

3 August 2017

Dŵr Cymru Welsh Water  
[welshwater2050@dwrcymru.com](mailto:welshwater2050@dwrcymru.com)

Dear Sir or Madam,

## **Re: Welsh Water 2050 Consultation**

Waterwise is pleased to respond to Dŵr Cymru Welsh Water's (DCWW) consultation on your Welsh Water 2050 strategic plan. Waterwise was founded in 2005 and is the leading authority on water efficiency in the UK and Europe. We are an independent, not for profit organisation, receiving funding from supporters across and beyond the water sector and wider sponsorship and research projects. We like to be at the front, leading and supporting innovative efforts to realise our mission; that water will be used wisely, every day, everywhere.

We support the Glas Cymru board's mission statement "to become a truly world class, resilient and sustainable water service for the benefit of future generations". Water efficiency is a key contributor to resilience, and water companies are currently carrying out large-scale retrofitting and customer engagement programmes. But water efficiency, scaled up even further, is also an invaluable tool in driving customer participation – as well as using water efficiency programmes to get customers to help deliver water savings, it can contribute to multi-layered relationships to help inform, track and improve customer service and outcomes across companies.

We launched the Water Efficiency Strategy for the UK, developed in partnership with the water sector, in June 2017. Our response outlines how actions from the strategy contribute to the DCWW strategic responses. Waterwise propose to set up a Water Efficiency Roundtable in Wales in 2017 and hope to work with DCWW to deliver this also.

Attached are our detailed responses to your consultation questions. We look forward to working closely with DCWW, the Welsh Government, CCWater and others to deliver greater ambition on water efficiency in Wales.

Yours sincerely,



Aaron Burton MCIWEM C.WEM CEnv CSci  
Director of Policy and Innovation

## Response to consultation questions

### **Q1. Have we identified the right trends?**

The consultation has identified a wide range of trends, which provides a good basis for comparing strategic options against for resilience. We have a few comments on the trends identified:

Demographic change - Although it is identified later in the consultation document, we suggest potential changes in population distribution and the number of UK based holiday makers in Wales should feature as a key factor in this section.

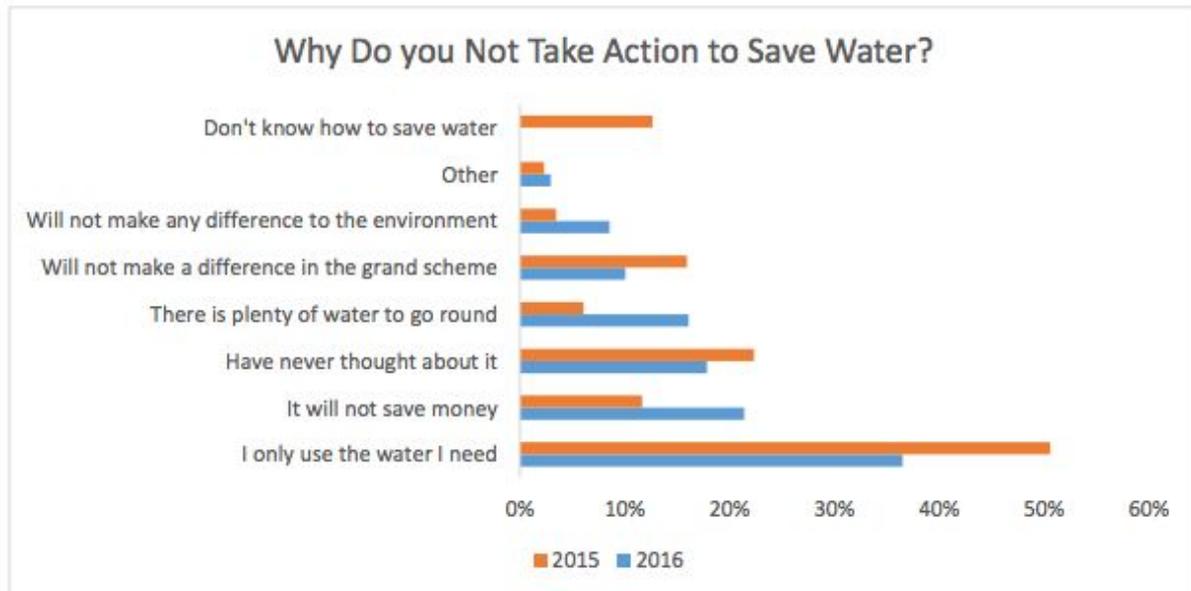
Climate change - We recommend using the UKWIR (2013) Impact of Climate Change on Water Demand to inform this section as required by the NRW [Final Water Resources Planning Guideline](#), rather than the previous 2003 report. The consultation highlights nine water resource zones likely to fall into deficit between 2015 and 2040 and increased domestic water demand of between 1.5-3% due to increased garden watering and increased bathing associated with warmer weather.

