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30 August 2017

PR19 Draft Methodology
water2020@Ofwat.gsi.gov.uk

Dear Sir or Madam,

Re: Ofwat consultation on Delivering Water 2020 - consulting on our methodology for the 2019 price review

Waterwise is pleased to respond to Ofwat's consultation on your methodology for the 2019 price review - although we consider that the consultation period, over the summer, was too short for such a weighty document.

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.

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 know Ofwat is keen to see larger-scale water efficiency and we support Defra's expectation that Ofwat "promote ambitious action to reduce leakage and per capita consumption". This also links to the requirement to promote water efficiency in Ofwat's resilience duty. However, it isn't clear in the executive summary or the main consultation document for the PR19 framework that Ofwat specifically wants to see this higher ambition on water efficiency in company business plans, and we ask that such a clear statement be included. A clear message needs to be sent to water companies that Ofwat supports their efforts towards greater water efficiency linked to innovation in customer engagement.

In June 2017 Waterwise launched our 'Water Efficiency Strategy for the UK". We produced this in partnership with the wider water sector and it is being delivered by a Water

UK-supported Steering Group. Cathryn Ross was highly supportive of this in the press release for the Strategy launch:

'It's really clear that far more ambitious water efficiency will need to be a key part of how the water sector delivers resilient and affordable services to its customers, now and in the future. Water efficiency is a key strategic issue - and one that is entirely in line with the sector's drive to become more customer-led. I'm delighted that Waterwise and the sector are working together to help establish new frontiers on water efficiency.'

Waterwise has been highly supportive of Ofwat's work on customer engagement and participation, in particular the Tapped-In report. We have launched the 'Leadership Group on Water Efficiency and Customer Participation', which bring together Chief Customer Officers and equivalents of all the UK water companies in a more ambitious approach to wasting less water - using this to drive a more customer-led culture. At the launch of Tapped-In Cathryn Ross said: 'As we move beyond value for money to the value of water to communities, customers and the environment, water efficiency is a fundamental strategic issue, rightly on every Board agenda, and must be approached through the customer lens rather than as a dry technical supply demand issue'. We would like to see this specific message repeated in the methodology.

The key elements of our response include:

- Waterwise would welcome the opportunity to work with Ofwat to further develop guidance on a common performance outcome related to water consumption that can help incentivise water efficiency ambition. In Appendix 1 we attach our analysis of water consumption performance commitments in PR14 and potential targets in PR19.

- We ask Ofwat to explicitly say in the methodology that water efficiency and smart metering is important for all companies - and to ask them to include smart metering for all their customers in the options they develop to put to customers, and say why they haven't chosen this option, if they don't. The Water UK Long Term Water Resources Planning Report clearly shows that all parts of uk will have more frequent and intense and longer droughts (modelled at 25 and 50 years) and this fits in with long-term emphasis in PR19 framework. Even for companies with no deficit now, water efficiency makes sense commercially as it makes space for greater trading.

- Bespoke commitments on water efficiency as a way to further incentivise ambition in this area. We suggest some approaches to defining what best practice is and that this needs further investigation to inform the final methodology.

- We outline a broader range of water efficiency indicators that could be used by water companies as performance commitments. We would welcome the opportunity to

discuss these with Ofwat in relation to what “best practice” water efficiency might constitute.

- We suggest that companies should set stretching PCC performance commitment levels in the same manner as has been outlined for leakage targets - justifying any plan not to meet frontier levels. We suggest a similar approach for smart metering programmes to every home - that Ofwat require companies to develop options for smart meters to all homes to discuss with customers, and justify why they’re not taking them forward if they don’t

- We ask that Ofwat give some examples of what an 'exceptional' plan might look like - for example might this be one written jointly with energy and agriculture sectors, and product manufacturers; one that has whole-circuit systems built in such as using stormwater as a resource; one that engages as above with every domestic customer via smart meter (which can directly help improve customer service etc) and retrofit

- We give a number of international examples of using water consumption targets to drive innovation

Attached are our detailed responses to your consultation questions. We look forward to working closely with Defra, Ofwat and water companies to deliver water efficiency in PR19. Ambitious and innovative demand management delivers against all four Ofwat priorities - affordability, customer service, resilience and innovation.

Yours sincerely,

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

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Response to Consultation Questions

2. Customer Engagement

We welcome the shift in emphasis towards customers as active participants, rather than passive recipients of a service. Water efficiency is a key tool for greater engagement with customers, as well as for resilience, and we would like to see innovation in this area in company business plans. We ask that Ofwat clearly set out such a requirement in the methodology.

We support the proposal to engage customers on longer-term issues such as resilience, security of services and long-term affordability of bills. Water companies could learn from other sectors who face similar challenges and already have to communicate complex risk issues, such as around flood risk, nuclear decommissioning and health.

Waterwise has launched a Leadership Group for Water Efficiency and Customer Participation - to drive customer participation as well as resilience, through more ambitious water efficiency. Chief Customer Officers and their equivalents from all UK water companies are signed up to the Group. At the first meeting all attendees signed up to the pledge outlined in the infographic below.

On the opening of the retail market, it is important that wholesalers do not lose touch with their ultimate customers. We recommend that Ofwat consider requirements on wholesalers to engage with business end-customers on the wholesale service and what this service should look like. We also still think that the information flow and responsibilities for resilience between retailers and wholesalers is not clear in practice.

3. Addressing affordability and vulnerability

We support measures to address vulnerability and affordability for customers. Ofwat and water companies should be tracking uptake of support by eligible customers as a performance metric as it is a measure of an effective outcome, rather than focussing on the availability of support.

Q1. Do you agree with our approach to assessing abstraction charges?

Like our colleagues in the Blueprint for Water NGO coalition, we support the proposal for separate assessment of abstraction charges.

