Appendix 1.1.AC - Metering tariff trial

Wessex Water

September 2018

Wessex Water
YTL GROUP

Business plan section		Supporting document	
	Board vision and executive summary		
1	Engaging customers	**1.1**	**Summary of research findings**
		1.2	Communications strategy
		1.3	Customer participation and behavioural engagement strategy
2	Addressing affordability and vulnerability		
3	Delivering outcomes for customers		
4	Securing long term resilience		
5	Markets & innovation: wholesale		
6	Markets & innovation: open systems & DPC		
7	Markets & innovation: retail		
8	Securing cost efficiency		
9	Aligning risk and return		
10	Financeability		
11	Accounting for past delivery		
12	Securing trust, confidence and assurance		
13	Data tables and supporting commentaries		

Contents

Management Summary
Tariff Trial: The Customer Perspective
18th November 2010

1. Research background

Wessex Water has been trialling three tariffs since 2008. Customer selection was based on properties changing occupancy during the period; every household received a letter informing them that a meter would be fitted, or if the property was already metered, that a logger would be attached to the meter. Customers also received a booklet which included an explanation of how the bill would be calculated. Without describing the tariff in question by name, this explanation differed to reflect each of the trialled tariffs; Peak Seasonal, Standard Seasonal and Rising Block. Customers were also offered (again via leaflets) a water audit and a free SmartView in-home monitor.

Research respondents were recruited via telephone from the customer database of the householders on the tariff trial. In total, 6 group discussions and 25 in-home depth interviews were conducted with equal numbers within each of the three tariffs.

The objective of the research is to explore customers' understanding of the tariffs and whether by being on a tariff is affecting the way people use water. This summary should be read in conjunction with the Debrief Presentation dated 18th November 2010.

2. The starting point: customer attitudes to water usage

To understand the impact of the tariffs we first had to understand the range of attitudes about water usage (specifically before their house move) and whether these attitudes had shifted since in light of the trial. Four distinct attitudinal groups emerged from the sample:

- The 'Principled' for whom conserving and avoiding any waste – and this includes water - is a deeply ingrained instinct, driven usually by strong 'green' beliefs but also apparent in those who had lived in hot countries where water is rationed
- The 'Practical' who also display many water saving behaviours but these are motivated more by financial efficiency than ecological ideals, as well as the close management of household expenditure
- The 'Theory not Practice' attitudinal group are aware of general 'green' attitudes and adopt those behaviours that are easy to do, requiring no real sacrifice in terms of time, effort or money. In a research context these customers will convey what they perceive to be socially acceptable attitudes but this is rarely backed by actual behaviour
- The 'Unengaged' are not thinking about how they use water at all. Notably in this sample, those who were unengaged before they moved in to their new home (the trigger for their selection to the trial) were in most cases unmetered

Although qualitative research can identify these groups, it is not possible to predict the prevalence of these groups across the customer base, or profile the groups accurately. In terms of water

conscious behaviours, however, we can see that the Principled group are doing far more to save water and frequently in a way that requires sacrificial behaviour e.g. rationing the number of baths taken, saving bath water for flushing the toilet or putting on the garden, and flushing the toilet sparingly. The remaining typologies, the Practical, the Theory not Practice and the Unengaged tend to save water in ways that are becoming part of the social norm: turning the tap off when cleaning teeth, not filling the kettle and so on. A significant point to note is that amongst these groups, no one believes that they are wasteful with water – this is important context in which to evaluate the tariff options.

3. The move and the meter installation

The communications surrounding the tariff occurred as customers were going through the upheaval of a move and many in this sample were facing significant changes such as divorce, separation and families combining. The other common reason for moving was to downsize or move to the coast at retirement: this latter group tended to be much more alert to communications generally, not least because they had more time to manage their lives.

On the whole customers recalled the new meter and understood that this was a compulsory requirement for properties changing hands. Those who had previously had a meter were happy that their new home was to be metered whereas those new to metered water had real concerns about how this would affect their bills.

The new to metered customers help us to see how meters are affecting water behaviour. Across the sample approximately half were new to metered water and all of these customers said they had become more conscious of their usage on account of the fact that they were now paying for what they use. Many, though not all, are now using water saving devices and/or have changed certain behaviours in order to save water – such as using a watering can instead of a hose. There are other examples of water consciousness changing behaviour but not in such a way as to save water: we heard a number of incidences where neighbours were happy to share their unmetered water for metered neighbours to water the garden, wash cars etc.

Not all behaviour change has been maintained; some customers who were very nervous about how their bills would be affected by the meter were in the event of the first bill pleasantly surprised – and reverted to their previous water usage patterns. Similarly, several in the sample were paying significantly less for their water in their new house and therefore having made an overarching saving on their water costs were not motivated take further action to conserve water.

4. Response to the tariffs

Approximately half of this sample were aware of the tariff they were on, however this is unlikely to reflect the wider population as the research process had heightened sensitivity to the issue, and many had looked back at their bills and other Wessex Water related papers in preparation for the interview. However, there is a clear pattern emerging of the type of people who do absorb this level of detail about how they are charged for water; those who are in the habit of reading their bills and other communications from Wessex Water (often highly organised individuals); those with more

time on their hands – the retired especially; people who are watching every penny and scrutinising bills and statements as a consequence; and in a handful of cases, those who had been told about the tariff during the course of a conversation with contact centre staff.

In terms of the attitudinal typologies, awareness of the tariff occurred in three out of the four groups: notably none of the Theory not Practice customers were aware of their tariff which tallies with other aspects of this group: their very generalised appreciation of green issues which means they are not considering their consumption and waste of e.g. water, and their relative financial stability. In contrast, the Principled, when aware of the tariff, engaged with it as a means to encourage water conservation. The Practical who were aware engaged with the tariff as a means to ensure they were being as financially astute about water usage as possible. There are examples in both groups of customers changing their behaviour specifically in response to the tariff, for instance buying water butts for watering the garden in the summer and deciding not to fill the family pool.

The Unengaged group included people who were aware of the tariff; however in terms of their behavioural response, it is clear that in this group where almost all were new to meters were responding to the meter rather than specifically the tariff. However there are a small number of examples of purchasing water butts, washing the car less often etc. that are directly linked to the tariff; in all cases the need to be extremely frugal financially was driving these actions.

In summary, those that are most likely to change their behaviour in response to the tariff tend to be people who are already more water conscious, termed here as the Principled and the Practical. We also observe that those responding to the tariffs tended to be both extremely well-informed and organised in relation to managing their domestic bills (usually with skills transferred from their work life), or so financially stretched that this level of attention was a necessary means to save wherever possible. Within the research we encountered many people in the Unengaged group who had changed their behaviour since the trial but in response to the new experience of metered water (rather than the tariff).

Customers can not change their behaviour in response to their payment tariff unless they are aware and understand how it works. It is a significant point therefore that of all the customers in the sample on the Rising Block tariff (some 19 respondents in total), none had become aware of it therefore this tariff appears to have had no conscious impact on water usage (although of course several within this group had changed their water consumption patterns for other reasons e.g. metering). Both the descriptor that appears on the bill ('Rising Block Water') and the fact that none had seen bill fluctuations or in the case of low users, any indication of differential rates, means that unless the original communications had been fully absorbed, the Rising Block tariff is all but invisible to customers. Around half of the respondents had understood either the Standard Seasonal or Peak Seasonal tariff; as well as the seasonal aspect of charging being an easier idea to grasp, notably the bill gives more information related to the tariff in both cases, and some had also noticed fluctuations in their bills.

Rising Block tariff: in the research it appeared that the less you understood this tariff, the more it appealed. At first glance customers see a familiar idea: they are used to energy bills having staged

rates and without knowing precisely what 60m³ means, the assumption is that this tariff will only penalise the more profligate users. When considered in detail therefore, and specifically when customers relate the 60m³ to their own usage, they perceive that this rate will result in higher water bills. More significantly, this tariff does not take into account the size of the household and so they perceive families will be particularly badly hit.

Standard Seasonal: customers find this summer/winter rate tariff the easiest to understand and on this basis it could have the most potential to affect behaviour. However, there are very strong reservations about all customers being charged a higher rate in the summer. The issue here is that cost conscious customers want to be able to avoid higher rates and water conscious customers want to feel their efforts are recognised, not penalised. A blanket summer premium means that all water usage is affected and customers are left feeling they have no means to avoid a premium rate. As a consequence, this tariff elicits far more cynicism about Wessex Water's motive in introducing payment tariffs.

Peak Seasonal: this tariff is considered to be the fairest of the three. Unlike either of the other options, this tariff takes account of the size of household. It also accommodates the water conscious who can see ways in which they can minimise or avoid entering the peak rate in the summer. The Peak Seasonal rate affords control – both to the water conscious and the financially motivated customers – as it recognises that by minimising discretionary water usage, or using water saving devices, customers can reduce their bills.

5. Other strategies to drive water consciousness

Customers on the tariff trial were also offered an In-home monitor ('SmartView') and a Water Audit. In both cases the research has shown that while there is fairly widespread appeal for the underlying ideas (i.e. in the case of the Water Audit, information on saving water; and for SmartView, a way to monitor the household usage) however in their current form neither strategy is meeting customer needs and/or expectations.

Customers who had taken up the SmartView monitors were purposely sampled (around a third). They were usually motivated to take up the offer out of curiosity, its leak detecting functionality or simply as it was a free gadget. The experiences have been very mixed, with a good proportion of these monitors ceasing to work. Those that chose not take up the offer were either unengaged with the idea of monitoring and saving water, thought they were doing enough to save water already, or just did not want a gadget. In some cases it was not clear from the leaflet that the device is solar powered and therefore the complication of fitting/installing the meter was another barrier. We demonstrated the SmartView monitors in the groups and depths and whilst many are attracted by the idea of being able to monitor usage, the current device lacks the functionality that would really engage users, namely linking usage to the cost of water, and to the bills. Some would also like to see usage in real time (to see spikes in usage), and have alerts programmed specifically when approaching the edge of tariff allowances.

Interestingly, significant numbers now receive their energy bills online and would be happy to move to paperless billing for water, anticipating that monitoring usage could then be done via their PC.

Very few have taken up a Water Audit, the main barriers for customers being their belief that there's little they can learn – saving water is largely common sense in their view – and that home visits are too intrusive. Nevertheless many in the sample say they are interested in knowing more about water efficiency and we conclude that this service, if framed in a more consumer-centric way would attract more users. Critically, a clearer articulation of the benefits of this service is needed.

6. Consumer understanding of the cost of water

One further line of exploration related to customers perceptions of the cost of water. Given a number of examples, e.g. the cost of a bath, respondents were asked to estimate the actual cost. On the whole, people found this very difficult and resorted to guesswork. Overall, customers over-estimate the cost of water; for example the average estimated cost of a bath is 76p - three times the actual cost of 26p. People are also very surprised to see that a power shower costs the same as a bath, and that a dishwasher costs just 5p in water – the average estimate here was 84p. Those who make great efforts to save water were disappointed and felt their efforts were undermined by seemingly low figures. The less engaged are unlikely to be motivated by these small unit costs and it could lead to people taking a more relaxed approach to, for instance, running their dishwashers half empty or taking showers instead of baths.

