Appendix 2

Rationale and evidence for PC targets and ODIs

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Performance Commitment target setting

1.0 Context

Purpose of this document

This document sets out the evidence for and basis of the judgments used to establish the proposed performance commitment (PC) targets. It sets out the rationale for each individual PC and the collective view, to demonstrate that the proposed targets are a stretching package that offer a fair and broadly equal balance of risk between customers and shareholders.

Throughout the development of our plan we are engaging with customers and reviewing our current performance and that of other water and sewerage companies and comparable organisations. We have sought and continue to seek challenge, debate and insight from the Dee Valley customer challenge group (CCG) and sought assurance through a rigorous three lines of assurance process, which includes internal and independent external review. This process is ongoing and some of the PC targets are not yet finalised, but this document sets out all of the steps and information to justify the proposed targets and enable review and debate by the CCG.

Structure of this document

This document contains two key sections:

- A summary setting out the PCs by outcome and spread of relative performance and where the PCs fall in the framework.
- Key principles for establishing targets, the rationale for each proposed PC target and evidence to show why it is stretching. This includes:
    - the regulatory expectations;
    - a summary of customer views (and signpost to more information);
    - performance in the context of historical performance;
    - comparative performance;
    - evidence based on costs and benefits;
    - a summary of the rationale for the target;
    - an overview of the approach and basis of associated incentives;
    - the ODI rationale; and
    - the long term ambition

2.0 Overview of outcomes and performance commitments

PCs by outcomes

We are proposing 28 performance commitments, 18 of which are in some way compulsory measures (14 of the 18 are defined by Ofwat (green in figure below), the remaining four are compulsory topics but companies can specify their own definition (blue in figure below)). The ten company specific bespoke measures (black in figure below) are included in the suite for any of the following reasons:

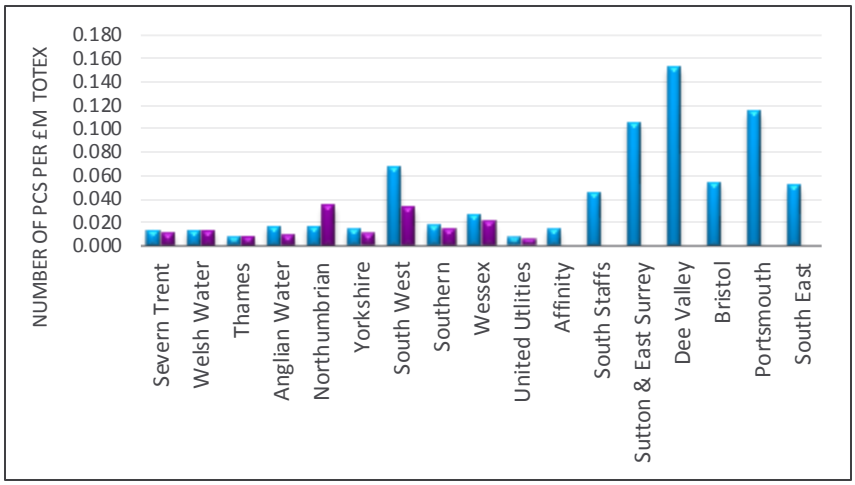
- They are important service areas to customers, identified either through customer research or day to day contact with our customers (low pressure issues, drinking water complaints)
- They are intended to hold us to account for delivering strategic schemes that we are including as cost adjustment claims because we are delivering a service that is either not currently being offered across the industry or because we have unique circumstances that mean Ofwat's generic expenditure models will not reflect our case (lead pipes replaced, length of river improved, hectares managed for biodiversity and % compliance with the Welsh language scheme)
- They relate to something that we and/or our CCG feel is important to have in place on customers' behalf (affordability and effectiveness of our affordability offering and inspiring customers)

Outstanding experience	C-Mex	D-Mex	Non-household custmer experience				
A service for everyone	Affordability	Service vulnerability	Compliance with Welsh language scheme	Effectiveness of affordability offereing			
Lowest possible bills	Voids						
Good to drink	CRI	Drinking water quality complaints	Number of lead pipes replaced				
Water always there	Interruptions to supply	Mains bursts	Low presure	Leakage	Per capita consumption	Resilience - drought	Unplanned outage
A positive difference	Inspiring customers						
Thriving envirnoment	Length of river improved	Satisfactory sludge disposal	Hectares managed for biodiversity	Treatment works compliance			
Wastewater safely taken away	Internal sewer flooding	Pollution	Sewer blockages	Sewer flooding - extreme storms	Sewer collapses		

Key
Green = common industry definition
Blue = bespoke definition but mandatory inclusion
Black = bespoke (company definitino)

Since our May submission we have completed the PC research with customers, and there is no compelling evidence to change the PC names or to include additional PCs as a result of customers feeling that a service area is missing. External sewer flooding is the only PC where the CCG have challenged why it has not been included and we discuss this in more detail in the waste safely away outcome. We have considered retiring the Welsh language PC as this is no longer being proposed as a cost adjustment claim and there are already measures in place to ensure we meet our statutory obligations, but given the importance customers place on this and the early stages we are at in contributing to broader ambition in Wales we have decided to reta in it.

We consider this suite of measures covers the breadth of services that customers expect and the depth where it matters most to them. It is important to ensure that the PCs focus on the things that matter most to our customers, whilst also being proportionate in terms of the regulatory reporting burden. The figure below sets out a comparison of the number of PCs per £m totex invested to demonstrate that this process is considerably more burdensome on the smaller companies.



Source: APR 2018

Comparative performance

For each PC we have reviewed all of the publicly available information to help us understand how Hafren Dyfrdwy compares to the rest of the industry. The precise calculation of upper quartile (UQ) differs across each PC for a number of reasons that are set out below. The table below illustrates the balance across all PCs.

It is important to consider that the targets are only part of a stretching package for customers. A stretching and ambitious outcome for customers seeks to balance bill level, risk exposure and performance relative to the currently funded performance. The regulatory framework is intended to incentivise all companies to continue to improve, Ofwat only specify the desire for upper quartile performance (and therefore expectation that performance less than this should incur a penalty) in three service areas - internal sewer flooding, pollution incidents and supply interruptions. However the concept of comparing to UQ is widely understood and therefore we are using this to set out the balance of performance. But it must be appreciated that achieving UQ in 100% of performance commitments would result in an unfinanceable price review settlement for HD. This is likely to be the case for all companies given no one company is in the UQ for all components – ranging from performance and cost efficiency to bill level.

For the measures that are comparable across the industry the table below shows that for 60% of the measures we estimate to be within the upper quartile by the end of AMP7.

Proposed comparative performance at the end of AMP 7 from last year AMP6

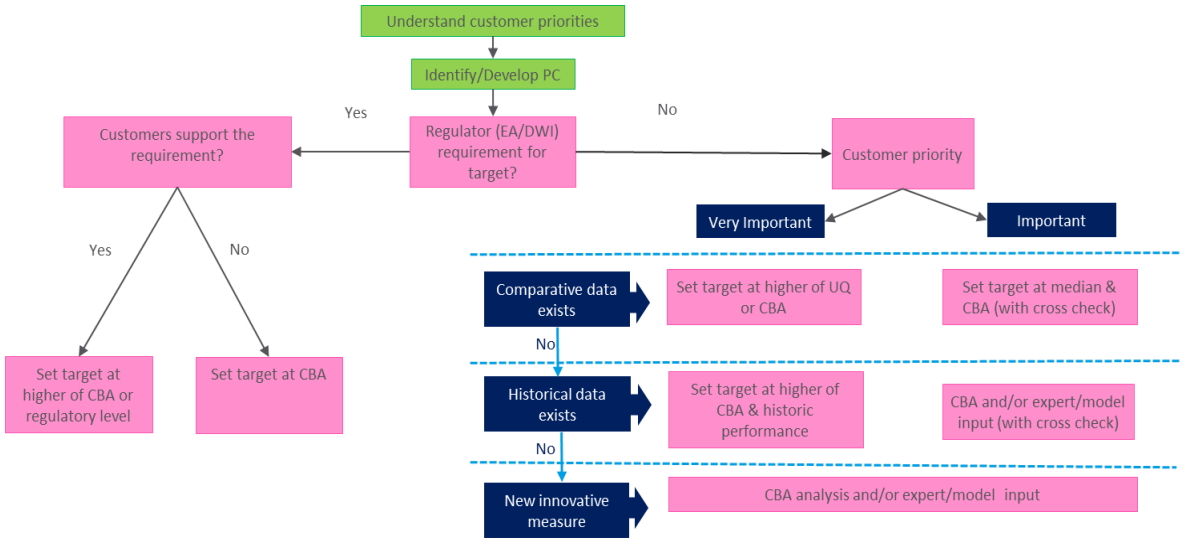
Lower quartile	Average	Upper quartile
Properties at risk of low pressure (25% improvement)	WQ complaints (35% improvement)	CRI (maintaining the c80% improvement on recent aver)
Pollution incidents (22% improvement)	Supply interruptions (27% improvement)	Drought resilience (stable)
	Leakage (15% improvement)	Internal sewer flooding (23% improvement)
	Burst mains (stable)	Sewer blockages (stable)
		Sewer collapses (stable)
		Satisfactory sludge disposal (stable)
		Bill level
	Treatment Works compliance	CMeX DMeX NHH Voids

3.0 Rationale for PC targets

Principles

We have considered a wide range of information sources to establish appropriately stretching targets. We have not blindly targeted upper quartile or beyond if it is not in a service area that our customers have signalled they consider to be a priority. We have also had to carefully consider the cost and implications on other services. For example targeting UQ or frontier on reducing the number of properties at risk of receiving low pressure would most likely result in increased leakage and burst mains. Also proactively targeting measures like sewer collapses and burst mains can create more customer complaints because of traffic disruption and temporary inconvenience to customers. Therefore we have sought targets that:

- achieve or work towards a comparable UQ where it matters most to customers;
- ensure the regulatory requirement or expectation is met;
- use best ever historic performance where comparable data doesn't exist; or
- where there is no statutory requirement or compelling customer insights to go beyond, we are identifying the most cost beneficial performance.

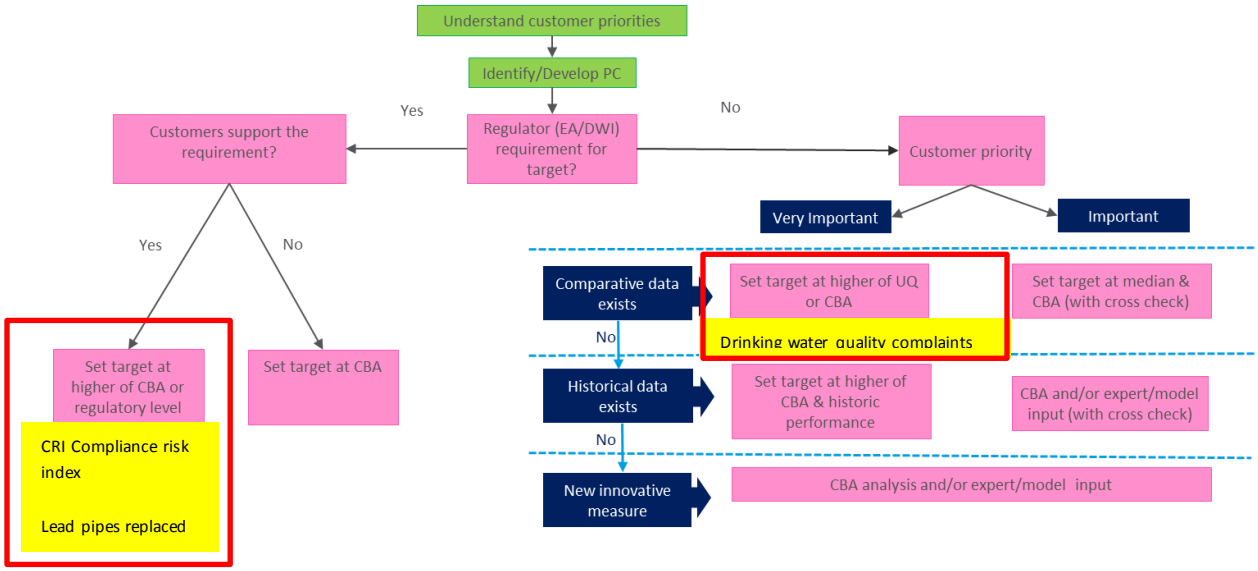


Outcome 1: Good to drink

Summary of performance commitments for this outcome

	Retained	New	Removed/ discounted
Mandated by Ofwat		Compliance risk index (CRI)	MZC
Customer driven	Drinking water quality complaints		
Company or CCG driven		Number of lead pipes replaced	

The diagram below shows where they all sit on the framework, which indicates the primary target setting methodology.



1.1 Drinking water quality complaints – rationale and evidence

This performance commitment is based on the number of drinking water quality complaints from customers about the appearance, taste or odour of their drinking water. It is a combination of the former DVW discolouration complaints measure and the Severn Trent complaints measure. It covers all complaints about drinking water quality, but not enquiries. This is a bespoke measure (i.e. not mandated by Ofwat), included because it is a key customer-facing measure and an area where significant investment is being made during 2015-20 where we want to ensure we hold ourselves to account for maintaining those improvements.

Regulatory guidance

There is no specific regulatory guidance relating to setting a target for this measure. The only expectation is that we use a variety of information sources to ensure we have identified a stretching target. We have discussed the scope of the measure with DWI who are supportive of the inclusion of the commitment.

Customer views

Our customers expect us to deliver a good quality and consistent product every time they open the tap. Changes in appearance and taste due to our treatment processes, different sources of water or movements around our network can all cause customer dissatisfaction.

We have tested customer views on two elements – appearance and taste and odour. The highlights of the research can be summarised as follows:

- taste and odour complaints were considered a high priority in both North and Mid Wales; however
- appearance complaints were found to be of medium priority.

The research also suggests that the number of complaints doesn't fully reflect the scale of the number of people who have experienced an appearance, taste or odour issue.

Our PC and ODI research found that 76% of household and 88% of non-household customers found the proposed targets acceptable. The proposed level of improvement was considered excellent and stretching. Nonetheless this PC was a high priority for outperformance in the context of ODIs.

Overall, an improvement in this performance commitment is considered very important to customers. Any deviation from the standard to which our customers are accustomed is likely to lead to dissatisfaction, and as such, the underlying and long-term aim of this measure is to ensure a consistent supply of good quality drinking water.

Historical performance

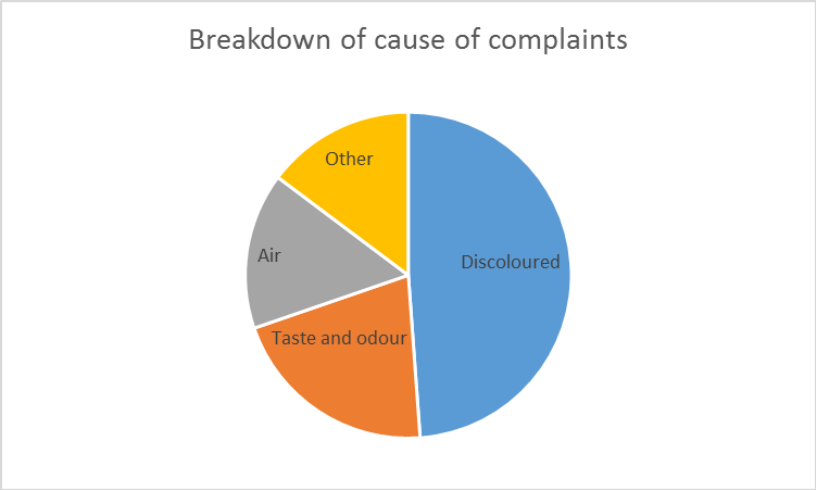
At the 2014 price review Dee Valley were set a challenging target by Ofwat, which related to the largest capital project to replace the Legacy WTW; successfully delivered in March 2018. Severn Trent were also set a very stretching target which applies to our customers in Mid Wales, which we are struggling to meet despite extensive efforts.

Our performance varies between North Wales and Mid Wales. For both areas we started AMP6 on a deteriorating trend with considerable concerns from the DWI, which we have worked hard to address. We are seeing improvement as shown in the chart below:

Region	15/16	16/17	17/18	18/19	19/20
North Wales	498	453	346	340 (*FD 156)	340 (*FD 156)
Mid Wales	181	249	163	156	150
Total	679	702	509	496	490

For North Wales the final determination is for discolouration only which is the value shown in brackets.

The breakdown between the different parameters is stable each year and shown in the chart below:



There has been a strong year-on-year improvement in discoloured water contacts in our North Wales area. The improvement has been driven by our strategy of upgrading treatment works to stop discolouration potential entering our network and then systematically cleaning the water mains. We have maintained our enhanced level of mains cleaning and completed around 500km of mains flushing during this AMP.

Further improvements across this AMP and the next will require longer-term investment and optimisation (based on what we have learned to date). Planned activities include:

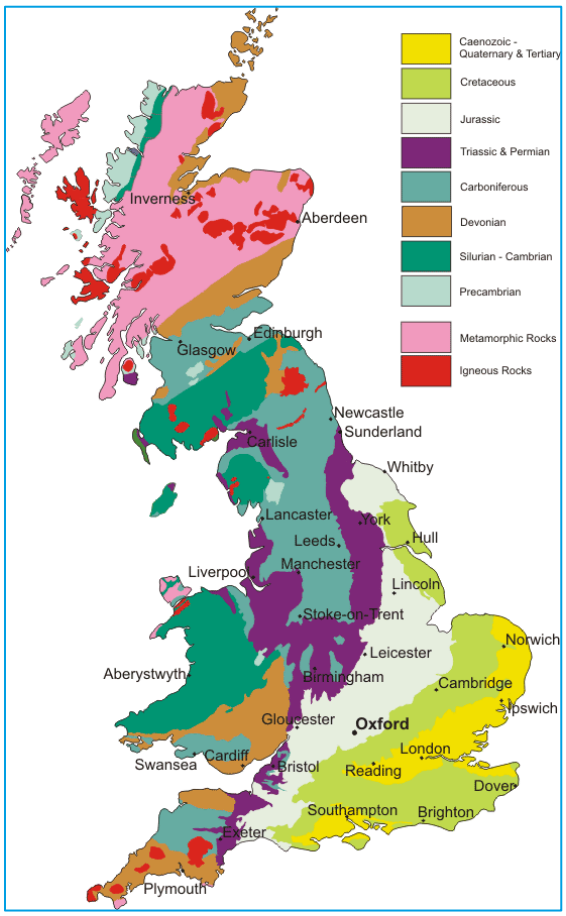
- extending the mains cleaning programme;
- application of portable air valves;
- tackling illegal standpipe use;
- proactive communication with customers to pre warn them if we think there might be an issue;
- upgrading and improved control at troublesome pumping stations;
- replacement of unlined cast iron mains – targeting hotspot areas based on sampling data; and
- "Predict and prevent" roll out following the innovation trials we have undertaken on real-time network modelling of events for mitigation and proactive messaging.

This work will continue in 2018/19 and 2019/20 and through into AMP7, enabling us to further drive down complaints for subsequent AMPs. The most sustainable practice is to resolve the problem at source and we are investigating the possibility of a collaborative research project to investigate the role of catchment management in reducing taste and odour issues at source. This type of solution will give gradual improvements over time rather than an immediate step change.

Comparative information

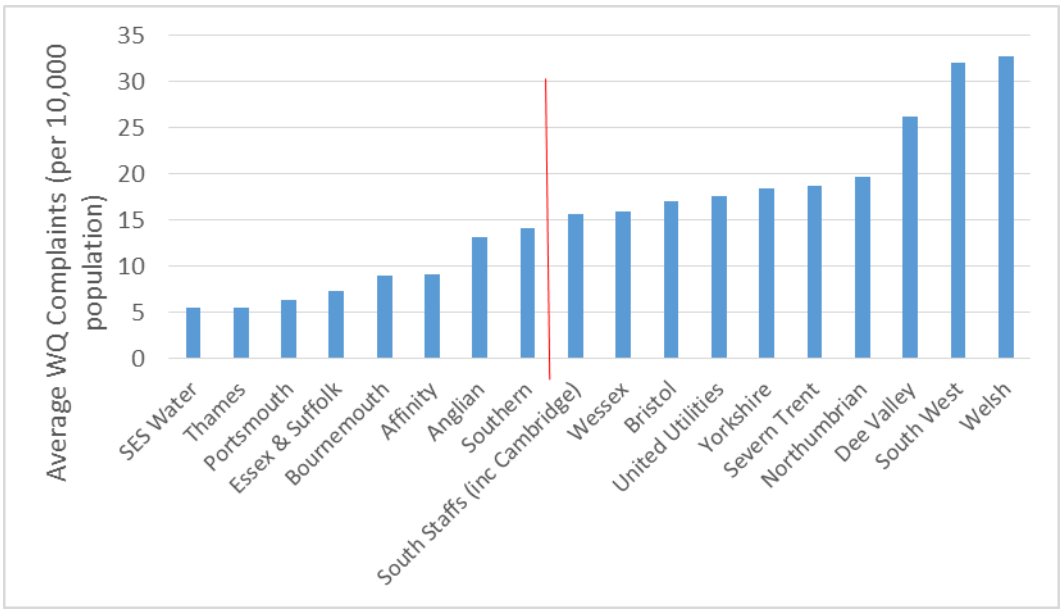
Industry UQ over the last few years has fluctuated between seven and nine water quality complaints per 10,000 population served. The majority of companies have demonstrated relatively stable behaviour over the past three years, with an average change of minus one complaint per 10,000 population from 2014 to 2016.

ESI Consulting reviewed special factors controlling water discolouration in England and Wales (published August 2018 and report provided in appendix 10). It concluded that:

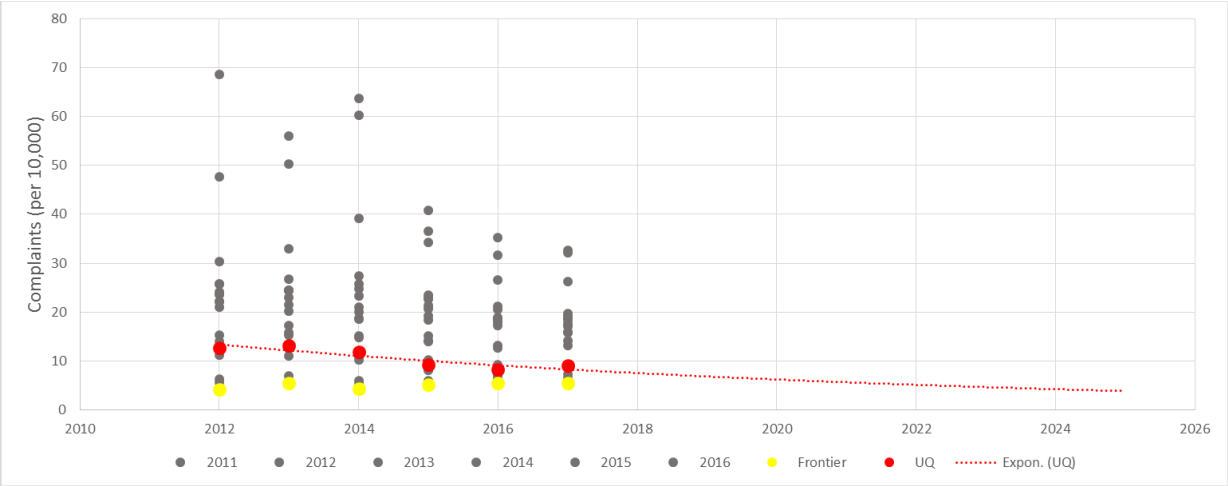


"Spatial distributions of these risk factors have been mapped and reviewed. A clear divide is seen in that the waters of the north and west of England and Wales tend to have high manganese concentrations, low hardness, higher dissolved organic carbon, and lower pH. In addition, intermittent runoff from the steep slopes of the north and west lead to more variable water quality. Higher variability can lead to more frequent breaches of drinking water standards for a given level of treatment. The main cause of all these factors is the underlying geology - the rocks of the north and west of England and Wales are older and have been subjected to high temperatures and pressures within the Earth's crust. This has led to these rocks becoming hard; they are resistant to erosion, so the topography is steeper. Aquifer properties of these rocks can also be poor so economic levels of groundwater abstraction cannot be developed. Therefore, rainfall runs quickly off the ground surface and is captured in surface water reservoirs. In the south and east of England the rocks are younger and have only been lightly altered. Topography is less steep, so groundwater recharge is higher, and better aquifer characteristics mean that groundwater can be exploited for public supply."

There is a clear East-West divide in water quality discolouration complaints performance, with the eastern companies outperforming those in the west. The discrepancy in performance can be attributed to the difference in geology of the regions. There are naturally higher concentrations of manganese in the soft upland waters in the west, which is in a form that is difficult to treat by conventional solutions (see below). The low mineral content of the water also leads to greater rates of iron corrosion of mains increasing the risk of discolouration further. Control measures exist for these particular risks but add to our cost to serve in comparison with the east (and cost models do not differentiate between geology).



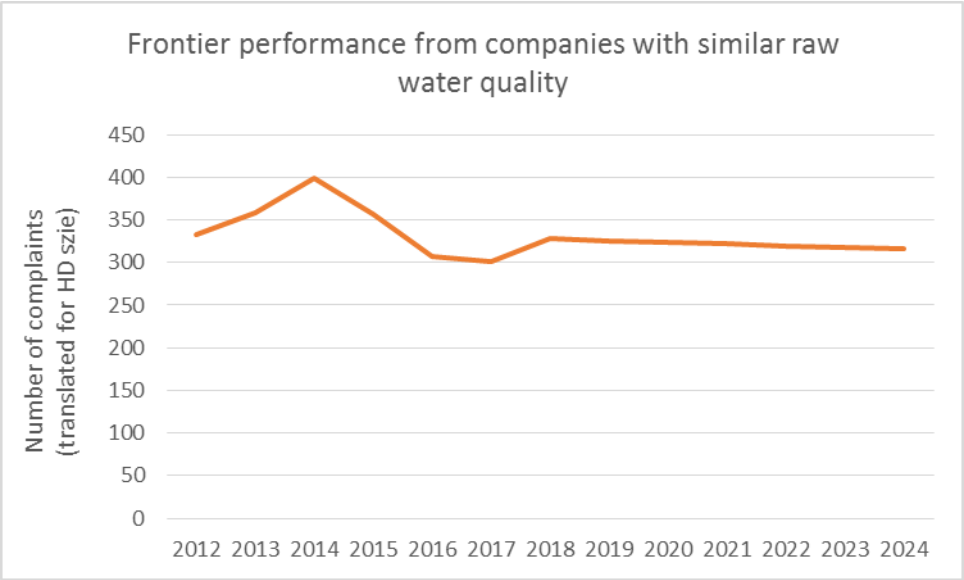
Average water quality complaints per 10,000 population for all companies



Trends in UQ water quality complaints

Although we are not required to target UQ we have reviewed industry performance to understand how we compare to others, both across industry and then specifically compared to the other companies with similar raw water characteristics (western companies). We have calculated the future upper quartile by understanding the performance trends we have seen over the last six years to understand the levels of improvement we can expect over the next five years. The error of the fitted trend line (taken as the standard deviations of the residuals between historic actual and historic predicted performance), was applied to the 2024/25 forecast position, to provide the likely range of upper quartile performance for 2024/25 and shown in the figure above. We have repeated this analysis for only the western companies to understand how the frontier for this sub-set of companies varies, which is set out in the figure below. We have calculated frontier of this sub-set of companies rather than UQ because we want to target the best possible performance our raw water quality will allow. It shows the following:

- Industry forecast UQ = 4 – 7 complaints per 10,000 population (62 – 108 complaints for HD).
- Western forecast frontier = 21 complaints per 10,000 population (317 complaints for HD).
- HD actual (in 2017) = 33 complaints per 10,000 population (509 complaints for HD).

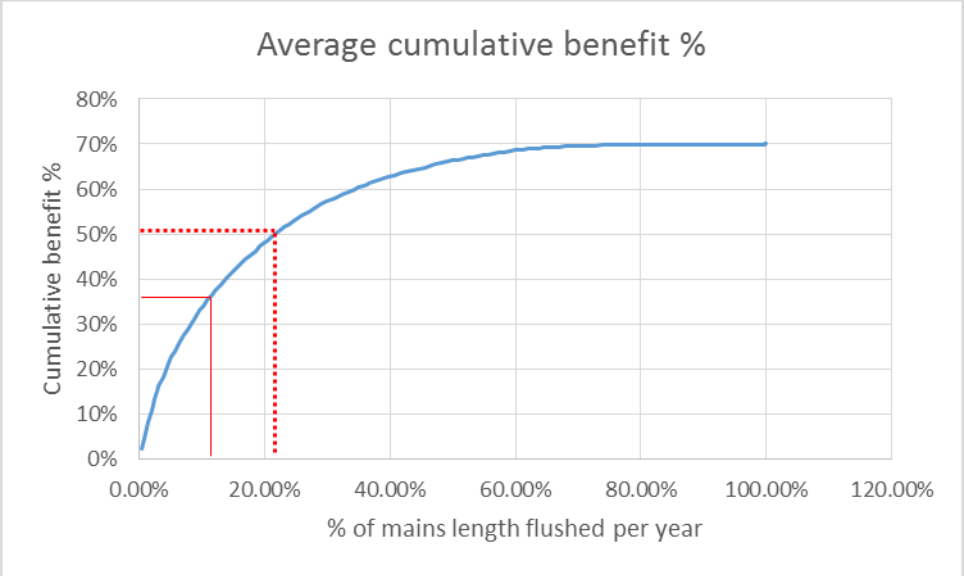


Forecast frontier performance for companies with similar raw water quality

Cost benefit analysis

Our CBA calculation has indicated that the target of 317 complaints that we are proposing for 2025 is stretching and above the cost beneficial range. However, it is an important measure and given the large variance to industry upper quartile it is important that we keep striving to find more efficient ways to deliver this improvement.

For no increase in assumed expenditure in AMP7 we estimate we will need to carry out activity such as mains flushing, air valve maintenance and surge protection, which based on current technology and approach is likely to cost between £450,000 and £500,000 in 2017-18 prices across the 2020 to 2025 period. This is based on increasing activity to 20% in both regions (which is the optimum as shown below) at £200 per km for mains flushing (based on cost achieved in AMP6). Also included is maintenance of around 500 air valves that is not in the historic baseline at an estimated range between £750 and £850 per valve. This represents around 0.5% of totex which will have to be delivered through efficiency savings.



Optimum mains flushing activity

Overall rationale for target

The proposed target is 317 complaints, which equates to 20.6 per 10,000 customers. We think this is an incredibly stretching target for the following reasons:

- It will cost around 0.5% of water service totex that is not assumed in customer bills. But we are committed to finding more efficient ways of delivering this for customers.
- We need to improve in this area but targeting the industry UQ (current or forecast) is not achievable largely because of the composition of our raw water.
- We have targeted the forecast 2024-25 frontier of the companies with similar raw water composition ('western' companies). We want our customers to receive performance equivalent to the best possible for our given water source.
- A target of 317 represents a 35% improvement from the FD 2019-20 position which is incredibly stretching.
- In North Wales discolouration performance will have improved by 40% during AMP6, the forecast performance continues improvement at broadly the same rate.
- The other work that we need to do in AMP7 to maintain our treated water reservoirs, is activity that can often cause DWQ complaints, this adds to the risk level that we are exposing ourselves to.

Long term ambition

Having removed the key source of raw water discolouration during AMP6 with the closure of the Legacy treatment works, our future ambition will rely on improving the operational effectiveness of our flushing programmes to prevent accumulation of sediment in the network.

As such we are forecasting incremental improvements across each AMP as we work to calm the network and improve the operational flushing programme. By 2045 we are expecting to have reduced the total number of complaints by 60% from the 2019/20 position.

ODI rationale

We successfully created a single metric for water quality complaints. This is because, taste, smell and appearance are all aspects of drinking water quality. With the triangulated the results from our WTP research valuing taste and smell separately from appearance, the two possible options for combining these results were either taking the arithmetic average, or using a weighted-average based on complaint numbers.

In order to best reflect the issues that customers are facing, we have adopted the weighted average approach.

