PRT 07.06 REDUCING CUSTOMER SIDE DEMAND (UNIVERSAL SMART METERING)

CONTENTS

1. AT A GLANCE

In this section we lay out the investment case for smart metering.

We cover:

- The pressures and risks that have driven our need to deliver a universal smart metering programme.
- Our options appraisal process that that concluded universal smart metering was the best solution for our circumstances.
- Our vision for delivering a holistic programme that will bring not just the primary outcomes, but also many secondary outcomes that will drive significant benefits for our customers.
- Our proposed delivery programme.

This document should be read alongside the rest of our PR24 submission and in particular documents; PRT07.06.01 Report - WSM WDM roll-out - CBA Findings

These proposals will deliver a complete smart network providing rich data to both customers and Portsmouth Water. In turn this will support the overall reduction of demand for water required by the Water Resource Management Plan and support our future relationship with customers. The savings in demand are accounted for through Per Capita Consumption (PCC) and the increase our ability to detect and remediate both customer-side and network leakage.

The investment consists of installing AMI smart metering for households and non-household connections within AMP8 and AMP9, together with the creation of a comprehensive smart data network and the infrastructure to provide insights into customer usage, leakage and supporting assessment of the water balance. Customers will be able to conveniently see their own usage through a web-based portal and via an App on a device. We will be able to see all the root data and use it for analysis. We will provide greater visibility of customer-side leakage (CSL) through alerts and alarms which in turn will support us to take appropriate remedial actions as required to reduce CSL.

The proposals are estimated to cost £138m (around £63m in the AMP8 period) and will be implemented in stages between 2025 and 2034, following on from current preparatory activity in this AMP7 period. These costs have been informed by market research, supplier conversations as well as unit rates from our existing meter installation and asset contracts. The costs remain estimated prior to full procurement but have been estimated as accurately as possible with available information.

The benefits described in detail in main body of the text will accrue from decreased leakage, reduced per capita consumption, support for future network changes and improved data for customers and the Company.

Definitions Annex

CRM	Customer Relationship Management
ERP	Enterprise Resource Planning
GIS	Geographic Information System
HH	Household
IFS	Industrial and Financial System
NHH	Non-Household
PCC	Per Capita Consumption
PMM	Programme Management Meeting
PR24	Price review 2024
SteerCo	Steering Committee
WRMP	Water Resource Management Plan

2. REDUCING CUSTOMER SIDE DEMAND (UNIVERSAL SMART METERING)

A. Needs

Overview

The primary objective addressed by this investment are the need to reduce the demand for water, expressed through a reduction in per capita consumption (PCC) and a decreased level of leakage.

Other needs that are covered in this proposal includes our ambition to collect more detailed data and provide this to customers to help better inform them of their usage. This will support achieving our target to reduce PCC to 110l/h/d and empower customers to make informed decisions about reducing their consumption. It also supports our ambition to drive data-led decision-making on our network regarding leak detection and network performance. Smart metering plays the critical role in achieving the demand reduction targets our Water Resources Management Plan (WRMP).

In this section we describe the pressures and risks currently faced by the business, how we have shaped our vision to face these risks and how the WRMP24 has quantified and assessed these risks.

Company history

At Portsmouth Water we are proud of our long tradition of serving Portsmouth and the wider surrounding area with high quality drinking water since the Company was established in 1857. Through amalgamation, the Company's supply area has expanded beyond Portsmouth to supply the towns of Gosport, Fareham, Havant, Chichester, and Bognor Regis, in the counties of Hampshire and West Sussex.

Figure 2: The Portsmouth Water supply area

On average, we distribute around 175 million litres of water each day to over 740,000 customers in around 320,000 properties. We also provide bulk transfer of water to our neighbouring company, Southern Water.

We are a “water only” company. That means we only supply drinking water to customers. Southern Water provide the wastewater service to our customers.

Some key facts about our supply area:

- 100 per cent of our water comes from chalk-based sources – 62 per cent of our water comes from boreholes and wells, 27 per cent from groundwater springs and 11 per cent from the River Itchen.[1]
- Our abstractions influence the Itchen, Meon, Ems and Lavant chalk streams and rivers.
- Our customers each use an average of around 153 litres per day[2]. This is higher than the national average.
- Almost a third of our 3,400 km of pipes were laid or refurbished before 1960 – with around 700 km before 1940.
- The area we serve has significant differences in population density, with a contrast from urban central Portsmouth to the rural villages on the South Downs.
- We generate 10 per cent of our energy from solar panels and are trialling electric and zero emissions vehicles.
- Our average bill is £117a year. This is the lowest in the industry and significantly below the UK average of £215[3]. We’ve been identified by Ofwat as one of the most efficient water companies in the UK.
- Our area is partially in the South Downs National Park, surrounds protected marine harbours and Sites of Special Scientific Interest. The chalk geology across our supply area supports us in providing excellent quality drinking water as well as the important and beautiful habitat we enjoy.

Our Vision

Our vision, against the backdrop of climate change and population growth, is to provide an affordable, reliable, and sustainable supply of high-quality water for our customers. By being smart in our approach we will work with our local communities to meet our goals while protecting and enhancing the environment for generations to come.

The first priority we lay out in our Vision is to ensure we secure sustainable water supplies for our customers, whilst protecting and enhancing our environment in a changing world. This means we’ll still provide the same industry-leading service to our customers as today - high-quality water when and where they expect it. However, to meet the challenges we’ve identified and to meet our customers’ and stakeholders’ priorities, we’ll have to change how we achieve this.

100% of our water comes from chalk sources – 62% of our water comes from boreholes and wells, 27% from groundwater springs and 11% from the River Itchen. The water we take from the environment - our abstractions - influences several chalk streams and rivers including the Itchen, Meon, Ems and Lavant. In 2021/22 and 2022/23 our customers used an average of around 160 and 153 litres per head per day (l/h/d), respectively. This was 9% and 5% higher than the 2021/22 national average of 145 litres.

[1] Portsmouth Water Annual report 2022-23
[2] Portsmouth Water Annual report 2022-23
[3] Annual Water Bill 2023-24. www.discoverwater.co.uk

Working collaboratively with our customers to reduce demand for water, through both influencing customers usage habits or by identifying and repairing previously unknown leaks, is a cornerstone in our ability to deliver our company vision.

The scale of the challenge is identified in our current Water Resource Management Plan 2019 (WRMP19) for 2020-2045 and further emphasised with the revised data and options available to the Region as we have prepared our Water Resource Management Plan 2024 (WRMP24) for the years 2025-2075.

The following objectives contained within our 25-year Vision are supported by this investment:

- Achieve Universal Smart Metering by 2040
- Minimise the need for Water Use Restrictions
- Improve Leak Detection Using Artificial Intelligence (AI) and Reduce Leakage by 50%
- Assist Customers to Locate Leaks in their Pipework
- Customers Will Use Smart Metering Information and a Hub to Reduce Water Consumption
- Introduce Measures, Including using AI, to Reduce Reactive Maintenance
- Maintain a Reliable Service
- Be consistently recognised as one of the Best Customer Service Providers in the Country
- Make Efficient Investments Balancing the Needs of Customers and the Environment

Our Vision is supported by our customers and stakeholders. There has been wide consultation during the formation of our ambitions for the next 25 years. The following diagram illustrates the high-level development process for the document.

Our Vision is described in detail in our Business Plan main submission document.

Supporting Performance Commitments

The following common performance commitments are supported through this investment.

- C-Mex, D-Mex, BR-Mex
- Operational Greenhouse Gas Emissions (water)
- Leakage
- Per Capita Consumption
- Business Demand

Table 1: Performance Commitments

Performance commitment	Relationship	Justification
CMex, DMex, BR-Mex	Strong	Customer Service is dependent on our ability to provide a plentiful of drinking water under challenging dry weather conditions. This proposal is a key step to ensuring the sustainability of our raw water sources in the future.

		It will also provide an innovative new engagement experience for all customers across multiple channels, giving customers more information and choice in the future.
Operational Greenhouse Gas Emissions (water)	Strong	Reducing the demand for water should reduce the amount of water we need to abstract, treat and pump to customers, positively affecting the amount of energy we use and therefore emissions we are responsible for.
Leakage	Strong	The data and insights gained from the universal metering programme will allow the development of a smart water balance in our network allowing us to target areas of unaccounted for water (leakage) faster and more accurately.
Per Capita Consumption	Strong	This proposal will empower customers to connect with the amount of water they use and understand the benefits to using less – financially or environmentally. We can incentivise these choices through competitions, challenges, and tariffs.
Business Demand	Strong	This proposal will allow business users to have access to the same quality of data that will be available to households and so be able to take the same choices and experience the same benefits.

Historical Perspective

All of Portsmouth Water's Water Resource Management Plans (WRMPs) prior to WRMP2019 (2020-25) showed that the company operated in the position of having a water resource surplus. In this situation there was no compelling drivers for the selection of significant water efficiency or water metering options and therefore they did not feature in our WRMP or business plan submissions in a significant way. However, we did promote metering as a potential means to reduce a customer's water bill, we offered free water efficiency devices to all customers as well as running an educational and community engagement programme to promote water efficiency.

Through the completion of WRMP 19 it was apparent that for the first time we would have a water resource deficit. Therefore, in the options selection process to identify solutions to this pressure, as well as several supply-side schemes, a significant demand management suite of options was also selected.

These options include:

- Enhanced leakage detection capability
- The targeted provision of water saving devices
- Water efficiency home visits
- Promotion of 'optant' metering
- Introduction of a programme of 'Change Of Occupier' metering

‘Optant’ metering is where a customer approaches us (Often as a result of the promotion of this option by us) to have a meter fitted – and to subsequently pay for their water through that meter.

‘Change of Occupier’ metering is where we have the legal powers to install and require a household to pay a metered water charge at the point a premise is sold.

We were unable to introduce a universal or compulsory metering scheme in WRMP19, because at the time the plan was published our supply area was not designated as being ‘under severe water stress’ by the Government. This designation is a legal requirement to require customers to have a meter and pay for their water on a metered charge.

Our progress against the metering targets of the WRMP19 were impacted for a period by the Covid-19 pandemic, but we initiated a recovery plan and are now on track to exceed our requirements by 1st April 2025 illustrated in the table below.

The initial phases of our AMP7 / WRMP19 metering programme were impacted by Covid 19 restrictions (See Rows A & B in the table below).

To recover the back log programme, we introduced an initiative to install meters into existing vacant domestic boundary boxes (available as a result of historic mains replacement work), with a view to working with those customers to voluntarily switch to a metered bill in due course (becoming defacto Optants). The efficiency in proactively using existing boundary boxes has been significant and we have been able to install more meters than our WRMP19 requires. We call these meters, in the ground but prior to customers converting to metered bills, not-for-revenue meters in the table below. Such meters do not contribute to our meter penetration figures. Row C provides our outturn for not-for-revenue meters in 2022-23 and Row D includes are forecast based on our Revised Draft WRMP24 for 2023-24.

Whilst the recovery initiative took place we continued to promote and install Optant and Change of Occupier metering. By the end of the calendar year 2023 we will have ceased the recovery initiative and our efforts will switch to customer awareness and encouragement to switch to a metered charge.

In the table below, we have expanded on 2 scenarios. Row H shows that if we were able to work with customers to convert 8,906 of those with not for revenue meters to move to in-charge meters then we would achieve our WRMP19 target. Row I shows the scenario should our WRMP24, containing the need for universal metering, be signed off by the Secretary of State. That would give us the ability to switch all the not-for revenue metered customers to metered bills. So, on 1st April 2025 we would have achieved 36,059 meters against a WRMP19 target of 24,270.

In both these scenarios will be using the advanced functionality of our new Kraken CRM and Billing platform to give us customer insight, run campaigns through enhanced numbers of channels and ensure customer journeys explain the need for change and protect vulnerable customers from bill shocks.

Table 2: Metering Scenario Planning

	Year / scenario	# Optant meters	# Not for revenue meters	# Change of occupier meters	# Void properties metered	Total meter installations	"In-charge" meters installed	Meter penetration (incl. voids)
A	2020-21 actual	1,343	0	0	0	1,343		32.5
B	2021-22 actual	1,493	0	746	0	2,239		33.2
C	2022-23 actual	1,625	8,138	2,490	75	12,328		35.0
D	2023-24 forecast	1,494	12,557	2,302	0	16,353		36.9
E	2024-25 forecast	1,494	0	2,302	0	3,796		38.9
F	AMP7 total / WRMP24 start	7,449	20,695	7,840	75	36,059	15,364	38.9
G	Final WRMP19 Plan	9,120	0	14,380	770	24,270	24,270	43.9
H	Voluntary conversion	16,355	11,789	7,840	75	36,059	24,270	41.7
I	End of AMP conversion	28,144	0	7,840	75	36,059	36,059	45.5

In 2021, the Environment Agency produced a report recommending to the Secretary of State that the Portsmouth Water supply area should be classed as 'seriously water stressed' for metering purposes (Water stressed areas – final classification 2021), which was accepted.

With this change in designation, should our WRMP24, containing the need for universal smart metering to be delivered between 2025 and 2035 also be accepted by the Secretary of State then we will have the legal ability to universally meter its supply area from 2025.

The metered estate is increasing through 'optant' meters where customer opt to have a meter installed through requesting it directly with Portsmouth Water. This is offered as a free service to convert unmetered to metered connection points. Meter exchanges have been undertaken by the Networks team as a normal part of their operational duties and are conducted on an ad hoc basis as required.

Analogue meters are being installed where mains replacement works have been carried out. These meters are not for billing purposes. So far in AMP 7 we have installed around 9,500 of these meters.

Dumb meter assets have been replaced in line with their standard asset lifespan. All meters in our estate are read manually every 6 months in line with customer billing cycles. The long-term plan is to introduce smart technology which reads meters automatically and provides readings electronically to Portsmouth Water on an hourly basis.

Regulatory and Statutory Compliance

Our Water Resources Management Plan (WRMP) is required to be submitted to the Environment Agency at five-year intervals, feeding investment requirements into the periodic reviews by Ofwat. The duty to prepare and maintain a WRMP is set out in sections 37A to 37D of the Water Industry Act 1991.

The investments detailed in this case support the proposals contained within our submitted WRMP24. We have an ambition to reduce our PCC significantly by 2050. Providing our customers and ourselves with near real-time consumption data will help reduce water usage and identify where leakage may be reduced.

Water Resource Management Plan 2024 (WRMP24)

Overview

A Water Resource Management Plan (WRMP) sets out how a water company intends to achieve a secure supply of water for customers and a protected and enhanced environment. The duty to prepare and maintain a WRMP is set out in sections 37A to 37D of the Water Industry Act 1991.

Our dWRMP24 is our most ambitious yet. This ambition reflects the scale and complexity of the water resources challenge facing us, directly resulting in Defra's acceptance of the Environment Agency's July 2021 recommendation that our area should be reclassified by the Environment Agency as being 'seriously water stressed for metering'. This classification formally acknowledges that without appropriate investment, there is a risk that the service customers receive for their water supplies could be significantly affected. As a result of this we have proposed an option to implement universal metering across our household customers. Other companies such as Southern Water, Thames Water, SES Water, across the Southeast who were already designated as areas of serious water stress (Water stressed areas – final classification 2021, Environment Agency, 2021) have implemented, or are in the process of implementing, metering to their domestic customers, and have shared evidence of domestic demand savings of between 13 and 18 per cent.

The challenges we face in our supply area are characterised by anticipated growth in population and property numbers, coupled with the effects of climate change and the need to reduce our reliance on the water resources of the iconic and precious chalk-based environment.

Key challenges we face as we plan for sustainable and resilient water resources:

- Climate change and changes to land use could put sensitive environments, such as chalk streams, at risk.
- We will need to secure up to 76 million litres of additional water per day by 2050, due to increased demand and to replace water currently being taken from sensitive chalk streams.
- Our infrastructure is getting older and wasn't designed to meet the more frequent extreme weather events we're facing.

- We need to reduce our emissions to meet net zero and help slow climate change.
- We need to ensure our services remain affordable for all – especially considering the cost-of-living crisis and for those in vulnerable circumstances.

A significant influence on our Plan has been the Environment Agency's National Framework for Water Resources (launched in March 2020). The Framework sets out a national aspiration to leave the environment in a better condition than we found it, while improving resilience to drought and minimising interruptions to water supplies. The Framework took on board many of the recommendations from the 2018 National Infrastructure Commission (NIC) 'Preparing for a Drier Future' report such as the need for improved drought resilience and strengthened regional planning.

The National Framework for Water Resources established a requirement for the delivery of regional plans and for those plans to explicitly inform individual company WRMPs. They also set out some core planning objectives for all company plans. These objectives included:

- To reduce the amount of water individuals use to 110 litres of water per person per day
- by 2050,
- To facilitate a reduction in water use across all sectors,
- To halve leakage rates by 2050 (based on a baseline of 2017–18) and
- To reduce the use of drought measures that have an impact on the environment.

Furthermore, the water resources planning guideline needs us to:

- Ensure that water supplies move from being resilient to an event we might expect to see once in every 200 years (i.e., a 0.5 per cent chance of happening each year) to being prepared to provide a reliable supply in a drought event we might expect to see once in every 500 years (i.e., a 0.2 per cent of happening each year).
- Present an environmental ambition with potential short, mid, and long-term reductions in supplies to protect our environmentally important chalk sources and therefore associated investment for new interventions to enable us to continue to meet customer demands in future.
- Incorporate the uncertainty associated with the impact of Covid on demand in the future.

In 2023, revised Water Resource Planning Guidance as issued to the Water Industry reflecting the aspirations of the recently published Government's Environment Improvement Plan (EIP). The revision included:

- Reduce the use of public water supply in England per head of population by 20% from the 2019 to 2020 baseline reporting figures, by 31 March 2038, with interim targets of 9% by 31 March 2027 and 14% by 31 March 2032.
- Reduce leakage by 20% by 31 March 2027 and 30% by 31 March 2032.
- Water companies to cut leaks by 50% by 2050.
- Target a level of resilience to drought so that emergency measures are needed only once in 500-years

In the broadest terms, the process of creating a WRMP follows three steps;

Defining the scale of the water resources challenge

We have assessed the balance between supply and demand during both average annual conditions, over a year, and for shorter-term critical period conditions such as during heat waves and high seasonal demand.

Determine what feasible options are available to help resolve this challenge

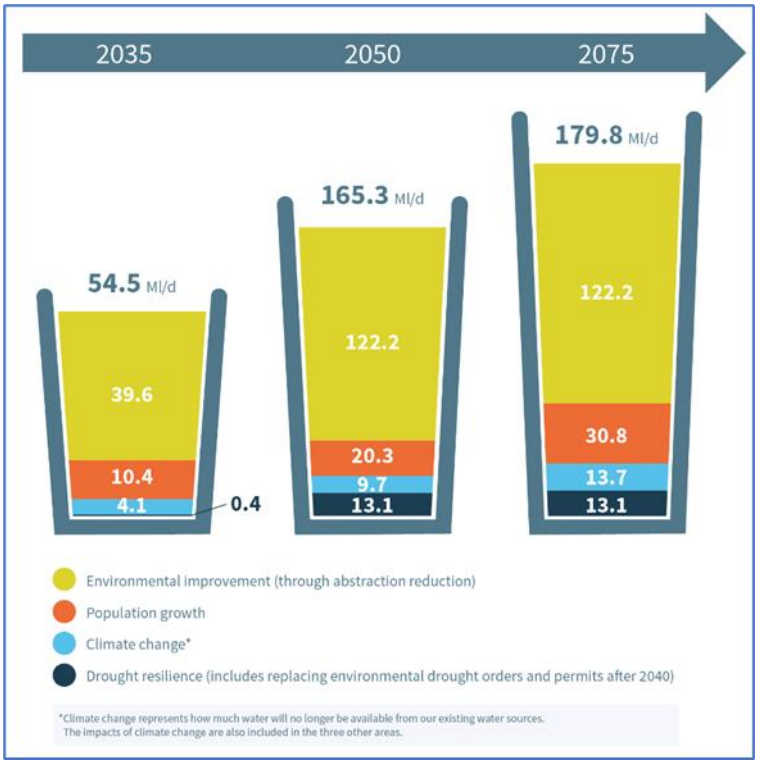
We generated a long list of as many potential options as possible. A screening process filtered out unsuitable and unviable options to ensure the options that have been put forward for modelling are feasible. The screening considered environmental, social, economic and practical aspects of each option, along with the practical benefit it could provide for water resources. We have taken a conscious twin track approach and actively generated and considered options that reduce demand as well as options which would increase our ability to supply.

Take steps to develop our preferred best value plan

Through modelling and optimisation we put forward the best combination and scheduling of options that ensure compliance with the WRPG. They deliver a reliable supply of water, at an affordable price using means acceptable to customers and stakeholders while protecting and, where possible, enhancing our environment.

Having completed the first step, considering the statutory guidance and requirements, we are in a position where we need to plan be to needing to compensate / replace up to 54.5 Ml/d of water by 2035, rising to 179.8 Ml/d of water by 2075, through the delivery of options contained in our WRMP24. For context the range of water we put into supply for our customers is approximately 160Ml/d in winter, rising to 240Ml/d during hot summer periods.