Perhaps this low awareness of the cost of water is unsurprising when many customers admit that they struggle to understand the bills, and the vast majority only ever check the final figure owing, not attempting to understand the underlying calculation. Just a handful could be termed 'clued up' about water billing.

7. Conclusions and implications

Strategies to motivate customers to conserve water need to take into account very different starting points. Many respondents in this sample already have it in mind to save water either for environmental and/or financial reasons. The idea of a tariff to encourage water saving is accepted, even welcomed by those who can see the tariff reinforcing their beliefs and water conserving actions, and importantly gives them a financial incentive of either saving money or not wasting money.

The least engaged customers, arguably those whose water usage habits are likely to show more scope for reducing consumption or avoiding waste, are less likely to be motivated by a tariff, at least in the first instance. In this sample, the least engaged were also those who had been previously unmetered; the critical factor that had shaped behaviour was the concept of paying for what they used.

Management Summary
Tariff Trial: The Customer Perspective
18th November 2010

In terms of the most effective tariffs for encouraging behaviour change, the Peak Seasonal and Standard Seasonal perform similarly with comparable levels of awareness and resulting behaviours. However, the way customers respond at an emotional level to the various tariffs is very different and this provides a clear analysis of the issues that will need to be considered when launching a new payment tariff.

The research highlights the need for a tariff to convey its fairness in order to avoid negative repercussions about Wessex Water's motives; a fair tariff does the following:

- ✓ Takes account of the size of the household and doesn't therefore penalise certain groups e.g. families
- ✓ Accommodates those who are already water conscious, enabling them to benefit from incentives to save water
- ✓ Gives a sense of control so that customers can see that their actions will affect the size of their bill
- ✓ Rewards rather than punishes: which can include intangible rewards such as information that reinforces beliefs (the satisfaction of using less), or more tangible rewards based on meeting targets (tariff thresholds, previous household average etc)

Currently the Peak Seasonal tariff comes closest to meeting these ideals, and achieved widespread appeal across all types in the sample – in terms of attitude to saving water, life stage, financial status etc. However, to optimise its ability to change behaviour, the communication framing this, or any tariff, will need to be much more overt than has been possible within the trial.

We recommend the following;

- Any tariff related communication needs to be framed in terms of the wider environmental context. There is confusion about why customers in an area with such high rainfall should be encouraged to save water. The integrity of Wessex Water is in question; if there are supply issues e.g. in the summer, what other strategies are in place to counter these?
- The assumption is that Wessex Water will receive extra revenue as a result of these tariffs; if this is not the case it will need careful communications and if it is, customers want to see that the extra is spent on measures to protect water sources
- The tariff is clearly couched as one of many strategies to motivate customers to be more water conscious. Moderation and self-control are unappealing messages for many consumers who are more motivated by water efficiency innovations that they can begin to adopt.
- The bills are the primary communication tool for Wessex Water to introduce the tariffs, show how they relate to individual households, and illustrate the relationship between

usage and cost. Currently bills are not being used to their full potential and a new tariff should provide the opportunity to consider their role

Tariffs Trial: the customer perspective

18th November 2010

Research objectives

Overall Objective: How do customers on the tariff trial perceive the way they are charged for water; and how does this impact on water usage behaviour?

Knowledge & Understanding

- Explore how and whether customers understand their water tariff
- Understand perceptions of the tariff (including fairness)
- Explore recall of water audits

Behaviour Change

- How water usage behaviour has changed (over and above metering)
- Understand impact of SmartView monitor

Communication

- Explore recall and usage of communications
- Understand how/whether bill information is supporting customer understanding

A mixture of in-home depth interviews and mini-group discussions were conducted across the Wessex Water region between 26th October and 8th November 2010.

Rising Block	Standard Seasonal	Peak Seasonal	
2 mini-groups 10 customers (Dorchester & Poole)	2 mini-groups 8 customers (Chippenham & Bath)	2 mini-groups 8 customers (Salisbury & Chippenham)	6 groups
9 depth interviews	8 depth interviews	8 depth interviews	25 depths
Taunton, Yeovil, Bath, Poole, Dorchester, Salisbury			

Quotas were set to ensure a good spread of life-stage, socio-economic group, and level of water usage across each tariff type.

Context: sample profiling and the move

Attitudes to water BEFORE TRIAL

Most water conscious ← → **Least water conscious**

Social moral issue
- to conserve
- to not waste

Drivers

- living in hot countries
- environmental: dark green attitudes
- deep instinct to conserve

"Principled"

Reflects 6 depths
- female
- mostly retired
- 4 lived abroad/on boat
- 3 metered previously

Small minority in groups

"I'd rather let my plants die than water them out of the tap"
Bath, Rising Block

"I restrict the children – we really are conscious of our usage – we can have showers but only one bath a week"
Bath, Rising Block

blue marble

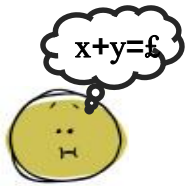
Attitudes to water BEFORE TRIAL

Most water conscious — **Least water conscious**

Rational attitude
• efficiency: using money & resources wisely

Drivers

• previously metered
• close management of household expenditure
• gadgets/devices to increase efficiency



"Practical"

Reflects 5 depths
- males
- in control, in the know
- none with 'green' attitudes

Significant minority in groups

"It's quite an art isn't it, saving water"
Dorchester, Rising Block

"You make a decision; weigh up how much it costs to fill up the pool compared to going to the swimming pool"
Yeovil, Peak Seasonal

blue marble

Attitudes to water BEFORE TRIAL

Most water conscious

Least water conscious

Accepting of broad 'green' ideals

Drivers

• adopting easy 'green' behaviours that have become the social norm (including some water behaviours)

"Theory not Practice"

"We want to be green"
Bath, Rising Block

"I turn the tap off when brushing my teeth; everyone now does it"
Yeovil, Rising Block

Reflects 3 depths
- females
- research context: conveying socially acceptable attitudes
- Groups: more common, but less vocal

blue marble

Attitudes to water BEFORE TRIAL

Most water conscious — **Least water conscious**

Unthinking: water usage not considered

Drivers

- not a bill payer (still at home, flat share, renting, spouse pays bills)
- not previously metered (bar 1)

"We didn't think about it (water) but we weren't on a meter"
Yeovil, Peak Seasonal

"Unengaged"

"I don't give too much thought to it (water)*, but we don't want to waste"*
Poole, Peak Seasonal

Reflects 11 depths
- mix of gender, SEG, life stage
- only 2 of 11 have green or waste-averse attitudes
Represented in each group

Attitudes to water BEFORE TRIAL

Most water conscious

Least water conscious

Principled	Practical	Theory not Practice	Unengaged

What are the water conscious behaviours

Most water conscious ← → **Least water conscious**

Principled & Practical

- ✓ putting washing up water on garden
- ✓ *when it's yellow let it mellow …*
- ✓ use tap-running water on plants
- ✓ clean teeth in mug of water
- ✓ shower in bucket to reuse water
- ✓ save bath water for toilet flushing
- ✓ water efficient appliances
- ✓ water butts

Sacrificial behaviours: require effort, time, money etc

Behaviours becoming social norms

- ✓ Turn tap off when brushing teeth
- ✓ Wait until washing machine/ dishwasher full
- ✓ Don't fill kettle full
- ✓ Showers not baths

CONTEXT NOTE: no-one thinks they waste water
"I use what I need …"

blue marble

The move & meter installation

Context: for most, period of moving home very busy with lots of communications to absorb (or not)

- significant proportion in process of dramatic change of circumstances (e.g. divorce, separation, 2 families combining)
- other changes include: retirement, downsizing, moving to countryside

Most recall a letter informing about meter

- majority accept reason for meter: compulsory at change of occupancy
- some differing accounts of rationale (e.g. seeing if eligible for meter; a new 'green' tariff; a trial)
- minority unaware: even at time of research 2-3 not aware they are metered

New to Meter

Initial concern, anxiety (& fear) as expect bills to rise:

- majority are pleasantly surprised (bills come down)
- minority feel financial increase (families)

Moving from metered property

No concerns; many in the sample had requested a meter in former home

blue marble

Behavioural responses to metering from those new to meter

Depths: 14 out of 25 new to metering; a total of 8 changed their behaviour as result
Groups: similar pattern in group sample

ALL ARE MORE WATER CONSCIOUS

Examples of water saving / rationing

- new family rule: 1 x bath per week
- turn off shower mid-way to lather
- showers not baths
- water butts
- kids wash hair & shower at pool
- don't flush every time
- no longer fill swimming/paddling pool
- watering can, not hose
- empty bath to flush water
- rig hose up to bath to water garden
- purchasing new water efficient white goods

N.B. some began to change habits until 1st bill arrived then reassured and behaviour reverts

Plus examples of 'neighbourliness' including sharing unmetered water e.g. for hosing gardens, washing cars, filling paddling pools.

Cautionary tale:
One example very resistant to new meter (2 families combining - financially stretched). In conversations with Wessex Water told to expect bill to double. Resulted in major changes in water use; but also water became a significant stress and battle ground within family.

Behavioural responses to metering from those new to meter

"We've got a neighbour who hasn't got a meter so the other 3 families in the road who have got a meter use their hose pipe to do all their watering"
Dorchester, Rising Block

"It's the meter that does it, it's the meter that means I didn't put up the pool ....I wouldn't look at this & think how can I reduce the peak "
Yeovil, Peak Seasonal

"If I was in an unmetered property my children would still be enjoying their paddling pool!"
Chippenham, Peak Seasonal

"I wouldn't have one (meter) *by choice ... It makes you more aware, makes you think about not wasting"*
Yeovil, Rising Block

"Unfortunately, when you don't have a meter you tend to just use the water - regardless"
Poole, Rising Block

"It makes you less likely to abuse water ...as you're paying you're more conscious of everything like you are with switching the lights and TV off "
Poole, Standard Seasonal

"The garden didn't get watered this year – yes the plants and the grass died"
Poole, Rising Block

blue marble

Meter installation & customer service

No contact with Wessex Water	✓	Contact with Wessex Water
• not required to be at home • for most appears slick & efficient *"It just happened"* • a few unnerved by speed – especially when worried about having a meter		• some installations result in other problems (e.g. leak requiring householder to fund repairs) • service consistently very good (even in more stressful situations)

Customer service at all touch-points is positively reported: meter installation, Audit, SmartView, billing enquiries etc.