Attribute		Value
Appearance	Triangulated WTP (£ per complaint)	£296
	Number of complaints	255
Taste & smell	Triangulated WTP (£ per complaint)	£3,088
	Number of complaints	109
Aggregate	Weighted average WTP	£925
	ODI (50% of WTP)	£566

The resulting in-period ODI for drinking water quality complaints is £566 per complaint.

1.2 Compliance risk index (CRI) – rationale and evidence

The way our drinking water quality performance will be assessed is changing. The Drinking Water Inspectorate (DWI) has introduced the Compliance Risk Index (CRI), which is a new industry wide comparative measure of compliance and confidence in a company's ability to achieve water quality standards.

CRI is a measure of the risk arising from treated water compliance failures. It is comprised of separate risk indices for failures recorded at customer taps, at water treatment works and at service reservoirs. The sum of these, normalised to the company population served, total volume of water supplied, and total service reservoir capacity respectively, forms the amalgamated overall CRI score.

CRI replaces Mean Zonal Compliance (MZC), which was the previous measure of compliance with drinking water regulations. While MZC only considered regulatory failures at customers' taps, CRI considers failures at all stages of the treated water production line – covering water treatment works (WTWs), distribution service reservoirs (DSRs), the distribution network and customers' premises.

Regulatory guidance

Ofwat has issued guidance, supported by the DWI, on CRI targets in its Water 2020 Methodology Document, December 2017.

"This is because CRI is a measure of water quality compliance and the performance commitment level should be set at zero. In addition, we recognise that CRI is a new measure and intended to be a more demanding metric of water quality compliance than its predecessor. Companies can take this into account when proposing any penalty deadbands."

A CRI index of zero represents 100% compliance.

Customer views

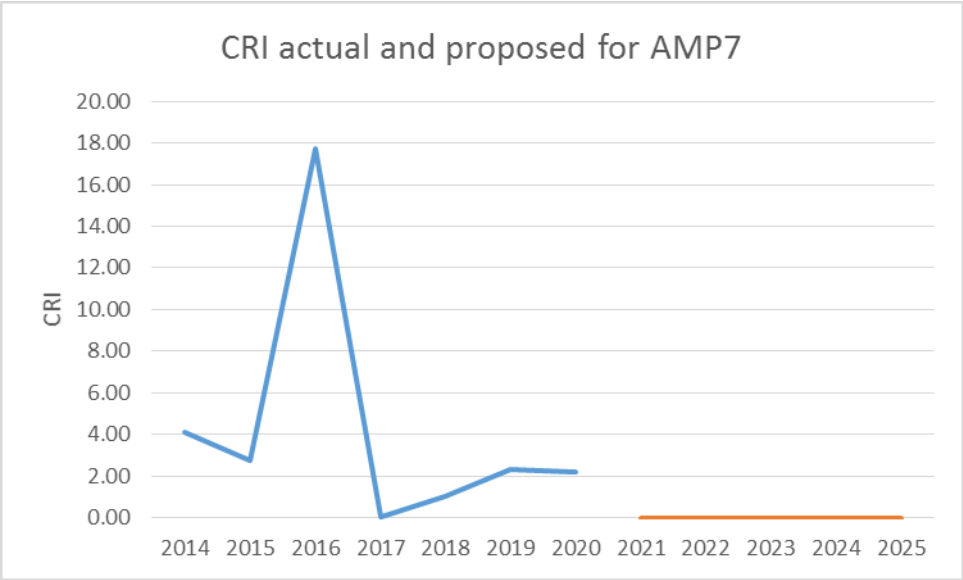
Our research re-affirms that customers expect drinking water quality standards will be met. Customers spontaneously view the supply of clean, safe drinking water as the core service we provide. Unsurprisingly, a safe, wholesome supply of drinking water is viewed as the most important aspect of core service. Our customer needs research tells us that customers expect their water company to provide a safe, clean and reliable source of water that tastes and smells good, without excessive chlorination. We consider providing safe drinking water as a basic need within our hierarchy of needs (and one that cannot be traded off with other types of customer needs, such as good customer service). Our research shows that delivering safe drinking water will not drive increased satisfaction because this is already taken for granted, however we know that failing to meet customers' expectations can drive dissatisfaction (e.g. we receive complaints).

Our research on outcomes, PCs and ODIs echoes these findings. This outcome is spontaneously considered to be a key issue the water company should be focusing on, and part of its central function.

Whilst customers are not necessarily aware of the mechanics of the CRI measure itself, a more holistic consideration of customer views supports the regulatory expectation of 100% compliance (0 CRI).

Historical performance

The figure below sets out three available years for CRI and forecasts up to 2025. The DWI back cast performance for both Severn Trent and Dee Valley and we have worked with them to combine the data to create back cast performance for Hafren Dyfrdwy.



CRI actual (blue) and proposed target (orange) for AMP7

Performance has been steadily improving over time (the spike in the 2016 performance was caused by an increase in turbidity caused by lime dosing at several WTW). Lime dosing has now been taken out of the treatment processes in North Wales and improvement has already been delivered, as shown by the zero failures on WTWs in 2017. The breakdown of this CRI score between the three areas (WTW, DSR, distribution network) is shown in the table below to be very volatile and one or two failures can completely change the results.

Breakdown of CRI score

	WTW	DSR	Zone
2014	46%	2%	52%
2015	79%	0%	21%
2016	99%	1%	0%
2017	0%	4%	96%
2018*	48%	2%	50%
2019*	50%	2%	48%
2020*	39%	2%	59%

*Forecast based on historical trends

A significant amount of work is being carried out during AMP6 to improve the performance of the DSRs. A rigorous inspection programme and replacement of life-expired membranes to reduce the risk of contamination is being delivered as well as major maintenance of three DSRs which formed part of the PR14 final determination. This level of scrutiny and investment will need to continue to ensure that compliance continues to meet a CRI of zero.

Comparative information

Fourteen companies took part in a data share for CRI between 2015 and 2017. This short data history makes it difficult to forecast upper quartile performance. Based on the data UQ performance averages at 1.2 with the industry average at 4.31.

Cost benefit analysis

Given this is a regulatory requirement targeted at full compliance levels (target of 0), we have not based our target on cost-benefit analysis. We have, however, developed the programme to be cost-effective (that is, least cost) to ensure we obtain maximum benefits for our investments.

Overall rationale for target

The target is based on the regulatory expectation of CRI of 0 (100% compliance). This represents a stretching target for the following reasons:

- our historical performance is volatile; and
- we are proposing a deadband of two. We have considered the challenge we received from the CCG to ensure our deadband doesn't go beyond the performance that represents upper quartile. Given the UQ calculation is based on only one year (which means it's not possible to forecast future UQ with any certainty), the immaturity of this measure and the volatility seen across most of the smaller companies we think this is a fair balance of risk.

Long term ambition

This measures tracks regulatory compliance; we will continue to target full compliance in each year.

ODI rationale

This will be a non-financial incentive for the following reasons:

- it is a new measure with limited historical data on which to base the target;
- it is virtually impossible to get customers to value this fundamental core service in a meaningful way; and
- there are other regulatory instruments to ensure that a penalty is applied if we do not perform in line with expectations.

1.3 Reducing lead in Wales – rationale and evidence

This is a new, bespoke commitment included to protect customers from under delivery of the reducing lead cost adjustment claim and incentivise us to make progress faster towards the long term ambition. It is defined as the number of communication (company owned) and service (customer owned) lead pipes that we replace during AMP7.

Regulatory guidance

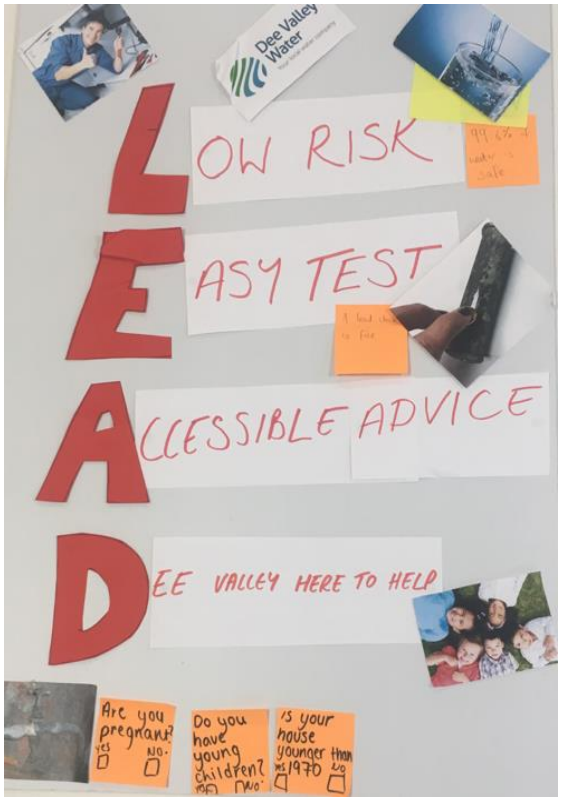
The Welsh Government, through the Water Strategy for Wales has increased its ambition and set a clear expectation that we should "aim to keep exposure to lead as low as reasonably practicable". This is emphasised through the Well-being of Future Generations (Wales) Act 2015 and this need contributes to four of the seven well-being goals.

There has been a consultation which sets out tighter EU lead standards in the future. The proposed revision of EU Drinking Water Directive includes a tightening of the lead standard from 10 µg/l to 5 µg/l, 10 years after the entry into force of the directive, which could mean 2030.

Initial discussions with the DWI have indicated that they support this measure, and they encourage ambition in tackling lead.

Customer views

We have a rich evidence base on the subject of lead pipes - our research in the areas of customer needs, co-creation, willingness to pay, asset health and resilience and PCs and ODIs have all explored the topic of lead pipes.



Tackling lead pipes emerges as a top three (prompted) priority for both the household and non-household sample in our willingness to pay research. Household customers in Mid Wales were willing to pay 60 pence per year for financial support for dealing with lead pipes, compared to £1.78 in North Wales.

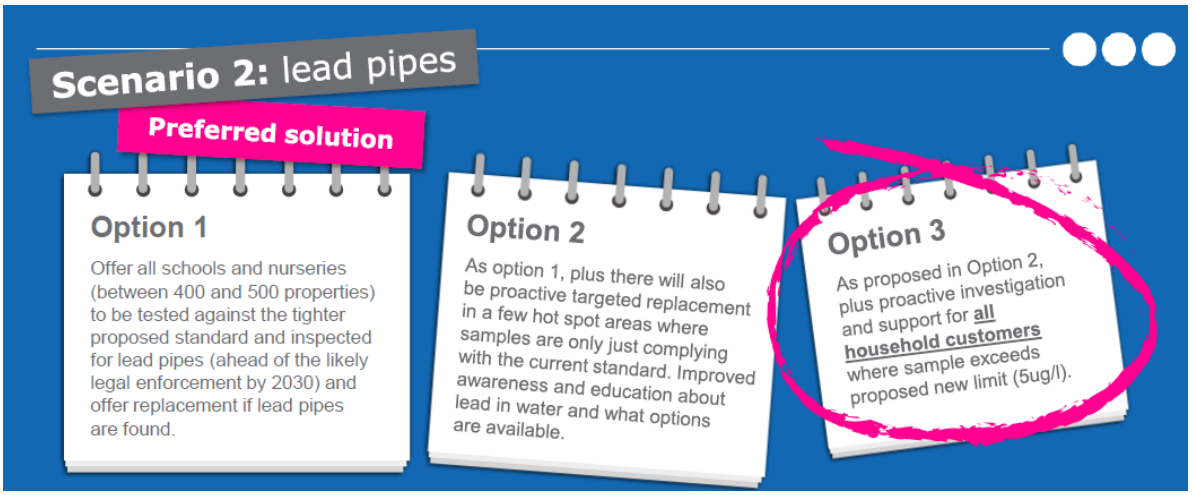
Conversely, our customer needs research found that while some customers are aware of historic issues with lead pipes, most are unaware that they are still present in the water system or could be in their home.

There is also mixed awareness and/or confusion over who is responsible for water pipes. Customers are unaware that they own their supply pipes or of the health issues associated with lead pipes. When prompted, customers tend to be shocked and concerned. This concern does diminish once customers' questions had been answered with more reassuring information. The cost of replacing lead pipes can also be seen as prohibitive.

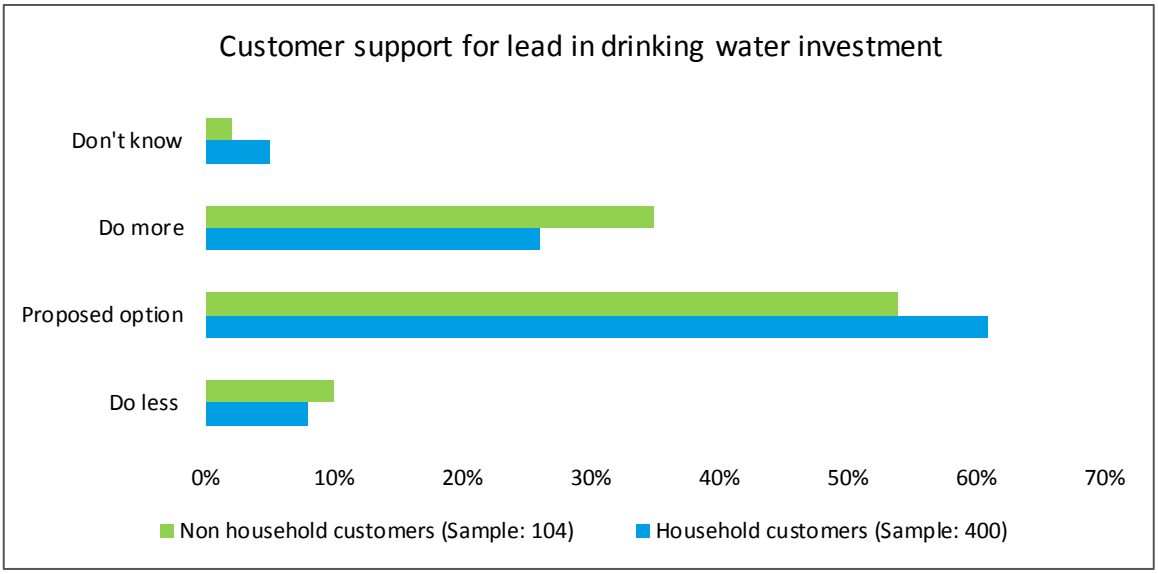
Our research on asset health and resilience discussed lead pipes as one of two scenarios, considering both pace of investment and attitude to risk. In this research we also found that there is limited awareness of future potential tighter lead level restrictions and the existence of lead pipes. When presented with the scenario workshop participants questioned the extent of the problem and the consequent amount of disruption it would cause.

The participants in the workshop agreed increased and more active communication is important, as well as more testing, so that customers could decide how they would deal with the situation themselves. Overall, customers wanted to know whether they were personally affected. Those with young children and grandchildren were particularly passionate, expressing concerns over safety.

In terms of pace, this was seen as something that requires action as soon as possible, and the "do more" option was seen as optimal due to concerns over health risks.

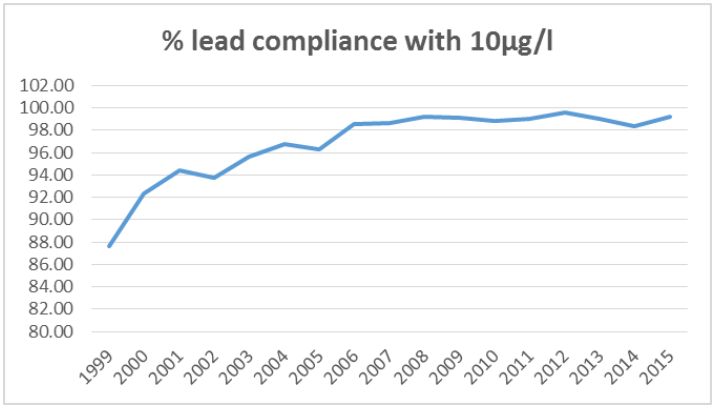


This was a purely qualitative research project, which we then followed up with quantitative insight in the PC and ODI research. We found that the majority of household customers (61%) supported our proposed approach, whilst 26% were willing to pay for a "do more" option with increased activity. Only 8% of customers wanted us to invest less in lead in drinking water. Fairly similar results were obtained from non-household customers, with 54% supporting the proposed approach and 35% supporting the "do more" option. 10% of customers supported the "do less" option. Results are shown in the figure below.



Historical performance

The figure below shows that compliance with the lead standard has significantly improved over the last 20 years and is now between 99.5% and 100% at the current 10ug/l standard. The table below shows that compliance would have reduced to 98% at 5ug/l and 71.5% at 0ug/l.



Average since 2010	10µg/l	5µg/l	0µg/l
Compliance (reg samples) - Powys	99.7	98.2	66.5
Compliance (all samples) - Powys	tbc	tbc	tbc
Compliance (reg samples) - Wrexham	99.3	98.8	62.2
Compliance (all samples) - Wrexham	97.4	96.6	57.8
Wales (Reg Samples)	99.5	98.4	64.6
Wales (All samples) (based on data available only)	97.9	96.9	59.5

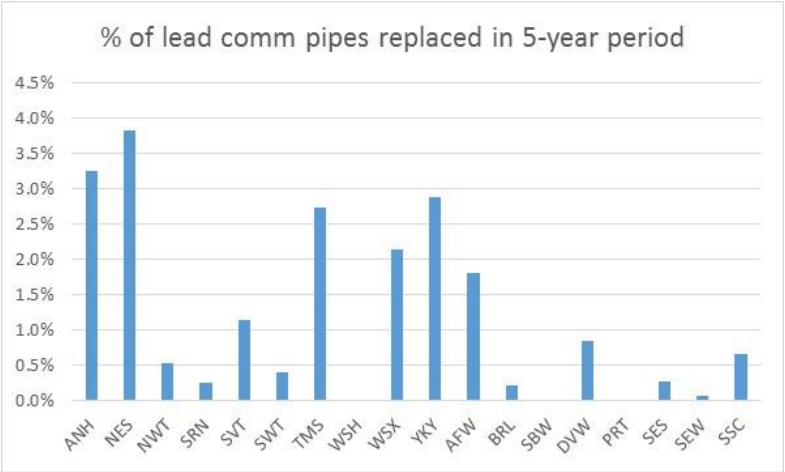
2016 performance	10µg/l	5µg/l	0µg/l
Compliance (reg samples) - Powys	100.0	98.0	73.7
Compliance (all samples) - Powys	N/A	N/A	N/A
Compliance (reg samples) - Wrexham	100.0	99.0	69.2
Compliance (all samples) - Wrexham	98.3	98.0	71.1
Wales (Reg Samples)	100.0	98.4	71.9
Wales (All samples) (based on data available only)	98.6	98.0	71.5

Lead compliance at various standards

This improvement has been achieved through optimisation of treatment processes, not removing the lead pipe. The performance data above shows that treatment alone will not enable us to meet the tighter standard of 5ug/l. Over the past six years Dee Valley replaced around 260 lead pipes opportunistically, which represents less than 1% of the asset stock which is believed to be lead. At this rate it would take around 770 years to replace them all.

Comparative information

To support the construction of Ofwat econometric models, all companies provided a data set which included data on the number of lead communication pipes that are replaced for quality reasons. In the last six years, the industry has replaced a total of 128,458 lead communication pipes, which represents 0.5% of the total properties served.[1] The figure below shows that across the industry the current replacement rate is a very small proportion of the total lead communication pipe asset stock. There is no data setting out the number of customer owned lead pipes (service pipes) replaced. The company owned pipe replacement data is summarised in the figure below.



[1] Based on the 2017 number of household and non-household properties reported in table 6 of the 2016-17 cost assessment submission.

This analysis demonstrates that a step change is needed across the industry to meet the tighter lead standard of 5µg/l.

Some companies have lead policies which help us understand how ambitious they are being. For example, Dŵr Cymru Welsh Water (DCWW) are currently running a pilot trial to replace customer owned lead pipework when the lead level exceeds 5 µg/l. This trial will enable DCWW to develop a policy for responding to customers where lead is detected at a significant level.

Overall rationale for target

The target is proposed at **460 pipes**.This is based on the following information:

There are around 300 primary schools across our region. But based on the AMP6 surveys carried out in North Wales we anticipate less than 5% (15 schools) will have lead communication and service pipes. We have assumed a similar number of nurseries will have lead pipework giving a total of **60 pipes**. We will commit to working with these schools and nurseries to replace these pipes.

We have identified three localised areas which would not meet a tighter 5µg/l standard. We will target these 'hot spots' with a communication campaign to promote the option of replacing the lead pipes if they are detected through water quality sampling and site survey. Based on trials run across Severn Trent we anticipate approximately 10% hit rate. This gives 150 homes where we will replace both the service pipe and the communication pipe – a total of **300 pipes**.

We will also be working with Wrexham Council who are planning a c£4m infrastructure replacement programme where we will look to find a further 50 homes, a total of **100 pipes**.

In addition to the replacement activity detailed above we are going to;

- enhanceme of our customer communication and advice programme to explain the risk to health of lead in water
- implement an intensive water sampling programme in hot spot areas to confirm the lead risk faced by customers
- Increase opportunistic replacement of lead communication pipes during our leakage, mains renewal and other network activity
- Undertake a service pipe survey to provide complete knowledge of the location of lead pipes so we can understand the risk at a company level so we can plan for the long term
- investment in R&D to develop innovative, lower cost methods to replace lead pipes

Long term ambition

As our understanding of where lead pipes are in our network increases, and we get greater clarity regarding future compliance limits and more efficient, we are proposing to increase the number of lead pipes we replace each AMP period;

- AMP 8: 1,500
- AMP 9: 3,000
- AMP 10: 5,000
- AMP 11: 10,000

Rationale for ODI

This will be a reward and penalty ODI. The penalty to protect customers from us delaying or not delivering the level of activity forecast (for any reason); the reward to incentivise us to identify more cost effective solutions so that we can make more progress quicker. This is going to be a multi-AMP programme but customers do support us making progress faster as shown by the 26% of household customers and 35% of non-household customers who supported the do more option in the PC research.

With lead being a sensitive issue, it is challenging to obtain meaningful customer valuations, especially as such questioning could cause undue concern or alarm. Therefore the ODI valuation for replacing lead pipes is based on marginal costs[2].

On the basis that marginal costs are used as a proxy for the benefit valuation, these are then multiplied by 50% in the same way that they would be if they were benefit valuations. This ensures consistency with the totex cost sharing element of the methodology. We also consistently followed Ofwat's approach in the event marginal cost is used to set the AIM incentive[3], such that an uplift of 20% is made to provide an incentive beyond cost recovery.

We have calculated that the cost of each lead pipe replacement is £3,185. Taking 50% of this value, then uplifting by 20% gives would give an in-period ODI of £1,911. As the PC will be measure **end-of-AMP, the ODI will be £9,555 for each lead pipe replacement.**

Any penalties or rewards will be administered at the end of the AMP to allow us to profile and target the work in the most efficient way, for example by aligning with work being done by other agencies where we are not in control of the timing.

Outcome 2: Water always there

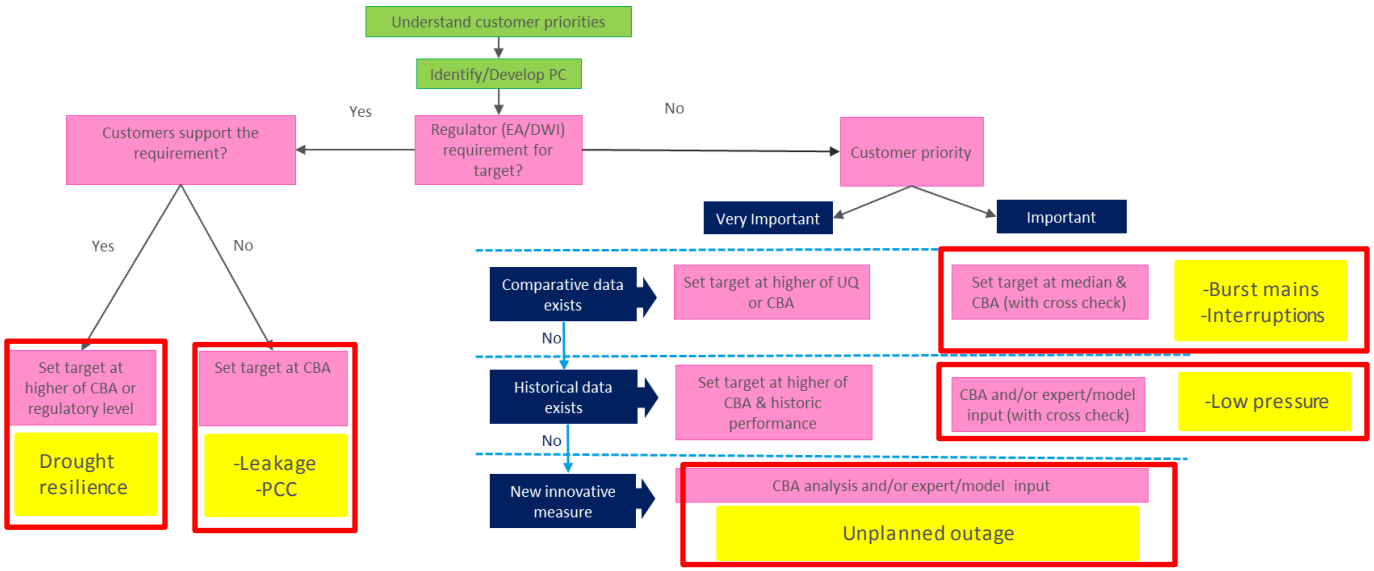
Summary of performance commitments for this outcome

	Retained	New	Removed/ discounted
Mandated by Ofwat	Supply interruptions Bursts mains Leakage	Per capita consumption Drought resilience Unplanned outage	
Customer driven		Low pressure	
Company or CCG driven			

2 Where we have used short-run marginal cost values, we have derived these from the incremental cost of improving the service area by one increment

3 Ofwat (Dec 2017), "Delivering Water 2020: Our methodology for the 2019 methodology price review Appendix 2: Delivering outcomes for customers," p 37.

The diagram below shows where they all sit on the framework, which indicates the primary target setting methodology.



2.1 Interruptions to supply – rationale and evidence

This is a common performance commitment required by Ofwat – and measures the average number of minutes, per property served by the company, a customer has an interruption to their supply which is greater than three hours.

https://www.ofwat.gov.uk/wp-content/uploads/2017/12/Appendix-2-Outcomes-FM-final.pdf

Regulatory guidance

Water supply interruptions is a common performance commitment as outlined in Ofwat's 'Delivering Water 2020: Our final methodology for the 2019 price review. Appendix 2: Delivering outcomes for customers', where Ofwat has stated that companies should propose a minimum commitment level at least at the forecast upper quartile for each year of the price control.

In March 2018, Ofwat published standard consistent reporting guidelines for supply interruptions. This followed a Water UK led UKWIR project in 2017, after which all companies provided shadow reporting of 2016-17 performance based on the consistency guidelines. Given we only have a single data point (2016-17) of industry comparative data, this introduces a high degree of uncertainty when estimating future upper quartile performance.

Customer views

Due to the low numbers of customers experiencing some type of supply interruption, issues of resilience are not often spontaneously voiced as concerns. However it is clear from the deliberative research that a reliable supply, whilst taken for granted, is one of customers' core expectations.

Our willingness to pay research shows that only 3% of household customers, in both Mid Wales and North Wales, state they have experienced an interruption to supply (between three and six hours) in the last 12 months, with very similar percentages (5% for Mid Wales and 3% for North Wales) reported by the non-household sample. Customer tracking research was consistent with these results; with 6% of customers in Mid Wales and 2% in North Wales reporting experience of an interruption to supply. This was the lowest

percentage of the service failures experienced in North Wales. Further reducing interruptions to supply does not appear to be a high priority for customers.

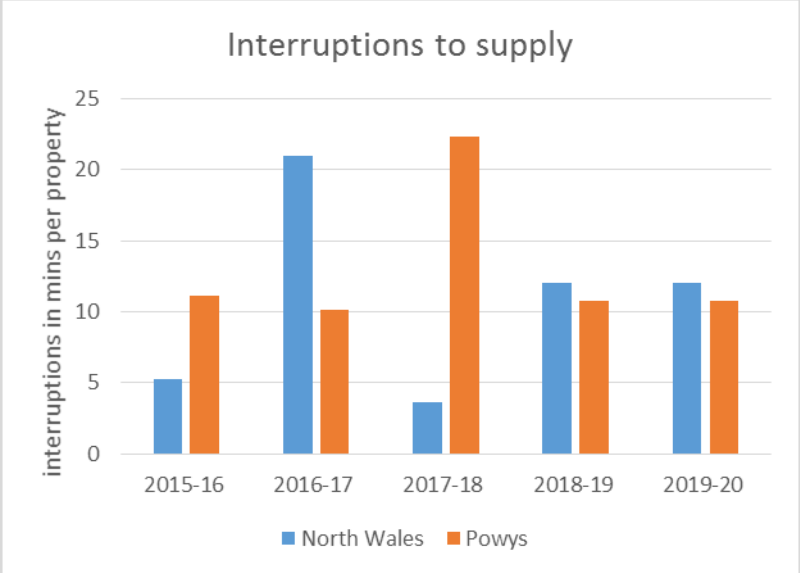
Our willingness to pay research gives a mixed view on the relative priority of improving interruptions to supply between Mid Wales and North Wales. Customers in Mid Wales report it as their lowest priority, whilst it is fourth out of six service attributes in North Wales. Non household customers present a slightly different picture; reducing interruptions ranks slightly higher for them.

Our research on PCs and ODIs found that 81% of household customers, and 87% of non-household customers found the proposed target acceptable. Reducing supply interruptions is considered particularly essential for non-household customers, who might rely on water for their trade, and for vulnerable groups such as the elderly and parents with young children. Our PC for supporting customers in vulnerable circumstances recognises this.

The research indicated that customers do not understand the units that are used to describe supply interruptions. Given that this is a common measure, mandated by Ofwat, we cannot change the units. However customers have told us that in our customer facing documents they would like to see the information as the number of customers who receive short (3-6), medium (6-12) and long (over 12 hours) duration interruptions as this approach resonates more with them.

Historical performance

Supply interruptions can be a very volatile measure for a small company. Just one major or complex burst main can have a material impact on the yearly total. Performance is shown in the figure below:



Interruptions in minutes per property in North Wales and Mid Wales

Data for 2018-19 and 2019-20 are based on the FD target, which we are committed to delivering and confident that we can. Performance in 2016-17 was driven by one very problematic incident.

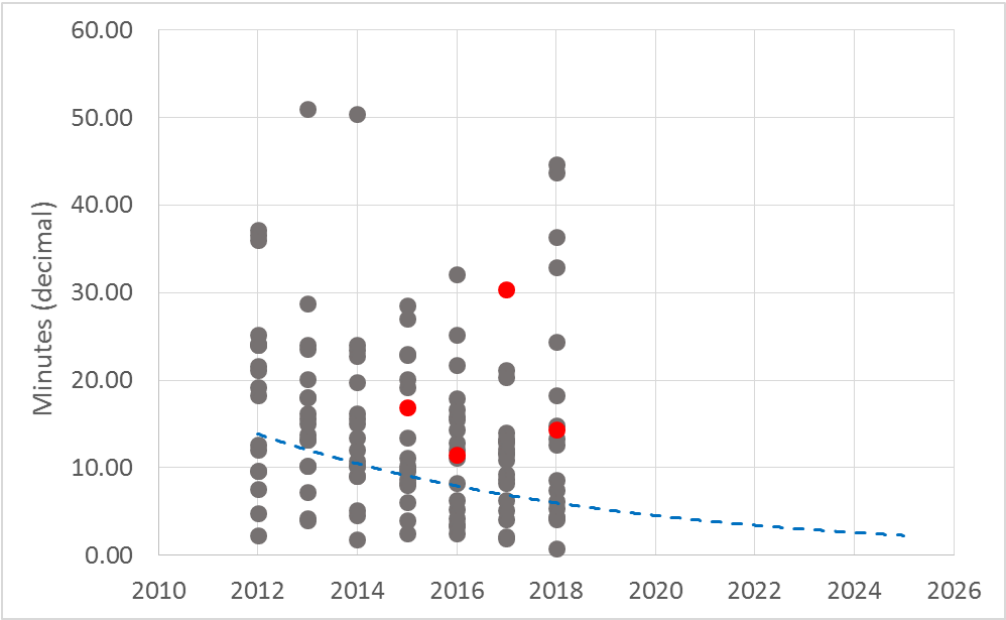
During the remainder of this AMP and to further improve performance against this measure in AMP7, we plan to do the following:

- improve our response when bursts occur (including under pressure connections and use of over land temporary pipework);
- implement a greater level of monitoring on the network (we are installing more than 100 additional loggers this year);
- target condition assessments to proactively improve areas of deterioration; and
- integrate our network analytics platform. This will allow us to better compare assets across North and Mid Wales and to better understand the criticality of assets and take a more risk-based approach to improving network design and reducing interruptions.