Although drought is identified as a future challenge most of the discussion is about opportunities for DCWW to trade with adjacent water utilities. All water companies should be considering demand management options before new large scale transfers and DCWW should consider this in discussion with adjacent water companies and regulators to ensure resilient and sustainable supplies for all parties. Water efficiency provides a key way in which DCWW can become resilient to drought as identified in the Water UK Long Term Water Resources Planning Framework Report.

Changes in customer expectations - We agree that changes in lifestyle and demographics may increase demand for water. It should be noted that dishwasher use, highlighted as increasing water use, can often be more efficient than hand washing dishes.

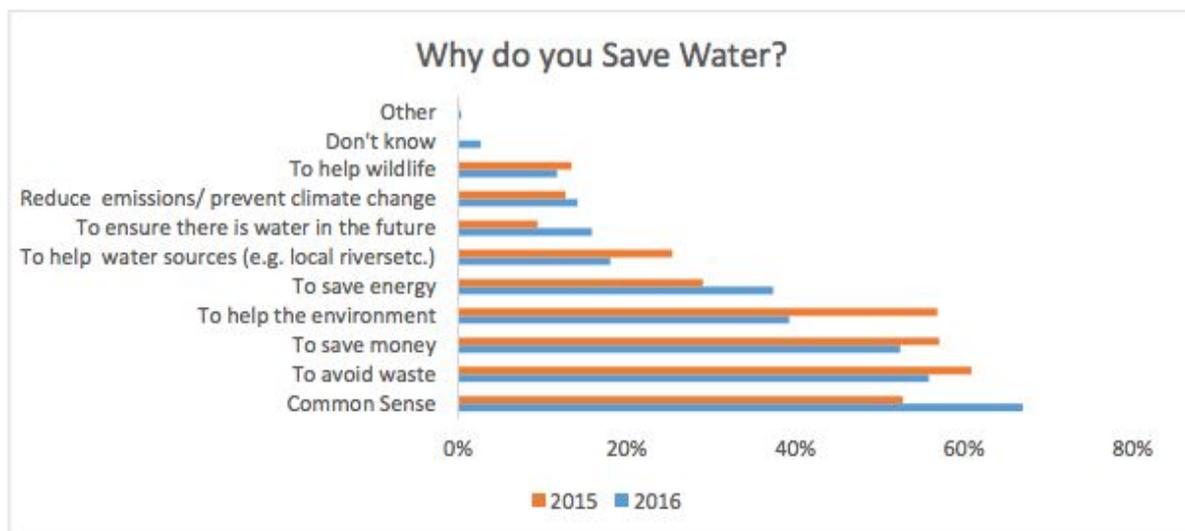
We disagree with the statement that water is seen as an essential resource and that efforts to limit consumption could be met with strong resistance from the customer base. Water efficiency has been consistently shown to be a positive way of engaging with customers around the service they receive and how they can actively participate in water cycle management. The National Survey for Wales (2017) found 67% were concerned about climate change: 21% were very concerned and 46% fairly concerned. After space heating, hot water heating is the next biggest energy use in homes and water efficiency can cost-effectively help Wales meet its emission reduction goals.

Waterwise asked households in England and Wales why they do not currently take action to save water ([Waterwise, 2016](#)). Seeing it as an essential resource was not one of the reasons provided (Figure 1).