In principle, it seems appropriate that abstraction charge costs are not simply passed on to customers, as this does nothing to encourage efficiency of water use and means customers will simply pay for companies to hold on to unused/under-used licenses, perpetuating problems with over-allocation.

However, we are concerned that the characterisation of the abstraction charging systems presented in Appendix 12 is inaccurate. In particular:

- The assertion that pricing relates to environmental sensitivity fails to recognise that price differential related to season and abstraction use/loss factor, rather than the sensitivity of the donor water source itself. As a result, abstractions for the same purpose, at the same time of year, in the same region, will attract the same charge irrespective of the damage being done
- Abstraction charges from “supported” sources attract a price premium, but may be significantly less environmentally damaging
- Regional differences in unit charges reflect administrative costs rather than environmental sensitivity/resource scarcity.

4. Delivering outcomes for customers

Q1. Do you agree with our proposal for common and bespoke performance commitments?

AGREE

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Waterwise fully supports the Ofwat proposal to include both common and bespoke performance commitments in PR19. This approach will support incentivisation between water companies on water efficiency and leakage both towards the frontier and for resilience, whilst providing for flexibility through bespoke performance commitments that reflect their customers and situation.

Q1a. Do you agree with the common PCs (1-14)?

AGREE

We believe that the combination of the following indicators will help Ofwat demonstrate to Defra how it is going to "promote ambitious action to reduce leakage and per capita consumption, where this represents best value for money over the long term", as well as reflect its resilience duty:

- Leakage
- Per capita consumption (PCC)
- Risk-based resilience metric (water): drought risk

Per capita consumption (PCC) represents the best indicator available for Ofwat and water companies to base ODIs around. Appendix 3 of the consultation outlines the definition of this indicator and that it will be measured and reported as in water resources management plans. PCC is calculated as total consumption (both metered and unmetered households) divided the by the total population and expressed in units of litres per head per day (excluding underground supply pipe leakage). Using PCC as a common PC will enable better comparison between companies and target setting based on frontier companies.

Based on the performance indicators in PR14 we feel that this indicator requires further definition and discussion around:

- How maximum likelihood estimation is used
- How PCC is calculated between measured and unmeasured households
- The interaction of PCC with leakage components of the water balance and how to ensure transparency in reporting
- What decimal place companies are reporting to

Alternative approaches to PCC targets could include a wider range of explanatory factors around socio-economic and environmental differences between water companies. However, there is a risk that this may result in a "black box" model for each individual company and reduce comparability across the sector and the ability to promote ambition on water efficiency. Alternative indicators may be suitable for the bespoke performance commitments, however given the time available to develop new metrics, we suggest that PCC remains the most appropriate common commitment measure for water efficiency in PR19.

PCC Approaches

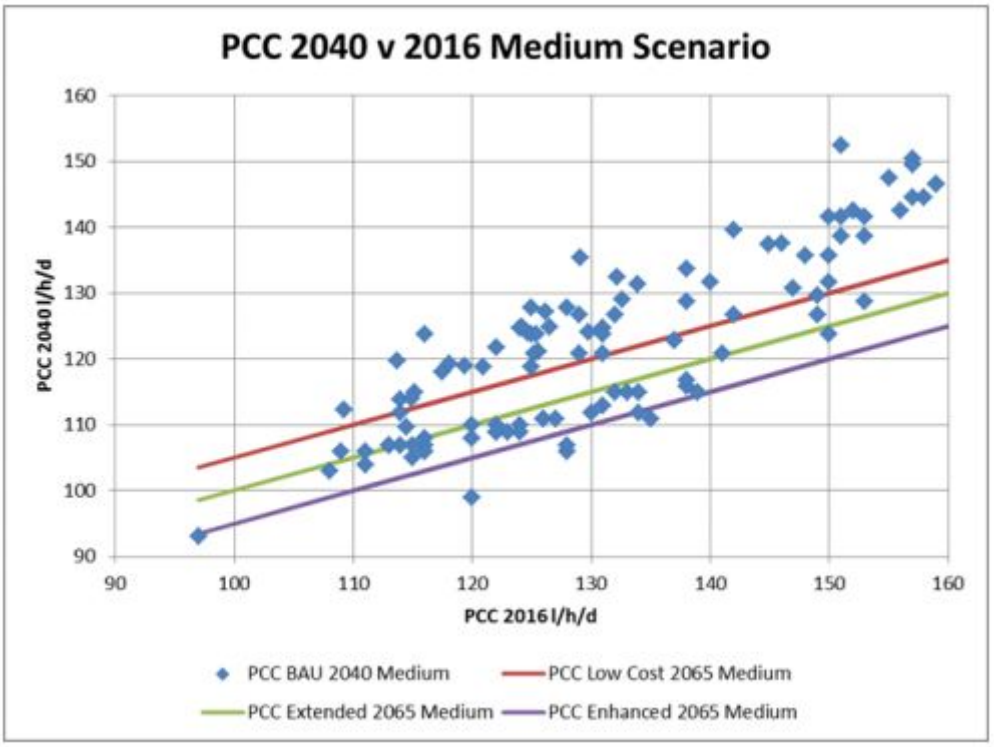
Waterwise has undertaken a review of water efficiency and PCC targets in PR14 (Appendix 1). Of the 19 companies all except four companies had targets around per capita consumption and water efficiency. The majority had targets based on per capita consumption in litres per person per day, while one had a target based on water saved from water-efficient devices, one had a target based on water into supply divided by total population, and two had liters per household/ property targets.

On average these represented a 5% reduction in consumption. Only five companies had a financial performance target and only one of these included a reward. There were many reputational targets, although these often reported back to the CCG only. More visible reputational targets reported using the Discover Water portal or the Consumer Council for Water Delving into Water Reports may have driven greater water efficiency ambition.