Comparative information

'Supply interruptions' was a common performance commitment in PR14, so there is comparative industry data available. However, the consistency project completed in March 2018 highlighted variations in how companies were reporting supply interruptions. In 2016-17 the industry produced shadow performance data against an earlier version of the consistent definition, which will now form the basis of performance reporting in PR19. Given the timing, there are currently only two data point of consistent comparative data on this performance commitment.

Industry comparisons of water supply interruptions based on the Discover Water dataset demonstrates the potential volatility of this performance commitment (figure below). Overall, the industry has demonstrated improved performance over the past six years, with a 46% reduction in the average supply interruptions performance from 2012 to 2017. Hafren Dyfrdwy performance has remained relatively stable during this period. Frontier performance has not changed significantly over the past six years, however, the worst performers have improved - decreasing the performance range between water companies.



Blue line denotes UQ trend line from three-year averages, extrapolated to 2024-25.

Our initial analysis calculated the future upper quartile by considering the performance trends we have seen over the last six years to understand the levels of improvement we can expect over the next five years. We estimate the future UQ to be between five and eight minutes for HD, compared to the HD average in AMP6 of over 18 minutes when using convergence data.

When updating future UQ estimate to include the 17/18 actual performance it has moved to between 2 mins 52 seconds and 5 mins 40 seconds. Given we are already proposing a multi-AMP journey to get to UQ and our stretch is already the maximum improvement seen in a 5-year period we are not proposing to adjust our PC target in light of this new information.

Cost benefit analysis

Cost benefit analysis for this measure shows our proposed AMP7 target is set at the cost benefit level and given customers limited desire to go beyond this we think targeting the cost beneficial level is appropriate.

Rationale for target

We have considered the information and consider a target of eight minutes (presented as 00:13:00 in decimal hours) is a stretching target, based on the following key reasons:

- we have worked hard to identify efficiencies to deliver a target of eight minutes which represents a 30% improvement compared to AMP6;
- given the volatility in this measure just one complex burst would result in us not meeting the target; and
- customers found our target acceptable and had relatively low willingness to pay to improve performance further.

Rationale for ODI

This will be a reward and penalty ODI. The penalty to protect customers from us delaying or not delivering the level of activity forecast (for any reason); the reward to incentivise us to identify more cost effective solutions so that we can make more progress quicker.

The ODI for water supply interruptions is built up from the triangulated WTP results. These give the WTP for a one-property reduction in 3-6 hour interruptions of £32.47. On the basis that there are an average of 270 minutes in the average 3-6 hour interruption, this implies a WTP of £0.120 per minute. Aggregated across the number of water customers (99,827) this leads to an overall WTP per minute of £12,004, which means an **in-period ODI of £6,002 per minute reduction in water supply interruptions**.

Long term ambition

We have committed to take a multi-AMP approach to reducing the supply interruptions across our region. The rurality of some customers, combined with the limited ability to reconfigure the network, means that more investment is required over a longer period to meet the level of service elsewhere in the industry. We expect to ratchet down the target each AMP period until we are performing in line with other companies, by 2035 we expect to be performing at around 3 minutes per property.

2.2 Mains bursts – rationale and evidence

This is a common performance commitment proposed by Ofwat, defined as the number of mains bursts per thousand kilometres of total length of mains.

https://www.ofwat.gov.uk/wp-content/uploads/2017/12/Appendix-2-Outcomes-FM-final.pdf

Regulatory guidance

Until the end of 2014-15 mains bursts was part of the suite of serviceability measures which were key performance indicators of stable water infrastructure performance. Targets were based on maintaining the best

historic performance, set within reference limits which reflected variations in performance which were considered acceptable and typical. It was not mandatory for AMP6, but all companies included it in some way in their AMP6 reporting; most companies continued to target stable performance (which is therefore a unique level for each company based on the past).

For AMP7 Ofwat has stressed the importance of asset health metrics and mains bursts is a compulsory performance commitment. Ofwat has not set any performance expectations (they have not specified that all companies should be targeting performance equivalent to upper quartile performance). Ofwat has indicated that companies can propose outperformance as well as underperformance incentives for asset health performance commitments if they can show there are benefits to customers and have customer support for improvements.

Customer views

Our customers have told us that they trust us to identify and make appropriate plans to maintain service for the long term. In our customer tracker, 88% of customers said they trust us to invest responsibly in our network for the future. We tested this further in the deliberative research on asset health and resilience, where we found that customers do have an overall appreciation of the extent of assets a water company is responsible for. Most of the workshop participants felt we should be taking a proactive to mid-ground approach when maintaining our assets – a purely reactive investment approach is not deemed acceptable where an essential service is involved. Overall the service they receive resonates with customers more than the state of the assets themselves – although it was expected that eventually they would experience issues if assets were not maintained.

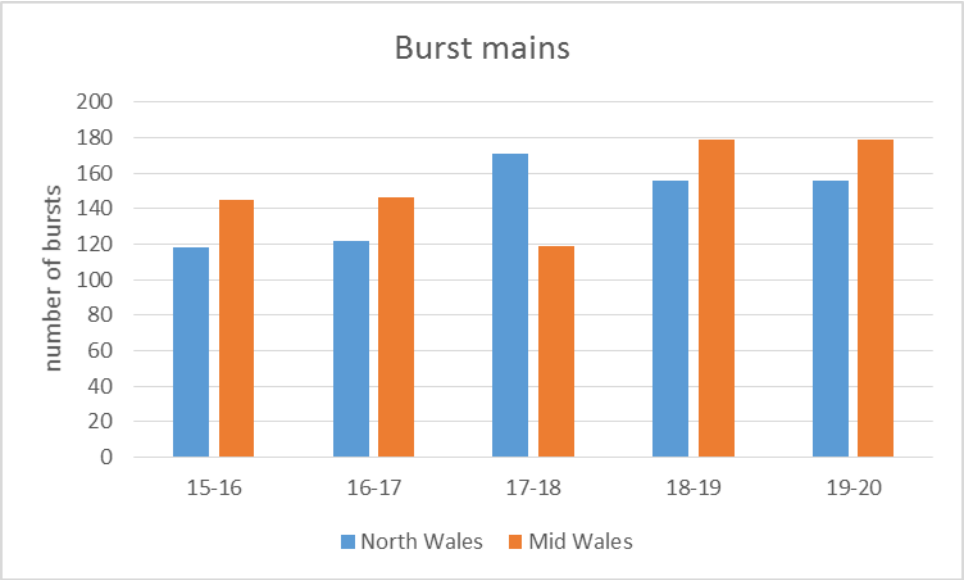
We did not explicitly ask for their views on the targets for mains bursts for two reasons:

1. Mains bursts is not a customer facing measure (we are at a level where further targeting of bursts wouldn't have a significant impact on the customer facing measures, such as interruptions or leakage in the short term). Customers have told us they expect us to carry out maintenance such that we don't store up problems for the future.
2. We are striving to identify the economic level of mains bursts – we are trying to balance the long term stability of the network with the relatively high cost of mains renewal as a way of reducing leakage or preventing supply interruptions. Customers do not have enough information to make this choice and it undermines our credibility asking them. For example, during the asset health workshops (not specifically on the topic of bursts) several customers responded with "isn't it your job, why are you asking us?"

In the initial customer needs research we talked to customers about their expectation during a range of service failures. Mains bursts were considered the least impactful of water service issues, and only a low level inconvenience for most customers. However, our customer tracker research tells us that road works can be a source of dissatisfaction for customers, as well as temporary repairs.

Historical performance

The figure below shows the historical performance which is based on a proportioning of DVW and STW actual bursts. The 18/19 and 19/20 values are based on the final determination target as set out in the NAV. The number of mains bursts varies each year and is closely related to the weather and therefore, as per Ofwat's serviceability framework, control levels (upper and lower) were defined for asset health metrics to allow for these fluctuations. Performance within the control levels was deemed as "Stable" performance whereas consistent performance above the upper control level was deemed as "Deteriorating" performance (similarly, consistent performance below the lower control limit was deemed as "Improving" performance). Through AMP5 and AMP6 we have delivered stable performance within our reference levels, arguably a slight improvement given we only exceeded it slightly in one year.

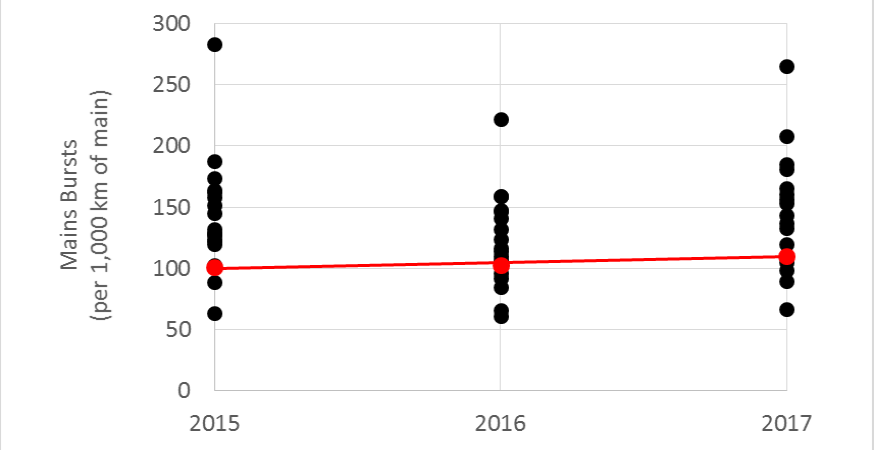


Number of burst mains in North Wales and Mid Wales

The 2018-19 and 2019-20 forecasts align with the Ofwat assumptions made in the NAV and continue to forecast performance at or below the reference level, which represents long term stable performance.

Comparative performance

Although comparative and historical data is available, it should be noted that a review undertaken as part of the industry consistency project indicated that there are variations in how companies report their performance on mains bursts. In March 2018 Ofwat published reporting guidelines, but to date no performance data has been reported against these new guidelines. This means there is some uncertainty in the available comparative data.



Comparative data for mains bursts per 1,000 km of mains

Upper quartile performance between 2014 and 2017 varies between 97 and 122 bursts per 1000km. Hafren Dyfrdwy's performance oscillates around this level. For the last 10 years companies have targeted stable performance and therefore limited improvement has been seen in this measure. We think this stable trend is likely to continue as a significant reduction in bursts mains would drive material cost increases.

Cost benefit analysis

We have not asked customers to value unit improvement in mains bursts therefore it is not possible to calculate the customer benefit. Given we are proposing to maintain stable performance we do not think that setting a target based on cost benefit is appropriate or necessary.

Rationale for target

We are proposing a target of 298 bursts (which equates to around 111 bursts per 1000km over the AMP) based on the average actual performance. This is on the boundary of upper quartile performance (but could be moving towards average if some companies push the frontier).

Whilst we acknowledge that we are not proposing an ambitious improvement, we think this is appropriate and stretching because:

- it represents a 14% improvement from the reference level previously set by Ofwat;
- it locks in the improvement that has shifted the average actuals during this 10 year period;
- this level represents a stable asset base which means we are not storing up problems for the future; and
- customers will not be funding the 14% improvement which means it increases company risk.

We are including a deadband to reflect the well-known variability in this measure caused by typical changes in weather. Our historical performance (between 2011-12 and 2017-18) shows that +/- 13% around the target is appropriate. Based on the PR19 target this deadband would mean that we would have been in penalty for one of the nine years and reward for one as shown below.

deadband analysis		positive number means worse than FD, negative means better than FD							
	2011/12	2012/13	2013/14	2014/15	15-16	16-17	17-18	18-19	19-20
variance to Ofwat PR09 re	1%	-26%	-17%	-13%	-22%	-21%	-14%	-1%	-1%
variance to new target	15%	-16%	-6%	-2%	-12%	-10%	-3%	12%	12%

ODI rationale

This will be a penalty and reward ODI. The penalty protects customers from under delivery and the reward provides us with an incentive to improve our predictive capabilities to better target bursts if we think we can drive improvement in customer service (specifically interruptions and leakage).

We are proposing that this is an in-period reconciliation in line with Ofwat's guidance that rewards and penalties should be incurred as close as possible to when the service is experienced.

In the absence of WTP metrics for mains bursts, we have uprated Dee Valley's ODI from PR14. Adjusting the PR14 value of £2,307 per burst (in 2012/13) prices leads to an updated ODI of £2,592 per burst. At PR19, Ofwat is creating a normalised metric for mains burst, according to the number of burst per 1,000 km of mains. Consequently, the ODI is then aligned with metric to give **an in-period incentive of £6,138 per burst per 1,000 km of mains**.

Long term ambition

As a key asset health metric, we are proposing stability in the level of performance across future AMP periods. The impact on our customers of a mains burst manifests through visible leakage, supply interruptions and disruption to traffic during repairs. We have other mechanisms in place, through performance commitments and regulatory requirements, to ensure we drive down the impact a burst main has on our customers. Maintaining a stable level of bursts ensures we invest responsibly and appropriately across our network without adding undue pressure on our customers' bills.

2.3 Properties at risk of low pressure – rationale and evidence

Regulatory guidance

As a bespoke performance commitment there is no regulatory guidance for our targets against this measure.

However, low pressure was a measure previously included in Ofwat's measurement of serviceability and therefore there is a regulatory expectation that we will at least maintain stable performance.

Customer views

CCWater 'Water Matters' (2017) finds that 89% of Dee Valley customers are satisfied with their water pressure. Despite this, in our research we have found that 18% of customers in Mid Wales and 12% in North Wales reported experiencing low water pressure in the past 12 months. Customers are telling us that this is the second most experienced service failure, after poor taste and smell of drinking water in Mid Wales, and discoloration in North Wales. We recognise that there is a disparity between what customers are telling us they experience compared to the number of properties below the low pressure standards, however, given the strong customer feedback we have reintroduced the low pressure measure into our North Wales region and are continuing with the AMP6 performance commitment in Mid Wales (W-B7: Customers at risk of low pressure).

Poor pressure can be a major cause of dissatisfaction to customers and as such, it emerged as an important issue. We have not classed it as very important as in some sources it does not emerge as a high priority for improvement. In our PC and ODI research we found that 73% of household customers and 80% of non-household customers found the proposed target acceptable. The discussion in the qualitative research gives us some insight into this – customers felt this is an important area to perform in, but were somewhat surprised this was a core commitment with the numbers being quite low. There was interest in understanding more details, like the duration of pressure incidents.

Historical performance

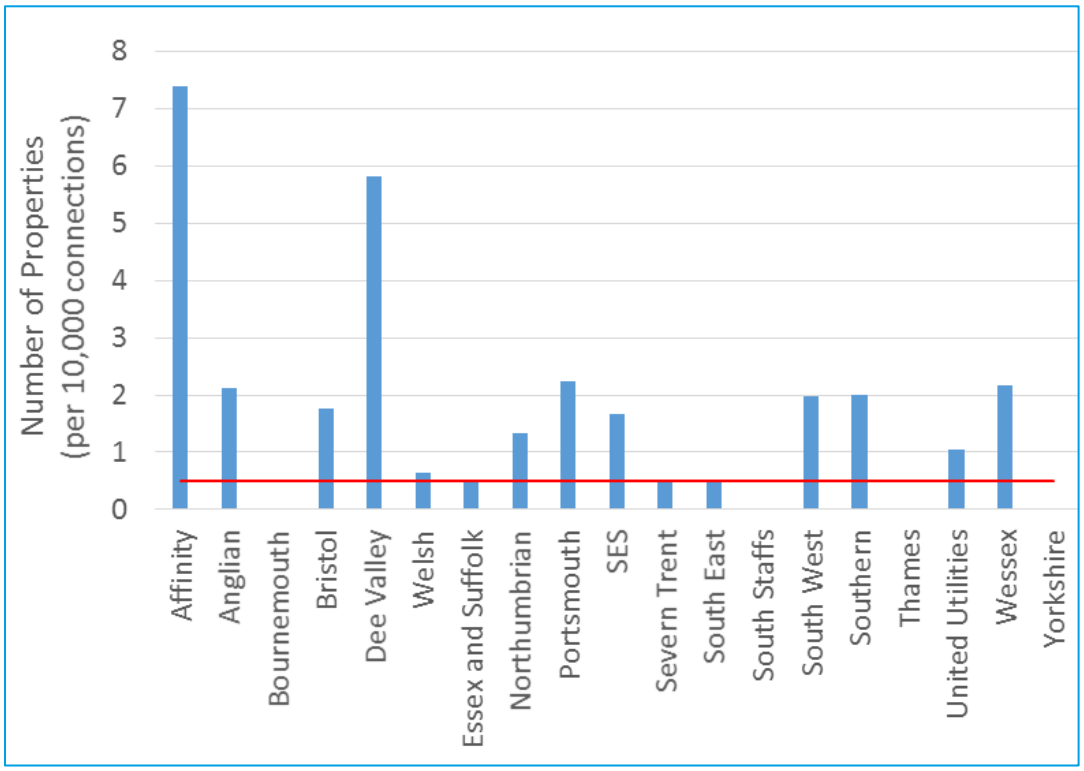
In AMP6 we have successfully delivered our PR14 business plan target in Mid Wales, however, customer research conducted as part of the PR19 process revealed that low pressure was the second most common service failure experienced by customers. The current AMP6 performance commitment for pressure does not differentiate between those customers who have short term pressure issues, such as those experienced during hot weather and those that suffer continually.

	AMP5					AMP6				
	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
North Wales	35.0	49.3	33.3	42.4	14.3	43.0	14.0	34.0	35.6	35.6
Mid Wales	11.0	11.0	11.0	27.0	26.0	13.0	16.0	18.0	21.0	21.0
HD	46.0	60.3	44.3	69.4	40.3	56.0	30.0	52.0	56.6	56.6

Comparative information

In AMP6 six companies (Severn Trent Water, Thames Water, Southern Water, South East Water, Northumbrian Water and Anglian Water) had measures which covered some aspect of low pressure (often referred to as DG2). Over the AMP, Southern water has shown the most improvement, with a 23% reduction in properties from 2015-16 to 2016-17, which has guided our minimum level of improvement.

Furthermore, data on the number of properties experiencing pressure below the minimum standard in each company's area from 2016-17 was made available on the Discover Website, for the year 2016-17 (below). The upper quartile based on this data is highlighted by the red line below.



We are not sighted on other companies AMP6 or AMP7 low pressure reduction plans and just one scheme can change the number of properties at risk significantly. Our best estimate of the 19/20 UQ position is 0.5 properties per 10,000 connections. This translates to around 6 properties for HD.

Rationale for target

The proposed 2024/25 target is to reduce the number of properties at risk of receiving low pressure from 57 (in 2019/20) to 41. We are proposing one year glide path to the improved level to reflect the requirement to have at least 12 months robust data which will be gathered from the additional 200 loggers that we are installing around the network during 2018/19. This target is stretching as it represents a 26% improvement and just as importantly the planned activity during AMP7 will result in much better data that will allow us to target a more customer facing PC in AMP8 and beyond.

The target has been established by applying the Ofwat serviceability methodology. This means we have identified the best historical performance (which occurred in 2016/17) and then taken the average between that year and the following year, which was the previous regulatory methodology (Ref Ofwat PR09/38) for accounting for some natural variation. This is stretching as it means the target (42 properties) is 20% lower than the long term average (51 properties).

ODI rationale

This is a financial incentive with penalties and rewards. We are not proposing any deadbands or caps and collars. The triangulated WTP for a have one property fewer at risk of receiving low pressure is £ 1,973, leading to **an in-period ODI of £987 per property**.

Long term ambition

In data table App1 we are forecasting a reduction in the properties at risk of low pressure, with a view to eliminate the problem by 2035. This multi-AMP glide path allows us to ensure we find the most cost-effective, sustained solution to pressure issues for all of our customers.

2.3 Leakage – rationale and evidence

Leakage is the amount of water lost from the distribution network and supply pipes, through leaks, in a day. This is a common performance commitment outlined by Ofwat, and will be reported as a three-year average, in line with the following Ofwat definition.

https://www.ofwat.gov.uk/wp-content/uploads/2017/12/Appendix-2-Outcomes-FM-final.pdf

Regulatory guidance

Ofwat provided guidance in 'Delivering Water 2020: Our final methodology for the 2019 price review. Appendix 2: Delivering outcomes for customers' for setting a stretching leakage target, stating that company's leakage performance commitment levels should:

- achieve forecast upper quartile performance (in relation to leakage per property per day and leakage per kilometre of main per day) where this is not being achieved – or justify why this is not appropriate;
- achieve at least a 15% reduction in leakage (one percentage point more than the largest reduction commitment at PR14) – or justify why this is not appropriate; and
- achieve the largest actual percentage reduction achieved by the company since PR14 or justify why this is not appropriate.

Welsh Government has set clear expectations in its statement to Ofwat, which says:

"Ofwat should encourage and incentivise the sustainable and efficient use of water resources, including by encouraging companies to reduce leakage and consumption where it is cost effective to do so."

In addition to the regulatory guidance, our proposed leakage will be informed by the requirements of our Water Resource Management Plan (WRMP), which also has clear guidance that we must follow.

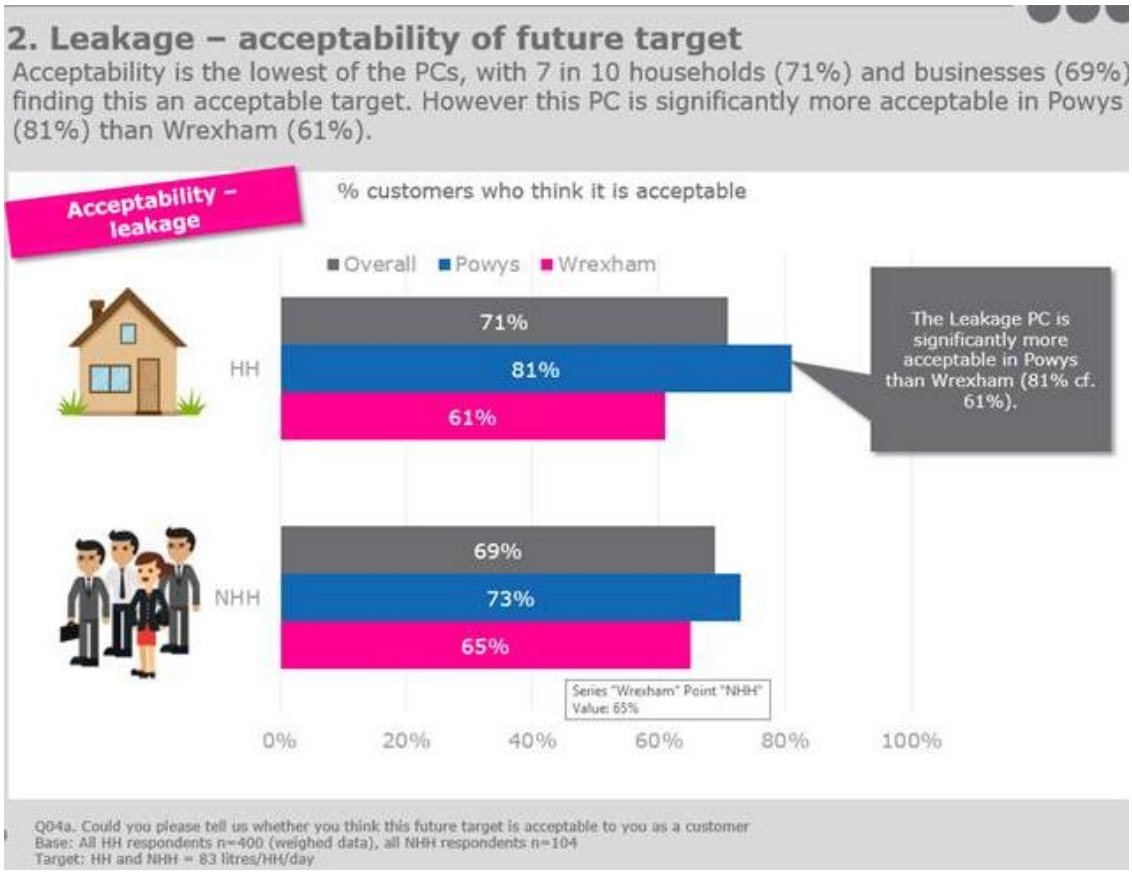
Customer views

Leakage emerges as a priority for improvement but there is low WTP

Our WTP research shows that reducing leakage is a priority for improvement for household customers, however the WTP valuation for household customers is zero in Mid Wales and £0.05 per l/hh/d in North Wales.

Reducing leakage also emerges as a top priority in the customer tracker, in the context of activities we should be doing more of in order to protect or improve the natural environment.

In our PC and ODI research we found that 71% of household customers and 69% of non-household customers, found the proposed target acceptable. This was the lowest acceptability of all the performance commitments presented, and there were also significant differences for household customers between Mid Wales and North Wales. The qualitative discussion gives us some insight into why this is the case – customers unanimously believed that reducing leakage is good, but felt that the current and target level are both still too high, even if the water company is performing comparatively well. Some customers did however feel that the target reduction is stretching.



Stakeholder views

In feedback on the draft water resource management plan both Ofwat and NRW said that more evidence is needed to justify why our initial target of less than a 15% reduction by 2025 was appropriate.

Historical performance

The table below sets out our performance across the two regions and how that compares to the Ofwat PR14 final determination. Note these are the absolute values so do not align to the figures given in data table App1 which are stated on a 3 year rolling average in line with the common definition.

	2015-16	2016-17	2017-18	2018-19	2019-20
Mid Wales in Ml/d	5.4	5.7	7.4	6.5	5.4
Mid Wales FD in Ml/d	n/a	n/a	n/a	5.5	5.4
North-east Wales	6.3	6.9	6.9	7.1	7.1
North-east Wales FD in Ml/d	n/a	n/a	n/a	6.9	6.9
Hafren Dyfrdwy in Ml/d actual and forecast	11.7	12.6	14.3	13.7	12.6

This shows that we are currently off track compared to the NAV assumed FD, but we are developing plans to recover this 19/20.

Leakage is one part of the supply demand balance that form the WRMP. The draft WRMP was produced on the old licence boundaries and we are currently realigning and will be publishing the final WRMP against the new licence boundary. Until then we have to consider the component parts:

In the Dee Valley Plan

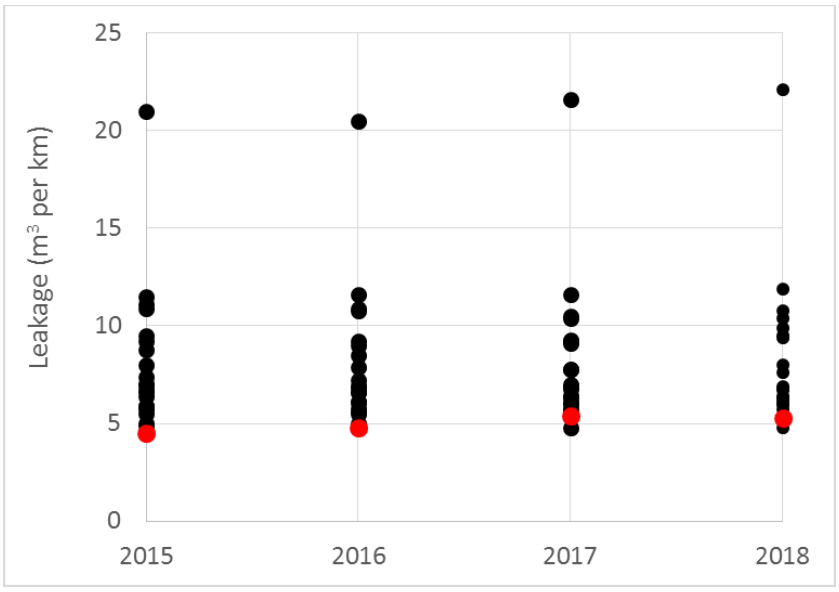
- the Wrexham zone is in surplus and forecast to remain so for at least the next 30 years;
- we originally proposed a 15% leakage reduction over 10 years to meet customers' and stakeholders' expectations that we should be ambitious; and
- we are already beyond our SELL.

In the Severn Trent plan

- the Welsh areas Llandinam (Water Resource Zone) and Shelton zone (that includes Mid Wales) are in surplus and forecast to remain so for at least the next 30 years;
- we proposed a zero leakage reduction in these zones in the STW dWRMP as we are at the Sustainable Economic level (SELL); and
- consultation feedback was that we should be more ambitious.

Comparative information

There are significant differences in the methodologies employed by various water companies to determine leakage in their distribution networks. The figure below demonstrates that the industry trend shows relatively stable performance over AMP6. By nature, changes in leakage performance will be relatively small in the absence of significant innovation, or investment. The greatest annual improvement demonstrated by any company over the past three years was a 7% reduction, made by Bournemouth water from 2015 to 2016. However, annual changes on average are much smaller – around 0.34%.



The consistency work being led by Water UK has provided us with two year's (2016/17 and 2017/18) of consistent comparable data. However, even within this reported data there were a number of areas of the guidelines where companies indicated that they were not fully compliant. The convergence reporting indicates that broadly the overall range of leakage in the industry has not changed, however, the internal ranking of companies is likely to, as further consistent data is published. Severn Trent is currently just below average in leakage performance and Dee Valley is just about upper quartile performance. We estimate the combined Hafren Dyfrdwy performance is likely to be between the upper quartile and average (based on 17/18 view on upper quartile).

In the draft WRMP there were 5 companies (HD being one of them) who were not proposing to meet the challenge of a 15% reduction. Largely this was because these companies are in surplus or leakage was not the most cost effective way of balancing supply and demand. It is clear that all companies are reconsidering the challenge of meeting 15% leakage reduction in five years.

Cost benefit analysis

It is not possible to carryout cost benefit analysis in the traditional sense as WTP to reduce leakage significantly underestimates the policy pressure and broader value that is placed on reducing leakage. WTP in Mid Wales is 0 and in north-east Wales £0.05 per incremental improvement of l/hh/day.

We have costed find and fix activity and then the work that would be needed to hold the improvement, which is likely to cost around £100k additional opex each year (0.8% annual opex).

Overall rationale for the target

We have listened to stakeholders, customers and policy makers and have included a 15% reduction in leakage in AMP7. This is an incredibly stretching target, given this is all additional activity that is not required to meet

the supply demand balance. The additional investment we are making in telemetry and instrumentation during AMP6 will assist us in targeting improvements in a cost effective way. The target will be achieved by the end of the AMP7 period with a straight line glide path as we need to integrate leakage activity into our business as usual approaches to maximise cost efficient delivery.

ODI rationale

This will be a financial incentive with outperformance payments and underperformance penalties. We are not proposing any deadbands, caps or collars. The triangulated WTP for a reducing leakage by 1 megalitre is £4,927, leading to an **in-period ODI of £2,464 per megalitre**.

Long term ambition

In line with the government aspiration our long term ambition is to deliver a 50% reduction in leakage by 2045. This activity will be growing our headroom so we need to continue to assess how that will contribute to the long term security of supply when considering resilience in the round and the shocks and stresses that could affect our ability to deliver service in the future.

2.4Drought resilience – rationale and evidence

This is a common performance commitment required by Ofwat and defined as the percentage of the population the company serves that would experience severe supply restrictions (e.g. standpipes or rota cuts) in a 1-in-200 year drought.
https://www.ofwat.gov.uk/wp-content/uploads/2017/12/Appendix-2-Outcomes-FM-final.pdf

This is a new measure with no comparable data however, from our water resource management planning (WRMP) we have some historical data against which to benchmark our targets. As such, this measure belongs with Cohort 1 as shown in the performance framework which means the target will be based on the higher of the cost beneficial level or the regulatory/ policy expectation.

