

Customer motivations: water saving & smart meters

Stage 1: Evidence Review

Summary of findings

8th March 2022





Supporting WRMP and longer term strategy

- Identify fundamental consumer barriers to water saving – and identify ways to overcome these. As well as explore the motivations and customer benefits for water efficiency.

Refine current & future water efficiency programmes

- Explore how these services are performing with customers – and where new or improved services could be developed

Inform potential smart meter roll out from 2025

- Inform smart meter implementation: approaches to engaging customers; features that could drive behaviour change; and communication needs

WHAT DO WE KNOW ALREADY?

Systematic review of c.25 sources

- To establish where there are gaps in knowledge
- Clearly informing the areas to cover in the following stages

Approach

A structured method, recording and coding all the data sources and logging in the **evidence register**.

1. **Identify source material**
2. **Develop the codeframe:** all reports reviewed against a pre-determined codeframe, refined at the initial stage of the review. Specifically, we use the COM-B model of behaviour change within the codeframe.
3. **Populate the evidence register:** Once the codeframe is finalised, the literature review is completed rapidly and the evidence register fully populated



4. **Thematic and gap analysis:** a summary report identifying what we know and where there are gaps – and providing a clear set of areas to cover in the following stages of the project.

	Sources	Topics	Number of reports
Wessex Water data	YPP Reports	2019: Smart Homes 2021: Smart metering journey 2016: Metering uptake	3
	Wessex Image Tracker	2021: review of any relevant questions plus brief scan of previous years from 2016 (incorporating the segmentation)	3
	WCWRG	WRMP engagement (qualitative and quantitative)	2
	SDS Engagement	2021 Report – Qualitative (Accent) PR19 SDS Final Report (BM) 2022 Report – Quantitative (Accent) – not yet available	3
	Have Your Say online community	#5: Saving water (2014) #21: Water meters (2019) #23: Water supplies (2020)	3
	Tariff Trial	2009-11 – to recap on segmentation	1
	Internal data	Home Check water efficiency retrofit and advice visits Satisfaction (22k visits)	1
	Collaboration	Garden Water Use	1
External publications	Conference presentations	<i>E.g. from other Water Companies</i>	-
	Service/device providers	<i>E.g. Advizzo, Waterfall, LoFlo/Groundbreaker</i>	-
	Water co research	Thames Water Efficiency Affordability Mobilising the public to reduce household water use in Essex and Suffolk Water	2
	Stakeholders and research agencies	<ul style="list-style-type: none"> CCW (BM) – “Sink Sense” 2021 Frontier and Artesia Nov 2021 report on smart metering Waterwise Nov 2021 report on smart metering Blue Marble – attitudes to climate change report Welsh Gov - Public attitudes to water in Wales 	5

VESSEX WATER - WATER SAVING AND SMART METERS - SYNTHESIS LOG												
Strawman 160222												
REPORT DESCRIPTION						METHOD AND COVERAGE					EVIDENCE RATING	
REPORT REF	REPORT NAME	TOPIC SUMMARY	REVIEWED	AUTHOR	DATE OF PUBL	METHOD	METHOD NOTES	AUDIENCE(S)	GEOGRAPHIC COVERAGE	OVERALL SAMPLE SIZE	ROBUSTNESS RATING	NC
	(Write in)	(Write in)	(Write in)	(Write in)	yy:mm	1. RESEARCH - Qual		1. Households	1. Wessex region only	WRITE IN	3. Highly robust / proportionate	
			e.g.	e.g.		2. RESEARCH - Quant		2. NIH 3. Future customers	2. South West		2. Fairly robust / proportionate	
			EP	Wessex		3. ENGAGEMENT - Qual			3. National		1. Not very robust / proportionate	
			BP	CCW		4. ENGAGEMENT - Quant		4. Vulnerable (4* where vulnerabilities	4. Other		0. Not at all robust / proportionate	
			JB	Blue Marble		5. SECONDARY		5. Stakeholders			NA, Not specified	
			EOL	ICS		6. OTHER (Write in)		6. Retailers				
				Ofwat		7. NONE		7. NAVs				
				Accent				8. NA				
				Ofwat				9. Employees				
19	1 WaterVoice Views of current customers on water resources.	Understand customers' awareness of	BP	CCW	2021-10-01		2 Nat rep omnibus		1	3 1870	3	
20	2 YPP - 2021: Smart metering journey		EP	Blue Marble	2019-11-25		3 Cocreation		3	1 20 and 326 survey	3	su
21	3 YPP - 2019: Smart Homes		EP	Blue Marble		1,2			3	1 21 future customers 703	3	
22	4 YPP - 2016: Metering uptake		EP	Blue Marble	2016-12-22		3 Cocreation		3	1 21 future customers 578	3	Pr
23	5 Wessex Image Tracker: Q1-2 2021-2 Report (incl extra analysis)	Some questions relating to customer	BP	Blue Marble	2021-10-01		2 Mixed mode tel a		1	1 500	3	Us
24	6 Wessex Image Tracker: brief scan from 2016 onwards	Discontinued questions on water	BP	Blue Marble	2016, 2017		2 Telephone interv		1	1 500-1000 depending on q	3	
25	7 WaterVoice Customer awareness of smart metering	Customer awareness of smart metering	BP	Blue Marble	2021-10-01		4 Public opinion survey		3	1 2000	3	