Current PCC ranges from a maximum of 161 l/h/d to a minimum of 127.5 l/h/d with an average of 139.63 l/h/d. Although there was a decreasing trend over the last five years, in 2015-16 an increase in both metered and unmetered consumption was reported (CCWater 2016).

There is a general recognition within the UK water sector that per capita consumption varies greatly between water companies and between water resource zones within water companies. This is partly due to actual variation and partly due to variations in how unmeasured per capita consumption is measured and how this is treated within the water balance against levels of leakage reported. A Water-UK funded report is currently investigating these issues.

The Water UK Long Term Water Resources Planning Framework report looks at PCC in relation to resilience and how targets could address this. The report suggests that Water Resource Zone level targets could be developed, however this would need further investigation in order to be practically applied. Any WRZ approach to setting targets would need to consider the frontier of efficiency intra- and inter-company.



Other consumption indicators

Feedback from the consultation responses to Waterwise's Water Efficiency Strategy for the UK suggested more work on wider water footprints and virtual water use for sectors of the economy; using distribution input; using per household consumption; and using a multi-channel approach where both physical devices and consumer behaviour are measured. Monitoring of external variables was also suggested to target programmes including average peak demand, maximum per capita demand, population, demand restrictions and annual rainfall. Targets also need to be based on reported water savings rather than assumptions, in order to drive water efficiency.

The assessment of PR19 performance outcomes undertaken by Waterwise (Appendix 1) indicates that alternative consumption of water efficiency indicators included:

- Per Property Consumption (PPC) (litres/household/day reduction)
- Resource efficiency (amount of water we take out of the environment) – total water into distribution/ household population
- Reduced water consumption from issuing water efficiency devices to customers, measured in Ml/d. The calculation of the demand reduction from these devices follows Ofwat guidelines (Ofwat – June Return Reporting Requirements, 2011) and is reported as part of the annual return.

- Per household consumption - The calculation is total household consumption divided by the total number of household properties (excluding voids). The unit of measure is litres per property per day (l/prop/d).

A summary of the advantages and disadvantages of a range of water consumption indicators if provided below (Dziegielwski & Kiefer, 2010). The main issue raised with PCC is variability in population (e.g. transient holiday populations) and with estimates of population at the property level.

Metric	Definition	Advantages (↑) and Disadvantages (↓)	
		Numerator: Water Quantity	Denominator: Scaling Variable
PQ_c	Per capita production	↑ There is good availability of data on water production.	↓ Population served is defined differently by water utilities and cannot be measured accurately.
PQ_a	Production per account	↑ Water exports can be excluded (and imports included).	↑ Number of billed accounts is known for each billing period.
PQ_{ea}	Production per "equivalent" account	↓ Total includes real water system losses.	↓ Number of equivalent accounts is more precise than population served.
		↓ This metric cannot account for different composition of water use among primary sectors.	
SQ_c	Retail sales per capita		↓ Estimates of population served are imprecise.
SQ_a	Retail sales per account	↑ This metric separates out system losses from total water use.	↑ Number of equivalent accounts depends on sectoral water use characteristics.
		↓ This metric cannot account for different composition of water use among primary sectors.	↑ Number of billed accounts is known for each billing period.
SQ_{ea}	Retail sales per equivalent account		↓ Number of equivalent accounts depends on sectoral water use characteristics (applies to SQ_{ea} metric only).

Additional metrics have been considered by the American Water Works Association, including average daily (annual) sector-specific water use as well as metrics that incorporate nonseasonal and seasonal sector-specific water use. These require further investigation for applicability in the UK but are outlined below.

Metric	Definition	Advantages (↑) and Disadvantages (↓)	
		Numerator: Water Quantity	Denominator: Scaling Variable
AUM_a^{SF}	Annual single-family use metric per account	↑ Definition of single-family sector is generally consistent. ↓ Sector usage is influenced by seasonal and weather-sensitive end uses.	↑ Number of billed single-family customers is known for each billing period and closely approximates housing units.
AUM_a^{MF}	Annual multifamily use metric per account	↓ Definition of multifamily sector generally varies across utilities.	↓ Number of billed multifamily customers does not represent the number of occupied housing units. ↓ Average number of units served per multifamily account varies across utilities.
AUM_a^{NR}	Annual nonresidential use metric per account	↓ Nonresidential sector includes dissimilar users, and sector definition generally varies across utilities.	↑ Number of nonresidential accounts is available and more accurate than employment and other counting variables.

Metric	Definition	Advantages (↑) and Disadvantages (↓)	
		Numerator: Water Quantity	Denominator: Scaling Variable
IUM_a^{SF}	Indoor (nonseasonal) single-family use metric per account	↑ Indoor use is considered relatively homogenous. ↓ This metric can include residual outdoor uses in areas with year-round irrigation and other outdoor uses.	↑ Number of billed single-family customers is known precisely for each billing period.
IUM_c^{SF}	Indoor (nonseasonal) single-family use metric per capita	↑ This metric scales indoor use for average number of people residing in households.	↓ Estimates of persons per household may contain errors.
OUM_a^{SF}	Outdoor (seasonal) single-family use metric per account	↑ This metric isolates weather-sensitive uses only.	↓ Classification of irrigation meters can confound estimates.
IUM_a^{MF}	Indoor (nonseasonal) multifamily use metric per account	↑ Indoor use is considered relatively homogenous. ↓ This metric can include residual outdoor uses in areas with year-round irrigation and other outdoor uses.	↓ Number of billed multifamily customers does not represent the number of occupied housing units.
IUM_c^{MF}	Indoor (nonseasonal) multifamily use metric per capita	↑ This metric scales indoor use for average number of people residing in households.	↓ Estimates of persons per household may contain errors.
OUM_a^{MF}	Outdoor (seasonal) multifamily use metric per account	↑ This metric isolates only weather-sensitive uses.	↓ Classification of irrigation meters or multiple meters can confound estimates.
IUM_a^{NR}	Indoor (nonseasonal) nonresidential use metric per account	↑ Indoor use is perhaps less variable than sectorwide use. ↓ This can include residual outdoor uses in areas with year-round irrigation and other outdoor uses.	↑ Number of nonresidential accounts is available and more accurate than employment and other counting variables.
OUM_a^{NR}	Outdoor (seasonal) nonresidential use metric per account	↑ This is a convenient measure of weather-sensitive uses such as irrigation and cooling.	↓ Classification of irrigation meters or multiple meters can confound estimates.