**Figure 1** Survey responses on why households don't take actions to save water

When households were asked why they save water the majority suggested commonsense, avoiding waste, saving money, and to help the environment (Figure 2).

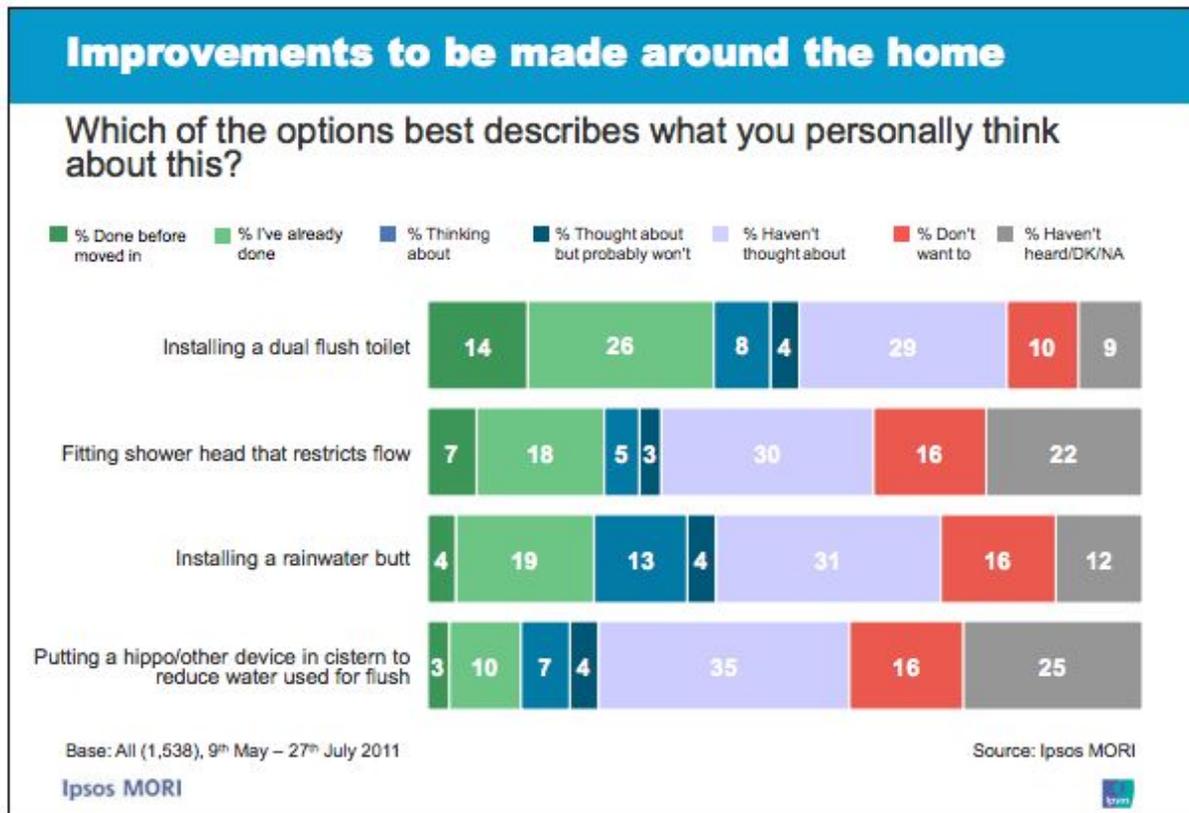


**Figure 2** Survey responses on why households don't take actions to save water

This survey found 67% of GB adults have not received any water saving information and/or free water saving devices to their household in the past year. **This is highest in Wales, where 85% reported they have not received this.** We suggest that this is a greater risk to DCWW around customer expectations than potential backlash around customers viewing water as an essential resource.

The Sustainability Survey ([Welsh Government. 2011](http://Welsh Government. 2011)) did identify some “resistance” to water efficiency. This includes 16% saying they don't want to take a shorter shower and 35% have

never thought about installing a water saving devices such as a hippo in their cistern. However, for the the majority of 'negative' responses, respondents either hadn't thought or heard about water efficiency options (Figure 3). There is a need to communicate the benefits of water efficiency, including links to energy efficiency and reducing bills, as well as the latest products such as new water efficient showerheads that can now provide similar feel to power showers with reduced flow.