"It's all very straightforward with them (Wessex Water)*"*
Salisbury, Rising Block

"I thought they'd let me know... it was a bit of a surprise"
Taunton, Rising Block

"It was great (water audit*) the man was brilliant"*
Bath, Peak Seasonal

"They send someone out quickly, within 2 days"
Poole, Standard Seasonal

blue marble

Awareness of & response to the tariffs

Levels of awareness of tariff

Approximately half of sample aware of their tariff and had reasonably good understanding of how it worked

N.B. Research will have heightened sensitivity

Awareness relates to:

- close attention to bills (& other communications)
- significance of water bill to household finances
- contact with call centre (e.g. alerted when discussing direct debit levels
- time (retired)

"I get a basic rate in the winter and if I go over that I pay a higher tariff in the summer"
Salisbury, Peak Seasonal

"We pay by direct debit linked to actual usage ....I just trust that it's right"
Bath, Rising Block

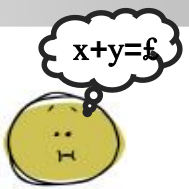
"I get charged more in the summer than winter, but ..."
Poole, Peak Seasonal

"I think there's a standing fee as well (as usage charge) *and our bills go up in the summer"*
Poole, Standard Seasonal

"There's water and sewage charge, but all I'm interested in is the total"
Yeovil, Rising Block

Has tariff altered water consciousness & behaviours? (depth sample)

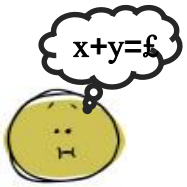
Most water conscious → **Least water conscious**



3 out of 6 aware	3 out of 5 aware	None aware	5 out of 11 aware
Awareness has reinforced their predisposition to conserve water	All were metered previously; tariff provides new ways to ensure financial efficiency		Majority new to metering. New behaviours mainly driven by: - dramatic change in circumstances (financial) - Meter alone
2 changed behaviour ✓ water butts	**2 changed behaviour** ✓ jet hose before summer rate ✓ not using pool ✓ not watering garden ✓washing wet suits in bucket		**2 changed behaviour** ✓ water butts ✓ wash car less often ✓ water garden less often ✓ watering can (not hose)
Water conservation (and cost)	**Cost efficiency**		**Financially frugal**

Has trial altered water consciousness & behaviours?

- For the most water conscious, 'Principled' and 'Practical' customers, if aware of new tariff likely to respond by changing behaviour
- For least conscious, meter is driving behaviour change



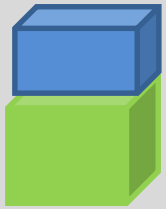
Principled	Practical	Theory not Practice	Unengaged
Resulted in some new water-saving actions	Group for whom tariff is having greatest behaviour-changing effect	No evidence tariffs affecting behaviour	Meter, not tariff, responsible for major shift

Common Thread: all those changing behaviour as result of tariff also very well informed and organised re domestic bills - either owing to nature of occupation (e.g. accounts) or out of necessity (need to control outgoings)

blue marble

Awareness and response to different tariffs

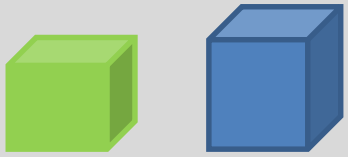
Rising Block



No awareness
- descriptor 'Rising Block Water' ???
- low users: won't see high rate
- 'high', 'low rate': bill convention
- no fluctuations in bill to alert to tariff

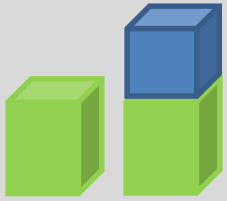
Change in behaviours due to meters or life changes
- Once aware of tariff anticipate only limited changes to behaviours (because already low user / wouldn't know when on higher tariff / price differential not sufficiently motivating)

Standard Seasonal



Approximately half aware:
- seasonal aspect easy to grasp
- bill specifies "summer" or "winter" rate

Peak Seasonal



Approximately half aware:
- again, seasonal aspect clearer
- higher bill in summer has alerted some

Similar in terms of behavioural response
- Among those aware prompts significant behaviour changes: water butts, watering can not hose-pipe; no paddling pool
- For others, price differential not sufficiently motivating or already low users

Strong indication that the bills rather than the initial communications are conveying the tariffs

Behavioural response to the tariffs

Examples of behaviour change only from Peak and Standard Seasonal tariffs

"This winter summer tariff did make me think about it – I've thrown away my extra large paddling pool... I calculated it cost about £25 to fill up"
Chippenham, Peak Seasonal

"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"
Standard Seasonal

"It encouraged me to get water butts – the tariff reminded me"
Taunton, Peak Seasonal

"I check that taps are not dripping – make sure they are off properly. That didn't bother me before"
Dorchester, Peak Seasonal

"It makes you think twice about things; a bath is a luxury it's no different from going to the cinema now"
Bridgewater, Peak Seasonal

blue marble

Detailed response to tariffs

Rising Block

Immediate Response:
- Familiarity: energy bills work on staged rates
- Appears logical, easy to grasp (although none on trial had actually done so)

Considered Response:
- Illogical: instead of rewarded with lower rate for high usage, penalised with higher rate (unlike electricity)
- Difficult to evaluate:
  - How much is 60m³
  - How much do I consume?

Approval if: assume only profligate users will be hit ✓

Disapproval if: perceive most people penalised ✗

"How much is 60m³ - is that a lot?"
Chippenham, Peak Seasonal

"As a high user, this would penalise me – and that's not about lifestyle but about living with others in the household"
Chippenham, Peak Seasonal

"You'll not know whether you are close to it or not"
Chippenham, Peak Seasonal

"Is this to subsidise the poor? People couldn't use that small an amount of water"
Poole, Rising Block

blue marble

Rising Block

Critical Flaw (from customers perspective)

- Rising block does not take account of size of household
- Penalises families

Questions:

-Why not base higher rate on average equivalent household
- or allocate Xm³ per adult/child

Who votes for this tariff?

- very lowest users
- the 'dark greens'

(ie not groups who need encouragement to save water)

Enhancements:

- alerts (text, e-mail, SmartView) when nearing threshold

Communication Issues

- Environmental rationale not communicated
- Customers happy to see heavy (discretionary) use penalised with higher pricing – but see this affecting all but smallest/frugal households hence unfair
- Low rate not understood to be lower than current pricing

Leads to questions about Wessex Water's motive: profit & shareholder value?

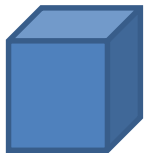
"To make money – they are a company out to make as much as possible"

Dorchester, Rising Block

blue marble

Standard Seasonal


Winter

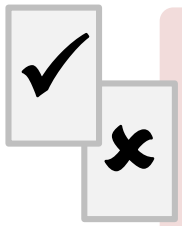

Summer

Immediate Response:

- Easiest tariff to grasp: simple summer vs winter rate
- Immediate concerns & questions - why charge more in summer?

Considered Response:

- Everyone is penalised in the summer
- Yet gives no way of controlling usage: both discretionary and necessary consumption costs more in summer



Issue: appears to have potential to change behaviours, however this tariff does not inspire positive engagement

- resent higher charge in summer
- most cynicism about Wessex Water motive

So washing the kids is more expensive in the summer?
Chippenham, Standard Seasonal

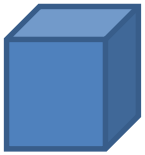
It's a rip off: water is water winter or summer

It seems arbitrary

"It feels unfair to be charged more just because it's summer"
Bath, Standard Seasonal

blue marble


Winter


Summer

Standard Seasonal

Critical Flaw (from customers perspective)

- Seasonal tariff makes the water conscious feel penalised
- Looks like same commercial opportunism as hiking holiday prices in school holidays

Questions:

- Water shortage situation in UK?
- Does it cost more to supply?
- Will they be spending the extra revenue on better infrastructure?

Who votes for this tariff:

- minority; other tariffs preferred

Enhancements:

Reflecting lack of customer engagement (or ability to control)

None link to alerts, online or via SmartView

Communication Issues

- To engage with this tariff, customers will need to feel rewarded: currently appears only to penalise
- Real risk of cynicism: appears profit-motivated, not environmental

"I'm not sure of the rationale. We have some very wet summers and they get the benefit of the higher rate"

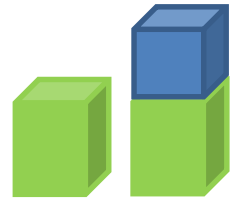
Dorchester, Standard Seasonal

"It depends on where the profit is going... For environmental reasons, well that's fine"

Dorchester, Standard Seasonal

blue marble

Peak Seasonal



Immediate Response:
- tariff perceived to encourage people to save in the summer
- can be difficult to grasp beyond general seasonal pricing

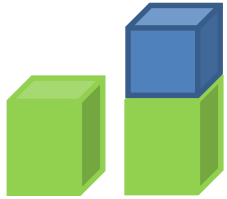
Considered Response:
- Engages customers to consider their discretionary vs necessary usage
- Able to anticipate how they would save water/money in the summer (garden related behaviour)
- But begs the question is there a need to save water in the summer?
- If conclude not, then Wessex Water's motive called into question.

"It's a choice if you use more in the summer"
Bath, Standard Seasonal

✓ Control

Overall, this tariff perceived as fairest. Positive engagement:
- customers enabled to act to minimise high rate consumption
- it accounts for household consumption (unlike block)
- peak rate seen as penal rate for the water profligate /discretionary usage.

blue marble



Peak Seasonal

Criticisms:
- penalises if a hot summer
- retired customers who holiday in winter don't get full allocation

Questions:
- water shortage situation in UK?
- does it cost more to supply? Will they be spending the extra revenue on better infrastructure?

Who votes for this tariff:
- majority (both those driven by cost & environmental reasons)
- people who do not use a lot more water in summer
- people with larger households

Enhancements:
- could cost of extra summer usage be spread across year?
- illustrate usage patterns on bills
- use alerts to warn of Peak rate impending

Communication Issues

- This tariff especially requires clear communication
  - ➢ personal allocation based on **your** winter rate
  - ➢ how to act to minimise reaching peak rate
- *'Peak':* negative connotations
- Tendency to think using more in winter would be beneficial
- Those who perceive they will pay more for necessary summer usage (e.g. to revive thirst/shower etc) see this tariff as unfair

"My first thought was - if I use more in winter will it mean I get a cheaper bill?"
Yeovil, Peak Seasonal

Wessex Water's rationale?