Regulatory guidance

This is a common performance commitment set by Ofwat to ensure resilience against severe drought restrictions (i.e. stand pipes or rota cuts). Welsh Government haven't made any prescriptive guidance about the level of drought resilience that should be provided, but the Water Strategy for Wales does set out an expectation that companies should ensure services are resilient and that we should plan for the future, including the impact of climate change. However, as a comparator Defra has stated the expectation that, in England, performance should not deteriorate and companies should invest to ensure compliance where required.

As a company wholly in Wales, we (and formally Dee Valley) have been following the technical guidance from NRW when developing our draft WRMP19 (published for consultation in March 2018). As part of the development of the draft WRMP we carried out a problem characterisation exercise which identified a low level of concern regarding the future water resources situation for both our water resource zones (Wrexham and Chester). This means that, in agreement with NRW, we were only required to test our plan against drought scenarios observed in the historic records included in our baseline DO calculation. As a result, we have planned our system so that it can withstand the drought patterns and severities that have been seen over the last 89 years (with a suitable allowance of the impact of climate change) without having to resort to the additional measures described in our Drought Plan e.g. demand restrictions.

To align with the Ofwat definition of a 1-in-200 year drought event we have had to review our approach and update the methodology.

Customer views

We haven't directly asked customers for their views on the target for this PC, and spontaneously customers do not expect drought to be something that will happen in Wales. We have talked to them about resilience and long duration supply interruptions and it is clear that customers expect us to plan for the future which includes ensuring we are resilient to severe drought. They also said that they trust us to do the appropriate analysis and the carryout the necessary activity to maintain service over the long term. We think this insight supports our proposed target of ensuring no deterioration to the level of resilience.

Historical information

There is no historically reported data on this measure, but we know that neither Dee Valley has never had a hosepipe ban and Severn Trent haven't imposed any restrictions on supply because of a drought (e.g. hose pipe bans, use of standpipes or rota cuts) in over 20 years.

We have reviewed the Dee Valley WRMP and the water resource zones feeding our Mid Wales region in the Severn Trent WRMP to understand the risk of a drought and how that may have changed over time. We have worked collaboratively with regulators and the wider industry, to assess our risk to drought, using historic drought events with advanced statistical techniques to simulate theoretical drought events that go beyond our historic experiences. The full modelling is still ongoing due to the overlap with United Utilities catchments and the need to align our analysis.

Despite the ongoing modelling work the information we have indicates that we are currently resilient to a 1 in 200 year drought event and our 2020 baseline will indicate that 0% of the population we serve will experience severe supply restrictions (e.g. standpipes or rota cuts) in a 1-in-200 year drought.

Comparative information

Given this is a new performance commitment proposed by Ofwat for AMP7, we do not have any comparative information for target setting.

Cost benefit analysis

It is extremely difficult to isolate costs and benefits specifically relating to maintaining resilience to drought as a lot of the activity that reduces long duration interruptions today will also improve the resilience against more severe drought conditions. Cost benefit has not been used to set the target. We think this is appropriate given we are not proposing any investment to enhance our resilience to drought.

Overall rationale for the target

For AMP7 we will ensure that the level of resilience does not deteriorate and to develop plans to ensure that we are sufficiently monitoring the indicators that will help us understand if the risk is changing over time (e.g. because of climate change). This is in line with both government policy and customer expectations.

ODI rationale

This will be a non-financial outcome delivery incentive. Given our level of performance there is no ability for us to outperform and delivery of our water resources management plan will ensure there is no deterioration in performance. Regulatory mechanisms exist, through Natural Resources Wales, to ensure we meet this obligation.

2.5PCC – rationale and evidence

This is a common performance commitment proposed by Ofwat and defined as the average amount of water used by each person that lives in a residential property (litres per head per day).

https://www.ofwat.gov.uk/wp-content/uploads/2017/12/Appendix-2-Outcomes-FM-final.pdf

Regulatory guidance

The Water Industry Act s93A places a duty on water companies to promote the efficient use of water. In addition, as part of climate change policy, companies are further being urged to work with customers to reduce their demand. The national infrastructure commission have stated an ambition for companies to reduce demand to 118 litres per person per day by 2050.

The report by Artesia Consulting prepared for Ofwat in April 18 - https://www.ofwat.gov.uk/wp-content/uploads/2018/05/The-long-term-potential-for-deep-reductions-in-household-water-demand-report-by-Artesia-Consulting.pdf looks at various options for reducing water use and considers ranges for PCC of 73 to 105 litres/ person/ day by 2065.

The Defra (2018) 25 year Environment Plan says that companies need to incentivise improved efficiency and less personal consumption, and has asked WaterUK to advise on a PCC target for 2042. Waterwise (2017) have recently published their strategy for the UK which sets out a blueprint to deliver a vision of a UK in which all people, homes and businesses are water efficient, and where water is used wisely, every day, everywhere .

Customer views

We haven't directly asked customers what PCC target they think is appropriate. We have talked to them about water efficiency and the importance of safeguarding future supplies. They understand this, but they find this subject difficult to talk about without talking about leakage and how we should reduce wastage before they consider behaviour changes.

Historical performance

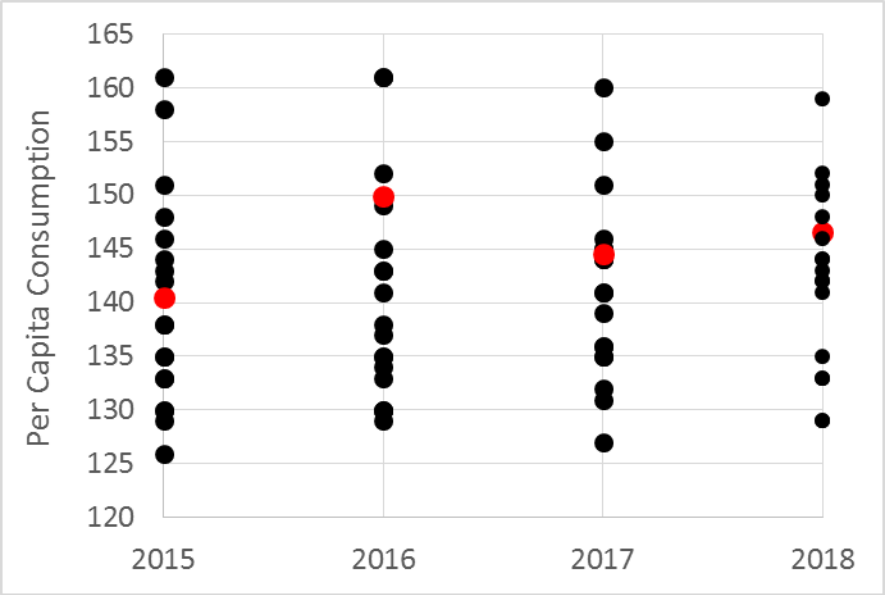
The table below sets out PCC in our North and Mid Wales regions.

		2013/14	2014/15	2015/16	2016/17	2017/18	5 year ave
North Wales	Unmeasured	158.0	154.5	171.0	160.6	161.0	161.0
	measured	133.6	132.8	138.7	135.1	138.4	135.7
Mid Wales	Unmeasured	138.3	134.9	138.0	140.1	141.1	138.5
	Measured	129.3	126.3	130.4	131.7	132.9	130.1
HD	Weighted PCC	142.5	140.5	149.9	144.5	146.5	144.8

We have taken the average of the PCC between 2013/14 and 17/18 to use as forecast for 18/19 and 19/20. Our proposed baseline entering AMP7 is 144.8 litres/ person/ day which converts to 154.9 post consistency.

Comparative information

The figure below shows the comparative industry data for PCC but using the current individual company methodologies, which are not all compliant with the new consistent definition. The consistent definition and reporting guidelines for PCC were published in March 2018. Thus given there is no shadow reporting performance data available, we have been unable to apply any adjustments based on the change in methodology.



Comparative industry information for PCC, using pre-consistency methodology (red dots Hafren Dyfrdwy's)

This shows we are performing just below the industry average. UQ is estimated at 136l/p/d. This is useful context, but has not been used in isolation to set the target as the policy position is that all companies need to be more ambitious compared to the past.

Cost benefit analysis

Our PCC is largely targeted through our WRMP strategy, and is heavily dependent on delivery of our leakage target and the success of our customer education performance commitment will also be key to succeeding in reaching this target. As such, cost benefit analysis has not been undertaken.

Overall rationale of the target

We are proposing to achieve the 20l/p/d reduction in PCC by 2040, which is in line with the ambition of Defra. If this rate of improvement is extended to 2065 it is within the ranges considered within the Artesia Consulting report for Ofwat. This results in a reduction of 2.5% in the next 5 years and will bring PCC down to 151l/p/d by 2025. This is stretching given we already have quite high meter penetration, especially for a company who does not have a supply demand deficit. This means we do not have an aggressive demand side programme to help us achieve this target, which is what the companies who do have a deficit will have.

Long term ambition

This will be kept under review, but our current long term ambition is to reduce PCC to 105 l/p/d by 2065.The annual targets in data table App1 have been straight line profiled between 2020 and 2065.

ODI rationale

This will be a non-financial outcome delivery incentive. We do not believe that it is appropriate that financial incentives are attached to a metric which tracks customer usage.

2.6 Unplanned outage – rationale and evidence

This is a common performance commitment required by Ofwat – and measures the annualised unavailable flow, based on the peak week production capacity (PWPC), for each company. The actual unplanned outage should be reported as the temporary loss of peak week production capacity in the reporting year weighted by the duration of the loss (in days). The Ofwat unplanned outage guidance can be found: https://www.ofwat.gov.uk/publication/reporting-guidance-unplanned-outage/.

We are confident that, based on current performance, customers will not see any loss of supply due to unplanned outages at our production sites.

Regulatory guidance

This is a common performance commitment for AMP7 outlined by Ofwat with an expectation that companies focus on stable asset health which will be our key objective in setting targets.

Customer views

Customers understand the importance of maintaining asset health and taking a long term view of infrastructure improvements. We have not asked for their views on the specific target.

Historical performance

This measure is designed to assess asset health for water abstraction and water treatment activities (primarily non-infrastructure). As a new performance commitment, we have not reported on this measure in the past.

As part of our water resources management planning, we are required to log unplanned and planned outages at production sites. The definitions used for this data capture are not directly aligned to those of the unplanned outage measure, and as such, we can only derive an indication of our performance from the latter. However, the data does enable us to understand the behaviours and activities which may be required to perform well at this measure.

In the former Dee Valley area, we also have 18 months of data from the asset management system that captures asset failure for treatment works and network pumping station assets. Further analysis has had to be done on this data to understand if that asset failure resulted in a works outage.

Comparative information

We currently only have one year of industry-wide comparative data for this measure. However, as a new measure, it is likely that a number of companies are not fully compliant with the reporting guidelines. As such, we have refrained from basing our target on a comparative basis.

Cost benefit analysis

Customers do not recognise a difference between loss of supply due to network issues, water availability or asset outage. During customer engagement the concept of a supply interruption is more intuitively linked to an issue on the network, such as a burst pipe. This is likely due to customers being more aware of maintenance on highways, where they could be inconvenienced, than work undertaken at non-infrastructure assets that they are not aware of.

As such, we consider the feedback from our customers is not directly relevant to this measure, but more directly associated with supply interruptions commitments. We have not, therefore, undertaken cost benefit analysis to set the targets for unplanned outage.

Rationale for target

We are proposing to maintain stable asset health performance on this measure.

As an asset health metric our fundamental goal is to remain stable in our performance, as this indicates a balance between investment activities and performance at a sustainable level (other measures such as supply interruptions capture the direct customer impact). As such, our main focus will be to drive down unplanned outages in those areas of our system which are more vulnerable/ have less redundancy, for example, where we have single points of failure.

Further analysis of this data over time will enable us to assess the efficacy of our maintenance strategy and help us to ensure we get the greatest benefit for our investment. Until we better understand our performance against this measure, our target for AMP7 is to maintain stable performance,

ODI rationale

This is a non-financial incentive for two main reasons:

1. The data is not mature enough to confidently assign outperformance payments and underperformance penalties
2. Our system configuration means that very few asset failures result in an outage and as such it is not a very customer facing measure.

Long term ambition

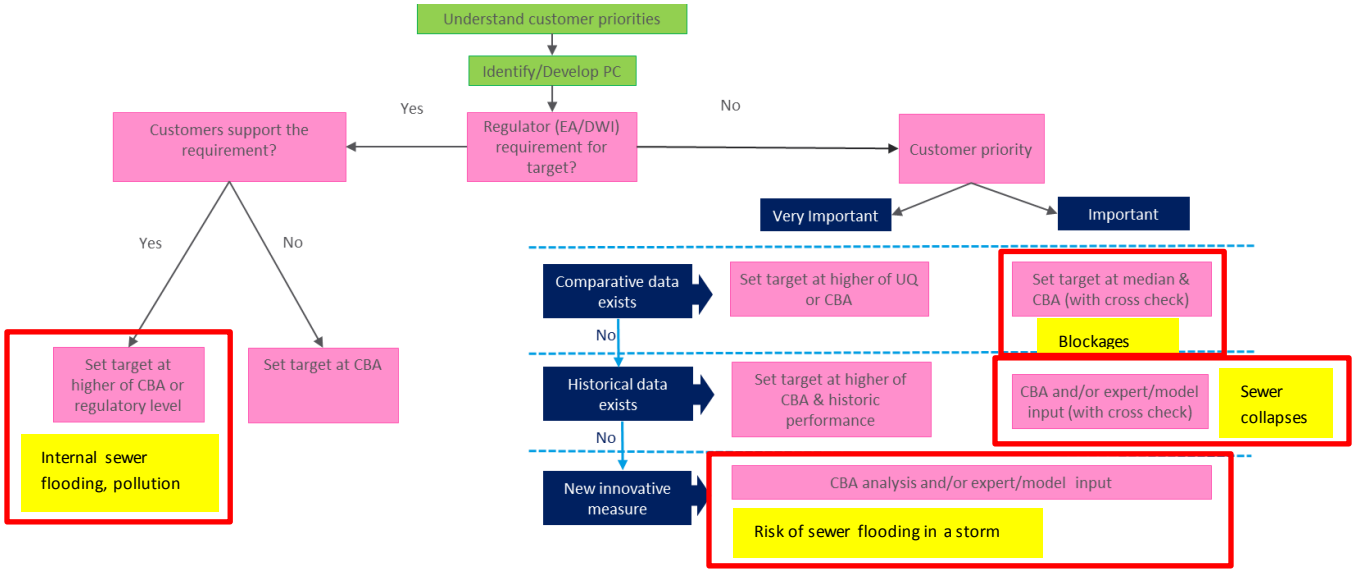
We are very proud of our asset management system that gives us full visibility of our maintainable non – infrastructure assets. We will continue to monitor the cost savings resulting from the system and to build a case to understand if expansion into our Mid Wales area could be the least whole life cost solution.

Outcome 3: Safely take your waste away

Summary of performance commitments for this outcome

	retained	new	Removed/ discounted
Mandated by Ofwat	-Internal sewer flooding -Pollution incidents -Sewer blockages (AH)	-Risk of sewer flooding in a 1 in 50 year storm -Sewer collapses	
Customer driven			
Company or CCG driven			- External sewer flooding

The diagram below shows where they all sit on the framework, which indicates the primary target setting methodology.



3.1 Internal sewer flooding – rationale and evidence

Regulatory guidance

Ofwat have retained internal sewer flooding as a common performance commitment because it is one of the most distressing service failures for customers and reducing it is a very high customer priority. They have provided guidance stating that companies should propose their commitment levels to be at least the forecast upper quartile for each year of the price control, but they haven't specified the actual value, leaving it to companies to estimate it. This means there is a high likelihood of Ofwat intervening to standardise the targets across the industry when they set the final determination.

In March 2018, Ofwat published standard consistent reporting guidelines for internal flooding. This followed a Water UK led UKWIR project in 2017, following which all companies provided shadow reporting of 2016/17 performance based on consistency guidelines. Given we only have two data points (2016/17 and 2017/18) of industry comparative data, this introduces a high degree of uncertainty on estimating future upper quartile performance.

Customer views

A sewer flooding incident is the worst service failure that customers can experience. Whilst many customers have not had direct experience of flooding (none in the willingness to pay research) they empathise with those that have, and reducing flooding has consistently (across time and multiple research projects) been a priority for customers compared to other wastewater measures. For this reason we have classed this as a very important area for improvement.

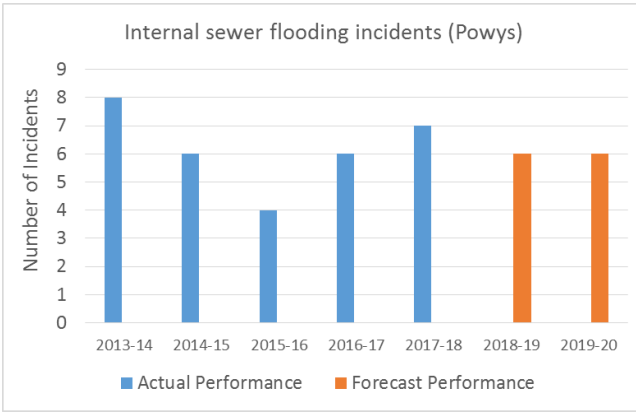
In our PC and ODI research 86% of our household customers and 87% of non-household customers have indicated that they agreed with the proposed target, which represents an upper quartile position in relation to the rest of the industry. Customers also recognised that problems can be due to customer behaviour, and felt the delivery of the target should include a focus on education.

Historical performance

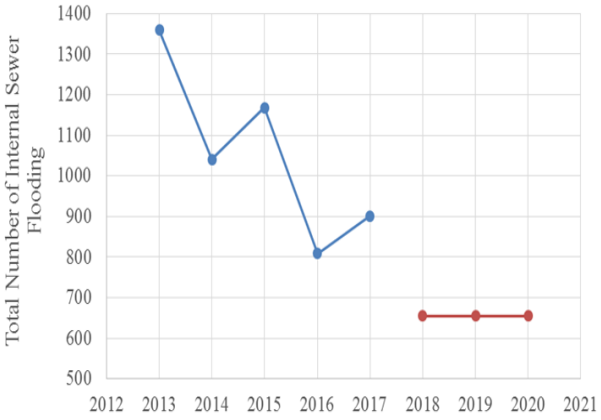
Our internal sewer flooding performance has been reasonably stable over the past five years (we haven't back cast HD performance beyond this). The average performance is six incidents per year, none of which are caused by lack of hydraulic capacity. In AMP5 internal sewer flooding was part of the basket of six measures which formed the basis of assessment of a company's waste infrastructure serviceability performance, but performance in Mid Wales has never been reported separately before.

The ODI structure that was included in Severn Trent's PR14 Business Plan included annual rewards and penalties linked to revenue and has driven us to out-perform against our commitments earlier in AMP6 than planned. This target and the ODI rates have been split out for Mid Wales for the last two years of AMP6.

Whilst performance in Mid Wales has been relatively stable (oscillating around six) the overall performance for Severn Trent has seen significant improvement, which indicates the potential customer benefit that can be delivered through greater, in-depth analysis of our data, improved strategy and covering proactive and reactive interventions. Due to the good performance in Mid Wales this has not been an area for targeted improvement in the past.



Historical sewer flooding performance



Sewer flooding across Severn Trent

We have interrogated the system to understand the cause of the incidents – all of them are categorised as 'flooding other causes". The table below drills down further:

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19 forecast	2019-20 forecast
Total number of sewer flooding incidents	8	6	4	6	7	6	6
Properties with repeat flooding (either in year or previous years)	3	0	1	2	2	-	-
Cause of repeat	Blockage (2) Misuse (1)		Broken private sewer	Misuse (1) Customer issue (1)			

This indicates that of the six properties who suffered repeat flooding between 2013 and 2017 only two of them could have been prevented - through better workmanship or a proactive cleansing programme. It also echoes the need for us to focus more on customer education, especially after a first incident.

During AMP6, the industry worked to improve consistency in how companies measure and calculate internal sewer flooding, coordinated by Water UK and working with UKWIR. Following this, a joint project with Ofwat and Water UK was undertaken to further improve the consistency of the definition and reporting against it, with final outputs published in March 2018.

The refined definition varies from our previously reported commitment in two aspects:

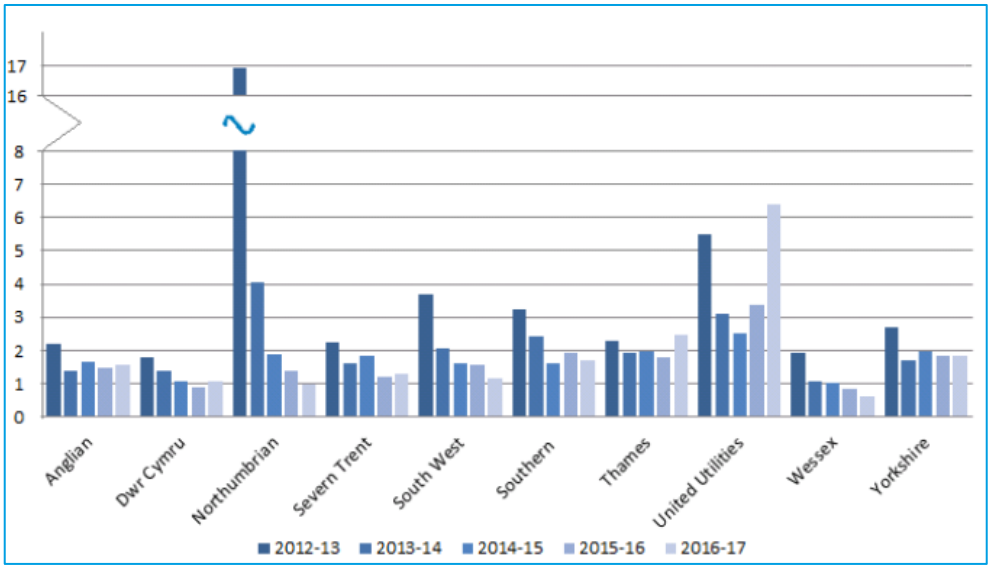
- it includes incidents from severe weathers;
- it includes flooding from private pumping stations adopted in 2016.

We are currently recalculating what the number of incidents would be if the new guidance is applied, but based on our analysis to date we do not think this will have a material impact on the value.

Comparative Information

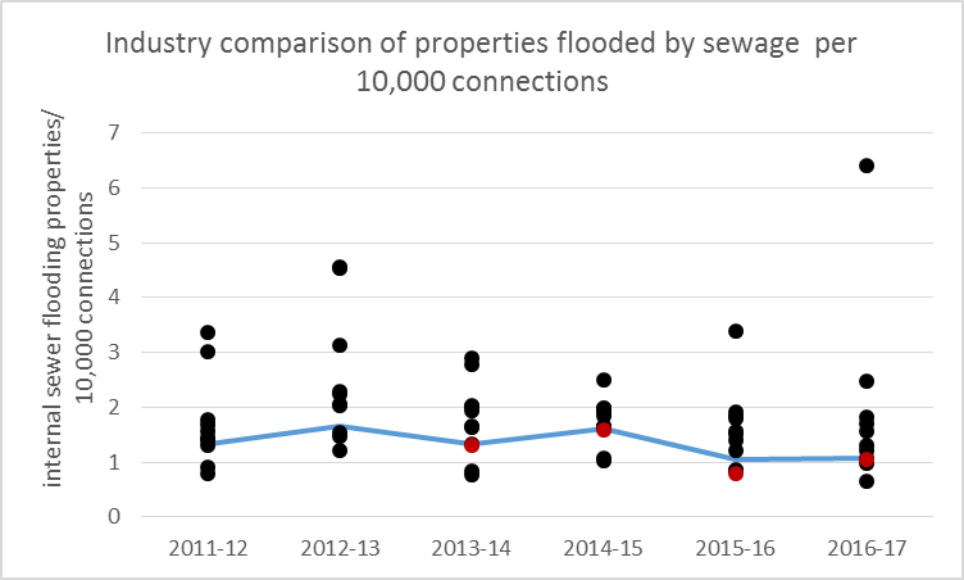
Whilst comparative data is available for all waste companies, there are inconsistencies in the way that companies reported internal sewer flooding in the past, which makes it hard to draw conclusions over historic, comparative performance. This has been addressed through a consistency project, led by Water UK and Ofwat and the new consistent reporting guidelines will be applicable from 2020.

Numbers reported to CCWater are reflective of the number of properties which are flooded, often normalised to 10,000 connections. This measure has seen gradual improvement with some variability from a few companies (see figure below taken from https://www.ccwater.org.uk/wp-content/uploads/2017/11/Clear-way-forward-Delivering-a-resilient-sewerage-and-drainage-system-2016-17.pdf)



Industry comparison using CCW data

Prior to Business Plan submission at PR14, Ofwat used industry wide data to calculate UQ and made this data publicly available. Since then, Discover Water has published the number of properties internally flooded by sewage, however, this number does not include flooding from all sewers that companies are now responsible for, or where the same property has flooded more than once. These datasets are displayed in the figure below. Despite variations in reporting we can see that industry performance over the past six years has shown gradual improvement, within which performance in Mid Wales has oscillated around the upper quartile.

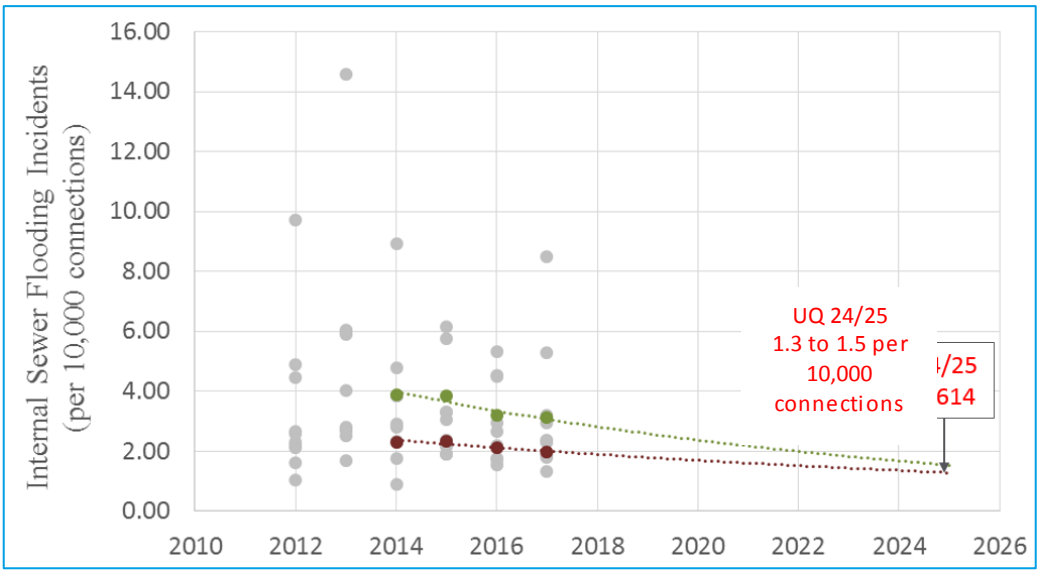


Industry comparison; red dots denote Mid Wales performance; blue line represents UQ performance.

For AMP7, we recognise the need to target performance which represents future upper quartile performance. Changes in reporting to the consistent definition will introduce variations in industry performance levels. This will create uncertainty in establishing a robust future upper quartile as currently, we only have a single data point from 2016/17, aligned with the consistent definition.

We have chosen to calculate the future upper quartile by understanding the performance trends we have seen over the last six years to understand the levels of improvement we can expect over the next five years. The data

set in the figure below includes all incidents (repeats and from adopted drains and sewers). Following the law of diminishing returns, we would anticipate future performance to follow an exponentially decreasing trend, which slows in the rate of improvement as performance reaches frontier. The error of the fitted trend line (taken as the standard deviations of the residuals between historic actual and historic predicted performance), was applied to the 2024-25 forecast position, to provide the likely range of upper quartile performance for 2024-25, which for HD equates to between four and six incidents.



Forecast 2024-25 upper quartile performance. Green line denotes average performance, red line denotes upper quartile performance.

Given we only have two data points (2016/17 and 2017/18) of industry comparative data using the updated definition, there is a high degree of uncertainty, and hence we have taken the central point of 1.4 incidents per 10,000 connections being representative of the future UQ position. This translates to 5.3 incidents per year for Hafren Dyfrdwy.

Cost benefit analysis

It is difficult to calculate the cost beneficial level because the number of incidents is so low. The willingness to pay research (WTP) asked customers for WTP to move from six incidents to four. However, it is extremely difficult to identify the activity that would guarantee that improvement. Sewer cleansing is a relatively cost effective activity, and is very effective where sewers are prone to silt build up or in an area with a high density of fats, oils and grease driven blockages. That does not tend to be the case and most misuse events are related to sanitary products, which are much harder to target. We can also cost to enhance our education programme or enforcement activity, but when the numbers are so low it is very difficult to estimate its effectiveness down to single property movements.

The conclusion is that whilst we will seek to drive efficiencies through the programme it is not possible to use cost benefit to set the target.

Overall rationale

In summary, our rationale for setting targets for internal sewer flooding is guided by Ofwat guidance and customer views - forecast upper quartile for each year of the price control.

We have calculated our forecast upper quartile positions using the previous six years' historic data, adjusted to reflect new reporting methodologies, and fitting a trend line up to 2024-25. Allowing for uncertainty, this is likely to result in a target of between four and six. We originally proposed a target of five as being representative of

the mid-point. Following challenge from the CCG about the number of repeat incidents that make up the total numbers we have reconsidered the target and consider a target of 23 over the five year period (represents c4.5 incidents per year) to be an appropriate balance of risk. The majority of the repeat incidents are not within our control, so a target that expected complete removal of repeat incidents would not be a fair balance of risk.

In conclusion, we have set our target at the top (best) end of the upper quartile range for 2024-25 at an average of 4.5 incidents per year (23 incidents in total for AMP7), based on (i) customer views outlining the importance of this measure (ii) going beyond this would not be a fair balance of risk and this will also be going beyond upper quartile performance, and (iii) data uncertainty related to having a single data point (2016-17) of comparative data.

Long term ambition

Given the low number of total incidents that occur across our geographically sparse operating area it is very difficult to show stretching ambition in terms of the overall number of incidents. We are forecasting that we will reduce the total number of incidents over a five year period to 23 during AMP7, 20 in AMP8, 18 in AMP9 and 16 during AMP10.

ODI rationale

The triangulated WTP for internal sewer flooding incidents is £2,074 per incident. As this metric is reported on a normalised basis per 10,000 sewer connections, the WTP becomes £6,993 per 10,000 connections given the expected number of connected properties will average 33,724 over AMP7. On an in-period basis, the ODI would be £3,497.

Exceptionally, this incentive will apply end-of-AMP, to provide for a sufficiently challenging PC that has the support of CCG, specifically by taking account of the very small numbers involved. This leads us to **an end-of-AMP ODI of £17,482 per incident per 10,000 connections**.

3.2 Wastewater Pollution Incidents (cat 1-3) – rationale and evidence

This is a Common Performance Commitment outlined by Ofwat. It is a measure of the number of category 1 – 3 pollution incidents per 10,000km of wastewater network as reported to the Environment Agency / Natural Resources Wales.

https://www.ofwat.gov.uk/wp-content/uploads/2017/12/Appendix-2-Outcomes-FM-final.pdf

Regulatory guidance

Ofwat have retained pollution incidents as a common performance commitment because it is a key metric of impact on the environment.

Ofwat has provided further guidance that companies should target at least the forecast upper quartile for each year of the price control. Ofwat has not issued guidance to support how companies should estimate forecast upper quartile but challenged each company to demonstrate that the targets they have set, and the analysis undertaken to derive them, assumes a stretching level of improvement across the industry.

Welsh Government and NRW have set out clear expectations that companies must maintain the high standards achieved in reducing point source pollution and should be doing more in collaboration with other parties to tackle diffuse pollution, but there is no specific target or standard.