**Figure 3 Opinions towards water efficiency in wales from sustainability survey 2011**

We agree with the digital revolution trend you have outlined and how this is changing customer expectations. This section misses the fact that smart metering and the internet of things in relation to water use should be designed to help customers manage their water use efficiently. This is a key service that water companies will be expected to provide as customers receive similar service from the energy sector. Waterwise has been involved in a European Commission funded project called [DAIAD](#), trialling smart shower monitors. We have trialled this in St Albans as well as internationally and find customers more engaged with the utility having this device and an app as well as saving around 20% on water consumption.

We support better customer segmentation to target services - water efficiency should be a key service offered to businesses (as seen in retail competition in England and Scotland) as well as to households (as seen by leading companies such as Northumbrian Water, Southern Water and Thames). It is also important that segmentation is more finely

[www.waterwise.org.uk](http://www.waterwise.org.uk)

granulated than household vs businesses. This can be done through the utilisation of smart metering and microcomponent data, as well as demographic and self-reported data. Waterwise are preparing a behaviour change handbook with advice on approaches and are keen to work with all our supporters to help reduce water demand and meet customer expectations through new approaches.

Vulnerable customers - Ofwat's PR19 framework report ([Ofwat, 2017](#)) identified 32% of households spend more than 3% of their income on water, while 15% spend in excess of 5% in Wales. Water Efficiency should be promoted as a key method of helping these customers and can be delivered in partnership with the social housing (17% of housing in Wales) and energy retrofit programmes targeted at poverty.

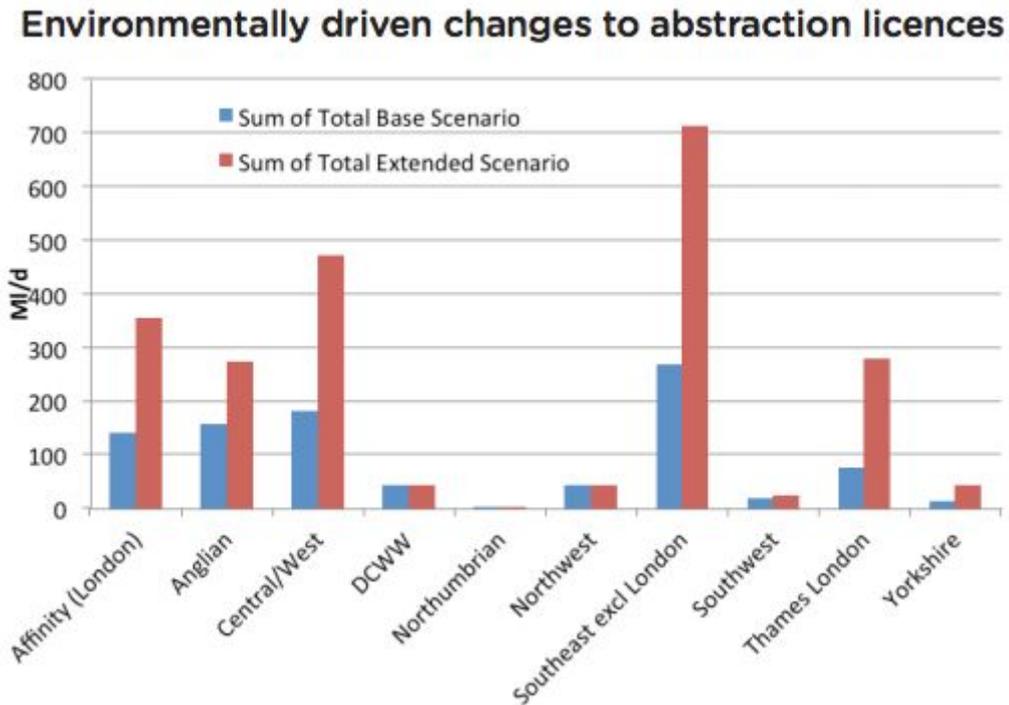
Customer expectation and loyalty is a useful trend to identify. Although Wales hasn't progressed towards retail competition for water services in the same manner as England and Scotland, customers still have expectations as outlined above on provision of water efficiency services and information to help them manage their demand and service from water companies.