Customers assume that tariffs will result in extra revenue

- general cynicism (learned from other sectors)
- if there is a supply problem: how is Wessex Water spending the extra revenue to protect water resource?
- rationale for tariffs is not clear

"That's more on the bandwagon of charging more [for flights] in the school holidays"
Bath, Rising Block

"Wessex Water not raising more money in charges? I don't buy it. You never see how the money is being used"
Poole, Rising Block

"I want to think Wessex Water is a great company – wanting to save the planet, but I know that there are other driving factors"
Bath, Rising Block

"I'd see this as more profit-making"
Chippenham, Peak Seasonal

"I think it goes back to how Wessex Water sells this – not because they want to make more money but to penalise the people who weren't consciously making the effort"
Chippenham, Peak Seasonal

"The only possible benefit is if we are in danger of running out and it might encourage people not to waste water – but this won't keep me away at night – we get so much rain!"
Taunton, Peak Seasonal

blue marble

Other strategies to drive water conscious behaviours

Smart View In-home Monitor: the concept

Generally positive response to the concept of SmartView monitor

- ✓ idea is engaging
- ✓ familiar concept (e.g. electricity)
- ✓ use to educate family/children
- ✓ use to control costs
- ✓ use to control usage
- ✓ ability to detect leaks

Some also identify benefits which relate specifically to tariffs:

- ✓ alert when near 60m³ (Rising Peak)
- ✓ alert when winter allowance has been used (Peak Seasonal)

! Analogous to broadband tariffs (but potential pit falls re timing & fairness)

However, caution needed when drawing conclusions:

• for most response reflects no more than mild interest & curiosity; even they are doubtful whether this will translate into behaviour change

• often wrongly assume greater functionality (e.g. real time usage similar to energy monitors)

• for some it could become an additional worry

"We got obsessive [with electricity monitor]. I've unplugged it now – you could follow my blood pressure with the dial!"
Poole, Rising Block

"If you can put it in terms of £'s and pence that would be more powerful"
Chippenham, Peak Seasonal

"I have one with my electric – I wouldn't mind having one, more out of curiosity"
Chippenham, Peak Seasonal

blue marble

Smart View In home monitor: customer experience

15/ 51 requested SmartView

3 unable to install (distance to meter, garden walls)

1 never received

11 Installed

Motivations
- General curiosity
- Offered by WW staff/during audit
- Ability to detect a leak
- Attracted by gadgets (have electricity monitor)
- To provide information on HIPs

Mainly taken up by those already saving water/using less

5 now not working	1 unsure if working	1 taken by ex-wife	3 not used much now	1 changed attitudes

General experience (& frustrations):
- Initial period of curiosity wore off
- Could not link to PC
- Failed to detect a leak
- Stopped working (solar panel?)
- Did not link to £s & pence

Positive experiences:
- device a good engagement tool for customers just embarking on water saving post new meter installation

"It brought it home to me"

blue marble

Smart View In home monitor: customer experience

Currently significant limitations

Common barriers, some possible to overcome via leaflet/communication

- already see selves using the minimum water
- lack of time to see selves using it
- not 'into' gadgets/technology
- water usage not a priority
- complicated to connect/use (not obvious to some that solar)

RELIABILITY of equipment a major limitation

"I used to check it everyday – then it died – I'd use it to say 'OK, this isn't good'"
Bath, Rising Block

Functionality needs to be improved

Necessary for the majority

- ✓ Monetary value on meter
- ✓ Obvious link to charges on bill

Necessary for some

- ✓ Ability to see real time usage

Desirable

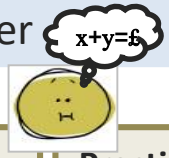
- ✓ Comparison usage with similar households
- ✓ Ability to track usage on-line (link to PC)
- ✓ Alerts when reach edge of tariff allowances (e-mail or text)
- ✓ Alerts when usage dramatically increases (e-mail or text)

Significant numbers in sample attracted by more information on personal household usage and spend: however SmartView is currently not meeting this need

Water Audits: Case studies

Very low recall of water audit communications (& £100 money off)

4 in sample took up the offer



Profile	**Principled**, retired couple downsized. Requested meter in previous property. Rising Block but unaware	**Principled**, retired female. Lived in Australia - previous house metered. Peak Seasonal and aware	**Practical**, retired female moving :larger garden. Previously metered. Peak Seasonal, aware of tariff	**Practical**, single dad with 3 children. Previously metered. Unhappy when realised on Peak Seasonal tariff
Process	Targeted as previous occupiers high users ?	Requested audit as larger garden & expected higher bills	Requested audit & received SmartView	Didn't recognise term 'water audit'. Thought offered due to being single parent
Outcome	• Confirmed what already knew *"Cleared our name"*	• Confirmed what already knew • Shower timer *"Pleasant, but ....."*	• Bought 4 x ½ price water butts (thinks with £100 voucher). • Shower timer *"It was great"*	• Hippo in toilet • Slow valves on taps *"It was all free"*

Helps those already pre-disposed to be more careful with water usage/costs

Response to Water Audit concept

Minority express significant interest:
✓ financial incentive; attracted by free devices AND possibility of long term savings

Majority are not interested:
× think they know how to be water efficient already
× think they are currently doing everything they can
× expect to be charged for service/devices
× concept of home inspection too intrusive
× tenants: feel unable to act
× new property: already adapted
× insufficient time (presume office hours only)
× could be a selling exercise

More interest in 'education' rather than audit (seen as a test or inspection)
• 'Audit' not consumer language
• Benefits not clear to see

Perhaps...
★ ***'Water Efficiency MOT':*** free advice and water saving devices
★ this could save you £x /year
★ see the difference on your water bills
★ find out if you are using more water than is necessary – and how water saving gadgets help
★ home visits and online tools

"I think I know what I should be doing"
Poole, Rising Block

"I don't waste water, if I used any less I'd be measuring it out in thimble-fulls"
Bridgewater, Rising Block

blue marble

Price Perceptions

Cost Estimation Exercise

Activity	Q1. Estimate of cost under normal tariffs
To have a bath (normal size)	
To have a 5 mins power shower	
To have a 5 mins normal shower	
Brushing teeth with water left running instead of turned off	
To run a hosepipe for ½ hour	
To run a dishwasher (standard cycle)	
To run a washing machine (standard cycle)	

Mainly based on guesswork

Educated guess — 'Finger in the air' — Inability or refusal

- Interest and engagement in the exercise
  - ➢ new way of thinking
  - ➢ desire for more information
- In general, people over-estimate the cost of water: reflects widespread perception that water is good value for money

"I've no idea how much it costs for a hose-pipe - I just know not to do it"
Bridgewater, Peak Seasonal

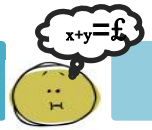
"Blimey! I'd have thought it would be more expensive."
Dorchester, Rising Block

"It's something you can relate to, you can't relate to cubic meters"
Bath, Standard Seasonal

blue marble

Price Perceptions

Principled



Practical

Theory not Practice

Unengaged

- More educated/calculated estimates
- Surprised & disappointed: *"Is that all?"*
- Undermines current efforts to save

- Insufficient to 'shock' or push to change behaviour

- Surprised & most engaged by exercise
- New way of thinking about water
- Happy to be educated

Considerations for communicating the cost of specific activities

✓ Talks in language customers easily understand; meaningful units

✓ Extrapolating over a year, or for a whole household, provides more motivating figures

× Reinforces perceptions that water is cheap compared to electricity and gas: leads to inertia

× Removes 'eco-nomical' argument for saving water

× Can undermine some specific activities eg use of dishwasher

"I can put it [dishwasher] on much more now."
Poole, Rising Block

"I thought showers would be much cheaper."
Dorchester, Rising Block

blue marble

Customers over-estimate cost of water for all activities

	Actual Cost	Estimate average		Range of estimates
Bath	26p	74p	3 x actual	Range: 4p - £3
Power shower	26p	46p	2 x actual	Range: 2p - £1.50
Normal shower	13p	31p	3 x actual	Range 2p - £1
1 min less in shower	5p	11p	2 x actual	Range 2p - 80p
Bath not shower	13.5p	98p	7 x actual	Range: 20p - £2.60
Hosepipe for ½ hour	86p	£1.83	2 x actual	Range: 25p - £3.50
Tap running when brushing teeth	5p	18p	3/4 x actual	Range 1p - 75p
Dishwasher	5p	84p	7 x actual	Range: 10p - £3.50
Washing machine	16p	86p	2 x actual	Range: 20p - £3.50

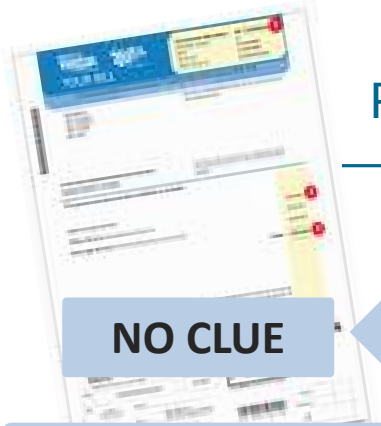
Surprise that same as bath

Message largely understood; that showers not baths saves water

Awareness that hosepipes are water intensive

Expect dishwasher & washing machine to be similar

Response to bills



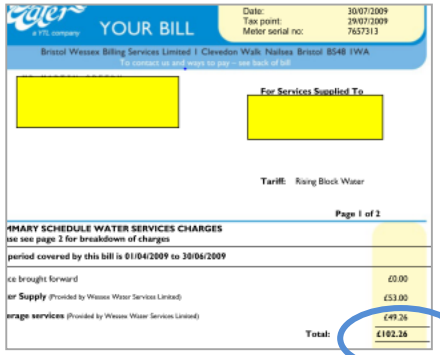
NO CLUE ← **MAJORITY** → **CLUED-UP**

? How bills are calculated
? What unit is used
? the price of water

To illustrate the point...
- One brought bill from previous house
- One bill showing 0m³ water use and not questioned

"I have never understood the Wessex Water billing – I don't understand what is going on"
Bath, Rising Block

Check total figure in line with expectations/last bill
• Implicit trust about where the total figure comes from ... or
• belief that can't change water co/not able to switch



"All I'm interested in is the total, I don't look at the 2nd page"
Yeovil, Rising Block

• checking, annotating & filling
• calling customer services if necessary

"It's very difficult to check the bill. I want to check it. I want to understand it"
Taunton, Peak Seasonal

blue marble

Response to bills: enhancements

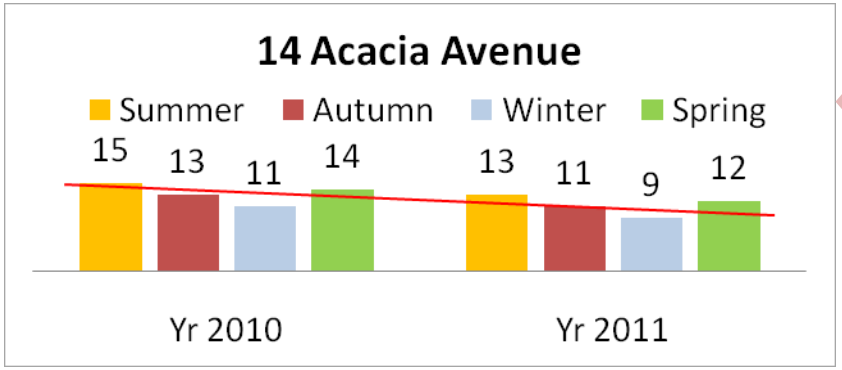
Clarification on the calculation (esp. for the more clued-up)
- previous direct debit payments
- show how the current balance is calculated
- signal the options when customer showing credit balance