Figure 3: Water balance deficits in our WRMP24



The next section describes how we developed the suite of feasible option sets to reduce demand in the future (demand-side options) and how we have selected a universal metering programme as a necessary option to deliver over the next 10 years, but does not explain the whole WRMP process. This is laid out in full detail in our full WRMP24, which is included in our business plan submission, referenced PRT17.

Demand Option set (dWRMP24)

Our WRMP24 preferred best value plan consists of the following components:

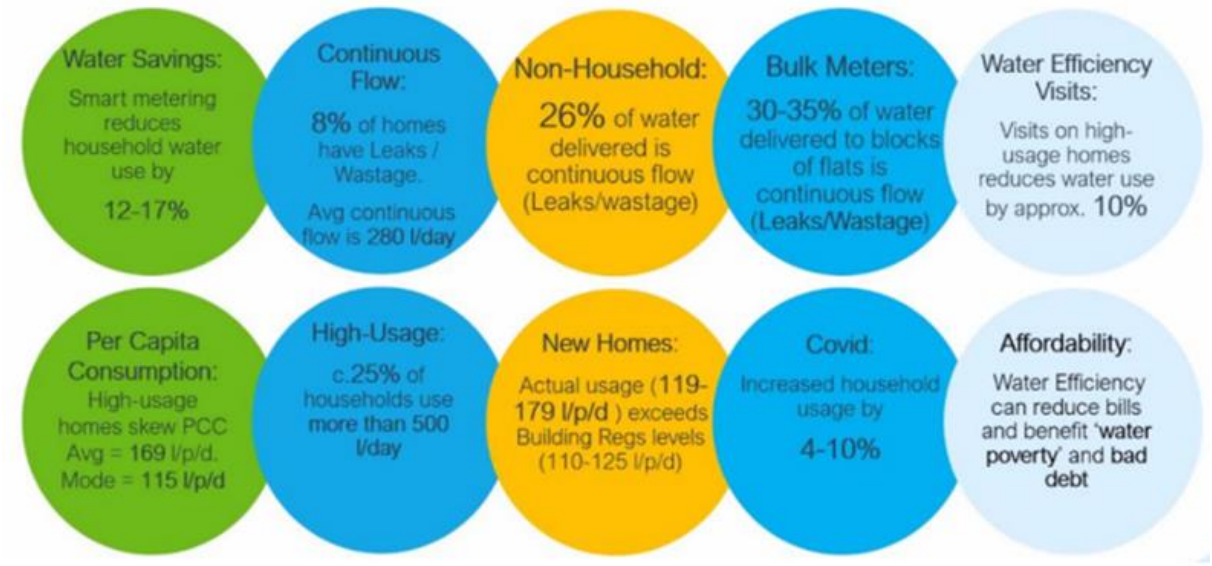
Starting in 2025–26: Implementation of the 'high plus' basket of demand management measures which aims to reduce leakage by 50 per cent and overall customer demand for water by around 16 per cent by 2050 compared to 2017–18 levels. This basket of measures includes universal household 'smart' metering over 10 years starting in 2025–26. Existing 'dumb' meters will also be replaced with smart meters, ensuring by 2040 every household meter will be smart.

By 2034–35 we expect that 94% of the households we serve will have a meter, compared with 37% in 2021–22. Installing 'smart' meters will deliver added benefits to reducing water demand, the data from the meters will help reduce leakage inside and outside properties and improve the quality of our customer engagement.

Metering has been proven to deliver a reduction in household demand. Across the Southeast, South East Water and Southern Water have completed universal metering programmes, and Thames Water, Affinity Water and SES Water are in the progress of rolling out universal metering. All these companies, in addition to Anglian Water, outside the WRSE planning region, have shared evidence of the water savings delivered through this approach.

The figure below shows the headline findings that Thames Water shared in June 2022 at a CIWEM webinar about smart metering. As well as the water saving delivered by reducing household consumption, it also highlights the additional benefits of identifying leaks in household and non-household properties that are running continuously and wasting water. Carrying out a water efficiency visit as well as metering has also been shown to have an additional water saving for high household consumers and help with affordability for people who are struggling financially.

Figure 4: Thames Water Diagram – shared experience of installing smart meters (CIWEM webinar June 2022)



We have listened to the shared experiences from other water companies about universal metering (including Thames, Anglian, Yorkshire and Severn Trent as well as members of the Smart Metering Industry Group (SMAG)) to develop a programme that is evidence based and suitable for our customers. As well as the technical details, for instance on the type of meter and billing technology, we have also considered how to engage with vulnerable customers through this programme and how to support customers with affordability concerns.

We will try to meter every household but, based on the experiences of others, expect that some homes will not be possible to meter either because of the pipe configuration of the water supply going into their homes or the logistics involved of installing a meter on the supply pipe.

B. Options

In this section we describe how, primarily through the WRMP24 process, we formulated the view that at the most cost effective and beneficial way for customers to secure the demand management savings that we require to achieve security of supply is a universal smart metering programme.

Overview of approach in WRMP24

Our draft Water Resource Management Plan 2024 identifies a significant deficit in our supply demand balance due to population growth, climate change and environmental pressures. Without significant intervention we will not have sufficient water available to supply our customers in the event of prolonged dry weather.

A multi-stage approach took us to the development of the Best Value Plan for dWRMP24, building from an expansive and industry scanning and innovation embracing list of unconstrained options developed in partnership with internal SME's, our supply chain and partners, through to a refined list of feasible options and then a preferred basket of options.

The feasible options were grouped into 'baskets' of investment packages ranging from 'Low' to 'High+', providing options that scaled up with level of investment and outcomes against our goals and targets. The WRSE investment model helped us to identify that, given the size of the challenge in balancing supply and demand, and the 2050 110l/h/d PCC target, the High+ basket was the appropriate option for our Best Value Plan at the dWRMP24 stage.

Figure 4a: WRMP Options

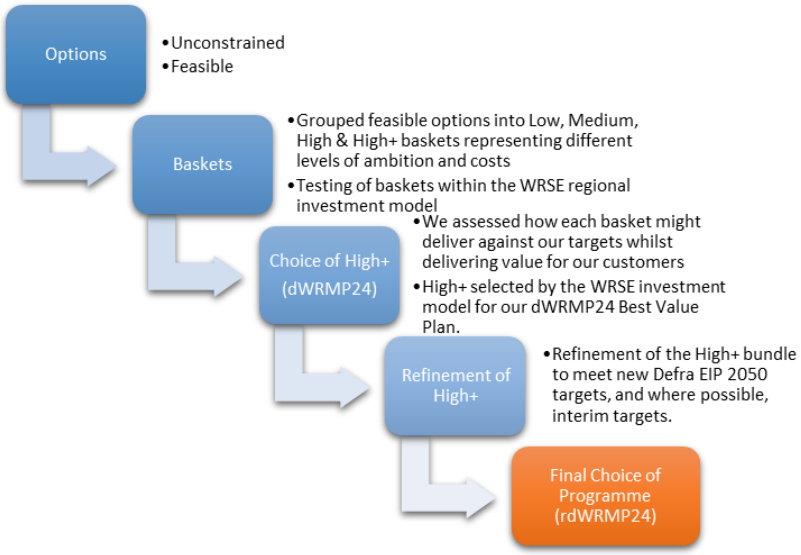


Figure 4a: Table 2 (Table 42 dWRMP24: Components of each of the demand option baskets along with the forecast PCC values from implementing each of these)

Low	Medium	High	High Plus
PCC in 2030 142 litres per person per day *PCC in 2050 141 litres per person per day*	*PCC in 2030 137 litres per person per day* *PCC in 2050 129 litres per person per day*	*PCC in 2030 136 litres per person per day* *PCC in 2050 121 litres per person per day*	*PCC in 2030 133 litres per person per day* *PCC in 2050 119 litres per person per day*
Continued optant and void metering	Continued optant and void metering Change of occupancy metering	Continued optant and void metering Change of occupancy metering Not for revenue metering (with existing boundary boxes) Switch of existing meters to smart meters starting in 2030 and delivering over 10 years	Continued optant and void metering Universal smart metering seeking to deliver over 10 years Switch of existing meters to smart meters starting in 2030 and delivering over 10 years
Home audits of high users (online or over the phone)	Home audits of high users (online or over the phone) Home audits for newly metered customers (online or via video call)	Home audits of high users (online or over the phone) and face to face Home audits for newly metered customers (online or via video call) and face to face. Home audits for all existing metered customers switching to a smart meter	Home audits of high users (online or over the phone) and face to face Home audits for newly metered customers (online or via video call) and face to face. Home audits for all existing metered customers switching to a smart meter
Web order water efficient devices	Web order water efficient devices Water efficient devices as part of home assessments	Web order water efficient devices Water efficient devices as part of home assessments	Web order water efficient devices Water efficient devices as part of home assessments
Community reward programme to engage newly metered customers	Community reward programme to engage newly metered customers	Community reward programme to engage newly metered customers	Community reward programme to engage newly metered customers
Background communications and engagement	Background communications and engagement	Background communications and engagement	Background communications and engagement

Draft WRMP24 selection

The feasible options were grouped into ‘baskets’ of investment packages ranging from ‘Low’ to ‘High+’, providing options that scaled up with level of investment and outcomes against our goals and targets.

Numerous runs of the WRSE investment model all failed to select any basket other than the High+ demand basket as a viable intervention to close the supply demand deficit. It was therefore apparent

that any option not delivering the universal metering programme of smart meters was not going to allow us to have a complaint WRMP, without deficits.

Therefore, the dWRMP24 that was open to consultation with customers, stakeholders and Regulators in 2022 contained the High+ demand management basket as a chosen option.

Revised draft WRMP24

Following feedback from the consultation and the publishing of the revised Water Resource Planning Guidance and the Environment Improvement Plan in July 2023, the time spent between dWRMP24 and submitting our WRMP24 for approval, was spent refining the High+ basket.

Customer Research and Support

Our embedded approach to engagement has provided us with significant insight and learning to help us shape the best plan and ensure that where appropriate customers support our plan and the additional investment. Additional elements describing all of our engagement including strategy, delivery and insight can be found in PRT03. 'Engaging with customers and communities.'

The triangulation of evidence has enabled us to take a wide consumer view alongside our own specific research.

Phase 1 Priorities

In this work we explored the concept of metering through research and existing evidence including the customer research undertaken by Water Resources South East around customer preferences and priorities.

We have split this insight into:

- Views of universal metering
- Views of smart metering
- Customer behaviour and Per Capita Consumption

Universal metering

Generally	Portsmouth Water Customers
Metered customers are more likely to reduce water usage compared to unmetered. Some resistance to metering was identified from larger households – they think bills will increase and wish to avoid thinking about usage. Younger customers are more likely to trial a water meter. Meters can be a cause of anxiety for vulnerable customers and particularly those who will make sacrifices to use less. No awareness of how customers will be protected.	Metering is slightly less preferred in our region compared to other parts of the South East. Customers became more supportive of meters when safeguards were provided for financially vulnerable. Stakeholders were supportive of meters in regions where usage is above average but important to ensure that customer engagement is right. In 2022 34% of household customers were metered with only incremental increases. 70% of unmetered customers in 2022 knew that they had an option for a free meter installation. Universal smart metering was seen as too ambitious

Smart metering

Generally	Portsmouth Water Customers
Broad support for smart meters with benefits being seen as financial savings, enabling informed choices, and helping to educate. Stakeholders raise negative view of energy smart meters, increased bill anxiety, obsessive monitoring, and fear of disconnection. Unmetered customers have concerns over paying increasing bills. Roll our requires clear communications.	7 in 10 customer support smart meters once they understand the benefits of them. 14% of customers still reject the idea. Our research is showing similar results to wider consumers with positive and negatives echoing concerns. Better off customers seem to want to try and save water, whereas the less well-off want to save some money. Older customers are more interested in trying to identify leaks. Costs of smart metering lead customers to prefer a mid-ambition plan with non-household customers being the most positive. Future customers generally support smart meters as they make waste tangible, but the benefits need to be communicated and the vulnerable and digitally excluded shouldn't be left behind.

Customer behaviour and Per Capita Consumption

Generally	Portsmouth Water Customers
Across the UK only 1 in 4 are aware of being asked by water company to use less water. 35% say they wish to hear more on how to save water. If customers know that water resources are limited then there is a higher willingness to reduce water usage. 6 in 10 have not taken any action to reduce water usage in the last six months, but 76% of customers claim to be open to changing their behaviour if they hear they need to because of climate change. Customers taking up the slack of water reduction is seen as risky.	Our customers are: Less conscious than Southern Water customers on water use and struggle to think how to use less. More resistant to changing water behaviours compared to Southern Water and South East Water customers. Our actual PCC average is 160 litres compared to average of 140 litres and household usage is up 8% from pre-Covid levels. Future customers feel that the target for reducing consumption seems too ambitious as well as questioning use of 'Get Water Fit', as their experience of free water saving devices was poor.

In our own research we asked our customers to prioritise the key activities that drives the securing of sustainable supplies.

Customers looked at a range of options and initially our customers for view of metering for everyone was low.

Priorities	Reducing Leakage	New Sources	Water Efficiency	Metering for Everyone
Customer	High	High	Medium	Low
Stakeholder	High	Low	High	Medium

However, when we talked to our customers more to help better understand the differences between the options we provided more context in our research, explaining the different sources of water available within our area of supply coupled with the costs and benefits of the different types of schemes.

Following this work our 'metering for everyone' scheme achieved an overall customer support of **73%.**

It will "help me to better manage my water usage and drive behaviour change. Somethings a better conceptualised when seen in front of us on a monitor and water usage is one of those things."

A smart meter will help us with bath/shower comparisons, as it is "easier to educate our young daughter on water use if she can actually see the figures/numbers making it easier to comprehend."

Phase 2 Plan Choices

It is important to recognise the context in which we are promoting metering for everyone.

Only 32% of our customers currently have a meter. These are:

- Customers in new properties (where the only option is a metered charge basis).
- Customers who have opted to have a free meter installed (and therefore most likely to be lower users of water).
- Customers who have changed household (our current policy is to install a meter at property ownership change).

In 2016, CCW and Southern Water research found a strong reluctance to metering from unmetered customers. This research identified that the group they called 'active avoiders' thought they would be financially worse off and wanted evidence that similar households have saved money. Although some time has elapsed since this research was undertaken it is clear from our own research that this remains relevant.

With the current lowest bill in England & Wales, combined with a view that we have significant amount of water as a country, we will need to manage communications with these customer groups and the insight we gathered throughout the

More detailed exploration – a focus on Smart

After we had established that both customers and stakeholders where supportive of the concept of metering in principle, we continued to develop our research to explore this option in more detail whilst assessing the relative benefits of smart metering compared to analogue meters.

Our early research (discussed above) had identified that 73% of customers would engage with a smart meter if they were to have one installed.

During this detailed exploration we presented customers with three options for smart metering.

These options did not only focus on cost and impact on bills, but also the consequences of the medium and low options increasing the risk to supplies in the period of the vision and LTDS.

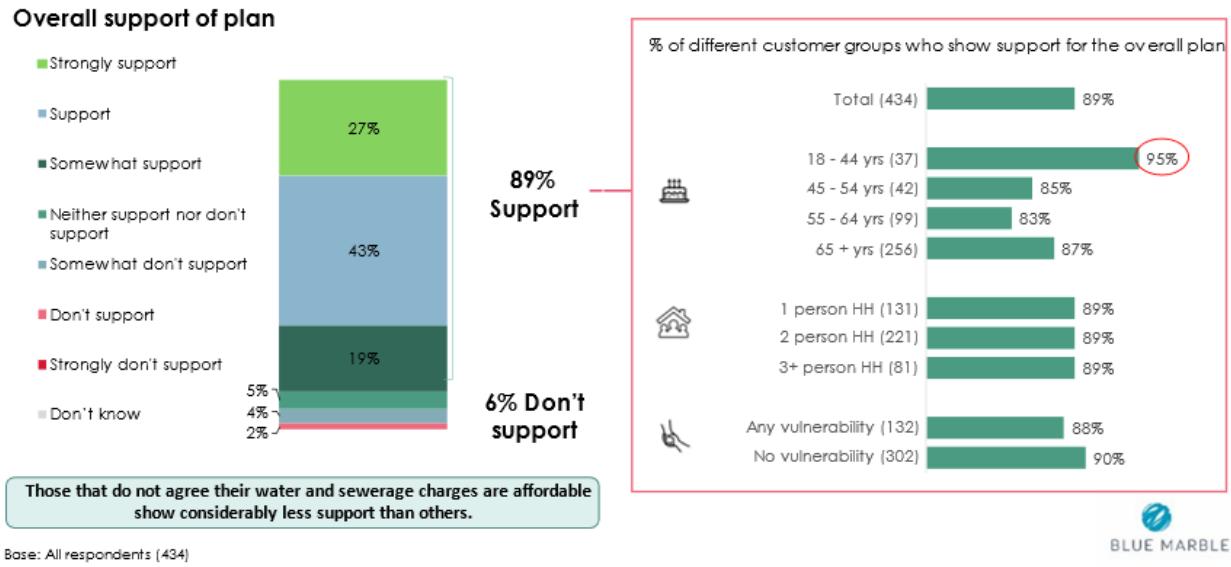
Linking with our Water Resources Management Plan.

We linked our dWRMP consultation process with our ongoing engagement and included relevant engagement in our Customer Barometer survey (1,000 representative customers undertaking quarterly surveys).

This survey shows there is strong supports for all the key elements of the plan.

Of the 434 customer panellists who took part in our Barometer Survey, 89% expressed support for our plan. This is shown in Figure 10. The highest level of support was from customers in the 16-44 age range (95%), followed by 65+ (87%).

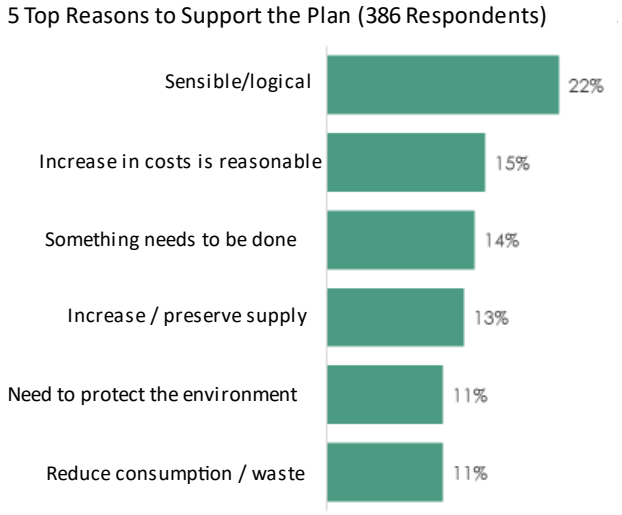
Figure 5: Overall support for the dWRMP24 from the Barometer Survey (Q9a. Overall, how much do you support this plan?)



Base: All respondents (434)

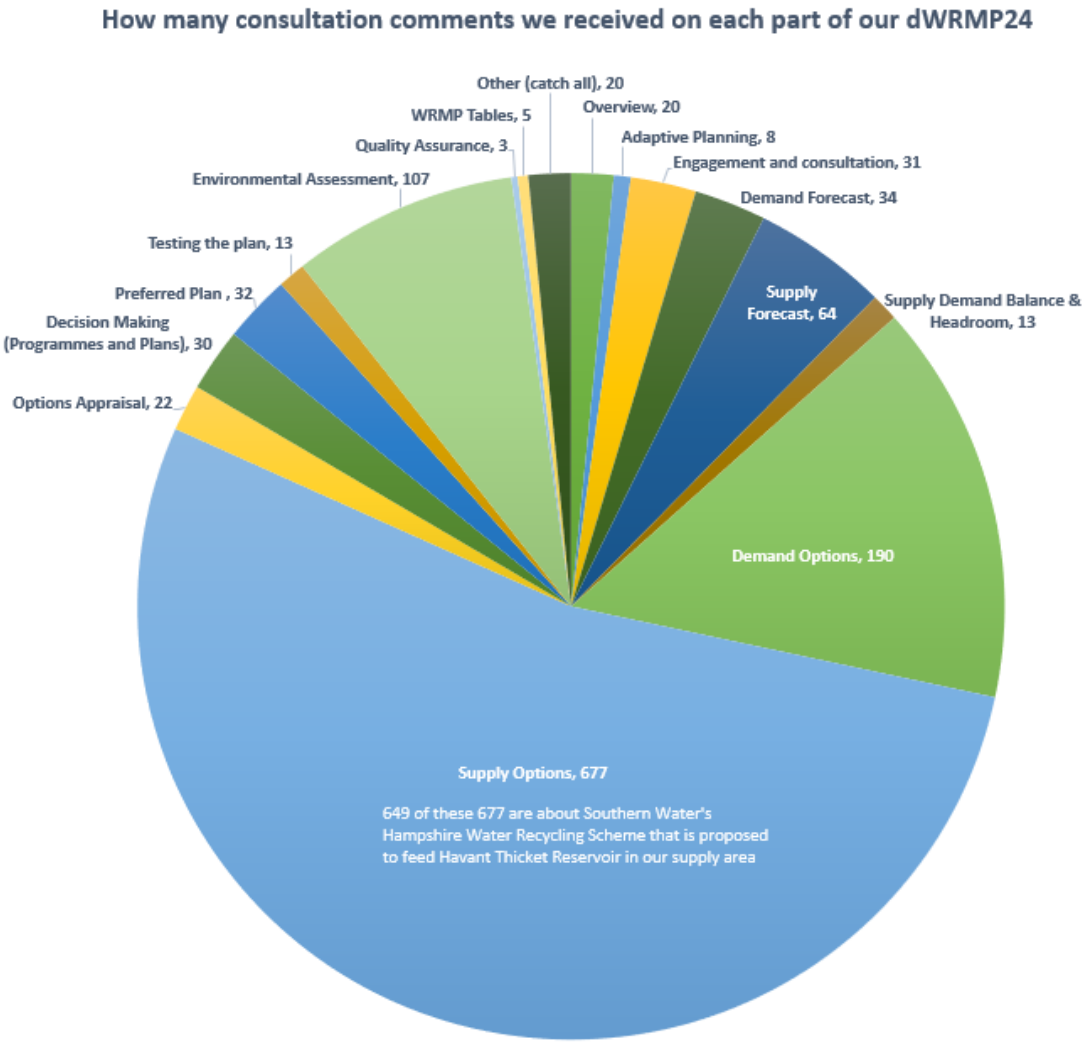
As shown by the 386 Barometer Survey respondents who supported the plan, their top reasons were that it was a sensible/logical plan and that the cost increase is reasonable.