Changes to the structure of the economy - The consultation identifies increased demand from industry and tourism as key potential issues for Wales. By providing water efficiency services capacity can be freed up to enable this economic growth, particularly in small water resource zones that have already been identified as having deficits.

The resilience of water and wastewater systems and services depends on a resilient ecosystem - and the Welsh economy is entirely dependent on water. Without water, shops, offices, factories, schools, hospitals and transport can't function - they couldn't even open for a day if there were cuts in supply, now or in the future. Welsh Water's customer base, household and non-household, continue to pay their water bills based on trust and confidence in these services. Lack of water or significantly polluted rivers can lead directly to a loss of confidence - and financial penalties of significant magnitude from Ofwat and Natural Resources Wales. (Thames Water's recent fines for environmental pollution and missing their leakage targets attached to their PR14 performance commitments are clear evidence of this).

Energy costs are highlighted in relation to DCWW, however it should be noted that energy costs associated with heating water are significant for both households and businesses and need to be addressed through water efficiency programmes.

Environmental change - This section doesn't reflect the potential scale of abstraction reform impacts on water availability. As outlined in the Water UK Long Term Water Resources Planning Framework Report (Figure 4) this will impact on DCWW but also adjacent companies in the Central/West region, which could change patterns of water demand and impacts on water sources.



**Figure 4 Impacts of changes to water abstraction on water available for use including DCWW and adjacent companies in the Central/ West region**

Policy and regulatory change - We welcome the recognition of devolution to the city level as an opportunity for DCWW to engage with customers. Undertaking city-scale approaches to water efficiency has been shown to be effective in many other countries around the world along with whole-town approaches in the UK. Addressing climate change through “Smart Cities” has gained a lot of traction, however this tends to focus on energy issues rather than water. Water efficiency should form a key role in “smart” cities and communities in Wales.

[www.waterwise.org.uk](http://www.waterwise.org.uk)

**Q2. Have we developed the right strategic responses in order to meet these trends?**

We support the range of strategic responses developed in order to meet these trends. We also support the research and innovation being led by DCWW, with projects presented at a recent Wales Water Forum meeting on water efficiency including ([Waterwise, 2017](#)):

- Trialling 250 smart meters in the Grangetown area of Cardiff as part of the EU-funded WISDOM project
- Implementing smart metering for 3,130 people in Twyn Aberdyfi
- Delivering welcome packs to customers who've chosen to have a meter and to new customers
- School outreach programmes using data loggers to gather water use information and linking with eco-schools programmes
- Household audits and retrofits – aiming to reach 5,000 customers

However, we believe that improvements in water efficiency can help deliver greater engagement and meeting customer expectations than is currently reflected in the plan. In the table below we have used blue triangles to highlight where water efficiency could be part of your strategic options and it can deliver against these trends. Water efficiency can play a much stronger role across the strategic approaches.

Responding to the future trends

+ Opportunities associated with this future trend are harnessed by the strategic response

- Challenges associated with this future trend are mitigated by the strategic response