Support for graphics relating to personal usage
- esp. Block and peak tariffs

"I was trying to work out how they came to that credit – I had to do it myself. What they don't say is how much money they've received from you"
Taunton, Peak Seasonal

"It's all measured in cubic meters, but people like one dimensional – up or down. Three dimensional puts them off"
Dorchester, Standard Seasonal

"People like pictures – it's just better for the brain to absorb"
Bath, Rising Block



Graphs to show e.g.
- average usage by quarter
- average usage by equivalent household – 3 people/3 bed semi etc
- peak vs standard rates

blue marble

Conclusions & implications

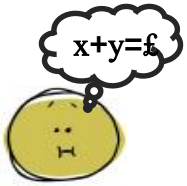
Positioning water saving strategies

Water saving: behaviour change model → **Strategies need to acknowledge very different starting points**

Not accepting/ aware → **Aware** → **Engaged** → **Preparation to act** → **Appropriate action**

Environmental attitude critical to engagement - often derived from life experience. Self-motivated to adopt & incorporate behaviours into lifestyle

Engagement: reinforce beliefs & actions



Water saving driven more by financial motivations than engagement with conservation idea – often via water saving devices not lifestyle choices

Actions: financial reward for saving water

Behaviours adopted in line with social norms: aware of generic need to save water but not translated into personal life/not prepared to make sacrifices

Actions: the next 'new norm'

Linking water usage with money is crucial first step

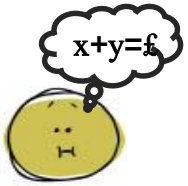
Awareness: education and meters

Positioning water saving strategies

Not accepting/ aware → Aware → Engaged → Preparation to act → Appropriate action

Engagement: reinforce beliefs & actions

- ✓ billing analytics
- ✓ water saving devices
- ✓ tariffs (reward, reinforce)



Actions: financial reward for saving water

- ✓ billing analytics
- ✓ water saving devices
- ✓ tariffs (reward, reinforce)

Actions: the next 'new norm'

- ✓ ? requires cultural shifts

Awareness: education and meters

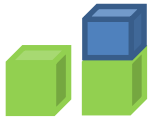
- ✓ meters – in the first instance
- ✓ price information
- ✓(tariffs)

Evaluating the tariffs

Which is the most effective tariff?

Standard Seasonal

Peak Season



Both seasonal tariffs comparable in terms of awareness and resulting behaviours

However, customers respond very differently to the tariffs

What does a tariff have to do to engage customers?

❶ Reward, not punish
- to encourage the already engaged (emotional reward)
- to motivate the less/un-engaged
- for majority, reward = financial, saving money (or not wasting money)

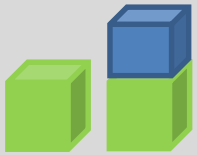
Current tariffs: none seen to reward

❷ Enable customer to have control
- to save water/money
- to minimise discretionary water usage

Only one tariff currently giving customers control

blue marble

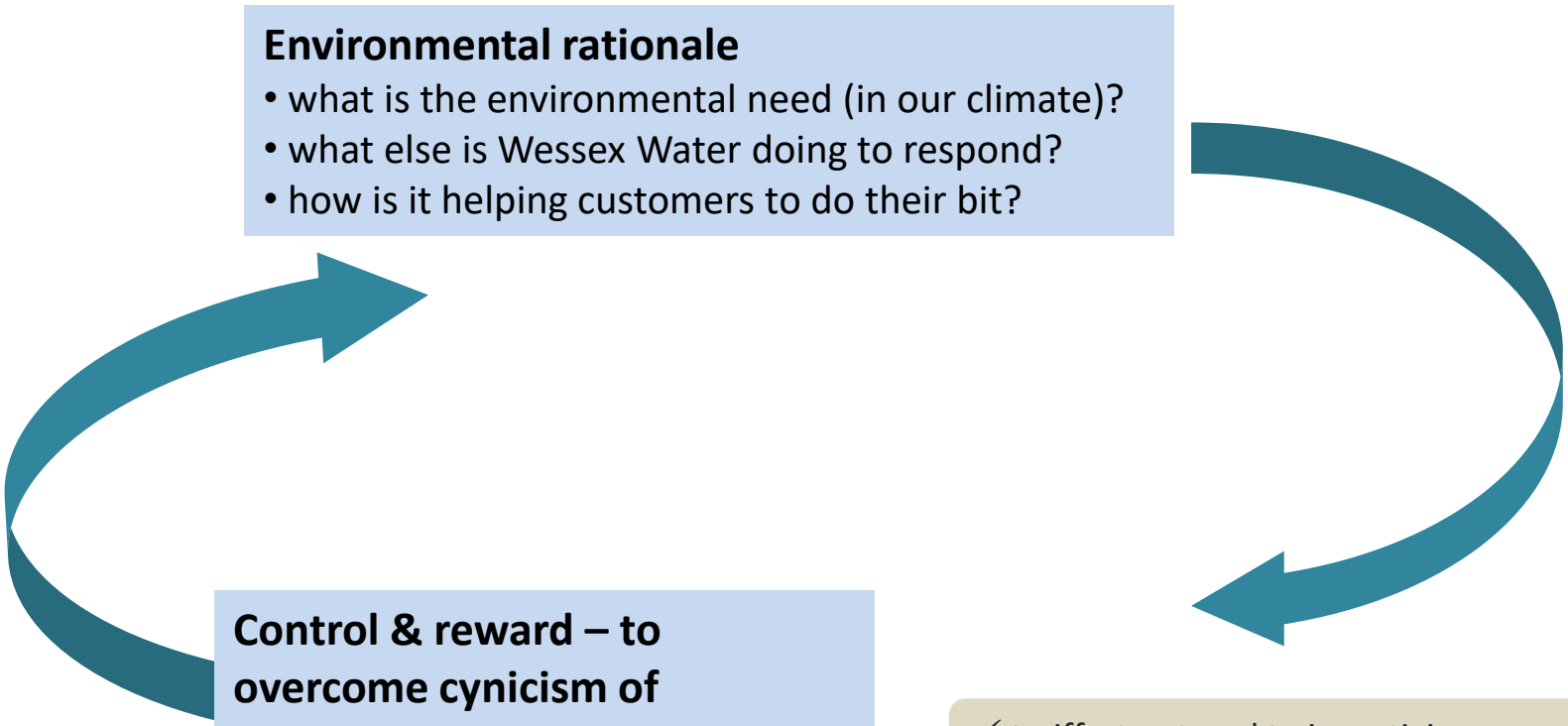
Positioning the tariffs

	Takes account of household composition	Accommodates water conscious	Gives control: customers able to act	Rewards household water saving	What is Wessex Water's rationale?
Rising Block 	✗	✓ (only low users)	✓ (only low users)	✗	!
Standard Seasonal 	✗	✗	✗	✗	!
Peak Season 	✓	✓	✓	✗	

Is it fair?

Communicating a new tariff

To optimise the potential for tariffs to change behaviour, more overt communication necessary



Contact

E: enquiries@bluemarbleresearch.co.uk
W: www.bluemarbleresearch.co.uk
T: 01761 239329

THE QUEEN'S AWARDS
FOR ENTERPRISE:
SUSTAINABLE DEVELOPMENT
2008

CUSTOMER
SERVICE
EXCELLENCE

CSE

Designed by Wessex Water design services
2582 September 2012 Printed on recycled paper

Towards sustainable water charging

Conclusions from Wessex Water's trial of alternative charging structures and smart metering

Wessex Water
a YTL company

Wessex Water
a YTL company

YTL
SINCE 1965

Registered office: Wessex Water, Claverton Down, Bath BA2 7WW
Telephone: 01225 526 000 Fax: 01225 528 000
Registered in England No 2366648

www.wessexwater.co.uk

Contents

Introduction

Creating a fair and sustainable charging system for households is one of the key challenges facing the water industry.

Everybody needs water and sewerage services and it is unacceptable to exclude people on the grounds of their ability to pay. With this in mind we consider that a fair and sustainable charging system needs to:

- encourage water to be used wisely
- be affordable for all
- retain the support and trust of billpayers.

In 2008 Wessex Water set out to test how both metering houses on change of occupancy and more sophisticated price signals could contribute to our vision for sustainable charging. In terms of scale and scope the trial has been the largest of its kind since the national metering trials of the early 1990s.

We published interim conclusions from this study in 2011. Our finding were that:

- metering properties when the occupier changes has reduced water demand significantly more than we had expected and without causing adverse customer reaction
- more sophisticated tariff structurescould lead to a further step change in demand and to a lower burden of water charges falling on the financially vulnerable
- the benefits achieved from these new sophisticated tariff structures were at the cost of reduced customer satisfaction.

A year later we have been able to confirm these interim findings. Meanwhile, we have been able to further develop what we consider to be the appropriate policy responses, both for us as a water company and other stakeholders.

These are approaches that Wessex Water is now committed to taking forward and we will begin trialling them next year with 1,000 volunteers in Dorchester.

This document summarises the final conclusions from our trial and how we are planning to take things forward. You can find more detail in reports that we have published on our website. If you have any questions, please email us at charging.study@wessexwater.co.uk

Andy Pymer

Director of customer and retail services

Executive summary of findings

Fitting a meter free of charge when someone moves house reduced demand on average by 15% and in the peak demand week by 25%.

Substantial savings in water consumption appear to have been made across all income levels, and analysis of the detailed flow data has given us an insight into the behaviour changes that result from metered charging. It is clear that metering results in far more care being taken over water use.

Our research has also shown that customers are willing to accept metering in this context, as long as it is clear that these are known to be the rules of the game and apply to everyone.

This study has shown that simple seasonal tariffs are beneficial by:

- appearing to encourage a further change in water conserving behaviour from some customers, on average an additional 6%, and
- having a positive effect on the affordability of charges compared to both flat-rate and rising block tariffs.

But we have found that they resulted in a lower level of customer satisfaction.

This trial has reinforced our belief that water companies should meter on change of occupancy as a matter of course.

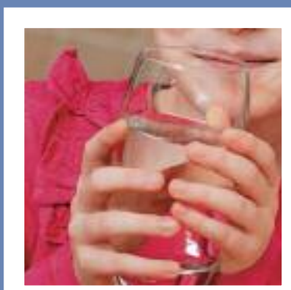
This approach to extending metering could actually achieve the greatest benefits as householders moving into a new property are receptive to learning new water-using behaviours. Similarly they are able to take water efficiency into consideration when they are purchasing new white goods and other water-using appliances for their new home.