Metric	Definition	Advantages (↑) and Disadvantages (↓)	
		Numerator: Water Quantity	Denominator: Scaling Variable
ICI^{SF}	Indoor single-family conservation index	↑ Indoor use consists of nearly identical end uses across residential customers.	↑ This metric can be appropriately defined for each utility.
ICI^{MF}	Indoor multifamily conservation index	↓ Indoor use measure may include outdoor uses using minimum-month methods.	↓ This metric requires a baseline study on existing end uses.
OCI^{SF}	Outdoor single-family conservation index	↓ Outdoor use is rarely metered and has to be estimated.	↓ Outdoor benchmark values require multiple assumptions to reflect service-area characteristics.
OCI^{MF}	Outdoor multifamily conservation index		

Q1b. Do you agree with our proposals to set health outcomes?

N/A

Q1c. Do you agree with our approach to bespoke PCs including areas that bespoke PCs should cover?

Q2. Do you agree with our proposals on setting performance commitment levels?

Q2a. Do you agree with our proposals to setting bespoke performance commitment levels?

AGREE

We agree with the proposal for setting bespoke performance commitment levels.

For PR19 water efficiency should also feature in bespoke commitments under the areas outlined of:

- Price controls
- Vulnerability
- Environment
- Resilience
- Abstraction Incentive Mechanism

Research on what “best practice” and “high ambition” water efficiency looks like would be useful to support development and assessment of indicators in this area.

Other indicators that could be used for water efficiency

A broad range of indicators have been used internationally to identify best practice water efficiency. In 2009 the American Water Works Association funded a study to provide guidance on standardised methods of calculating metrics and to outline the advantages and disadvantages of these. The study utilised data from seven US water utilities to illustrate the appropriate use of metrics. Some of the key data and metrics that may be used within wider benchmarks and indexes are outlined. In particular the authors provide a detailed assessment of the advantages and disadvantages of metrics of aggregate water use such as per capita production, sector specific water use, annual and seasonal water use (see response to Question 1a).

Released in May 2016 the Sustainable Cities Water Index was produced by Arcadis and the Centre for Economics and Business Research. A sub-index was produced for efficiency and this is illustrated below. The index focuses on efficiency and controlled management of water and is built up from seven indicators. In this study Copenhagen ranks highest linked to one of the lowest rates of leakage, relatively high unit charges for water and a high proportion of metered supplies.

The table below outlines the indicators used in the efficiency sub-index and the sources of data behind them. A weighting is applied to the indicators also in calculating the total scores for cities.

INDICATOR NAME	DESCRIPTION	SOURCE
Leakage*	The proportion of water lost in transit. Includes unbilled consumption, apparent losses and physical leakage.	Smart Water Networks Forum, municipal water utilities, World Bank
Water charges	Average cost per cubic meter of water to consumers, relative to average income in city.	International Water Association, World Bank IB-NET, municipal water utilities
Metered water	Percentage of households whose water consumption is metered.	Municipal water utilities, World Bank
Reused wastewater	Wastewater reuse compared to total wastewater produced.	FAO-Aquastat, Water Reuse Association
Service continuity	Continuity of service, average hours per day over the whole network.	World Bank, municipal water utilities
Sanitation	Percentage of households with access to improved sanitation.	WHO/UNICEF Joint Monitoring Program for Water Supply and Sanitation
Drinking water	Percentage of households with safe and secure drinking water.	WHO/UNICEF Joint Monitoring Program for Water Supply and Sanitation

The Alliance for Water Efficiency is also promoting ANSI/AWWA G480 Voluntary Water Conservation Program Operation and Management Standard. The G480 Standard includes the following voluntary requirements (Alliance for Water Efficiency, 2013):

- Dedicated staff for conservation efforts (point of contact)
- Conservation planning
- Integrated resources planning
- Public information and education
- Water waste ordinance
- Universal metering practices
- Non-promotional water rate
- Monthly or bi-monthly billing based on metered use
- Landscape efficiency program
- Water loss control program

In 2011 the US Alliance for Water Efficiency surveyed 50 states to identify and assess water conservation laws and policies. The survey included 20 questions and each was scored qualitatively for the state. These ranged from 1 point for answering if there is a state agency in charge of drinking water conservation to 3 points for robust water loss regulation and policy with targets across all suppliers. Scores were then translated into a grading scale of A to D with A+ being the highest score and D the lowest (Alliance for Water Efficiency, 2011).

In 2016 the Texas Water Conservation Scorecard was released. This undertook a similar approach to the assessment of states above and applied it to the states 126 large and medium size utilities and a sub-set of criteria for the 180 small utilities. The results are available on an interactive website and in a report (Texas Living Waters, 2016). The criteria are below and had a range of points for different responses:

1. Did the utility submit its most-recent required Water Conservation Plan (WCP) to the State? WCP Submitted?

2. Did the utility submit its most recent Annual Report (on implementation of its Water Conservation Plan) to the State? Annual Report (AR) Submitted?
3. Did the Utility submit its most-recent annual Water Audit Report to the State?Water Audit Report (WAR) Submitted?
4. What was the Utility's most recent reported total percent water loss as stated in its Water Audit Report? Total Percent (%) Water Loss
5. Does the Utility (or municipality in which it is housed) have a publicly accessible website on which the public may quickly find the utility's Water Conservation Plan (WCP) and/or other conservation information? WCP and/or Conservation Info Accessible Online?
6. Did the utility achieve the 5-year goal for water use reduction stated in its "2009" or its most recent previous Water Conservation Plan (WCP)? Achieved 5-Yr Conservation Goal Set in 2009 WCP?
7. The utility already achieved a relatively low GPCD (gallons per capita per
8. day of water use)? If not, what is the 5-year goal for water use reduction in its "2014" or most recent Water Conservation Plan? Set a Strong Conservation Goal in Its 2014 WCP? How many of the municipal water conservation Best Management Practices (BMPs) presented in the state's BMP Guide did the utility report in its most recent Annual Report that it was using? Number of Best Management Practices (BMPs) implemented?
9. Has the utility (or the municipality under which it operates) implemented any mandatory outdoor watering schedules on an ongoing basis (not just as part of the implementation of a drought contingency plan)? Outdoor Watering Schedule?
10. Does the utility's water rate structure send a strong "water conservation pricing signal" to the utility's single-family residential customers? Conservation Pricing Signal?

Q2b. Do you agree with our proposals to set common performance commitment levels?

DISAGREE - more guidance is needed on PCC target levels

The common performance commitment level for per capita consumption should be treated in a similar manner to leakage targets. Our response below and analysis in Appendix 1 outlines how targets based on a frontier approach may look. Higher ambition on water efficiency can be delivered by ensuring performance commitments are linked to financial penalties and rewards.

We agree with the approach to setting initial service levels (2019-20) and for CCGs to challenge companies on their proposals. For PCC the initial service level should reflect water efficiency programmes that are expected to be delivered in PR14. The framework also requires companies to get to the frontier on day 1 (i.e. no glidepath). This is something that

will require greater ambition from water companies during the current period and could be a good way to ensure smoothing of effort across periods. However, it could act as a disincentive to implementing demand management programmes where benefits won't be seen up-front.

A range of approaches are outlined in Table 4.4 for assessing performance commitment levels. We support Ofwat's requirement for stretching common performance commitments so that they meet "at least the forecast upper quartile in 2014-25".

We believe companies should set stretching PCC performance commitment levels in the same manner as has been outlined for leakage targets:

- achieve forecast upper quartile performance (in l/h/d) where this is not being achieved – or justify why this is not appropriate;
- achieve ambitious PCC reductions. Companies will need to achieve the following minimum reductions or justify why not:
    - at least a 15% reduction (one percentage point more than largest reduction commitment at PR14); and
    - largest actual percentage reduction achieved by a company since PR14;
- justify their performance commitments relative to the minimum level of water use achievable (best practice/ high ambition water efficiency). This could include ratio based targets.

Due to the variation in environmental and social factors experienced by different utilities it was suggested by Dziegielwski & Kiefer (2010) that only ratio based indicators similar to the IWA infrastructure leakage index (ILI) would be appropriate. An indoor conservation index (ICI) formula was proposed based on the ratio of current intensity and presence of end uses. This may also have merit for application in the UK and should be considered in any review of "best practice" water efficiency to support PR19 and WRMP reviews.

Ofwat should require companies, when developing their options to test on customers, to cost (including using value of water left in the environment) options which include smart metering, retrofit and engagement with every domestic customer, and show their workings (if not why not, rather than just 'customers chose option x'), and say why they haven't gone down this route, if they don't. We're confident that such a statement in the methodology will unlock further ambition on water efficiency within companies - .

By using a 'frontier' approach, similar to that proposed for leakage, it will drive further innovation, even for those companies that are further ahead than others. Rather than a direct PCC target or per property target, using a percentage reduction based on the frontier can ensure a consistent approach across demand management.

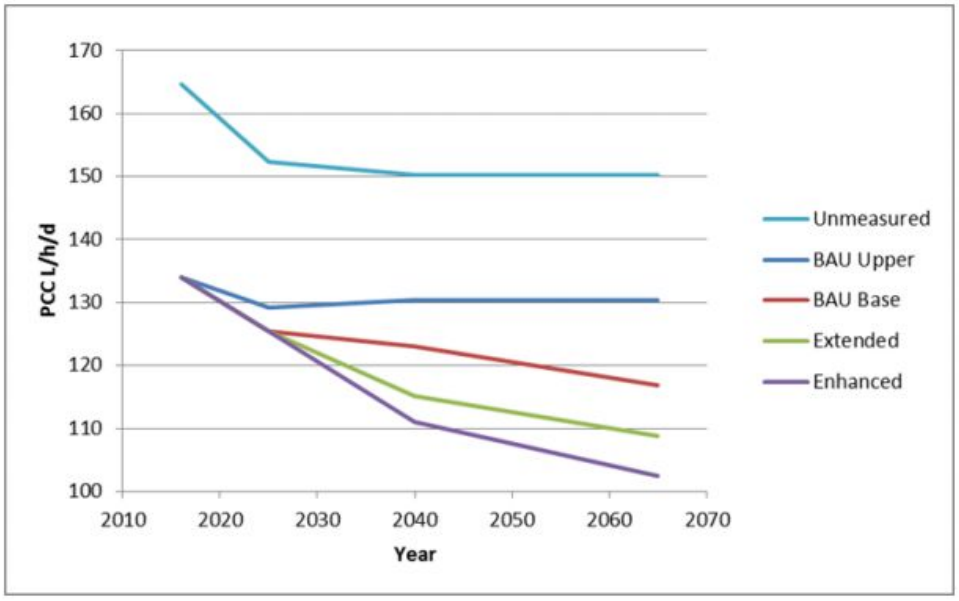
Based on the PCC reported by water companies for the year 2015-16 the upper quartile of performance (first quartile in the case of PCC) was 132.435 l/h/d. There are currently five companies that have PCC within this quartile. Companies should consider innovation in reducing PCC. As with leakage we suggest they could look to include an enhanced reward in their ODI to incentivise a major improvement in PCC performance.