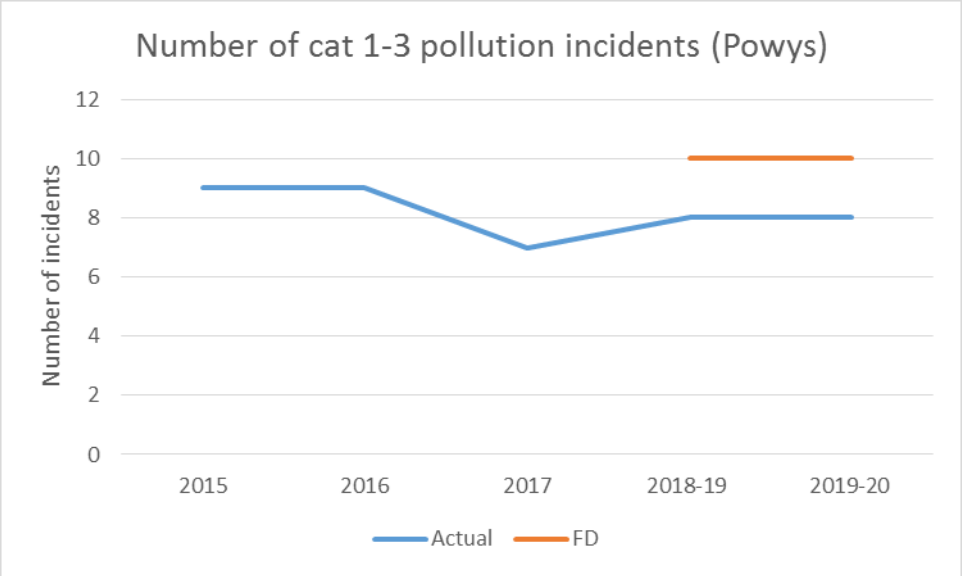
Customer views

Customer research shows that customers are willing to pay to reduce pollution (from 10 to seven), although this is a lower priority for household and non-household customers compared to other waste measures such as internal sewer flooding. For this reason we have classified the improvement in performance as an important priority. In the PC/ODI research we found that 81% of household and 77% of non-household customers found the proposed target (seven incidents) acceptable. The qualitative research gives us some insight into this – most customers feel pollution incidents are rare but inevitable and some think that everything possible is already being done to prevent it happening.

Historical performance

The table below sets out the performance in Mid Wales during AMP6, split between serious incidents (cat 1 and 2) and category three incidents.

Category	15/16	16/17	17/18	18/19	19/20
Cat 1& 2 (serious)	0	0	0	0 (FD)	0 (FD)
Cat 3	9	9	7	8 (full year equivalent) (FD 10)	8 (FD 10)



Number of category 1-3 pollution incidents in Mid Wales

We are currently outperforming the AMP6 commitment and whilst the final determination is set at 10 incidents (all cat 3) we anticipate holding the current performance stable. Note that the 2018/19 target is set at five for Hafren Dyfrdwy to take account of the licence change coming in to effect from 1st July 2018 – the full year equivalent target is 10.

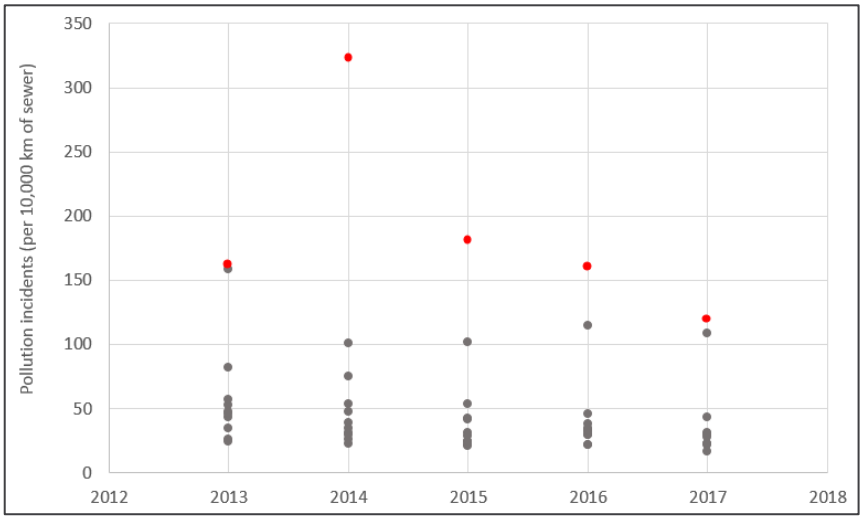
A review of the 2017 performance shows that four of the seven incidents were caused by misuse. This is typical of the historical performance.

Incident Date	Confirmed Source	Primary cause of asset Failure	Cause of blockage
18/01/2017	Foul Sewer	Blockage	
05/04/2017	Foul Sewer	Blockage	Sanitary
18/04/2017	Combined Sewer Overflow (CSO)	Blockage	Sanitary
30/05/2017	Sewage Treatment Works	Blockage	Debris
26/06/2017	Combined Sewer Overflow (CSO)	Blockage	Sanitary
27/06/2017	Water Distribution Main	Pipe Burst	
14/10/2017	Combined Sewer Overflow (CSO)	Blockage	Sanitary

Comparative Information

The number of pollution incidents is recorded and verified by NRW. The NRW's definition is exactly the same as the EA definition and therefore performance is directly comparable across all companies in England and Wales. The adoption of public drains and sewers in 2012 is likely to have contributed some variability over that time period, and therefore we have focussed our analysis on performance over the past four years. In addition to this, in January 2013, the Environment Agency revised the guidance on recording and categorising self-reported pollution incidents. This change was also applied to pollutions in Mid Wales. There is some concern about the consistency in the assumed length of transferred sewers, but no adjustment has been made to take account of this.

Over the past four years there has been a dramatic improvement in performance across the industry. The upper quartile position moved from 61.5 incidents per 10,000 km in 2013 to 28 per 10,000 km in 2016, representing a more than 50% reduction (figure below). The greatest performance improvement was made by Southern Water, whose performance reduced by 76% over the four years. There has also been a notable decrease in the range of performance, from 219 incidents in 2013 to 93 incidents per 10,000 km in 2016. This is due, predominantly, to the significant improvements in the worst performers of the industry.



Industry comparison: data taken from the annual EPA. Red dots denote HD's performance; black dots denote other companies.

We have calculated the future upper quartile by understanding the performance trends we have seen over the last six years to understand the levels of improvement we can expect over the next five years. We estimate the future UQ to be between 1.5 to two incidents for HD.

Cost benefit analysis

The low willingness to pay for improvement means that reducing pollution further would not be cost beneficial. Given it is a statutory obligation we must ensure at least no deterioration in performance.

Rationale for target

We are proposing a target of 6.4 incidents per year (added stretch from our proposal of seven):

We do acknowledge that reducing pollution is important and a key part of our company values is to show environmental leadership and we have considered the challenges raised by the CCG. We have added an additional stretch which equates to a target of **6.4 incidents per year** – which allows a glide path between seven and six incidents per year. However we do not think it would be a cost effective use of customers' money or a fair balance of risk to target the UQ of 1.5 to two incidents for the following reasons:

- to achieve a target of two we would have to actually achieve zero pollutions caused by our assets and pre-empt and prevent two incidents caused by misuse each year. Pre-empting misuse is incredibly difficult when the numbers are so low;
- to achieve anything less than seven means that actually the target is less than three (given four are caused by misuse);
- if the numbers were higher we would commit to a bigger % reduction. Across the wider company we have seen successful results from targeted education about sewer misuse. But the chances of us proactively identifying the specific three people is extremely slim;
- whilst it is important, it is not a customer priority. Between 77% and 81% of customers are happy with a target of seven; and
- the value of UQ is normalised using sewer length which is sensitive to our assumption about the length of adopted sewers (PDaS). Compared to others across the industry our forecast is conservative.

ODI rationale

We propose this as a financial incentive with both outperformance payments and underperformance penalties. Given the small number of incidents we are proposing this as an end of AMP target to ensure the application of the incentives doesn't create unnecessary bill volatility.

The triangulated WTP for reducing pollution incidents is £1,117 per incident per year. As this metric is reported on a normalised basis per 10,000 km of waste network, the WTP becomes £57 per incident per 10,000 km of waste network given the expected network length will be 513 km in AMP7. Accordingly, **the in-period ODI would will £29.00 per incident per 10,000 km of waste network**.

3.3 Sewer blockages – rationale and evidence

This is the total number of sewer blockages on the sewer network (including sewers transferred in 2011) reported on a financial year basis. This PC was selected from the asset health long list proposed by Ofwat, and thus is consistent with the definition published on the Ofwat website:
https://www.ofwat.gov.uk/wp-content/uploads/2017/12/Appendix-2-Outcomes-FM-final.pdf

Regulatory guidance

As a bespoke performance commitment there is no specific regulatory guidance for this measure. Given this is an asset health metric, companies would be expected to deliver stable performance or provide a high level of customer support to demonstrate the need for investment to improve performance.

Customer views

Our customers have told us that they trust us to identify issues and make appropriate plans to maintain service for the long term. In our annual tracker, 88% of customers said they trust us to invest responsibly in our network for the future. We tested this further in the deliberative research on asset health and resilience, where we found that customers do have an overall appreciation of the extent of assets a water company is responsible for. Most of the workshop participants felt we should be taking a proactive to mid-ground approach when maintaining our assets – a purely reactive investment approach is not deemed acceptable where an essential service is involved. Overall the service they receive resonates with customers more than the state of the assets themselves – although it was expected that eventually they would experience issues if assets were not maintained.

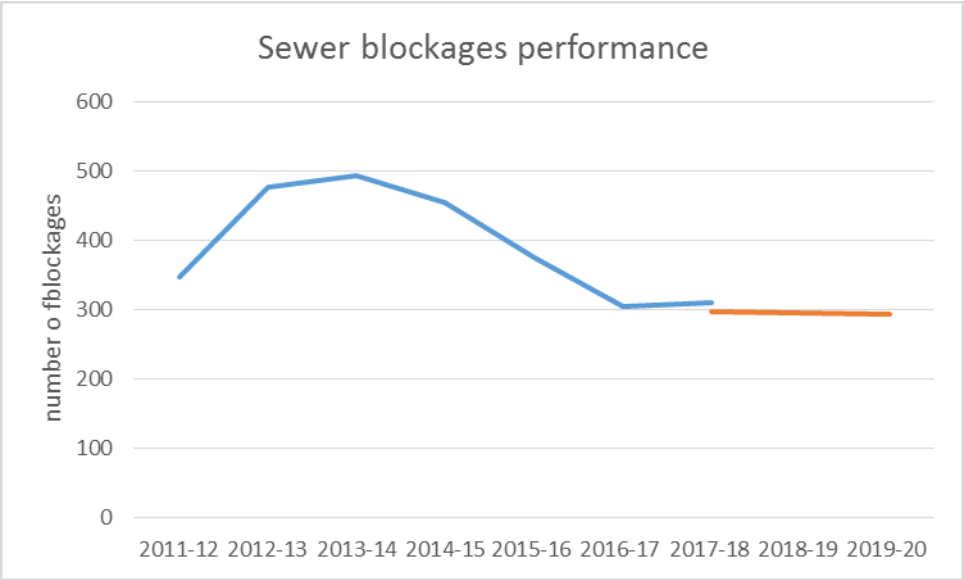
However given one of the most common root causes of a sewer blockage is customer misuse we did ask customers about our blockages target.

Almost nine in 10 (88%) households and businesses found our proposed target (300 blockages/year) acceptable. There is no difference in acceptability levels between households and non-households. Customers feel it is reflective of what they would want it to be. The common themes include:

- customers feel that public education is important, as this is fundamental to the root cause of this issue;
- as with sewer flooding, it should be made clearer that numbers shown are scaled to the size of the water company as this causes some confusion; and
- customers suggest the size and resultant impact of the blockage should be taken into account when measuring performance.

Historical performance

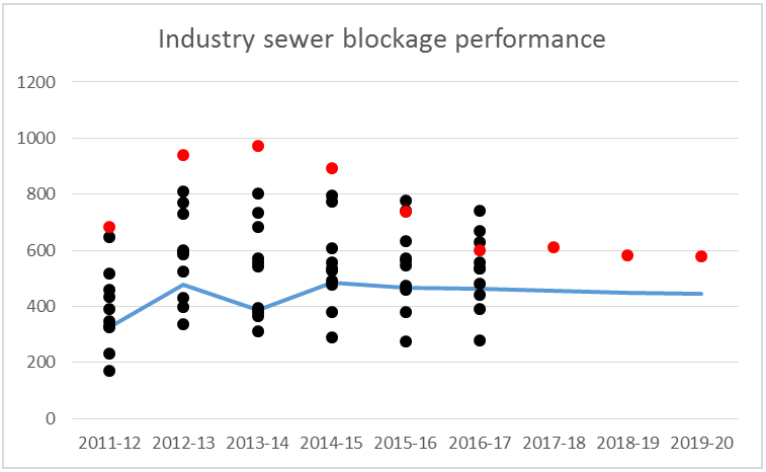
The table below sets out performance since 2011-12. Performance has been estimated based on a scaling of the Seven Trent performance to Mid Wales assets. The figure below shows that the deterioration seen between 2011-12 and 2013-14 has been recovered and performance has stabilised at the level expected in our PR14 final determination. It is also worth noting that the step up between 2011-12 and 2012-13 also coincides with the transfer period when we adopted the private drains and sewers. We are forecasting to meet the targets for the final two years of AMP6; maintaining this significant improvement delivered over the previous few years will be stretching.



Historical performance in sewer blockages

Comparative information

Sewer blockages is an AMP6 performance commitment for most companies and it was part of the waste water infrastructure serviceability basket prior to 2015-16. This means there is historical and comparative information to draw insight and guide targets. The data in the figure below shows that the worst performers in the industry have improved, but overall the average performance has remained fairly stable over the recent past – this reflects the previous regulatory regime which was to maintain stable performance.



Comparative sewer blockage performance

Comparatively Hafren Dyfrdwy has improved, but it should be noted that because this measure is normalised by sewer length our relative position is very sensitive due to tour comparatively very short sewer length, which means a small change in sewer length can have a material impact on our comparative position. This issue is exacerbated by the fact that all companies have made assumptions about the increase in sewer length as a result of the private drains and sewers that were adopted in 2011 and our assumption is comparatively conservative.

We have trended the minor improvement in performance to end of AMP6 and estimate that 2019-20 upper quartile is likely to be around 450 blockages per 1000km. Industry average is around 540 blockages per 1000km.

Cost benefit analysis

Cost benefit analysis has not been undertaken on this PC because it is difficult to value the customer benefit and the Ofwat expenditure assumptions are based on achieving stable performance. Customer value is assessed in the corresponding service improvement (e.g. sewer flooding and pollution incidents).

Overall rationale for target

We are proposing an AMP7 target of 544 blockages per 1000km (which equates to 276 blockages based on 2017-18 sewer length). This is appropriate because:

- it represents a 6% improvement from the forecast 2019-20 position;
- cost assumptions are based on activity needed to maintain stable performance, so this 6% improvement will be delivered at no extra cost to customers; and
- around half of the pollution and sewer flooding incidents are caused by customer misuse which creates the blockage, which means the scope to improve the customer facing service by proactively targeting blockages is limited. This is because it is very difficult to predict where the misuse is going to occur and therefore target sewer cleansing activity.

Long term ambition

Our ambition for this commitment is to ensure stability in our performance of the medium and long term. As such we are proposing to hold flat the target across AMP7 to AMP10.

ODI rationale

This will be an outperformance payment and underperformance penalty ODI. The penalty protects customers from under delivery and the reward provides us with an incentive to further target and reduce blockages to drive improvement in sewer flooding and pollution.

We are proposing that this is an end of AMP reconciliation due to annual fluctuations that closely correlate to the weather that could drive unnecessary volatility in bills.

Performance relating to areas of that have, at most, distant interactions with customers make it difficult to obtain meaningful and logical WTP from customers. Consequently, for sewer blockages we have derived its ODI from the rate applied to Severn Trent at PR14 on an in-period basis.

At PR14, the Severn Trent rate was £2,079 per blockage. In 2017/18 prices this would be £2,336. Then, to attribute an appropriate proportion to Hafren Dyfrdwy, it is necessary to adjust this amount according the PR19 RCV of Hafren Dyfrdwy's waste business, as a proportion of Severn Trent's (0.13%). This gives an in-period ODI value of £3.05. As this PC is **on an end-of-AMP basis, the ODI will be £15.24 per sewer blockage**.

3.4 Sewer collapses – rationale and evidence

This is a common performance commitment outlined by Ofwat, which is a measure of the number of sewer collapses per 1,000 km of all sewers causing an impact on service to customers or the environment.

https://www.ofwat.gov.uk/wp-content/uploads/2017/12/Appendix-2-Outcomes-FM-final.pdf

Regulatory guidance

This is one of four mandatory asset health metrics and whilst there is no specific guidance on target setting, it is important to maintain stable asset health.

Customer views

Our customers have told us that they trust us to identify issues and make appropriate plans to maintain service for the long term. In our annual tracker, 88% of customers said they trust us to invest responsibly in our network for the future. We tested this further in the deliberative research on asset health and resilience, where we found that customers do have an overall appreciation of the extent of assets a water company is responsible for. Most of the workshop participants felt we should be taking a proactive to mid-ground approach when maintaining our assets – a purely reactive investment approach is not deemed acceptable where an essential service is involved. Overall the service they receive resonates with customers more than the state of the assets themselves – although it was expected that eventually they would experience issues if assets were not maintained.

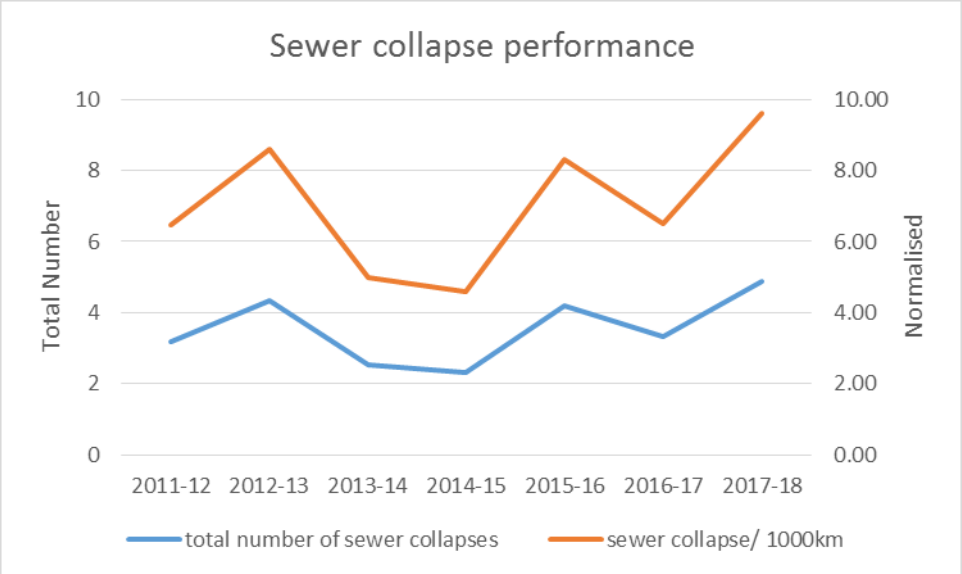
We did not explicitly ask for their views on the targets for sewer collapses for two reasons:

1. It is not a customer facing measure (we are at a level where further targeting of collapses wouldn't have an impact on the customer facing measures such as sewer flooding or pollution in the short term). Customers have told us they expect us to carry out maintenance such that we don't store up problems for the future.
2. We are striving to identify the economic level of collapses – we are trying to balance the long term stability of the network with the relatively high cost of sewer replacement. Customers do not have enough information to make this choice and it undermines our credibility even asking them. During the asset health workshops (not specifically on the topic of collapses) several customers responded with "isn't it your job, why are you asking us?"

Historical performance

Performance in Mid Wales has been estimated based on a prorating of Severn Trent collapses, scaled to reflect the scale (sewer length). Performance is shown in the figure below. During AMP5, the number of sewer collapses on our network was a key serviceability performance indicator. Performance is reasonably stable with a very slight increase in the long term average over time. Sewer collapses is not an AMP6 performance commitment.

We have reviewed our reporting process and rolled out additional training and assurance checks to improve data collection and assurance. This work has been done alongside current efforts towards consistent reporting for sewer collapses, headed by Water UK.

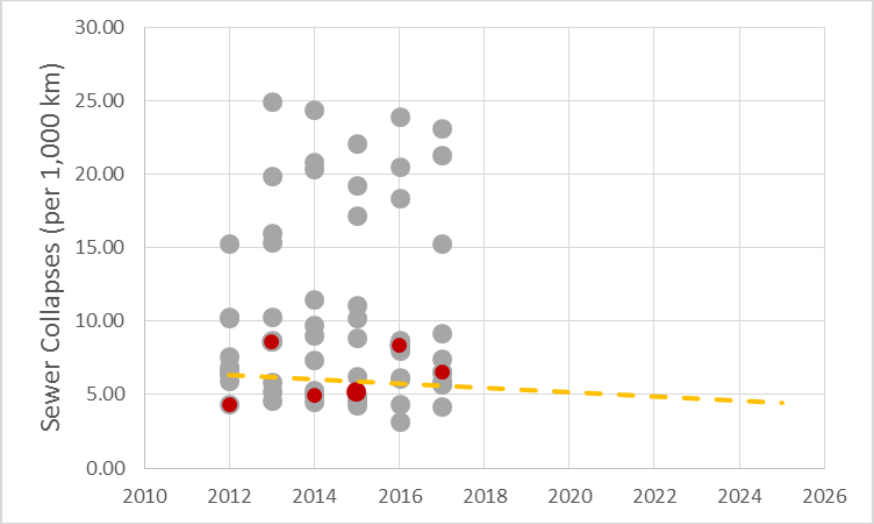


Sewer collapse past performance

Comparative information

All water companies have recorded and reported sewer collapses over the previous 10 years. However, recent work towards consistency for PR19 reporting, led by Water UK, has highlighted notable discrepancies between how companies identify and classify sewer collapses. These discrepancies could be a contributing factor to the large variability observed in the industry performance (see figure below).

Irrespective of reporting discrepancies, it is clear that the number of sewer collapses reported by companies remains relatively stable over the past 10 years. The adoption of public drains and sewers in 2011 caused a notable increase in some companies' performance, and also led to an approximate 30% increase in the number of sewer collapses across the Severn Trent network. Yet after just a few years, most companies returned to the performance level seen before the adoption. Over the past four years the average improvement across the industry was 11%.



Comparative collapse data, red dots show Hafren Dyfrdwy

We are not required to target upper quartile performance and we do not think it would benefit customers to do so. However the data shows that UQ performance varies, averaging at 5.0/1000km. Industry average performance over this time period is approximately 10.6 per 1,000km. This shows that our current performance oscillates between upper quartile and industry average.

Cost benefit analysis

Cost benefit analysis has not been undertaken on this PC because it is difficult to value the customer benefit and the Ofwat expenditure assumptions are based on achieving stable performance. Customer value is assessed in the corresponding service improvement (e.g. sewer flooding and pollution incidents).

Overall rationale for the target

We are proposing to hold current (between 2015-16 and 2017-18) performance stable, which equates to four collapses in total (or eight per 1,000km for the normalised measure). We think this is appropriate because:

- it represents stable performance;
- the absolute number of collapses is very small (four per year) which makes proactively reducing this number very difficult; and
- further reduction would not result in improved service for customers.

Cost benefit analysis

Our ambition for this commitment is to ensure stability in our performance of the medium and long term. As such we are proposing to hold flat the target across AMP7 to AMP10.

ODI rationale

This will be an outperformance payment and underperformance penalty ODI. The penalty protects customers from under delivery and the reward provides us with an incentive to improve our predictive capabilities to better target collapses if we think we can drive improvement in sewer flooding and pollution.

We are proposing that this is an end of AMP reconciliation due to the very small numbers.

Sewer collapses is another performance attribute that has distant interactions with customers, hence it does not have WTP valuations. So, for sewer collapses we have derived its ODI from the rate applied that will apply to Severn Trent at PR19 on an in-period basis. Neither Dee Valley nor Severn Trent had a financial ODI at PR14.

At PR19, we have proposed for Severn Trent an ODI rate of £982,785 per collapse per 1,000 km of sewer. To allocate a logical proportion to Hafren Dyfrdwy, we have adjusted this according to Hafren Dyfrdwy's PR19 waste business RCV, as a proportion of Severn Trent's (0.13%). This gives an in-period ODI of £1,281. As the PC will be measured **end-of-AMP, the ODI will be £6,405 per collapse per 1,000 km of sewer**.

3.5 Risk of sewer flooding in a 1 in 50 year storm– rationale and evidence

This is a Common Performance Commitment outlined by Ofwat, which is a measure of the percentage of population at risk of sewer flooding in a 1-in-50 year storm. It is the measure that Ofwat has selected to represent waste water resilience. As a new performance commitment, there is no historical or comparative data for this measure. As such it belongs to cohort 7.

https://www.ofwat.gov.uk/wp-content/uploads/2017/12/Appendix-2-Outcomes-FM-final.pdf

Regulatory guidance

This is a new metric and the methodology is likely to develop as we and Ofwat better understand the data and the application of this metric. As such, there is no regulatory guidance regarding targets for this performance commitment.

Customer views

We haven't directly asked customers for their views on an appropriate target for this measure. This is in part due to the time it has taken to consider the risk and estimate the current performance and the lack of data we have to share with customers to help to understand what the optimum level of resilience is. We do know that customers place a high priority on reducing sewer flooding and they also have an expectation that we will be taking responsible action and making plans to ensure we continue to provide a high level of service over the long term. This has in part helped shape the target of ensuring no deterioration by holding performance stable through to 2024/25.

Historical performance

As a new performance commitment, we have never previously collected or reported data in this way. In order to establish a baseline position we have applied the methodology set out in the agreed industry approach developed in conjunction with Ofwat. This approach also takes into account catchment characteristics to identify properties determined to be at risk in the highest vulnerability bands.

We have 50 catchments across Wales, serving a population of just under 50,000 people, of which four catchments (Knighton, Landiloes, Newtown and Welshpool) are above the 2,000 population equivalent threshold for inclusion in this metric, covering a total population of 31, 000. This means 38% of the population is currently excluded from the calculation in order to comply with the industry definition.

This results in a risk of 6.64% of the population served at risk of sewer flooding at a 1 in 50 year storm.

This metric is a key input to DWMPs which are currently being produced and developed to inform future plans.

Comparative information

We do not have any other companies' current performance or planned changes for this measure. However the methodology for calculating this metric was developed by Atkins, on behalf of Water UK, with a steering group consisting of Ofwat, Environment Agency and sewerage companies, which demonstrates a collaborative and joined up approach.

The performance between companies is likely to vary considerably because the risk varies depending on the characteristics in the catchment. Due to these differences we are not using comparative information as the basis of the target.

Cost benefit analysis

It is extremely difficult to isolate costs and benefits specifically relating to the risk of a 1 in 50 year storm as most of the activity that reduces sewer flooding today will also improve the resilience against more severe weather. Cost benefit has not been used to set the target.

Overall rationale of the target

We are proposing to hold the 6.64% stable throughout the 5 year period. We believe this is an appropriate and necessary target as we do the following to improve our data and develop plans needed for the DWMPs that will be part of the PR24 framework.

During AMP7 we will be:

a) reviewing the results of modelling;
b) use this learning combined with what we know about our catchments to refine the metric with Ofwat and other companies; and
c) develop catchment strategies to feed into PR24.

Long term ambition

It is important to improve the robustness of the data and to build the DWMP so that a complete and accurate assessment can be made. Therefore in the table we are forecasting the long term performance to remain stable at 6.64%. In reality we will look to reduce this risk, but we do not have enough information to make a sensible estimate.

ODI rationale

This will be a non-financial measure as the data is not robust enough to drive financial incentives during this development phase.

Outcome 4: Thriving environment

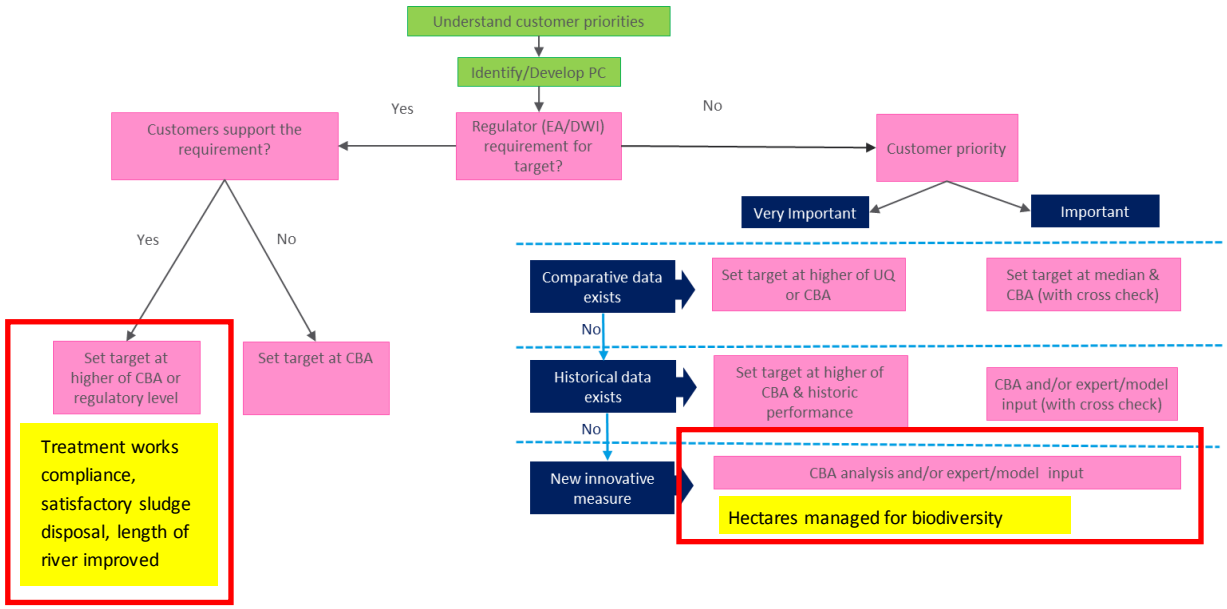
When we discussed this outcome with customers we found that the title didn't immediately resonate with them and they welcomed further clarification on the activities we would be undertaking to deliver it. In general the full link between water company activities and the environment is not front of mind for customers, but as we explore "a thriving environment" further we find that customers are generally supportive of the outcome, and feel it's an important priority for the company to have.

Our research shows that customers value the natural environment, and feel that it is important to protect it for future generations. For those who live in rural areas, the environment plays a key role in daily life. Therefore, they expect their water company to be avoiding any adverse impact on the environment (including ensure we continue to comply with statutory obligations) and to be protecting water as an important resource for Wales. Improvements such as enhancing biodiversity and improving river water quality are also valued by customers, and there is an appetite for more information on positive environmental impacts.

Summary of performance commitments for this outcome

	Retained	New	Removed/ discounted
Mandated by Ofwat	Treatment works compliance	Satisfactory sludge disposal	
Customer driven	n/a	n/a	
Company or CCG driven		Hectares managed for biodiversity Length of river improved	

The diagram below shows where they all sit on the framework, which indicates the primary target setting methodology.



Three of the four measures in this outcome relate to statutory obligations and therefore the targets are based on either the minimum regulatory expectation or the cost beneficial level (the benefit to customers or the environment outweigh the cost of delivery) if that results in a more stretching target. One measure falls into the category of a new innovative measure (biodiversity enhancement) as it is not easily compared and there is no/little historical information on which to base a target. In this case the target is based on a combination for CBA and expert judgment (which in this case draws on expertise from RSBP, HD employees with expertise in ecology and NRW).