It is apparent that metering could eventually result in a greater proportion of our charges falling on those with lower incomes. We are therefore putting in place measures:

- to protect low-income customers so that individually no customer has their basic water use rationed by ability to pay
- and so that as a group they do not bear an additional burden in water charges overall.

In 2012 the government published guidance to water companies on social tariffs in water and we are investigating the part this guidance could play. We remain concerned that the guidance from government has not been accompanied by sufficient enabling tools to allow the most effective schemes to be developed by companies.

Charges must retain the support and trust of billpayers and for this reason we have no plans to widen the use of seasonal tariffs compulsorily in the Wessex Water region.



We remain dissatisfied with the status quo, however, and will continue to explore how to encourage a wiser use of water over and above that achieved by simple metering while increasing the satisfaction of billpayers.

In 2013 we will be launching **Smart Dorchester** which will build on the lessons we have learned from this trial. More details of this project are included in this report.

Water companies should meter on change of occupancy as a matter of course.

Taking things **forward**: Smart Dorchester

Our new project to engage with customers at an individual and community level – see page 17

- instant price and usage information to save water and save money • how usage compares with similar households
- reward scheme raises money for local schools and charities • providing practical water and energy efficiency advice.

Background and trial make-up

We have been concerned for many years that the transition to flat-rate metered charging through customers opting for meters and as new properties are built may not be achieving the optimum outcome for our customers and the environment.

In particular the social protection inherent in the rateable value charging system is being lost at the same time as bills are increasing overall due to new environmental obligations. This is leading to affordability problems for a small but growing number of customers. Even before the recent recession we saw our underlying level of bad debt double over the previous 10 years.

We are concerned that future environmental improvements and measures to address climate change will need to be delayed because while most customers would be willing and able to pay for them, a minority will not.

When we set out our strategic vision for the 2009 price control we proposed that we should manage the transition in a fairer way by metering properties on change of occupancy and applying tariffs that differentiate between basic and discretionary use. We believed this approach would be better because it would:

- reduce water demand when water was most scarce and so defer additional resource expenditure
- reduce leakage, consistently near the top of our customers' agenda
- reduce carbon emissions from both water companies and customers
- mitigate the regressive impact of metering
- quickly extend metering while retaining customer support for water charges by avoiding enforced large bill changes in customers' existing homes.

We then set about testing our proposals in a trial, set up in such a way that we could separately assess:

- the impact of metering on change of occupancy
- the impact of the three new tariff structures, and
- the potential for new smart meter technology.

By 2009 the trial dataset was fully populated with 6,000 properties. Of these we have charged 4,800 properties either on our existing metered tariff or on one of three new metered tariffs. We fitted meters to the other 1,200 properties but continued to charge them on an unmetered basis to act as a control group. In every case properties were added to the trial following a change of occupancy and we sought to achieve a representative split of owner-occupiers and tenants.

The three new tariffs trialled were:

- rising block tariff – the more you use the more you pay per unit
- simple seasonal tariff – water is more expensive in the summer than the winter
- peak seasonal tariff – use in winter is charged at a low price, the same use in the summer is charged at the same low price, but use thereafter is charged at a higher price.

Each of the four metered tariffs was designed so that total income charged on aggregate would be the same as for a flat tariff before any changes in demand caused by the different tariffs applied.

Each new metered tariff required intelligent meters that meant we could capture consumption at specific points in time and could identify potential leakage. All customers on the new tariffs were offered a free in-house display (IHD) that could communicate with the meter and show them how much water they were using as well as identifying whether there was a possible leak on the supply.

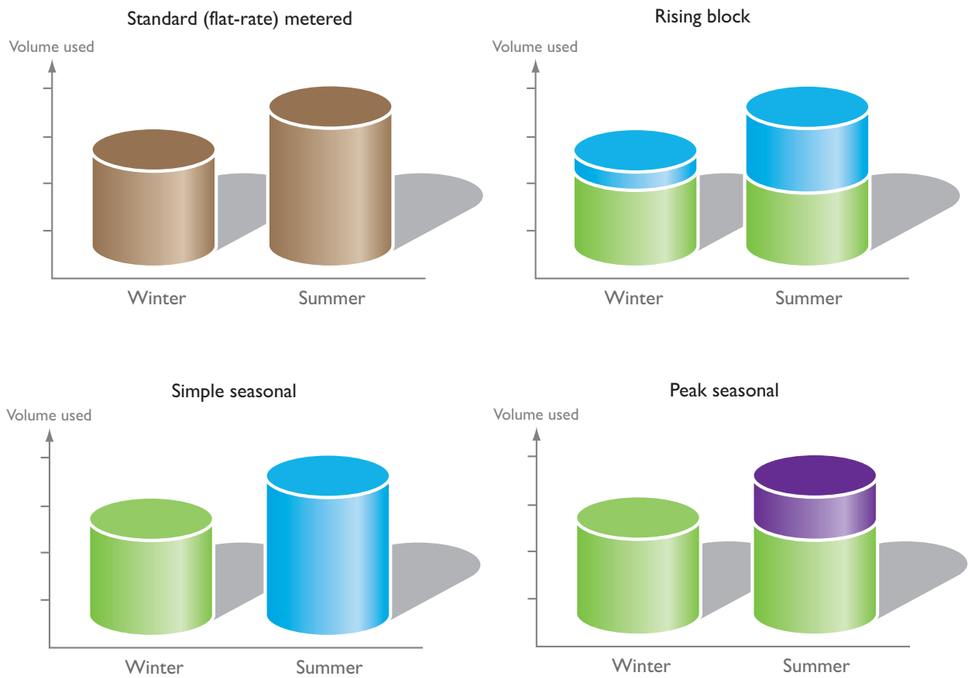
In terms of both scope and scale this has been the largest trial of metered tariff structures in the UK water industry for 20 years.

Our conclusions have been reached after analysing meter flow data, bills and complaint volumes and also through commissioning focus groups and in-depth interviews with customers on the trial.

Reports commissioned by Wessex Water from Tynemarch Systems Engineering, analysing the flow pattern data, and Blue Marble Market Research have been published alongside this summary document.

The report from Tynemarch has been subject to an independent peer review by Dr Paul Herrington, an expert on household water demand.

The charging structures



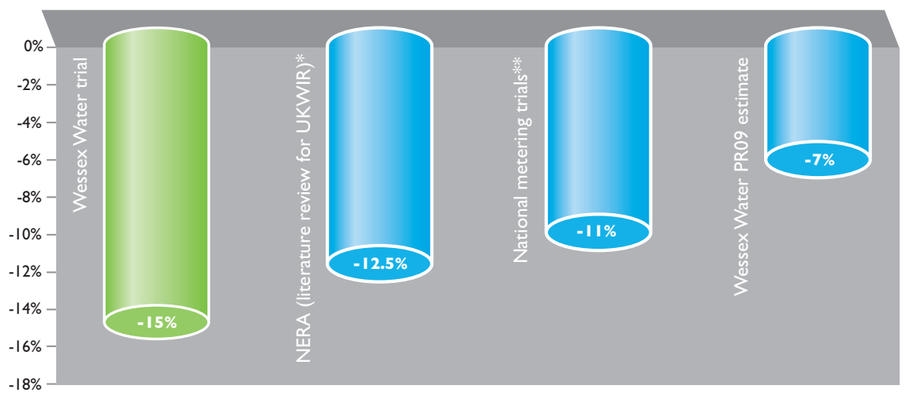
The trial findings

Effect on water demand – quantitative analysis

Metering on change of occupier

Metering properties on change of occupier has led to an annual customer demand saving of 15%; rising to 25% in the peak demand week.

Impact of metering on customer demand



The results emphasise how effective metering on change of occupier can be as a demand management tool.

Savings in water consumption appear to have been made across all income levels, with band A-B council tax properties saving just less than average in percentage terms and higher council tax bands saving slightly more than average.

The demand reductions are statistically robust and are well in excess of our own estimate before the trial took place. We expected that metering on change of occupier would have a less dramatic impact on demand than fitting meters compulsorily to existing occupiers. We felt that the impact of the new price signal on water using behaviour at a change of occupancy would be smaller because the impact of changes in water charges would be one of a multitude of other changes in the household budget, many of a much greater magnitude.

The demand reduction seen has actually been consistently at or above the top end of previous industry estimates for compulsory metering of between 10% and 15%, and we have been considering why this might be the case. We have been attracted by some of the behavioural theories around 'moments of change'. Moments of change are occasions where the circumstances of an individual's life change considerably within a relatively short time frame. This theory suggests that many of our behaviours are habitual, ie, they are repeated very often with little or no conscious intent, and that previously existing habits may be more easily broken, and new habits more easily formed, at 'moments of change'. This is because the individual is forced to become newly conscious of the behaviour before it becomes a habit.

Moving home has been defined in the literature as one of the four key 'life-event' moments of change and there is evidence on this subject that interventions targeted at this time have led to more pro-environmental travel behaviour.

Members of a household will be forming new water usage habits using new water using devices in their new home. Similarly a household is more likely to take water efficiency into consideration when purchasing new white goods and other water using appliances for their new home if they are aware that it will impact on their charges.

The existence or fitting of a water meter in the new property would, under the theory, be considered an upstream intervention that encouraged more pro-environmental behaviour.

Metering on change of occupancy may therefore be the best time to fit meters if we want people to save water.

* UKWIR - 03/WR/01/4 A Framework Methodology for Estimating the Impact of Household Metering on Consumption. This report gave a range from literature reviews of between 10% and 15%

** WRc: Water Metering Trials Final Report 1993

Evidence of behaviour change in the flow data

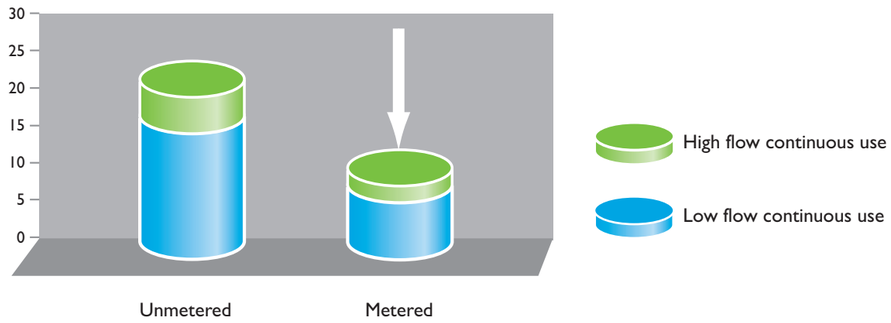
Detailed flow data lends further support to the changes seen at an aggregated level. Differences in the patterns of water consumption between unmetered and metered customers suggest that far greater care is taken with water use by the latter.

Unmetered customers are twice as likely to have periods of low level continuous use suggesting problems like dripping taps and leaking toilet cisterns are far more prevalent.