Figure 6: Top five reasons to support the plan from the Barometer Survey



Our wider public consultation saw additional responses from our stakeholders and customers and we have summarised below the subject themes resulting from those comments.

Figure 7: Breakdown of the topics that the public consultation feedback comments are about



Members of the public and local government predominately commented on supply options and in particular the Hampshire Water Transfer and Water Recycling Proposal, whereas regulator feedback covered a broader range of topics, and the most commented area of our Plan from water retailers and NGOs were the options to manage demand for water.

Only 28 respondents did not support the plan, so the low base size of the sample means that the reasons provided need to be treated with caution. Of these 28, the two most common reasons given for this were that they felt the cost increase should not be passed onto customers and that they do not support smart meters.

We received 1,269 comments about our dWRMP24. Comments were wide-ranging. Every section of our dWRMP24 received at least three pieces of feedback.

Over half the comments we received were about supply options, and these were dominated by feedback about the Hampshire Water Transfer and Water Recycling Proposal. Demand options, and then our Environmental assessments, and supply forecast were the next most commented on areas of our plan.

Collectively, these four areas of our plan attracted over eighty percent of the feedback comments we received through the public consultation of our dWRMP24.

We are pleased with the level of engagement that was achieved through the public consultation on our dWRMP24 and welcome the insight that our customers, stakeholders, and regulators have shared with us.

We have undertaken customer research through our partner Blue Marble. They have provided customer insight on a variety of issues, including smart metering. This research showed that a large majority of customers (70%) support smart metering with many seeing the benefits of fixing leaks. There is a clear indication that there is a Resistance to universal smart metering is reasonably consistent across different demographic groups, specifically those with a vulnerability (19%).

Our Customer Advisory Panel – November 2022

We also undertook targeted research through this research group and we saw that customers had mixed reactions to the concept of monitoring and reducing their water usage through smart meters.

Customers can generally identify positive implications, such as identification of leaks in the system, helping to reduce water wastage and also seeing the possibility of reducing the risk of droughts.

They do question how we will deliver our plan including:

- Whether high usage areas can be priorities for installation.
- How much is the cost to buy and install a meter.
- Whether technological support and education on water saving would be provided to maximise the benefits of the rollout.
- Whether there would be incentives to encourage people to reduce their usage.

Customers also felt that £12.10 (high option) felt like a disproportionate bill increase. Others felt that 25% usage reduction felt too ambitious and unachievable, although some felt that 2040 just seemed too far off.

We did see some difference in thinking between our customer segments in the research, but this was primarily relating to concerns.

BC1 and vulnerable customers	Future customers and C2DE customers	Non-household customers
- Saw the mention of restrictions in the low option as a deliberate 'threat' leaving them with no real options other than medium or high. - Hostile to the idea of restrictions on water usage. - Concerned about the impact smart meters could have on their bills. - Feel that smart meters unfairly push responsibility for water saving away from the company and onto the consumer.	- Feel that a lack of water restrictions during periods of drought is counterproductive and would rather see some restrictions during very hot weather to preserve water resources. - Some think goal is unrealistic given population increases.	- Feel positively about the possibility of smart meters reducing business usage and decreasing bills (particularly where water is an integral part of their business). - One customer had experienced a leak on his farm and felt that a smart meter would have helped him locate it quicker and save money in the process.

We saw a continued improving view of customers as we researched more and more through our varied channels of research

Figure 8: Portsmouth Water Customer Research, April 2022

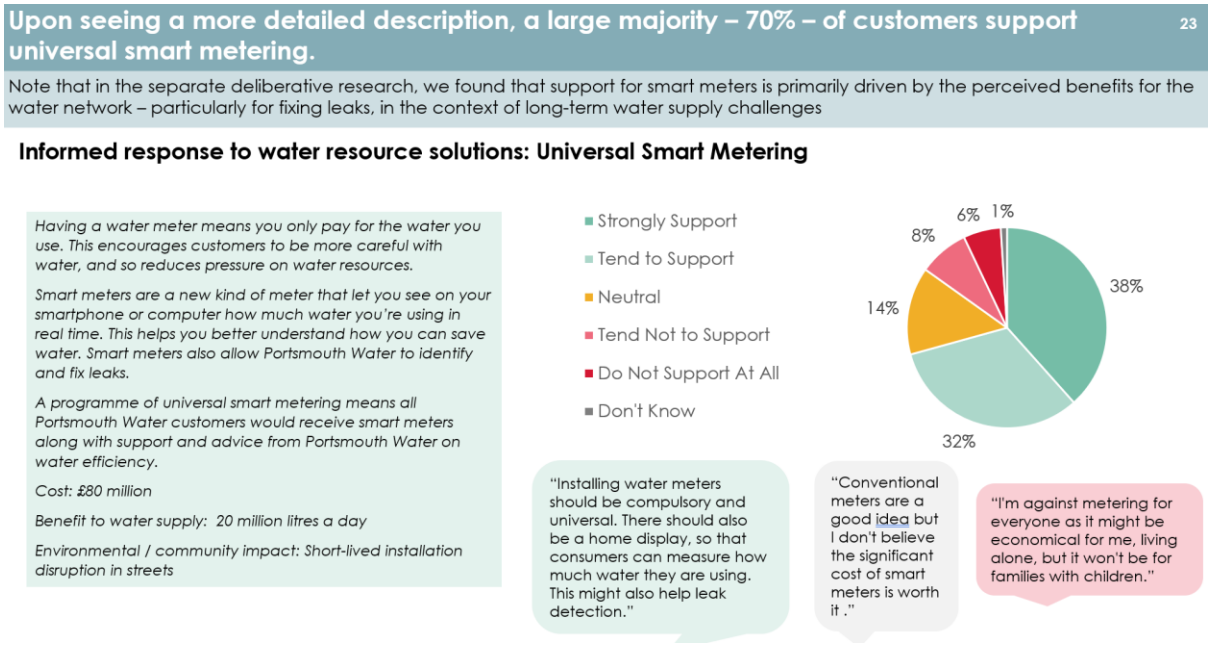
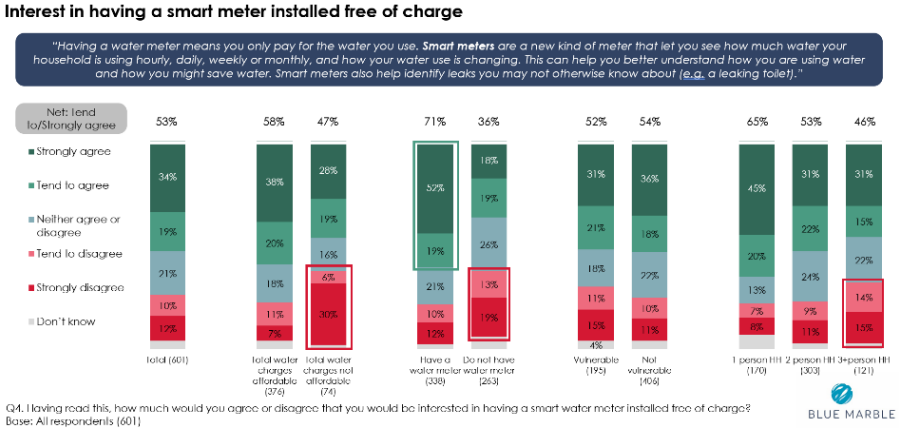


Figure 9: Portsmouth Water Customer Research, April 2022

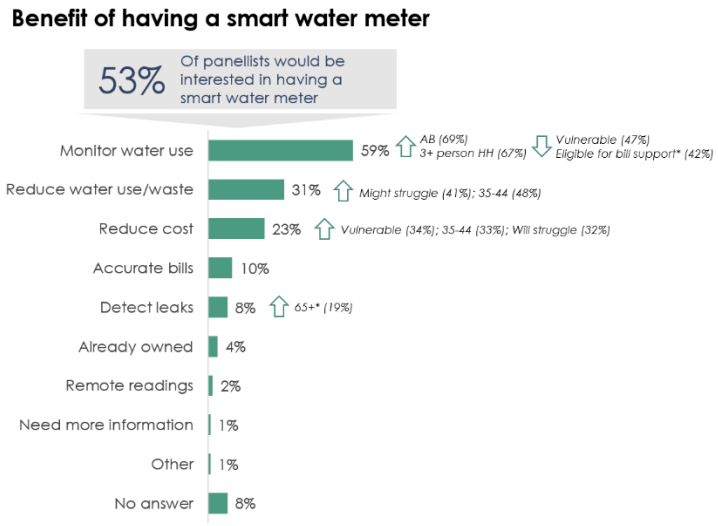


Further research has shown that having a meter already greatly increases interest. However larger households and those who don't think water charges are affordable are more circumspect, even when the benefits & absence of set-up costs have been explained. We recognise the challenge for certain customers and will look to address these through our engagement.

Customers did identify the numerous benefits of having a smart meter with most customer identifying that their ability to monitor their water use is enhanced with up to hourly readings (59%). A reduction water use and wastage (31%) was also identified as a key benefit. Cost reduction (23%) was a further area particularly vulnerable customers identified with.

We have used these insights to support the design of our rollout and it will inform our communication strategy.

Figure 10: Portsmouth Water Customer Research October 2022



Future Customer Workshops

Innovation

To test our Future Customers' views we used an innovative approach to engagement through workshops that developed student presentational and project skills. This was combined with gathering insight on what these future generations expected from their water company.

These future customers were supportive of Smart meters, seeing it as an easy way to reduce leakage by making wastage more tangible.

They were critical of our ability to achieve the usage reduction targets using our current water efficiency methods and devices and felt we needed.

We utilised bespoke research to feed into our engagement strategy.

Avoiding any disadvantaging of our customers in vulnerable circumstances

Previous research told us that vulnerable customers were supportive of smart metering understand the environmental benefits, but they had flagged the need to avoid both issues of affordability for some customers and particularly how meters can, if not managed properly, be a cause of anxiety for some customers.

(a) Research with vulnerable customers – August 2022

18 in-depth interviews via Zoom or telephone.

During the research vulnerable customers suggested the following adaptations to our plan:

- A slower implementation.
- Longer transition periods between unmetered and metered charging to give time to build trust in the technology and adjust to the metered bills.
- Bespoke innovative tariffs targeted at helping vulnerable customers.

- Additional support for larger families and those who are more heavily reliant on water usage due to health issues.

(b) Harder to reach audiences – September 2023

This additional research told us:

- Concerns over the necessity for smart meters and whether it will lead to bill increases.
- Participants from the Muslim community were particularly concerned with bill increases.
- Use of smart meters to help cut down wastage was seen as worthwhile and corresponds with Muslim belief that water is precious.

Was there any difference across demographics?

Support was consistently positive across different age segments, household size and those customers with circumstances that make them vulnerable.

When faced with the additional costs of metering 76% of customers overall, and 66% of vulnerable customers stated that they felt the increase in charges to maintain the water supply was affordable.

"We've learnt a lot over these past two meetings…education is really, really important when it comes to these things."

Customers and stakeholders both raised concerns on achievement of our usage targets in our 25-year plan.

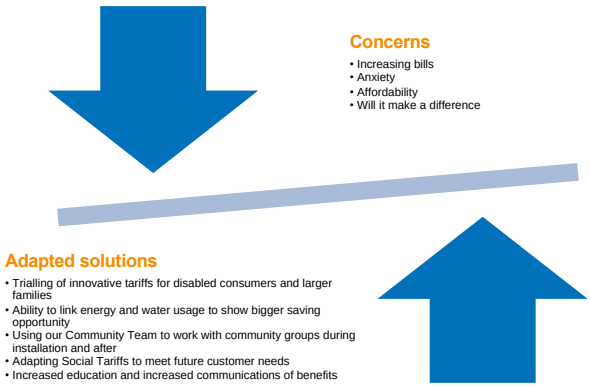
Phase 3 - Acceptability and Affordability Testing

We tested our overall plan costs (including our preferred plan for smart metering) with our customers during Summer 2023.

Only 28% of customers felt that the proposed increases in bills would be difficult to pay and this was closely linked with customers who are struggling.

The insights that we learnt show consistency in relation to those struggling to pay. These customers are concerned about direct impacts when they are already struggling. Our plan has used insight to influence our support which many of those customers will be directly supported by, including:

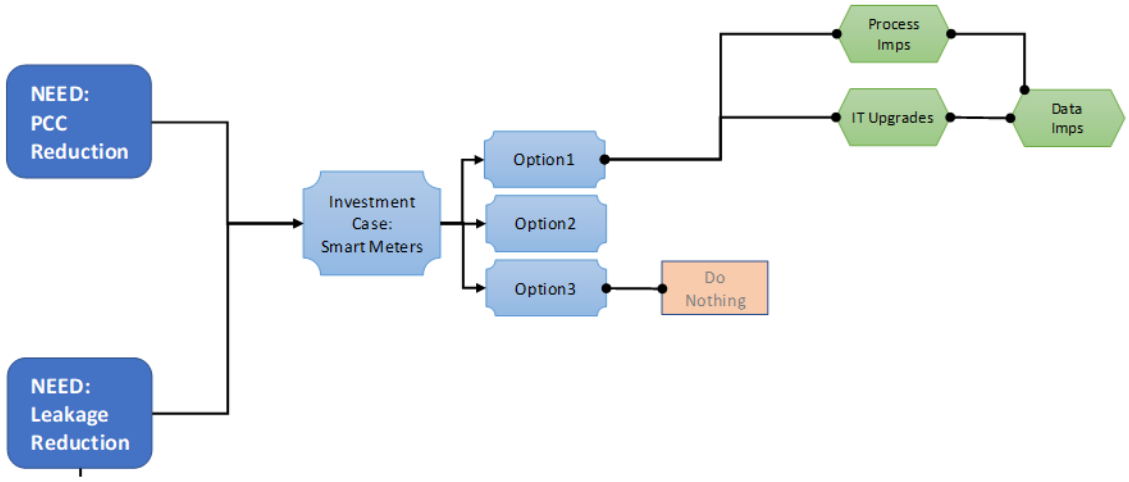
- Transition tariffs
- Affordability support tariffs adapting to needs
- Water efficiency advice and support (retrofit devices etc)



Improvements to IT Systems

There is no doubt that the success of smart metering depends on there being sound, reliable, and comprehensive IT infrastructure to support the various elements of smart metering that will produce the stated benefits.

Figure 11 - Thematic representation of how enabling facilities (shown in green) support major solutions.



The delivery of a fully smart metered customer base will fundamentally change the way the business operates with respect to maintaining meter assets, asset location, volume of field-based activities and the information and data required to operate the smart network effectively. Access to rich, timely and 'on the job' data will be essential to enabling the field operations to move from the current unmetered estate to a fully smart metered organisation. To achieve this, Portsmouth Water must enhance is underpinning core systems, including asset management, resource planning including scheduling, contract and finance management, geolocation information and mobile work force information delivered through the ERP and GIS core systems. This cannot be done in the current solutions, that have been built and configured to support an unmetered business.

GIS and ERP solutions will be enhanced to:

- Provide rich data on assets including historical activity and maintenance information to the mobile workforce. As part of the Smart Metering and Networks ('Smart') programme Portsmouth Water will be adding over 330,000 new meter assets which require maintenance and provide useful data to help with the maintenance of other assets on the network.
- Enable dynamic job scheduling and communication, able to adjust in reaction to real time unfolding events. IFS cloud also improves the workforce management solution (recognised as top quadrant in Gartner's 22 review) bring capabilities like dynamic scheduling and resource optimisation needed for increased scale of managing and supporting the increase numbers from Smart.
- Deliver on the job training and job instructions, with live support and communications to the back office.
- Provide up to date safety information and updates (including lone worker support) to the work force, enabling two-way communications. Including improvements to lone working processes.

- Provide route optimisation based on real time routing and changing job priorities, enabling the long-term management of circa. 300k smart meters and the supporting infrastructure
- Deliver Smart meter data within the GIS environment, which will allow for modelling of data originating from many sources (meter data, flow meters, pumping stations, reservoirs levels and production outputs) with access via mobile devices for field and operational staff giving them near to real time network intelligence in the field.
- Further to the functional dependencies and requirements that Smart will have on our ERP solution, there will be a requirement to deliver nonfunctional needs that will ensure the security and management of increased data loads and usage to support the deployment and operation of Smart meters. The solution will need to be enhanced to deliver:
- Meter reading records and meter messaging

(a) Significant increase in data. The increase of metering data generated by 330,000 smart meters will be significant and require technical scaling performance not available through the current IFS and GIS provision.

(b) High level of system availability required. System availability will increase from 'business hours' to a '24/7' accessibility, able to manage round the clock meter messaging and records. While these readings will flow initially through the Mobile Device Management System and into the CRM, near real-time interfacing with GIS and IFS will be required to manage messages relevant at an asset level, e.g. leakage or maintenance data. GIS will specifically hold the location data for meters.

(c) Cloud deployment will be required for both IFS and GIS, predominantly to enable the scaling required but also to leverage suitable security technologies protecting the data and messaging.

- System resilience and data security

(a) In view of the need for a wide range of uses of data, the significant increase in data quantity and the large variety of the user base, there is a need for enhanced security around all systems and data storage. This is only achievable through migration to a mature cloud offering that can provide the layers of technical protection and resilience required. This includes but is not limited to zero-trust policies, encryption at scale and multi factor authentication.

(b) Resilience and backup capability will need to be enhanced to ensure contingency data centres can be 'hot switched', to fit the requirement of a business with round the clock requirement for high volume of data and transactional use. Traditional in-place backup solutions that rely on significant system downtime to restore will not meet the requirement of Smart system and data requirements.

- Data Analytics

(a) Core solutions must be enhanced to deploy mature data warehousing capability providing real-time analytics to support the core business in managing operation of smart meters, water supply and leakage.

(b) Management of assets, including the consumption of real-time sensor data to support incident resolution and maintenance of assets.

Long Term Delivery

Through the process of adaptive planning and considering strategic alternatives to our plan, we considered the modelling outputs of all nine adaptive planning pathways, and a variety of optimisations to consider both what plans would look like if it was optimised on Least Cost, or on producing the best environmental and social metrics.

Comparing outputs for all nine adaptive pathways for our best value plan, our draft Preferred Plan is resilient and largely unchanged across the variety of adaptive planning situations considered.

Our intention is that by applying an adaptive approach to our modelling, we ensure the decisions we take today are effective in ensuring a reliable source of water and a sustainable future. If we were to fall behind the demand reduction requirements that this will likely result in a need to invest in new, costly infrastructure such as additional water treatment works.

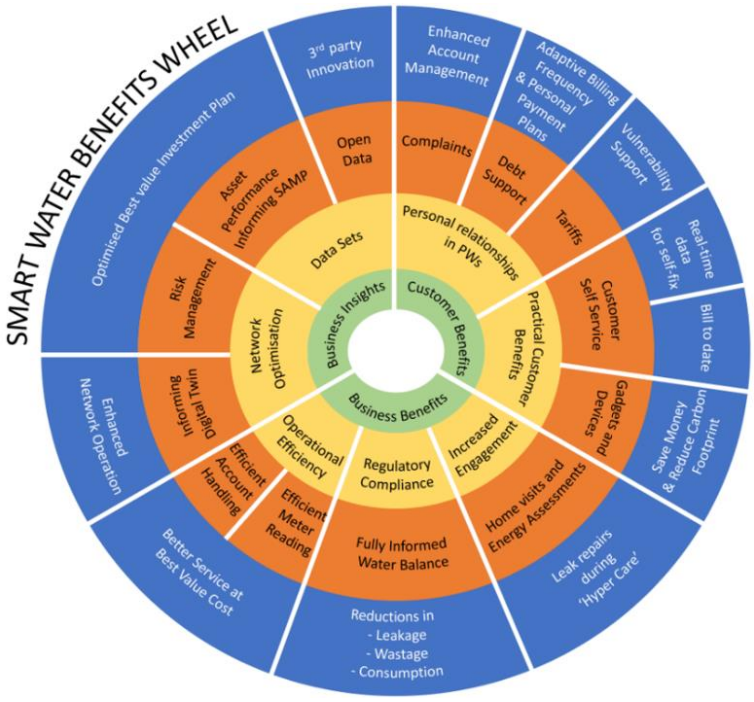
Other Options Considered

(c) Other options to this proposed universal smart metering programme were devised, tested and compared through the extensive statutory Water Resource Management Planning process, an overview of which is outlined in section 4 above, but is fully chronicled in our Water Resource Management Plan document referenced as PRT17 in our business plan submission.