VESSEX WATER - WATER SAVING AND SMART METERS - Strawman 160222					
REPORT DESCRIPTION					
REPORT REF	REPORT NAME	3. Metering and smart metering - General	3B. Metering and smart metering - CAPABILITY (Ability to take action? Skills or knowledge)	3C. Metering and smart metering - OPPORTUNITY (Have the chance to take action? Time or money)	2D. Metering and smart metering - MOTIVATION (Want to take action?)
	(Write in)	(a) Awareness of water meter programmes / aware of	(a) Cannot use less water (due to circumstances or disability)	(a) Bill will go up / Water will cost more	(a) Greater bill accuracy
		(b) Willingness to take up (smart) meters	(b) Property is not suitable for a meter e.g. live in fl	(b) Cost of installation	(b) Will help save money / bill go down
		(c) Perceived benefits - general metering	(c) Accessibility to read smart meter	(c) Disruption when fitting meter	(c) Able to track and control water use
		(d) Perceived benefits - smart metering		(d) Large household / property type	(d) Environmental benefit / CO2 reduction
		(e) Concerns - general metering			(e) Fairness
		(f) Concerns - smart metering		(e) Maintaining engagement in a smart meter	(f) Help detect household leaks (Smart meters)
		(g) Messaging / comms / channel			(g) Meter consumes a lot of energy
		(h) Trusted messengers			(h) Data protection
		(i) Specific groups mentioned			(i) Concern will not be accurate
					(j) Will take effort on their part
		(z) OTHER WRITE IN			
19	1 WaterVoice Views of current customers on water	(a) Nationwide, 19% of people are aware of water			
20	2 YPP - 2021: Smart metering journey		(c) Accessibility was very important for our future	(e) Future customers believe additional features	(j) Future customers highlighted the importance
21	3 YPP - 2019: Smart Homes	(a) Smart meters Taken for granted by future			
22	4 YPP - 2016: Metering uptake	(h) target landlords to encourage meter fitting in			(b) reward water saving behaviour to encourage
23	5 Wessex Image Tracker: Q1-2 2021-2 Report (incl extra	Only 37% of customers agree with the statement			(b) Interest in smart meters also looks to be



Thematic analysis

- Summary of volume and quality of evidence
- COM-B analysis of themes
- Gaps in evidence
- Implications for the next phases of research

Efficient water use – general contextual findings



Quantity of evidence

- A variety of reports ranging from broad coverage of water efficiency to feedback on specific topic and initiatives



Quality of reports

- Generally robust and good quality
- Mix of Wessex region-specific and nationwide reports

Theoretically, consumers appear willing to use less water but the drivers to do so in practice are weak

- Consumers are more receptive:
 - Once informed about water resource challenges...
 - ...and/or from the increased price sensitivity that goes with being metered*
 - Some claim they are willing to use less, but see the responsibility for using less falling on other (more wasteful) members of the household – or other households
- There is more reticence about specific behaviours e.g. willingness to have fewer showers *for the sake of climate change* is polarised: 32% claim they would not be prepared to have fewer showers for the sake of climate change, while 40% of the general public claim they are already having fewer showers

As well as a better understanding of the need to save water, many consumers need to know how:

- Around 1 in 3 are not sure **how** they can reduce household water use
- Around 1 in 5 felt there is **not enough support and advice** out there on how to reduce water wastage
- Acknowledging this knowledge gap, many **support education and awareness campaigns** to encourage reductions in water usage

Difficult to determine the effectiveness of current water company messages/initiatives

- Limited recall of specific communications regarding advice to use less water, water saving tips or behaviour change
- When they do get through, water savings tips resonate for some but not all
- Some high points: satisfaction ratings for Wessex Water Home checks is very high, with 96% rating them a 5/5

