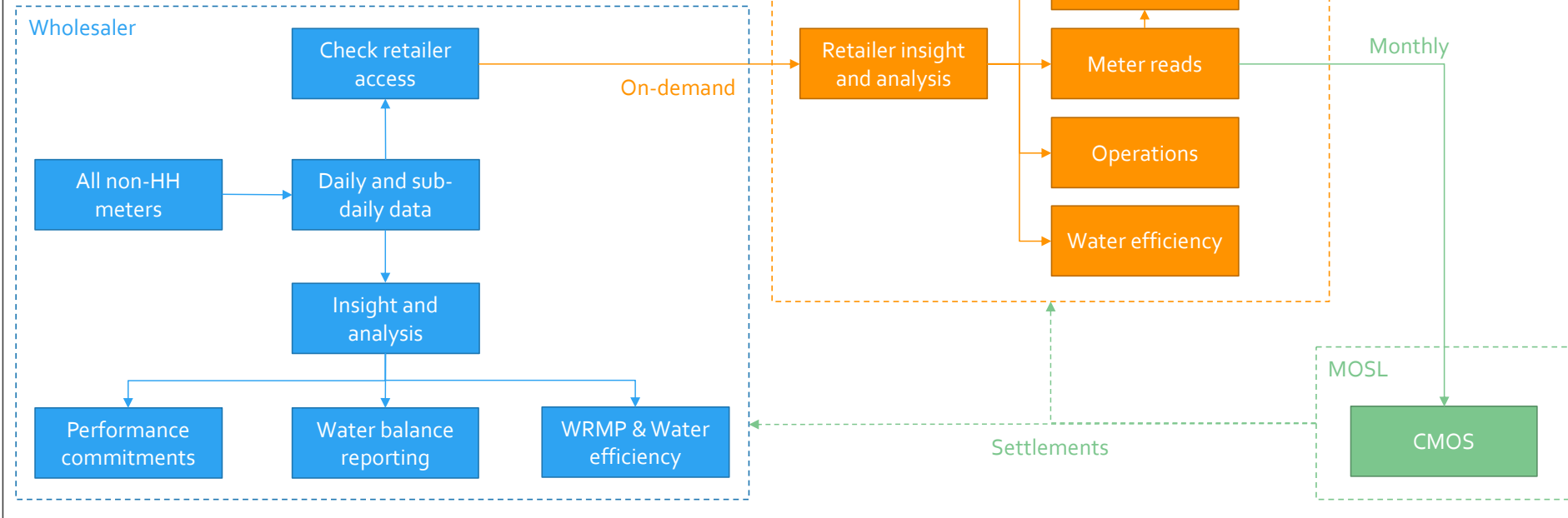
<sup>1</sup>. Where AMI is already being rolled out to households and/or customer density is sufficient to do so

<sup>2</sup>. Replacing existing meter with smart AMI meters or adding smart technology on case-by-case basis

# The data is key to delivering the benefits

## Common data flows should be agreed between parties

One examples is shown here:



## Defining data formats:

- Will make it easier to share data
- Improve data assurance and auditing
- Increase efficiency
- Maximise the value of data
- Improve the range of benefits

MOSL - Market improvement fund project: **AMIDST** (Advanced Metering Infrastructure (AMI) data strategic transfer)

## The Financial Model

How have we built our financial model?  
What assumptions have we used?

# Cost benefit model (CBA) approach and scenarios

C  
O  
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S

- Upgrading the meter stock
- Upgrading back office systems
- Remote read communications

B  
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- Cost of water saved fixing leaks
- Cost of water saved through water efficiency
- Avoid cost of additional consumption monitoring
- Benefits to the market