C. Benefits

In this section we describe and quantify the primary and secondary benefits we are planning to deliver from the smart meter programme. We have categorised the main benefits for smart metering in to three core segments, business benefits, business insights and customer benefits. All three demonstrate the value of smart metering and have been further broken down in the below graph into the constituent parts.

Figure 12: Smart Programme Benefits Wheel, developed by the Portsmouth Water Smart Metering Programme



Customer Bills

Smart metering will allow us to create a more personal relationship with our customers in that we will have better data regarding their usage, potential leaks, or changes in their consumption. This will enable us to engage proactively with customers on a 1-2-1 basis with tailored messaging that fits their needs, supports them, and adds value to their experience with us. Examples of this include providing customers with better, granular data on their usage (up to hourly) which will allow them to assess their usage far more regularly and in detail to allow them to make the right choices for themselves. We will provide a self-service capability (web portal or app) that will allow customers to interact with their consumption when they wish to and receive tailored messaging based on their consumption and situation.

We will be able to provide more support to our most vulnerable customers and better understand the type of help they need. We will be able to provide tailored usage advice, guidance and, if requested, home visits to support customer to engage with their water usage. We will use data to support our efforts in ensuring vulnerable customers are identified and supported and smart meter data will help us to provide an enhanced service with adaptive tariffs, debt support and enhanced account management.

Business Benefits

As well as providing better service to customer, smart metering will provide us with the opportunity to improve our network management, performance and provide better support. Through the data smart metering provides we will be able to focus our water efficiency efforts on high usage households and engage them proactively to provide support to them in the appropriate way. This may include home visits, provision of gadgets or water saving devices as well as providing them water usage guidance and advice. This will help us to provide additional care after the meter installation has been successful. The data will enable us to quickly identify high usage, understand with the customer the driver for the usage and support them with appropriate interventions.

We anticipate the installation of smart meters will identify a significant number of customer-side leaks. In our recent trial of ‘LeakBot’ technology we found that 24% of household had an internal leak. (Leakbot in-home survey data from leak repairs, Portsmouth Water trial, 2023) We are prepared to support customers where leaks are identified as we will be notified of continuous flow through the smart meter. Although not always indicative of a leak, we will engage customers to alert them to a possible leak will work with them to find a resolution. We will take care when engaging with vulnerable customers to ensure they are fully supported, and an enhanced service provision is in place for them.

Smart metering will also provide tangible operational benefits to us. By creating ‘smart District Metering Areas’ (DMA’s) we have detailed insight into the water balance, and this will allow us to make data-led decisions to address any issues we identify within the DMA network. Our ambition is to find leaks quicker, develop data models that provide us enhanced data and ultimately manage the network more efficiently.

As smart metering is rolled out across our supply area it is our intention to build robust modelling that will provide timely insights into leakage, wastage and consumption on our network and help us to both proactively and reactively manage any losses on our network.

Business Insights

The opportunity smart metering brings to build a strong foundation of data is significant. Our ambition is to use smart metering consumption data alongside other data sources across our operations to build a detailed view of our network and customer usage patterns. This will enable us to develop our data capabilities to manage risks, optimise our network and inform our digital twin. The data will be invaluable and will provide us insight into customers true usage for the first time across a large portion of our supply area.

The smart network will allow us to assess meter asset performance closely and will support our efforts to engage both our domestic and non-household connections. With Non-Household connections being responsible for 30ml/d consumption this is a critical portion of our estate that we plan to engage with proactively.

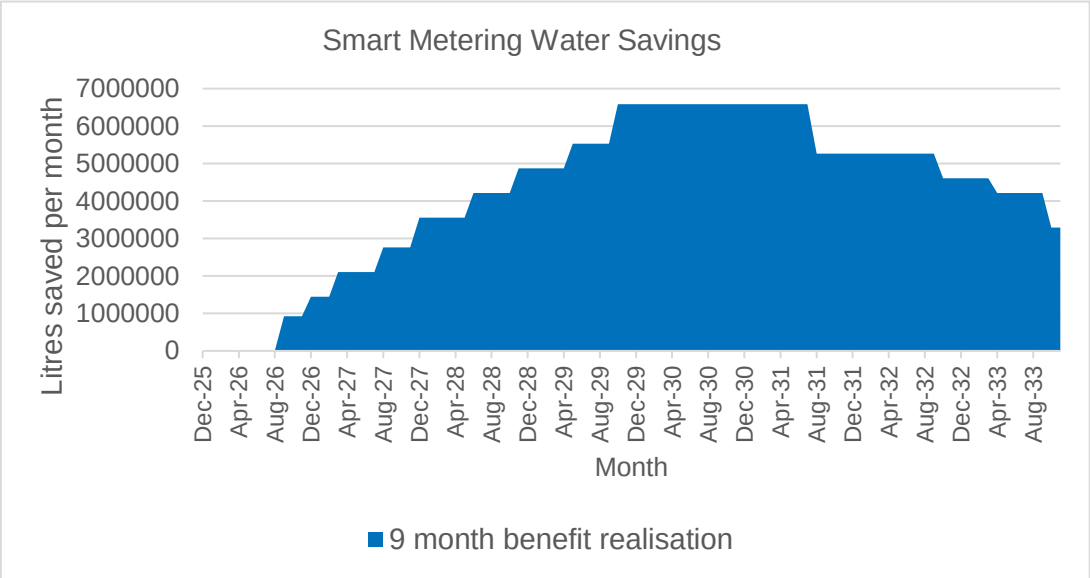
For all high-usage Non-Household (NHH) connections, we will be able to provide greater granularity of data and access to enhanced smart metering data to retailers (exact methods and specification to be determined). This will allow us to engage with our top 10% of users and work with them to support them decreasing their overall consumption.

Demand reduction is a key overall benefit expected from the smart programme and will be a key focus in the coming years.

Primary Demand Reduction Benefits

The primary driver for smart metering is to enable our ability to reduce household demand, measured as PCC, from 160l/h/d to 119l/h/d by 2050. This is in line with our commitments in the dWRMP24. There are significant water savings associated to deploying smart meters with an expected total daily demand saving of approximately 18ml/d (10% of our average total daily supply in 2021). Savings are realised nine months after the meter is installed and are directly attributable to the installation of a smart meter, therefore the water savings follow the installation curve of meter installations. The cumulative savings are impacted by the speed by which we deploy smart meters across the supply area. The graph below displays the rate at which we anticipate the water savings to be realised throughout the installation programme.

Figure 13: Targeted Smart Water Savings



The installation of smart meters with a period of parallel billing will also enable an enhanced workstream of water efficiency activities such as home visits, business engagements and tailored communications to be undertaken using the data provided by the new smart meters, further increasing our opportunity to manage leakage and wastage.

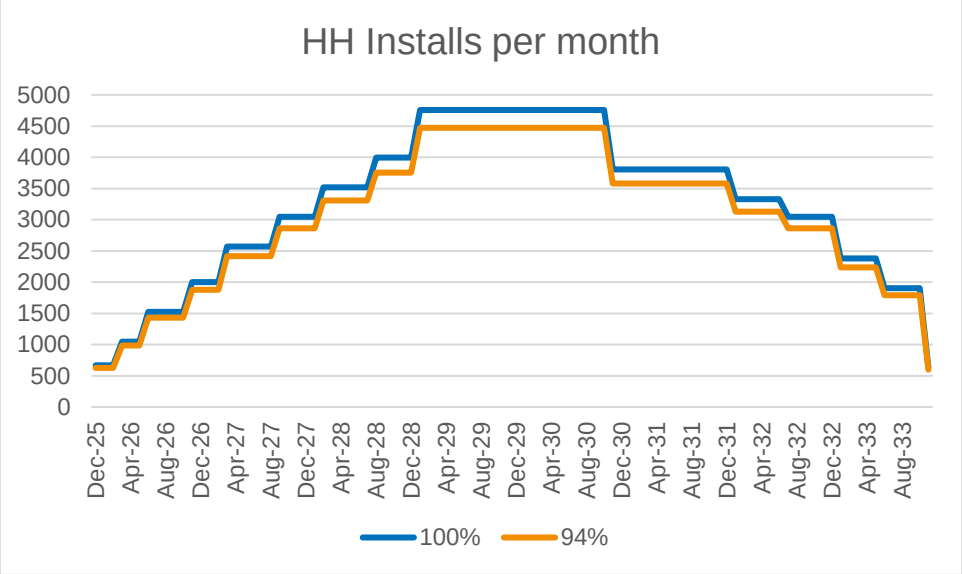
Smart Meter Installations – Household (HH)

We plan to install smart meters across our Household estate in AMP 8 and AMP 9 and anticipate being able to achieve a 94% smart meter penetration overall. The figures included in this investment case are constructed against a 100% install success model to ensure, wherever possible, we are able to install smart meters and funding is available. We recognise that there will be some properties where a smart meter cannot be installed, but every endeavour will be made to install successfully. We have spoken with other water companies who have undertaken smart meter installation programmes (Thames Water, Anglian Water, Northumbrian Water, Yorkshire Water) and they generally observe between 90-95% meter penetration overall.

The bell-curve deployment plan will allow us to ramp up installations whilst we embed the technology, processes and ensure our customer experience is well managed. We will begin with installing c550 meters per month, with installs peaking in FY 29/30 at c4500 meters per month.

We will be engaging with a smart meter installation partner subject to a full competitive procurement in 2024/2025.

Figure 14: Smart HH Install Profile (100% and 94% meter penetration)



Predominantly our supply area is unmetered, with measured supplies accounting for c37% of our supply points (as of March 2023: Measured 37.14%, Unmeasured 62.86%)

Table 3: Planned Household smart meter installs

FY	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	Total
Smart Installs	3045	20268	35112	48338	57093	52335	44247	35397	14909	0	310744

The profile of unmeasured to smart meters and measured to smart meters is provided below.

As the detailed deployment planning is being conducted in 2024, for the purpose of modelling we have assumed an evenly distributed rollout of measured to smart and unmeasured to smart installations.

Table 4: HH - Unmeasured v measured smart installs

FY	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	Total
Unmeasured to Smart	1914	12739	22069	30382	35884	32894	27810	22248	9370	0	195310
Measured to Smart	1131	7529	13043	17956	21209	19441	16437	13149	5539	0	115434

HH Demand and Leakage

The case for installing smart metering is compelling with a large percentage (63%) or our Household connections currently unmetered. We estimate that each property that has a smart meter installed with save on average 60 l/d/h (litres per day per household) whereas a household that already has a meter is estimated to save around 25 l/d/h. It is clear that the highest water demand reduction potential is attributable to an unmeasured connection.

However, we are acutely aware of the potential cost impact of smart on customers and recognise that the costs of installing a meter to an unmeasured property is significantly higher than replacing an existing meter asset (Meter replacement costs £64 vs. an average cost to install a new asset of £390). With this in mind our strategy will be to focus on a blended approach

(d) Focus on areas of reasonable existing meter density reduce initial installation costs

(e) Look at geographically dense areas where meter density can be supported to maintain lower per meter costs from our network provider(s)

(f) Ensure support is in place for leakage management where Customer Side Leakage (CSL) is identified.

With c63% of our HH connections unmeasured we recognise that the highest opportunity for demand reduction lies with currently unmeasured houses. We also recognise the cost of installing into these types of connections will likely be much higher. Our blended approach will help support reduced bill impact on customers whilst protecting the key benefits of the programme of reducing demand.

The detailed deployment planning for our programme is due to commence in 2024 where we will look to prioritise the above to create a balance of cost and benefits.

Assumptions and Evidence

We anticipate finding a significant amount of customer-side leakage when smart meters are installed. This assumption is based on both primary and secondary findings from our own trials and industry insights. In our recent trial of ‘LeakBot’ technology we found that 24% of household had an internal leak. We are prepared to support customers where leaks are identified as we will be notified of continuous flow through the smart meter.

We have also assessed other water suppliers benefits from their respective smart meter rollouts and based some of our assumptions on their achievements. To date, other water wholesaler’s metering programme have demonstrated that between 8%-10% of customers show continuous flow once a meter is fitted (Thames Water & Yorkshire Water, 2022). With much of the continuous flow being found

to be leakage (customer-side) proactive management of these instances have been highly beneficial to reduce water demand in generic terms, but also in improving customer satisfaction. Anglian Water has been alerted to 53,000 leaks by smart meter data since December 2020, most of which were within customers properties. Nearly 74% were resolved by customers, saving just under 11 megalitres per day (ML/d) of demand. During their rollout Thames Water have found that customers react well to being notified and some make a fix within hours of being informed.

We have assumed that a customer going from unmetered supply to a smart meter will reduce their consumption by 60l/d/household. Those customers that already have a metered supply will reduce their consumption by 25l/d/household. These assumptions are based on our comparatively high PCC and observations of other water suppliers smart meter rollout. We believe with enhanced engagement, messaging, and engagement we will be able to achieve these water usage reduction targets nine months after the smart meter is installed.

Smart Meter Installations – Non-Household (NHH)

Unlike our HH rollout, our NHH estate is predominantly already metered and often will have loggers installed by retailers to support a more detailed understanding of consumption.

Our NHH connections comprise of 15824 connections with 16591 meters and an overall 88% (14661) of measured connections. We have a good understanding of our NHH connections and the sizes of meters on our estate.

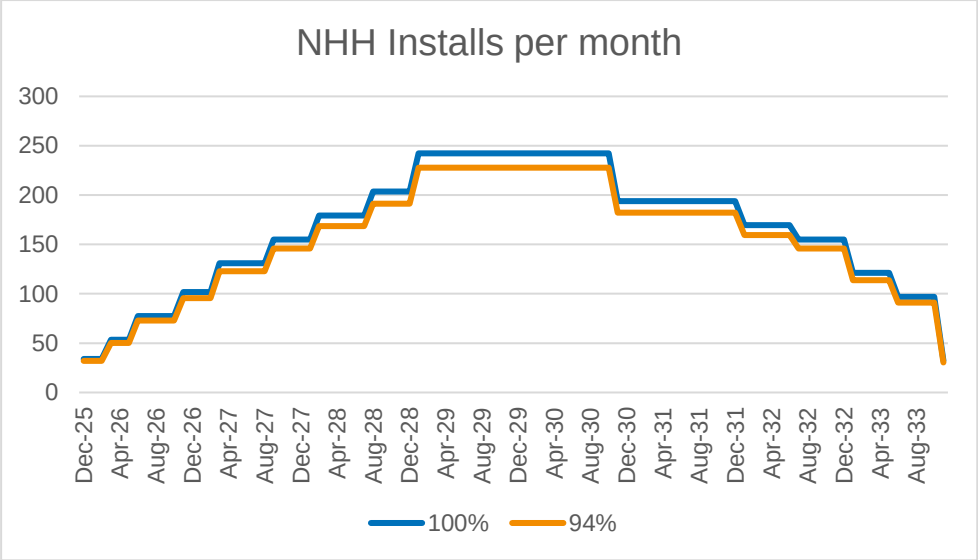
Table 5: NHH Meters

Physical Meter Size (mm)	300	200	150	100	80	50	40	25	20	15	Unmetered	TOTAL
Volume of meters	1	2	7	42	123	410	514	1764	3521	8277	1,930	16591

The bell-curve deployment plan will allow us to ramp up installations whilst we embed the technology, processes and ensure our customer experience is well managed. We will begin with installing 30-40 meters per month, with installs peaking in FY 29/30 at 220-230 meters per month.

We will be engaging with a smart meter installation partner subject to a full competitive procurement in 2024/2025.

Figure 15: Smart NHH Install Profile (100% and 94% meter penetration)



NHH to Smart

We recognise the challenges that the NHH estate will pose when installing smart metering. The larger meter connections can be challenging both in location and in the potential complexity of achieving a communications connection. To help address this we will be developing a dedicated NHH smart team who will focus on the NHH community to ensure that retailers are kept fully engaged and informed, we establish good working relationships with them to support their need for data whist ensuring businesses and their specific needs (i.e., opening times, high trade, out of hours working) are catered for within our plans to install smart meters.

We will undertake an assessment of the connection through our meter installer partner and a condition assessment will be conducted to ensure meters are only replaced as required, to help reduce costs and ensuring asset lifecycle is maintained, particularly for the larger meters. This will be approached on a case-by-case basis with the operational asset management teams leading these assessments.

The profile of unmeasured to smart meters and measured to smart meters is provided below. As the detailed deployment planning is being conducted in 2024, we have assumed an evenly distributed rollout of measured to smart and unmeasured to smart installations. Note: More physical meter assets are required (totalling 16591) though the table below refers only to connection points.

Table 6: NHH - Unmeasured v measured smart installs by connection

FY	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	Total
Unmeasured to Smart	19	126	218	300	355	325	275	220	92	0	1930
Measured to Smart	136	906	1570	2161	2553	2340	1978	1583	667	0	13894

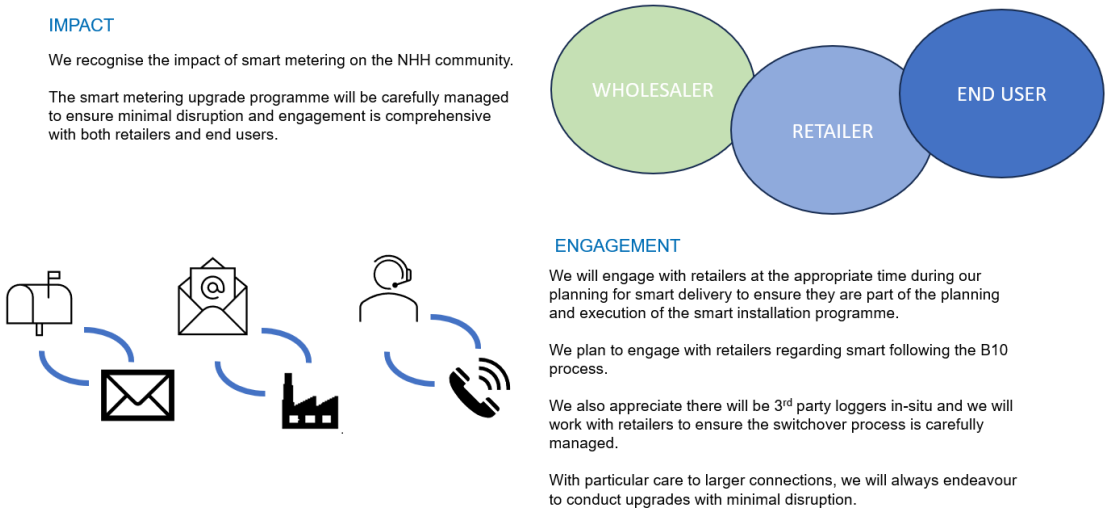
Assumptions & Evidence for assumptions

Our NHH connections collectively use on average 31 Ml/d. We intend to install smart meters or smart capability at all NHH properties during the metering programme (subject to feasibility and cost assessment), providing enhanced data to enable us to better engage them regarding water usage.

We will proactively engage retailers to support our efforts to engage high users and provide support and advice to businesses to reduce demand. We presented our smart metering plans to MOSL (Market Operator Services Limited) Technical Advisory Group (TAG) and selected retailers in June 2023 and identified a key dependency on engaging retailers to support our efforts.

We have assumed that retailers will be supportive of our efforts to engage with non-Household connections to reduce demand and will actively work with retailers to develop strong relationships so we can access their customers effectively.

Figure 16 MOSL Technical Advisory Group presentation (June 2023)



We estimate that through proactive engagement and providing opportunities for companies to engage with their usage we can achieve an overall reduction of NHH demand by 3.67ML/d by 2035 - equal to 12% of consumption overall;

- 3.12ML/d from the top 10% of NHH consumers
- 0.55 ML/d from the remaining 90% of NHH consumers

Our assumption of achieving an overall 12% reduction is based on our enhanced interventions planned for the highest users. We plan to provide onsite face to face engagements on water consumption and enhanced messaging on the need to reduce water consumption across our supply area. We will look to engage key personnel within the non-household customers to promote water efficiency, support them by providing enhanced data and ensuring they can access our expertise.

The bottom 90% of users, of which 71% have 15mm or 20mm meters, will have a specific journey designed to support them reducing their overall consumption as we recognise these will not be industrial users of water, but more akin to household usage. These may be independent non-household customers or part of a larger group – we will endure an engagement strategy is developed that will be effective.

Total savings for the programme

The total water savings benefits are defined below. These have been submitted in our rdWRMP submission and are categorised into the different types of installation, i.e., dumb to smart, metered to smart etc.). As can be seen each different profile below are expected to deliver differing amounts of savings and will have a specific customer journey designed for them.

The types and degree of intervention required will be defined by both the current status (metered or unmetered), the type of customer (vulnerability) as well as whether they have a leak identified through their smart meter.

We recognise that identifying, notifying, and remediating customer-side leakage will be a critical part of our demand reduction strategy and will ensure our processes, policies and procedures are built to deliver this key benefit. Table 7 below details the Ml/d savings.