Perhaps acknowledging how hard (or undesirable) it is to use less water:

- Concern often voiced when water resource strategies involve behaviour change for sustained reduction in demand: **people can't be trusted** to change

Notes on specific audiences

- Amongst **future customers**, using less water was noticeably absent amongst a list of behaviours they've changed e.g. cutting down on eating meat, buying conscious fashion
- ***Metering**, however, is not a game-changer for better water behaviours with relatively small differences in attitude between metered and unmetered: from the 2020/2021 Wessex Water tracker, 78% of metered customers make a fair amount or great deal of effort to save water vs. 72% for those without a meter

Capability barriers

Does someone have ability to take action? Physically or mentally capable of using/purchasing/fitting

- × **Many don't know what they can do to use less water**
 - × Limited recall of being told to use less water, or behaviour change communications
 - × **Some feel unable to use less**
 - × They're **aware of how to reduce their water usage but feel unable to** e.g. reduce shower time which is already (perceived to be) as short as it can be to sufficiently wash themselves
 - × This links to **lack of interest in water audits**, perceived by some to be unnecessary because people will know how to reduce usage or are doing everything they can already
 - × In the garden, many believe they **only use what they absolutely need** to in order to keep their plants alive
- **Education and raising awareness** is often mentioned as necessary to help inform customers on how to be more water efficient

Need to address the 'I'm doing all I can' mentality

Notes on specific audiences

- **NHH customers** in particular believe they would struggle to use less water
- **Those on water meters** are generally more alert to water efficiency
- There are suggestions that some people have less capacity to reduce water use because of their **vulnerabilities**
- Those with a **smaller household** e.g. single adult in particular may feel that there is not much they can do to reduce their consumption

Opportunity barriers

Does someone have the chance to take action? e.g. practical factors, such as location, resources.

- × **While financial reasons don't appear to be a barrier to adopting water efficiency, the lack of concern about the cost of water is a barrier**
 - × One study stating: 'The majority of customers (82%) do not think about their water bill and 89% do not worry about being able to afford their water bill.'
 - × Little evidence shown that cost was a key motivation to reduce water use at the kitchen sink.
- ✓ **Behaviour change more appealing to customers than 'concrete' investment**
 - ✓ Findings indicate some customers and staff are broadly supportive of Wessex Water helping customers to **save water rather than focus on intensive building projects** (is the driver for this about managing demand before spending on new sources, or an environmentally driven preference, or keeping bills down?)
- ✓ **Appetite for practical help**
 - ✓ There is strong appetite for water companies to give **free or discounted water saving devices** to help them use less water, and people feel it is important that these devices are readily available
 - ✓ Around 2/3rds of Wessex customers would be interested in receiving 'practical advice like water saving, cold weather advice and preventing sewer blockages'
- Operational data from Northumbrian water suggests 2/3rds of water saving is a result of water saving device installation (and the other 1/3 is due to behaviour change)
 - NB: what type of interventions were most effective?

Few 'opportunity' barriers emerge but practical help is of limited use unless people are engaged in the underlying purpose...

Notes on specific audiences

- **Lower income households** not obviously cost conscious with water as the bill is relatively inexpensive in comparison with other household bills.
- There is evidence that **low-income households** do not prioritise spending any of their budget on fixing dripping taps or leaky loos.
- **Future customers** raised practical barriers to having fewer or shorter showers for teenagers/young people:
 - Sporty, active and sweaty
 - Social, going out
 - Types of hair: long, curly or afro-textured that takes longer to wash

Motivation barriers (1/2)

Does someone want to [behaviour]? e.g. think it is worthwhile (financially, environmentally) to do so

- × Customers in potentially water stressed areas are **unaware of the water resource challenges** faced and think resources are plentiful
 - × There is a major disconnect between climate change, rainfall and the water cycle
 - × Once informed of the need to save water and the scale of the future challenge facing the UK, there is work to be done to help customers understand HOW they can save water
- ✓ **Cost is a motivator to be more water efficient:** A large majority find **it important to save money** on their water and energy bills
 - ✓ Research suggests that **financial incentives are a popular motivator** for people to use less water
 - ✓ **Seasonal tariff trials** that allowed customers to use water when it was cheaper showed that this was a bigger motivator than a meter

“I had the water butts specifically so that I wouldn't water the garden from the taps as I knew I'd be paying it at a much higher rate”

“It makes you think twice about things; a bath is a luxury it's no different from going to the cinema now”

- × However, in the same tariff trial, there was disappointment by how little they could affect the bill by reducing water use (and consequently reverted back to previous habits)