### Scenarios:

**Scenario 1**  
Incremental cost of meter replacement, water stressed + non-stressed areas

**Scenario 2**  
Full cost of meter replacement, water stressed + non-stressed areas

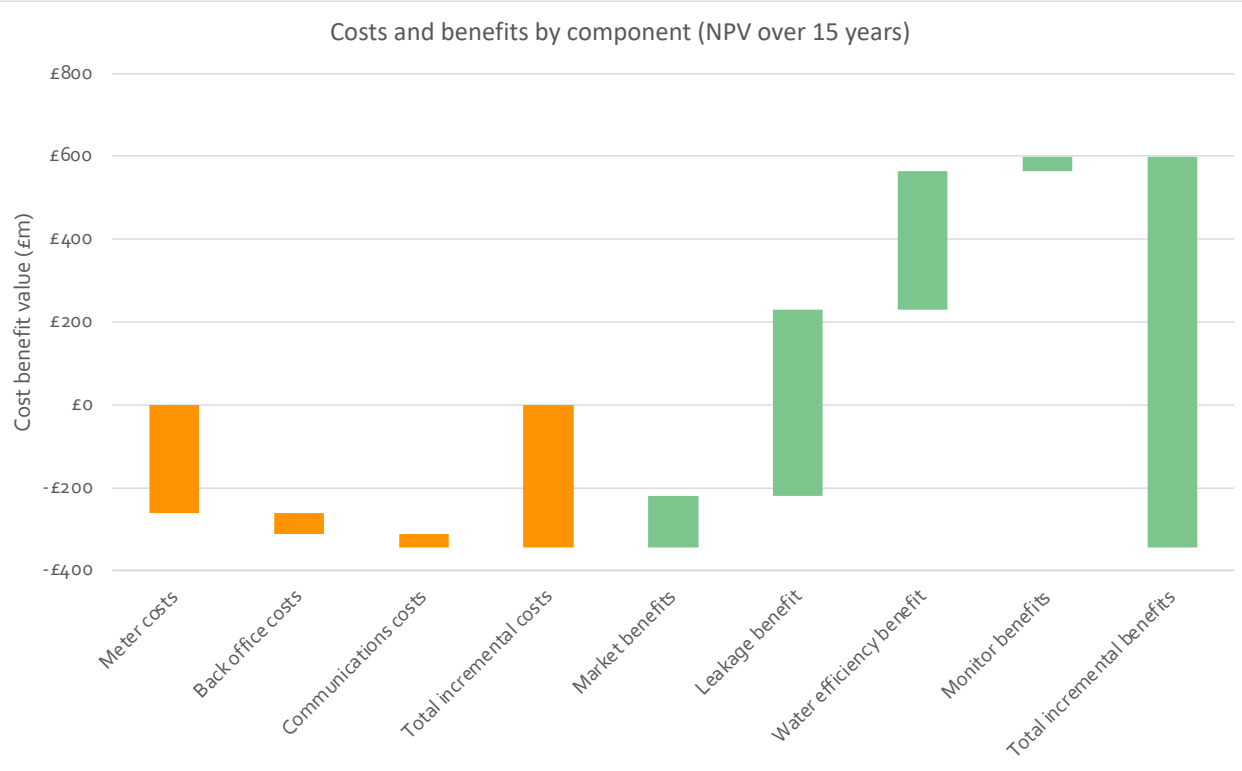
**Scenario 3**  
Incremental cost of meter replacement, assume no water stress

### Assumptions:

- Partial cost-benefit analysis (CBA), **not all benefits quantified**
- Meters upgraded during AMP8
- 15 year asset life
- Average across market in England