Table 7: Cumulative benefits of assumed water efficiency interventions (Source: rdWRMP Water Efficiency Strategy Appendix)

dWRMP24 option	2026	2027	2028	2029	2030	2035
AMI / Smart metering - Household - Company - High+ (Dumb to smart metering)	0	0.02	0.19	0.48	0.88	3.40
AMI / Smart metering - Non-Household - Company - High+ (Dumb to smart metering)	0.37	1.50	2.51	2.97	3.42	3.68
Compulsory metering – Household - Company - High+ (Unmeasured to smart metering)	0	0.10	0.89	2.22	4.09	9.99
Metering CSL - Company - High+ (water efficiency and leakage reduction benefits combined)	0	0.09	0.75	1.87	3.44	10.08
TOTAL (ML/d)	0.37	1.71	4.34	7.54	11.83	27.15

Secondary Benefits

Network insight

Once smart meters have been installed at most properties within a DMA we will have greater insight in to how the DMA is performing both from a water demand (how much water is going into a DMA) and how much water is being consumed (measured by smart meters). This in turn will allow us to ascertain what losses are being experienced on our network (network side leakage) and we will be better able to diagnose where potential losses are situated within our network. By combining this data with insight from existing network monitoring devices we intend to investigate, diagnose, and remediate losses both faster and with more accuracy. This core benefit will provide insightful data at scale to help us make data-informed decisions about both reactive and proactive maintenance of our network.

Enhanced Account Management

The data provided by the smart meter will enable our service teams to provide an enhanced service to our customers. Queries related to usage, high bills or leakage will be supported by the enhanced, up to hourly, meter reading data provided by the smart meters. This will enable our agents to provide more detailed, tailored service to our customers, tailoring their advice, guidance, and diagnostics processes to each customer with better, more detailed information. Our intention is to be able to provide customers better, more tailored service to improve our C-Mex score and ensure vulnerability is identified and supported with care.

Reactive account management, when the customer contacts us, will be enhanced as described above. However, our ability to proactively manage customer accounts by identifying potential leaks and variance in consumption will be greatly enhanced. We will begin to proactively outbound contact customers in a variety of ways including text messaging, app pop ups, email, and other communication types. Our customer research has shown that customers will react better when messaging is tailored, relevant and appropriate for them and their community (Blue Marble Research, August 2023).

With our new CRM system in place our ability to undertake a multi-channel, digital first communications journey is enabled. This, coupled with the enhanced data our smart meters will provide, will revolutionise the way we interact and engage customers about their water usage, bills, and our critical environmental messages.

Vulnerability Support

We take our obligations of supporting our vulnerable customers seriously and believe smart metering will enhance our ability to serve these customers. The data gleans from the smart meters will ensure we can provide detailed guidance, reassurance, and practical advice to customers if they contact us regarding their bills. We are acutely aware that vulnerable customers may find it hard to seek help, particularly when debt is involved. The data we will get from smart meters will help to provide insightful, useful, and actionable advice to customers regarding their consumption.

We can assess the times of day where water is being used, provide direct assistance through offering them a tailored home visit to install water saving devices. The options available to us are enhanced by smart metering and the up to hourly data will enable our agents to support our vulnerable customers in identifying usage and making the changes they deem appropriate to support them.

Outside of water efficiency we will, over time, be able to offer different, innovative tariffs that support our vulnerable customers, providing them with the most appropriate tariff to suit their needs. It is critical that vulnerable customers are supported throughout their smart journey, and we will ensure our customer journey for vulnerable customers is mapped to provide access to support, timely and relevant information in the format they need it and to ensure they are taken care of.

Accurate Billing

With the introduction of our new CRM billing system, we have the opportunity to combine its web portal and app functionality with smart metering data to provide customers with ‘live’ balances (subject to design and delivery). Like the wider energy sector, live balances are a customer norm and the provision of smart meter reading data daily, measuring up to hourly, will provide us with the granular data needed to provide customers with accurate billing.

Presently customer who are on a dumb meter receive one meter reading every 6 months. With a smart meter they will receive up to 24 per day – 4,320 readings every 6 months. This increase in data will support our ambition of keeping customers fully informed of their usage and provide an ‘always accurate’ bill. This will support customers with budgeting, making change to their usage and will enable them to better engage with the water they use.

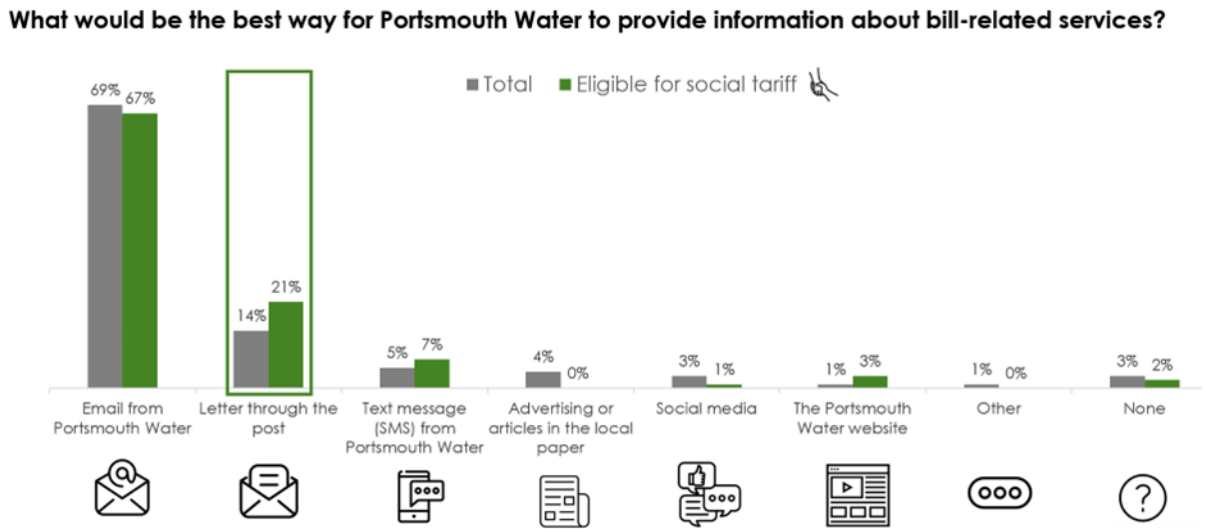
Communication Channels

Our new CRM system will open a plethora of new communication channels based on the customers' needs and preferences. Historically we have had a limited variety of communication methods and had limited success tailoring messages to specific customer segments. The power of our new CRM will enable us to segment customer communications more effectively, build a tailored communications strategy for different customer groups and treat customers in a more individual way.

Our ambition is to empower customers to select the types and frequency of communication they would prefer to ensure our content engages them in the way that is right for them. This will empower choices over frequency, mode and subjects they wish to be engaged with. It will take time to build out the profiling and capability within our CRM system, but our ambition is to create a compelling, relevant communications experience for all our customers.

Whilst we recognise the opportunities presented by multi-channel communication, we are also cognisant of the fact that overall 69% of customers prefer email as their main communication channel relating to billing with 'letter through the post' (14%) being the next most favoured. Though our strategy is to create a 'digital-first' customer experience, these findings will be factored into our planning and will help us ensure that customers continue to be communicate with customers that they prefer. We will continue to monitor our customers preferences over the course of the coming AMP and will adjust our engagement strategies according to the feedback we receive.

Figure 17: Source: Portsmouth Water Barometer Wave 3_Report_V1.0 251022



When asked about how they wish to be contacted regarding their water usage customers told us that email (52%) – including 65% of over 65's- and text (49%) were their preferences, followed closely by notification on app/mobile phone (42%). This is clear indication to use that digital-first is the preference of customers seeking to actively engage with tier water usage and will be part of our core strategy as we deliver the smart programme.

Open Data

We plan to embrace the concepts of open data and recognise the benefits that this brings to our business, our customers, and the industry. Whilst work is ongoing to understand the implications of open data on our systems, data and processes, our ambition is to ensure our data is readily accessible to relevant parties and can be used to better our customer experience, help reduce consumption and help our industry draw meaningful insights from our data. This can be particularly helpful when addressing the Non-Household market as open data can be very helpful to retailers as

well as businesses to support a better understanding of consumption and support demand reduction efforts.

Risks / Dis-benefits

In this section we outline the risks and dis-benefits we have anticipated with the smart metering programme and the mitigations we have identified.

C-Mex

We recognise smart metering is a significant undertaking and do not underestimate the effort and rigour required to engage customers. We are proud of our C-Mex performance that has been sector leading, consistently maintaining an upper quartile position. We recognise that smart metering, if not delivered in the right way, could cause significant disruption to customers, cause complaints and ultimately cause customers to be dissatisfied.

Our customer research shows that there is a complicated picture when it comes to smart metering with a myriad of different views and motivations for customers opinions. We found that smart metering is generally accepted as a 'natural extension' or 'next phase' of metering by customers who pay for their water through a metered charge (Customer research August 2023). Customers also perceive this as the fairest way to pay, though customers who are unmetered perceive the biggest barrier to having a smart meter is 'increased cost of the bill' (35% overall – increasing to 49% of 3+ person households.

We are acutely aware that high occupancy households may be the most impacted by having a smart meter installed where they are currently on rated value. The likelihood is these properties will likely be paying lesson a rated value vs the volume of water they use if they were metered. We recognise this as a key concern of our customers, with 29% of 3+ person households strongly disagreeing with having a water meter installed (Customer Barometer Wave 3). Through a comprehensive customer journey strategy (outlined in section 7 below) we plan to engage customers ahead of a meter being installed and providing guidance and advice to them to address any concerns they may have about a metered charge.

Our ambition is to continue to score in the upper quartile of C-Mex and continue to provide an outstanding service to our customers, empowering our staff with additional data to support customers, identify and care for vulnerable customers and use smart metering to enhance the service we provide.

Complaints

We are committed to supporting customers, On the occasions a customer has a need to complain to us where we have fallen short, we have a strong service recovery in a written complaints process which is demonstrated through our performance. We recognise that smart metering will cause some disruption to customers from a billing perspective as well as the physical installation of a meter. We are committed to ensuring customers are cared for throughout their smart meter journey and have mapped out a comprehensive engagement strategy (Section 7) to help support customers through their journey.

We recognise this is a large programme that will provide us the opportunity to interact with every customer across our supply area. It is a unique opportunity to build on the already positive relationship we share with our customers. We plan to have an active and visible presence in the communities where smart meters are being installed. We will deploy customer engagement officers across our supply area to provide a 'face to face' experience to customers. They will support our operational teams in delivering smart metering in a coordinated, safe, and engaging fashion. If issues arise on site with an installation our field teams will be on hand to support the customer there and then, reducing the likelihood of them feeling unsupported.

The details of this service are still being agreed, but our principles are clear;

- Ensure issues are addressed in a timely manner if they arise during installation

- Our service teams will be ready to provide support over the phone should customers need to contact us.
- Any partners we engage to support with the delivery of the smart programme (installers, network providers) will be trained to provide excellent customer care.
- Our quality assurance and complaints management processes will be tailored to a smart journey and continually reviewed and improved throughout the smart rollout

Ensuring our customers are heard and their concerns are addressed in a timely manner remains a top priority through the smart meter rollout and we will ensure our delivery teams, both field-based and office support teams are well trained, vigilant for vulnerabilities and provide the great service our customers are used to receiving.

Inevitably we do expect some complaints to stem from the smart metering programme. We will set up a review panel to ensure any complaints received are understood, analysed and the root cause understood and will be feedback into the programme delivery team to make any necessary changes going forward.

We recognise that feeding back to customers and making these course-corrections throughout the programme will be vital in building trust, demonstrating that we learn from our mistakes and working to prevent repeat complaints occurring. Service delivery and preventing complaints have always been at the heart of our service strategy and will continue to be central to the smart delivery as well.

Excessive rise in cost to customers

As with any major capital investment there will be an impact on customer bills. We are acutely aware of the sensitivity to cost some of our customers face and have worked hard to design a delivery programme that delivers additional value to customers whilst being attuned to the cost impact of the programme.

Table 8: Calculated bill impact

2022-23 prices	2025-26	2026-27	2027-28	2028-29	2029-30
Impact on average bill (£)	4.28	5.77	7.84	9.90	12.25

We have learnt through our Customer Barometer survey that while those customers eligible for the social tariff are slightly more aware than others, there is still clear scope to communicate about bill support schemes more effectively, and in a more targeted way, as well as grow uptake of the scheme. This has led us to ensure through our customer journey mapping that social tariff awareness and identification of vulnerability will be central tenets of our communication strategy. We will support customers who proactively contact us and ensure we are attuned to their needs and signpost the correct and appropriate support mechanisms for them.

We will not only rely on customers contacting us. Each touchpoint of our customer journey will support us in identifying vulnerability, promoting our social tariffs, and ensuring customers are well informed about their options. 82% of customers believe their water bills will rise in the next 6-12 months so we know there is an expectation of an increase. However, we will not take this for granted and will look to demonstrate the value of the increase in bills due to smart metering. We will work hard to explain the benefits (listed above) to customers and ensure we are held to account throughout the delivery of smart metering. We are proactively engaging customers and will continue to ask for customers views and opinions through the programme and use their valued feedback to adapt our delivery when appropriate, correct any issues and continue to provide an outstanding service.

We will be including a ‘Voice of the Customer’ to our customer journey mapping to help us keep customers views in all our designs. This will be an iterative process that will take place over the next 6-18 months with periodic reviews throughout the smart programme delivery.

Largescale civils operation

We recognise that this a largescale civil operation that has the potential to cause significant disruption to customers if not managed carefully. We are already developing a robust delivery strategy through our procurement of an installation partner that focuses on both the safe delivery of this programme as well as the customer communication and experience.

As with any major programme we recognise that customers will need to be fully informed about what is going on, how it affects them and what they will experience throughout their installation journey. As detailed below in section 7, we will undertake a comprehensive communications pathway for every customer, ensuring they are aware of what is going on, when their smart meter is being installed and how to engage with their data ongoing. Our 'Hypercare' proposition will look to ensure customers are well cared for, have their questions answered and are able to receive the support they need in the way they choose to engage.

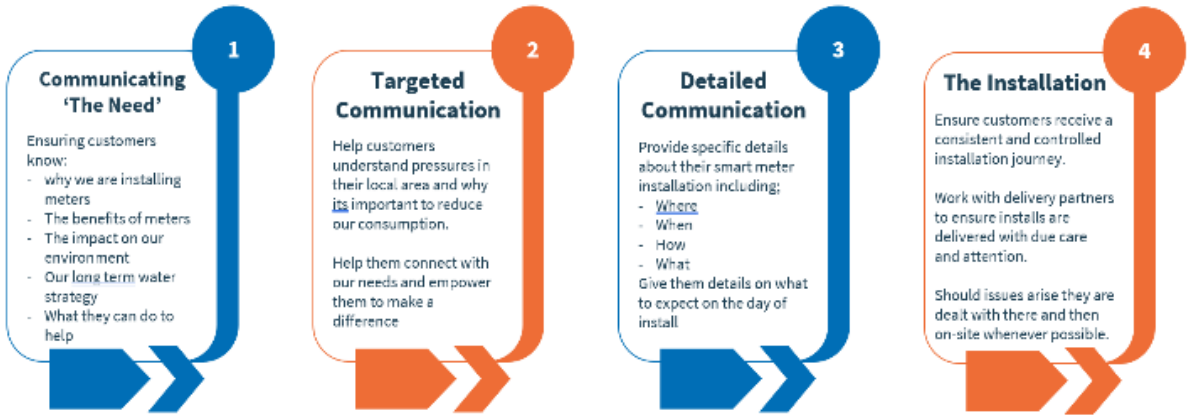
The safety of our workforce and that of our communities will be front of mind throughout. We will ensure robust safety, quality and assurance activities are undertaken through robust assessments, reviews, and audits, all of which will be developed and managed through our contracts and partnerships.

Vision for delivery

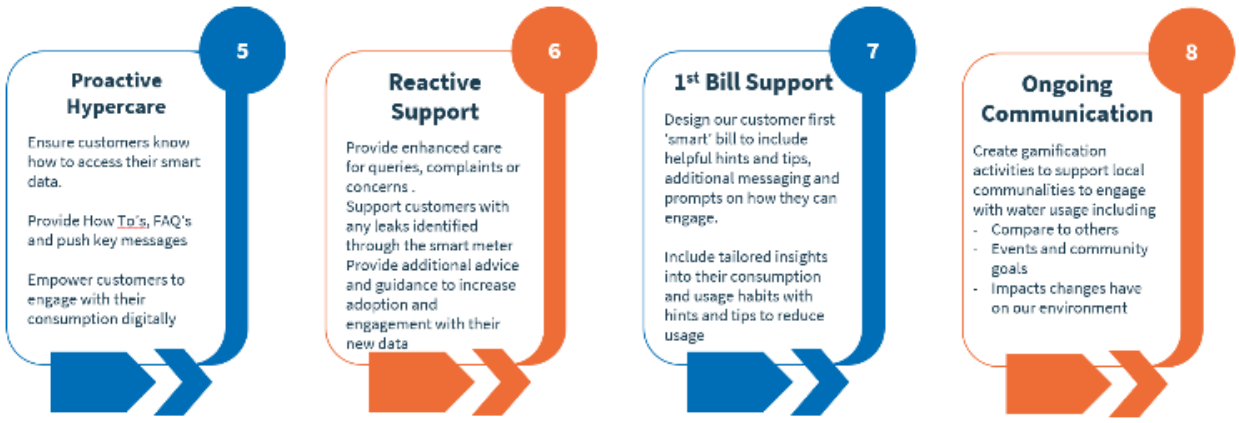
In this section we lay out our current vison for the delivery process (pre final procurement) and the steps we are taking to ensure we will deliver the benefits and mitigate the dis-benefits we have discussed previously. We have developed our customer journey in to two distinct phases;

Figure 18 : Portsmouth Waters Smart Customer Journey

Phase 1: Pre-Installation & The Install



Phase 2: Post-Installation & Ongoing Support



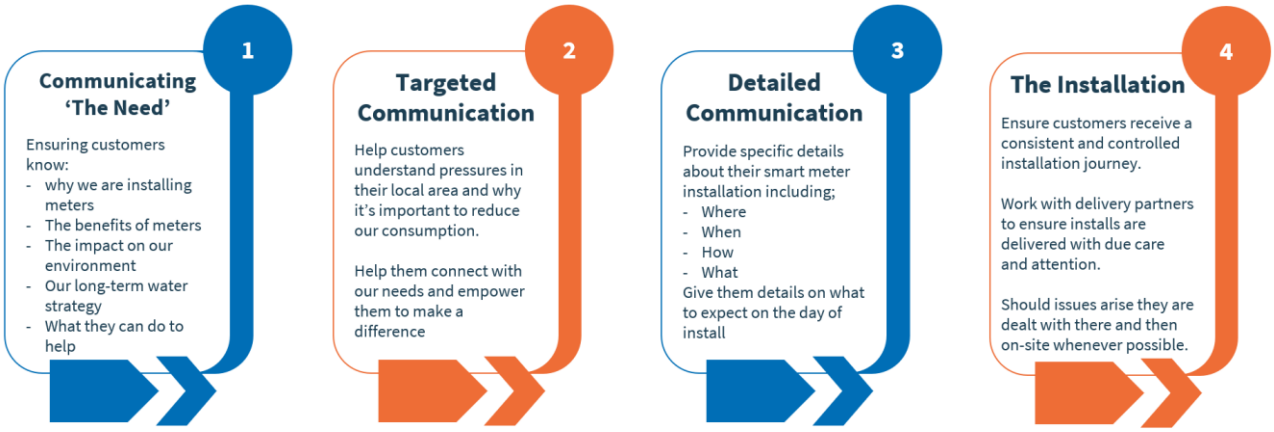
Although our journeys are designed end-to-end, the unique tone, artifacts and engagement styles pre-installation and installation differ greatly from the post-installation messaging, so we have strategically uncoupled these phases. Details of each phase are outlined below, and further detailed design work will be undertaken on our customer journey over the next 12 months to design each of these phases in detail from a people, process, and customer perspective.

Pre-Installation & The Install

The Smart Customer Journey communication phase begins by focusing largely on the need and intent of the smart programme to ensure the customer is well informed about why we are installing smart meters. We will look to inform the customer of the overall needs of our communities using adapted material from our WRMP24 to help inform customers why this metering programme is so important.

It then moves in to providing specific details about their installation journey including dates, times, and the practical impacts on their area (road closures, restrictions etc.) and provides the customer opportunity to engage with Portsmouth Water with any concerns they may have.