STRATEGIC RESPONSES	FUTURE TRENDS							
	DEMOGRAPHIC CHANGE	CLIMATE CHANGE	CHANGES IN CUSTOMER EXPECTATIONS	CHANGES TO THE STRUCTURE OF THE ECONOMY	ENVIRONMENT CHANGE	CHANGES TO ESSENTIAL INFRASTRUCTURE	POLICY AND REGULATORY CHANGE	PROTECTING PUBLIC HEALTH
1. Safeguarding clean drinking water by working with nature				<span style="color: green;">+</span> <span style="color: red;">-</span>	<span style="color: green;">+</span> <span style="color: red;">-</span>		<span style="color: green;">+</span> <span style="color: red;">-</span>	<span style="color: green;">+</span> <span style="color: red;">-</span>
2. Enough water for all	<span style="color: blue;">▲</span> <span style="color: red;">-</span>	<span style="color: green;">+</span> <span style="color: red;">-</span>	<span style="color: blue;">▲</span>	<span style="color: green;">+</span> <span style="color: red;">-</span>	<span style="color: red;">-</span>		<span style="color: blue;">▲</span> <span style="color: red;">-</span>	
3. Improving the reliability of drinking water supply systems		<span style="color: red;">-</span>			<span style="color: red;">-</span>	<span style="color: red;">-</span>		
4. Protecting our critical water supply assets		<span style="color: red;">-</span>		<span style="color: red;">-</span>	<span style="color: red;">-</span>	<span style="color: red;">-</span>		
5. Achieving acceptable water quality for all customers	<span style="color: red;">-</span>	<span style="color: red;">-</span>				<span style="color: red;">-</span>		
6. Towards a lead free Wales		<span style="color: red;">-</span>					<span style="color: green;">+</span> <span style="color: red;">-</span>	<span style="color: red;">-</span>
7. Addressing our 'worst served' customers	<span style="color: red;">-</span>		<span style="color: red;">-</span>					
8. Employer of choice	<span style="color: green;">+</span> <span style="color: red;">-</span>		<span style="color: red;">-</span>	<span style="color: green;">+</span> <span style="color: red;">-</span>				
9. Leading edge customer service	<span style="color: green;">+</span> <span style="color: red;">-</span> <span style="color: blue;">▲</span>		<span style="color: blue;">▲</span> <span style="color: green;">+</span> <span style="color: red;">-</span>	<span style="color: blue;">▲</span> <span style="color: green;">+</span> <span style="color: red;">-</span>			<span style="color: blue;">▲</span>	<span style="color: green;">+</span>
10. Smart water business	<span style="color: blue;">▲</span> <span style="color: red;">-</span>	<span style="color: blue;">▲</span> <span style="color: red;">-</span>	<span style="color: blue;">▲</span> <span style="color: red;">-</span>	<span style="color: green;">+</span> <span style="color: blue;">▲</span>		<span style="color: green;">+</span> <span style="color: red;">-</span>	<span style="color: blue;">▲</span>	
11. Using nature to reduce flood risk and pollution	<span style="color: red;">-</span>	<span style="color: red;">-</span>		<span style="color: red;">-</span>	<span style="color: red;">-</span>	<span style="color: green;">+</span> <span style="color: red;">-</span>	<span style="color: green;">+</span> <span style="color: red;">-</span>	
12. Cleaner rivers and beaches	<span style="color: red;">-</span>	<span style="color: red;">-</span>		<span style="color: green;">+</span> <span style="color: red;">-</span>	<span style="color: red;">-</span>		<span style="color: green;">+</span> <span style="color: red;">-</span>	<span style="color: green;">+</span> <span style="color: red;">-</span>
13. Protecting our critical wastewater assets		<span style="color: red;">-</span>	<span style="color: red;">-</span>	<span style="color: red;">-</span>		<span style="color: red;">-</span>		
14. Playing our part in combating climate change		<span style="color: blue;">▲</span> <span style="color: red;">-</span>	<span style="color: blue;">▲</span>	<span style="color: blue;">▲</span> <span style="color: green;">+</span> <span style="color: red;">-</span>			<span style="color: blue;">▲</span> <span style="color: green;">+</span> <span style="color: red;">-</span>	

**Figure 5 Water efficiency (represented by blue triangles) contributes across the range of DCWW strategic responses and future trends**

### **3. Which strategic responses are priorities in the next 5-10 years in order to start to meet the challenges and opportunities up to 2050?**

Enough water for all - The Water Strategy for Wales ([2015](#)) outlines how the government wishes to promote water efficiency in Wales. They plan to “work with the water companies and other interested parties to encourage and incentivise engagement and action on water usage, to challenge perceptions and to promote the benefits of water efficiency”. The aim is to “assist both domestic and business consumers in reducing their water consumption”.