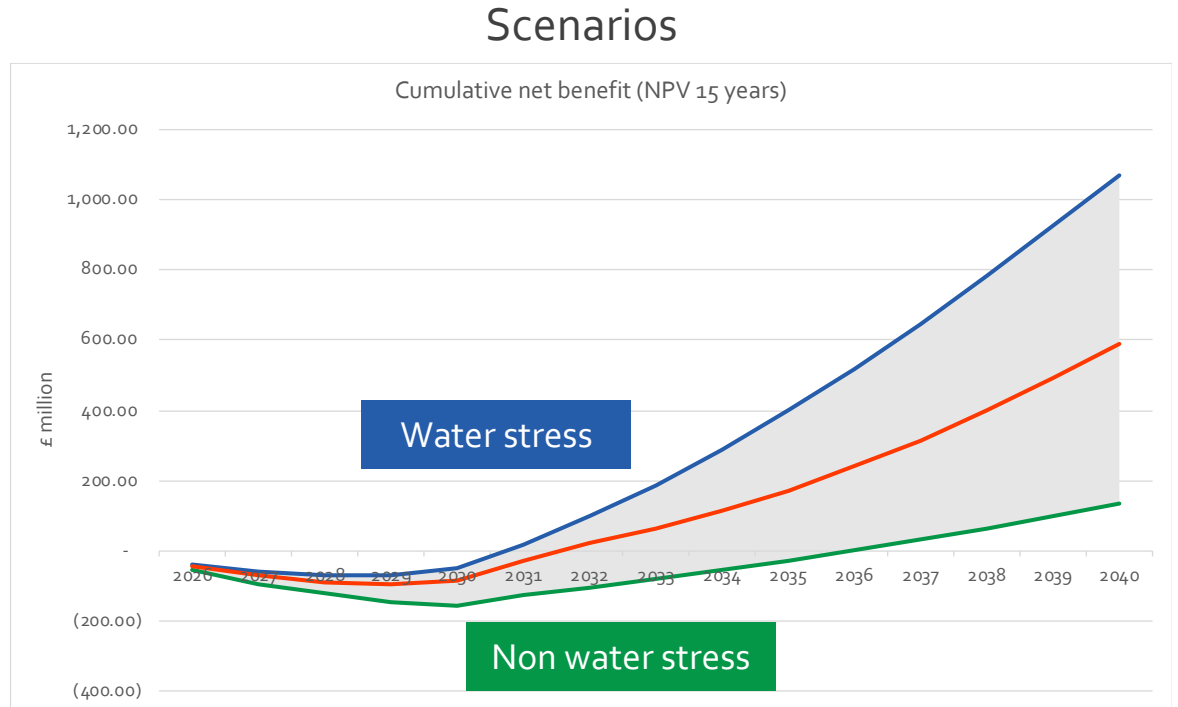
# All scenarios show a positive cost benefit over 15 years

## Scenario 2 (full meter costs)



**Total cost:** £343 million (NPV 15 years)  
**Total benefits:** £944 million (NPV 15 years)  
**Return period:** 5 years\*  
**Benefit cost ratio:** 2.7

\* Weighted average for NHH customers in water stressed and non-water stressed areas. In non water stressed areas the payback period increases to 10 years.

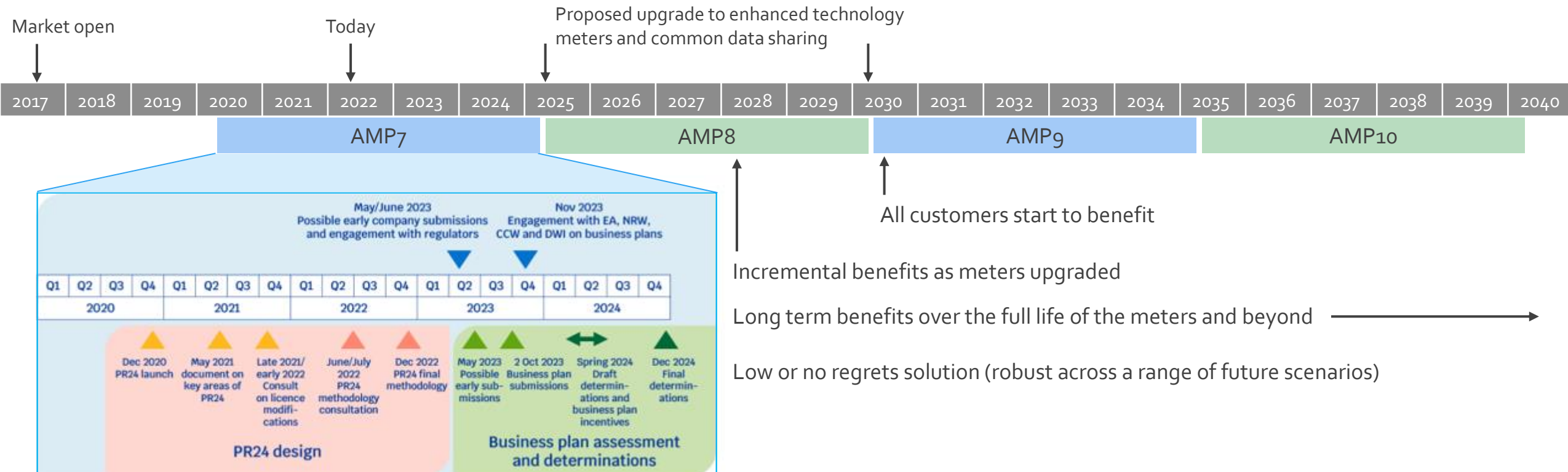


## Funding and the economic climate

Is smarter metering dependent entirely on regulatory funding, i.e. via PR24/WRMP24?