Figure 19: Steps 1-4 of the Smart Customer Journey

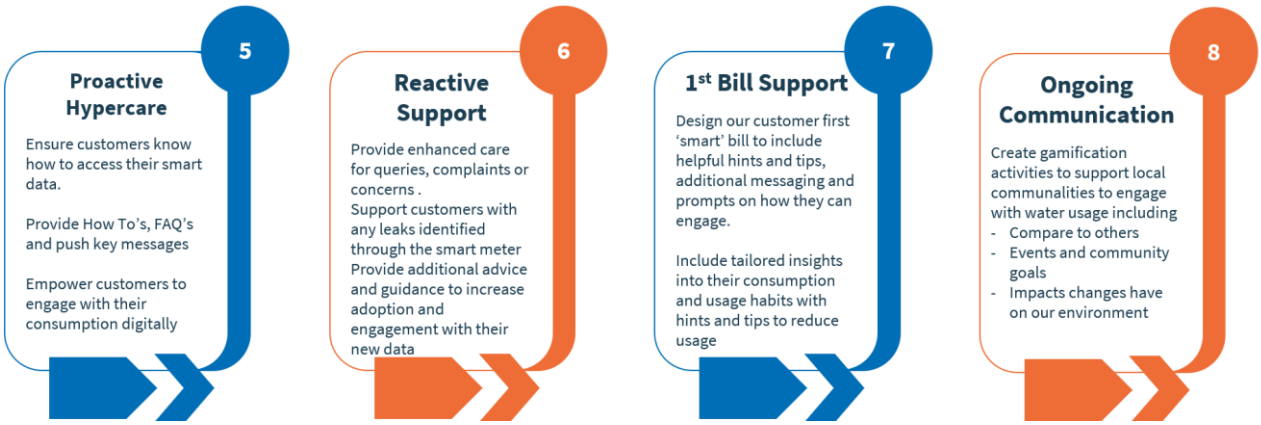


Post-Installation & Ongoing Support

Once the customer has their smart meter installed (Phase 1 above), our focus moves on to adoption and engagement with their new meter and data.

This 'hypercare' is a focused effort to ensure the customers understand how to engage with their data, how to get the most out of their new digital experience and can actively engage ongoing with their consumption. This phase also addresses and

Figure 20: Steps 5-8 of the Smart Customer Journey



Stage 1: The Need

This is our first opportunity to discuss with our customers the rationale and motivation behind our metering programme. It is our opportunity to demonstrate our case for change and seek their engagement and buy-in.

This first phase of our communications will focus on the strategic outlook for our water resource plans, how they are affected by our consumption and how our customers can help. This phase will be informed by our ongoing customer research as we develop a better understanding of customers concerns over smart metering.

A lot of the rationale for smart metering have been justified within our WRMP24 and we will use a lot of this content, tailoring it for consumption by our customers, to present a compelling case as to why we need to undertake this journey and what we need from our customers.

We will also ensure the benefits are clearly outlined as well as the support available to customer as our recent customer research shows that customers do not always understand why we do things, so it is important that we clearly explain this to them at this early stage.

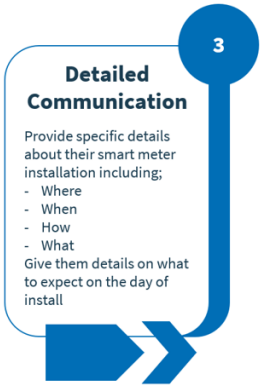
Stage 2: Targeted Communications

This stage will focus on making the need a reality for our customer by making it relevant to their local areas and the water pressures it faces. This could focus on rivers; chalk streams or relevant water sources close to the customer. The hope here is that this will allow customer to develop an understanding of why it's so important we deliver smart within the next 10 years.

By making water saving a central part of our message we hope to help customers engage with why using high levels of water is not sustainable and what we can all do to make a difference. As well as outlining what customer can do it's also important that as a company, we explain what we are going to do about saving water, explaining all the operational benefits we will gain from having smart data and the changes we can make to impact water wastage and leaks. This will help us to demonstrate to customers that we are upping our efforts and se smart metering as a key enabler for us to achieve a better operational performance.

We will be exploring educational programmes for schools and wider societal messaging as part of this phase, all of which is going to be defined in the coming 12 months to support our direct messaging with customers.

Stage 3: Final Detailed Communication



The optimised plan has been received by our installation partner and we are ready to communicate our detailed plans to our customers. This stage focuses on ensuring our customers are well informed about what is happening in their local area in terms of any disruption that may be caused (e.g., road closures, diversions etc.) by the smart metering installations.

We will ensure the customers has enough information to feel informed about what is going on, has a way to contact us should they have any questions and is supported throughout. If plans change, we will ensure customers are informed of these in good time and that great care is taken to ensure customers understand when their meter is going to be installed, the work needed (e.g., internal install, in footway etc.) and that they know they what to expect on the day of their installation.

Stage 4: The Installation

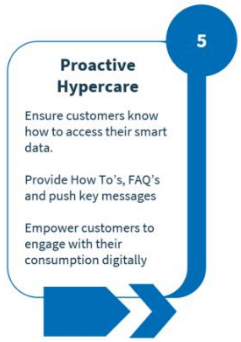
The day of installation is critical to ensure our customers are provided with the best service at their properties. We will be ensuring all customer facing operatives are well trained, are fully informed and can support customers with any questions they may have.

Care will be taken where known vulnerability is present as well as dynamically assessing vulnerability during the works.

Information will be provided to the customer if they are present for the installation and literature left behind once their meter is installed. It is critical that customers can engage with their smart meter once it is installed, and we will work hard to ensure their journey is clear, concise, and consistent with our high standards of service.

If any leaks are diagnosed during the works, we will look for these to be remediated immediately whenever possible, limiting disruption for customers. If it is not possible to remediate any issues on sight our service teams will ensure the customer is kept fully informed.

Stage 5: Proactive Hypercare



This stage will focus on increasing adoption and engagement. Our new CRM system will support us in ensuring timely and accurate information is provided to customers regarding how they can access their web portal/app (tbc).

Customers will be provided with tailored communications based on their preferences and wherever possible messaging will be refined to ensure it is relevant to them (process and design tbc).

If a potential leak has been detected by the smart meter (through a continuous flow alert) our customer service teams will proactively contact the customer to alert them to the situation, provide guidance and advice and, in the case of vulnerability, will ensure we engage directly with the customer to support them in remediating the issue.

Ongoing monitoring and support will be provided to ensure customers feel supported, leaks are remediated, and the customer feels they can engage comfortably with their new smart meter.

Stage 6: Reactive Support

If the customer contacts us with any concerns or queries, we will provide expert customer service support from smart metering specialists to ensure the customer has their query answered.

If complaints are received regarding smart metering, we will ensure customers are contacted swiftly and action is taken to address their concerns. Our dedicated service teams will be trained to deal with all smart metering related matters as well as provide support regarding cists, billing, and debt. This will ensure customers receive a well-rounded service during their smart metering journey and are cared for throughout.

Stage 7: First Bill Support

We recognise that the first bill after having a smart meter installed may be a cause for concern, particularly for customers whose bills have increased due to going on to metered charges. Our first bill experience will be designed to ensure additional information is available to the customers, additional support is offered (i.e., home visits, usage assessments, water reduction advice) as appropriate.

Vulnerability identification will be a focus at this stage to ensure customers that require additional support receive it or are signposted to the correct service to help them. We are acutely aware that changing to a metered service may cause some customers' bills to increase and we will be ready to support customers in this situation in any way possible and provide enhanced care as they transition to their new metered water service.

Stage 8: Ongoing Communication & Engagement

Beyond the first bill we will continually monitor customers usage and variations in consumption can be flagged for further investigation. Our processes (still to be designed) will look at how best to engage customers (i.e., through text, app/portal notification) and we will be conducting research with customers to better understand the service they want from us in this area in the coming months.

Our home visit service (yet to be designed/tendered) will provide additional support to customers who would like additional support in their home to help them make changes to their water usage. Our high user engagement programme (yet to be designed/tendered) will look to engage high users and support them in reducing their consumption.

Our commitment to deliver a positive customer experience throughout a customer smart metering journey is a central focus of our teams and we will continue to place the customer in the centre of all our thinking, designs, and processes

D. Hypercare – Immediate leaks/plumbing losses

We have developed the concept of 'hypercare' which ensures that an enhanced service is provided to customers who have just had their smart meter installed. We have the opportunity to increase adoption, provide support to customers who have concerns and give customers a great experience of their new meter and associated data.

There are several ways we can support customers depending on the type of issue they are facing. All processes and journeys will be designed in the coming months, but our principles are.

Health Report

If a nightline is detected (continuous flow overnight) we will proactively contact the customer and provide them with advice and guidance on diagnosing the issue (i.e. information of leaky loo's, internal plumbing losses etc.) we will also discuss with them that there may be a supply pipe leak which can be tested for (depending on the situation). We can conduct comparison checks with similar sized and occupancy properties as well as provide tailored water efficiency advice.

Doorstep Support

We can offer home visits (once designed/tendered) that will send a water advice expert to the customers home by appointment to provide the customer with;

- Handy hints and tips
- Water Saving Devices,
- Leaky Loo test Kits,
- App Navigation Advice,
- Sign up to alerts,
- Sign up to information campaigns.

Leakage Repair

If a leak is identified by the customer, we can provide them with self-help guidance and advice where appropriate. If a more substantial leak is detected, we can provide; (subject to design and agreement)

- Home investigation (internal plumbing),
- Customer supply pipe leak test,
- A repair service (subject to eligibility criteria still to be finally determined).

E. Elements of the business case

In this section we break down the costs for the elements of the business case identifying the provenance behind the value and our assessment of the confidence in that value. Where applicable we will lay out the timeline affecting our confidence and when we feel confidence will be achieved.

Cost Headings

Metering Costs

The costs for metering installation and asset purchases are currently *MEDIUM* risk due to the fact we are still pre-procurement for all smart meters and installation services.

We have built the business case from informed estimates through pre-market engagement for installation services as well as assessing the current prices of smart meters in the marketplace. We also reviewed meter unit rates from existing Elster metering contract with the unit rates for each meter detailed. These have been subject to between a 12% and 25% increase to the list price to allow for increases in costs. We have assumed a 12-year battery life for smart meters as this is the current marketed lifespan of smart meters based on pre-market supplier engagement.

All meter install costs have been compared to our existing outsourced installer contract (Cappagh) with the install costs for each type of installation detailed. These have been validated by the Portsmouth Water Networks Team from the existing contract.

For installations that require a boundary box to be dug the estimated costs are between £310-£450 depending on the type of ground and environment into which the meter is being installed and have been estimated using our current percentage of different types of ground condition we encounter with our metering work in AMP7 (43% Tarmac, 36% footway (modular), 21% in verge).

Table 9: Metering Costs, Smart Metering Business Case

Metering	AMP 8	AMP 9	AMP 10	AMP 11	AMP 12
New meters introduced by companies for existing customers; metering totex	£42,219,716	£38,039,192	£62,774	£255,086	£19,294
New meters for existing customers - business; metering totex	£1,059,738	£956,240	£ -	£ -	£ -
Replacement of existing basic meters with AMI meters for residential customers; metering totex	£8,167,692	£7,322,002	£5,303,752	£21,552,024	£1,629,988
Replacement of existing basic meters with AMI meters for business	£2,293,511	£1,841,373	£1,076,214	£3,361,145	£342,503

customers; metering totex					
Smart meter infrastructure; metering totex	£1,735,950	£8,403,478	£9,797,040	£9,797,040	£9,797,040
Total metering expenditure; metering totex	**£55,476,606**	**£56,562,285**	**£16,239,780**	**£34,965,295**	**£11,788,825**

Unit Costs

The unit costs for meter assets have been determined through analysing our existing asset framework with Elster as well as speaking with meter providers to get indicative unit costs for domestic and non-Household meters. Note – the meter asset cost for HH meters **includes** the cost of the Local Communications Equipment (LCE) device at £30.

Table 10: Meter Asset unit costs

Meter Size	Cost
Smart Meter Asset Purchase (HH)	£75 (including LCE @ £30)
NHH Smart Meter Asset Purchase 15mm meter size	£25.20
NHH Smart Meter Asset Purchase 20mm meter size	£28.35
NHH Smart Meter Asset Purchase 25mm meter size	£51.45
NHH Smart Meter Asset Purchase 40mm meter size	£132.3
NHH Smart Meter Asset Purchase 50mm meter size	£161.2
NHH Smart Meter Asset Purchase 80mm meter size	£188.27
NHH Smart Meter Asset Purchase 100mm meter size	£209.45
NHH Smart Meter Asset Purchase 150mm meter size	£411.84
NHH Smart Meter Asset Purchase 200mm meter size	£567.60

Table 11: Meter Installation unit costs

Installation Costs	Cost

Universal metering Smart Install (with Dig Out in footway - tarmac)	£422
Universal metering Smart Install (with Dig Out in footway - modular)	£442
Universal metering Smart Install (with Dig Out in verge)	£307
Universal metering Smart Install (with existing boundary box)	£64
Pre installation survey	£20
NHH Installs - 15mm-25mm sizes - meter in situ - screw in	£35.92
NHH Installs - 15mm-25mm sizes - meter in situ - dig out	£482.95
NHH Installs - above 25mm - meter in situ	£966.36
NHH Installs with no meter in situ	£966.36

Metering Costs: Cost Efficiencies

The asset costs are recognised as an area where we can likely find a 20% cost efficiency through procurement due to both the volumes of meters we will be procured and the way in which we will procure the assets through a formal framework.

We have based our installation estimates on our current framework contract prices and anticipate a reduction in unit costs to install meters as the programme will deploy street-by-street creating deployment efficiencies and cost reductions for our installation partner. We therefore propose revised costs (below in Table 11) to deliver the smart meter assets and meter installations for the Smart Metering Programme.

Table 12: Metering Costs, including Cost Efficiency

Metering	AMP 8	AMP 9	AMP 10	AMP 11	AMP 12
New meters introduced by companies for existing customers; metering totex	£33,775,773	£30,431,354	£50,219	£204,069	£15,435
New meters for existing customers - business; metering totex	£847,790	£764,992	£0	£0	£0
Replacement of existing basic meters with AMI meters for residential customers; metering totex	£6,534,154	£5,857,602	£4,243,002	£17,241,619	£1,303,990
Replacement of existing basic meters with AMI meters for business customers; metering totex	£1,834,809	£1,473,098	£860,971	£2,688,916	£274,002
Smart meter infrastructure; metering totex	£1,388,760	£6,722,782	£7,837,632	£7,837,632	£7,837,632
Total metering expenditure; metering totex	**£44,381,285**	**£45,249,828**	**£12,991,824**	**£27,972,236**	**£9,431,060**

Table 13: Meter Asset unit costs including cost efficiency

The unit rates for meter installation that we will be targeting through our procurement are below;

Meter Size	Cost
Smart Meter Asset Purchase (HH)	£60.00
NHH Smart Meter Asset Purchase 15mm meter size	£20.16
NHH Smart Meter Asset Purchase 20mm meter size	£22.68
NHH Smart Meter Asset Purchase 25mm meter size	£41.16
NHH Smart Meter Asset Purchase 40mm meter size	£105.84
NHH Smart Meter Asset Purchase 50mm meter size	£128.96
NHH Smart Meter Asset Purchase 80mm meter size	£150.62

NHH Smart Meter Asset Purchase 100mm meter size	£167.56
NHH Smart Meter Asset Purchase 150mm meter size	£329.47
NHH Smart Meter Asset Purchase 200mm meter size	£454.08

Table 14: Meter Installation unit costs, including Cost Efficiency

This represents an overall efficiency of £35m (20%) reducing the estimated costs from £175,032,791 to £140,026,233 for meter asset purchase and installation.

Installation Costs	Cost
Universal metering Smart Install (with Dig Out in footway - tarmac)	£337.60
Universal metering Smart Install (with Dig Out in footway - modular)	£353.60
Universal metering Smart Install (with Dig Out in verge)	£245.60
Universal metering Smart Install (with existing boundary box)	£51.20
Pre installation survey	£16.00
NHH Installs - 15mm-25mm sizes - meter in situ - screw in	£28.74
NHH Installs - 15mm-25mm sizes - meter in situ - dig out	£386.36
NHH Installs - above 25mm - meter in situ	£773.09
NHH Installs with no meter in situ	£773.09

Metering Costs: Cost Efficiency Impacts

Ultimately, if the unit prices are higher than our cost efficiency figures we will have to design and deliver a programme that delivers fewer smart meters, and associated reduced benefits, but our ambition is to achieve the lower unit rates to maximise the volume of installs we are able to achieve and benefits we can realise through customer side leak detection, enhanced data for network management and demand reduction through PCC.

We will continuously analyse how we deploy smart metering to factor in the following cost variances to maximise the number of meters we will deliver.

- Type of installation (screw in vs dig out)

- Density of meters (drives down cost per meter from DaaS)
- High Usage/population areas
- Poor network leakage performance

These factors will be assessed by our deployment planning team who will assess our network, customers and connections, working with the network partner to ascertain the most cost efficient delivery plan for our customers.

Data Costs

For the purposes of the business case, we have assumed that the Capex costs will be wrapped into the ongoing costs of data provision. This assumption is based on pre-market supplier engagements and discussions with other water suppliers who have undertaken smart programme already.

We are not pre-supposing the type of pricing model we will adopt but required a model to be used for the purposes of our business plan and business case estimation. A competitive procurement exercise will determine the commercial model we choose to select.

The costs below are reflective of a Capex outlay cost include within the charge for data per meter. The estimate used was £6 per meter per year and based on our current delivery plan (subject to refinement).

Costs are capitalised in AMP8 & AMP9 and Opex from AMP10 onwards, reflected in the table below.

Table 15: Data Costs, Smart Metering Business Case

AMI / Smart metering – Infrastructure / Data	AMP 8	AMP 9	AMP 10	AMP 11	AMP 12	TOTAL OVERALL
costs for transmitting data (rollout) Capex	£1,735,950	£8,403,478	£ -	£ -	£ -	£10,139,428
costs for transmitting data (rollout) Opex	£ -	£ -	£9,797,040	£9,797,040	£9,797,040	£29,391,120
Total Costs AMI / Smart metering – Infrastructure / Data	£1,735,950	£8,403,478	£9,797,040	£9,797,040	£9,797,040	£39,530,548

Unit Costs

Our procurement strategy is to purchase a Data as a Service (DaaS) model whereby we do not attract the initial Capital outlay costs for the smart network and may a rate per meter per year.

The business case and cost model has been constructed on this basis. The ‘unit’ cost is a charge of £6 per meter per year for the provision of data.

Data Costs: Cost Efficiencies

We anticipate to be able to negotiate the price of the meter data with the Network Service Provider, though there is still uncertainty as to the exact costs that will be attracted per meter due to not knowing what technology we are using (e.g., LoraWAN, Cellular, NB-IoT), however we have engaged the market informally and have been presented with a range of prices between £3-£8 per meter.

Our initial cost estimate was £6 per meter, but we are challenging ourselves to negotiate cost per meter of £3.80. This ultimately will be negotiated but means we will look for an efficiency of 36.6% or £2.20 per meter per year cost reduction.

Table 16: Data Costs, including cost efficiency

AMI / Smart metering – Infrastructure / Data with efficiency	AMP 8	AMP 9	AMP 10	AMP 11	AMP 12	TOTAL OVERALL
costs for transmitting data (rollout) Capex	£1,100,592	£5,327,805	£ -	£ -	£ -	£6,428,397
costs for transmitting data (rollout) Opex	£ -	£ -	£6,211,323	£6,211,323	£6,211,323	£18,633,970
Total Costs AMI / Smart metering – Infrastructure / Data with efficiency	£1,100,592	£5,327,805	£6,211,323	£6,211,323	£6,211,323	£25,062,367

Data Costs: Cost Efficiency Impacts

We have engaged the market through pre-market engagement (PME) as well as speaking with Network provider already operating in the UK market. We have been advised that the price of the DaaS data provision will largely depend on the following

- Network Penetration – how much infrastructure is needed to support the contract SLA's
- Meter Density – if more meters can operate off a dingle gateway/tower the cheaper it will be
- Additional interventions required – i.e., bespoke networks for challenging geographies

All these variables will impact the prices we ultimately pay and cannot be accurately predicted prior to procurement. However, we recognise we need to deliver value for our customers and will look to prioritise our smart rollout to areas that lend themselves well to a better price per meter, though this runs the risk of back-ending tougher geographies and driving costs into future AMP's.

Ultimately if we are unable to generate a deployment that aligned to the cost efficiency values then we will have to deploy fewer smart meters.

Programme Delivery Costs (Staffing)

All costs associated to programme delivery and ongoing operational costs for the smart programme have mainly been estimated and based on our programme delivery plan which is still pre-procurement. Anticipated staff costs have been provided by operational leaders within Portsmouth Water or current market rates for specialist roles have been used through engaging with trusted recruiters and assessing the current local job market.

Future capability requirements have been assessed against our current planned delivery plan, benefits case for Smart metering and known future operating model requirements to ensure the benefits of smart metering are delivered for both the company and our customers (See Benefits wheel, Figure 12).

Table 17: Programme Delivery Costs , Smart Metering Business Case (excluding early start funding)

Programme delivery costs (Staff/Services)	AMP 7/8	AMP 9	AMP 10	AMP 11	AMP 12	TOTAL OVERALL
Programme delivery costs (Staff/Services) Capex	£6,549,450	£1,034,241	£100,000	£100,000	£100,000	£7,883,690
Programme delivery costs (Staff/Services) Opex	£2,694,575	£2,322,875	£2,867,500	£2,567,500	£2,567,500	£13,019,950
Total Costs Programme delivery costs (Staff/Services)	£9,244,025	£3,357,116	£2,967,500	£2,667,500	£2,667,500	£20,903,640

Unit Costs

The programme delivery costs are primarily roles required to make smart metering deployment a success through:

- Supporting customers make best use of their data
- Support the rollout of smart meters with additional field staff to engage customers
- Provide enhanced support to customers and deal with any complaints quickly
- Provide programme management oversight to the programme
- Mature internal staff capability

Programme Delivery Costs (Staff) Costs: Cost Efficiencies

We have assessed the staffing requirements and ascertained ways we can operate more efficiently. Additional effort will be placed on transforming our organisation to delivery services efficiently, develop internal capabilities and innovate to drive out costs. To this end we have challenged ourselves to deliver the same level of service, support for our customers and capability with 20% less costs.