They also have far higher incidences of high-rate continuous consumption indicative of deliberate use for garden watering and/or paddling pool use. During the summer of 2010 three times more unmetered customers exhibited these characteristics than metered customers.

These observed changes in discretionary use make up one quarter of the overall changes in demand seen as a result of metering.

Average volumes used in continuous-use* events
(litres per property per day)



* Continuous use events exclude flows identified as leakage from customers' supply pipes.

New tariff structures

The evidence is less clear cut for tariffs but does suggest additional demand reductions compared to those which would have been achieved with metering alone.

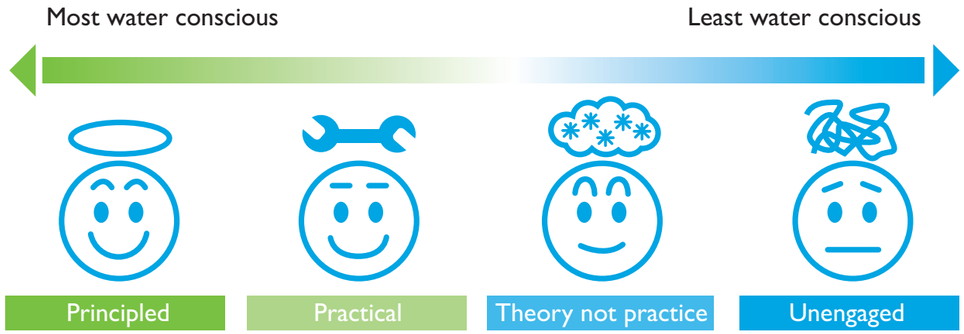
The standard seasonal and rising block tariffs have shown additional annual demand reductions compared to standard metered charges of 6% on average, but while the statistics allow us to be confident that these tariffs explain some reduction in demand we cannot be certain that this scale of reduction would occur if we applied the tariffs outside the trial. The peak seasonal tariff did not show a statistically significant reduction in demand.

On balance we believe the results suggest that tariffs show some impact on reducing water demand given that the trial did not cover an extended dry summer period, and more particularly when they are combined with the results of our associated qualitative research.

Effect on water demand – customer research

Qualitative consumer research painted a similar picture to the quantitative analysis.

This research was conducted independently by Blue Marble, an accredited market research company with expertise in the water sector. It identified the customers who had been charged on the trial tariffs as falling into one of four broad groups, reflecting their relative attitudes to water use and water conservation.



Our customers' response to being metered depended on their attitude to using water prior to joining the trial:

- those with the biggest response to metering were those who were previously 'unengaged' and did not consider their water use at all previously
- often these customers had moved from unmetered properties and the existence of a meter was seen as the primary cause of a first big step change in behaviour
- many 'unengaged' customers shifted to 'practical' as a result of the trial and were motivated to be more water conscious primarily by financial considerations.

The customer research also suggested an additional impact on behaviour from the tariffs although not as large as that caused by the meter itself:

- fewer customers said that the tariffs had changed their behaviour compared to the meter, but
- customers were more likely to become aware of seasonal tariffs compared to other tariff structures, and
- once they were aware of the tariff most believed it had influenced their behaviour.

The new tariff structures had most effect on the behaviour of those customers already in the 'practical' and 'principled' categories, ie, customers who were already motivated to be water conscious either from a financial or moral perspective.

The new tariffs were seen to help reinforce existing beliefs and gave additional financial incentives to do the right thing and become even more conservation minded.

The research showed that while customers did not necessarily value the in-house displays they were offered, there was a desire to understand how their use of water was reflected in their bill – in particular whether their use and bill were higher or lower than the average for similar households.

We therefore need to consider further how best to communicate price signals to customers more immediately in future.

During the research it also became clear that there was a significant group in the 'theory-not-practice' section of the population for whom neither metering nor tariffs changed water using behaviour. These households might be categorised as the time-poor and cash-rich middle classes where the annual water bill simply did not figure on their list of priorities.

Engaging all customers in water saving behaviour remains important. Research carried out by the Fabian Society suggests that encouraging pro-environmental behaviour is more successful if it is clear to all concerned that all sectors of society are playing their part.

We are keen to explore different ways of engaging with these kinds of customer. Offering rewards to local charities or schools for instance may be more successful in encouraging new water saving norms for these groups than the chance to shave a little off their monthly direct debit payment.

Overall this qualitative research gives weight to the view that:

- *more sophisticated tariffs can result in an additional step change in water efficient behaviour compared to simple metered tariffs, but that*
- *the change cannot be expected to be as great as that caused by the meter itself*
- *metering and tariffs are not able to engage all water consumers in water saving behaviour and we need to give further consideration to how all customers can be incentivised to use water more wisely.*

"[The meter] makes you less likely to abuse water ...as you're paying you're more conscious of everything like you are with switching the lights and TV off"
Poole, simple seasonal

"I check that taps are not dripping – make sure they are off properly. That didn't bother me before"
Dorchester, peak seasonal

"It encouraged me to get water butts – the tariff reminded me"
Taunton, peak seasonal

Smart meters and leakage

Our customers consistently place reducing leakage towards the top of their priorities.

It is vital that as an industry trying to encourage customers to be more water efficient we do our own part in reducing the amount of treated water lost from the distribution network.

Close to one third of the total water leaked is from pipes owned by customers within the boundaries of their properties. Where meters are fitted externally we are able to identify leaks on customers' supply pipes more quickly.

On average we consider that fitting a meter externally reduces leaks from customers' supply pipes by around 30 litres per property per day – and if all remaining customers were metered this would reduce total leaked water by about 10%. The trial suggested that there are also reductions in leaks in the home of a further 11 litres per property per day.

Analysis of the trial data suggests that an additional nine litres per day could be saved by smart meters allowing more frequent meter reading and leak alarms.

The ability of smart meters attached to a fixed network to identify potential leakage (either on the customer pipe or from faulty internal plumbing) within, say, 48 hours of a leak event, gives us an opportunity to reduce this still further.

Smart meters may therefore allow the industry to make the next step change in leakage reduction. The Smart Dorchester trial will employ a fixed network that allows us to alert customers to potential leakage events in their home via text or email.

Smart meters and in-house displays (IHDs)

One of the benefits available from smart metering is the ability to present customers with real-time information about the services being consumed and their cost, enabling them to see the impact of changes in water-use behaviour on their wallet.

The approach being taken by the energy sector in the UK is one that relies on in-house displays (IHDs) as the primary vehicle to show customers this information. These are separate units that are, ideally, permanently visible to the customer.

In this trial we offered each customer on one of the new tariffs a small solar-powered IHD for free. We visited the customer, set up the unit and explained how it worked.

The IHD was able to display to the customer water use in litres by day, week and month, and to compare this with previous periods and averages. It could also alert customers to the presence of a leak.

Our trial has not proved the benefits of an in-house display for water.

The in-house displays offered to customers did not appear to result in any additional water saving behaviour change.

There was also evidence that customers did not value these units highly. There was limited demand for the IHD in the first instance (around 11% of customers requested one) and of those who did request them few considered, in research conducted afterwards, that they had been of benefit. We found instances in our customer research where the units had stopped working but the customer did not request a new device. The flow data showed no significant difference in water use from customers having a device compared to those without, nor were we able to see changes in demand before and after the IHD was fitted.

This may have been caused partly by the limited functionality of the device tested. Because we were not able to communicate from corporate systems to the devices we were unable to show cost information to customers alongside usage information. Usage information itself was updated hourly rather than instantaneously as the IHDs communicated with a meter located outside underground.

Our research has suggested, however, that there are more fundamental reasons for doubting the efficacy of an IHD for water.

Water use, in comparison to energy use, is stop-start, a tap is either on or off and there is no equivalent to standby power usage in energy. This means that the immediacy of the usage and price signal is perhaps less relevant to water customers in changing behaviour.

We think this quickly led customers to place little value on a piece of equipment that served to clutter up their home and they were quickly ignored.

Our view is that the water industry should focus on providing information via devices that customers already value. For example mobile and smart phones, home computers and tablets such as the iPad. In many cases IHD style information can be presented using these devices, and can be accessed by the customer wherever they are located rather than needing to be in the home at the time.

The use of text messaging and email needs also to be explored. This will help customers who want to understand how their water-using behaviour is having an impact on charges, and will mean we can alert them to irregular patterns of water use that might indicate a problem on their pipework.

We will be testing all these approaches in the Smart Dorchester project.

Customer reaction

Reaction to metering on change of occupancy

Almost all customers accepted the fact that their property already had or would have a meter fitted when they moved in.

When asked most people consider that paying for water based on the volume used is the fairest way to charge even if some have concerns that, for them in particular, it may lead to a higher bill.

Reaction to the new tariffs

Changing tariff structures causes some disquiet to customers and we have seen an increase in the number of complaints about charging issues.

Overall complaints about charging issues were 50% higher than those received from customers on our standard metered tariff.

Standard metered charges themselves result in a greater number of charging related complaints than unmetered charges; this is a well recognised phenomenon and is partly a consequence of the fact that there are more variables to query on metered charges.

Our customer research confirmed that there was underlying dissatisfaction with the more complex charging structures and overall the preference from customers was for standard metered charges.

These tariff trials took place over a period where:

- public trust in businesses reached a low ebb with the impact of the economic downturn
- public trust in utilities has been particularly low, focusing primarily on the energy industry and allegations of profiteering
- public trust in company pricing policies has dropped following publicity about overly complex pricing in energy, drip-pricing in online sales and the mis-selling of payment protection insurance.

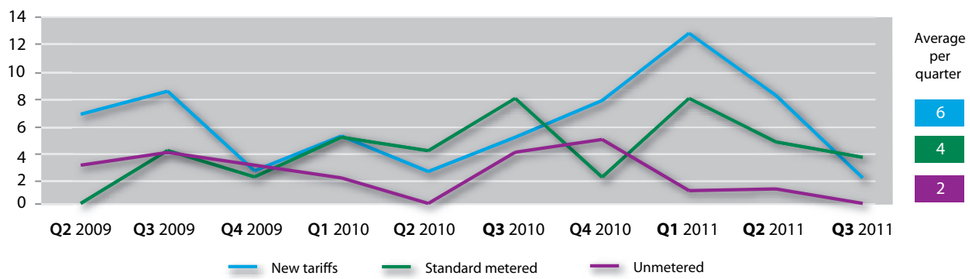
Customers are, therefore, cynical about our motivation for changing tariff structures and wrongly assume that our motivation is profit. Seasonal tariffs for water were likened by some to travel companies charging more in the school holidays.

Overlaying this default cynicism is the inability of customers to switch to another supplier of water services or even to a different tariff and this lack of control compounds the dissatisfaction.

Customers do then go on to articulate reasoned arguments about why particular tariff structures are unfair.

These arguments were often grounded in the view that they were themselves not guilty of wasting water; therefore, the concept of a tariff where some element of their own water use would be charged at a higher rate was considered unfair even if some of their other water use was priced at a lower rate.