We support the need for water efficiency, water reuse and water metering to enable DCWW to deliver enough water for all. As outlined above it is great to see investment in research and innovation around water efficiency and smart metering in Wales. However, water efficiency and metering shouldn't just be considered in deficit zones and from a water resources planning perspective only. Water efficiency as part of this strategic response could deliver across a range of the future trends and challenges identified. In Figure 5 we have highlighted the links to changing customer expectation and policy/ regulatory changes.

As outlined in the strategy report, currently only two zones would receive water efficiency programmes and the updated DCWW Water Resources Management Plan should consider the wider range of costs and benefits linked to water efficiency programmes. The evidence base for water efficiency projects/ programmes has also advanced in recent years and should be accounted for in new plans. This should include whole town approaches, combined water efficiency and metering programmes, rebates/ incentives, and partnerships for delivery.

Reflecting a direct economic benefit to Welsh Water, innovation and ambition in water efficiency would make a significant contribution to the development of an 'exceptional' plan in PR19 - Ofwat will give a financial reward of 0.2% per annum of regulated equity to any plan it judges exceptional. Ofwat's draft methodology for PR19 states that 'exceptional status will be awarded to plans that are high-quality with significant ambition and innovation for customers'. The PR19 framework will also require Welsh Water to set a performance commitment on per capita consumption, which water efficiency would contribute to.

“Guidance on water and associated energy efficiency for the Welsh Housing Quality Standard for retrofit programmes” was published in 2012. The guidance set out the key reasons for saving water in social housing and detailed what providers can do in procurement and retrofit programmes. It was estimated that if every social housing property in Wales had water-efficient taps and a retrofitted toilet and shower, combined energy and water bills could be reduced by £3.5 million a year. Effective partnerships between DCWW and Housing Associations are needed to support these benefits. Additionally, water efficiency within Welsh Government energy efficiency programmes should be pursued

[www.waterwise.org.uk](http://www.waterwise.org.uk)

further as a cost effective way for both DCWW and the country to meet carbon emission reduction goals.

**Research and innovation** is still required to support more effective delivery of water efficiency programmes. Many companies across the UK are scaling up water efficiency programmes and trialling new technologies as well as partnership and collaborative approaches to delivery. Waterwise support the proposed research on assessing patterns of water consumption and piloting smart metering. The smart metering pilot needs to consider the wider costs and benefits of metering to enable future policy changes in this area for Wales.

Waterwise also suggest further innovation could be delivered through projects including:

- Catchment based approaches to water efficiency and engaging with customers
- Rainwater harvesting and water efficiency innovation
- Point of use shower monitoring and trialling other 'internet of things' approaches to support customer behaviour change in water consumption
- Whole House Demonstration Project – Retrofit & New Build – what does best practice water efficiency look like and how low can we go?
- City/ town-scale water efficiency platform
- Providing an app that communicates water supply and demand to communities in Wales - can link to incentive programmes also
- Supporting a water efficiency incubator fund for products and services to support the economy in Wales

The Waterwise Water Efficiency Strategy for the UK, developed with the water sector, includes several key actions we suggest are required in the next 5-10 years in Wales:

- Reviewing joint water and energy efficiency programme delivery to date - for example, Nest and Arbed.
- Developing an improved understanding of customers in Wales and opportunities to change behaviour and enhance their participation in water cycle management
- Reviewing implementation of the Welsh Housing Quality Standard guidance for Water and Energy Efficiency
- Further trialling of innovative water efficiency, using new technologies and customer engagement approaches

Leading edge customer service - With Ofwat's focus on customer engagement and moves towards customer 'participation' in management of the water cycle, leading edge customer service delivery will be key. Water efficiency should play a key role in this. As we identified in response to the trends you have identified 85% of households in Wales have not received

[www.waterwise.org.uk](http://www.waterwise.org.uk)

any water saving information and/or free water saving devices to their household in the past year.

Waterwise have launched a Leadership Group for Water Efficiency and Customer Participation. This includes representation from DCWW and other water company executives responsible for customer communications and engagement. At the first meeting all attendees signed up to the pledge outlined in the infographic below (Figure 6).