To achieve this, we will focus on operational efficiency, innovation and deploying our staff strategically to provide broad support to our customers, whilst empowering them with data and information to self-serve. This aligns to our overall commitment to develop an engaging proposition for customers through smart metering.

Table 18: Programme Delivery Costs, including Cost Efficiency

Programme delivery costs (Staff/Services)	AMP 7/8	AMP 9	AMP 10	AMP 11	AMP 12	TOTAL OVERALL
Programme delivery costs (Staff/Services) Capex	£5,239,560	£827,393	£80,000	£80,000	£80,000	£6,306,953
Programme delivery costs (Staff/Services) Opex	£2,155,660	£1,858,300	£2,294,000	£2,054,000	£2,054,000	£10,415,960
Total Costs Programme delivery costs (Staff/Services) with cost efficiency	£7,395,220	£2,685,693	£2,374,000	£2,134,000	£2,134,000	£16,722,913

Programme Delivery Costs (Staff): Efficiency Impacts

We will still ensure the core benefits of the smart programme are realised, achieving PCC reduction and leakage identification through providing customers with informative data. We will look to innovate our service deliver, learn from others, and develop automation, exploit artificial intelligence opportunitie4s and mature our understanding of machine learning. All of which will provide us with operational efficiencies and support us realising our core programme benefits at better cost.

The resource profile within the programme will be scaled and opportunities to develop internal talent, create shared resources and capability verticals internally will support delivery of the programme more cost effectively. These plans and implementations will be developed in the coming 12-18 months prior to the commencement of our smart meter rollout and beyond.

F. Customer Communications & Customer Journey

Our customer communication strategy is currently being developed and we will be working with external agencies to provide high quality communications materials to our customers. We have derived the estimated costs of these communications from assessing our current costs for producing customer collateral and modelled the frequency and type of communications our customers will require throughout their journey in line with the customer journey outlined in Section 7.

Our estimated budget allows for 4 contacts via letter prior to the customer appointment and assumes no cost for email communications. All costs are capitalised as they are part of the delivery programmes communications and end in AMP 9 when the programme delivers.

Table 19: Comms and Customer Journey Costs, Smart Metering Business Case

Customer Communications/Journey	AMP 7/8	AMP 9	AMP 10	AMP 11	AMP 12	TOTAL OVERALL
Customer Communications/Journey Capex	£1,311,556	£1,170,361	£ -	£ -	£ -	**£2,481,917**
Total Costs Customer Communications/Journey	**£1,311,556**	**£1,170,361**	**£ -**	**£ -**	**£ -**	**£2,481,917**

IT Systems/Deployment

Costs within this section are estimated based on our current design of our internal IT architecture and anticipated costs for ongoing Opex to operate our smart systems. Estimated values have been included for development of the MDM capability, building of the smart infrastructure (data lake), IT tooling and cloud hosting costs.

As this stage these costs have been assessed internally with key stakeholders from Portsmouth Waters IT department and are estimated with a low degree of confidence. This is largely due to our new CRM system still being built and deployed. Many of the anticipated requirements will be assessed based on how this programme delivers and the associated work required to deliver the smart elements of the CRM system.

Until this programme has delivered its first phase (October 2024) we are not able to provide any higher confidence of costs. Once the CRM is delivered, we can refine our estimates and have greater confidence in the costs of these requirements. These costs have been capitalised during the programme delivery and will be an ongoing Opex cost to the business for software fees and data storage costs.

Table 20: IT Systems/Deployment Costs, Smart Metering Business Case

Programme delivery costs (IT)	AMP 7/8	AMP 9	AMP 10	AMP 11	AMP 12	TOTAL OVERALL
Programme delivery costs (IT) Capex	£1,861,364	£676,136	£ -	£ -	£ -	**£2,537,500**
Programme delivery costs (IT) Opex	£ -	£ -	£440,910	£440,910	£440,910	**£1,322,730**
Total Costs Programme delivery costs (IT)	**£1,861,364**	**£676,136**	**£440,910**	**£440,910**	**£440,910**	**£3,860,230**

Customer-Side Leakage Plumbing Provision (Domestic Only)

We are currently planning to provide our domestic customers with an enhanced service that will support them in remediating customer-side leaks (CSL) within their homes. Our ambition is to tackle CSL wherever possible and financially viable, particularly when vulnerability is identified. The structure,

design and scope of this service are still being designed and for the purposes of business planning we have estimated the cost of a plumbing service based on current rates of plumbing professionals locally.

Our model assumes that a leak is detected on install on 20% of installations (likely through alerts generated by the smart meter) and we assume a leakage breakout of 2% across properties within 12 months of having a smart meter installed.

We assume 80% of leaks are internal, 20% external and we have assumed that vulnerability will be detected in 20% of properties (based on our current PSR registered customer population). We have assumed an average cost of £500 to repair a comms pipe and a £600 daily cost of a plumber.

We have assumed a plumber can attend a maximum of 3 jobs per day and that a planning function overhead will be required.

The following tables detail the assumed percentages and costs of this service.

Table 21: Customer side leakage plumber provisions Costs, Smart Metering Business Case

Assumed Leakage % at install	20%
Assumed ongoing leakage	2%
Plumber jobs per day	3
Cost for Plumber (Daily)	£600
Working days per year	250
Assumption of properties who PWL will attend	20%
Internal	80%
External	20%
Comms Pipe Cost	£500
Jobs per day	2
Planner day Rate	£250

In the coming 12 months we will decide whether to insource this service and create a capability within Portsmouth Water or whether a partner is required, and this service will be competitively tendered. The modelled costs have been built from daily rates and have been assessed based on current experience costs. All costs have been capitalised as part of the smart programme delivery.

CSL Plumber Remedials	AMP 8	AMP 9	AMP 10	AMP 11	AMP 12	TOTAL OVERALL
CSL Plumber Remedials Capex	£3,053,111	£2,795,198	£ -	£ -	£ -	£5,848,309

Unit Costs

Our unit rate for an external plumber is estimated at £600 based on our understanding of the local plumbing market. Our current model assumes the plumber can complete 3 jobs per day if fully occupied and is predicated on discovery of our estimated volume of leakage we expect to find throughout our programme. Our estimate of “0% leakage is validated through our recent ‘LeakBot’ trial where we witnessed 24% of customers have an internal leak.

We have assumed a conservative 2% ongoing leakage breakout, lower than Anglian Waters observed 5% breakout during their smart programme. We have assumed that Portsmouth Water would proactively engage with customers to remediate leaks in 20% of cases, and 80% of customer would self-repair once made aware of the leak.

This is slightly higher than Anglian Water who observed 65% of customers remediate their own leaks, whilst Thames water also stated 80% of customer self-repair. This assumption is built on a strategy whereby we will engage with customers who have insurance to make relevant claims where appropriate and focus on supporting vulnerable customers.

This will also be addressed through developing close working relationships with Housing Associations, Councils and other housing providers to ensure we can get customers the support they need in a timely manner across our supply area.

Customer-Side Leakage Plumbing Provision (Domestic Only): Cost Efficiencies

Our estimated costs can be reduced by wither insourcing the plumbing provision and developing an internal plumbing capability which will reduce the daily rate. This is an option we are prepared to consider and will assess the market through a competitive procurement to support our thinking. We recognise there are ways we can deliver this service more cost effectively than the proposed model so have challenged ourselves to reduce costs of this provision by 50% overall.

We are learning from other water companies and are actively engaging with other water providers in the Southeast to support developing broadly aligned policies for leak remediation. This work is ongoing and will be developed over time.

Table 22: Customer side leakage plumber provisions Costs, including cost efficiency

CSL Plumber Remedials	AMP 8	AMP 9	AMP 10	AMP 11	AMP 12	TOTAL OVERALL
CSL Plumber Remedials Capex	£1,526,556	£1,397,599	£ -	£ -	£ -	£2,924,155

Customer-Side Leakage Plumbing Provision (Domestic Only): Cost Efficiency Impacts

The impact of significantly reducing the funding to remediate leaks will require a change of strategy to place more emphasis on identifying vulnerability and focus on supporting customers who need us to intervene to remediate a leak. We will also support developing strategic relationship in our community with Councils, Housing Associations, and other housing providers to develop quicker interventions for housing stock and remediate leaks faster.

We will also assess whether we can deliver this service internally as opposed to outsourcing. This would be a significant change of strategy and will require consideration in the coming months to better understand how this is delivered.

Home Visits & Water Efficiency Gadgets

We plan to offer customers the opportunity for a water efficiency expert to attend customers' homes to conduct a home visit. During this visit they will undertake a water efficiency assessment of the home with a view to providing the customer guidance and practical advice about water saving within the home. As part of this visit, they will also be able to fit water savings devices and gadgets (e.g., spray nozzles, water efficient shower heads etc.) with the customers permission.

The costs for this programme have been derived from engaging the market and companies that currently provide this service for other water suppliers and getting indicative costs for this service. We have assumed that 10% of customers will request a face-to-face home audit and 20% of customers will request a virtual audit whereby a video call is conducted with the customer. This programme will only run during the smart meter rollout in Amp8 and AMP9. The assumed cost per face-to-face visit is £50 with c31,000 visits and £20 for a virtual visit with c62,000 visits over AMP8 and AMP9.

As with the plumbing remedial service above in the coming 12 months we will decide whether to insource this service and create a capability within Portsmouth Water or whether a partner is required, and this service will be competitively tendered. All costs have been capitalised as part of the smart programme delivery.

We have assumed that gadgets or devices will be fitted on 75% of visits overall (70,068) and have estimated the costs be the same as the average order currently experience through our water efficiency website which is £50. These costs have been capitalised as they are part of the smart delivery programme during AMP8 and AMP9.

Table 23: Home Visit Costs, Smart Metering Business Case

Home audits & Gadgets	AMP 8	AMP 9	AMP 10	AMP 11	AMP 12	TOTAL OVERALL
Home audit (Face to face) Capex	£819,279	£734,440	£ -	£ -	£ -	**£1,533,720**
Home audit (Virtual) Capex	£393,254	£352,531	£ -	£ -	£ -	**£745,786**
Spray taps / Trigger nozzles for hoses / leaky loo gadgets	£1,847,334	£1,656,036	£ -	£ -	£ -	**£3,503,370**
Total Costs Home audits & Gadgets	£3,059,867	£2,743,007	£ -	£ -	£ -	£5,802,875

Unit Costs

The proposed water efficiency equipment for the home are primary the supply of Water aerators (tap nozzles), trigger nozzles for hoses and 'Leaky Loo' gadgets that are currently provided through our website. These are currently available to customers, but our intent is to market and promote these gadgets through our smart rollout.

The unit rates are based on our current supplier costs, so we have high confidence in their cost estimate. Our volume estimates are based on the assumptions that 75% of customers who receive a home audit through our smart programme, either virtual or face to face will receive gadgets worth £50. We anticipate around 70,000 customers to receive gadgets through audit delivery (Total £3.503m). Additionally we have experience of 3216 customers per year actively seek out these devices from our website at an average order value of £20. We have assumed a consistent rate across 7 years of the smart rollout, meaning we estimate 22512 customers to take orders of £20 each (totalling £450k).

Home audit cost estimates have been informed through informal market research that indicated a face to face home audit would cost between £70-£100 for face to face and £20-£30 for virtual. Bearing in mind the frequency and volume of audits that we estimate, we reduced our estimated cost per audit to £50 for face to face and £12 for virtual (as these may be internally resourced).

Table 24: Home Visit Unit Costs, including cost efficiency

Meter Size	Cost
Home Audit (Virtual)	£12.00
Home Audit (face to face)	£50.00
Spray taps / Trigger nozzles for hoses / leaky loo gadgets (via audit)	£50.00

Spray taps / Trigger nozzles for hoses / leaky loo gadgets (Via website)	£20.00

Home Visits Home Visits & Water Efficiency Gadgets/ Cost Efficiencies

The provision of water efficiency equipment for the home is directly linked to the volume of home audits and website enquiries Portsmouth Water receive. If the volume of installs changes, then this will have a direct impact on the cost requirements of gadgets and volume of home audits.

We have assessed the options and funding within these elements of the programme and have challenged ourselves to develop alternative solutions that will engage communities, enhance education, and allow customers to make positive choices about the amount of water they use. We anticipate through realigning the way we promote, educate and deliver water efficiency messaging will be able to provide cost efficiencies of 42% (£2.437m).

Table 25: Home Visit Costs, including cost efficiency

Home audits & Gadgets	AMP 8	AMP 9	AMP 10	AMP 11	AMP 12	TOTAL OVERALL
Home audit (Face to face) Capex	£475,182	£425,975	£ -	£ -	£ -	**£901,157**
Home audit (Virtual) Capex	£228,087	£204,468	£ -	£ -	£ -	**£432,555**
Spray taps / Trigger nozzles for hoses / leaky loo gadgets	£1,071,454	£960,501	£ -	£ -	£ -	**£2,031,955**
Total Costs Home audits & Gadgets	£1,774,723	£1,590,944	£ -	£ -	£ -	**£3,365,667**

By reducing our reliance on third party equipment and provisions of audits we shall instead focus on community engagement, education, and water efficiency messaging to generate water demand savings in line with our previous estimates, but at better cost efficiency. Examples of these efforts include;

1. School visits and attendance at education fayres
2. Engagement at community events
3. Create gamification through our CRM platform to enhance large-scale community engagement
4. Look for cost effective gadgets capable to generating water demand savings

These are anticipated to be more cost effective to deliver than audits, whilst maintaining our commitment and focus on demand reduction and creating stronger links with the communities we serve.

Non-household leak detection and Smarter Business Visits

We plan to engage the top 20 of our 10% of Non-Household (NHH) users over the course of our smart metering deployment. Our ambition is to decrease overall NHH consumption by demand by 3.67ML/d by 2035 - equal to 12% of consumption overall. We plan to engage the top 20 user in our top 10% of users to reduce demand from this group by 3.12ML/d in AMP8.

MOSL have indicated that they are supportive of creating a data rich environment with Wholesalers becoming responsible for transferring AMI meter data directly into CMOS (Project amidst interim report April 2023 and CPW142 code change from June 2023).

CCW's report "Thinking Smart" (April 2022) stated that "If new smarter metering technologies are rolled out across the water system – something that 82 per cent of businesses would support – then there needs to be an emphasis on properly communicating the potential benefits, whether financial, environmental or organisational, particularly to smaller businesses."

Most (91%) of those who claim to have a smart water meter find that it provides useful information. CCW's findings also indicated that, regarding NHH customers, "Environmental benefits are often not appreciated as reduced water wastage is more readily associated with cost saving rather than environment which is a more compelling benefit." Having considered this research, Portsmouth Water recognises that working closely with Retailers to establish good communication, education and engagement with NHH customers is extremely important as well as ensuring a compelling and appropriately aligned communication message is provided.

To achieve this, we plan to conduct site engagement visits where we can work with the business to assess opportunities to save water, identify leaks or reduce demand. The visit will also comprise of an acoustic logging survey and leak correlation. Our current assumption is that this will be provided by a third party at a rate of £400 p/d and will take on average 4 days per visit. All costs have been capitalised as part of the smart programme delivery.

We also plan to undertake what we call 'Smarter Business Visits' which will engage all education establishments in our supply area and provide a visit from a plumber to support them in identifying leaks and opportunities to reduce water consumption. Assumed day rate for a plumbing inspection of £300 with 250 visits. All costs have been capitalised as part of the smart programme delivery.

Table 26: Non-Household Leakage Detection and Smarter Business Visit Costs, Smart Metering Business Case

Non-household leak detection - top 10% NHH users	AMP 8	AMP 9	AMP 10	AMP 11	AMP 12	TOTAL OVERALL
Non-household leak detection - top 10% NHH users	£32,000	£ -	£ -	£ -	£ -	**£32,000**
Smarter Business visits	£250,000	£250,000	£ -	£ -	£ -	**£500,000**
Total Costs Non-household leak detection - top 10% NHH users	**£282,000**	**£250,000**	**£ -**	**£ -**	**£ -**	**£532,000**

Confidence ratings

The below table provides a view of our current cost confidence in each cost category for the smart programme. It also identified when we are likely to increase confidence in our estimations, often linked to procurement activities.

Table 27: Confidence Ratings

Category	Description	Estimation method	Confidence	Increased Confidence
Installation	Installation of smart meter assets	Used current costs included in the Cappagh contract Engaged with market participants to obtain estimated expected rates	MEDIUM	When bids received from suppliers Nov/Dec 24
Asset Purchase	Purchase of smart meter and local comms	Engaged with multiple suppliers and received indicative prices Assessed current Elster price list for smart meters	MEDIUM	When bids received from suppliers Nov/Dec 24
Data	Cost of meter data (assuming data as a service model)	Engaged with multiple suppliers and received indicative prices Assessed Arqiva costs provided	MEDIUM	When bids received from suppliers Nov/Dec 24
Water Efficiency	Cost of gadgets, audits and inspections	Obtained current prices for gadgets Engaged with supplier and received indicative prices for home audits	LOW	When procurement/design complete Dec 24
Staff - Non-IT	Cost of non-IT staff	Produced plan reflecting roles anticipated to be required	HIGH	Already high confidence.

		Cost estimation provided by PWL department heads		
Staff - IT	Cost of IT staff	Engaged with CIO to estimate pricing and scope of IT staff required Unable to verify requirements due to CRM being built and unknown requirements	MEDIUM	As detailed design for IT completed – Feb 2024
IT Systems/ Deployment	Cost of systems/licensing required	CIO provided anticipated costs to deploy smart metering As CRM is still being built confidence on costs are low	LOW	When CRM is delivered Oct 2024
Communication	Communicating with Customers	Outline customer journey built to define contact frequency and type to customers. Full journey yet to be designed so confidence will only increase once journey is fully mapped	MEDIUM	Once customer journey design is complete – Dec 24
Legal Costs	Solicitor costs	Engaged solicitor market and obtained quotes against defined scope of work	HIGH	Already high confidence.
Developer Engagement	Engaging developers in a smart world	Cost of servicing developers in a 'post-smart world' estimated based on known current engagements	MEDIUM	When NHH journey mapped – Dec 24

User Costs	Onboarding costs	Known IT costs for onboarding users	ACTUAL	N/A
CSL Plumbing	Plumbing service	Outline model built based on market plumbing rates to service estimated % of customer leaks.	LOW	When procurement/design complete Dec 24

G. Enabling work

There are several other core elements to enable the rollout of smart meters from 2025. These are critical upgrades, deployments, and development to PWL core systems that need to be in place for the full benefits of smart metering (See Section 5) to be realised. Listed below is the rationale, justification, and costs of each of these enabling deliverables.

CRM & Billing

The delivery costs in AMP7/8 consist of supplier costs (as defined through the regulated procurement process), resource, assurance and technology costs required to support the implementation and integration of Kraken. The programme timelines are assumed at 18months, broken into two phases, with detailed estimates behind each.

The Opex costs represent the subscription and operating costs of the Kraken, the surrounding integration technology requirements and resource the support the revised technology and business model.

Table 28: CRM Costs

CRM & Billing	AMP 7/8	AMP 9	AMP 10	AMP 11	AMP 12	TOTAL OVERALL
CRM Capex	£6,264,037	£250,000	£250,000	£250,000	£250,000	£7,264,037
CRM Opex	£6,597,500	£6,810,000	£6,810,000	£6,810,000	£6,810,000	£33,837,500
Total Costs CRM & Billing	£12,861,537	£7,060,000	£7,060,000	£7,060,000	£7,060,000	£41,101,537

GIS Upgrade

The GIS upgrade delivery costs have been informed by a discovery initiative working with a dedicated GIS consultant, which provided a high-level impact assessment. The delivery costs assume a model of an internally driven programme working with the vendor ESRI, with

support and assurance from a technology consulting partner. Licensing and operational costs represent the switch from the current internally hosted solution to a Cloud based Software as a Service model.

Table 29: GIS Costs

GIS Upgrade	AMP 8	AMP 9	AMP 10	AMP 11	AMP 12	TOTAL OVERALL
GIS Upgrade Capex	£1,600,000	£600,000	£600,000	£600,000	£600,000	£4,000,000
GIS Upgrade Opex	£851,200	£851,200	£851,200	£851,200	£851,200	£4,256,000
Total Costs GIS Upgrade	£2,451,200	£1,451,200	£1,451,200	£1,451,200	£1,451,200	£8,256,000

IFS Upgrade

Delivery costs have used an assumed 18-month programme duration, including vendor costs, delivery partner and internal costs. The programme assumes a level of complexity similar to the ongoing CRM replacement, with dependencies on business change as well as technical and integration workstreams. Licensing and operational costs represent the switch from the current internally hosted solution to a Cloud based Software as a Service model.