Complaints about charging per 1,000 customers



Of all the new tariff structures, the peak seasonal tariff was the least unpopular among customers because it was perceived to give the customer the most control in whether they paid a higher unit rate.

Separate research carried out in 2011 by the Fabian Society* and supported by Wessex Water has shown similar reactions to charging issues. Seasonality in charging was particularly unpopular and there was a feeling that increasing charges in summer lacked common sense, particularly when summers are considered to be reasonably wet.

In this research customers were more drawn to concepts around rising block tariffs, although these were normally articulated around the concept of varying blocks of water by the number of occupants. As occupancy information is not available to water companies in the UK, and access to this kind of information is not common within the political culture, we do not think that this is a credible long-term solution.

"I want to think Wessex Water is a great company – wanting to save the planet, but I know that there are other driving factors"
Bath, rising block

"So washing my kids is more expensive in the summer?"
Chippenham, standard seasonal

Media reaction to our interim report last year was also instructive, whether you are of the view that the media reflects public opinion or drives it.

The key lesson we have drawn from our research is that, in order to overcome the general cynicism about corporate motivation, we need to consider positive approaches to encourage behaviour change rather than ones that are seen as punitive.

We also need to ensure that customers feel in control of their water use and how this relates to their final bill. This will mean giving them more immediate and relevant information on both use and price.

Seasonal charges may still have a roll to play as an option for customers who wish to take them up, but we have no plans to enforce their use.

Examples of media reaction to seasonal tariffs

Pay double for your water in summer – families face £200 increase because of droughts". The Times

"Seasonal water metering is seen as a con, Public anger grows over proposed seasonal tariffs". The Observer

* Fabian Society, Natan Dorion - Water use in Southern England, 2011.

Impact on customer bills and affordability

There are two key items to address when considering the effect on customers' bills. They are related but not the same:

- the impact in the short term for those customers directly affected by the policy applied – how many pay more or less and who are these people?
- the long-term implications for the balance of charges once they apply across all customers – which types of customer pay more in the long run?

When we metered an unmetered property as part of the trial, most customers benefited from a reduction in bills compared to the one that they would have paid under the old rateable value system.

On one level this is of course good news for customers and to some extent represents the reward for an average reduction in consumption of 15%.

However, there are a number of other factors to consider that are a cause for concern:

- the absolute difference in bill for some customers was very high – nearly 15% suffered bills more than £100 higher
- rising block tariffs result in the widest distribution of both winners and losers – more than one-third of customers experienced a difference in their bill of more than £200 compared to the unmetered charge
- low income customers are more likely to suffer from bill increases than other customers – one-third saw bill increases and a quarter saw bill increases of greater than £50
- conversely, higher income customers are more likely to see significant bill reductions – one third received a bill reduction of more than £200 compared to only 20% of low-income customers

This leads us to consider how, ultimately, the balance of water charges will be split across the customer base if a charging structure is adopted in full.

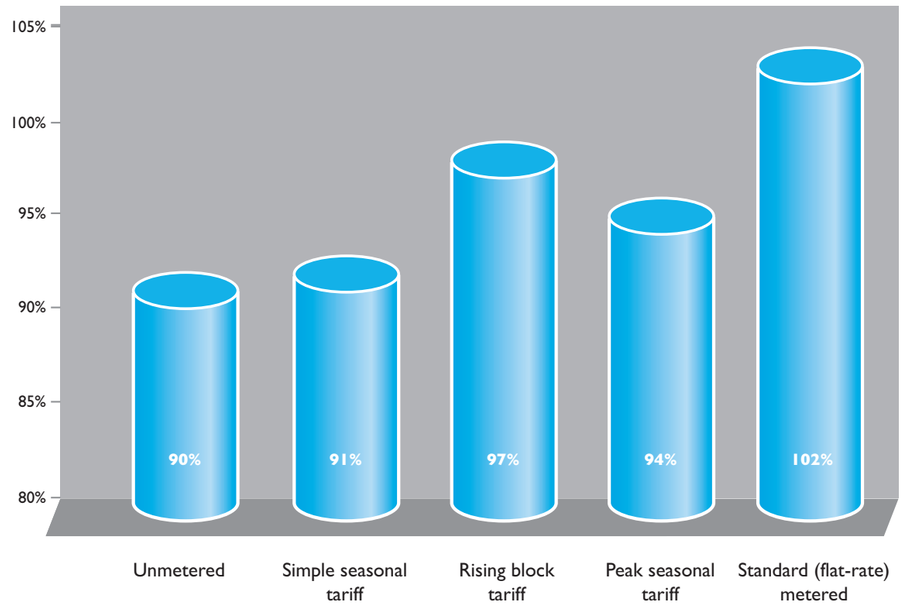
Clearly, in the long term, reducing demand for water will mean bills overall can be lower as investment in infrastructure can be avoided. Water charges are, however, set to recover average costs and the majority of industry costs are fixed in the short to medium term – a reduction in bills through metering and reduced water use may need to be recovered in part from increased prices. Therefore, it is also important to consider the balance of where charges fall when considering the impact on affordability of the final bills.

The chart on page 13 shows how the value of an average bill charged to a low-income customer compares with the average of other customers under each of the tariff options trialled.

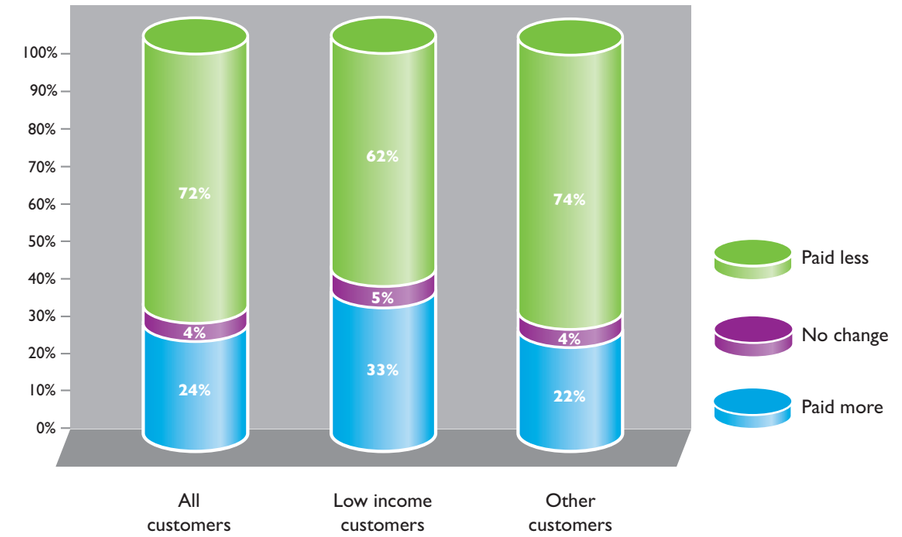
This shows that:

- *all metered tariff structures tested are regressive compared to our existing unmetered tariff, and the most regressive was the standard (flat-rate) tariff*
- *seasonal tariffs are less regressive than both the rising block and standard (flat-rate) metered tariffs*
- *the standard seasonal tariff is almost equivalent to our existing unmetered tariff.*

The average bill of a low-income cusomer compared to other customers



Changes to customer bills after metering



Summary of findings and implications

Impact of metering on...	Metering on change of occupier	Additional impact compared to metering alone			
		Rising block	Simple seasonal	Peak seasonal	Smart technology
...reducing custimer demand	✔✔✔(-15%)	✔(-6%)	✔(-6%)	-	-
...reducing leakage	✔✔	-	-	-	✔✔
...affordability of bills	✘✘	-	✔	✔	-
...customer satisfaction	-	✘✘	✘✘	✘	-

Key: ✔✔✔ very positive ✔ positive - neutral ✘ negative ✘✘ very negative

Our findings to date have reinforced our belief that water companies should meter on change of occupancy as a matter of course.

Customer demand has reduced very significantly without causing adverse reaction because customers consider the water meter as part of a much wider economic choice they are making.

Extending metering in this way will enable us to maximise its benefits because moving into a new house means that a customer's water-using habits have yet to be formed.

At the same time it is also clear to us that measures need to be put in place:

- to protect low-income customers so that individually no customer has their basic water use rationed by ability to pay, and
- so that as a group they do not bear an additional burden in water charges overall.

We are already taking action on this. We are also investigating how recent guidance from government may enable this to happen, although at this stage we are concerned that government has not shown a willingness to give water companies the tools to achieve this effectively. We are working with the DWP to see how we can share data to the benefit of our customers.

While seasonal tariff structures have shown some benefits, we think these are outweighed by the associated reduction in customer satisfaction, and we have no plans to widen their use on a compulsory basis across our customer base.

We do not think falling back to the status quo is credible given the challenges that the water industry is facing. So we are taking the lessons we have learned from this study forward into our Smart Dorchester trial. This will:

- allow customers to engage with and feel in control of their water use by giving near instantaneous cost and water-use information via smart technology
- allow customers to compare their water use with norms and government aspirations
- give rewards at both individual and community levels for using water wisely
- offer customers the option for seasonal tariffs.

The potential for smart meters, both as an enabler for this and in allowing companies to drive down the amount of water leaked from pipes, is important in this context. When water companies are giving additional incentives for customers to use water more wisely we need at the same time to reduce leaks on our own network further.

This document summarises the final conclusions from our trial. More detail is available in additional reports that we have published on our website: www.wessexwater.co.uk/ourvision

If you have any questions, please email us at charging.study@wessexwater.co.uk

Taking things **forward**

Smart Dorchester

Communicating to customers the value of the services we provide is challenging when:

- for the vast majority of customers our services are now 100% reliable and they have no reason to contact us from one year to the next
- the investments we make to preserve and enhance the natural environment are largely invisible to the majority of customers
- customers' expectations about the use of technology are changing, and
- there is a need to encourage people to be more efficient in their use of our services in future.

To respond to these challenges we can not become progressively more invisible to customers. Instead we want to be a trusted service provider that works in partnership with customers to keep their bills fair and affordable while protecting and enhancing the local environment.

Our Smart Dorchester project is borne out of this aim. Building on what we have learned about our customers from the tariff and metering trial we plan to assess what impact we can have if we engage with our customers more fully at an individual and community level by:

- giving them clear and instant price and usage information helping them to both save water and save money
- showing them how their water use compares with similar households
- offering the ability to raise money for local schools and charities through a reward scheme
- providing practical water and energy efficiency advice.

Customers will have a choice of how to access this information using technology that they already have in their homes and premises. This could be:

- a smart phone
- a tablet device
- a laptop or pc
- or simply through a standard mobile phone.

We are aiming to sign up 1,000 customers including residential, local businesses and schools.

The trial is the first of its kind in the UK and will provide empirical evidence to the industry on the best strategies to encourage water efficiency while also maintaining customer support and satisfaction.