Company	PCC (l/hd)
Anglian*	135.36
Dwr Cymru	138.54
Northumbrian	144.67
Severn Trent	130.35
South West	136.60
Southern	131.96
Thames	149.33
United Utilities	130.00
Wessex	138.07
Yorkshire	133.12
Affinity	152.21
Bournemouth	133.60
Bristol	141.10
Cambridge	132.91
Dee Valley	134.87
Essex and Suffolk	150.65
Hartlepool	127.51
Portsmouth	143.29
South East	161.20
South Staffs	128.89
Sutton and East Surrey	157.91

The largest forecast reduction in PCC in PR14 based on performance outcomes was 10% by Southern Water. This could be another approach used as an alternative to the upper quartile performance. This would result in an average reduction in water use of 13.3 l/p/d across all water companies.

Other approaches to targets

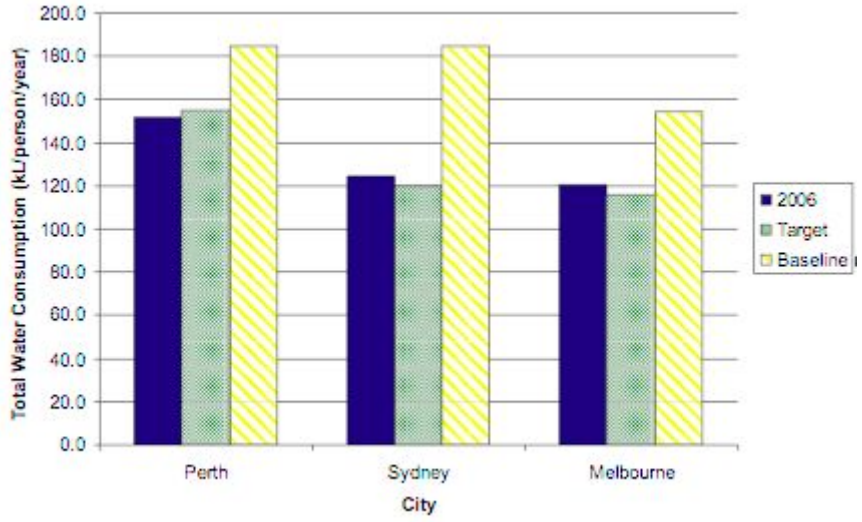
There are alternative approaches to targets based on PCC. The Water UK Long Term Water Resources Planning Framework Report modelled a reduction to 120 l/h/d even under a business as usual scenario. Water UK are planning to review WRMPs in comparison with the scenarios outlined in the Long Term Water Resources Planning Framework Report. THis analysis should also compare PCC trends and ambition on water efficiency.



PCC Percentage reduction targets - experience in Australia

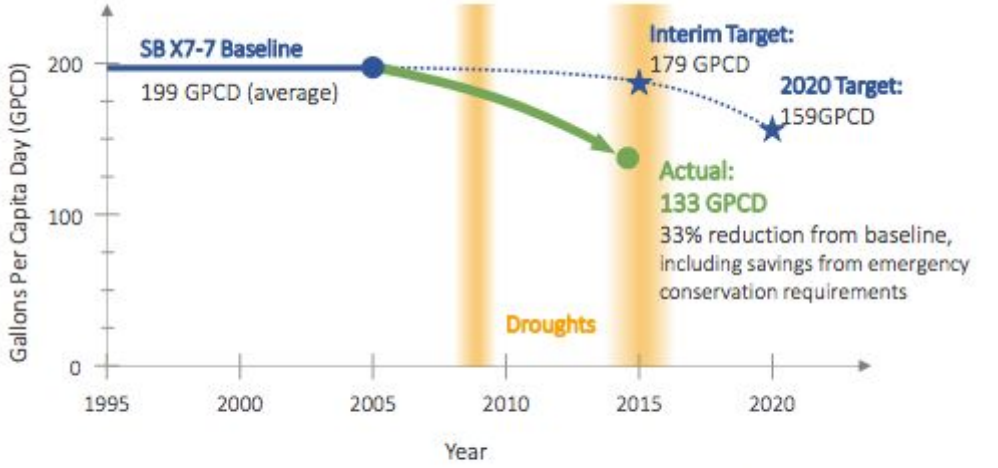
In Australia, during the millennium drought, many states used a percentage reduction target for PCC to provide a figure that the industry could agree on and measure against. This was often generically set as a percentage reduction rather than based on a scientific basis, however it was effective. In 2003 the Western Australian State Water Strategy adopted a target of reduced consumption recommended in the WA State Sustainability Strategy. This was to be a reduction in water usage to a per capita target of 155 kL per year by 2012, a 19% reduction on the unrestricted consumption of 185kL per year in 2000/1. Sydney Water adopted a demand management strategy in 1995 to meet targets set in its 1995 operating licence. The target was to reduce per capita demand by 35% from the 1991 baseline of 184.7 kL per year by June 2011. In 2002/3 the metropolitan water authorities set a target for Melbourne to reduce consumption by 25% of the 1990s average by 2015 and by 30% by 2020. This has produced per capita targets of 115.7 kL per year by 2015 and 108.8 kL per year by 2020.

In 2006 Perth had the greatest consumption out of the three cities for 2006 as well as a higher baseline and target. Perth was 2% below the 2012 target, while Sydney and Melbourne are both 4% above their comparable targets. ***This demonstrates that percentage based per capita consumption targets can drive water efficiency ambition and innovation.***



Experience in California

A more recent experience of implementing water use percentage reduction targets can be seen in California (California Department of Water Resources, 2017). A report "Making Water Conservation a California Way of Life" identified that targets have resulted in a 33% reduction in water use (Gallons per customer per day - equivalent to PCC).