Financial motivators work in theory...but in practice hard to maintain engagement when savings are perceived to be small

Notes on specific audiences

- **Those on water meters** are generally more alert to water efficiency
 - The majority of **those who are metered claim to manage their water use to keep bills down** and are motivated to use less water to reduce their bills. Those who are less worried are often those who are overall less worried about their finances/paying water bill
 - Metered customers are much more likely to claim that they'd fit **water saving devices** than unmetered customers
 - **Incentive scheme** rewarding those with smart water meters for reducing their water use has reduced consumers' water use by 5%
- There is a suggestion that **lower social grade, unemployed** and **minority groups** less likely to think water resources are limited.
- **Older age groups** are more likely than younger to be willing to help conserve water (if they live in a limited resource area).

Motivation barriers (2/2)

Does someone want to change [behaviour]? e.g. think it is worthwhile (financially, environmentally) to do so

Hypothetical motivators:

- ✓ **Community-level incentives could motivate some**
 - ✓ Some customers are **willing to accept a community challenge** in exchange for a community reward
- ✓ **Environmental factors can motivate**
 - ✓ 75% of future customers **worried about climate change**...but also very low awareness of water supply and risk of drought a very low concern (once informed, future customers back the idea that we need to be more water conscious and promote the idea of linking climate change to water shortages (and flooding).
 - ✓ **Protecting the environment** was observed to be a driving factor with water recognised as a precious resource for people, wildlife and habitats
 - ✓ Over 80% said that benefitting both the local and global environment is important
- ✓ **Reducing leaks**
 - ✓ There is **some appetite for water companies to offer a free visit to check for leaks** to help customers use less water. There is evidence to show that water efficiency visits are effective for households using over 500 litres/day

✓ **Miscellaneous: potential motivators**

- ✓ Behaviours that more or less reflect **what people are already doing** are the most motivating
- ✓ When confronted with **how much water is used** to carry out various activities, people are often shocked. This information could be used as a tool to motivate more conscious water usage
- ✓ For many there is a **moral obligation** to use less water - when it comes to those who are making a conscious effort to use less water, many agree that they do so as it's 'the right thing to do'

Gaps in evidence

CAPABILITY

- No evidence re specific behaviours that could be too difficult for some to do e.g. fitting a water butt; fitting water limiting devices
- No evidence about mental or psychological barriers: the challenge of persuading others to change; or the desire to use lots of water for mental wellbeing

OPPORTUNITY

- No evidence on practical barriers to installing water saving devices e.g. space for water butts or their cost; disruption or the thought of lower pressure or less attractive fittings
- What devices and tips are most helpful/effective

MOTIVATION

- Data fairly inconclusive about the role of non cost drivers e.g. environmental beliefs or the principle of not wasting resources
- Limited reporting on whether people understand why it is important to save water
- Understanding of how financial impact becomes motivation e.g. how much needs to be saved or ways in which financial impact should be reported
- Would the hypothetical motivations identified actually change behaviour in reality?

Emerging questions / tensions?

- People do not see themselves as water wasters – so messaging falls on deaf ears. But they may see others as wasteful?
- Do the generations value/use water differently?
- Contradictory data: not aware how to save water + audits unnecessary as people know what to do?
- Where do people draw the line on having to sacrifice 'too much' by reducing their water usage?

Implications

For topic coverage in next research phases

- Understanding what would help customers overcome capability barriers?
- What water saving devices do people value and why – and which are they aware of?
- What are the opportunities for water saving devices that don't require behaviour change vs. those that do e.g. one-off installation products vs. habitual use products
 - And which have the most impact on behaviour?
- Are there behavioural differences between households that affect water usage, from a cultural perspective e.g. family-taught habits, attitude to waste etc.

Smart meters – General contextual findings



Quantity of evidence

- A variety of reports with 'top level' coverage of smart metering
- Relatively few focused on smart metering in detail
 - Key sources: Waterwise Nov 2021 report on smart metering



Quality of reports

- Generally robust and good quality
- A mix of nationwide and Wessex Water region

Overall interest in smart meters depends on how informed people are

- The **uninformed** desire for smart meters is **moderate** (c. 40% of Wessex customers are interested)
- When **informed** of benefits, interest is **higher**
 - ...yet **14%** of people nationwide still **actively reject** smart meters when more informed

A consensus that engagement and communications are key

- Several reports advocate engagement & comms need to be integral to smart meter rollout
- This may be beyond the water company's own communications, some suggestions include:
 - Working with environmental groups
 - Sponsorship
 - Trusted plumbers etc
 - Social media and digital channels – for more engaged audiences

Smart meters have significant potential as a cost effective solution

- Cost benefit analysis shows smart meters should be cost effective in helping reduce water use and identifying & reducing leaks; they will provide an overall social benefit.