Table 30: IFS Costs

IFS Upgrade	AMP 8	AMP 9	AMP 10	AMP 11	AMP 12	TOTAL OVERALL
IFS Upgrade Capex	£1,400,000	£1,400,000	£1,200,000	£1,200,000	£1,200,000	£7,600,000
IFS Upgrade Opex	£1,312,000	£1,312,000	£1,312,000	£1,312,000	£1,312,000	£6,560,000
Total Costs IFS Upgrade	£4,112,000	£2,512,000	£2,512,000	£2,512,000	£2,512,000	£14,160,000

Summary of costs

In this section we summarise the whole cost of the investment being sought in this enhancement case and the evidence we have to show that the investment is good value for customers.

H. Total Cost (excluding early start funding)

Table 31: Capex Programme Costs

Cost Item	AMP8 Cost £k	AMP9 Cost £k	2035-2050 Cost £k
Smart Meter Installation	55,849	75,000	
IT Improvements	5,500		
Other Enabling Requirements*	1,705		
Totals	63,054	75,000	

* - customer engagement, support hub, WRMP water efficiency measures

Table 32: Opex Changes Costs

Cost Item	AMP8 Cost £k/year	AMP9 Cost £k/year	2035-2050 Cost £k/year
Smart Meter Installation			
IT Improvements			
Other Enabling Requirements	260	220	220
Totals			

I. Frontier economics assessment of beneficial cost

Portsmouth Water commissioned Frontier Economics to undertake a Cost Benefit Analysis for the Smart Meter Rollout, whilst also considering a ‘dumb’ meter rollout. Their findings are summarised below.

In common with many water companies in England & Wales, Portsmouth Water are facing a number of future challenges with respect to managing demand for water and in reducing leakage on its network, both over the PR24 period and over the longer-term in meeting its ambitions for 2050.

Frontier Economics were commissioned to evaluate the costs and benefits of extending the roll-out of water meters in its region to determine which metering option is likely to deliver against these outcomes and at best value to customers. The two options were

- A universal water smart metering (WSM) programme
- A universal water dumb metering (WDM) programme

Frontier Economics Cost Benefit Analysis (extracts)

Frontier Economics' analysis indicates that **water smart metering (WSM) is the preferred option**, given that they:

(1) estimate that WSM provides a more cost-beneficial way of reducing water usage, compared to water dumb metering. WDM would also be cost-beneficial but to a much lesser extent.

- A full smart metering roll-out would deliver benefits of £209 million compared to costs of £154 million (NPV). Therefore. it would achieve net benefits of around £55 million, with £1.36 of benefit for every £1 of cost incurred.

- A full dumb metering roll-out would deliver benefits of £90 million compared to costs of £88 million (NPV). Therefore, it would achieve net benefits of a little over £1 million, with £1.01 of benefit for every £1 of cost incurred.

(2) Pursuing a WDM over a WSM programme would add to the risk of Portsmouth Water failing to deliver on its key water consumption and leakage targets.

While dumb metering is (marginally) cost-beneficial, it does not enable Portsmouth Water to deliver against its key long-term business needs given the risks and challenges it currently faces with respect to demand management and leakage reduction.

- The Portsmouth region faces increasing demand driven by population growth, the effects of climate change and an increasing need to reduce its reliance on water resources located in a sensitive, chalk-based environment.

- In line with the Environment Agency's National Framework for Water Resources, the company is required to deliver against the following key planning objectives:

  - reduce per capita consumption (PCC) to 110 litres of water per person per day by 2050;

  - facilitate a reduction in water use across all sectors;

  - halve leakage rates by 2050 (against a 2017/18 baseline); and

  - reduce the use of drought measures that have an impact on the environment.

Metering provides Portsmouth Water with a credible option to address these issues by reducing water demand and easing the challenges faced in water-stressed areas.

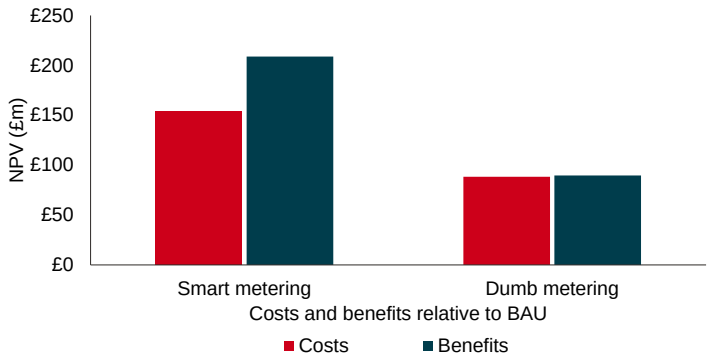
The full Frontier Economics Report can be appended to this document, referenced PRT07.06.01 but we have drown out the key findings below.

Key findings

Frontier Economics estimate that water smart metering provides a more cost-beneficial way of reducing water usage, compared to water dumb metering. However, they estimate that both WSM and WDM would be cost-beneficial.

- A full smart metering roll-out would achieve net benefits of around £55 million, with £1.36 of benefit for every £1 of cost incurred.
- A full dumb metering roll-out would deliver would achieve net benefits of a little over £1 million, with £1.01 of benefit for every £1 of cost incurred.
- Therefore the WSM option is preferred to the WDM option, both in terms of the absolute scale of the net benefits (£55 million compared to £1 million) and the benefit-to-cost ratio (1.36 compared to 1.01).

Figure 21: Costs and benefits of Portsmouth Water meter roll-out options (2022/23 prices



Smart Metering

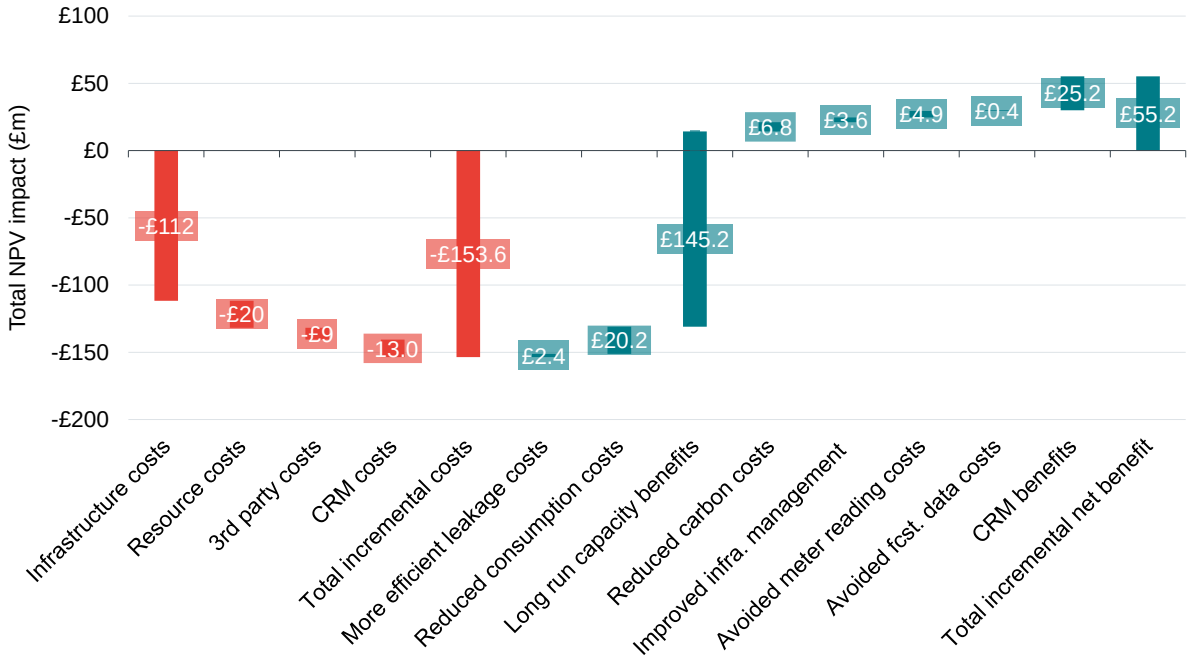
Water smart metering is estimated to deliver a range of benefits through reduced water usage, improved leakage detection and network management, and reductions in carbon emissions.

The CBA modelling shows that a roll-out of WSM would, over the period 2022-2062, deliver benefits of £209 million compared to costs of £154 million (NPV). Therefore. it would achieve net benefits of around £55 million, with £1.36 of benefit for every £1 of cost incurred.

WSM roll-out is therefore expected to provide a cost-beneficial way of reducing demand, while both enabling the reduction of customer supply pipe leakage and helping to reduce household water consumption.

Figure 22 below shows the breakdown of these cost and benefit estimates by category of impact.

Figure 22 Analysis of WSM costs and benefits (2022-2062, in 2022/23 prices)



Source: Frontier Economics

The main findings from this analysis are:

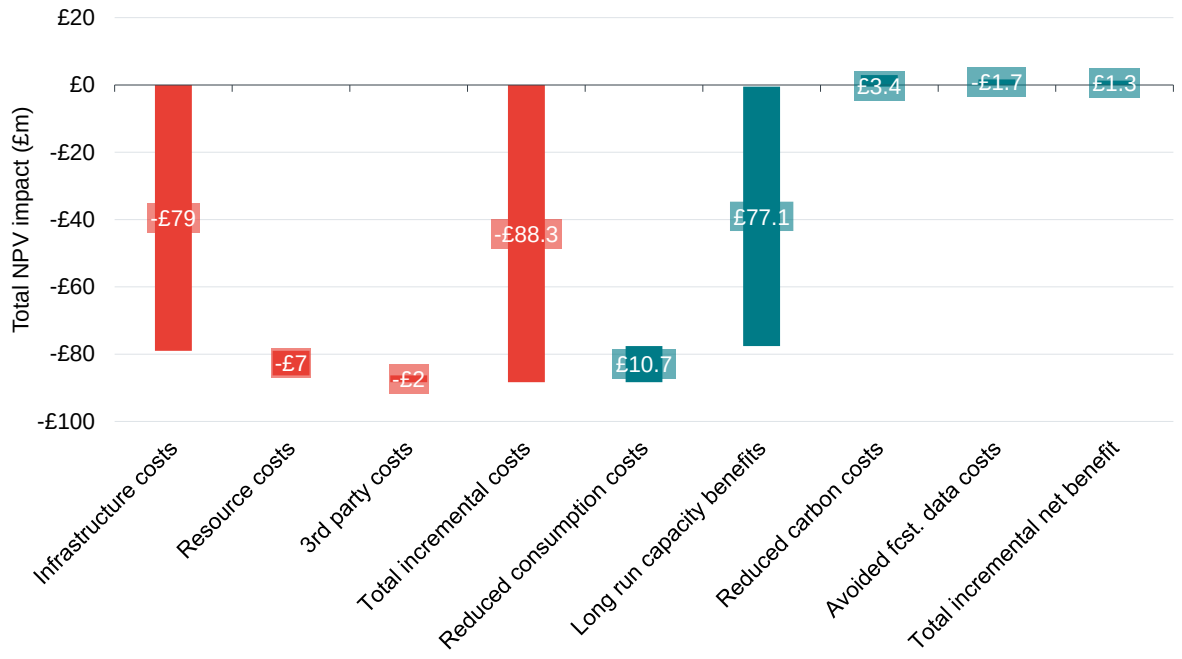
- The largest cost driver is infrastructure costs, which account for 73% of the total cost of smart metering. Infrastructure costs comprise of installation costs (which account for 57% of infrastructure costs), asset costs (23%) and data transmission costs (20%).
- Installation costs are considerably larger than other costs, since 72% of the currently unmetered households do not have an existing boundary box to install a smart meter into. In these cases, Portsmouth Water will need to dig-out the footway and verge to install meters, which increases the cost of installation by up to 7 times.
- Resource costs are the second largest driver of costs and account for 13% of total costs. While resource costs comprise of several sub-costs, three sub-costs account for 90% of the costs. These sub-costs are non-IT staff costs (38%), costs for investigating non-responsive meters post-rollout (30%) and the cost of water efficiency engagement (22%).
- We estimate that the most significant benefits are derived from the long-run capacity benefit of reduced water consumption and reduced consumption costs. The lower consumption allows the company to defer alternative investment in other demand reduction or new supply schemes:
  - The capacity benefit of reduced water consumption accounts for 70% of total benefits.
  - Reduced consumption costs account for 10% of the total estimated benefits.

Dumb metering

Water dumb metering is estimated to deliver a more restricted range of benefits, compared to WSM. Benefits include reduced water usage and reductions in carbon emissions, but do not include improved leakage detection and network management.

Our CBA modelling shows that a roll-out of WDM over the period 2022-2062 would deliver benefits of £90 million compared to costs of £88 million (NPV). Therefore. it would achieve net benefits of a little over £1 million, with £1.01 of benefit for every £1 of cost incurred. Figure 7 below shows the breakdown of these cost and benefit estimates by category of impact.

Figure 23 Analysis of WDM costs and benefits (2022-2062, in 2022/23 prices)



Source: Frontier Economics

The main findings from this analysis are:

As for smart metering, the main cost drivers are infrastructure and resource costs:

- Infrastructure costs account for 89% of total costs. Similar to smart metering, installation costs are the largest cost driver (accounting for 71% of infrastructure costs), followed by the costs for physically reading meters (23%) and asset costs (6%). While the cost of installing dumb meters is similar to smart meters, they are significantly cheaper to purchase and hence asset costs represent a smaller proportion of total costs.

- Resource costs account for 8% of total costs. The two main costs are water efficiency engagement and promotion costs (which account for 63% of resource costs) and staff costs (32%).

- The most significant benefit is derived from the capacity benefit of reduced water consumption and reduced consumption costs. The lower consumption allows the company to defer alternative

investment in other demand reduction or new supply schemes. However, the scale of both the costs and benefits from WDM are smaller than for WSM, driven by the lower cost of purchasing dumb meters, and the reduced benefits that can be realised from a dumb metering programme given the reduced data capabilities relative to smart meters.

CAB Conclusions

The cost-benefit analysis of the smart and dumb metering roll-out options for the Portsmouth region shows that both water smart metering and water dumb metering programmes would be cost-beneficial, i.e., any benefits of a fuller smart or dumb metering roll-out would deliver benefits to customers that outweigh the costs.

Nevertheless, our analysis indicates that water smart metering is clearly the preferred option, for the following reasons.

First, WSM delivers a higher benefit to cost ratio (of 1.36) relative to dumb metering (of 1.01).

Second, this positive benefit to cost ratio is robust to sensitivity analysis around the key input parameters, including the level of consumption reduction and the value of the capacity benefit.

Third, while dumb metering is (marginally) cost-beneficial, it does not enable Portsmouth Water to deliver against its key long-term business needs given the risks and challenges it currently faces with respect to demand management and leakage reduction. In particular, the technology does not enable the company to identify and address leaks, or to incentivise customers to reduce their demand through more accurate metering and charging. Therefore, pursuing a dumb metering programme adds to the risk of failing to deliver on its key water consumption and leakage targets, both at PR24 and over the longer-term.

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3. GOVERNANCE AND ASSURANCE

The Smart Metering Programme Business Case was presented to the Portsmouth Water Board on 30th November 2022 and approved.

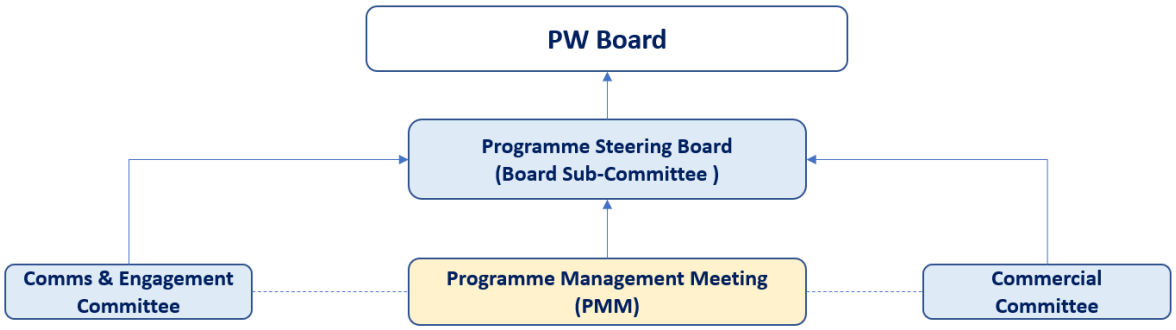
The Executive Team also provided consent for the Smart Programme Team to develop a proposal for submission to DEFRA's "Accelerated water company infrastructure delivery commission" released on 17th October 2022. The Smart programme developed a proposal and submitted this through DEFRA's commission as agreed and were successful in securing transition funding through this scheme on 3rd April 2023.

Our external assurance provider, Jacobs, have also provided assurance to the Portsmouth Water Board in an Assurance Report on 27th August 2023 and the Board approved the Investment Case at their Board meeting on 27th August 2023.

A. Smart Metering Programme Assurance

The Smart Programme is assured through internal committees and a formal sub-committee of the Portsmouth Water Board. Oversight of all key programme decisions is maintained through these formal committees and ensures Portsmouth Water Executives have clear sight and accountability for strategic decisions.

Figure 24: Smart Programme Governance



These governance committees have clear Terms of Reference (ToR) agreed with the Board and operate within the scope of their delegated authority. Each committee is designed to address key programme workstreams and will adapt as the programme progresses through its delivery.

Board Sub-Committee (SteerCo)

Forum empowered by the PW Board, with delegated authority limits, to make strategic decisions, scrutinise the delivery of the programme and provide guidance whilst monitoring performance. This forum will manage escalations from PMM and monitor strategic alignment of the programme with the Board and company strategy.

Programme Management Meeting (PMM)

Convened monthly this forum will review and direct programme delivery and provide direction and guidance to the programme team to promote quality and delivery to time.

They will provide oversight to the delivery of the programme, handle escalations from programme teams, monitor risks, issues and finances and ensure remediating actions are taken to correct any deviation against plan.

Comms & Engagement Committee

Focus will be on key programme communications to assess the Change capacity within the business and to provide guidance to the Business Change, Communications and Engagement & Insight workstreams.

This forum will provide guidance on external and internal communication, industry insights and engagement activities. They will be accountable for Approving/Referring Change Requests (CR's) and managing escalations to SteerCo as required.

Commercial Committee

Define the commercial strategy for the programme and agree authorisations within delegated authority. Provide expert insight into commercial and contract positioning, ensuring it aligns to Portsmouth Waters stated objectives and programme benefits. Monitor strategy execution and assure commercial practices (incl. contract), making recommendations to SteerCo.

B. External Procurement Assurance

The Portsmouth Water Board appointed Agilia Infrastructure Partners (July 2023 Board) to be the external procurement assurance partner of the Smart programme. Agilia will assure the programmes procurement activities at key intervals and will report to the Commercial Committee and Board Sub-Committee providing an independent view of the procurement activities.

Table 33: Procurement Assurance Activity

Procurement Deliverables	Instances	Independent Procurement Assurance	PW Board
Procurement Strategy	1	☑	☑
Prior Information Notice	1		
Contract Notice / Selection Questionnaire	2	☑	☑
PQ Opening and Evaluation Plan	2		
Tender List Recommendation	2		
Tender Pack (including ITT)	2	☑	☑
Tender Opening and Evaluation Plan	2		

Award Notification Letters	2
Contract Award	2
Contract Award Notice	2

C. Assurance of Smart Costs

Jacobs WRMP costs Assurance

Production of this supporting document has been undertaken in accordance with internal governance and assurance procedures and processes. Third party assurance has also been provided by Jacobs Global Consultancy.

This comprised initial drafting by an internal Lead Author, under the direction of an Executive Owner who retains Executive responsibility for the document content including robustness and accuracy.

The document has undergone three stages of internal review and third party assurance before being signed off by the Board. Internally this has included:

i. Executive Owner

ii. Nominated Executive,

iii. Internal Executive Review Team including the CEO and CFO.

Details of the third party assurance, including findings/opinion, can be found in PRT15.04. but broadly involved assurance checks on the Ofwat template tables 2A, 2C, 8B, 8C, 8E (including Smart metering programme costs). Checks were completed using the Demand Model, the WRSE Input Template and several supporting spreadsheets to trace data back to source. Data checks completed were found to be correct and matching WRSE and demand model spreadsheets.

The Board has been engaged in the development of the business plan and its content through subject specific discussions at monthly PR24 Steering Committee meetings that have taken place since late 2021. Minutes of relevant meetings are included in PRT15 Board Assurance, Appendix PRT15.01.

4. CONCLUSION

This suite of enhancements represents our proposals for meeting our ambition to develop smart networks and customer usage information to significantly reduce per capita consumption and leakage. Our 'Vision' statement sets out our objectives in these areas and this investment plan demonstrates how we propose to deliver on our goals.

We have included all necessary elements to provide the required infrastructure as well as all the enabling aspects that support the management of the new systems. This package therefore represents a comprehensive approach to developing a smart supply system that will enable us and our customers to control water usage far more effectively.

The plan provides significant benefits including reduced consumption and leakage. This has considerable environmental and societal advantages as well as improving our overall performance.

PRT07.06 APPENDIX

PRT07.06 APPENDIX

PRT07.06.01 Report - WSM WDM roll-out - CBA findings (Link to document)

Portsmouth Water

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