Urban water suppliers reported an average per capita water use of 133 GPCD in 2015, a 33 percent reduction from the baseline conditions set for SB X7-7 and well below the interim target of 179 GPCD and the final target of 159 GPCD.

The experience of Valencia Water Company was presented at the recent IWA Efficient 2017 conference in Bath (Dickins, 2017).

- January 2014 State issues call for 20% voluntary conservation (compared to 2013's consumption)
- May 2015 State issues mandatory conservation targets of 25% (compared to 2013's consumption)

- May 2016 - State issues targets based on supply reliability “stress tests”

For Valencia Water company the percentage targets applied in 2014-2015 helped focus efforts to reduce water use through innovative programmes (including tailored customer drought reports and bills outlining saving they needed to make, a GIS Watermap to target high consumption areas and customers, and online education workshops for customers). The 2016 target was zero for Valencia Water Company as they now met the stress test requirements.

This case study provides a useful example of how percentage water use reduction targets helped focus activity and innovation in Californian utilities.

Q2c. Do you agree with our proposals to setting leakage performance commitment levels?

AGREE

Taking a frontier approach to leakage management was considered for PR09 (Environment Agency and Ofwat, 2008). However, this modelling approach was more complex that the approach being suggested for PR19. We support a simplified approach where the focus is on driving levels of leakage down rather than focussing on explanatory factors alone. This has been one of the challenges made to use of the Sustainable Economic Level of Leakage.

As outlined in our response to Question 2b we suggest that Ofwat treats water consumption targets in a similar manner to that developed for leakage.

Q3. Do you agree with our proposals for strengthening outcome delivery incentives?

We support Ofwat’s rationale that an average company with average performance would expect to incur penalties on its ODI package rather than rewards, as this should encourage ambition and innovation. However, it is important that the strength of different incentives does not drive the perverse behaviours.

As many companies had either reputational or financial commitments linked to water consumption in PR14, we suggest Ofwat reviews how effective these have been in driving water use trends and innovation in water efficiency.

We agree that calculating rewards and penalties based purely on customer valuations does not take into account the wider benefits that customers should obtain from shifts in performance that set a new benchmark for industry performance, and welcome the encouragement for companies to set higher rewards for very high levels of performance for their CPCs. We acknowledge that this will set new leading performance levels in future price

controls to benefit customers of all companies. We believe that this could offer encouragement for innovative and industry-leading performance, whilst providing checks that protect customers from excessive financial burdens.

We have been pleased with the development of the Discover Water dashboard, which provides a useful hub for customers and stakeholders to find company performance data – this enhances customer and media scrutiny of company performance, enhancing the reputational impact of ODIs.

Q3. Do you agree with our proposals to increase the strength of ODIs by increasing the impact ODIs have on reputation, the greater use of in-period ODIs, linking ODIs to revenue rather than RCV and having a greater onus on financial ODIs?

Q3b. Do you agree with our proposals on enhanced rewards and penalties?

Q3c. Do you agree with our proposal to remove the RoRE cap?

Q4. Do you agree with our proposed Customer Measure of Experience (C-MeX)?

Yes. We welcome the new proposed C-Mex and the wider elements than SIM which it covers, which will act as a wider incentive for innovation and ambition, including in resilience. We also very much welcome the comparator with other sectors. The new C-Mex links to Waterwise's Leadership Group on Water Efficiency and Customer Participation - involving Chief Customer Officers and equivalents of all UK water companies and using more ambitious water efficiency as a tool for greater customer participation as well as improved resilience.

Q4a. Do you agree with our proposed methodology for the C-Mex surveys, as set out in table 4.2 of Appendix 2?

Q4b. Do you agree with the C-Mex contact survey focusing on customer satisfaction with both contact handling and resolution?

Q5. Do you agree with our proposed Developer Measure of Experience (D-MeX)?

Q5a. Do you agree with our proposed approach to implementing D-MeX, in particular by conducting a satisfaction survey amongst past developer services customer contacts?

5. Securing long term resilience

We support the focus on delivering long-term resilience. However, we are concerned at the focus on sustaining services to customers and on meeting customer expectations, however realistic or unrealistic, at affordable prices. It is important that trade-offs are made explicit

and that these objectives are viewed in the context delivering water efficiency, increasing scarcity, and competition for resources by various users together with the needs of nature and the environment.

As highlighted earlier, and alongside our colleagues in the Blueprint for Water NGO coalition, we are disappointed that "resilience in the round" makes no connection with water company duty to manage "the effect of their operations on the resilience of the environment upon which they depend". We support the advice that the "risk assessment should consider the resilience of the ecosystem" and that "firms should have regard to the wider costs and benefits to the economy, society and the environment, including the sustainable use of natural capital – that is, our natural assets such as rivers and groundwater".

Q1. Do you agree with our resilience planning principles?
With regard to the resilience to drought metric we are concerned that simply applying a standard of supply threshold in terms of "severe supply restriction", without reference to the environmental impact of meeting that standard, fails to reflect customer/wider society interests in protecting the water environment. Basing the evaluation on Water Resources Management Plans (WRMPs) does offer some comfort around baseline environmental compliance, but will do nothing to differentiate those companies who invest to minimise the environmental impact of drought, from those who will rely heavily on drought orders/permits that exacerbate harm. We believe this loophole could be addressed by tightening the definition of the metric to exclude the population that will rely on enhanced abstraction (drought orders etc) to meet the 1:200 standard of service.

The resilience indicator for drought also fails to take account of the demand management options that can be implemented to improve resilience but also mitigate impacts of a drought. This element features in water company drought planning guidance and should be accounted for in performance indicators also.

Q2. Do you agree with our approach to assessing resilience in the initial assessment of plans?

Appendix 1 - PCC and water efficiency performance commitments in PR14 and potential targets in PR19

Waterwise have undertaken a review of water efficiency performance commitments in PR14 and projected performance commitments for PR19. This was based on information in the Ofwat final determinations (Ofwat, 2015) and the CCWater Delving into Water Report (CCWater 2016).