Is there a case for investing in smarter metering outside these mechanisms?

# As asset owners, it makes sense for wholesalers to seek investment in PR24



PR24 business plan submissions May to October 2023

The business case for enhanced metering in the NHH market could be made on its own, independent of PR24/WRMP24 - and could be driven by Retailers



## Recap findings

1. Strong benefit case for water companies rolling out enhanced metering technology to non-household customers
2. Water companies planning to upgrade or roll out 'smart' meters for domestic customers should include non-household customers at the same time.
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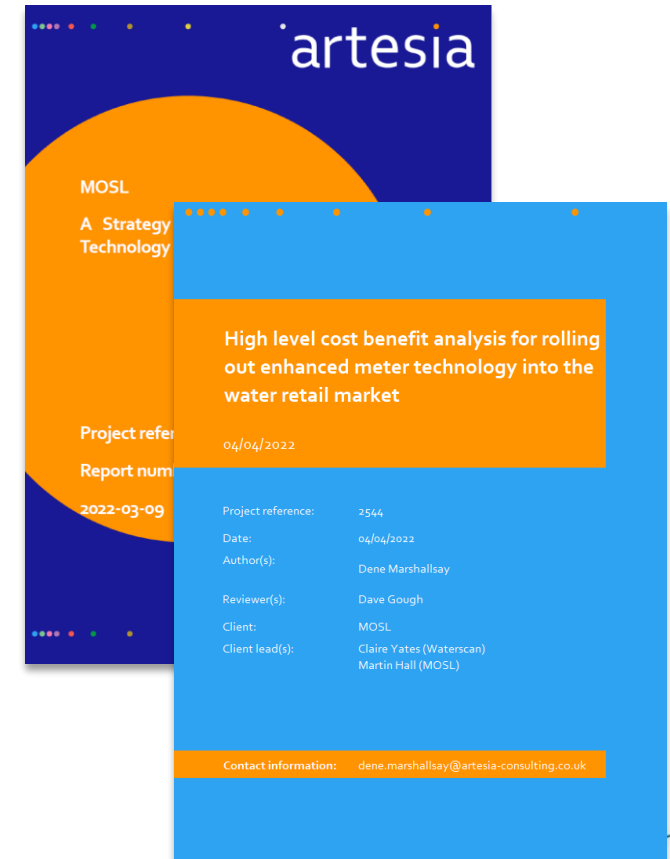


# What does 'good' look like?

Below expectations	Meeting expectations	Exceeding expectations
<ul style="list-style-type: none"><li>• Only a few wholesalers plan to make NHH meters AMR or AMI/smart in AMPs 8 and 9</li><li>• Retailers fit AMR or AMI/smart meters for customer who request the service</li><li>• Data sharing based on individual approaches between trading parties</li><li>• No significant technology development</li></ul>	<ul style="list-style-type: none"><li>• Most wholesalers plan to make all NHH meters AMR or AMI smart in AMPs 8 and 9</li><li>• Where no PR24 investment in AMP8 retailers and wholesalers work together to make targeted meters AMR or AMI/smart</li><li>• Most trading parties adopt a data interoperability standard and actively share data through a common platform</li><li>• Trading parties trial new technology solutions</li></ul>	<ul style="list-style-type: none"><li>• All wholesalers plan to make all NHH meters AMR or AMI/smart in AMP8</li><li>• All trading parties adopt a data interoperability standard and actively share data through a common platform</li><li>• Trading parties actively work with technology suppliers to implement new technology solutions.</li></ul>

# Next steps

- Full research report and financial model now available via [www.mosl.co.uk](http://www.mosl.co.uk) homepage
- We have reached out proactively to offer one-to-ones with water companies added to regions of “serious water stress” last year
- Please contact us if you would like to discuss in more detail
- Feedback and comments invited - please email [comms@mosl.co.uk](mailto:comms@mosl.co.uk) by Friday 6 May**



# Questions

A hand is holding a white rectangular card in the center of the frame. The card has the words "THANK YOU!" printed in a bold, black, sans-serif font. The background is a soft-focus, bokeh-style image of green foliage, with light filtering through to create a bright, airy atmosphere. The hand holding the card is visible at the bottom, with the thumb and index finger gripping the edges.

**THANK  
YOU!**