Notes on specific audiences

- **Younger customers, those who already have a meter, and those who are more concerned about the environment** are more likely to be interested in having a smart meter
- Those in **large households (6+)** are much more likely to actively reject a smart meter, even if it was free
- **Future customers** take smart meters as a given and expect to interact with data in real time. They prefer apps for alerts and to help manage their water use



Capability barriers

Does someone have ability to take action? Physically or mentally capable of using/purchasing/fitting

- × **Ability to read / use data**
 - × Cognitive or physical disabilities could inhibit access to smart meter data
- × **Ability to use the tech**
 - × Technological capabilities vary.

The devices and interfaces must be easy to use and backed up by clear onboarding and support

Capabilities relate to the consumer interface with the smart technology

Notes on specific audiences

- **Customers with cognitive, sensory or physical conditions:** More likely to have difficulty reading and / or understanding smart meter data



Opportunity barriers

Does someone have the chance to take action? e.g. practical factors, such as location, resources.

- × **Concern about higher cost / unaffordable water bill with a (smart) meter**
 - × The most common barrier to wanting to have a smart meter
- × **Concern about installation cost**
- × **Potential disruption during installation**
- × **Type of accommodation**
 - × Cannot have a meter fitted if live in a flat / unsuitable property
- × **Renters are not empowered to fit meters**
 - × Landlords' responsibility
- × **Impact on affordability**
 - × Behaviour change likely to fade over time if consumers see that it has no real impact on affordability (based on response in meter trial 2011)
- × **Effort (and time) required**
 - × To monitor water use and take action in reducing

Lots of practical barriers – some of which are assumed pending roll out (e.g. installation costs)

Notes on specific audiences

- **Younger customers, future customers:** Often (will) live in rented accommodation and need their landlords to fit meters
- **Larger households (6+):** Much higher rejection of (smart) meters due to cost / affordability fears



Motivation barriers

Does someone want to [behaviour]? e.g. think it is worthwhile (financially, environmentally) to do so

- ✓ **Saving money**
 - ✓ The biggest motivator in principle (saving on bill; money back schemes; financial incentives)
- ✓ **Environmental benefits**
 - ✓ Less prominent motivation; may need to be made clearer
- ✓ **Able to track and control water use**
 - ✓ ...and therefore the bill
- ✓ **Fairness** – everyone pays for actual usage: can be seen as a benefit
- ✓ **Help detect household leaks**
 - ✓ Can be an important benefit – once people are made aware!
- × **General lack of awareness / knowledge** of smart water meters & benefits
- × **High perceived energy use of smart meters** – a concern for a minority
- × **Data protection breaches** are also a less common concern
- × Some people can question **accuracy** of smart meters

Many potential motivators that should underpin roll out communications

Notes on specific audiences

- **Future customers:** Enthusiastic about apps linked to smart meter that can nudge and help them manage water use



Gaps in evidence

CAPABILITY

- Little evidence **quantifying** scale / extent of capability barriers.

OPPORTUNITY

- Only light evidence on how much **effort and time needed** to read and use smart meters is a barrier

MOTIVATION

- Relative importance (and potential motivating force) of financial benefits vs. environmental benefits vs. innate desire / habit to conserve not clear

Emerging questions / tensions?

- What are the most compelling messages / information to drive interest in installing and using smart meters?
- Saving money is the biggest motivator in principle, BUT is the amount they can save motivating enough?
 - What is the underlying reason for wanting to save money (wanting to be cost efficient vs. needing to be frugal)
- How to ensure **ongoing** engagement with Smart meters and sustained behaviour change?
- What are the best communications channels – particularly for those who are uninvolved / rejectors
- What is the scope for linking water metering with energy metering? (e.g. all in one platform)
- Younger customers are more likely to be enthused by water meters BUT less opportunity to choose them (i.e. tenants)

Implications

For topic coverage in next research phases

- Check initial uninformed interest in smart meters and more informed interest at later point in the longitudinal project
- What specific information via smart meters would be useful / motivating
- Focus on, and profile groups who are enthusiasts, neutral and anti-smart meter; understand how best to engage each segment (not just the enthusiasts) in terms of channels, source, and messages
- Develop understanding of whether the actual savings involved can be motivating, and for whom?
- Develop understanding of which specific environmental messages can motivate (and whom?)
- Ascertain how best to sustain / minimise 'effort' over the longer run



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