Proposed improvements

Performance commitment	Unit	Forecast (2020)	PC level (2025)	Improvement
Treatment works compliance	%	97.5	100	Stable (within range)
Satisfactory sludge disposal	%	100	100	Stable
Length of river improved	Km	n/a	21.9	n/a
Hectares improved for biodiversity	Hectares	n/a	450	n/a

4.1 Treatment works compliance – rationale and evidence

Treatment works compliance is a common performance commitment required by Ofwat within the standard suite of four asset health measures. It is defined by Ofwat as the percentage permit compliance of both water and wastewater treatment works reported in the annual Environmental Performance Assessment (EPA) by the Environment Agency and Natural Resources Wales as per EPA definition (EPA methodology (version 3) November 2017). The EPA methodology calls this measure 'discharge permit compliance (numeric)'. The full definition can be found here:

https://www.ofwat.gov.uk/wp-content/uploads/2017/12/Appendix-2-Outcomes-FM-final.pdf

Regulatory guidance

There is a regulatory expectation that our performance target will be set to achieve 100% compliance. NRW uses a banding system and expect all companies to achieve performance within the green range as outlined below:

- >99% - green performance within EPA
- 97% - 99% amber performance within EPA
- <97% - red performance within EPA

Customer views

Whilst the environment runs through all levels of the hierarchy of needs, this measure falls firmly in the basic needs category. Fulfilling basic needs will meet customers' expectations but will not improve satisfaction, whereas failing to meet these needs could drive dissatisfaction.

We consider that this requirement is supported by customers, since our research consistently shows that customers value the natural environment and expect us to ensure our actions comply with statutory obligations and avoid any environmental harm. However we did not explicitly ask customers about our proposed performance commitment level because the regulatory expectation is 100% so there is no scope for customers to influence the target. As such we have classified it as low importance as compliance is expected as a given.

Historical performance

Historical performance has been stable, typically at 100%, but due to the low numbers of works it means that each works represents 2.3% points. This means to perform within the EPA 'green' range all works must be compliant. Just one works failing results in 97.7% compliance which equates to amber performance and two works failing equates to 95.4% which is classed as red performance.

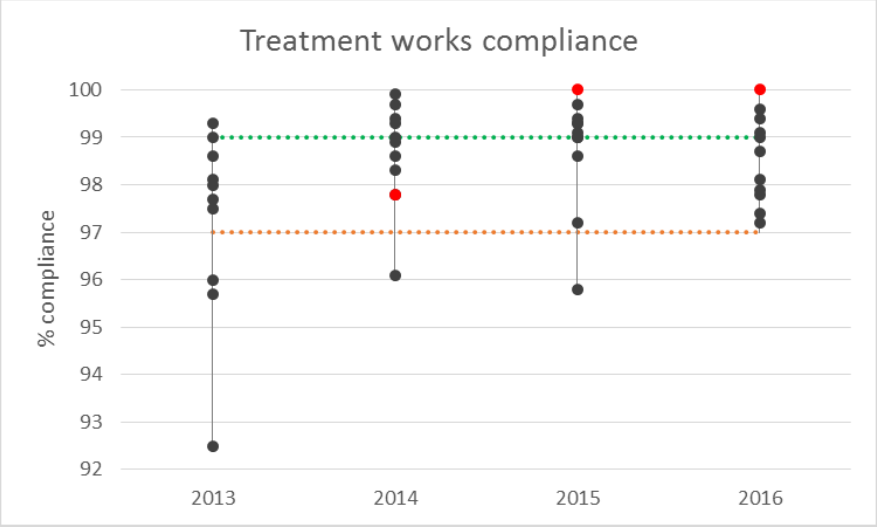
Historical performance

Premise type	2014	2015	2016	2017
Sewage treatment Total discharges	43	43	43	43
Water treatment	6	6	6	6
Sewage treatment compliance failure	0	0	0	0
Water treatment compliance failure	1	0	0	0
% compliance	97.78%	100%	100%	100%

We also track the underlying performance to monitor the trend in minor exceedances that are allowable within the EPA measurement. For the last three years there were between three and four samples which had either borderline or one-off minor exceedances. This shows that performance is stable and not declining over time.

Comparative Information

This data is comparable and reported annually to the EA and NRW. For two of the three years we are performing at the frontier and in one we would have been in the lower quartile (due to one compliance failure). This demonstrates the difficultly in comparing the Hafren Dyfrdwy performance with the rest of the industry due to the material difference in the number of works that have discharge permits.



Industry Comparison Using MD109 (EA/ NRW) data. (Red dots represent Hafren Dyfrdwy, black spots are all of the other water and sewage companies. The green and amber dotted lines represent the EPA banding.)

Upper quartile performance (between 2014 and 2016) ranges between 97.85% and 98.8% (2013 has been excluded because performance was considerably worse than the historic trend). We think future upper quartile is likely to converge towards the top end of 98.8%.

It is worth noting that there are other appointees of a similar size to Hafren Dyfrdwy that are not included in the EPA on the grounds of incomparability. We are discussing the merits and options for developing a more appropriate comparative tool for smaller appointees. We think there is value in comparable and transparent reporting and we think we could contribute to driving improvement across this currently unreported area.

Cost benefit analysis

Given this is a regulatory requirement with an expected compliance of 100% and we are already carrying out appropriate inspection and maintenance to deliver this we have not carried out cost benefit analysis.

Overall target rationale

In summary, our rationale for setting targets for treatment works compliance is to reflect the regulatory expectation of 100%. This target is beyond upper quartile performance and is likely to remain the case during the next five years.

We are also proposing a deadband (where no penalty will apply) that is equivalent to one works failing as this is a fair balance of risk. This is a more stretching deadband than is the case during AMP6, which is 95.3%.

Long term ambition

We will continue to target 100% compliance with this measure throughout future AMP periods whilst it remains a regulatory requirement and is one of our suite of performance commitments.

ODI rationale

We are proposing that this is a penalty only ODI that is applied each year. This is because any NRW enforcement would occur in the year the non-compliance occurred and therefore this has been mirrored.

Performance relating to areas of compliance that have little interaction with customers make it difficult to obtain meaningful and logical WTP from customers. Consequently, for treatment works compliance we have derived its ODI from the rate applied to Severn Trent at PR14 on an in-period basis.

It is very difficult to allocate a financial value for the penalty. We do not have WTP and do not think that would be appropriate given the main purpose of this is to avoid environmental damage rather than a direct customer facing measure. It is very difficult to value the cost of any environmental damage behaviours and performance has consistently been 100%.

At PR14, the Severn Trent rate was £1,400,000 per 1% failure. In 2017/18 prices this would be £1,572,783. Then, to attribute an appropriate proportion to Hafren Dyfrdwy, it is necessary to adjust this amount according the PR19 RCV of Hafren Dyfrdwy's waste business, as a proportion of Severn Trent's (0.13%). This gives **an in-period ODI value of £2,053 per 1% failure**.

4.2 Satisfactory sludge disposal

The core objective of our bioresources price control is to ensure the safe treatment and disposal of sludge (biosolids). Therefore the performance commitment is a measure of compliance with sludge use and disposal standards as per the Environmental Performance Assessment (EPA) definition (EPA methodology (version 3), November 2017).

Hafren Dyfrdwy doesn't have any sludge assets and transports all of its sludge for treatment in England.

Regulatory guidance

There is a regulatory expectation that our performance target will be set to achieve full compliance. With reference to the performance framework this means the target will be guided by NRW.

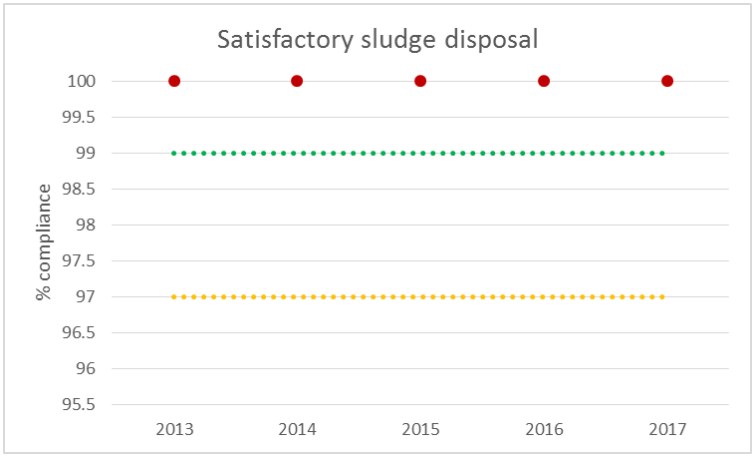
Customer views

Whilst the environment runs through all levels of the hierarchy of needs, this measure falls firmly in the basic needs category. Fulfilling basic needs will meet customers' expectations but will not improve satisfaction, whereas failing to meet these needs could drive dissatisfaction.

We consider that this requirement is supported by customers, since our research consistently shows that customers value the natural environment and expect us to ensure our actions comply with statutory obligations and avoid any environmental harm. However we did not explicitly ask customers about our proposed performance commitment level because the regulatory expectations is 100% so there is no scope for customers to influence the target. As such we have classified it as low importance as compliance is expected as a given.

Historical performance

Over the last four years, performance in Mid Wales has consistently delivered 100% compliance, which falls within the EPA green performance band as outlined below.

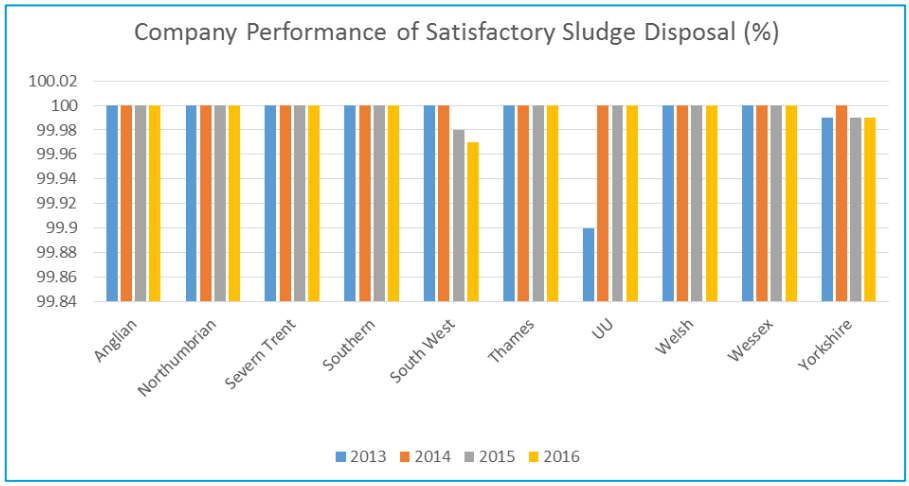


Historical performance in Mid Wales relative to EPA green and amber banding

We aim to continue with our strategy of transporting sludge for treatment due to the small volumes. This strategy should enable us to maintain 100% performance through AMP6 and therefore our 2020 forecast performance is 100%.

Comparative information

Given the importance of complying with regulatory guidance on sludge, the industry has demonstrated stable performance levels with only three companies delivering performance below 100% in the last four years.



Comparative performance of Satisfactory Sludge Disposal

Cost benefit analysis

Given this is a regulatory requirement targeted at 100% compliance levels, we have not undertaken a cost benefit assessment.

However we have carried out a cost comparison between trading with Severn Trent compared to trading with DCWW to ensure our customers get the best deal possible.

Overall rationale for target

The target is based on continuing to achieve 100% compliance, therefore maintaining our green performance level within the EPA. This represents the best possible performance.

We are not proposing a deadband, which demonstrates our commitment and stretching target.

Long term ambition

We will continue to target 100% compliance with this measure throughout future AMP periods whilst it remains a regulatory requirement and is one of our suite of performance commitments.

ODI Rationale

We are proposing that this is a non-financial incentive for two main reasons:

1. There are controls in place (in this case by the EA because treatment and disposal occurs in England) to hold us to account.
2. It is not possible to set an ODI rate:
    - We cannot set an RCV recovery because the sludge RCV is zero as Hafren Dyfrdwy doesn't have any sludge assets.
    - We cannot set a revenue recovery rate because this is not a customer facing measure, emphasised by the fact that the sludge is treated and disposed of remotely from our customers.

4.3 Length of river improved

This is a new, bespoke PC included to reflect the key obligations that form part of our NEP. It is the length of river (measured in km) benefitting from quality improvement work undertaken by Hafren Dyfrdwy to meet Water Framework Directive (WFD) objectives.

Regulatory guidance

Both the definition and the target have been developed in conjunction with NRW and therefore the target will be based on the regulatory expectations as defined in the NEP.

The target and the delivery dates are set out by NRW and we have reflected the latest version (v3 March 2018) in our plan.

The Ofwat guidance also requires us to consider appropriate treatment for uncertainty and as the final NEP (and River Basin Management Plans) will not be finalised until 2022 this performance commitment has been included so that money can be returned to customers if the schemes are deemed no longer cost beneficial.

Customer views

Within the willingness to pay research, river water quality improvements emerges as a medium level priority for customers. In the PC and ODI research the proposed improvement target linked to the Water Framework Directive was acceptable to 83% of household customers, and 87% of non-household customers. Within the qualitative discussion most believed this is a valuable performance commitment, but were keen for more information, for example on the scale of improvement planned, the current status of the river and which rivers would be targeted.

Historical performance

This is a new commitment for Hafren Dyfrdwy as the AMP6 programme in Wales was made up mainly of investigations to inform this programme rather than improvements. Therefore there is no comparable historical performance. However, historically the water industry has a good track record of delivering the National Environment Programme (WINEP in England) in line with requirements to deliver the river water quality improvements requirement. Our Mid Wales region, previously part of Severn Trent, is no exception to this.

Comparative information

Each company's NEP is bespoke to them and the relevant environmental circumstances, therefore it is not possible or appropriate to make use of any comparative information to set the target.

Cost benefit analysis

The WFD is a statutory requirement, with an objective of bringing every river up to Good Ecological Status by 2027, where this is cost beneficial and technically achievable.

This means each scheme within WINEP is subject to a cost benefit assessment endorsed by the NRW, which means that our proposed PC represents the cost beneficial level of improvements.

Our plan has carefully mapped costs and benefits to the correct customers so that investment made in Wales that drives downstream river improvements benefitting customers in England are correctly attributed.

Overall rationale for target

To deliver our fair share of WFD river quality improvements, we will improve the condition of 21.9 km of our rivers over the next five years. This is the length it has been deemed cost beneficial to improve.

Our proposed improvements have been developed in close collaboration with the NRW to ensure that it is cost-beneficial and affordable to our customers.

We are not proposing any deadbands.

Long term ambition

We have not reported a long term ambition for this measure as it is not possible to predict the future improvemetns that will be required at our assets to meet future river water quality requirements. The exception to this is the 8.5km of river to be improved by 2027 in line with the Water Framework Directive deadlines. Our ongoing ambition will be to ensure compliance with statutory obligations.

ODI Rationale

This is proposed as an outperformance payment and underperformance penalty ODI. The penalty protects customers from under delivery. The reward provides us with an incentive to implement any cost beneficial improvements that are identified through the investigations included in the AMP7 NEP. This means that if the investigations show that further improvement is needed, which would normally form the basis of the AMP8 NEP we could deliver the benefits early and recover the costs through the incentive mechanism. This means the environmental benefits are delivered much sooner than they otherwise would be.

The triangulated WTP for improving 1 mile of river is £145 per mile per year or £725 per AMP. However, this valuation is very different from the costs that we expect to incur in providing the improvements that will likely by mandated by Natural Resource Wales in the National Environmental Programme. The draft programme contains an expected 21.9km of improvements, which we have estimated will cost £1.8m to deliver.

The triangulated WTP is also significantly different from the WTP values researched and published4 by the Environment Agency for the area relevant to our region – Severn Uplands. This includes rates that, in 2017/18 prices, range from £13,144 to £16,627 per km of improvement. On an end-of-AMP basis for 21.9km of improvements, this would equate to a benefit value of £1,820,609 – or £83,133 on a per kilometre basis. This is above the expected cost, but within 20% – the uplift that would apply were we to calculate the ODI on a marginal cost basis. Accordingly, we have set the end-of-AMP ODI at £41,567 per kilometre.

4.4 Hectares managed for biodiversity – rationale and evidence

This is a bespoke performance commitment that we have included as part of the customer protection mechanism for the biodiversity and well-being cost adjustment claim. Within our target setting framework this measure falls into the category of a new innovative measure as it is not easily compared and there is little historical information on which to base a target. In this case the target is based on a combination for CBA and expert judgment (which draws on expertise from RSBP, HD employees with expertise in ecology and NRW).

Regulatory guidance

This is a bespoke PC and there is no Ofwat guidance relating to this measure, other than it should protect customers from under delivery. We have worked with NRW to ensure we are following all available guidance in the classification of biodiversity enhancements. This is set out in more detail in the cost adjustment claim.

4 Environment Agency (2013), "Updating the National Water Environment Benefit Survey values: summary of the peer review," p5

Customer views

Customers' concern about biodiversity, access to green spaces and a desire to become involved is revealed in many aspects of customer research that we have undertaken and also by other organisations.

Our customer needs research told us that customers place great value on the environment and have a significant connection with the natural environment. This can be through close proximity to rural Wales, through active involvement in rural life or simply by a desire to see the environment protected for future generations. Interest and concern about the environment is seen in different ways and through different associations:

- locally, through a concern with issues such as local biodiversity, green spaces and the availability of recreational facilities; and
- globally, through a concern with issues such as sustainable use of green energy, the reduction of carbon footprint and the desire to see companies and government adopt responsible approaches to the environment.

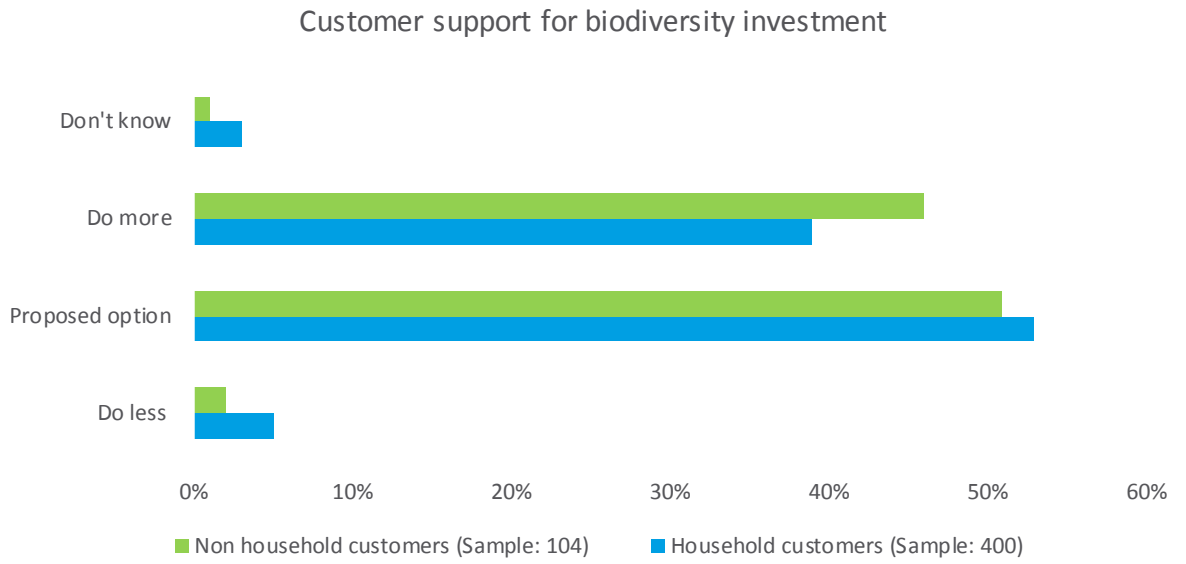
As well as the natural environment customers would like greater transparency about where water resources are used.

Our willingness to pay research did not include biodiversity as a service attribute, however we did ask customers to select their top priorities from a list of potential additional improvement activities. 43% of customers selected *improving biodiversity on our land'*. Also scoring in the top four options were '*making surplus land available for local communities to create green spaces'* (47%) and '*working with local schools' (*71%)

> "I'd be willing to spend a bit more if it was going to promote biodiversity." Customer, Mid Wales

Our Performance Commitment and Outcome Delivery Incentive Research, with a representative sample of 435 household customers and 104 non household customers, indicated that 83% of household customers, and 90% of non-household customers found the proposed biodiversity performance commitment target acceptable.

In the same research we asked customers for their choices in our strategic investment areas. Customers were presented with three options, including a description and bill impact for each option. When faced these investment choices, and bill impacts, enhancing biodiversity was the area in which more customers selected the "do more" option; 53% of household customers supported the proposed option and 39% wanted us to do more. Only 5% of customers wanted us to do less than proposed. Similar results were obtained for non-household customers, with 51% selected the proposed option and 46% the do more option.



The Wales Outdoor Recreation Survey (2014) tells us that the majority of people in Wales want to visit the outdoors more often, and 43% are concerned about biodiversity, with 30% feeling there had been a reduction in recent years. 12% of those surveyed actively volunteer to help the environment / wildlife.

The Wrexham Well-being Assessment 2017 research, conducted by the Wrexham Public Services Board, revealed that many respondents made comments on the need for preservation and investment in green spaces.

Our conclusion from this combined research is that the customers approve of our biodiversity plans and would do so more strongly if we were to deliver well-being related activities of schools and community involvement and increased access to better quality green spaces at the same time.

Historical performance

This is a new measure starting in AMP7 and therefore we do not have any historical performance information.

Comparative information

This is a bespoke PC and not comparable based on publically available information.

The driver for this investment is legislation that is only applicable to companies operating mainly or wholly in wales and therefore it is not easy to compare our requirements to the rest of the industry and the standards they are working to are in the main to prevent deterioration of biodiversity rather than proactively enhance it.

Cost benefit analysis

The costs and benefits are set out in Appendix 4. Cost benefit has been used to a degree to set the target, but not in isolation. The main factor in setting the proposed target of 450 hectares is the scope in terms of land availability at the sites where biodiversity opportunities are favourable.

Overall rationale for the target

The target is based on the bottom up analysis of the scope for biodiversity enhancements on land we own. We have developed it in collaboration with NRW and expert groups such as RSBB.

Long term ambition

Our longer term forecast assumes we continue to improve the biodiversity across our land in future AMP periods, but acknowledging that the scope for further work will reduce as we make incremental improvements. As such we are forecasting 300 hectares of improvement in AMP8, following by an ongoing improvement of 150 hectares per AMP from AMP9 onwards.

ODI rationale

We are proposing financial rewards and penalties for this PC, but no deadbands and no caps and collars. The penalties are calibrated as a customer protection to return money to customers if we don't deliver our commitment as specified within the cost adjustment claim. The reward is calibrated to allow us to recover costs of any additional enhancements that we carry out in AMP7. This is a helpful mechanism as customers have expressed a view that they would value more to be done in this area and if the results of the AMP7 NEP biodiversity investigations identify improvements that can be done within the WTP rate of customers then it is in customers' interest to get on with this and not wait for the outcomes to be formally integrated into the AMP8 NEP.

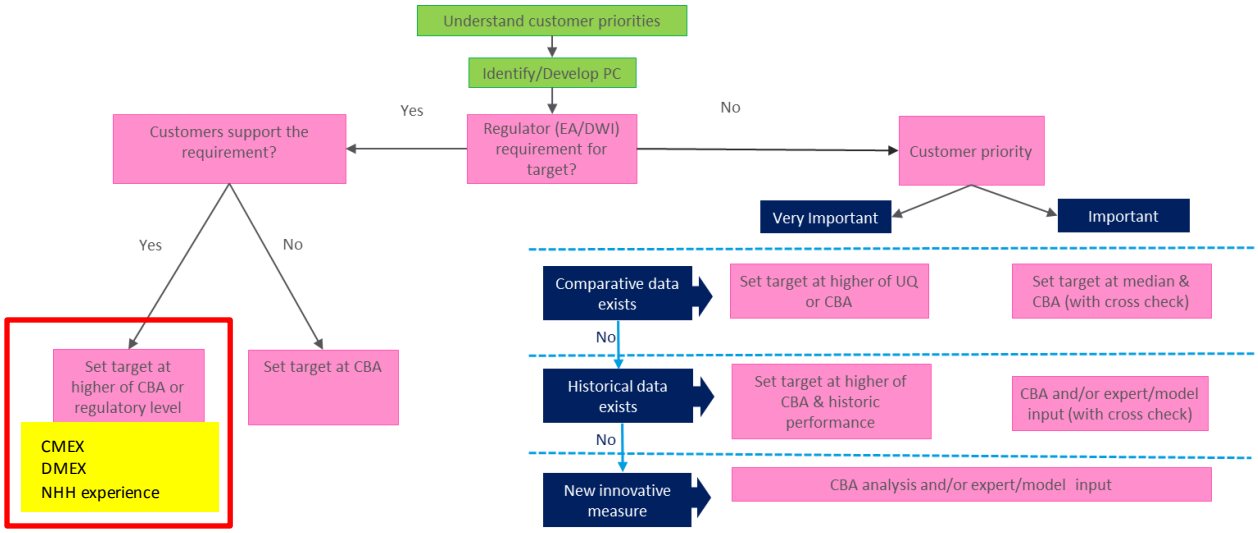
Biodiversity was not covered in our WTP studies. Therefore, we have set the ODI on the basis of marginal cost. As discussed above in the "Number of lead pipes replaced" section, the ODI is set at 50% of the marginal cost. However, we are not applying the 20% uplift in this instance, because the action required in respect of biodiversity is mandatory. With a marginal cost of £1,782 per hectare, the in-period ODI would be £891. As biodiversity is an end-of-AMP PC, the ODI will be £4,455 per hectare.

5.1 Outcome: An outstanding customer service

Summary of performance commitments for this outcome

retained	new	Removed/ discounted
Mandated by Ofwat	-CMEX -DMEX -NHH customer experience	-SIM -NHH SIM
Customer driven		
Company or CCG driven		-Customer satisfaction

The diagram below shows where they all sit on the framework, which indicates the primary target setting methodology.



5.1.1 CMEX – rationale and evidence

Customer measure of experience has been developed by Ofwat with industry collaboration. It will replace the existing SIM (service incentive mechanism) and will compare companies on the **quality of their customer service** and **measure overall customer satisfaction.**

Regulatory guidance

Ofwat have set out the purpose and outline details of CMEX in Appendix 3 of their final water 2020 methodology. They are running a pilot in 18/19 and then a shadow year of reporting in 19/20 and this information will be used to finalise the methodology and inform the targets and incentives.

Ofwat's proposal is that the top three companies each year would receive a reward, which they will set. This is likely to be around 1.2% of residential retail revenues, rising to 2.4% if the company is in the top three of the industry and performs above the cross-sector threshold. The poorest performers would get a penalty (the number of companies has not yet been decided) and the penalty payment will be set by Ofwat, but is likely to be around 2.4% of retail revenues.

Customer views

Everything we do, every day, contributes to our customers' experience of us and we want that experience to exceed their expectations. We believe customer service and experience sits in the middle layer of the hierarchy of needs. Whilst it is important that we meet customers' expectations of customer service, much of which is functional and transactional, this outcome also describes those elements which empower customers, and enable them to feel in control of their experience.

For many of our customers, their experience of dealing with us is limited to the few times they are required to contact us to open accounts, pay bills or inform us of a change in circumstance. There is an opportunity here to exceed our customers' expectations and drive increases in satisfaction and trust. We have explored customer views on customer service and experience primarily through our customer tracker, supported by qualitative evidence from our customer needs research and research on the license change, and insight from our customer facing employees.

Throughout the various forms of research we have learnt about the qualities and characteristics that our customers value. This is set out in full in chapter 6 in the outcome narrative on "Outstanding customer experience" and "A service for everyone" and our plan seeks to embed these characteristics into our culture.

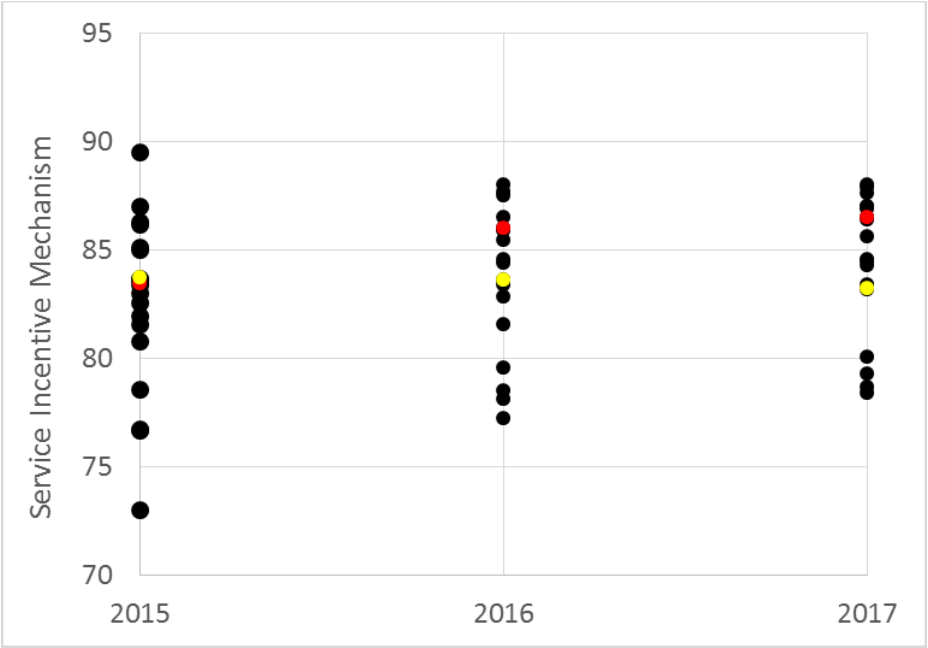
This performance commitment is mandated, defined and PC level decided by Ofwat and we have not explored these specifically with customers. We have been active in the Ofwat working groups for these measures, and boosted our sample in the first pilot survey in order to increase our understanding of the measure.

Historical performance

We have two forms of historical data, which we can use to given an indication of Hafren Dyfrdwy performance by combining the Dee Valley performance and looking at the Seven Trent performance for an indication for Mid Wales.

- SIM; and
- The Dee Valley annual tracker (which we extended to Mid Wales in the latest survey).

The graph below shows the relative industry scores for the Service Incentive Mechanism, the red dots denote the historic Dee Valley Water performance and the yellow dots show that of Severn Trent.

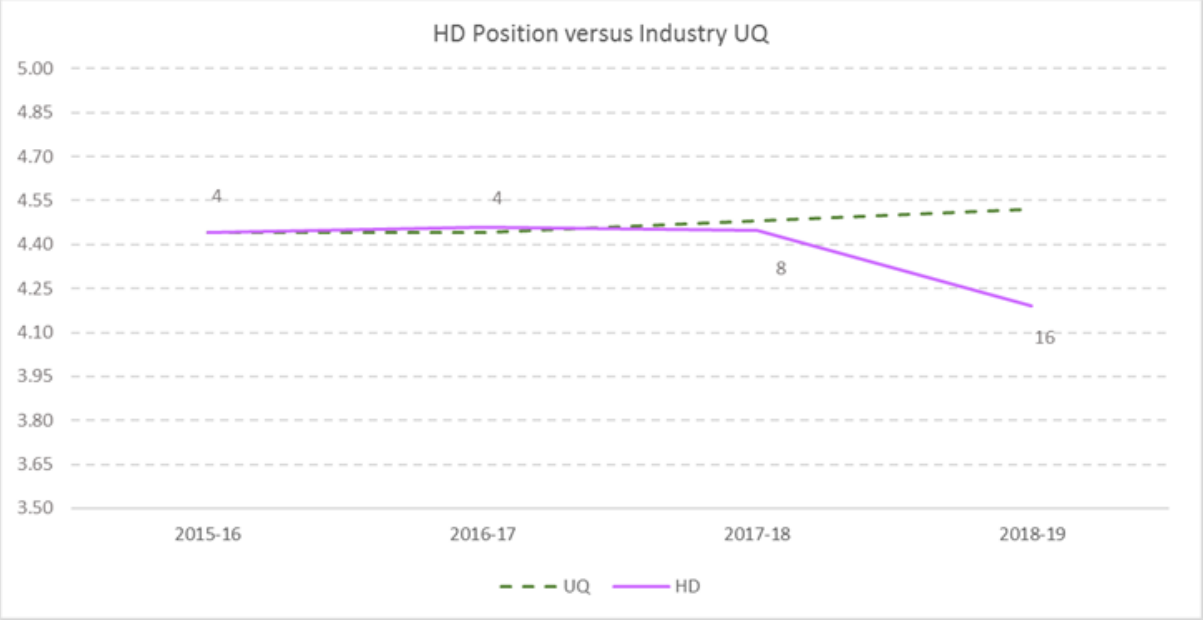


Relative industry scores for SIM

Comparative Information

Historically we can see that Dee Valley were relatively good performers. We have two information sources to draw on:

- SIM scores for the industry
- CCWater Water Matters survey



SIM industry scores

Whilst we are not using historical or comparative information to set the target, it does show that our ambition to be in the top three performing companies is stretching but credible. Our forecast dip in performance in 2018/19 is as a result of direct debit issues that occurred during the licence change transition period in July 2018. We have an action plan in place and have already corrected the issues for the customers who were affected. Our score without the direct debit complaints would have been in line with the UQ trajectory.