Some key statistics include:

- Performance commitments in PR14 - 15 companies had water consumption/ efficiency linked performance commitments
- Types of indicators in PR14 - 7 had reputational PCs; 5 companies had financial penalties; 1 had a reward and penalty
- The average percentage reduction in PR14 was 5% and varied between 2% and 10%. Southern Water had the largest percentage reduction at 10%.
- Using a PR19 target based on the 25th percentile, PCC reduction of up to 22% could be required. This would require on average 7.6 l/p/d reduction in water use or between 0 and 28 liters per person per day.
- Using a PR19 target based on Southern Water's previous 10% reduction in water use an average reduction of 13.2 litres per person per day would be required or between 0 and 15.79 l/p/d.

This is only an initial piece of research to support our response to Ofwat's PR19 methodology. We suggest further research is undertaken to assess a wider range of water consumption and water efficiency performance indicators and what "best practice" water efficiency looks like to support PR19.

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Comparison of water efficiency performance commitments in PR14 with potential targets in PR19

Water Company	Target	Type	Starting level (2014-15)	2019-20	Target % reduction	Current status PCC (2015/16)	25th Percentile (based on 2015/16)	Reduction required l/p/d to meet 25th percentile	Percentage reduction to meet 25h percentile	10% Reduction from 2015/16 (based on Southern Water)	Reduction Required l/p/d to meet frontier company reduction in
Affinity Water	Average water use – MLE average per person per day averaged over the year	Financial – penalty	158.4	147.45	-7%	152.2	132.435	19.765	-15%	136.98	15.22
Anglian Water	Per Property Consumption (PPC) (litres/household/day reduction)	Financial - penalty		7???		135.4	132.435	2.965	-2%	121.86	13.54
Bristol Water	Per capita consumption	Reputational	145.6	142	-3%	141.1	132.435	8.665	-7%	126.99	14.11
Cholderton	Household per capita consumption	???	172	165	-4%		132.435			0	0
Dee Valley Water	Per capita consumption and water	Reputation only	132.39	127.28	-4%	134.9	132.435	2.465	-2%	121.41	13.49
Dwr Cymru Wlesh Water	N/A (targets on leakage)		141.5			138.5	132.435	6.065	-5%	124.65	13.85
Northumbrian	N/A		141.9			144.7	132.435	12.265	-9%	130.23	14.47
Portsmouth Water	Reducing per capita consumption	Penalty only at year 5	147.29	143.93	-2%	143.3	132.435	10.865	-8%	128.97	14.33
Sembcorp Bournemouth	Water use – reducing per capita consumption (litres/head/day)	Reputational – need to engage customer view	142	136	-4%	133.6	132.435	1.165	-1%	120.24	13.36
Severn Trent	Resource efficiency (amount of water we take out of the environment) – total water into distribution/ household	Non-financial incentive	229	213	-8%	130.4	132.435	-2.035	2%	117.36	13.04
South East Water	N/A (measures include acceptability of supply interruptions and water resource					161.2	132.435	28.765	-22%	145.08	16.12
South Staffordshire	Water efficiency – household per capita consumption reported annually on a financial year basis for the combined	Reputational	131.44	128.31	-2%	128.9	132.435	-3.535	3%	116.01	12.89
South West Water	N/A (reward and penalty linked to watering restrictions)					136.6	132.435	4.165	-3%	122.94	13.66
Southern Water	Per capita consumption – post MLE weighted average litres per person per day on average over the year	Financial – reward and penalty	147.2	133.7	-10%	132	132.435	-0.435	0%	118.8	13.2
Sutton and East Surrey	Per capita consumption – litres per head per day	Financial – penalty only	162.8	156.9	-4%	157.9	132.435	25.465	-19%	142.11	15.79
Thames Water	Reduced water consumption from issuing water efficiency devices to customers. measured in Ml/d, achieved from issuing water efficiency devices to customers. The calculation of the demand reduction from these devices follows Ofwat guidelines (Ofwat – June Return Reporting Requirements, 2011)	Financial - penalty	4.24	15.45		149.3	132.435	16.865	-13%	134.37	14.93
United Utilities	Per household consumption - The calculation is total household consumption divided by the total number of household properties (excluding voids). The unit of measure is	Reputational	297	284	-5%	130	132.435	-2.435	2%	117	13
Wessex Water	Volume of water user per person – weighted average (by population) of per capita consumption for measured and unmeasured domestic customers	Reputational	137	131	-5%	138.1	132.435	5.665	-4%	124.29	13.81
Yorkshire Water	Water use - average daily water consumption per head of population (per capita consumption or PCC) in measured and unmeasured households in a dry year. This is only for household	Reputational	143.7	138.3	-4%	133.1	132.435	0.665	-1%	119.79	13.31

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Review of frontier of water efficiency performance using PCC

Company	PCC (l/hd)				
Anglian*	135.36		Max	161.20	
Dwr Cymru	138.54		Min	127.51	
Northumbrian	144.67		Median	136.60	
Severn Trent	130.35		Mean	139.63	
South West	136.60				
Southern	131.96				
Thames	149.33	0	Min	127.51	
United Utilities	130.00	1	First quartile - 25th ercentile	132.435	
Wessex	138.07	2	Median value - 50th percentile	136.6	
Yorkshire	133.12	3	Third quantile - 75th percentile	147	
Affinity	152.21	4	Max value	161.20	
Bournemouth	133.60				
Bristol	141.10				
Cambridge	132.91				
Dee Valley	134.87		DATA FROM DELVING INTO WATER CCWater 2016		
Essex and Suffolk	150.65				
Hartlepool	127.51				
Portsmouth	143.29				
South East	161.20				
South Staffs	128.89				
Sutton and East Surrey	157.91				