Figure 6 Infographic explaining the Waterwise Leadership Group for Water Efficiency and Customer Participation

[www.waterwise.org.uk](http://www.waterwise.org.uk)

We support the innovation actions on use of behavioural economics but would encourage the use of a wide range of behavioural approaches. Several key actions from the Water Efficiency Strategy for the UK can also help deliver this strategic response:

- Developing an improved understanding of customers in Wales and opportunities to change behaviour and enhance their participation in water cycle management
- Developing a Water Efficiency and Customer Participation Leadership Group, including representation from DCWW

Smart water system management - Water efficiency and smart metering need to form a key element of this strategy. There is increasing recognition of the need to better utilise “Big Data” such as smart metering information and the Internet of Things (IoT) to better manage water. These technology trends can potentially revolutionise the water sector, by providing highly detailed data and actionable insights throughout the water lifecycle; from production and distribution, through to consumer engagement. Low-cost IoT-based sensing devices (e.g. of flow, pressure, quality) monitoring, analysing and transmitting data throughout the water network (from a well to a household) can have a significant effect on the entire water value chain. The technology-driven pollination of water data with other data sources (eg weather, energy) and systems (eg smart home, Cleanweb, open data) can further increase opportunities for extracting value from the data. Such benefits are apparent in the energy sector, a perfect example of the application of Big Data technologies. Energy utilities enjoy state-of-the-art Big Data systems to monitor, analyse, and automate energy production, management, and demand. At the same time, they have joined a growing ecosystem of customer-centric products and services for energy monitoring and automation that provides them with further data, capabilities, and insights.

For research and innovation in this area we suggest there are many opportunities to learn from the range of ICT4Water cluster projects funded by the European Commission. For example, the DAIAD project using smart shower monitors and an app for feedback to customers could be useful for engaging households on water and energy use in Wales.

Key actions from the Water Efficiency Strategy for the UK that we could deliver with DCWW is:

- Understanding opportunities for open data and potential for influencing partnership projects and planning decisions
- Support innovation and wide-scale adoption of big data analysis and the internet of things to support greater understanding of demand and behaviour change in water efficiency programmes

Using nature to reduce flood risk and pollution - Waterwise recognises and supports the leading edge work DCWW have been delivering through the Rainscape programme. There are further opportunities for engaging households on both water efficiency and sustainable drainage in projects being delivered in Wales for PR19.

[www.waterwise.org.uk](http://www.waterwise.org.uk)

The Water Efficiency Strategy for the UK contains a key action that would deliver against this also:

- Joining up water efficiency with other water projects in communities, such as on sustainable drainage and flood risk reduction – building on examples like Greener Grangetown

#### Playing our part in combatting climate change

Water efficiency has positive benefits for climate change resilience and adaptation but also in terms of mitigation. Heating hot water in the home is the second largest use of energy after space heating and accounts for around 5% of the UK's carbon emissions. Simple water efficiency measures have been shown to be very cost effective in reducing energy use and carbon emissions. DCWW can play a leading role in climate change mitigation by not only addressing embedded carbon from water supply-use-disposal but also helping homes and businesses save water and energy through water efficiency. Where issues arise in terms of claiming the benefits of carbon emission reduction we believe the Welsh Government should support DCWW in helping it meet carbon emission reduction targets for Wales.

#### **Q4. Which scenario (progressive or comprehensive) is appropriate for each strategic response?**

We support a comprehensive approach for delivering against these strategic responses, in particular, to deliver 'enough water for all'. A comprehensive approach should go beyond the statutory requirements outlined and identify where water efficiency can help address water supply and customer engagement trends and challenges. DCWW has already signed up to the Waterwise Leadership Group pledge to make water efficiency a strategic and customer participation issue and we hope to work with DCWW to understand what this means for PR19.

#### **Q5. What level of trade-off are you prepared to accept between bills and long-term investment in your water and wastewater service?**

With recent changes to TOTEX approaches and tools such as the revenue correction mechanism, Waterwise suggests that water efficiency options should be given priority implementation to defer new supply options but also delivered across DCWW to meet wider objectives.