CCWater Water Matters (2017) research showed that customer satisfaction in Dee Valley remains high. 97% of customers are satisfied with their water supply (compared to an average of 92% for all water only companies) and of those who contacted us 88% were satisfied with they way their query was handled – also above the avegerae. Dee Valley Water have a high proportion of customers who agree that their company cares about the service they provide to their customers (83%) which again was significantly higher than the average for a WoC (71%).

Cost benefit analysis

There is little evidence to say that cost is correlated to good customer service – there are theories that costs would be lower if service is better as companies process fewer complaints, but costs could be higher if it requires investment to put improvements in place.

We have looked at our costs to ensure we are providing an efficient service, but we are not using CBA to define the target.

Overall rationale for target

In summary, our rationale for setting targets for CMEX is guided by Ofwat. We will achieve the target by listening to and acting on what our customers have told us. The target of being in the top 3 performers is incredibly stretching especially in the short term as the ownership changes embed and we get to know our new customers, but our past performance demonstrates this is a realistic proposal.

Long term ambition

Meeting and exceeding customers' expectations is a continuous aim and certainly not confined to the next 5 years. In the outcome chapter "Outstanding customer experience" we set out how we are embedding a continuous feedback loop so that we can both pre-empt what our customers want but also respond effectively and efficiently when customers are not satisfied. Given the previous performance our long term ambition is to perform within the top three companies within the industry but also to compete with other service providers outside our sector.

ODI rationale

This will be a financial incentive with both outperformance payments and underperformance penalties, recovered annually to ensure the incentives apply more quickly, which strengthens the power of the incentive.

The ODI rate will be set after the pilot is complete but is likely to be around 1.2% of retail revenues, increasing up to 2.4% if the cross-sector threshold is also achieved. The ODI rates will be defined by Ofwat.

Due to the nature of this measure and Ofwat's setting of upper and lower limits there is no need for deadbands or caps and collars.

5.1.2 DMEX – rationale and evidence

This is a Common Performance Commitment outlined by Ofwat and is a measure of developer experience. It is a new measure being introduced in 2020.

Regulatory guidance

Ofwat has set out the purpose and outline the details of DMEX in Appendix 3 of their final methodology. The survey is currently being developed by Ofwat through an industry working group and then we will take part in a pilot and a year of shadow reporting to finalise the methodology and inform the targets and incentives.

Ofwat's proposal is that financial performance payments and performance penalties will apply annually for the best and worst performers. The proposal that maximum rewards and penalties will be based on 5% of annual developer services revenue. Ofwat has not specified what top performance means, but we are assuming it is upper quartile performance.

Customer views

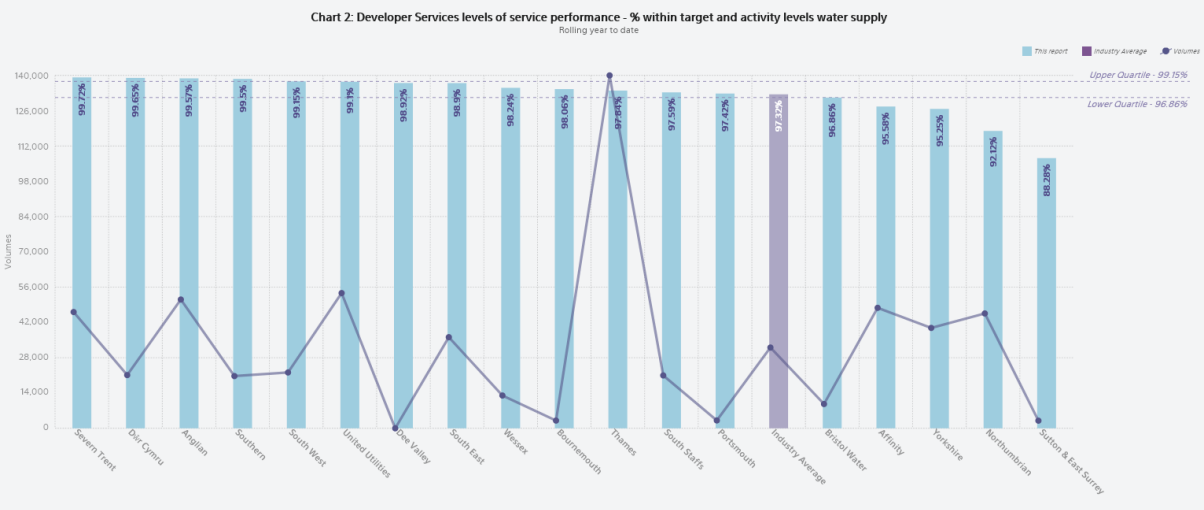
This is a performance commitment for developers. We haven't carried out any specific research with developers, but our engagement with them every day gives us a very clear understanding of their service expectations and how they want to work with us. It is clear that they too want and expect the best performance, so an upper quartile target reflects that expectation.

Historical performance

We do not have any historical data on satisfaction from developers as this is a new measure being introduced by Ofwat in 2020.

Comparative Information

We have reviewed the Water UK annual survey, which includes a number of metrics representing effectiveness of handling of developer requests. The latest data is March 18 which means Hafren Dyfrdwy performance is not shown. The figure below sets out Dee Valley's relative performance, which clearly includes development that took part in Chester, but it is the best proxy available.



A DMeX pilot is currently being developed and the results will be used to set the baseline. This will also give us an insight into our relative performance.

Cost benefit analysis

The target will be set by Ofwat and we are therefore not using CBA to define the target. Clearly cost efficiency is a really important factor for developers and is embedded within the satisfaction scores.

Overall rationale for target

In summary, our rationale for setting targets for DMEX is guided by Ofwat and developer expectations, we are targeting being in the upper quartile of the industry.

Long term ambition

Meeting and exceeding customers (in this case developers) expectations is a continuous aim and certainly not confined to the next 5 years. We also want to make sure that the service we provide is the benchmark that developers use to benchmark other utilities and service providers.

ODI rationale

Ofwat have defined that this will be a financial incentive with both rewards and penalties, applied annually. The pilot is taking place between 18/19 and then we will start shadow reporting in 19/20. The rate will be defined by Ofwat, but likely to be up to 5% of developer services revenue.

5.1.3 Non-household customer experience – rationale and evidence

For companies operating in Wales the retail market for non-household customers does not exist. This means our customers don't have a choice about their retail provider (other than large >5Ml/ year users). We will therefore include a satisfaction based measure, which applies the principles of CMEX to our non-household customers. Ofwat's methodology require companies to have at least one performance commitment per price control and this is the measure for the non-household control.

Regulatory guidance

The Ofwat methodology confirms that companies in Wales must include a performance commitment, but they should define the measure themselves and justify the target.

Both Welsh Government and CCWater have urged us to ensure that whatever measure we choose it should provide a way of assessing if our customers are worse off compared to those in the market.

Customer views

We included a representative sample of non-household customers across all of the research we have done. In general their views are very similar to the household customers, the main difference is the higher priority they place on reducing supply interruptions.

We used the workshops with non-household customers within the PC and ODI research project to explore what these customers expect from their water company in terms of service. They told us the following are important to them:

- a prompt service;
- a human touch in the call centre;;
- appreciation that time / disruption equals loss of income;
- quick information;
- ease of contact, particularly in an emergency, although not necessarily a named contact; and
- consistent service.

Customers told us they were not particularly willing to pay extra for additional services, apart from possibly services such as water efficiency if it saved them money. Local knowledge in the Wrexham call centre was particularly valued from customers in North Wales, and customers were fearful of losing this through the acquisition. There was also fear around new bills, new phone numbers, price increases and reduced levels of service.

Historical performance

The Dee Valley annual tracker included a sample of NHH customers and the results are consistently high, albeit slightly lower than the household customers. Since the acquisition we have continued this survey and extended to non-household customers in Mid Wales.

Comparative information

It is difficult to do a direct comparison now that the companies operating in England are in the market and do not have a fixed reporting framework. In the NHH Retail chapter we have considered different ways of benchmarking our performance, but none of these directly relate to customer experience. We are working collaboratively with DCWW so that at the very least our performance can be compared to theirs. However this is an insufficient sample size to use as the basis of our target.

Cost benefit analysis

Cost benefit analysis has not been undertaken on this PC because there is limited evidence to say that costs and customer experience are correlated. Ensuring an efficient service is an important part of our plan, but has not been part of the target setting rationale.

Overall rationale for target

Our proposed commitment is based on the principle that both business and household customers should receive the same high standard of service. Therefore we will align the CMEX target to the NHH experience target.

ODI rationale

This will be a financial incentive with both penalties and rewards, recovered annually to ensure the incentives apply more quickly.

We are proposing that the ODI for this PC should be set relative to the CMeX ODI that Ofwat will determine. The value would be calculated by adjust the CMeX ODI for the ratio of the expected non-household turnover to the expected household turnover. The ODI rate will be set after the pilot is complete but is likely to be equivalent to the CMEX value, which is around 1.2% of non-household retail revenues, increasing up to 2.4% if the cross-sector threshold is also achieved.

Due to the nature of this measure there is no need for deadbands.

Long term ambition

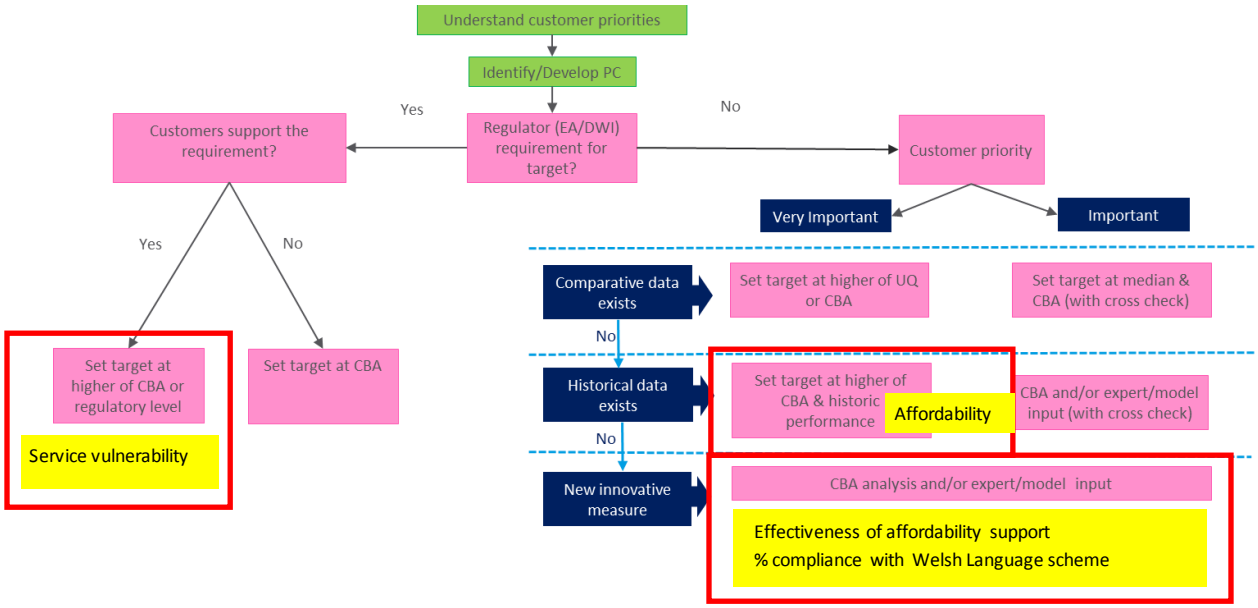
Meeting and exceeding non-household customers' expectations is a continuous aim and certainly not confined to the next 5 years. We also want to make sure that the service we provide can be compared to that of the retailers operating in the open market. Therefore we will review the publically available information so that we can refine or supplement the measures to ensure our service can be transparently compared to others.

6.1 Outcome: A service for everyone

Summary of performance commitments for this outcome

	retained	new	Removed/ discounted
Mandated by Ofwat		Service Vulnerability	
Customer driven		% compliance with Welsh language scheme	
Company or CCG driven	Help to pay when you need it	Effectiveness of affordability support	

The diagram below shows where they all sit on the framework, which indicates the primary target setting methodology.



Proposed improvements

Performance commitment	Unit	Forecast (2020)	PC level (2025)	Improvement
Affordability - % of struggling to pay customers support through a payment scheme	%	66%	73%	10% improvement
Service vulnerability - % of customers in vulnerable circumstances supported during an incident	%	100%	100%	Stable but estimate number of customers on PSR will increase significantly
Effectiveness of affordability support		baseline	Improving	
% compliance with Welsh language scheme	%	100%	100%	

6.2.1 Supporting our Priority Service customers during an incident – rationale and evidence

OFWAT require companies to include bespoke performance commitments for addressing vulnerability in their business plans, which should reflect the views of customers and challenge from the Customer Challenge Group. The measure we are proposing is: the percentage of customers in vulnerable circumstances (CIVC) who are registered on our Priority Service Register (PSR) that we provide support to during a clean water incident. The full definition is included in Appendix 3.

Regulatory guidance

OFWAT's 2016 Vulnerability Focus report stated that there is a need for companies to move away from just applying simplistic labels of vulnerability, and to listen to their customers and understand their circumstances. This intelligence will then allow companies to intervene at an early stage and assist the 'struggling silent', acting before a customer becomes more deeply entrenched in a situation that leaves them vulnerable.

CCW has also published a Priority Services Progress Review paper in February 2018. Within this there is a recommendation that a consistent level of core assistance is offered to customers, including during an incident/event. To inform the review CCW hosted a seminar on 1st February 2018 and the outputs of this shared ideas on how companies could proactively plan during an operational incident, which we have taken into account.

One of the goals within the Well-being of Future Generations (Wales) Act 2015 is to work towards a more equal Wales and ensuring that we support customers in vulnerable circumstances is a way that we can contribute towards this goal.

There is no specific guidance from any of the above stakeholders that stipulates the target, but given the importance placed on it we think the ambition behind these policies supports our ambition to help 100% of the customers who need our help.

Customer views

Customers in vulnerable circumstances said that for the most part they do not see themselves as having specific needs but do rely on our product being consistent and continuously available to enable them to manage their own needs. If we fail to do this, our research shows that our customers feel it is very important that we provide additional support to those customers whose circumstances might mean they do not have equal access to our service. There is also significant demand for us to assert ourselves more in the community, by raising awareness of the support and by being more proactive in identifying those in vulnerable circumstances, as there are in many customer groups low awareness of the support available to them.

We have sought input and advice from stakeholders

In February 2018 we hosted a service vulnerability expert workshop where 19 experts from local charities, government, financial advice agencies and health communities came together to help us explore priorities and needs for customers in vulnerable circumstances. Four key themes came out of the conversations:

- focus on where people may be vulnerable e.g. not in day to day but in an incident;
- PSR categories should be output based;
- be aware of transient vulnerabilities – some may only last for a set period of time, or only kick in after a period of time; and
- some customers may have multiple vulnerabilities – these can span categories e.g. physical and mental/emotional.

As a result of our customer research and expert event we have chosen to focus our performance commitment on ensuring customers in vulnerable circumstances have the required level of support and service during a water supply event. The expectation of both customers and stakeholders is that we would work hard to identify the customers who need our support and then help all of them in the event of a water supply or water quality service failure.

Historical performance

This is a new measure and therefore we do not have historical performance data available as a baseline.

During a water supply event, we currently only supply bottled water to customers in vulnerable circumstances and will proactively contact to dialysis customers but there is no specific commitment to deliver this.

We have engaged our employees to gain their views on our past performance and also analysed customer feedback received during and following an incident. These infer that we do generally provide bottled water to customers in vulnerable circumstances already registered on our PSR during a water supply event and contact dialysis customers in a reasonable timeframe. However there is no measurement process in place to specifically quantify this.

When reviewing past events, there have been occasions where severe weather has limited our ability to access local communities and deliver bottled water. For example, in times of severe snowfall, access to our more rural areas could provide difficult so we may not be able to deliver bottled water to customers. In these instances we will make contact with customers registered on the PSR to understand the best way to support them until either the event is resolved and safe supply restored or access can be gained. We are also looking to learn from the recent OFWAT Freeze Thaw investigations as to how we can better assist customers who are impacted by loss of supply caused by severe weather conditions.

The below table illustrates the key activities we are delivering in AMP6 to support our customers in health and well-being vulnerable circumstances during a water supply incident and then the step change in this service offering we will offer and deliver in AMP7. Our Service for Everyone Outcome narrative shares detail on what other support we propose to offer customers in vulnerable circumstances outside the scope of the performance commitment.

Change in support for customers in vulnerable circumstances in the event of a water supply incident

AMP6 service offering	AMP7 service offering
• Simple and generic PSR categorisation • Provide bottled water to customers registered on the PSR in the event of a water supply incident • Call customers registered under dialysis need code in the event of a water supply incident	• New PSR that will enable targeted support to different vulnerable circumstance categories • Ability to tailor support offering to meet customers' individual needs • Call customers registered under dialysis need code in the event of a water supply incident • Deliver bottled water to customers who require it as a result of their circumstances • Proactive communication via text message or recorded landline message to vulnerable customers affected by an incident • Proactive communication via text message or recorded landline message to a customer's nominee if the vulnerable customer is in an incident affected area • Priority contact channels to enable customers in vulnerable circumstances (including those with transient needs) to identify themselves to us during an incident

These additional service offerings demonstrate the PC is more ambitious than the current offering.

The other aspect of a stretching target is to ensure we have identified the relevant customers and have specific and up to date information on our PSR. We have combined the former DVW PSR and the Severn Trent customers in Mid Wales and then contacted each customer to ensure the PSR is up to date. As a result of this update we now have less than 0.1% of our population served on the PSR. From discussions with our customers and expert stakeholders it's clear that we have not identified everyone who might need additional support. The expert judgement suggests around 0.5% of our population served is a more appropriate target.

Historic and forecast number of customers registered on the Dee Valley/Hafren Dyfrdwy priority service register

2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
872	143	151	1000	1500	1650	1815	1997	2196	2416

During AMP6 we will be focusing on raising awareness of our PSR with customers as part of our new brand launch and with the creation of our dedicated Care & Assistance team and a trial data share with Scottish Power who are the main energy wholesaler for our region. We will continue to promote the support and are forecasting a 10% year on year increase throughout AMP7.

This step change is ambitious but is a really important step to ensure everyone who needs our help receives it.

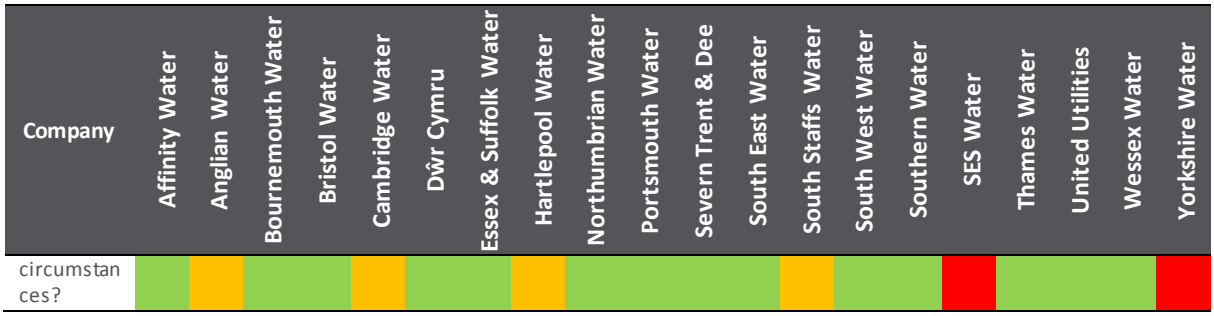
Comparative Information

We have looked at best practice across other sectors to ensure our offering is in-line with what customers experience elsewhere. We have used the CCW Priority Services Progress Review to assess our service offering compared to other water companies during a water supply event. The table below shows that in all areas, except one, we will be delivering all the service offered across the industry. The one exception is the provision of priority reconnection if supply interrupted. We have a continuous supplies focus during supply events and look to minimise the times that we do affect a customer's supply and look to restore supply as soon as possible for all customers. Also supply events can impact a number of areas within the network, therefore is it usually not realistic to specifically restore individual customer supplies.

Summary of other water company support related to water supply events reported in the CCWater 'Priority Service Register Review'

Company	Affinity Water	Anglian Water	Bournemouth Water	Bristol Water	Cambridge Water	Dŵr Cymru	Essex & Suffolk Water	Hartlepool Water	Northumbrian Water	Portsmouth Water	Severn Trent & Dee	South East Water	South Staffs Water	South West Water	Southern Water	SES Water	Thames Water	United Utilities	Wessex Water	Yorkshire Water
Advance supply interruption notice	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	y	Y	Y	y
Priority reconnection if supply interrupted	N	Y	N	N	N	Y	Y	Y	Y	Y	N	Y	N	N	Y	Y	y	Y	Y	y
Personal supply interruption notice	N	Y	Y	Y	N	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	Y	Y	y
Emergency water supply for consumers who medically need it	Y	Y	y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	y	Y	Y	y	Y	Y	y
Emergency water supply for consumers who need to take lots of medication	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	y	Y	Y	y
Emergency water supply for consumers unable to leave the property due to illness/recovery from illness	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	y	Y	Y	y
Emergency water supply for consumers who have mobility restrictions	Y	Y	Y	Y	Y	Y	y	Y	y	Y	Y	Y	Y	Y	Y	Y	y	y	y	y
Emergency water supply for consumers unable to leave the property due to experiencing mental or emotional distress such as	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	y	Y	Y	y

Company	Affinity Water	Anglian Water	Bournemouth Water	Bristol Water	Cambridge Water	Dŵr Cymru	Essex & Suffolk Water	Hartlepool Water	Northumbrian Water	Portsmouth Water	Severn Trent & Dee	South East Water	South Staffs Water	South West Water	Southern Water	SES Water	Thames Water	United Utilities	Wessex Water	Yorkshire Water
social agoraphobia																				
Emergency water supply for consumers with a cognitive disorder who are unable to leave the property	Y	Y	Y	Y	Y	Y	y	Y	y	Y	Y	Y	Y	Y	Y	Y	y	y	y	y
Emergency water supply for nursing mothers or who have children living in the house who need regular bottle feeds	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y	Y	y
Emergency water supply for those who have children under 5 living in the house	Y	Y	Y	N	Y	y	Y	Y	Y	Y	IP	Y	Y	Y	N	Y	Y	Y	Y	y
Accessible & Adaptable website	IP	IP	Y	IP	IP	Y	Y	IP	Y	IP	Y	y	IP	IP	IP	N	IP	Y	Y	IP
Nominated contact (e.g. friend, relative or carer) for incidents	IP	Y	Y	Y	Y	Y	Y	Y	Y	y	Y	y	Y	Y	Y	Y	N	Y	Y	IP
Sign language/ subtitled videos on website	IP	Y	Y	N	N	Y	IP	Y	IP	IP	IP	N	N	Y	N	N	N	Y	Y	IP
Do you have a specialist team for assisting customers in vulnerable	Y	IP	Y	Y	IP	Y	Y	IP	Y	Y	Y	Y	IP	Y	Y	N	Y	Y	Y	N



We have also undertaken an assessment of what support energy companies provide during an event to ensure we are meeting best practice across sectors. The common elements between energy events and water supply events are proactive communication and alternative supply and we have both these elements built into our proposals.

The service offering in the scope of the performance commitment therefore aligns to best in class and with the proposed growth in our PSR volumes makes the performance commitment stretching with the target of meeting our commitments 100% of the time.

Cost benefit analysis

It is not possible to attribute a financial value to the benefit that customers in vulnerable circumstances get from the support provided during water supply incidents. The benefit is qualitative in that they are able to live their lives as normal as possible in the event of the incident. The support provided aims to ensure customers can still access our services and still enjoy its benefits. It is therefore not appropriate to conduct a cost benefit analysis to determine performance commitment targets.

Overall target rationale

We are proposing a target of 100%, which is supported by our expert stakeholders and CCG. Any deviation from 100% would be aiming to fail our customers and putting them at risk. This is stretching because:

- we have embedded an ambitious target for identifying the customers who might need our help;
- the range of support is wide and represents industry and cross sector best in class support; and
- the target is 100% - we commit to supporting everyone who needs it.

ODI rationale

Our service vulnerability performance commitment will be reputational only as this is a new focus area and similar to our financial vulnerability performance commitment it would not be right to gain reward for supporting customers in vulnerable circumstances, especially as a result of an incident. We have not proposed any deadbands or caps and collars associated with this PC.

Long term ambition

We plan to continue to support 100% of customers in vulnerable circumstances into the long term. The main areas where our long term plan aims to improve are:

- Minimising the number of incidents in the first place
- Improving our business as usual processes so that our knowledge and understanding of our customers allows us to proactively identify customers before they even have to ask
- Improving the dynamic nature of our PSR so that the tailored support is always up to date including the support transient vulnerabilities.

6.2.2 Affordability – rationale and evidence

Our plan includes two performance commitments linked to affordability. These have been informed by customers, and have been shaped through discussion with the CCG. The measures are set out in detail in Appendix 3, but cover:

- the percentage of struggling to pay customers supported through tailored schemes; and
- the percentage of struggling to pay customers supported through tailored schemes who continue to pay their bill 12 months after the scheme has been completed.

We believe it is important that all customers receive services that are affordable and provide value for money. Our focus on lowest possible bills helps drive affordability for general customers and also those customers who struggle to pay. These PCs focus on the struggling to pay customers.

Regulatory guidance

We are not required by Ofwat to have a common performance commitment for affordability however Ofwat states that companies can propose bespoke performance commitments on affordability that reflect specific challenges.
Ofwat methodology includes several expectations, such as customers who are struggling to pay or who are at risk of struggling to pay their bills need easy access to assistance. Companies need to be proactive in raising awareness of the financial assistance that they offer, and in getting that assistance to the right customers.

Customer views

Outcomes from our broader social tariff and debt research told us that the journey to water debt is complex but typically relates to health issues, unemployment or income reduction & significant life events. Through this research and engagement with experts we have identified five key customer groups who we need to provide support for in different ways due to their different circumstances. These groups are:

- Long Standing
- Borderline
- Sudden and Severe
- Struggles with Finances
- New to Country

For further detail on the needs and circumstances of these customer groups see Appendix 1 – Customer insight compendium. We need to ensure our support offering helps all of these groups with both in year bills as well as arrears. Therefore we need to offer a range of affordability measures.

Customers in water debt want the opportunity to explain their circumstances to us, and receive a human, empathetic response. They want to negotiate a payment plan that is manageable for them and not to feel like they are in an inflexible, uncaring process.

Customers have told us they value the support we provide. Although water bills are of comparatively low concern to many (other utilities & mortgage/rent more important), being on a reduced tariff clearly leads to positive outcomes for recipients. The financial support provided improves customers' short and long-term financial situation and improves general wellbeing.

We have talked to customers about the level of support needed to make a difference to their lives (e.g. the size of the bill discount, the configuration of payment plans). The level of support offered by the Here2Help scheme is welcomed by most and helps recipients get back on their feet but others may need to be on a reduced tariff scheme long-term due to their circumstances. As part of our social tariff cross subsidy willingness to pay research

customers informed us that they were in favour of supporting those in need. 87% of customers are willing to contribute through their bills to help support struggling to pay customers through the social tariff scheme.

Recognising these findings from customers and experts our performance commitment is designed to take these into account and:

- we are focussing on delivering impactful help rather than spreading support thinly and not making a difference to customer lives;
- it is made up of a range of schemes with flexibility to add in further schemes as we identify new needs and new best practice;
- it focusses on the proportion of customers we support rather than quantifying the number of customers per scheme offered so we ensure we listen to changing needs and don't just target numbers on different schemes; and
- we have redesigned our social tariff scheme so we can support more customers through this but still be impactful.

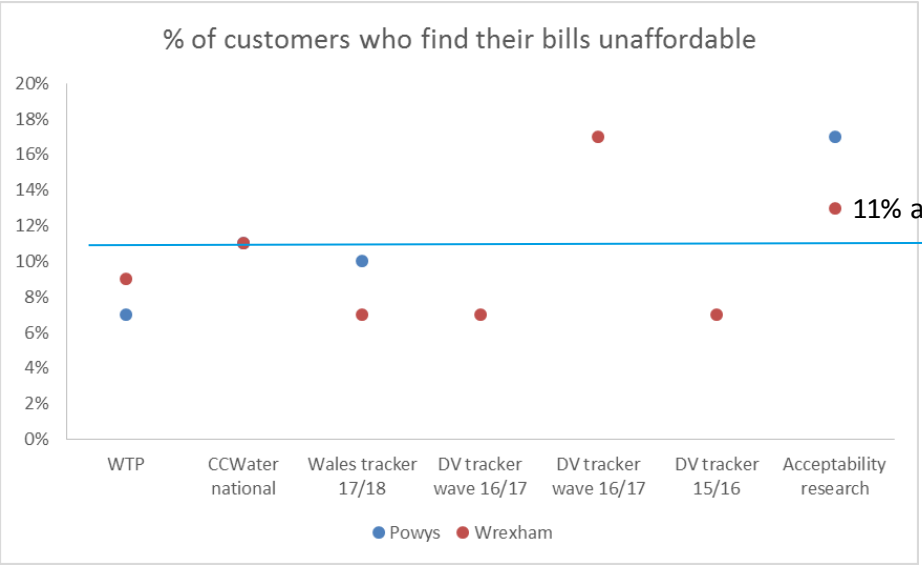
Our research also showed that it is not just income and a water bill which might mean a customer is struggling to pay, some customers find bills unaffordable due to their wider circumstances, for example they may have a large family to support or have accrued debts across a number of bills. Therefore we have chosen to go beyond the water poverty definition and consider all customers who find bills unaffordable.

Historical performance

In 2016 Dee Valley introduced the Here2Help scheme but this wasn't a performance commitment. 2015/16 year end there were 127 customer benefiting from the scheme, the figures have increased by over 100% with 2017/18 figures reported at 468.

The Watersure scheme can also help reduce customer bills and more recently, the introduction of our Water Health Checks provide valuable community engagement to make hard to reach customers aware of our schemes and services and ensure they are on the most appropriate scheme for their circumstances. We have built a robust platform over the last 12 months which we aim to further build on in AMP7.

We have used a combination of historical and comparative data to help us estimate the total number of customers who are likely to struggle to pay their bill. Our performance commitment for helping customers who struggle assumes that 11% of customers fall into this category, which is the average of the results from our research, and national research commissioned by CCWater. The Welsh Statistics, published by the Welsh Government, suggest that 24% of people in Wales were living in relative income poverty between 2014/15 and 2016/17, although water is only a small proportion of customers' bills.



We plan to review unaffordability levels after year 3 of AMP7 to assess whether our forecast levels of unaffordability remain on track. Should there have been a significant change we will undertake a full review of our service offering and performance commitment to ensure we are still meeting the expectations of both customers and regulators.

The table below illustrates the step change in support we will be making available to customers through our equivalent AMP6 performance commitment to our AMP7 performance commitment. There is additional support provided that does not form part of the scope of the performance commitment, for example Water Direct scheme, free water efficiency products, fixing leaks for free for vulnerable customers (for further detail on wider support offering see Chapter 6, outcome narrative for "A Service for Everyone".

Change in support for customers struggling to pay

Performance commitment	AMP6 commitment	End AMP6 forecast out-turn	AMP7 commitment
% of customers supported who find bills unaffordable	54%	66%	73%
Number of customers supported through social tariff scheme	c.480	c.1200	c.1700
Support schemes available	• Provide support for customers through Watersure and water Health Checks	• AMP6 schemes plus new payment plan concession support option introduced to assist short term affordability issues • Revised Social tariff criteria to make it more accessible to customers who need the support • Trial payment matching scheme to help customers with arrears	• Continue all AMP6 schemes • New debt write off scheme to be introduced to support customers who have arrears > 2 years old • New payment break scheme to give customers the opportunity to seek financial advice and/or if their circumstance means they have no income for short periods (transient vulnerability)

Comparative information

We have reviewed PR14 business plans to identify the affordability top performers for supporting customers who are struggling to pay (based on the 2019/20 performance commitment).

Target volumes of customers supported in AMP6

Company	Volume of customers supported		% customers find bills unaffordable*[3]	Proportion customers supported who find bills unaffordable (2019/20)	Proportion of HH customers supported (2019/20)
	2016/17 actual *[1]	2019/20 annual committed target			
Southern Water	194,726	217,000 *[2]	14%	81%	11%
DCWW	65,461	100,000 *[2]	15%	47%	7%
Severn Trent	50,903	50,000 (commitment) 135,000 (forecast)	11%	11% 30%	1.2% 3.1%

*[1]Data source – relevant water company APR 2016/17
*[2]Data source – PR14 FD outcome, PC and ODI base data
*[3]Data source – ST quarterly tracker nationwide survey 2017

Southern Water include a wide range of schemes in their AMP6 performance commitment, including Water Direct, which we are not proposing to include in this measure although it will still be offered.

As at 31st March 2018 we were supporting 1275 customers through the Water Direct scheme. We feel this is more of a payment option rather than a help to pay scheme so do not propose to include it in the scope of the performance commitment.

For PR19 we do not have much visibility on what other companies are doing. Northumbrian Water Group have announced a commitment to eradicate Water Poverty in their supply areas by 2030 – challenging all of its causes and making the necessary investment to make a difference to the lives of the most vulnerable customers. The scope of how they will deliver this commitment is unclear, but we believe it is broader than struggling to pay scheme support, it also includes elements of addressing social mobility.

A Thames Water draft plan option proposed to increase the number of customers they help each year from 85,000 to 300,000. This proposal is the equivalent to supporting c.45% of their customers who find bills unaffordable. Thames Water's proposal would require all customers not on the discounted tariff to pay £11 towards helping these low-income customers. We are unsure as to whether they have been successful in securing this level of support.

Our customers have shown increased support to contribute to a social tariff compared to AMP6 but less than other regions across the UK. The willingness to pay for a social tariff cross subsidy is £3.50 per year for combined bill payers (and £1.75 for single serve) which means that we can significantly increase both the number of customers who we help and increase the size of the discount we offer (from average of 30% discount to an average of 70% discount).

Cost benefit analysis

Due to the nature of affordability assistance support it is not possible to use a traditional cost benefit analysis (CBA) approach to forecast appropriate targets as the average cost of affordability assistance generally increases at the same rate benefits increase until you support 100% of customers who find bills unaffordable. However we have undertaken a cost benefit analysis for providing our affordability support based on the schemes already in place.

We have considered a number of factors when calculating the costs of providing support, such as - Manpower cost, admin costs, customer contacts and bill reduction amounts. This has been translated into an overall total cost for all of our schemes for 2017/18, including Watersure, Water direct, Social Tariff, Payment plans, our Care & Assistance agents and an External relationships Co-Ordinator (shown in data table App4).

Rationale for target

Our commitment is to provide financial support to 73% of the struggling to pay customers (which represent 11% of our customer base). We believe this is stretching because:

- it represents an additional 600 customers receiving support compared to 19/20, who we have to identify and work with them to agree the best support, who we need to identify with no increase in costs;
- this is likely to be within the upper quartile of the industry, currently second only to Southern water. Other companies are signalling ambition but initial analysis shows that 73% will still be in the top quarter;
- the breadth of our schemes means we will be providing support that covers the needs of the five different customer groups (see Chapter X: Service for Everyone for further detail on how the schemes support their needs). This has been reviewed by experts and challenged by our CCG; and
- in addition to the schemes in the scope of the performance commitment we will be supporting customers through other assistance mechanisms, for example Water Direct to support customers in receipt of benefits and through our dedicated Care and Assistance team who can provide advice and support.

ODI rationale

Our Here to Help you Pay performance commitment will be reputational only as we feel it would be inappropriate to gain reward for supporting financially vulnerable customers as this would further impact affordability. We believe the reputational impact of not achieving the performance commitment is a strong enough incentive.

Long term ambition

Our long term ambition is to support 100% of our struggling to pay customers, through a triple track approach:

- by improving the efficiency of way we administer the support so that as much of the social tariff goes directly to customers;
- working more collaboratively with other support services to both improve the awareness of the support, the ease of application but also to make sure those who need it most are helped; and
- to improve our feedback and engagement with the customers who contribute to the social tariff so that they can see the benefits of their contribution, which will increase customer satisfaction (increase trust that we are using their money wisely) and the likelihood of the cross subsidy continuing in future periods.

6.2.3 Effectiveness of financial support – rationale

We have been challenged by our customers and CCG to prove that the support we offer to customers to help them pay their bills is effective and helping them out of debt for good. Whilst it is relatively simple to demonstrate that the schemes support customers in the short term, reducing the level of debt and getting them to a position where they can pay their bills, it is much more difficult to prove that the schemes have a sustained, lasting effect – helping those customers to make changes to their lives that mean they can stay out of debt in the future.

We are supportive of this idea but recognise that we do not currently have the answer to how to do demonstrate this successfully. Some of the schemes were are offering are new, both in the remainder of AMP6 and throughout AMP7. Whilst we are confident that they will all help customers reduce their level of debt, we cannot, at this point, demonstrate how successful they will be at embedding a sustained change.

We are committing to explore this further and have included a performance commitment for AMP7 that will track the number of customers who manage to remain debt free for a 12 month period after they have completed a payment support scheme.

The performance commitment will be developed further over the next 18 months in collaboration with our customers and stakeholders to ensure the final definition gives a real reflection of how effective our support schemes are. Once confirmed, we will use the first year of AMP7 to set a baseline level of performance, from which we are committed to show year on year improvements.

6.2.4 Compliance with the Welsh language scheme

Regulatory guidance

This is a company specific measure and therefore there is no regulatory guidance.

As a company operating wholly in Wales, we are fully committed to treating Welsh and English languages on an equal basis, as required under the Welsh language Act 1993 and the Welsh Language (Wales) Measure 2011. We are committed to helping the Welsh Government with their Cymraeg 2050: Welsh language strategy, which aims to achieve a million Welsh speakers by 2050. The details of our statutory obligations are set out in the enhancement business case for the Welsh language scheme in Appendix 4

Compliance with the scheme is monitored through an annual audit process and periodic review by the Welsh Language Commissioner. We have addressed Ofwat's feedback on the May submission and updated the definition as set out in Appendix 4.

Customer views

We have tested customers' views and it is clear that the Welsh language is part of what it means to live and work in Wales and is a recognised part of Welsh culture and heritage. We have taken several opportunities to understand their views and there are four pieces of research that we have reviewed to understand customers' views about this service offering to help us decide how best to respond to our statutory obligation.

- qualitative research as part of the licence variation;
- qualitative research to understand customers' needs and expectations;
- customer tracker survey; and
- specific research on the proposed performance commitments and incentives.

In the first three sources customers were asked a variety of questions aimed at understanding their expectations, priorities and how we could improve services. In each case customers indicated that they think it is important that we retain the Welsh identity and anecdotally people placed importance on small details like a bilingual greeting on all phone calls and bilingual branding on the company vehicles. The notion of a local business and how this improved trust was a common theme across the research packages and when prompted further for examples of what a local company does or means to them some respondents raised the importance of retaining the Welsh language services.

Through our performance commitments and incentives research we specifically told customers what Welsh language services we are offering and then asked customers if they were acceptable or if they would prefer to pay for increased offerings (£1 more on bills) or receive a bill reduction (30 pence off bills), which reflects the minimum services that still enable us to meet our statutory requirements.

73% of respondents said the proposed offering was the most acceptable. There was a broadly equal split between those who would be happy to reduce to the statutory minimum and those who would like to enhance the offering further.

In the round, research shows that customers do value and place importance on the Welsh identity and that it is important for them to have the choice to communicate with us in either English or Welsh. There was clear acceptance of the services but no compelling evidence to do less or go beyond the statutory requirements.

The number of customers currently engaging with us in Welsh is much lower than this evidence would suggest. Through our PR19 research, several participants talked to a researcher in Welsh when first discussing what the research was about, however, when it came to actually completing the research questions very few people elected to complete it in Welsh. Out of 500 willingness to pay surveys with household customers, two were conducted in Welsh.

Historical performance

Dee Valley had a Welsh Language Scheme in place but this was not monitored and reported on in the same way that we are proposing so there is no historical information that we can provide to support this. The previous Severn Trent customers in Mid Wales received an approved but lower standard of service and that scheme has also not been monitored and reported on in a regular way.

Comparative information

DCWW are the only other company who have this statutory obligation. However other companies do provide services in multiple languages to reflect the diversity within their regions. This is not a comparative measure and therefore this has not formed part of the target setting.

Cost benefit analysis

The costs associated with providing this service are set out in the enhancement business case in Appendix 4. However as this is a statutory requirement, cost benefit has not been used to derive an appropriate target – as we must deliver 100% compliance.

Overall rationale for target

Our target is to achieve 100% compliance with the Welsh language Scheme. We are not claiming that this is an ambitious or extremely stretching target (as we already operate at 100% compliance), but it is an additional service that we provide at no extra cost to our customers. Its inclusion in our suite of PCs is in part to drive the right behaviours and culture internally and also to demonstrate to our customers and stakeholders that we are taking our responsibilities seriously.

Long term ambition

We will continue to ensure we fully comply with our statutory obligations but also engage with our customers to ensure our offering meets their expectations.

We are developing a long term strategy that reflects the wider policy ambition, which includes aligning our education programme and graduate and apprenticeship recruitment policy to ensure we can meet the estimated future demand on Welsh language services in a sustainable way.

ODI rationale

This is a non-financial incentive. There are already mechanisms in place through the Welsh Language commissioner to administer penalties if we are not compliant with our statutory obligations. Performance is aiming for 100% so there is no scope for rewards.

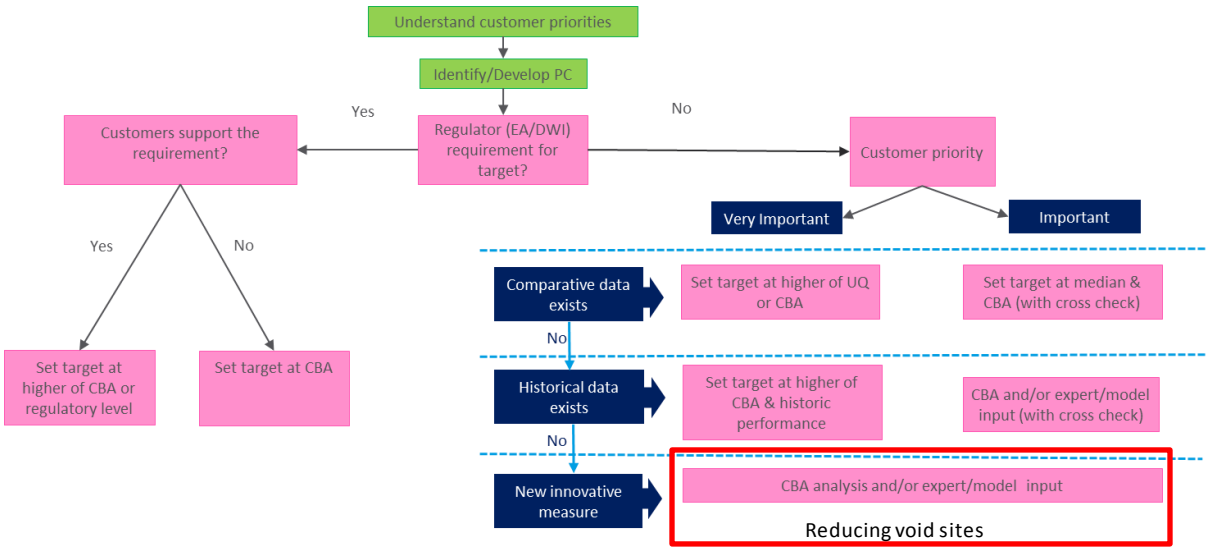
7. Outcome: Lowest possible bills

There are several aspects to our approach that will continue to help us deliver the lowest possible bills. The outcome narrative "Lowest possible bills" in chapter 6 describe this. The bill itself is the main measure for this outcome and clearly there are overlaps with the performance commitments set out in "A service for everyone", which track the support we offer to customers who struggle to pay their bill and the effectiveness of that support. In additional to these measures this outcome includes a performance commitment on the reduction in the number of void properties.

Summary of performance commitments for this outcome

retained	new	Removed/ discounted
Mandated by Ofwat	-reduction in the number of void sites	-reduction in the number of gap sites
Customer driven		
Company or CCG driven		

The diagram below shows where it sits on the framework, which shows the primary target setting methodology.



7.1 Voids – Rationale and evidence

This is a performance commitment required by Ofwat, but without a specified target. We have applied the methodology shown above and concluded the target should be based on the cost beneficial level cross checked using expert judgment.

A void property is defined as one connected for water services that is thought to be unoccupied and is therefore not billed. The number of billable voids is measured on an annual basis for each financial year (i.e. 1st April – 31st March). The performance commitment measures the change in void properties year on year. The detail of how it will be measured is set out in Appendix 3 and has been updated to reflect the feedback received from Ofwat on the May submission.

Regulatory guidance

Ofwat has outlined their expectation that water companies are responsible for ensuring their bespoke performance commitments are designed in an appropriate way. This will allow us to spread our costs over a larger number of customers thus reducing bills and improving fairness and affordability for our billed customers.

The guidance on voids is as follows:
"The company will explain their level of voids; and their plan will make proposals to identify and manage voids and gap sites".[5]

Due to the fact that our non-household customers are not in the open market we do not see any value in separating the household and non-household void targets.

We are not proposing a performance commitment for gap sites because of the increased difficulty in establishing a robust and reliable measurement method. We have reviewed how other sectors approach this problem and the most viable approach is to compare the number of billed supply points between utilities, adjusted to reflect the same supply area. This approach is problematic for Hafren Dyfrdwy due to the high proportion of customers that have a private water supply, but don't have a private gas or electricity supply. In the current AMP, companies are dis-incentivised in pursuing void properties and bringing those which are wrongly classed as unoccupied into charge.

This is firstly due to companies' revenues being subject to a revenue cap (known as the Wholesale Revenue Forecasting Incentive Mechanism (WRFIM)). Through this mechanism, any revenue collected over and above those allowed for in our PR14 final determination is adjusted for in the following period. Secondly, void properties historically have a very high debt rate so billing void properties incurs extra bad debt costs, leaving the company in a net negative position. The introduction of this PC is intended to address this imbalance.

Customer views

Our research consistently shows that customers place a high value on receiving value for money; having the lowest possible bills is one component of this. We have not asked customers directly for their views on void sites or about the level of performance they would expect in this area. But it is clear that they expect bills to be fair and as low as possible, so it is clear that customers would welcome any progress to improve this.

[5] Ofwat (Dec 2017), "Delivering Water 2020: Our methodology for the 2019 price review – Appendix 13: Initial assessment of business plans," p18

Historical performance

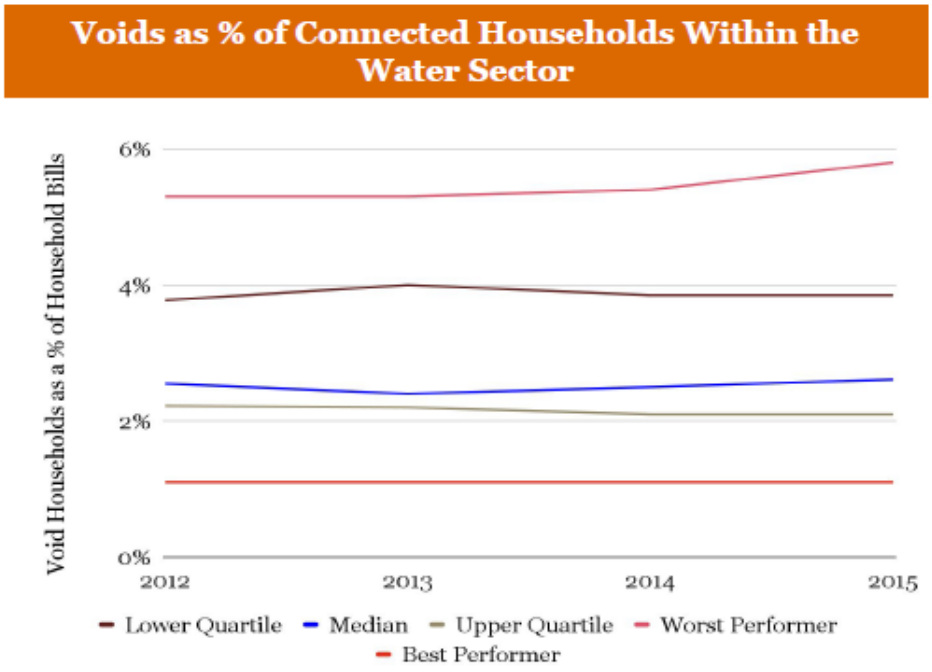
We are starting from a position at 2017/18 where we have seen the number of residential voids increase over the last 2 years in Dee Valley. In the last 2 years of AMP6 we plan to stop the increase as shown in the table below.

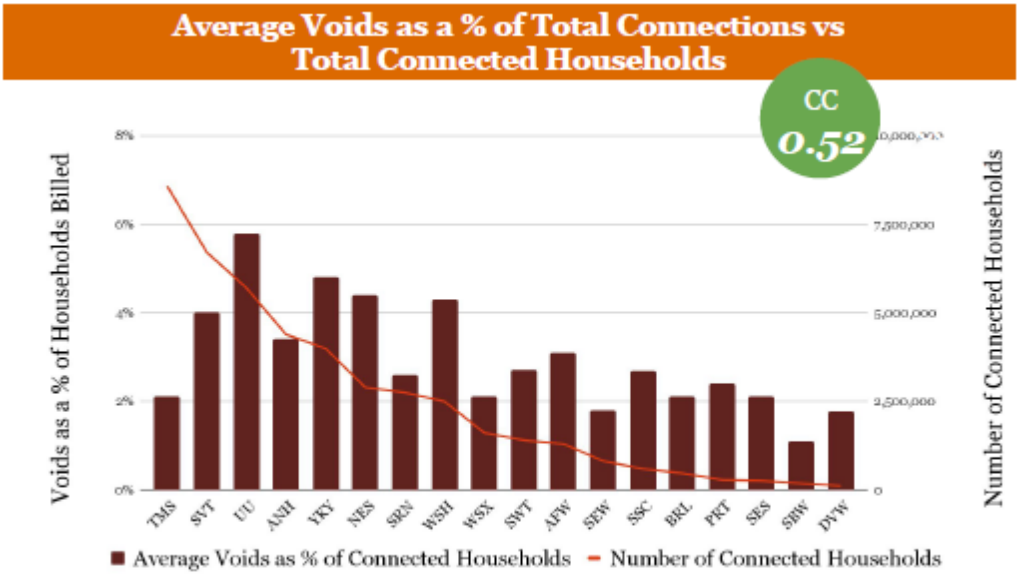
Number of void properties	15/16	16/17	17/18	18/19	19/20
Dee Valley Wales	2,323	2,249	2,514	2,514	2,514
Severn Trent Wales (Mid Wales)	4,494	4,966	4,709	4,709	4,709
Hafren Dyfrdwy	6,818	7,216	7,223	7,223	7,223

15/16 & 16/17 voids for both DV Wales & ST Wales have been calculated on the same % of 17/18 voids.

Comparative Information

The only source of comparative information available to us can be found in the 2017 debt report prepared by PWC for Ofwat. The figure below shows that the industry average is around 2.5% and upper quartile is around 2% of connected household properties. Our performance would put us comparable with the worst performers across the industry. This is in part due to the rural nature of our region. As we can see from the PWC chart that DVW was below the industry average and Seven Trent was above it but by no means the worst company. But when Mid Wales is extracted and Chester removed it completely changes the overall performance, to a worse picture.





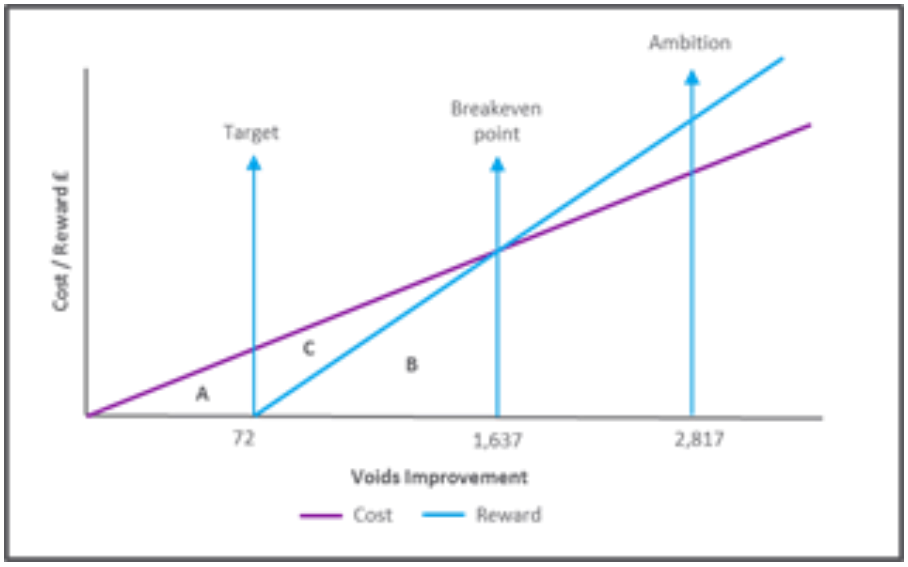
Cost benefit analysis

The reduction in voids delivers a benefit to customers through lower bills, as any additional revenue brought into charge is recycled through the wider customer base (via WRFIM). From a company perspective the benefit of bringing voids into charge is equal to the additional retail revenue and the incentive rate.

The most significant costs associated with delivering this performance relate to a significantly heightened level of bad debt risk. Although our bad debt rate is amongst the lowest in the sector, the bad debt risk associated with void properties is much higher. Recent trials indicate an 85% bad debt risk with billing void properties.

The PC level of a 72 reduction in void properties over the AMP therefore incurs this additional bad debt cost, offset by the retail revenue, leaving a cost burden within Hafren Dyfrdwy. Any reduction in the voids pot over 72 will attract the ODI reward, however to get to a breakeven point HD will need to reduce the voids pot by 1,637 over the AMP (illustrated below) so whilst the target is relatively low this results in HD needing to reduce the voids pot by 1,637 (23% of the current voids pot) which is a significant & stretching target.

Performance beyond the breakeven point of 1,637 will deliver marginal gains to Hafren Dyfrdwy, however will still deliver benefits to customers by spreading costs over more properties.



PC	Unit	Forecast (2019/20)	Target 2025	Improvement
Reducing residential & business voids	No	0	72	72

In absolute void properties this means:

Year	Connected Properties	Voids	% Voids
2017/18	100,453	7,223	6.9%
2018/19	105,503	7,223	6.8%
2019/20	106,199	7,223	6.8%
2020/21	106,910	7,209	6.7%
2021/22	107,673	7,194	6.7%
2022/23	108,485	7,180	6.6%
2023/24	109,311	7,165	6.6%
2024/25	110,152	7,151	6.5%
AMP 7 Reduction		**-72**	**-1%**

Rationale for target

The target has been set based on a balance of:

1. costs associated with bringing these properties into charge; and
2. the process improvements that can be implemented at no significant additional costs to ensure we are meeting this target without increasing the costs for our customers.

The target also takes into account the additional bad debt risk associated with bringing void properties into charge.

We believe this is stretching because it is likely that we do have a higher proportion of genuinely unoccupied voids. The combination if high deprivation and very rural areas makes it both more expensive to find and more likely that there are abandoned properties, especially business properties. Given the DVW company level

household voids was around 2% and business is 19% (which are almost all metered) suggests there is reduced scope of finding occupied voids to bring into charge.

ODI rationale

To mitigate the bad debt risk, we have proposed an outcome delivery incentive payment for this performance commitment. The incentive rate is set at a rate slightly lower than the bad debt rate (which incentivises improved performance) whilst the extra revenue generated offsets the bad debt risk leaving HD largely cost neutral whilst still delivering a benefit to customers. The incentive rate will stretch us to become more efficient at identifying void properties that are occupied and then bringing them into charge.

We are not proposing any deadbands or caps.

Under the (WRFIM) revenue cap, the adjustments for additional revenue recovery that take place in the subsequent period would be expected to leave companies indifferent to collecting voids. However, because void properties also have a very high incidence of debt (around 85% in our latest analysis) billing void properties actually results in extra bad debt costs that disincentivises the pursuit of voids. Nevertheless, even with the potential for bad debt, customers stand to benefit from reducing residential voids. This is because bringing a void into charge means that, at least, some revenue will be generated where there was none before, thereby reducing the need for other customers to bear the costs associated with residential void sites.

The aim of the ODI is to incentivise the company to resolve voids, so we have set it using the combination of the average 2017/18 annual combined bill of £237 and the water-only bill of £161. And, to incentivise improved performance, we have included a slightly reduced bad debt rate of 80%. This implies an average bad-debt of either £190 from combined bills or £129 from water-only bills, for each void brought into charge. Taking 50% of this value, then applying the 20% uplift gives an in-period ODI for each void property brought into charge over the annual target of £114 for combined bill sites and £78 for water-only premises. The ODI will be reward only, because applying a penalty for increases in voids would disincentivise their identification – voids are unknown until the point of discovery.

Long term ambition

As a percentage of total properties the number of void sites is comparatively high. During AMP7 we will improve our understanding of these properties and improve the efficiency of bringing them into charge. Assuming a large proportion of these properties are incorrectly recorded as voids and are occupied then we will take a phased approach to realign to the industry average and upper quartile.

	AMP7	AMP8	AMP9	AMP10	AMP11
% of voids	6.5	5.5	4.5	3.5	2.5
Number of void properties	7,151	5,922	4,919	3,800	2,700

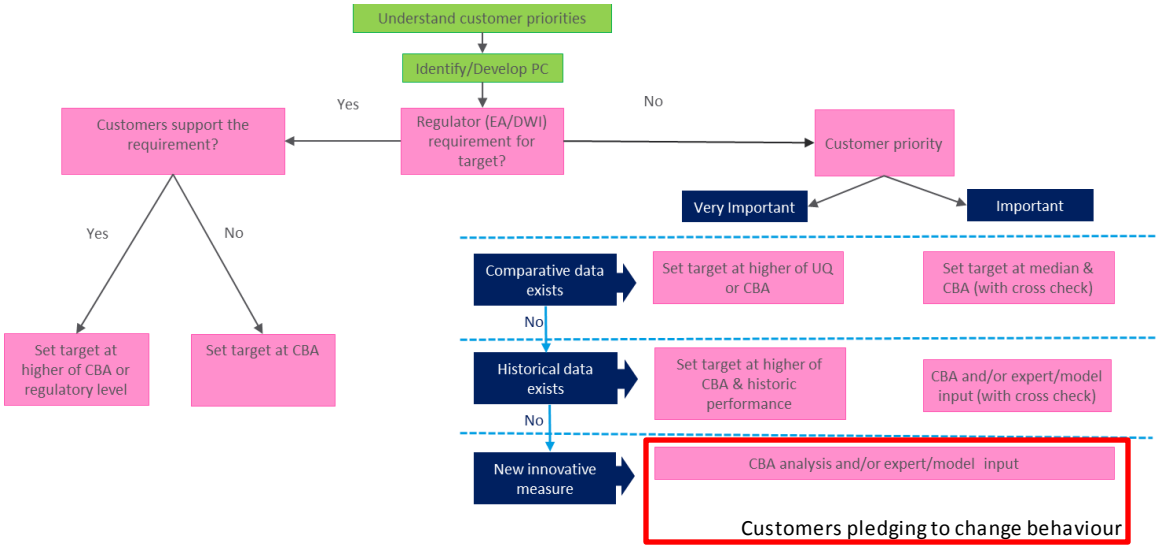
8.1 Outcome: Making a positive difference (in our communities)

There are several aspects to our plan that have a positive impact on the communities where we serve. The outcome narrative "making a positive difference" in chapter 6 describe this. The only performance commitment included that falls entirely in this outcome is our customer education programme.

Summary of performance commitments for this outcome

	retained	new	Removed/ discounted
Mandated by Ofwat			
Customer driven			
Company or CCG driven		-customer education	

The diagram below shows where it sits on the framework, which shows the primary target setting methodology.



8.1 Inspiring our customers to use water wisely – rationale and evidence

We are proposing a bespoke PC that is defined as the number of people who have agreed to change their behaviour as a result of our educational activities. The definition is set out in detail in Appendix 3 which has been updated following Ofwat feedback on the May submission.

Regulatory guidance

This is a company bespoke PC and therefore there is no regulatory guidance on the appropriate target.

Customer views

Across all of our research one common theme emerges - customers expect us to be more proactive in our communications to engage and educate them. This includes more effective education about water efficiency and sewer use.

In our qualitative customer needs research we find that customers were very enthusiastic about educational visits, and would welcome more information. They saw a role in promoting good water saving behaviours, providing information about what can't be disposed of down sinks and toilets and promoting visitor sites / reservoirs. They thought it was most important to focus on children (teaching them good habits for later life), but there was also an appetite for educational visits for adults.

"I think it's a good thing. Kids turn on the tap and run a bath to the top, and they need to think about where their water comes from."- Customer needs research, Mid Wales

Whilst this is purely qualitative insight, our findings are consistent with insight from quantitative research. In our willingness to pay research we asked customers to prioritise their top three, from a range of additional services. Education in local schools was the top priority in North Wales, and the second highest in Mid Wales. The latest wave of our customer tracker tells us the greater trust amongst household customers could be leveraged through enhanced visibility in the community, and "educating school children to help protect the environment" was considered by respondents to be the second highest from a range of activities the company could do to more of to protect or improve the environment (after reducing leaks).

"[To improve my trust in them, DVW need to] be more visible in the media and put more information in the local papers." – Customer tracker, North Wales

In the PCs and ODIs research we found that the customer education was the most acceptable of all the PCs presented to customers, with 95% of household customers, and 94% of non-household customers finding the proposal acceptable. Customers saw this PC as a key priority, and education of customers and school children about conserving water and avoiding blockages is mentioned spontaneously. Customers saw the link between education and some of the other service issues we discussed with them, such as blockages. The use of digital media, virtual reality and interactive experiences is seen as a good idea, making the message more memorable.

"It is a good idea because we weren't educated when we were younger on water and we take it for granted" – PC and ODI research, household customer, Mid Wales

"Excellent to target that for the next generation, but we probably all need more education as well" – PC and ODI research, non-household customer, Mid Wales

Historical performance

We have never recorded or measured the impact of our education programme so don't have any historical information on which to base the target.

Comparative data

This is a bespoke measure and whilst other companies do carryout various engagement and education programmes there is no publically available information that can be used to help us define the target.

Overall rationale for the target.

We want to give all children an opportunity to experience our innovative engagement programme. We have calculated the target on the following basis:

- a more immersive programme of education targeting behavioural change rather than number of touch points;
- the number of schools in our region where the age groups align with our target for the education programme; and
- an assessment of the number of schools we will be able to make a successful partnership with.

Long term ambition

We are not committing to a long term ambition on this measure. The reality is the type of education, and the best way to deliver it, can vary over time. As the messages around water efficiency and sewer misuse embed the need to re-educate people will reduce. However, future pressures may require education about a completely different topic. As such we will review the scope and type of education programme as part of PR24.